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Co-Investments of Sovereign Wealth Funds in Private Equity

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Keywords: Sovereign wealth funds, Private equity, Venture capital deals, Financial markets, direct investments

JEL Classifications: G32, G15, G38

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1. Introduction

Sovereign wealth funds (SWFs) represent a growing strategic and financial concern for regulators and market participants around the world. This coincides with the major changes in the pattern of investment and substantial growth of assets controlled by SWFs since the end of the financial crisis. A significant amount of growth in assets can be attributed to the dramatic increase in the number of countries that have established SWFs to manage their reserves and assets. In terms of total assets under management, the amount has been estimated at $4 to $6 trillion[1]. The impact of the large stakes of SWF investments may affect valuations in particular sectors of markets, contributing to inaccurate pricing and volatility. Despite the slowdown of capital inflows, SWFs are expected to continue to grow their assets under management and also to allocate their wealth in different types of investments.

Why do regulators and policymakers concern themselves about the investment activities of SWFs? Traditionally, SWFs have invested in a wide range of debt instruments and equity instruments in order to pursue their investment objectives. As a result of their rapid accumulation of assets, SWFs have become major investors in the global financial markets, which is also extended to the less traditional asset classes (Aguilera et al., 2016; Al Hassan et al., 2013; Bortolotti et al., 2015). Several factors may lead to discomfort: for instance, the absence of transparency of SWFs regarding their choice of governance structure, investment activities and influences on the strategies shaping their asset allocation policies. A further discomfort for policymakers is that some SWF investments may be politically motivated which could lead to excessive risk-taking

[1] Various estimates of the total number of assets controlled by SWFs exists due to transparency and definitions. Preqin (2015) reports an estimate of US$ 6.31 trillion for the asset under management for all SWFs, whereas (Bortolotti et al., 2015) estimates a size of US$ 4.98 trillion for the major SWFs.

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(Chhaochharia and Laeven, 2009; Karolyi and Liao, 2016). While prior literature tends to be undecided on whether SWFs resemble institutional investors in primarily seeking financial return on their investments, it is essential to recognize that the capital flows triggered by SWFs could affect financial assets (Bortolotti et al., 2015). In particular, markets with less liquidity may be affected by these price pressures (Hendershott and Menkveld, 2014).

Empirical studies have started to assess the market impact of SWFs. Much of this literature has focused on the short and long term influence of SWF investments on the shares of publicly listed companies (Dewenter al al., 2010; Kotter and Lel, 2011; Bortolotti et al., 2015). Observers point out that SWFs may have a potential distorting effect on equity markets. Empirically, researchers find no substantive negative impact, suggesting that the depth and liquidity of public equity markets are quite large. However, examples of price influences do exist. Consider the January 2016 drop in global equity prices due to the price pressure from SWFs that receive their income from natural resources. SWFs withdrew their assets from public markets to finance state expenditures as a consequence of the prolonged low price of oil. Thus, while SWFs are typically assumed to be long term investors that can sustain periods of crises, they were unable to maintain their portfolio holdings due to their liabilities. This example suggests that SWFs may be less able to pursue long term investments than previously thought, but also that state-enterprises can have a direct market impact.

The alternative view challenges the price pressure account of SWFs. Proponents argue that SWFs tend to have beneficial impact on financial stability (Beck and Fidora, 2008). As long-term investors, SWFs invest principally in public equity and debt and mainly have unleveraged positions. Since SWFs tend to pursue portfolio reallocations as a gradual as possible, this usually limits the adverse price effects on their transactions. Additionally, and perhaps the most important

factor, is the ability of SWFs to provide liquidity to the markets when private market participants require withdrawals. Since SWFs have a longer investment horizon they are less constrained in their ability to overcome liquidity issues that trap private investors. For example, SWFs provided support for the financial intermediaries and banks during the financial crisis in 2008. Another more recent example is the liquidation of British real estate funds after the turmoil of Brexit, where it was possible for SWFs to provide liquidity in the market. In this light, large exposures to their own market in the form of debt and equity financing can contribute to the growth of local financial intermediaries and various markets.

In this paper, we empirically examine the evidence on the role of SWFs meeting the financing needs of private enterprises. It is noteworthy that in this current economic environment with low yielding government bonds, a search for yield has also reached many SWFs. And, as we'll see later, many institutional investors and SWFs are focusing on private equity as an additional source of return. However, such strategies raise many questions about the depth of the market for private equity. By contrast, prior work on SWF investments has typically focused on the security holdings of publicly-held companies. One of the particular concerns highlighted in this paper and earlier studies is the high concentration of investments in specific publicly listed firms by SWFs. They study the particular attributes of SWFs as institutional investors such as their lack of explicit liabilities, long-term investment horizon and ability to acquire large stakes, in establishing the differential investment impact on publicly listed firms (Bortolotti et al., 2015). More recent studies, however, examine the motivations that influence SWF investment strategies, suggesting the involvement of political motives to explain their investment strategy (Knil et al, 2012; Dyck and Morse, 2011). Similarly, Johan et al, (2013) examine the factors that appear to influence SWF investment in private equity compared with public equity. To date, however, there is very little

work done on SWF investments in privately-held firms and other direct investments with illiquid prices such as infrastructure and real estate. In this paper we believe that our research bridges that gap in the literature.

Our paper is related to a number of works that explore the determinants of direct institutional investment in private equity (Fang et al., 2015). In the traditional model of investing in private equity, investors as Limited Partners (LP) hold interest in a private equity fund that is managed by a General Partner (GP) which is typically a reputable private equity firm. The pressure on management fees and transparency in the financial industry has also affected this private equity investment model (McCahery and Vermeulen, 2016). Instead of regarding private equity as a passive investment through a private equity fund, institutional investors have become heavily involved in making large direct investments in listed and unlisted firms. In the case of a direct investment, large investors are attracted by the potential for greater control and reduced savings on fees and carried interest charged by GPs (DaRin and Phalippou, 2014; Phalippou, 2016).

To understand why direct investment strategies are becoming increasingly popular, we need to consider the two models of direct investment. The two distinct modes provide different entry options. First, there is the model of solo direct investment in which the investor or LP sources and makes the investment directly bypassing the financial intermediary without paying a fee and carry. There may be substantial benefits for investors to source and monitor their investments. Not only can this type of investment structure limit agency problems, but it may also reduce suboptimal performance by refraining from investing in peak periods. Thus, a solo direct investment that allows investors to execute and manage their own strategy and risk exposures may lead to optimal performance. At the same time, the downside risks of direct investing are the costs of developing

an aligned management team with the investment experience and skills for selecting and monitoring target companies as well as generating performance.

In the second model, co-investments are made by the LP alongside with a GP. The management fee and carry are paid by co-investors on a case by case basis. There may be substantial benefits to investors to turn to direct investments through co-investment. Co-investing can help SWFs to deliver more return to the portfolio through better informed agents in selecting higher quality portfolio companies. It is likely that the LP will benefit by co-investing alongside the GP. Moreover, higher bargaining power is associated with GPs souring their better deals to their more active co-investors along with a reduced fee for better-performing deals. Due to capital restrictions and risk control, private equity funds have limitations on deal size for their target companies. To overcome these hurdles, private equity firms may offer to co-investment with LPs in the target companies. In fact, GPs may prefer to co-invest with SWFs rather than other LPs not only because of their large wealth, but they may also infer that there is the potential to raise more capital from public entities. On the one hand, GPs are free to grant LPs a discount on the management fee and carry structure. On the other hand, if GPs choose the larger riskier deals which involve co-investment, then they may have additional risks and lower returns. In fact, private equity firms typically focus on a specific part of the market and may not have the expertise for larger deals. Moreover, to the extent funds engage in large co-invested deals, they have greater potential for agency problems. Last, this may lead to higher risk as SWFs will have more concentrated portfolios than the LPs.

In this paper, we use a dataset of governmental owned entities' deals in direct investments. The most popular transactions in our dataset involve the creation of governmental funds by large pools of capital (66%). The dataset also includes the direct investments and co-investments of SWFs in

alternative assets. In this context, while some of the co-investments include established funds that are managed by a GP, most of the larger deals will be under the sole control of the SWF. Looking at the remainder of the deals in our sample, they involve a substantially lower level of governmental capital commitment (29.6%). To finance the remaining capital and expertise, additional LPs are required. We find an average number of 2.36 LPs in our sample. Finally, deals that are solely funded by governmental capital have a lower number of LPs (1.49) and include only SWFs.

We explore the role co-investments can play in making risk capital available to SMEs and young firms in emerging and developing countries. Prior work on SWF investment in private equity has highlighted the role played by political motivation in identifying the choice of firm or the location of those investments in privately-held firms (Bernstein et al., 2013; Johan et al., 2013). Our data reveals the preferences of SWFs to invest in local and similar markets. We find evidence that most direct investments of SWFs are subject to geographical influence. We further consider the influence of management practices, due diligence and the corporate governance of the target firms on the investment decisions of SWFs. Similarly, our results also imply that co-investment can only prevail under regulatory stability. Due to the associated risks of co-investment, SWFs may counter risks and asymmetric information by investing in local or similar markets. We find that the majority of the deals involve global projects with a co-investment structure includes an average of 2.89 LPs. We add to this literature by showing that some of these investors are also development funds that finance investments in emerging markets, and are motivated not only by expectations for strong markets returns perspective, but also of enhancing public equity markets in the region.

Our paper makes several contribution to the literature on SWFs. First, we extend on earlier work showing the growing number of SWFs undertaking direct investments in private equity after the

alleged slowdown after the financial crisis. Our results complement recent studies that find the effect of SWF funds involvement in the financing of firms and other direct investments, which can create hidden risks and overvaluation of illiquid assets classes. We also provide theoretical and empirical insights about the government funded private equity. Second, our analysis sheds light on current practices in direct investments through co-investment arrangements by SWFs, including average deal size, number of co-investors and industry segment of the investment. Finally, our results are consistent with the view that direct private equity investments continue to gather state funds in the developed rather than underdeveloped markets.

This paper is organized as follows. Section 2 describes recent trends in the investment activities of SWFs and relates them to the pattern of co-investment made between SWFs, private equity funds and other institutional investors. Section 3 introduces the sample of private deals. Analyses are also presented on deal structure and target firm investment. Section 4 concludes.

2. Governance of sovereign wealth funds on alternative asset allocation

In this section, we begin with a review the characteristics of different types of SWFs. Next, we focus on the asset allocation approach used by SWFs in determining their alternative investment allocation. We then discuss the literature on the market impact of SWFs.

Governments have many reasons to invest in financial assets. In general, there are two views in the literature. First, there is a view that state entities are created to manage financial assets with specific long term investment goals. Examples include savings to meet future liabilities and budget stabilization through managing reserves. For the most part, these funds are established as a SWF to finance government ambition through the investment of surpluses on commodity resources, foreign currency reserves, budget surpluses or by specific saving premiums. Second, SWFs are

involved in national development finance projects in their own countries and sometimes in developing economies (Nurbeck, 2007; OECD, 2008). Thus, the major economic motivation is to invest in real assets to contribute to the economic and financial development of emerging economies and stabilization of local markets.

While there are numerous theoretical and empirical accounts of the development SWFs, their primary focus is to finance and stimulate public investments. The commonly accepted reason to invest in macro-economic projects is to limit or mitigate potential market failures. Direct market failure may lead to government intervention to boost long-term strength of an economy (Stiglitz, 1994). The idea is that governments can smooth market cycles by generating a stimulus and hence limit the impact of market recessions. For instance, tight credit markets may cause enterprises to halt viable projects, leading to stagnation in the short term. It is very likely that improving the credit facility to firms helps to boost the economy and shorten the duration of the impact of market events.

Second, public investments in the economy may be necessary due to the lack of private finance (Myrdal, 1968). A classic example is infrastructure projects. At the other extreme, however, the development of specific business ventures such as the European Silicon Valley may fit this example as well. While private institutions may face higher hurdles to locate private funding, due to the large risks associated with these projects, governments can limit potential externalities by offering funding to specific sectors (Stiglitz, 1994; Bruck, 1998). For example, an important group of state-owned investment vehicles include: Caisse des Depots, European Fund for Strategic Investments, European Investment Bank, and the US Small Business Administration.

The experience of state-owned investment institutions is not uniformly positive. For instance, state-owned development banks have regularly been criticized for misallocating credit and other inefficiencies associated with political factors in developing countries (La Porta et al., 2002; Ades and Di Tella, 1997). Another type of criticism, more predominant in developed markets, focuses on inefficient project selection leading to investment in unprofitable projects. Other factors likely to influence the level of such concerns regarding state institutions include taking on excessive risk, interfering with healthy competition and crowding out the private sector, resulting in the growth of vast uncontrollable national empires.

We mentioned earlier that SWFs entered into the picture as the vehicle for governmental investments. While it is true that there are many different types of SWFs, there is little consensus on any formal definition of SWFs. SWFs are a heterogeneous group of state entities with financial assets with various investment objectives. There are five specific categories of SWFs, as illustrated in Table 1. We will use the IMF categories of fund objectives to help define the term SWF.

Table 1: Categories of SWFs

Category	Objective of the fund
Stabilization fund	To minimize the effect of a State's budget and economy against commodity price fluctuation
Saving funds	Accumulating capital for future generations, which aim to convert nonrenewable assets into a more diversified portfolio of assets
Reserve investment corporations	Seeking the increase the return of reserve assets.
Development funds	Improve socio-economic projects and/or promote macro-economic growth
Contingent pension reserve funds	Provide returns for governmental pension liabilities

The importance of the definition is crucial for the purposes of determining the specific government entities that fall under the notion of SWFs. Several researchers have attempted to describe the notion of a "SWF." Truman's (2008) argued that the SWF is best viewed "as a descriptive term for a separate pool of government-owned or government-controlled financial assets."[2] As this definition suggests, there are a broad variety of governmental financial institutions that fit within this category. For example, many central banks may fall under the scope of this definition. In contrast, Balding (2008) puts forward a narrow definition that proposes only to identify a state

[2] In Truman, Edwin, 2008, "A Blueprint for Sovereign Wealth Fund Practices", Peterson Institute for International Economics Policy Brief, Number PB08-3, p. 1.

fund as a SWF if their investment objective is to aim for a return above the risk free rate. Another constraint to the general definition as put forward by the IMF is whether SWFs invest in foreign assets. Development funds may, for instance, not qualify as a SWF under this narrower definition, but would be classified a SWF under the Truman definition.

Overall, SWFs are state entities that have diverse investment objectives and sources capital, leading to various investment guidelines and investment destinations across these funds. To further explore the consequences for their allocations, we examine the investment strategies and portfolio holdings of SWFs in order to evaluate the magnitude of their alternative investment exposure.

2.1 Alternative investments by sovereign wealth funds

Strategic asset allocation depends on the investment objectives of the investor, risk tolerance and time horizon. For private institutional investors, these investment objectives may be carefully established. For instance, occupational pension funds have the clearly defined investment object of meeting the pension liabilities of their participants during their retirement. SWFs, however, may have a less clearly defined investment objective and may even have contrarian ambitions. Nonetheless, there is much common ground between portfolios of private institutional investors and SWFs.

Following the arguments above, scholars have been interested in SWF optimal asset allocation. One stream of the literature deals with stabilization funds that derive their wealth from commodity resources. To stabilize oil and gas revenues, these funds may apply diversification to their portfolio to mitigate risk. The literature on asset allocation suggests that the portfolios of SWFs are less sophisticated than one would expect based on finance theory. A preference for local markets has been reported. (Dyck and Morse, 2011; Bernstein et al., 2013). With regard to stabilization funds,

diversification may be an important component for their asset allocation. In line with earlier findings on asset liability management of institutional investors such as pension funds, Bodie and Briere (2014) examine the optimal asset allocation for SWFs. Taking into account a broad definition of the sovereign, they include all entities subordinated to the state and all balance sheet items. The main concern of this approach is that these liabilities may be less well-defined and difficult to measure precisely.

Table 2 shows that the strategic asset allocation of SWFs tilted toward alternative investments. Of the 15 SWF funds that we include in our sample, the average allocation to alternatives is 22%. This is comparable to the bond investments of the portfolios, although the average holdings are slightly higher for the bond allocation. Moreover, the data shows that the main exposure of the portfolio is public equity with 40% of their portfolio allocated to either global, local or emerging equities. Overall, the average portfolio cannot be associated with a risk averse tolerance, indicating that some funds may seek attractive returns.

Table 2: Alternative tilt of SWF in their strategic asset allocation

Portfolio characteristics				
Asset classes	Average	Median	Min	Max
Equity	39.55%	43.50%	7.80%	80.00%
Bonds	29.90%	20.70%	0.00%	70.00%
Alternative	22.33%	20.90%	0.00%	70.00%
Cash	8.21%	2.00%	0.00%	34.70%

The data is determined by all SWF that are a member of IFSWF and that report their strategic asset allocations for 2015. While some funds denote more detailed information on their allocations, we focus on the four main asset categories: Equity, bonds, alternatives and cash. For equities and bonds, we use publicly traded security.

Table 2 also reveals the variability of strategic asset allocation can vary substantially from fund to fund. It indicates that there are large variations in investment strategies among SWFs, rendering general conclusions for SWFs rather difficult. Focusing on alternatives, however, Table 2 indicates that for typical SWF allocations ranges can be quite high. Although some funds may even have 70% of their assets allocated to alternative investments, there are some development funds that solely consist of only alternative investments. Since many of the SWFs do not publicly disclose their strategic asset allocation, we chose funds of the IFSWF member group that report their strategic asset allocation on their website. The estimates in Table 2 may be underreported due to some funds not reporting their strategic asset weights. These funds do disclose their strategic investments which consists mostly of alternative investments.

Given the large exposure of SWFs to alternative investments, this suggests that some asset classes may be affected by SWFs. Typically, alternative assets have a smaller market capitalization than

public equity and debt markets. One the one hand, this may lead, in combination with a government's focus on stimulating economic development, to severe market frictions. On the other hand, investments in this class may create a conflict between the investment objectives of the SWFs and their investment policies. Again, there is much empirical research that confirms SWFs move toward alternatives. Moreover, Chhaochharia and Laeven (2009) analyze investment allocations of SWFs in detail, finding that funds are more likely to invest in local markets or in countries with similar social and cultural norms. Indeed, SWFs are also more prone to fulfill various investment goals that come at a cost of diversification compared to an optimal investment portfolio.

Since the financial crisis of 2008, SWFs have reduced their asset allocations to equities and increased their allocations to direct investments in illiquid assets (Prequin, 2015b). Prior work indicates that SWFs have major allocations to real assets, including property and infrastructure that meet the preferences of long-term institutional investors (Clark and Monk, 2009). With regard to infrastructure, recently formed SWFs have expressed an increased interest in investing in developing market and domestic infrastructure projects (Gelb et al., 2014). In addition, it is possible that other SWFs will increasingly turn to infrastructure in order to improve the quality of public spending and fuel the growth of private investor interest. Along with the long-term investment horizon, infrastructure investment is likely to offer additional diversification and stable inflation adjusted cash flows that can reduce portfolio volatility (Croce et al. 2011).

However, we must acknowledge that long-term infrastructure investments are typically associated with a long lock-up period and may have hidden risks. Political risk in terms of profitability and risk of technology advancements can render these investments less attractive. One possible explanation for this preference is that some measure of political pressure may induce SWFs to

invest in local projects that are politically desirable but less profitable. The expectation is that, given that the government would seek to increase local investments to an even greater degree, SWFs run the risk of inducing a higher weighting of less-profitable investments for the participating private sector funds. This argument overlooks two essential points. First, the claim overlooks the possibility that such an investment could boost regional financial cooperation among developing economies and improve the local business environment (Gelb et al., 2014). Second, another possibility is infrastructure investments may provide long-term cash streams that offer a protection against inflation as it is linked to macro-economic development.

In much the same spirit, real estate is the other key asset class that is likely to attract SWF investment. For example, a BlackRock (2015) survey of 100 investors with over USD 6 trillion assets under management found that 49% expect to increase asset allocations to real estate. One of the key drivers of this increased interest in real estate is the current environment of low interest rates. Given the low rates found elsewhere, the possible yields from real estate have become more compelling (Allen, 2014). As rents tend to rise with real earnings, investments in real estate are attractive, although direct investments may entail more risk (Cotter and Roll, 2014). Real estate is the type of investment that may offer portfolio diversification as an asset class (Goetzmann and Ibbotson, 1990). However, over longer horizons real estate investments are less attractive from a return perspective (Eichholtz, 1997). While the financial attractiveness of real estate investments are much debated, investments in real estate, such as residential housing, are nevertheless often viewed as socially responsible, increasing the likelihood for SWFs to invest.

2.2 Sovereign wealth funds and their market impact

The market impact of SWFs is an important area of research due to impact of these funds on capital markets in recent years. There are two views on the impact of SWFs on global markets. First, Gilson and Milhaupt (2008) identify market externalities that can arise due to the governance structure of these funds. State owned funds, for instance, can have adverse effects on the global markets because their investment behavior is politically rather than profit maximization oriented. Second, the development perspective highlights that SWFs have a strategic long term investment horizon with a broader scope than short term profit maximization (Atkinson and Stiglitz, 1980; Stiglitz, 1994). Together, these studies reveal why some SWFs deviate from investment decisions motivated by profit maximization and will almost certainly invest in long term oriented macro-economic projects.

Similarly, the political theory approach of Shleifer and Vishny (1994) shows that funds may invest in inefficient investments to facilitate political favors. As a consequence, investments influenced by a political mechanism are more likely to have adverse effects on the economy and, therefore, on growth. The impact of agency costs, for example, plays an important role in motivating agents to deviate from the objectives of state-backed vehicle ambitions (see e.g., Banerjee, 1997; Hart et al., 1997; Tirole, 1994). Thus, each of these theories predict that the inefficiencies are projected on the market.

However, recent research on SWFs has provided some evidence of the widespread trend that SWFs are strongly motivated by economic profits and behave similar to private institutional investors in monitoring their investments. Moreover, they have few if any financial incent

ives to accept lower returns on their investments. From this perspective, market externalities or political motivations will be of a much lesser concern for SWFs (see e.g., Bernstein et al., 2013).

While SWFs are typically seen as long term investors, this characteristic is also attributable to many private institutional investors. Many institutional investors are engaged with their investments in order to improve efficiency and governance in public firms. Activists, to a certain extent, exist among traditional investment institutions, but not institutions acting on pure financial incentives. For instance, public sector pension funds and labor unions take lead roles, acting through agents incentivized by prospects of reputational advancement. These actors target companies and challenge their managers with shareholder proposals and 'just vote no' campaigns. In contrast, the hostile activist shareholder role has been taken up by event-driven activist hedge funds. A typical activist investor takes a large position in a target firms' stock, criticizes their business plans and governance practices, and confronts their managers, demanding action enhancing shareholder value. The demands, in turn, are likely to include one or more actions assuring a quick return on investment—sale of the company at a premium, unbundling of the company through the sale or spin-off of a large division, or a large cash payment to the shareholders in the form of a special dividend or share repurchase.

There is evidence that activist strategies are being picked up by SWFs to improve target firm's performance. To get a sense of the type of strategies favored by SWFs, consider Alberta's AIMCo failed joint attempt with activist hedge fund JANA Partners to takeover Dutch based TNT in 2012. By connecting with other SWFs, funds create a unique advantage, because of the size of their investment, in influencing the portfolio firm's governance and influencing management to take decisions that are in the best interests of investors (Smith, 1996; Gilson and Milhaupt, 2008). In

effect, SWFs that exercise their ownership rights in activist campaigns are located in jurisdictions that are most likely to have strong traditions of transparency.

Despite the recent increase in transparency, there remains a cloak of mystery surrounding many of the largest funds which are located in non-transparent and developing countries. Concerns about the need for more transparency are particularly salient in the case of SWFs, which triggered the introduction of the Generally Accepted Principles of and Practices for SWFs adopted in Santiago, Chile (Santiago Principles). Considerable effort has also been made to create measures of transparency (Truman, 2007; Truman, 2008). Other measures exist, such as the Linaburg-Maduell Transparency index, are vulnerable to criticism for being too superficial in some of its elements (Bagnall and Truman, 2013). Nonetheless, Bagnall and Truman (2013) indicate that the Linaburg-Maduell Transparency index produces similar results to the SWF scoreboard.

In Table 3, we summarize the differences in transparency of individual SWFs. Table 3 shows that the average score is only 54 out of 100. However, for IFSWF members the score is much higher. The IFSWF members in the sample have about 81% of the total financial wealth of the SWFs.

Table 3: SWFs and transparency scores

Sample	Transparency scores	Wealth	Foreign wealth	Percentage of total Wealth	Percentage of foreign Wealth	No of funds
SWF average	54	4149	3561			49
IFSWF members	65	3384	2869	81.5%	80.6%	26
Non-IFSWF members	42	837	740	20.2%	20.8%	23
Conditional on transparency score						
	>80	997	909	24.0%	25.5%	12
	>70	1593	1437	38.4%	40.4%	16
	>60	2796	2286	67.4%	64.2%	22
	<50	497	456	12.0%	12.8%	22
	<40	371	366	8.9%	10.3%	17

The data is obtained from Bagnall and Truman (2013) (authors own calculations). The total is denoted in billion US dollar.

Unsurprisingly, transparency can have important implications for SWFs. Table 3 also shows the conditional statistics for funds that have higher transparency levels of 80, 70, 60 and the levels

lower than 50 and 40. In terms of financial wealth, 67% of total financial wealth is managed by SWFs with a transparency score that is more than 60. The results of the analysis indicate that only a small proportion of financial wealth is managed by funds with low transparency (scores lower than 40). As was expected, the 17 funds with low transparency are mostly located in developing countries. It is worth noting that since the 2009 scorecard there was an increase in the number of funds scoring above 80 (from 7 to 12) and 30 or below (from 13 to 14). The increase in lower scoring funds is attributed to the scoring of six new funds in the 2012 scorecard (Bagnall and Truman, 2013).

The results suggest that IFSWF compliance can improve the transparency scores. While other factors may account for the lower scores, such as lower standards in the country of origin, the IFSWF standards can foster more transparency and accountability of SWFs. Further, this is consistent with prior literature on voluntarily disclosures (Gelpern, 2012). Thus, monitoring each fund's transparency score is likely to foster compliance to industry standards.

In terms of market impact, the consequences are less clear. Table 3 shows that only 12.8% of foreign wealth is managed by a SWF with a transparency level of below 50 and 10% below 40. Table 3 further shows that, in terms of total market impact, the effects are much smaller. As expected, SWFs will have a much larger market impact in a more concentrated market. In addition, since most SWF have a local market investment bias, price mechanisms are most likely influenced in such settings. These considerations suggest that SWFs may substantially affect prices.

3 Public financing through co-investment in private equity funds

In this section, we examine SWFs direct investments with GPs and other investors. We then discuss the recent trends in co-investments in direct investments. Next, we focus on the role of

syndication in co-investment deals. Finally, we examine the geographic spread and market sector of the co-investments made by SWFs.

3.1 Co-investment strategies between sovereign wealth funds and private equity

In the previous section, we have established that SWFs have a portfolio tilt toward alternative investments. These investments include direct investments such as venture capital financing of private enterprises. A new dimension of SWF involvement with private equity arises from co-investment strategies with fund managers. Studies indicate that achieving successful investment outcomes depends on operating a semi-private fund based on private sector goals and well-established metrics. For these reasons, several studies, such as DeAghion (1999), indicate that SWF support must be conditional on other requirements in order to be successful. Restricting government control through dispersed ownership and co-investing with the private sector is meant to mitigate the uncertainty of agency costs arising in general and increasing the probability of success in particular of financing projects that are commercially viable.

With respect to investment vehicles, Murray et al. (2012) discusses the importance of a hybrid structure in which full operational autonomy is delegated by the SWF to the GP in the private equity fund. Accordingly, the SWF functions as LP, as do the other private-sector investors in the fund, but with a type of special status. In this way, the GP and the fund have both the flexibility and obligation to strive for attractive returns for all limited partners, of which the state is but one. Again, note that the investment decisions are made entirely by a private-sector manager, rather than an individual in the SWF.

In the traditional model which is depicted in Figure A in the Appendix, the SWF invests in a straight forward private equity fund. The GP will select target companies with little influence of the LP. Historically fees have been around '2-20', which alluded to 2% management fee plus 20% performance fee (carry). The changing relation between LPs and GPs accelerated by the transparency and price pressure in the finance industry introduced the co-investment structure. Further, there is very strong evidence that SWFs co-investments with GPs in specific target companies have reduced management fees and carried interest (Prequin, 2015a). In contrast, solo investments tend to have low or no fees.

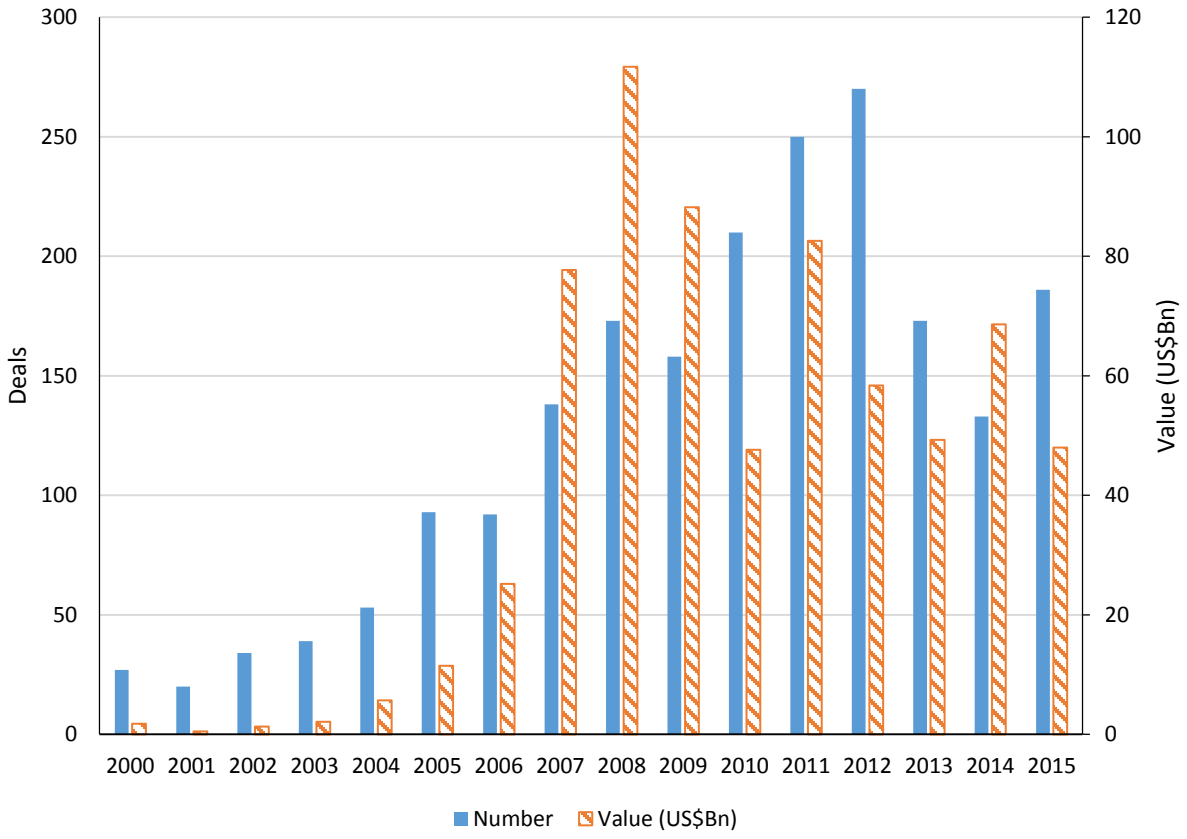
However, co-investments are not without additional risk. Limitation on deal size within private equity funds are established to prevent risk of concentration in portfolios. As noted above, co-investment can lead to larger concentration risk in the portfolio of the SWF. In turn, this additional risk, particularly if investments are made in peak periods, may not be compensated with additional returns. There are other reasons that direct investments might translate into lower gross returns, such as heterogeneity of fund performance over time and GPs offering deals of sub-par investment quality, which may ultimately reduce LPs interest in direct investment.

3.2 Data on Direct Deals

Data on state-owned investors for direct investments is limited. In general, data on alternative asset classes is less available than on publicly traded bond and equity instruments. Moreover, the literature on hedge funds has identified multiple biases in existing data, such as self-selection, survivorship and backfill bias (Brown, Goetzmann and Ibbotson, 1999; Fung and Hsieh, 1997). In a similar fashion, data on other alternative asset classes such as infrastructure and private equity are also prone to these biases (Kaplan and Schoar, 2005; Phalippou and Gottschalg, 2009).

Taking into account the above biases, Figure 1 shows that direct investment in both equity and real estate deals is substantial. Comparing the period before the financial crisis, investments after the crisis have remained relatively at a high level. Even though the peak of investments, in notional amount, occurred around the financial crisis in 2008, the number of deals continued to grow until 2012. Overall, the allocation to direct investments by SWFs remains considerable. Using data on global corporate venture capital, we obtain similar results in terms of high inflow by institutional investors for the corporate venturing market during the post financial crisis period (McCahery and Vermeulen, 2016). Indeed, from 2011, the number of deals increased from 500 to about 2400 in 2015, while the value of these deals increased from US$ 20 billion to US$ 75 billion. Finally, the results show that, given the current low interest rate, SWFs are expected to continue to invest in private equity.

Figure 1: Stable allocation to direct investments by SWFs



These deals concern direct SWF equity & real estate deals, joint ventures and capital injections. Source: The Sky Did Not Fall, Sovereign Wealth Fund Annual Report (2015)

In this paper, we built a dataset that was obtained from Global Corporate Venturing, which has one of the largest databases on venture capital and corporate venturing worldwide. We analyzed data of 371 direct investments of government owned entities (defined as SWFs). The time period of our analysis goes from 2015 to 2016. There are various types of state sponsored investors: development banks, government pension fund, state-owned or managed investment fund. The investments of government-backed vehicles are usually made together with private equity funds in firms at various stages of development. We focus on assessing the strategies of LPs and the

levels of co-investment with their private equity partners in a wide range of alternative assets, different industry sectors and geographic regions.

In many ways, the increased competition and growth of private equity firms has played a large role in the evolution of the private equity business model focused on co-investment and separately managed accounts (Jacobides and Saavedra, 2015). When there was a range of private equity firms with a traditional structure, private equity firms maintained their product lines and strategies. However, when more capital became available to larger and more growth-oriented firms, as it is the case now, it seems that changing the business model became a greater concern among private equity firms. This challenged GPs to find new ways to improve their performance, particularly in an environment of declining fund performance.

We first conjecture that SWFs, which are determined to reduce fees and improve performance, can be reasonably expected to be influenced by these new developments increasingly the likelihood of extensive co-investment with GPs. Under the circumstances, we would expect LPs to contract with GPs to achieve greater flexibility in deal size. A number of factors could reasonably be expected to influence LPs of investing together with top GPs. First, the relational component may create more exchanges of information among current partners, improving local knowledge regarding deals. Second, the deepening of GP-LP relationships may also lead to increased sophistication of the partners in terms of improved bargaining power, and the pooling of resources which enables them to attract better deals and improved terms. Third, the improved communication and trusting relationship together might improve LPs' benchmarking skills and reduce costs.

In our database, we also have a sample of 79 government funded deals that involve funding of private firms across the private equity cycle. These deals are structured as co-investments with a GP and a limited number of LPs. In this section, we analyze two recent deals from our database to

demonstrate the implications of the analysis of governments taking part in private equity transactions.

Apis Growth Fund I

The Apis Growth Fund I is particularly interesting because the Fund aims to invest $250 to $300 million in a diversified portfolio of financial services companies in growth markets across African and Asian (see Table 4). The Fund was selected from among the 150 respondents to Overseas Private Investment Corporation's (OPIC) Global Engagement Call for Proposals to finance one or more funds to facilitate investment in companies within OPIC eligible countries[3].

An examination of the funding reveals that the Fund received a 10 year OPIC loan up to $75 million. Also, the Fund successfully attracted $157 million from institutional investors, including Intesa Sanpaolo and Old Mutual, as well as development finance institutions including the European Investment Bank, FMO (the Netherlands) and Swedfund. A general overview of the investment policy indicates that the Fund's approach is to provide growth capital to low risk financial service companies in Sub-Sahara Africa and South Asia. Indeed, the Fund's information summary for the public in 2015 emphasizes the importance of involving investment in companies that increase access to finance in unbanked and underbanked individuals. Moreover, the statement makes clear that it will target companies that 'provide innovative financial infrastructure across the financial services chain, such as mobile and online payment services, ATM network services, mortgage finance, micro-credit, and micro-insurance.'

[3] Overseas Private Investment Corporation (OPIC) is the U.S. Government's development finance institution.

For now, it is clear that investors have rushed to support the Fund's approach to the financing proven innovative business models and last-mile distribution in high growth markets in Africa and Asia. Indeed, the Fund has already demonstrated its ability to fund a number of financial services companies in the target OPIC countries. For example, the Fund arranged on December 16, 2015 a private placement with MircoCred S.A. This was followed up in 2016 with a private placement with Star Health and Allied Insurance Company Limited.

McRock Capital

The Canadian VC fund McRock Capital is a dedicated Industrial Internet of Thing (IIoT) fund that is focused on sensors and software. Founded in March 2012, McRock raised $61.32 million from two strategic partners, EDF and Cisco Systems, and limited partners including Alberta Enterprise (Canadian SWF), BDC Capital, Kensington Capital, Teralys Capital, Export Development Canada and Wilson Sonsini Goodrich and Rasati. In terms of their investment approach, McRock Capital's two CVC partners, EDF and Cisco Systems can help in developing collaborative opportunities and attract potential customers. Indeed, the alliance with EDF can enhance the quality of the innovative start-ups, which may improve the IloT innovations through testing.

McRock is interested in investing in IloT companies in Canada and US. In fact, McRock Capital has made, from February 2015 to September 2016, a $3.5 million (Series A) investments in RTech Software, a $6 million (Series A) investment in mnubo, a $5.5 million (Series A) investment in Invixium and a $5 million (Series A) investment in Serious Integrated. In sum, this shows their focus on early stage seeding in venture capital cycle.

The McRock Capital Fund seems an ideal combination of GP and alliance partners that collaborate with start-ups in IIoT sector. In this case, the alliance partners can enhance the value of the start-

ups by supplying access to complementary assets, from expertise in management to marketing and other network resources. Viewed from the perspective of the market, the alliance partners in the IIoT sector provide a screening function in certifying the start-ups technology (Ozmel et al., 2013). The alliance partners' signaling to the market about the quality of the fund's investments is likely to attract LP investors hoping to obtain higher returns.

Table 4: Two examples of deals

Fund name	Fund manager	Location of Manager	Investors	Fund size
Apis Growth Fund I	Apis Partners	UK	European Investment Bank, FMO, Swedfund, Intesa Sanpaolo, Old Mutual	157
McRock Capital	McRock Capital	Canada	EDF, Cisco Systems, Alberta Enterprise, BDC Capital, Kensington Capital, Teralys Capital, Export Development Canada, Wilson Sonsini Goodrich & Rosati	65

This table shows two deals of our SWF dataset. Fund size is denoted in millions of US$.

Fund of Funds

In our dataset we also have 28 large deals with deal size above US$1 billion. As discussed previously, larger deals are typically associated with transactions that involve the establishment of an investment fund, which may even be structured as a fund to funds. Deals relating to the establishment of fund of funds will typically be managed by the SWF rather than a GP. For example, the Russian Direct Investment Fund, China Investment Corporation and European Fund for Strategic Investments are managing funds for investments in private equity deals or funds. Note

that government funding can also come in the form of a pledge from local governments. An example would be funding for the European fund for Strategic Investments which obtains funds only from the European Union. In some larger deals, governmental investors set up a fund with a variety of different countries.

3.3 Governmental private equity investments and syndication

Few empirical studies have examined co-investment arrangements. This section considers whether private equity funds that commonly have SWFs as co-investors also use syndication. Prior literature on governmental venture capital (GVC) has directed its attention on the added value of the governmental role in venture capital. This is important since VC investors tend to syndicate their investments to improve the screening process and financial stability of the VC fund (Gompers and Lerner, 2004). Note that additional knowledge and industry expertise may increase by syndication (Andreu and Groh, 2012). In GVC deals, SWFs can thus assure the government entity of links with the industry expertise. On the other hand, governmental influence may be beneficial for starts ups to curb governmental regulation. This may be especially important in underdeveloped markets (Cao et al., 2015).

In our analysis of 371 deals, we first filtered for deals with publicly known deal size and then divided the sample of deals in two groups. The first group involves deals below US$ 1 billion and the second group includes the remainder of 28 deals which are mostly fund of funds. This filtering effectively splits the sample of deals into a group of deals that involve the allocation of governments to large public entity funds. Examples include the European Commissions' contribution to the European fund for Strategic Investments.

In Table 5, we show the characteristics of the typical deal size. In general, the average deal size consists of about US$ 130 million and has 2.5 number of co-investment partners involved. In total, the deal size is about US$ 38 billion. In contrast with 2015, US CVC fund raising was about US$ 45 billion (McCahery and Vermeulen, 2016). This shows the relevant size of the deals done in the governmental private equity universe.

Table 5: Public private equity deals

	No. of deals	Total Deal size	Average deal size	Median deal size	Average no. of syndication members	Average commitment Level
Full sample	295	38,463	130	73	2.48	
Conditional on Commitment						
Sample	144	17,769	134	73	1.78	76.17%
Less than 100%	45	6,887	153	79	2.36	29.60%
Full commitment	99	10,882	124	45	1.49	100%

The full sample consists of 371 deals over a period from 2015 to April 2016 of which 295 deals size is known and the deal size is below US$ 1 billion.

Table 5 further indicates that syndication is an important component in the structuring of these deals. The majority of the deals (66%) have a 100% governmental commitment, meaning the government fully finances the deal to set up the private equity fund. Also, correcting for deal size gives a similar picture of our data. Of the funds that have private money inflow, the governmental percentage of capital is only 29.6%. In fact, the deal size in which the government is fully

committed has a lower deal size on average. This indicates, that in terms of risk, governments tend to search for smaller projects given their overall selection criteria. In effect, this offers information regarding the financial side of the deal structure. Conversely, syndication provides information about nonfinancial aspects of the deal.

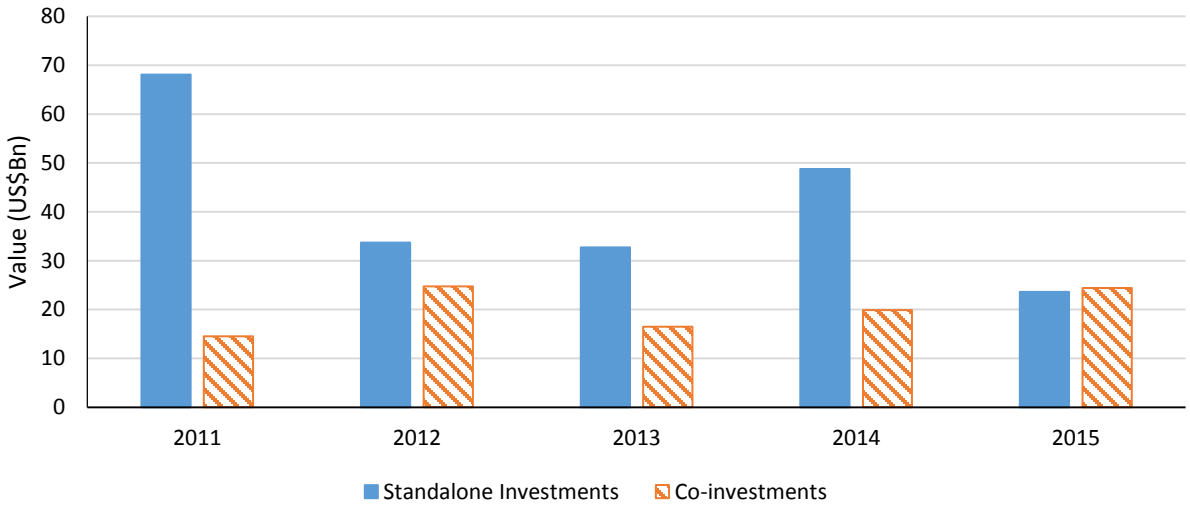
The evidence on the number of partners in the deals provide further insights. For instance, we find that the numbers of LPs in a syndicate is much lower for fully governmental committed deals (2.36 vs 1.49). While the results are consistent with expectations, they might be driven by some data bias, as our full sample average for the number of LP syndications is about 2.48. Our findings are consistent with the literature on syndication backed VC deals which typically have the highest number of partners compared to governmental or private independent private equity (Cumming et al., 2014). When comparing GVC partners (1.42), private institutional private equity deals have 1.97 LPs. The findings suggest that, where we have information of deal size and governmental commitment, the average syndicate size is much lower (1.78). Note that this might be driven by underreporting of syndicate membership. For instance, some co-investors may a strong preference to avoid disclosure of their financial involvement in the fund.

Another common observation made by the literature is that the governmental involvement in private equity can serve to increase the level of R&D in the market. We find evidence of only limited support for this hypothesis since only 23 deals of the 371 deals involve specific early cycle of venture capital, such as seeding and early stage. The remainder of the deals involve firms that are in a mature phase of development.

At the same time, a similar trend of co-investment can be found in equity and real estate. Figure 2 shows that in recent years SWFs have increasing invested with partnerships. The evidence shows that, along with the partnership, private funds are the most important component (93%) by deal

value. The other remaining deals involve SWFs or sovereign partners. Similarly, Figure 1 shows that the deal sizes have fluctuated over this period, and that the stand alone deals by value have decreased. Investments via partnership have increased throughout the years, leading to half of the deal value involved around partnerships. As a result, partnerships are becoming more important while SWFs are investing less per deal.

Figure 2: Co-investment in Direct investments by SWFs



Source: The Sky Did Not Fall, Sovereign Wealth Fund Annual Report (2015)

3.4 Regional preferences in governmental private equity deals

In this section, we turn to the target country and location of the managers. We examine more closely geographical location of direct private equity investments by government entities to test whether SWF have a preference for local markets. Table 6 shows the main results of our analysis. We find that most deals (65%) involve developed markets. Our results show that public financing is not only associated with emerging markets, but more strongly within developed markets. This is important for two reasons. First, it highlights that venture capital continues to gather the attention

of state funds in developed markets rather than underdeveloped markets. The evidence also supports the view that innovation is stimulated more in developed markets than is commonly assumed by prior studies.

Second, the data shows the importance of externalities in the developed private equity markets. The effect of greater state funds involvement in the financing of firms can create hidden risks and overvaluation of these assets. Also, the literature on market impact of public equity points toward the possible impact of SWFs on public financial markets (Fotak and Megginson, 2014). Indeed, projecting these findings to markets with much less financial capacity and regulation, governmental incentives can disrupt efficient pricing.

Table 6 shows that 65% of the deals are located in developed markets. More specifically, most of the deals are situated in Europe and the US. Moreover, the result that Europe has a made a significant contribution in the number of deals is unsurprising. The gap between the US and Europe in governmental private equity financing is quite large, as the supply of capital is quite different across countries (Groh et al., 2010). Moreover, the financial crisis has further widened the gap in financing (Kraemer-Eis and Lang, 2012), causing more policy driven private equity investments in Europe. The European Parliament earlier acknowledged their support of private equity investments in 1998 by drawing up the Risk Capital Action Plan. To illustrate, Europe has a larger presence of governmental venture capital in which governments invest in private equity funds (Leleux and Surlemont, 2003).

Table 6: Regional characteristics of Government private equity deals

	Markets	Regional						
	Developed Markets	America	Europe	Middle East	Asia	South-East Asia	Africa	Unknown
Target country								
No. of deals	186	64	116	16	38	31	20	10
Percentage	65%	22%	39%	5%	13%	11%	7%	3%
Deal size	24233	7083	17147	1392	5104	4739	2360	640
Percentage	64%	18%	45%	4%	13%	12%	6%	2%
Location manager								
No. of deals	209	61	128	15	37	35	13	6
Percentage	72%	21%	43%	5%	13%	12%	4%	2%
Deal size	27857	5820	19614	979	5019	5594	1048	390
Percentage	73%	15%	51%	3%	13%	15%	3%	1%

The sample of 295 deals is split in developed versus non-developed markets and subsequently is also split regional. Deal size is denoted in US$ million.

Importantly, evidence suggests that SWFs are more likely to invest in private equity in cross-border transactions in countries where there is weaker investor protection (Johan et al., 2013). Our results are contrary to the findings of Knill et al. (2012) who find that SWFs prefer to invest in countries that have relatively weak investor protection rules. One of our key findings is that Europe has the most number of government backed private equity deals. This result suggests that the response of policy makers has been effective in increasing the supply of investment capital in EU member states. Moreover, the literature on private equity has reported a wide variety in the

availability of capital (Groh et al., 2010; The European Parliament, 2012). For instance, we show that about 10.1 billion euros was raised in the US compared with only a 3.3 billion euros in Europe. As predicted, policy makers have responded to these differences by introducing policies to reduce this gap. This is one of the most important factors that has led to high presence of governmental involvement in the private equity market in the Europe.

In order to deepen our understanding, we next turn to focus on the location of the manager. To this end, our results show that even a higher percentage of the deals are situated in developed markets. This is consistent with the view that some governments may have many alliances and hence often invest together in private equity markets. At least 50% of the deals in terms of size are managed in Europe. Again, this shows the importance of EU incentives to increase the supply of investment capital to firms and financial markets in member states. The results could indicate that SWFs also target the same regions for their deals.

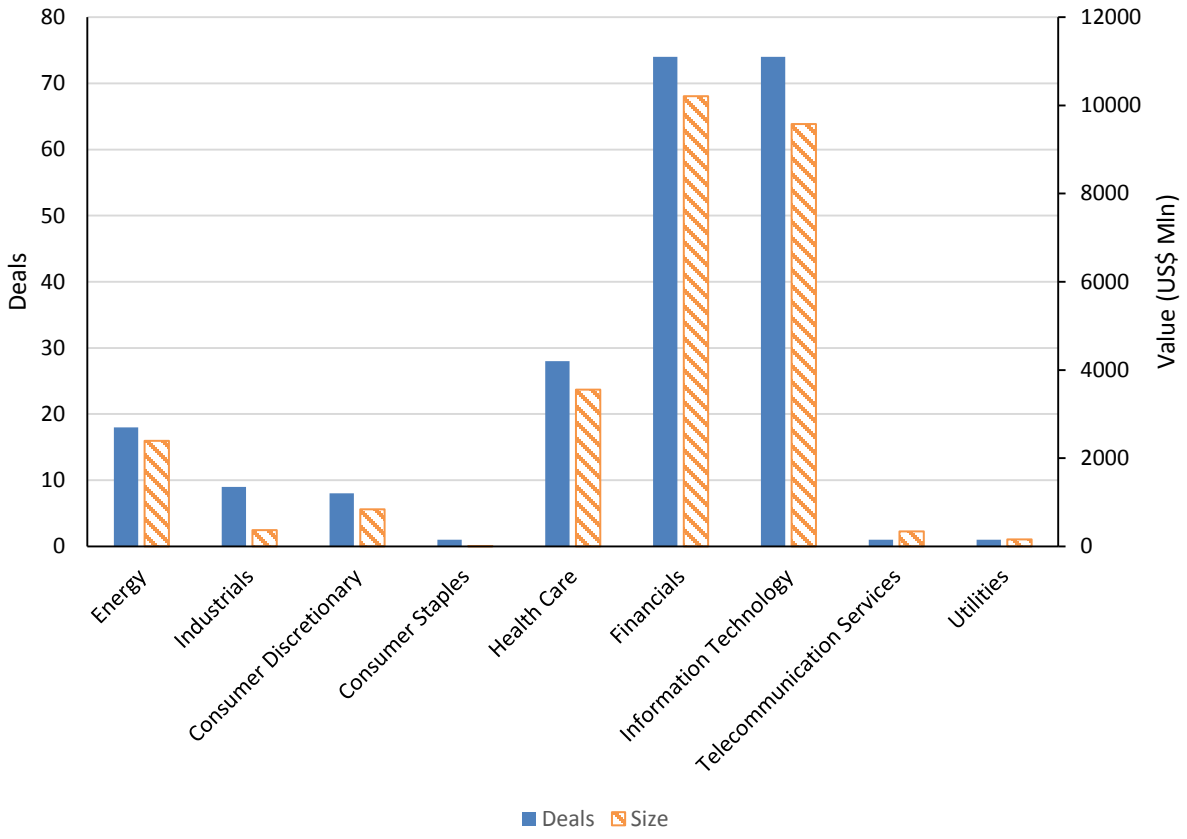
Finally, we analyze whether the location of the manager influences the regional choice of the investment deal. We find that 29 (8%) of our sample of investment deals with target location known (352 deals) concerns private equity investments across different regions. In term of our sample, the majority of the deals involve global projects with a co-investment structure that has an average of 2.89 LPs. It is noteworthy that some of these investors are also development funds that specifically aim to help developing countries, suggesting that the motivation for the investment is not only a return perspective. Most deals that involve different markets have managers located in Europe. Managers in South-east Asia and the Middle East also allocate to different regions. Finally, the results highlight that for direct investments SWFs primarily invest in their own market.

3.5 Sector preferences in governmental private equity deals

In this section, we turn to examine the target sector of these co-investment deals. Figure 3 shows that most deals involve the financial and information technology sectors. We also examine whether sector interest is related to regional location of the investor. For the whole sample, we find that financials and IT related sectors receive the most interest from governments to invest. While the number of deals (74) is equal for both sectors, we find in terms of size the financial sector dominates by US$ 10.2 billion versus US$ 9.7 billion. The financial and IT sectors have traditionally been of strong interest of private equity investors, showing that government agencies have similar preferences as institutional investors (Cumming et al., 2014).

To further dissect our results, we focus on the two main regions, Europe and the US. In the US, state funds are most interested in three sectors, namely being evenly split among the health care, financial and information technology sectors. In contrast, we find that co-investors are much more focused on the latter two sectors in Europe. While the results show a similar number of deals for the health care deals in Europe and the US, deal size is much larger in US compared to the total amount allocated in the region. Overall, our results confirm the sector differences among the main regions.

Figure 3: Sector characteristics of the investment deals and their size



This figure consists of 295 deals of which the target sector of the investments are known.

In emerging markets, such as Middle-East and Africa, deals involving the energy sector tend to receive more capital than in other sectors. At the same time, the industrial sector tends to receive most investment capital from African investors. These results are consistent with prior literature, showing that governments can have different sector priorities depending on their research and development objectives for the local economy (Brander et al., 2015). However, we also find that the financial and information technology receive the most investment in governmental venture capital deals.

4 Concluding remarks

This paper has investigated the direct investments of SWFs. Consistent with finding from existing research, we first established that the multiple investment objectives of SWFs can drive funds to invest in direct investments. We focused on private equity investments in the form of direct or co-investments with fund managers.

Using a new dataset on SWF co-investment in private equity, we used evidence to able to empirically test the hypothesis on the syndication mechanism in the structuring of these deals. Our evidence confirmed that the number of members in a syndicate is much lower for fully committed deals. Our results further suggested that deals with less than 100% commitment of government funds have the highest percentage of LP investors. The results from our study showed that the average deal size is about US$130 million, indicating that SWFs tend to search for smaller deals given their overall search criteria.

Overall, our findings supported the hypothesis that SWFs are likely to co-invest in private equity and real estate with partnerships. We found that most SWF co-investments involve developed markets such as Europe and the US. In terms of the location of the fund manager, the data highlighted that at least 50% of the deals in terms of size are also located in Europe. Although very few deals involve investments across regions, a manager located in Europe is most likely to invest in other regions. Concerning the target sector, we presented evidence of a difference between developed and non-developed markets. We showed that most deals involved the financial and information technology sectors in Europe, whereas on the other hand most deals in the emerging markets involved the energy and industrial sectors. Our evidence is consistent with prior literature

that governments can have different sector priorities given their research and development priorities for the local economy.

Appendix

Figure A: The traditional private equity model

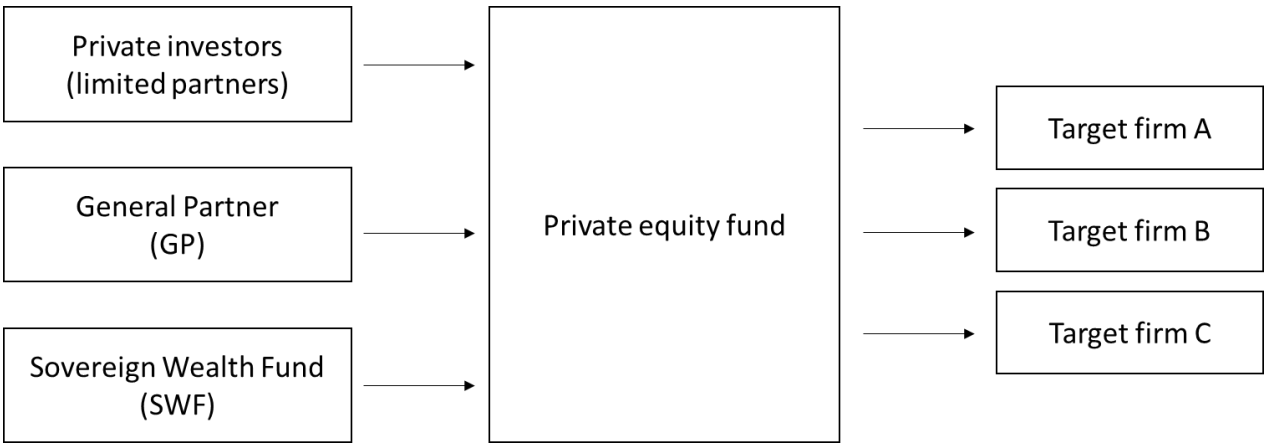
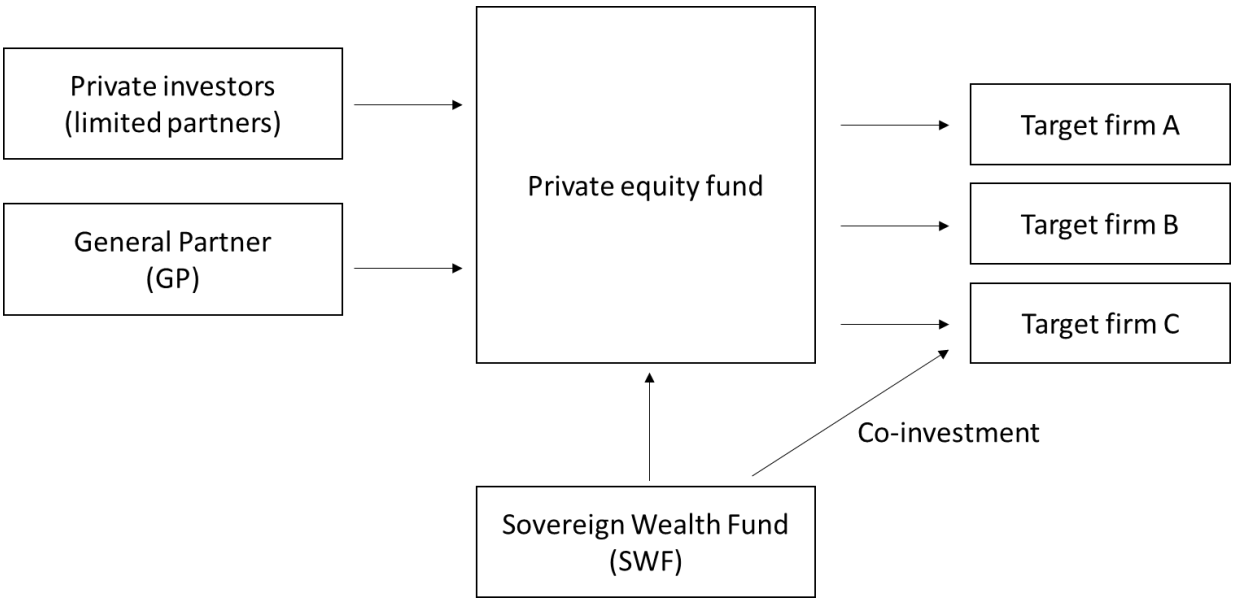


Figure B: The co-investment approach in the private equity model



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