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SOVEREIGN WEALTH FUNDS,  
CROSS-BORDER INVESTMENT BIAS  
AND INSTITUTIONS: THE CASE OF ARAB COUNTRIES

Ibrahim El Badawi, Raimundo Soto  
and Chahir Zaki

Working Paper No. 1173

# **SOVEREIGN WEALTH FUNDS, CROSS-BORDER INVESTMENT BIAS AND INSTITUTIONS: THE CASE OF ARAB COUNTRIES <sup>1</sup>**

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## Abstract

SWF surpassed US\$ 5.5 trillion in assets in 2014, growing nine-fold since 2002. Typically, SWFs have the choice to pursue either domestic (home) investments or abroad. However, despite the presence of highly endowed SWFs in the Arab region, relatively low cross-border SWFs funds are invested in capital importing Arab economies. This paper, therefore, analyses SWF capital allocation decisions between the home country and abroad by estimating the determinants of the probability of investing abroad (extensive margin) as well as the level of investment (intensive margin). In particular, we ask whether SWF investment decisions, at both the extensive and the intensive margins, are largely determined by economic factors- e.g. profitability, effectiveness of economic governance and control of corruption- or are also influenced by strategic considerations, such as geopolitical interests. Our findings, based on a baseline gravity-type model, show that, while foreign investors have a positive bias for the Arab destination countries at the extensive margin level, there is a negative bias against them at the intensive one. Yet, effective economic governance institutions and control of corruption and higher relative profitability of investment tend to reduce, but not eliminate, this bias at the extensive margin, while they completely eliminate it at the intensive margin. On view of the evidence that the size of SWFs investments is fully explained by the extended model and the starkly low quality of economic governance institutions in the Arab investment recipient countries, the latter is likely to be the main factor behind the relatively low cross-border investments in the Arab world.

**JEL Classification:** E22, F21, G11.

**Keywords:** SWF, MENA region, Investment.

## ملخص

تجاوزت صناديق الثروة السيادية في الموجودات في عام ٢٠١٤ مبلغ ٥,٥ تريليون دولار أمريكي، وذلك بنمو بلغ تسعة أضعاف منذ عام ٢٠٠٢. وعادةً ما يكون لدى صناديق الثروة السيادية خيار الاستثمارات المحلية (الداخلية) أو الاستثمار في الخارج. ومع ذلك، وعلى الرغم من الوفرة البالغة التي تتمتع بها صناديق الثروة السيادية في المنطقة العربية، فإن الصناديق العابرة الحدود منخفضة نسبياً وتُستثمر في الاقتصادات العربية المستوردة لرأس المال. ولهذا، فإن هذه الورقة تحلل قرارات تخصيص رأس المال لصندوق الثروة السيادية بين البلد الأم وفي الخارج عن طريق تقدير محددات احتمال الاستثمار في الخارج (الهامش الشامل) وكذلك مستوى الاستثمار (الهامش المكثف). على وجه الخصوص، تطرح الورقة تساؤلاً عما إذا كانت قرارات الاستثمار في صناديق الثروة السيادية، على كل من الهوامش الشاملة والمكثفة، تحدها عوامل اقتصادية إلى حد كبير، مثل الربحية وفعالية الحوكمة الاقتصادية ومكافحة الفساد، أو تتأثر قرارات الاستثمار أيضاً بالاعتبارات الاستراتيجية، مثل المصالح الجيوسياسية. وتبين النتائج التي توصلنا إليها، استناداً إلى خط أساس نموذج الجاذبية، أنه بينما يتمتع المستثمرون الأجانب بانحياز إيجابي لدول المقصد العربية على مستوى الهامش الشامل، فإن هناك انحيازاً سلبياً ضدهم عند المستوى المكثف. ومع ذلك، فإن مؤسسات الحوكمة الاقتصادية الفعالة ومكافحة الفساد والربحية النسبية المرتفعة للاستثمار تميل إلى تقليل هذا الانحياز، وليس القضاء عليه، على الهامش الشامل، في حين أنها تقضي عليه تماماً عند الهامش المكثف. في ضوء الدليل على أن حجم الاستثمارات في صناديق الثروة السيادية يتم تفسيره بشكل كامل من خلال النموذج المكثف والجودة المتدنية لمؤسسات الحوكمة الاقتصادية في الدول العربية المستقبلة للاستثمار، من المرجح أن يكون هذا الأخير هو العامل الرئيسي وراء الانخفاض النسبي لاستثمارات عبر الحدود في العالم العربي.

## 1. Introduction

Sovereign Wealth Funds (SWF) have become important players in global financial markets, particularly among hedge funds (Braustein, 2017). As of November of 2017, total assets in SWF surpassed USD 7 trillion, growing almost tenfold since the early 2000s. Of these, SWFs in Arab countries would hold around 40 percent. The notable growth in assets can be attributed to both a steady increase in the number of SWFs (i.e., an expansion in the *extensive margin*) as well an exceptional accumulation of assets by existing funds, particularly during the 2000s (i.e., an expansion in the *intensive margin*).

While growth has been steady, asset transactions by SWFs are, nevertheless, significantly heterogeneous. The Sovereign Wealth Institute database (hereafter, SWI) shows that total value traded reached almost one trillion dollars for the period 2005-2015 based on more than 15 thousand transactions. Although more than 50 countries had created SWFs by 2015, funds of only 27 countries participated actively in the market. The volume traded and number of transactions vary significantly suggesting that investment strategies are indeed quite different. The SWFs of some countries are very active and trade continuously in the market (e.g., Singapore, Norway, Korea) while others trade very little and/or in reduced volumes. In addition, note that SWFs in Korea, the US, and Canada tend to trade in very small volumes (US\$ 10 million per transaction on average), while the SWFs of resource rich economies undertake rather large transactions (e.g., Qatar, Russia or Libya). Of course, the size of a SWF, its asset structure and risk management policies largely determine the frequency and amount of trades. But also, their nature and mandates determine activity. Stabilization SWFs tend to focus on short-term investment horizons and have few allocation alternatives; in contrast, savings funds, with inter-generational wealth transfer objectives, have long-term investment horizons and less-explicit liability structure, with significant leeway when allocating resources.

Most SWFs have the freedom to allocate funds domestically or invest abroad. Exceptions to the rule are SWFs in Norway, Saudi Arabia, and Hong Kong, which are mandated to invest only abroad, and those in Brazil and Russia which focus exclusively on domestic markets. In fact, cross-border investments accounted for around 82 percent of total value traded. The average value of cross-border transactions reached US\$ 50 million. Naturally, home investments by SWFs accounted for the remaining 18 percent of the value traded yet with a much larger average value per transaction of around US\$ 110 million. Investments by these 27 SWF were allocated to 95 countries, largely to the main financial centers of the world. Yet, a negligible fraction of cross-border investment was allocated to Arab countries (0.5%). This is a notable anomaly to the investment pattern of SWFs and prompts the question of why would investors forego potentially profitable opportunities in capital-scarce Arab countries where there is an appetite for FDI and a potential for growth? According to the World Bank (2017), Arab countries grew at 4.2% per year in real terms during the 2005-2015. Economic growth in other regions of the world was similar (Africa and East Asia, 4.6%) or much slower (Latin America, 2.9%; Central Europe, 2.9%; and the OECD, 1.5%). Yet, these regions received substantially more investment from SWFs than Arab countries. If sustained economic growth provides opportunities for high returns and risk diversification, it is a puzzle why Arab countries did not entice investments by SWFs.

Furthermore, considering that 40 percent of total wealth in SWFs is property of Arab countries – particularly the oil-rich GCC economies- it is even more puzzling to realize that their SWFs also shy away from investing in MENA economies. The SWFs of UAE, Kuwait, Saudi Arabia, Oman and Qatar invested only around one percent of all investments to Arab economies in the period

2005-2015. This prompts the question as to why Arab-owned SWFs would disregard investment in neighboring economies with which they share historical and cultural traits if the latter provide profitable opportunities? Arguably, diversification opportunities are minimal among the capital surplus oil-rich GCC economies in MENA at the aggregate level, given that their production base is very similar. Yet the argument does not apply to non-oil economies or even to the populous oil-rich but capital scarce economies. First, in most MENA countries growth is not based on hydrocarbons and sectors such as services and manufacturing lead economic activity. Second and most importantly, SWFs usually focus on investments in specific industries that would provide interesting investment opportunities, and those are not absent in most MENA countries.

This paper, therefore, investigates the determinants of the choice by SWFs between investing in the home country or allocating funds abroad. We focus on the SWFs in the Arab region in order to answer two fundamental questions. First, why there are such low intra-Arab world investments by SWFs? Second, is there an idiosyncratic bias against investing in the Arab region or could this phenomenon be explained by the same set of systematic factors that govern investment decisions of SWFs elsewhere?

We use the rich database on financial transactions assembled by SWFs to analyze first the “extensive margin”. A set of probabilistic models for discrete variables are estimated and used to disentangle the role of different determinants in the decision of allocating resources either at home or abroad. We then turn to the “intensive margin” and assess the determinants of the share of investment by SWFs abroad relative to total investment. In both cases, we explicitly include in our econometric models variables that allow us to capture potential idiosyncratic biases against investing in the Arab region. Furthermore, given that assets tend to be heterogeneous in terms of returns and ability to hedge risk, we analyze the determinants of investment both at the aggregate as well as at sectoral levels (equity, real estate, infrastructure, etc.).

Our results can be summarized as follows. We find that while on the aggregate there is a positive bias at the extensive margin favoring Arab countries as a destination of SWFs investment, there is a negative bias against them at the intensive margin. That is, while SWFs tend to invest more in Arab countries, the size of investments is smaller than the international average. One explanation for this bias would be that the low quality of institutions in Arab economies –such as government effectiveness or control of corruption—increases the risk of cross-border investment. Indeed, once we control for the quality of institutions, the Arab bias is either reduced or becomes statistically insignificant. At the sectoral level, results are highly heterogeneous as some sectors are sensitive to institutions (e.g. industry and consumer discretionary), while others are insensitive, such as energy or real estate.

The paper is organized as follows. Section 2 reviews the received knowledge regarding the determinants of cross-border transactions by hedge funds and, particularly, by sovereign wealth funds. While the literature is broad, applied papers on Arab countries is significantly lacking. Section 3 describes the time and sectoral profile of transactions by SWFs globally and with regard to the Arab region. Section 4 presents the proposed empirical model for the estimation of the determinants of SWFs’ investment allocation decisions between foreign destinations and the home economy, where we estimate both the decision about whether or not to invest abroad (decision at the extensive margin) as well as how much to invest abroad (decision at the intensive margin). Section 5 discusses the estimation results, where we report results of a baseline model, confined to standard gravity model type; and, an extended model, that also controls for the stock of previous investments, relative profitability, and institutions. Section 6 concludes.

## **2. What determines cross-border investment by SWFs?**

The literature on the investment strategies of SWFs is relatively abundant and has been appropriately surveyed by Megginson and Fotak (2015) and Fotak et al. (2016), among others. While one set of academic studies examines how these funds should invest, another stream of research documents and analyzes how they actually do invest. In both strands of the literature, the differential traits in the operations of the SWFs of Arab countries have been largely ignored, in part due to the opaqueness of the information issued by their managers.

As surveyed by Fotak et al. (2016), many authors have presented normative studies prescribing how SWFs should allocate their funds across asset classes. Optimal asset-allocation models have been developed based on financial and economic principles relating to global investor preferences (Sa and Viani, 2013), contingent claims models of sovereign government funding sources (Martellini and Milhau, 2010) and spending obligations (Bodie and Brière, 2014), and/or the sponsoring nation's sensitivity to commodity price variability (Gintschel and Scherer, 2008). Other authors focus on how a dominant source of financing of a SWFs may influence asset allocation, particularly when they are oil-based (Scherer, 2009; Balding and Yao, 2011; and Bertoni and Lugo, 2013). Finally, policy-oriented considerations have also been considered when determining the optimal allocation of assets, including whether SWFs are and should be domestic "investors of last resort" (Raymond, 2012) or whether they should promote domestic economic development by financing infrastructure investments (Gelb et al., 2014). Comparing these optimal prescriptions on asset management to actual practices is in general informative, except in the case of the SWF of Arab countries where public information on portfolio allocations and transactions is usually quite limited (Alsweilem et al., 2015).

Independently of normative prescriptions on asset allocation, what matters for our research is how in practice SWFs do invest their resources. One strand of this research area focuses on the short and long-term valuation impact of SWF investments on asset prices through event study methodology (e.g., Beck and Fidora, 2008; Dewenter et al., 2009; Knill et al., 2012a) or indirect measures such as Tobin's Q (Fernandes, 2011). Alternatively, another strand of the literature attempts to link observed transactions by SWF to a set of exogenous financial and non-financial variables using econometric models.

In general, both strands of research tend to find that cross-border investment is driven largely by profit-maximization considerations, with SWFs acting purely or principally as commercial investors facilitating foreign corporate investment (Balding, 2011; Megginson et al., 2013). Accordingly, the primary source of variation in investment choices concerns the financial characteristics of the firms. Notwithstanding this, there is also mounting evidence that other factors may influence managers when choosing how to allocate funds abroad.

Several macroeconomic factors have been proposed and tested by recent researchers as potential determinants of cross-border investment by SWF and to explain the observed variety of investment strategies. As expected, SWFs tend to respond to the macroeconomic characteristics of destination or host countries. Candelon et al. (2011) found that exchange rate stability is a main determinant of SWF investment in the case of advanced economies, whereas in emerging countries, institutional factors (including democracy, government stability, and governance) act as the main determinants for cross-border investment. Expectations play also a role as shown by IMF (2011), whereby growth prospects significantly alter the allocation of assets outside of the home economy. The decision to invest abroad is also sensitive to the political stability in the host country; an increase in a country's risk has been found to have a negative impact on cross-border equity flows

(IMF, 2011a). Knill et al. (2012a) examine SWFs' transactions and show that political relations are an important factor in where SWFs invest but matter less in determining how much to invest. Market incompleteness and information costs may exert an important influence on SWF managers when deciding investment and portfolio choices. Research on the determinants of cross-border investment has found systematic evidence of a "home bias": whenever information is limited or asymmetric, investors prefer to invest in more familiar environments, thereby over-investing in the home country and under-investing abroad (Edison and Warnock, 2004; Gelos and Wei, 2005; and Philips et al., 2012). Similarly, Dyck and Morse (2011) scrutinize SWF investments and find that asset allocations are balanced across risky asset classes, are substantially home-region biased, and are very biased towards the financial, transportation, energy, and telecommunications industries. They also test whether SWF investments are motivated by home-country portfolio diversification or industrial planning objectives and find that measures capturing portfolio diversification explain around 15% of SWF portfolio variation while industrial motives account for 45%.

The decision to invest abroad is likewise sensitive to institutional factors, in the destination country as well as in the home economy. Javorcik and Wei (2009) find a significant impact of corruption and the regulatory framework for investor protection in emerging markets on the mode of entry and volume of inward foreign direct investment using firm-level data. Corruption hampers the volume of cross-border investment and a shift ownership structures towards joint ventures. On one hand, corruption makes local bureaucracy less transparent and hence acts as a tax on foreign investors. On the other hand, corruption affects the decision to take on a local partner who's value resides in his/her ability to cut through the bureaucratic maze. Furthermore, as corruption decreases the effective protection of investor's intangible assets (e.g., it lowers the probability that disputes between foreign and domestic partners will be adjudicated fairly), it tilts the preference of investors towards joint ventures.

Karolyi and Liao (2015) extend the analysis of cross-border equity investment to determine if state-controlled investors such as SWF have a differential valuation impact on acquisition targets than do private, corporate acquirers. They find surprisingly small, though often significant, differences between state-controlled acquirers' and private acquirers' investment patterns and preferences, but find somewhat larger differences with SWFs and other state funds. SWFs and other state funds pursue larger targets with higher growth options, and are more deterred by high insider or institutional share ownership. Karolyi and Liao conclude there is little reason for target-country policy-makers to discriminate against state-owned versus private acquirers.

Since SWF are state-owned investors, political issues keep surfacing as potential explanations for their portfolio choices, in particular in the less transparent SWFs where managers are potentially more likely to be exposed to political influences. Political involvement in SWFs' investments might stem from the appointment of politically connected but financially inexperienced managers. This hypothesis would suggest that politically influenced funds not only show a distortion in the capital allocation between home and foreign investments, but would also display poorer stock picking ability even in the international portfolio of the fund. Bernstein et al. (2013) find that SWF where politicians are involved have a much greater likelihood of investing at home than those where external managers are involved. In fact, they are more likely to invest at home when domestic equity prices are higher and invest abroad when foreign prices are higher.

Avendaño and Santiso (2011) dealt with this issue from a comparative perspective. They study SWF and mutual fund equity investment at the firm level and compare the geographical and



sectorial allocation. When looking at the political profile of targeted countries, they find that SWFs invest in countries that are financially rewarding, regardless of the political regime. The differences in equity investments between SWFs and other institutional investors are less pronounced than suspected. Johan et al. (2013) find similar results. However, they also found that in the case of cross-border private equity, SWF are more likely to invest in private firms of target nations with weaker legal conditions as well as weak political relations with their domicile nations.

The fear that SWF with political motivations use their financial power to secure large stakes in Western companies is shown to be unfounded by Avendaño and Santiso (2011). Their analysis controls for the political regime in the sending and recipient countries and shows that SWF investment decisions do not differ greatly from those of other wealth managers: SWF investments are not different from mutual fund investments in terms of political regime characteristics in the targeted countries. This evidence suggests that they do not discriminate by this criterion in their asset allocation. Both invest in democratic and autocratic regimes. More often than not, their asset allocation strategies converge, these being driven, by a financial and not a political bias.

While political motivations may have some importance, the nature of a SWF might also affect its investment policies and can become potentially confounding factors in the analysis. Avendano (2012) study how differences in funding source (commodity and non-commodity), investment guidelines (OECD and non-OECD), and investment destination (foreign and domestic) impact investment decisions. He finds that SWFs prefer to invest in larger and internationally active firms, but OECD-based and non-OECD-based funds differ in their preferences about target-firm leverage, degree of internationalization, and profitability. SWFs prefer larger, more levered firms in foreign versus domestic investments. He also finds some evidence that SWF ownership positively impacts the target firm's value. Home-country natural resource endowments help explain whether SWFs prefer to make foreign investments in these industries.

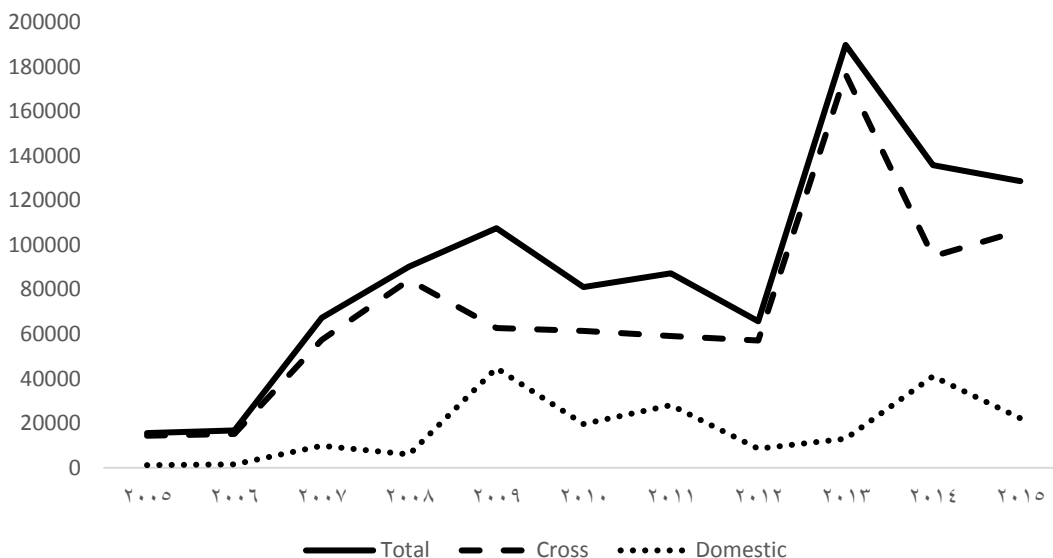
Cultural traits and geography might also play an influential role. Chhaochharia and Laeven (2008) found that SWFs tend to invest in countries that share a common culture, particularly ethnicity, language, and religion, and this bias is more pronounced in SWFs than in other institutional investors. SWFs also display industry biases, investing a disproportionately large fraction of their portfolios in oil company stocks, and they tend to invest mostly in large capitalization stocks. These biases are more pronounced for SWFs that are more activist, less transparent, and from less democratic countries. SWFs tend to chase past returns and hold conservative portfolios that are poorly diversified both geographically and across industries and they prefer to invest in countries with strong legal institutions. Geography was also found to affect the investment decision of SWFs. SWF tend to invest in nations that are geographically closer (Karolyi and Liao, 2015). Likewise, Portes and Rey (2005) find that the geography of information is the main determinant of the pattern of international transactions, while there is weak support in the data for the diversification motive, once we control for the informational friction. They use physical distance as a proxy information costs, stemming from information asymmetries between domestic and foreign investors, and the efficiency of transactions. Debarsy et al. (2017) provide evidence of spatial competition among recipient countries, with investments in one country being on average at the expense of its neighbors.

### 3. SWFs: Data and Stylized Facts

We collect data from the SWF institute between 2005 and 2015, accounting for 16042 transactions for 28 SWFs investing in 99 countries. The total amount of these transactions is estimated at over 1 trillion USD. Appendix 1 contains detailed data covering a listing of largest sums of direct SWFs transactions (Table A.1); breakdowns of SWFs transactions by sector for the GCC, MENA without GCC and World without MENA (Table A.2); and, a similar regional classification broken down by investment type (Table A.3). Several stylized facts could be gleaned from the data along three sets of issues: FDI vs other types of SWFs transactions; sectoral allocation of SWFs investments; and, the Arab world as a source and recipient of SWFs investments.

First, the data reveals strong growth of SWF investments throughout the period. However, while domestic investment remained stagnant at relatively low levels, cross border investment has experienced the most dramatic expansion, accounting for almost 90% of total transactions. In turn, more than 90% of SWFs foreign investments were in the form of FDI (Figure 1).

**Figure 1. Investments by year 1998-2015 (in Million USD)**



Source: Authors' elaboration, using SWFs dataset.

Most SWFs have the freedom to allocate funds domestically or invest abroad. Exceptions to the rule are SWFs in Norway, Saudi Arabia, and Hong Kong, which are mandated to invest only abroad, and those in Brazil and Russia which focus exclusively on domestic markets. As shown in Table 1, cross-border investments accounted for around 82 percent of total value traded. The average value of cross-border transactions reached US\$ 50 million. Naturally, home investments by SWFs accounted for the remaining 18 percent of the value traded yet with a much larger average value per transaction of around US\$ 110 million.

Investments by these 27 SWF were allocated to 95 countries, largely to the main financial centers of the world, as shown in Panel A of Figure 2. This is, of course, unsurprising since financial markets in developed economies provide many alternatives for risk hedging and long-term investment. Around one quarter of the value of cross-border transactions was invested in the US market, while an additional 18 percent went to the UK, and a further 16 percent to Switzerland.

Large OECD economies –such as Australia, Germany, and France—are also attractive markets for investors, while emerging China enticed around 5 percent of the value of investments.

The remaining 25 percent of the value of transactions was scattered in 79 countries. As shown in Panel B of Figure 1, a negligible fraction of cross-border investment was allocated to Arab countries (0.5%). Asian countries –which include the large financial centers in Hong Kong, Singapore and Shanghai—capture around 17 percent of total investments. Note that Latin America, Eastern Europe and even Africa attract more SWF investment than the MENA region, including the rich GCC countries.

**Table 1. Total Transactions by SWFs, 2005-2015**

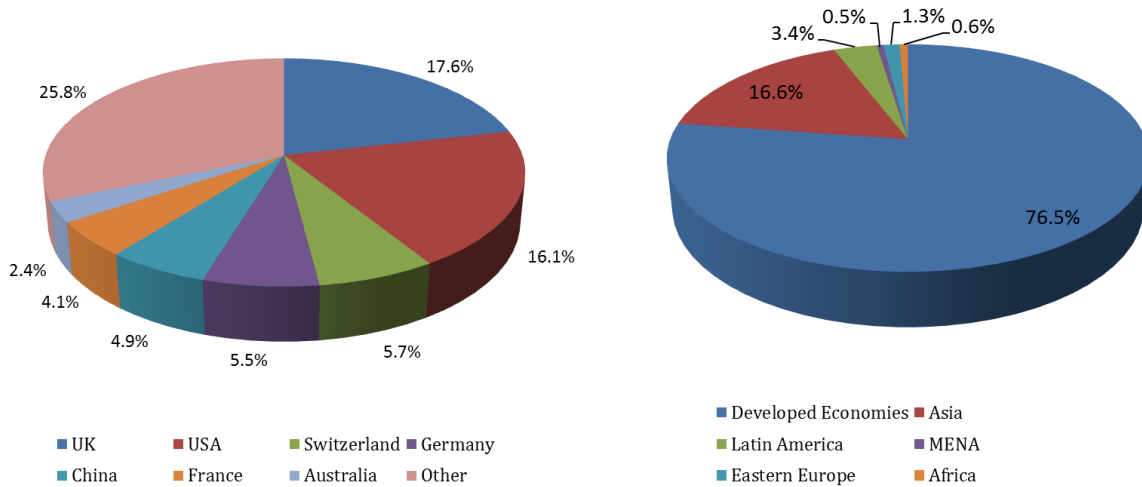
SWF Country	Total Transactions		Cross Border Transactions		Home Investments	
	Value Traded (US\$ millions)	Number of Transactions	Value Traded (US\$ millions)	Number of Transactions	Value Traded (US\$ millions)	Number of Transactions
<b>Singapore</b>	231,492	2,169	209,134	2,085	22,358	85
<b>Norway</b>	215,156	6,426	217,141	6,426	0	0
<b>Qatar</b>	110,973	107	91,865	95	19,108	12
<b>UAE</b>	110,906	893	103,426	877	7,480	16
<b>China</b>	97,933	974	64,610	237	33,323	737
<b>Kuwait</b>	46,469	638	46,208	634	261	4
<b>Ireland</b>	27,712	100	2,655	100	25,057	5
<b>Korea</b>	17,768	2,859	17,728	2,857	40	2
<b>Russia</b>	14,927	12	0	0	14,927	12
<b>Malaysia</b>	11,138	42	5,953	23	5,185	19
<b>Australia</b>	11,113	8	1,456	6	9,657	2
<b>Brazil</b>	9,341	3	0	0	9,341	3
<b>France</b>	9,236	9	237	2	8,999	7
<b>Azerbaijan</b>	8,631	12	8,303	9	328	3
<b>Canada</b>	8,079	702	5,949	576	2,130	126
<b>Saudi Arabia</b>	7,883	96	7,883	96	0	0
<b>Libya</b>	6,659	5	2,659	4	4,000	1
<b>USA</b>	4,404	500	623	30	3,781	470
<b>Oman</b>	3,848	15	2,554	8	1,294	7
<b>Italy</b>	3,719	6	0	0	3,719	6
<b>New Zealand</b>	1,267	12	614	7	653	5
<b>Hong Kong</b>	958	4	958	4	0	0
<b>Nigeria</b>	310	2	0	0	310	2
<b>Kazakhstan</b>	106	1	0	0	106	1
<b>Angola</b>	100	1	0	0	100	1
<b>Brunei</b>	42	5	42	5	0	0
<b>Georgia</b>	11	1	0	0	11	1
<b>Total</b>	960,161	15,602	787,993	14,075	172,168	1,527

Source: Own elaboration based on data from Sovereign Wealth Institute

**Figure 2. Total Value of Cross-Border Investments by SWF, 2005-2015**

Panel A: Main Recipient Countries

Panel B: by Region

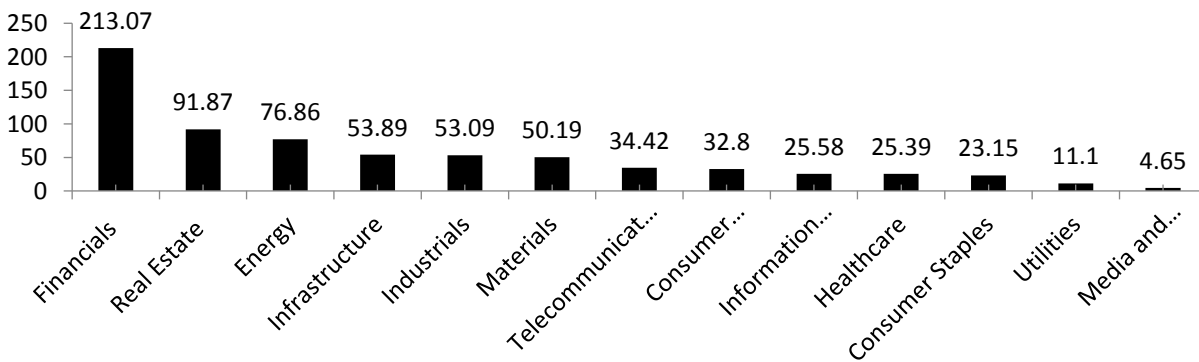


Source: Own elaboration based on data from Sovereign Wealth Institute

This is a notable anomaly to the investment pattern of SWFs and prompts the question of why would investors forego potentially profitable opportunities in capital-scarce Arab countries where there is an appetite for FDI and a potential for growth? According to the World Bank (2017), Arab countries grew at 4.2% per year in real terms during the 2005-2015. Economic growth in other regions of the world was similar (Africa and East Asia, 4.6%) or much slower (Latin America, 2.9%; Central Europe, 2.9%; and the OECD, 1.5%). Yet, these regions received substantially more investment from SWFs than Arab countries. If sustained economic growth provides opportunities for high returns and risk diversification, it is a puzzle why Arab countries did not entice investments by SWFs.

Second, the allocation of SWFs investments differs quite markedly across sectors. For example, out of 13 sectors, finance alone accounted for about 33% of SWFs investments during the period, followed by real estate and energy, with a combined share of 26%. The third-tier group of sectors-comprised by infrastructure, industries and materials- managed to attract about 24.5% of total investments. This leaves less than 17% of total investments for the remaining seven sectors (Figure 3).

**Figure 3. Top Sectors for Investors (in Billions USD), 2005-2015**



Source: Authors' elaboration, using the SWF dataset.

Third, focusing on the Arab world, the data suggests that the number of transactions of Arab SWFs were less than 12% of total transactions (Table 2). Furthermore, intra-Arab investments were relatively low, both in terms of number of transactions and the value of investment. In keeping with global patterns, the vast majority of this investment was done in finance, followed by communications, real estate, energy and consumer discretionary. Instead, investments by Arab SWFs outside the Arab world was largely accounted for by infrastructure, followed by real estate, finance and energy. Also, infrastructure in both Arab and non-Arab economies was, by far, the most dominant sector as a recipient of non-Arab SWFs. Nonetheless, while Non-Arab investors allocated considerable funds to other sectors more broadly in non-Arab recipient countries, their investments in Arab countries were essentially accounted for by infrastructure.

In contrast to the global pattern, intra-Arab investments are in fact lower (at 45% of total transactions) than domestic investments in the home countries of the SWFs (Table 3). Also, most of the investment is done as equity (Table 4). The low intra-Arab SWFs investments seems to be compensate for by the large government to government flows, which are mainly driven by strategic considerations. Instead, SWFs investments are likely to be highly sensitive to the quality of institutions. Table 5 shows a significantly positive correlation between first the residuals of regressing both institutions and cross border investment on destination, year, sector and investment type dummies and second the observed values of both institutions and cross border investment. However, the quality of institutions in most non-GCC Arab countries was much lower relative to the standard of the capital surplus economies of the GCC (Figure 4). Therefore, it is perhaps natural that GCC owners of SWFs have elected to investment in their own economies and those outside the Arab world and avoided other Arab destinations.

**Table 2. Average of Cross Border Investment between Arab and Non-Arab Countries**

	From To	Arab	Arab	Non-Arab	Non-Arab
		Arab	Non-Arab	Arab	Non-Arab
Average investment By sector (in billion USD)	Consumer Discretionary	25.4	73.3	18.7	54.8
	Energy	45.8	179.5	11.5	64.5
	Financials	199.4	196.2	21.1	78.6
	Healthcare	0.9	36.9	3.8	36.2
	Industrials	1.8	93.9	3.4	18.6
	Information Technology	5.0	78.4	1.1	18.6
	Materials	0.5	87.5	4.1	37.1
	Media and Entertainment	0.0	118.0	0.0	43.2
	Real Estate	47.0	359.5	7.6	91.6
	Telecommunications	88.3	45.0	10.8	76.6
	Utilities	0.0	65.6	19.3	18.0
	Infrastructure	0.0	638.6	2200.0	493.3
Number of transaction by investment type	Other	5	185	1	259
	Equity	36	1,596	63	12,283
Descriptive Statistics	Number of transaction	41	1781	64	12542
	Mean	34.5	164.4	191.8	85.9
	Std. Dev.	316.0	553.2	274.3	235.4
	Min	0.0	0.0	0.0	-18.6
	Max	2000.0	9983.4	2200.0	9760.0

Source: Authors' elaboration, using the SWF dataset.

**Table 3. Number of Intra-Arab SWF Investments, 2005-2015**

	ARE	BHR	KWT	LBY	OMN	QAT	SAU	Total
ARE	19	1	4	0	0	1	0	25
BHR	0	3	0	1	0	0	1	5
EGY	8	0	1	0	0	0	0	9
JOR	2	0	2	1	0	0	0	5
KWT	1	0	4	0	0	0	0	5
LBY	0	0	0	1	0	0	0	1
MAR	6	0	0	0	0	1	0	7
OMN	1	0	0	0	10	1	0	12
QAT	5	0	0	0	0	18	0	23
SAU	0	0	0	0	0	0	3	3
TUN	2	0	0	1	0	1	0	4
Total	44	4	11	4	10	22	4	99

Source: Authors' elaboration, using the SWF dataset.

Note: Figures highlighted in yellow show domestic investment.

Countries acronyms are available in Table A.6.

**Table 4. GCC SWF transactions in by investment type, 2005-2015**

Investment Type	ARE	BHR	KWT	OMN	QAT	SAU
Convertible	1%	0%	1%	0%	4%	0%
Fixed Income	1%	0%	0%	6%	1%	0%
Infrastructure	1%	0%	0%	3%	1%	0%
Equity	89%	75%	96%	47%	55%	99%
Private Equity Fund	0%	0%	0%	9%	0%	1%
Real Estate	8%	25%	3%	35%	39%	0%
	100%	100%	100%	100%	100%	100%

Source: Authors' elaboration, using the Sovereign Wealth Funds data.

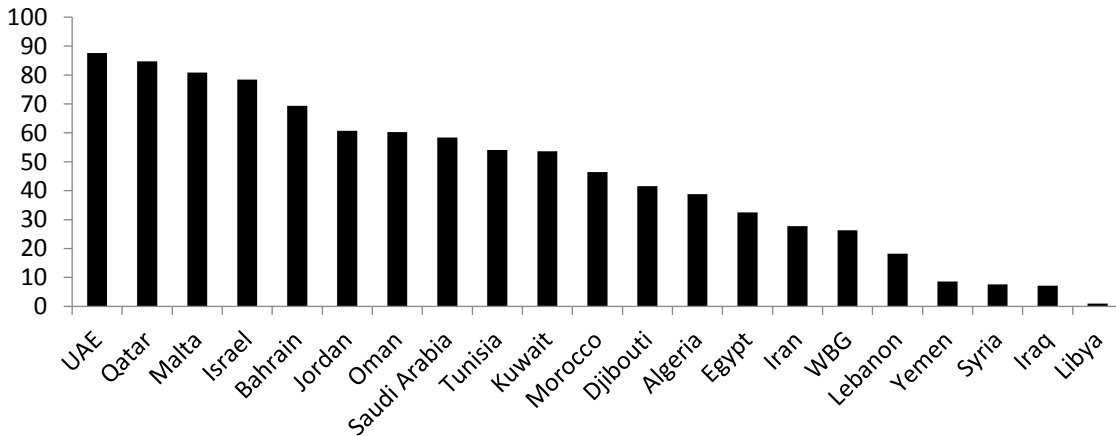
**Table 5 Correlation between Cross Border Investment and Institutional Variables**

	Gov. Eff.	Cont. corr.
Residuals <sup>1</sup>	0.2048*** (0.000)	0.251*** (0.000)
Index <sup>2</sup>	0.189*** (0.000)	0.216*** (0.000)

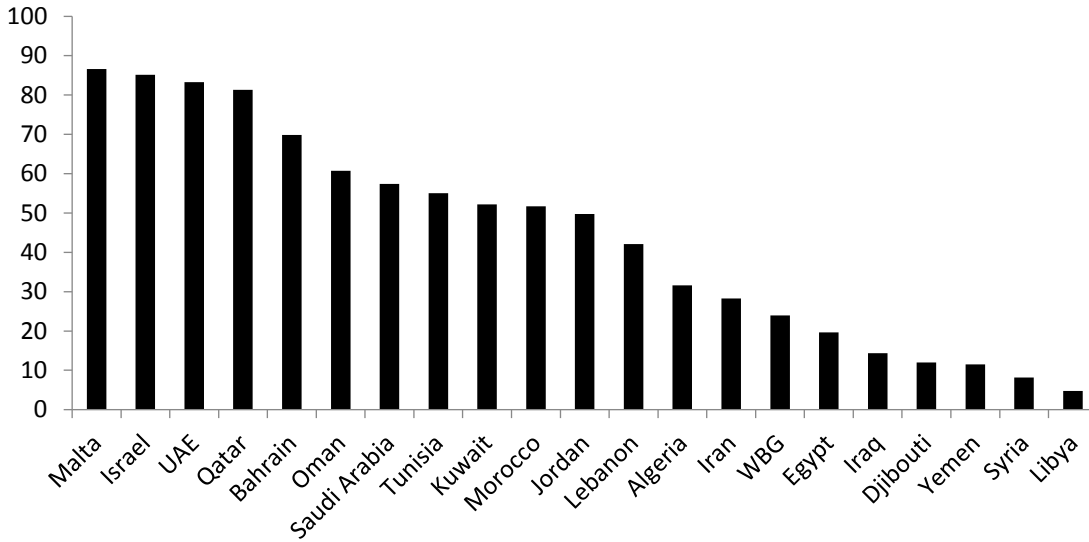
Source: Authors' elaboration using data from the World Bank and Sovereign Wealth Funds.

Note: 1. These coefficients measure the correlation between the residuals of regressing both institutions and cross border investment on destination, year, sector and investment type dummies.

2. These coefficients measure the correlation between the observed values of both institutions and cross border investment

**Figure 4a. Control of Corruption Index, 2015**

**Figure 4b. Government Effectiveness Index, 2015**



Source: Authors' elaboration, using World Governance Indicators, World Bank.

#### 4. An Econometric Model of SWFs Foreign Investments

Building on the relatively nascent literature on the determinants of SWFs' investments allocation decisions between the home nation and abroad (e.g. Bernstein et al, 2013), we posit a probit model where the dependent variable is a cross investment dummy ( $Cross_{ijkt}$ ), which equals one if the target investment is made abroad (from country  $i$  to country  $j$  in sector  $k$  and year  $t$ ) and zero otherwise. This variable measures the extensive margin as shown in equation (1). We also estimate a similar model, where the dependent variable is the real value of SWF's abroad ( $Ln(CrossInv_{ijkt})$ ) and it measures the intensive margin as shown in equation (2). We start off by stating a baseline gravity type model, where we control for a set of gravity variables as well as an Arab region dummy:

$$Prob(Cross_{ijkt}) = \alpha_0 + A'G_{ijt} + \alpha_1 Arab_j + f_t + f_k + f_i + \varepsilon_{ijk} \quad (1)$$

$$Ln(CrossInv_{ijkt}) = \alpha_0 + A'G_{ijt} + \alpha_1 Arab_j + f_t + f_k + f_i + \varepsilon_{ijk} \quad (2)$$

Where  $Cross_{ijkt}$  the vector  $G_{ijt}$  is given by  $(ln(GDP_j/GDP_i), ln(Dist_{ij}))$  and  $(GDP_{it})$  is the GDP of the investment origin  $I$  in time  $t$ ,  $(GDP_{jt})$  the GDP of the investment destination  $j$  in time  $t$ ,  $ln(Dist_{ij})$  bilateral distance between the countries  $i$  and  $j$ . The Arab dummy variable ( $Arab_j$ ) takes the value of 1 if the destination is an Arab country and zero otherwise. Finally, we control for year  $f_t$ , sector  $f_k$  and investment type  $f_i$  fixed effects.  $\varepsilon_{ijk}$  is the discrepancy term.

A negative coefficient of the Arab dummy suggests that, controlling for the baseline gravity factors, there is a bias against investing in Arab destination countries; while a positive estimate would suggest over-investment in Arab destinations. This is the fundamental research question to be analyzed by the baseline model. The next research and policy question that naturally follows would be: what might explain such bias, positive or negative, if it does exist?

We consider this question in the context of an extended model that accounts for the stock of previous investments, which is assumed to reflect the extent of knowledge about the investment climate in the destination economy; returns to investment in the foreign destination economy



relative to the home economy; and measures of institutional quality of relevance to investment risks. Accordingly, we posit the following extended models:

$$\begin{aligned}
 Prob(Cross_{ijkt}) &= \alpha_0 + A'G_{ijt} + \alpha_1 Arab_j + \alpha_2 \ln(LendRate_{jt}/LendRate_{it}) + \alpha_3 Totinv_{jt} + \alpha_4 Inst_{jt} \\
 &\quad + f_t + f_k + f_i + \varepsilon_{ijk} \quad (1') \\
 Ln(CrossInv_{ijkt}) &= \alpha_0 + A'G_{ijt} + \alpha_1 Arab_j + \alpha_2 \ln(LendRate_{jt}/LendRate_{it}) + \alpha_3 Totinv_{jt} + \alpha_4 Inst_{jt} \\
 &\quad + f_t + f_k + f_i + \varepsilon_{ijk} \quad (2')
 \end{aligned}$$

where,  $(LendRate_j)$  the lending rate at the foreign destination economy,  $\ln(LendRate_i)$  the lending rate at the home economy,  $Totinv_j$  stands for previous bilateral investments (sum of historical investments between the two countries) as it measures market knowledge that is related to lower asymmetry in information and the lower fixed cost. Finally,  $Inst_j$  refers to the quality of institution at the foreign destination, and is measured by two economic governance indicators on government effectiveness and control of corruption<sup>5</sup>.

## 5. Empirical Results

To control for heterogeneity that are likely to influence investment decisions across type and sectoral destination, the two sets of regressions posited above are estimated for three levels of SWFs investment flows, including aggregate, type (equity vs. non-equity) and sectoral (consumer discretionary, finance, real estate, energy and industry) levels of investment. The regressions are estimated using a data field covering the period 2005-2015 and spanning investment flows by SWFs from 28 countries into 102 foreign and home country destinations (Appendix 2 contains a listing of the origin and destination countries, Table A.4).

The data sets used for the regressions were mainly drawn from four sources. First, the relative GDP between destination and origin and the lending rate ratio come from the World Development Indicators. Second, cross border investment and total investment come from the SWF dataset. Third, institutional variables come from the World Bank's World Governance Indicators. Finally, gravity variables come from the CEPII online dataset. The summary statistics of the regression variables are contained in Table A.5 (of Appendix 2).

For the remainder of this section we discuss first the estimation results of the baseline gravity-type model to be followed by the extended investment model.

### 5.1. Results of the Baseline model

As discussed, the econometric strategy behind the baseline model is to undertake a preliminary assessment of the existence of an SWFs investment bias against or for the Arab world that could not be explained by the standard gravity-type variables.

Starting with the results for the extensive margin (Table 6), we find strong support for the gravity variables. The ratio between the GDP at destination and GDP at origin exerts a positive impact on the probability of investing abroad since it shows a larger market leading to a higher demand. Moreover, the longer the distance, the higher the likelihood of implementing a cross-border investment. In the FDI literature, exports and FDI are substitutes. Indeed, the longer the distance, the higher the transport cost, the lower the exports and the higher the probability of investing abroad to overcome extra-costs implied by long distances. These two variables sign and level of

<sup>5</sup> Control of corruption and government effectiveness are not introduced in the same regression given the high multicollinearity between them.

significance do not change for the aggregate regression and sectoral ones. Yet, it is important to note that Stein and Daude (2002) showed that distance does not have the same impact on investment flows along a north–south axis as it does along an east–west axis. This is chiefly due to the fact that the costs of coordinating multinational activity are clearly higher when a subsidiary operates in a country belonging to a different time zone. These two gravity variables were also found to be robustly associated with SWF investment at the intensive margin (Table 7).

Controlling for the gravity variables, we find the Arab dummy to be significantly and positively associated with SWFs investment decisions at the extensive margin. In addition to overall investment, the results suggest that the Arab world constitute an attractive destination for foreign investors who target some key sectors. By contrast, at the intensive margin of SWFs investment, the estimated Arab dummy effect was negative and significant for overall investments as well as for equity, finance and real estate destinations. Hence, for aggregate investment and these three sectors, even if the Arab region might be attractive at the extensive margin level, the quantity of investment allocated to it is relatively low. On the other hand, for the cases of consumer discretionary, energy and industry the Arab dummy is insignificant. These results seem to cohere with the FDI data, where in 2013 for example, coal, oil and natural gas were the leading industries benefitting from FDI inflows. Between 2003 and 2012, the natural resource and non-tradable sectors (such as construction) received nearly 3/5<sup>th</sup> of green field FDI flows, while FDI in manufacturing has accounted for a hefty one fifth of all FDI inflows to the region (with some for food processing, consumer products and textile industries). For energy, the results seem plausible as this region remains attractive given its endowments in energy sectors. For consumer discretionary, there is no negative bias since these countries, being populous, are characterized by high demand. However, the result for industry might be explained by sectoral investment promotion policies, because the economy-wide investment climate in the Arab region tends to be bias against tradable sectors, such as manufacturing.

**Table 6. Extensive Margin – Basic Specification**

	All	Equity	Cons.	Energy	Finance	Industry	Real. Estate
	Prob(Cross)	Prob(Cross)	Prob(Cross)	Prob(Cross)	Prob(Cross)	Prob(Cross)	Prob(Cross)
Ln(GDP) ratio	16.99*** (0.554)	17.69*** (0.576)	16.56*** (1.136)	21.53*** (2.784)	21.46*** (2.007)	14.67*** (1.141)	20.55*** (2.428)
Ln(Dist)	0.996*** (0.0358)	0.981*** (0.0367)	0.783*** (0.0685)	1.684*** (0.262)	1.114*** (0.104)	0.867*** (0.0786)	1.058*** (0.122)
Arab dest.	1.268*** (0.190)	1.431*** (0.211)	-	-	1.422*** (0.392)	2.162** (1.069)	0.817* (0.475)
Constant	-24.17*** (0.754)	-23.25*** (0.843)	-20.22 (170.3)	-30.15 (313.0)	-27.94*** (2.396)	-20.05*** (1.722)	-30.62*** (3.111)
Year dum.	YES	YES	YES	YES	YES	YES	YES
Sector dum.	YES	YES	NO	NO	NO	NO	NO
Inv. type dum.	YES	NO	YES	YES	YES	YES	YES
Observations	12,196	11,768	2,528	791	1,723	1,952	1,003

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 7. Intensive Margin – Basic Specification**

	All	Equity	Cons.	Energy	Finance	Industry	Real. Estate
	Ln(Cross)	Ln(Cross)	Ln(Cross)	Ln(Cross)	Ln(Cross)	Ln(Cross)	Ln(Cross)
Ln(GDP) ratio	2.107*** (0.266)	1.990*** (0.263)	2.721*** (0.558)	-1.053 (1.032)	0.329 (0.842)	2.549*** (0.567)	4.716*** (0.994)
Ln(Dist)	0.153*** (0.0129)	0.123*** (0.0126)	0.0192 (0.0274)	0.299*** (0.0583)	0.187*** (0.0411)	0.0406 (0.0264)	0.270*** (0.0397)
Arab dest.	-0.534*** (0.128)	-0.351*** (0.129)	0.225 (0.423)	0.478 (0.663)	-0.627** (0.253)	-0.287 (0.491)	-0.865** (0.406)
Constant	-1.627*** (0.319)	-0.198 (0.336)	-0.877 (0.837)	1.553 (1.261)	1.228 (0.946)	-1.381* (0.762)	-7.450*** (1.037)
Year dum.	YES	YES	YES	YES	YES	YES	YES
Sector dum.	YES	YES	NO	NO	NO	NO	NO
Inv. type dum.	YES	NO	YES	YES	YES	YES	YES
Observations	12,196	11,768	2,544	830	1,737	1,976	1,003
R-squared	0.123	0.081	0.053	0.152	0.132	0.060	0.329

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

## **5.2. Results of the Extended Model**

The extended model is a more encompassing set of empirical specifications that embed the baseline model as well as account for further determinants of cross border investment such as: the existing total investment, the lending rate at destination relative to the home economy, and two alternative measures of institutions at the recipient economy (control of corruption, government effectiveness) that are deemed most relevant to the determination of FDI decisions. The results of the estimation of these specifications are contained in Tables 8-11. First, the estimated effect of total past investment crucially depends on the margin type. For the extensive margin, total investment is positively associated with the likelihood of investing abroad. Indeed, the higher the historical bilateral investments between two countries, the lower asymmetry in information and the lower the fixed cost incurred by a firm (encompassing investments in facilities, equipment, the basic organization and management and knowledge of the market) and hence the higher the probability of a cross border investment. By contrast, for the intensive margin, the higher the total investment, the lower the quantity of cross-border investment. This can be attributed diminishing marginal productivity of capital due to rising short-term average costs. This is why countries with a high level of initial total investment will not be attracting more investments in the same sectors from the same origins. These findings hold for aggregate regressions, sectoral ones and regressions by investment type (equity or not) and for both types of institutions.

Second, as expected, relative lending rate is positively associated with both the probability and the quantity of cross border investment.

Third, institutions of poor quality can increase uncertainty, unpredictability, instability, corruption and transaction costs which discourages private investors. We measure institutions by both the government effectiveness and control of corruption. First, government effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Hence the higher the level of government effectiveness, the higher the likelihood of investing abroad. Second, corruption may deter investment by increasing the cost of doing business, as investors need to bribe officials in order to obtain licenses and permits (Wheeler and Mody, 1992). In the same line, Shleifer and Vishny (1993) argued that the secrecy of corruption is what makes it much more distortionary than taxes and hence costlier and more discouraging for foreign investors. Both of the two variables exert a positive impact on the likelihood of investment and on the quantity of investment. Yet, sectoral heterogeneity can be observed. Indeed, countries with high-quality institutions tend to invest in more complex sector. Acemoglu, Antràs and Helpman (2007) show that greater contractual incompleteness leads to the adoption of less advanced technologies by the firm. This might explain why energy turns out to be insensitive to institutions at the extensive margin level. At the intensive one, institutions were also found to be insignificant as a determinants of SWFs investments in the energy sector. This sector is not complex by nature, and therefore do not require a large number of contracts to acquire inputs and hence should be less affected by the quality of institutions than more complex goods. Moreover, investment in this sector is also likely to be determined by strategic and geo-political considerations<sup>6</sup>.

Yet, other sectors such as finance, consumer discretionary and industry are differentiated and have a high value-added. Because of their differentiation, they are traded through search and match

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<sup>6</sup>See, for example, Verrastro et al (2010).

between investors, customers and suppliers. The process of search is facilitated by the quality of institutions that improve the information flow and knowledge of foreign markets (Rauch, 1999; Rauch and Trindade, 2002). Our results lend support to this argument, at both the extensive and intensive margins, for the cases of SWFs investments in equity as a type of investment, and for consumption as a sectoral destination and for real estate at the intensive margin. The results for the case of finance was starkly different. Surprisingly, both measures of institutions were not found to be significant at the extensive margin, but negative and significant at the intensive margin. However, at least at the intensive margin, these results could perhaps be justified on the ground that high government effectiveness and control of corruption might deter excessive and likely speculative investment in financial instruments.

Having established the relevance of relative profitability, stock of past investments and institutions as determinants of SWFs investments, we return to the pivotal question on whether the Arab world as a destination of SWFs investments is different? Specifically, we test for whether the positive and significant effect of the Arab dummy at the extensive margin, estimated under the baseline model, continues to hold under the extended one; and, instead, whether the negative bias remains significant at the intensive margin?

The results on the marginal impact of the Arab dummy are summarized in Table 12. For the extensive margin, the Arab dummy remains positive and highly significant for aggregate investment and equity. However, it is no longer significant for finance and real estate, while it dropped out for consumption, industry and energy. Therefore, our evidence suggests that SWFs' cross-border investment decisions in the Arab destinations, including on equity, could not be fully explained by gravity and other policy variables. Instead, at the intensive margin, the Arab dummy is no longer relevant as a determinant of SWFs' cross-border investments.

**Table 8. Extensive Margin – Extended Specification with Control of Corruption**

	All Prob(Cross)	Equity Prob(Cross)	Energy Prob(Cross)	Finance Prob(Cross)	Industry Prob(Cross)	Real. Estate Prob(Cross)
Ln(GDP) ratio	18.98*** (1.600)	21.33*** (2.073)	21.58*** (6.736)	51.61*** (15.54)	51.75* (30.42)	11.72*** (3.417)
Ln(Dist)	1.239*** (0.0770)	1.246*** (0.0963)	2.856*** (0.765)	2.353*** (0.551)	4.385 (2.797)	1.001*** (0.191)
Arab dest.	2.025*** (0.548)	1.598** (0.806)	-	1.629 (1.834)	-	1.738* (0.966)
Lend ratio	1.629*** (0.192)	1.761*** (0.246)	2.365 (1.664)	4.627*** (1.575)	0.518 (1.629)	0.377 (0.456)
Ln(Tot. Inv)	0.0668*** (0.00390)	0.0876*** (0.00499)	0.112*** (0.0293)	0.119*** (0.0272)	0.333** (0.166)	0.0397*** (0.00819)
Gov. Eff.	0.525*** (0.0951)	0.689*** (0.121)	0.563 (0.749)	0.973* (0.591)	4.858 (3.049)	-0.492* (0.252)
Constant	-31.96*** (2.091)	-32.61*** (2.670)	-47.81 (543.1)	-76.69 (128.7)	-87.42* (48.81)	-21.67*** (3.898)
Year dum.	YES	YES	YES	YES	YES	YES
Sector dum.	YES	YES	NO	NO	NO	NO
Inv. type dum.	YES	NO	YES	YES	YES	YES
Observations	5,635	5,350	430	818	755	497

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 9. Intensive Margin – Extended Specification with Control of Corruption**

	All Ln(Cross)	Equity Ln(Cross)	Cons. Ln(Cross)	Energy Ln(Cross)	Finance Ln(Cross)	Industry Ln(Cross)	Real. Estate Ln(Cross)
Ln(GDP) ratio	6.557*** (0.441)	7.307*** (0.441)	6.340*** (0.883)	1.505 (1.573)	8.099*** (1.392)	11.00*** (0.952)	7.424*** (1.587)
Ln(Dist)	0.357*** (0.0196)	0.313*** (0.0190)	0.323*** (0.0431)	0.581*** (0.0881)	0.408*** (0.0670)	0.137*** (0.0348)	0.361*** (0.0593)
Arab dest.	-0.319 (0.262)	-0.365 (0.292)			-0.628 (0.469)	-0.143 (1.009)	-0.543 (0.744)
Lend ratio	0.150*** (0.0365)	0.145*** (0.0370)	0.300*** (0.0804)	0.174 (0.148)	0.00524 (0.0977)	0.0434 (0.0598)	0.0538 (0.118)
Ln(Tot. Inv)	-0.000944*** (9.28e-05)	-0.000897*** (8.87e-05)	-0.00105*** (0.000179)	-0.00122*** (0.000353)	-0.000972*** (0.000281)	-0.000714*** (0.000187)	-0.00128*** (0.000401)
Gov. Eff.	0.119*** (0.0409)	0.0758* (0.0398)	0.301*** (0.0911)	0.0245 (0.166)	-0.686*** (0.123)	-0.0183 (0.0715)	0.428** (0.173)
Constant	-8.406*** (0.481)	-7.834*** (0.505)	-8.381*** (1.103)	-3.661** (1.862)	-7.612*** (1.484)	-12.10*** (1.052)	-12.21*** (1.612)
Year dum.	YES	YES	YES	YES	YES	YES	YES
Sector dum.	YES	YES	NO	NO	NO	NO	NO
Inv. type dum.	YES	NO	YES	YES	YES	YES	YES
Observations	5,635	5,350	1,181	454	830	774	497
R squared	0.261	0.235	0.191	0.254	0.328	0.332	0.425

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 10. Extensive Margin – Extended Specification with Government Effectiveness**

	All	Equity	Energy	Finance	Industry	Real. Estate
	Prob(Cross)	Prob(Cross)	Prob(Cross)	Prob(Cross)	Prob(Cross)	Prob(Cross)
Ln(GDP) ratio	18.34*** (1.548)	20.30*** (1.941)	20.11*** (6.783)	45.28*** (15.55)	20.25* (10.69)	10.08*** (3.567)
Ln(Dist)	1.168*** (0.0715)	1.123*** (0.0829)	2.464*** (0.583)	1.862*** (0.361)	1.648*** (0.521)	1.121*** (0.213)
Arab dest.	1.548*** (0.513)	1.155* (0.693)		1.095 (1.329)		1.951* (1.028)
Lend ratio	1.290*** (0.178)	1.327*** (0.222)	1.306 (1.403)	3.415*** (1.247)	0.133 (0.333)	0.240 (0.444)
Ln(Tot. Inv)	0.0674*** (0.00397)	0.0872*** (0.00493)	0.101*** (0.0252)	0.111*** (0.0247)	0.191*** (0.0364)	0.0466*** (0.00965)
Cont. Cor.	0.151** (0.0653)	0.237*** (0.0781)	-0.115 (0.400)	0.177 (0.321)	0.873 (0.587)	-0.600*** (0.203)
Constant	-30.02*** (1.945)	-29.76*** (2.388)	-40.98 (314.1)	-64.70* (36.04)	-33.66*** (12.48)	-20.86*** (3.886)
Year dum.	YES	YES	YES	YES	YES	YES
Sector dum.	YES	YES	NO	NO	NO	NO
Inv. type dum.	YES	NO	YES	YES	YES	YES
Observations	5,635	5,350	430	818	755	497

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1



**Table 11. Intensive Margin – Extended Specification with Government Effectiveness**

	All Ln(Cross)	Equity Ln(Cross)	Cons. Ln(Cross)	Energy Ln(Cross)	Finance Ln(Cross)	Industry Ln(Cross)	Real. Estate Ln(Cross)
Ln(GDP) ratio	6.357*** (0.439)	7.060*** (0.440)	5.987*** (0.872)	1.686 (1.570)	8.344*** (1.405)	10.87*** (0.960)	7.623*** (1.579)
Ln(Dist)	0.353*** (0.0194)	0.312*** (0.0188)	0.284*** (0.0434)	0.570*** (0.0880)	0.426*** (0.0681)	0.141*** (0.0341)	0.356*** (0.0567)
Arab dest.	-0.373 (0.260)	-0.417 (0.291)			-0.227 (0.472)	-0.143 (1.009)	-0.607 (0.732)
Lend ratio	0.206*** (0.0360)	0.203*** (0.0367)	0.386*** (0.0804)	0.287** (0.145)	0.0834 (0.0968)	0.0555 (0.0589)	0.0650 (0.113)
Ln(Tot. Inv)	-0.000977*** (9.16e-05)	-0.000926*** (8.75e-05)	-0.000994*** (0.000176)	-0.00126*** (0.000350)	-0.00108*** (0.000282)	-0.000741*** (0.000184)	-0.00131*** (0.000396)
Cont. Cor.	0.194*** (0.0301)	0.158*** (0.0294)	0.363*** (0.0686)	0.211* (0.118)	-0.399*** (0.0930)	0.0113 (0.0522)	0.396*** (0.124)
Constant	-8.279*** (0.479)	-7.684*** (0.505)	-7.786*** (1.105)	-4.166** (1.853)	-8.481*** (1.489)	-12.03*** (1.063)	-12.28*** (1.587)
Year dum.	YES	YES	YES	YES	YES	YES	YES
Sector dum.	YES	YES	NO	NO	NO	NO	NO
Inv. type dum.	YES	NO	YES	YES	YES	YES	YES
Observations	5,635	5,350	1,181	454	830	774	497
R squared	0.265	0.2139	0.203	0.259	0.318	0.332	0.430

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 12. SWFs’ Cross Border Investments: The Marginal Contribution of the Arab Dummy**

	Agg. Inv.	Equity	Consumption	Energy	Finance	Industry	Real estate
Probability of the of SWFs investments (extensive margin)							
Baseline model	+S	+S	dropped	dropped	+S	+S	+S
Extended model	+S	+S	dropped	dropped	NS	dropped	NS
The determinants of the size of SWFs investments (intensive margin)							
Baseline model	-S	-S	NS	NS	-S	NS	-S
Extended model	NS	NS	dropped	dropped	NS	NS	NS

Source: Tables 6-11.

1) +S= positive and significant

2) -S= negative and significant

3) NS= not significant

## 6. Conclusion

SWF surpassed US\$ 5.5 trillion in assets in 2014, growing nine-fold since 2002. Traditionally, SWFs save extra-budgetary surpluses (from resource revenues, foreign exchange reserves, or pension contributions) to smooth public revenue volatility and spending as well as to ensure intergenerational equity. Typically, SWFs have the choice to pursue either domestic (home) investments or abroad. However, despite the presence of highly endowed SWFs in the Arab region, relatively low cross-border SWFs funds are invested in capital importing Arab economies. This paper, therefore, analyses the determinants of SWF capital allocation decisions between the home country and abroad with a special focus on the Arab region. In particular, the paper asks whether SWF investment decisions reflect profitability and economic objectives or other strategic considerations, such geopolitical or institutional considerations.

Subscribing to the above, we test for the significance of an Arab dummy in a model of SWFs cross-border investment. Using data on the financial transactions on SWF and building on the limited literature on SWF, we use a linear probability model to analyze We estimate the probability of cross-border investment decision by SWFs (the decision at the extensive margin) as well as the determinants of the size of investment (decision at the intensive margin). We first estimate a gravity-type baseline model to glean some benchmark results, then we assess the robustness of the baseline model under a more encompassing model that that also accounts for relative profitability between the home and foreign destinations, the stock of past investments, and the quality of institutions. The benchmark results of the baseline gravity-type model suggest that, while foreign investors have a positive bias for the Arab destination countries at the extensive margin level, there is a negative bias against them at the intensive one. When we also control for relative profitability, past investment and economic governance institutions, the positive bias at the extensive margin disappears or drops out for the consumption, energy, industry, finance and real estate sectoral destinations. Nonetheless, the Arab dummy remains positive and significant for aggregate investment and equity. This suggests that cross-border SWFs investment decisions in Arab economies for the equity continue to be positively influenced by other, possibly strategic, factors not accounted for by the model. Moreover, on view of the dominance of the two as sectoral destinations of SWFs’ investments, aggregate investment is also influenced by idiosyncratic factors as manifest by the continued significance of the Arab dummy.

On the other hand, at the intensive margin, the Arab dummy became uniformly insignificant for the aggregate as well as for all types and sectoral destinations of SWFs' cross-border investments. On view of the evidence that the size of SWFs investments is fully explained by the extended model and the starkly low quality of economic governance institutions in the Arab investment recipient countries, the latter is likely to be the main factor behind the relatively low cross-border investments in the Arab world. Hence, with the expected even stiffer competition for SWFs resources under the "New Oil Order", capital scarce Arab economies must significantly enhance the quality of their economic governance institutions.

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**Appendix 1:**

Table A.1. Top Direct Sovereign Wealth Fund Transactions (in Millions USD, 2015)

#	Date	Target Name	Target Sector	Sovereign Wealth Fund	SWF Country	Amount
1	2009-11-23	Qatar Railways Development Company	Infrastructure	QIA	Qatar	13,260.00
2	2011-07-01	Allied Irish Banks	Financials	NPRF	Ireland	12,748.50
3	2009-09-02	Porsche Automobil Holding SE	Industrials	QIA	Qatar	9,983.40
4	2008-03-05	UBS AG	Financials	GIC	Singapore	9,760.00
5	2009-07-06	France Telecom SA	Telecommunications	FSI	France	8,099.08
6	2007-02-28	Telstra Corp Ltd.	Telecommunications	Future Fund	Australia	7,576.77
7	2007-11-26	Citigroup Inc	Financials	ADIA	UAE	7,500.00
8	2009-05-12	China Construction Bank Corporation	Financials	Temasek	Singapore	7,314.55
9	2010-09-24	Petrobras	Energy	Brazil FSB	Brazil	7,076.64
10	2008-01-28	Citigroup Inc	Financials	GIC	Singapore	6,880.00
11	2008-10-16	Credit Suisse Group AG	Financials	QIA	Qatar	6,000.00
11	2010-07-16	Agricultural Bank of China	Financials	QIA	Qatar	6,000.00
12	2014-03-21	A.S. Watson and Co	Consume Discretionary	Temasek	Singapore	5,700.00
13	2007-12-28	Morgan Stanley	Financials	CIC	China	5,579.14
14	2014-8-24	VTB Bank OAO	Financials	NWF	Russia	5,422.70
15	2011-02-16	Cia. Espanola de Petroleos SA	Energy	IPIC	UAE	5,370.00

Source: Sovereign Wealth Fund Website

**Table A.2. Transactions Amount by Sector for GCC and other countries (2005-2015)**

Target_Sector	Mean			Std. Dev.			Freq.		
	GCC	MENA without GCC	World without MENA	GCC	MENA without GCC	World without MENA	GCC	MENA without GCC	World without MENA
Consumer Discretionary	57.3	-	21.4	250.2	-	162.3	193.0	-	2250.0
Consumer Staples	15.4	0.0	36.3	30.7	0.0	178.3	145.0	1.0	940.0
Energy	175.2	325.0	79.2	705.3	35.4	378.4	150.0	2.0	954.0
Financials	198.5	507.1	96.1	767.0	878.2	555.5	343.0	3.0	2056.0
Healthcare	35.3	-	32.1	83.5	-	181.3	67.0	-	1087.0
Industrials	92.8	0.0	20.9	705.7	0.0	85.4	260.0	1.0	2288.0
Information Technology	102.5	-	18.4	383.2	-	60.5	123.0	-	1752.0
Infrastructure	875.7	2000.0	444.5	2096.7	2828.4	765.2	41.0	2.0	69.0
Materials	91.7	244.0	33.5	307.8	345.1	140.1	183.0	2.0	1373.0
Media and Entertainmen	100.7	-	42.0	309.9	-	94.8	39.0	-	38.0
Real Estate	346.9	0.0	96.9	562.5	0.0	302.4	230.0	1.0	1079.0
Telecommunications	46.7	-	122.3	121.1	-	670.0	64.0	-	303.0
Utilities	64.7	-	20.2	321.0	-	69.3	77.0	-	565.0

Source: Authors' elaboration, using the Sovereign Wealth Funds database

**Table A.3. Transactions Amount by Investment Type for GCC and other countries (2005-2015)**

Investment_Type	Mean			Std. Dev.			Freq.		
	GCC	MENA without GCC	World without MENA	GCC	MENA without GCC	World without MENA	GCC	MENA without GCC	World without MENA
Convertible	2137.5	-	904.0	2147.5	-	2183.1	16.0	-	34.0
Fixed Income	559.8	-	491.0	703.8	-	699.4	11.0	-	19.0
Infrastructure	1309.1	2000.0	475.0	2812.4	2828.4	851.8	21.0	2.0	49.0
Listed Equity	64.8	589.8	34.3	405.7	654.0	236.5	1522.0	4.0	14086.0
Private Equity Fun	625.8	-	321.5	1092.8	-	709.7	12.0	-	33.0
Real Estate	394.8	0.0	302.1	593.5	0.0	428.0	184.0	1.0	242.0
Real Estate Fund	306.5	-	135.6	439.2	-	123.8	11.0	-	17.0
Unlisted Equity	316.7	60.0	232.9	723.9	134.2	660.1	164.0	5.0	351.0

Source: Authors' elaboration, using the Sovereign Wealth Funds database.

Note: Mean are in (in Millions USD). Frequency shows the share of each sector in total investment.



**Appendix 2:**

**Table A.4. List of origin and destination countries**

<b>Origin</b>	<b>Destination</b>			
Angola	Ireland	France	Malta	South Korea
Australia	Angola	Georgia	Marshall Islands	Spain
Azerbaijan	Argentina	Germany	Mauritius	Sri Lanka
Bahrain	Australia	Gibraltar	Mexico	Sudan
Brazil	Austria	Greece	Montenegro	Sweden
Brunei	Azerbaijan	Guernsey	Morocco	Switzerland
Canada	Bahamas	Guinea	N/A	Taiwan
China	Bahrain	Hong Kong	Netherlands	Tajikistan
France	Barbados	Hungary	New Zealand	Tanzania
Georgia	Belgium	India	Nigeria	Thailand
Hong Kong	Bermuda	Indonesia	Norway	Tunisia
Ireland	Brazil	Ireland	Oman	Turkey
Italy	British Virgin Islands	Isle of Man	Pakistan	Uganda
Kazakhstan	Canada	Israel	Panama	United Arab Emirates
Kuwait	Cayman Islands	Italy	Papua New Guinea	United Kingdom
Libya	Chile	Japan	Peru	United States
Malaysia	China	Jersey	Philippines	Vietnam
New Zealand	Colombia	Jordan	Poland	Zimbabwe
Nigeria	Croatia	Kazakhstan	Portugal	
Norway	Cuba	Kenya	Puerto Rico	
Oman	Curacao	Kuwait	Qatar	
Qatar	Cyprus	Lebanon	Romania	
Russia	Czech Republic	Liberia	Russia	
Saudi Arabia	Denmark	Libya	Saudi Arabia	
Singapore	Egypt	Liechtenstein	Serbia	
South Korea	Europe	Lithuania	Seychelles	
United	Faroe Islands	Luxembourg	Singapore	
United States	Finland	Malaysia	South Africa	

Source: Constructed by the authors.

**Table A.5. Descriptive Statistics**

Variable	Obs.	Mean	St. Dev	Min.	Max.
Ln(Cross Bord)	16042	1.89	1.57	-1.02	9.21
Cross Bord	16042	0.90	0.30	0.00	1.00
Ln(GDP acq)	13162	26.84	1.10	22.99	30.33
Ln(GDP dest)	12200	28.72	1.43	18.80	30.33
Ln(Dist)	15853	8.36	1.14	2.26	9.87
Lend rate dest.	13105	3.98	4.12	0.50	44.65
Ln(Tot. inv)	15967	326.54	403.43	1.00	2509.00
Arab tar.	16042	0.01	0.10	0.00	1.00
Gov effect	15920	1.26	0.59	-1.57	2.43
Control. Cor.	15920	1.14	0.79	-1.50	2.45

Source: Constructed by the authors.

**Table A.6. List of Countries Acronym**

ARE	United of Arab Emirates
BHR	Bahrain
EGY	Egypt
JOR	Jordan
KWT	Kuwait
LBY	Libya
MAR	Morocco
OMN	Oman
QAT	Qatar
SAU	Saudi-Arabia
TUN	Tunisia

Source: Constructed by the authors.