What Can We Learn from Transactions Attributed to MENA and Other Sovereign Wealth Funds About Their Objectives and Strategies*

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January 17, 2019

Abstract

This paper attempts to detect the objectives of different sovereign wealth funds (SWFs) and to find clues to their investment strategies across different types of firms and their locations by utilizing available data on the individual transactions of different SWFs. We explore the extent to which and how the investment strategies embedded in SWF transactions by Middle East and North African (MENA) countries are related to their scores on the well-known Linaburg-Maduell (LM) index of SWF transparency and quality, the age and size of the assets owned by the fund, and the composition of their board members or other key officials in these funds.

Key Words: Sovereign Wealth Funds, Mergers and Acquisitions, Middle East and North Africa, Royal Families

JEL Classifications: G34**,** G15, G23, O53

I.   Introduction and Background

The last decade has brought about major shifts in the global financial landscape. One of the most significant, and often overlooked, trends is the rise of sovereign wealth funds (SWFs), especially those in Gulf Cooperation Council (GCC) countries. SWFs can enable sponsoring countries to shift from an often extremely heavy reliance on rents obtained from nonrenewable resources to a more diversified portfolio of financial and physical capital—partly in their own countries, but largely abroad. By investing heavily through their SWFs in this way, oil and other natural resource exporting countries can avoid the natural resource curse that is bound to result in the long run if they are not living up to Hartwick's Rule.[1]

There are many different, and often competing, objectives that can be addressed by SWFs in making their investments. One such objective is to avert the uncertainty of widely fluctuating oil prices, and possible environmental or conflict risks which could affect a country's ability to export natural resources. Other possible objectives of SWFs include saving for future generations after oil reserves are depleted and developing relationships with firms and industries which may eventually be interested in investing in the country. The latter objective could, in turn, allow individuals or firms in these countries to learn advanced technologies and to develop links to value chains that could foster diversification from oil, and to promote the development of human and physical capital. In the context of such links, not only would the sectors or functional types of those investments matter, but also their geographical pattern.

While much of the sovereign wealth fund boom has occurred only over the last two decades, some SWFs have been around for half a century. The first SWF, the Kuwait Investment Board (KIB), originated in Kuwait in 1953 while it was still a British Protectorate (prior to its independence). This formed the basis of today's Kuwait Investment Authority (KIA).[1] Since then, many countries across the globe, from Papua New Guinea to Norway, have created sovereign wealth funds. Some countries, like the United Arab Emirates, have opened multiple funds. It is worth noting that, while all the GCC funds were established from the revenues derived from exporting oil, some countries' funds (such as those of Singapore and China), are

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[1] Hartwick's Rule states that, because oil exports involve the sale of a country's wealth, to avoid lowering its future wealth it would have to use almost all the proceeds of its exports to invest in its human and physical capital stock and financial assets.

not commodity-based and others, like those of Chile, Peru and Botswana, are based on copper, diamonds, or other minerals rather than oil.

SWFs came under scrutiny in 2007-8 due in large part to the rapid growth in their assets after 2000, and the role that many of these funds played in the financial markets of Western nations during and after the 2007 financial crisis. Arab SWFs were major investors in U.S. banks when liquidity was vital. Many public figures in the U.S. and elsewhere expressed fear and distrust regarding the nature of the funds' investments[2]. With so little information available on the workings of these large funds, officials in various countries around the world suspected that SWFs may have been driven by political motives. Some believed that crucial segments of the U.S. and other Western economies would be bought up by these secretive foreign investors, with independent agendas capable of undermining the security and integrity of their economies.

This distrust of the secretive SWFs from the Middle East led to threats that serious barriers would be imposed on their ability to continue making investments in Western financial institutions as Westerners questioned whether there were any ulterior motives behind these investments. These misgivings gave rise to the development of an international association of SWFs, and to the creation of various indexes measuring the overall degree of transparency and managerial quality in the operation of SWFs. Opening their operations up to public scrutiny and earning acceptable scores on these indexes was intended to promote continued access by more transparent SWFs to financial markets and success in their investments. Table 1 provides a list of the most notable SWFs in the world, and the evolution of their assets between the years 2008 and 2016.

As can easily be seen in Table 1, quite a few of these funds come from the Middle East and North Africa (MENA) region. Some, like Algeria's Revenue Regulation Fund (RRF), Bahrain's Mumtalakat, the Development Fund for Iraq, the Libyan Investment Authority (LIA), and two UAE SWFs (the UAE's Ras Al Khaimeh and the Federal Emirates Investment Authority), have shown little growth in their assets. Yet, many of the others from this region, including Kuwait's aforementioned KIA, Iran's National Development Fund for Iran, Oman's State General Reserve Fund (SGRF), Qatar's Qatar Investment Authority (QIA), Saudi Arabia's SAMA and Petroleum Investment Fund (PIF), and various other funds from the UAE, have been among the most rapidly growing SWFs over the 2008-2016 period.

Table 2 provides the scores over the period 2008-2016 on the best known and most up-to-date index for evaluating the transparency of SWFs over time: the Linaburg-Maduell (LM) Index, supported by the Sovereign Wealth Fund Institute. Consistent with the suspicions from around the world regarding MENA's SWFs, one can see that, overall, MENA funds scored poorly on this index (especially in the earlier years). Libya's LIA, Qatar's QIA, Algeria's RRF, and UAE's Federal Emirates Investment Authority all had minimum scores of 1 on this 10-point scale. Meanwhile, Oman's SGRF received a score of 2, compared with scores of 6 for Kuwait's KIA, 7 for Bahrain's Mumtalakat and for Singapore's Temasek, 9 for Azerbaijan's SWF, and 10 for Norway's SWF. While the correlation is far from perfect, by comparing the changes over time in SWF asset accumulation in Table 1 with those in the LM indexes in Table 2 for the same SWFs, one should note that the MENA SWFs in which the LM scores improved were generally also ones with more rapidly growing assets.

Yet, despite asset growth, and in several cases of increasing transparency represented by improving LM scores, MENA SWFs predominately scored below SWFs in many other countries on the LM index. Several of the MENA countries hosting SWFs are far from democratic, lacking freedom of speech and of the press and with relatively weak governance institutions. The citizenry in countries hosting these MENA SWFs often have very little information about their objectives and workings. While many of these funds now have websites, the information available is often quite limited. Much of the literature on SWFs in MENA countries is based on special interviews with SWF managers that may have been conducted by scholars or business newspaper journalists. Additionally, a good deal of that literature derives from rather special (and not necessarily representative) cases that have made newspaper headlines—either because of the large size of their investments, or because of political scandals.

As the title suggests, the purpose of this paper is to utilize the available data on the individual transactions of different SWFs—especially those in MENA countries. Our intent is to more properly detect the objectives of different SWFs, and perhaps changes therein over time, and to find clues to their investment strategies across different types of firms and their locations. We explore the extent to which, and how, the investment strategies embedded in these transactions by the SWFs are related to their LM scores, or to the size of the assets owned by the fund, the age of the fund, the composition of their board members, or other key fund officials.

We also examine the magnitudes of the individual transactions related to the purposes of the investments and their geographic allocation.

Our presentation is organized as follows: Section II provides a brief review of the most relevant existing literature. Section III describes how the transaction data was put together and identifies the most important SWF and country characteristics included, as well as the sources of such data. It also identifies the key relationships to be estimated empirically. Section IV identifies the models and estimation techniques and presents the empirical results for each of three different types of outcomes: geographic allocation of investments, the functional (investment type) allocations of these investments, and the relative magnitudes of the investments made in the transactions. Section V concludes with suggestions for further research and some possible policy implications.

II Relevant Literature

The existing literature on SWFs, even on funds in specific regions like the GCC and elsewhere in the MENA region, is quite diverse. It is widely noted that, because of their greater secrecy, research on GCC and other MENA SWFs is far more limited than that of other SWFs. Given the pervasive secrecy of Arab SWFs prior to 2007, some of the literature has been devoted to the construction and interpretation of transparency and institutional indexes across SWFs and over time (e.g., Truman 2010, and Stone and Truman 2013). Another track in the literature addressing SWFs in the MENA region consists of broad economic and political economy surveys of SWFs and changes over time, i.e., from their origins, through the rise and fall of oil prices to their confrontations with Western governments in the aftermath of the world financial crisis of 2008, and the Arab Spring and its aftermath. See Bazoobandi and Nugent (2017) and the many related references.

Still another track in the existing literature has concentrated on the optimal design of SWF portfolios needed to deal with the specific risk problems that oil-exporting countries face because of oil price volatility, the possibility of environmental shocks, different population sizes, and estimated oil reserves (e.g., Cheasty and Villafuerte 2017). Aizenman and Glick (2008) initiated a branch of literature that concerns the extent to which the existence of an SWF in an oil exporting country can actually reduce these risks and raise that country's economic growth rates.

An important and recent example of this is Mohaddes and Raissi (2017) who, based on a sample of 60 commodity exporting countries over the period 1981-2014, shows strong evidence that these countries generally have been successful, though certainly not always to the same extent. The literature underscores the importance of understanding the operations of SWFs and how and why their outcomes differ.

The two papers most closely related to this study are Arouri, Boubaker and Grais (2018) and Elbadawi, Soto and Zaki (2018). The former study focuses on a sample of 223 firms listed on stock exchanges that were targeted by Arab and non-Arab SWFs over the period 2000-2014. By comparing the firm and country characteristics of the 73 companies targeted by Arab SWFs with those of other firms targeted by non-Arab SWFs, the authors draw certain, at least tentative, conclusions about differences in the motives and investment strategies between the two sets of SWFs. In particular, they find that the Arab SWFs invest in firms that are larger, more strategic in nature, and located in countries with less corruption, better developed stock markets, higher economic growth, and which often were their former colonial powers. The firms they invest in, however, are not as profitable, and offer less in the way of liquidity and dividend payouts than those invested in by non-Arab SWFs. The authors attribute these differences to the focus of Arab SWFs on safety and strategic value rather than on profitability and liquidity.

Interestingly, the second of these very recent and closely related studies, that by Elbadawi, Soto and Zaki (2018), uses a quite different methodology but arrives at some similar conclusions. The authors make use of SWF transactions undertaken by 28 different SWFs into 102 home and destination countries over the period 2005-2015. Based on the notion that (as in trade models) the informational and other costs of making investments outside the SWFs' home country would be lower for nearby countries and the advantages greater in countries with large GDPs, Elbadawi et al. (2018) use a gravity model to explain both the pattern and magnitudes of these investments from host SWFs to destination countries. Another rationale for using the gravity model is that, with exceptions such as Russia (where its SWF is not permitted to invest outside the country), most SWFs make the majority of their investments outside their borders, primarily in the form of FDI. The authors' analysis is also motivated by their observations of descriptive statistics that Arab countries receive much less in the way of cross-border SWF investments than would be expected based on proximity, common language, and other

similarities (even from SWFs located nearby). The Elbadawi et al. model includes not only distance, common language, GDP size, and relative lending rates in the origin and destination countries, but also institutional indexes in the destination country.

The studies' results show that, as expected, the size of GDP at destination relative to that at origin is found to have a significant positive effect on these cross-border SWF investments. Contrary to what would be expected in the case of trade, the authors find that distance tends to have a positive effect on such investments, a finding they attribute to the fact that FDI flows are essentially substitutes for trade flows.[2] While an Arab dummy for destination country has a positive effect on the likelihood of receiving a cross-border investment, it has a negative effect on the value of these investments, confirming the paradox. From the results of their extended model that include some general country-level institutional measures from the World Bank, Elbadawi et al. attribute this paradoxical finding to the weakness of governance and other institutions in most Arab investment receiving countries. The UAE and Qatar are among the few MENA countries with relatively high quality governance institutions, such as government effectiveness and freedom from corruption, which have attracted more SWF investments than most other Arab countries.

To complement some of the studies cited in this section, our analysis also focuses on the transaction-based investments of SWFs and includes information about the sizes and destinations of these transactions, not only in terms of geography, but also in terms of function (investment type). Furthermore, our study brings institutional indexes into the analysis yet, since the key decision makers are the investing SWFs, our focus is on the institutional quality and other characteristics of the SWF itself. Given the aforementioned comparative secrecy of Arab and MENA SWFs, the study focuses on SWF transparency (as captured by LM index). In view of the political economy literature concerning the quite distinct histories of the different Arab SWFs, we also pay more attention to the specific differences in investment patterns between these funds. Moreover, we have deemed it important to identify the many of the characteristics of these investments, such as the number of acquirers involved.

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[2] We would alert the reader, however, to the fact that another reason why both trade and financial investments among neighboring Arab countries is much less than would be predicted by gravity models is the lack of resource complementarity and the similarity in their production structures.

III.   Data, Their Sources and the Relationships to be Investigated

Collecting data on SWF fund transactions for this purpose is not a straightforward process in as much as we found considerable inconsistency in the reports of the magnitude of these transactions. Additionally, there is no one comprehensive transaction database encompassing all of a SWF's transactions. These issues induced us to consult multiple sources of transactions data: Reuters' Thomson One, Bureau Van Dijk's Zephyr, and the Sovereign Wealth Fund Institute (SWFI) transaction databases. From these sources, we have worked to identify the size of each transaction (in millions of dollars), the percentage of the target company acquired, the industry and region of the target company, and whether the deal involved more than one acquirer.

While, for some SWFs, the relevant transaction data is available beginning in the late 1990s, since the information on such transactions for these early years was often quite incomplete and seldom verifiable from a second source, in this paper we focus exclusively on transactions from 2007 onwards. From the starting dates of all SWFs under study indicated in Table 1 (and for convenience again in Table 2), one can see that quite a few of the relevant SWFs were initiated only after 2007, once again justifying our focus on SWF transactions beginning in that year. All the fund-specific data, including creation dates, the time path of assets under management, and LM transparency ratings over time, were taken from the Sovereign Wealth Fund Institute (SWFI). In so far as possible, additional information on the key individuals involved in the funds has been taken from the funds' websites, as well as LinkedIn, and Bloomberg. Lastly, country-specific data, such as GDP per capita and natural resource rents as a percentage of GDP, were taken from the World Bank's website.

Even when the transaction data could be obtained from more than one source, reconciling the data from different sources on transaction sizes and percentages acquired posed a challenge since each database collects and presents the data differently. For example, while Thomson One and the SWFI record the values attributed to a specific sovereign wealth fund, Zephyr records the total transaction value. These discrepancies were common and important because a large portion of the total number of transactions analyzed involved multiple acquirers (in the form of joint venture deals).

To address this lack of uniformity, we relied heavily on data from the SWFI and Thomson One databases for which, as indicated above, the data is most consistent. When data for a specific SWF transaction was unavailable from both sources, the figures on the total transaction values and on the percentages acquired by different acquirers participating in the deal were used to establish a more realistic and comparable transaction value attributable to the specific SWF involved. Data collection on the individuals involved in fund transactions posed additional challenges since, unfortunately, the SWF websites rarely list all the key employees working at the funds and seldom identify past employees.

For our dependent variables we first focus on the way in which the SWFs chose to allocate their investments geographically by aggregating them into the following areas: Western (defined to include both Europe and North America), Asia (all countries in Asia), LAC and SSA (all countries in the Latin American, Caribbean, and Sub-Saharan Africa regions), and MENA (Middle East and North Africa). Second, we distinguish SWF investment allocations by the sectoral or functional patterns by identifying Strategic (encompassing aerospace, technology, and telecommunications), Social (health care and education), Industry (including industrial materials, industrial products, and automotive), Technology, and Finance. Third, we seek to explain the relative magnitudes of the different transactional investments either in absolute terms (in natural logs) or relative to the size of the SWF measured by their total assets under management at the time of that transaction (Value per AUM).

As prompted by the questions raised in some of the literature, throughout our analysis we make use of the total value of assets under the management (AUM) of each SWF and the identity of each of the SWFs for each of the GCC funds (including ADIA, KIA, SAMA, IPIC, QIA, and MUBAD, the full names of which can be identified in Tables 1 and 2), as well as those from outside the GCC, including Singapore's Temasek Holdings (TEMASEK). It is worth noting that Singapore's Temasek Holdings served as the template for Bahrain's Mumtalakat. For our measure of SWF institutional quality, we make use of the transparency index constructed by Linaburg and Maduell (LM), with data obtained from the Sovereign Wealth Fund Institute's website. In so far as possible, we include information over the period 2007-2016 for each of the following measures:

- *Age*: the age of the fund in years

- *AUM:* Assets Under Management as a measure of SWF size

- *LM*: Linaburg-Maduell Transparency Index. Measure of transparency from 0 to 10

- *MA:* a dummy variable for a transaction involving multiple acquirers

- *TIME:* a time trend starting from 1 in 2007

- *Relative Size:* size of the transaction relative to the fund's assets under management

- *ADIA, IPIC, Dubai_World, SAMA, PIF, ADIC, OIF, EIA, ICD, Mumtalakat, KIA, Mubadala, SGRF, GCC* (an aggregate representing SWFs in the GCC region): dummy variables for the SWF involved in the transaction

- *IP and CORR:* International Country Risk Guide (ICRG) indexes representing investment profile and control of corruption, respectively

- Dummy variables for *Royalty, Family or Foreigner:* dummy variables for MENA SWFs with a minimum threshold percentage of their board of directors or other key decision-making committees which come from the royal family, other elite families, or foreigners, respectively

- As noted below, we also include some interaction terms between TIME and other variables, such as individual SWF dummy variables, to evaluate whether the funds significantly changed their behavior and allocations over time

IV.   Models and Empirical Estimates

As indicated above, our empirical analysis focuses on three different relationships. The first two capture the allocation of SWF investments reflected in the individual transactions geographically, and by investment function or sector. The last characteristic reflects the form in which these investments are made, namely, their relative size and whether or not they are in the form of joint ventures with other acquirers.

In the first two cases, since the investment is to a specific country or region and in a particular sector of function type, the dependent variables Y_{ijt} are dummy (0,1) variables and the relationships estimated by logit regressions of the following type:

$$Y_{ijt} = \beta_0 + \beta_1(\textbf{SWF Characteristics})_i + \beta_2(\textbf{SWF Identity})_i + \beta_3(\textbf{Destination})_j + \varepsilon_{ijt} \qquad \textbf{(1)}$$

where the subscript i refers to the SWF making the investment, j represents the country (or region) of destination or alternative sector of function type in which it is made, and t refers to the

year in which the investment is made. ε_{ijt} represents the random error term, and the βs are the parameters to be estimated. In the latter case, where the dependent variable represents the magnitude of the investment, the destinations themselves j, either geographic or functional could serve as key explanatory variables.

Table 3 presents the logistic regression results for the geographic allocations, where the individual countries of destination are aggregated into four different groups: Western, Asian, LAC and SSA, and MENA. The explanatory variables include four important characteristics of the investing SWF, namely, size (measured by AUM, as defined above), a dummy for GCC if the SWF belongs to a GCC country, Age, and the LM Transparency score. Also included is a dummy variable if there are multiple acquirers in the transaction (MA) and, in some of the columns of the table, for individual SWFs such as ADIA, KIA, etc. The latter dummies cannot be included among the determinants for investments in LAC and SSA because of the small numbers of SWF investments made with destinations in such countries.

From the column 1 results for Western Countries, the following findings are clear and statistically highly significant. While neither the size of the SWF fund nor its age has a significant effect on investment in Western countries, having a higher LM index makes it more likely that the SWF will invest in the West. Note also that, when multiple acquirers are involved, the investment is less likely to be in the West. SWFs from the GCC are also seen to be much more likely to invest in Western countries after controlling for the aforementioned factors. In columns 2 and 3 when some individual SWF dummy variables are included (several of which are among the largest in the GCC region), the GCC origin dummy loses its significance, but the coefficients of ADIA and KIA are even larger and positive. These positive coefficients are greater in column 3 when interactions of these SWFs with TIME are added. The latter interaction terms are negative, indicating that this preference for investing in firms in the West is declining somewhat over time.

Exactly the opposite pattern is observed for Saudi Arabia's SWF, SAMA. As indicated in Table 2, it can be seen that the LM scores for ADIA and KIA were among the highest for SWFs in the GCC in recent years. The results in both columns support the proposition that greater transparency facilitates investments by SWFs in Western countries. This may be explained by the fact that firms and financial markets in the West would be more willing to accept SWF

investments when they can be certified to be more transparent, possibly serving as a positive signal to other investors.[3]

From the corresponding results for investments in Asian countries in columns 4-6, one can see that many of the coefficients of the fund characteristics are very different from, and often opposite of, what they were for investments in Western countries in columns 1-3 of the table. The size and age of the funds are more likely to have positive and significant effects on the likelihood of investments in Asia. SWFs from GCC countries (or, alternatively, ADIA and KIA) are seen to have been less likely (and SAMA more likely) to invest in Asia. Higher LM transparency scores make these funds less likely to invest in Asia. This may be attributed to the smaller significance of transparency (measured by the LM index) in Asia. Additionally, the large Asian countries were the most important alternative destinations for SWF investments to the West. One should also recall that, as discussed in much of the literature on SWF transparency, it was the West (not Asia) which had been the focus of the world financial crisis of 2007-8. Investments in the West are especially controversial due to fears over the motivates of these secretive Arab SWFs. The positive relationship between the Multiple Acquirer dummy and investment destinations in Asia, visible from columns 4-6, might be an indication that such investments may be riskier, and the financial market and dispute resolution mechanisms less well developed in Asia than in the West. If so, this could be an indication that participation in joint ventures is a means of sharing the risk and taking advantage of the knowledge of one's investing partner.

The transactions for the other two regions are less frequent, especially in the case of the LAC and SSA region. As shown in column 7, the younger SWFs seem to be more inclined to invest in this region, and SWF transparency seems to have a positive influence. For MENA region transactions, the correlation matrix reveals an unusually high correlation between Age of Fund and AUM. For that reason, Age of Fund is omitted from the specification in column 8 for the MENA region (though not from column 9) and, instead, TIME is included in the preferred specification of column 8. Note that it is the smaller funds and those with lower LM scores which invest more heavily in the MENA region. Over time, however, as MENA's GDP grew

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[3] Truman (2010) and others point to the possible existence of such a signaling effect as one rationale for creating the SWF Institute, promoting the LM and other indexes of SWF transparency and inducing SWFs from the Gulf and elsewhere to join the SWFI.

rapidly and political uncertainty arose from the Arab Spring events, MENA (and, especially, GCC countries) became anxious to attract SWF and other investments. Not surprisingly, the coefficient of TIME in column 8 is positive and significant. As in the Asian countries, LM seems to be negatively related to investment transactions in MENA. Having multiple acquirers to help conduct due diligence of acquisition targets, share the risk, and, ultimately, co-manage target firms seems unimportant in MENA. Because such a large percentage of the investments in MENA is made by GCC SWFs, a coefficient for this variable cannot be estimated.

Table 4 presents the corresponding results for the allocations of SWF Investments by Type and Function, making use of three SWF characteristics: Age, LM Transparency, and Transaction Value relative to total SWF Fund assets (AUM). Where possible, dummy variables for some of the same large SWFs are used (as in Table 3).

By comparing the coefficients of each row across the different Investment Types or Functions indicated in the different columns of the table, one can see that older funds are more likely to have invested in Technology, Strategic and, to a lesser extent, Industry functions. This is not the case in Social or Finance functions and sectors. Funds with greater transparency (higher LM scores) are more likely to invest in firms serving Social functions. To invest in Strategic or Industrial sectors, it appears that the transaction values relative to AUM need to be somewhat larger than in other types of functions. Such a tendency is often attributed to the fact that the investing SWFs may want to make larger investments to allow one of their officers to become a board member in order to gain more influence over the target company. In each functional type, there appears to be one individual SWF among those identified which is more or less inclined to invest in that function type than other SWFs. KIA (which is known to be more conservative in its investments, with a diverse portfolio containing various smaller stakes in companies) is less likely to invest in Strategic and Technology functions. By contrast, ADIA is more likely to invest in Industry, and the non-GCC SWF, Temasek, is more likely to invest in Finance.

The low Pseudo R^2 values in all columns of the table indicate considerable room for improvement in generating solid explanations for the distribution of SWF investments by function type. In an attempt to delve a little deeper for the somewhat smaller sample of transactions that are aimed at the GCC countries only, we replace the SWF specific dummy

variables in columns 6 to 8 with the dummy variables for Royalty, Family, and Foreigner when the numbers of important persons administering the SWFs exceed certain minimum thresholds that could have certain influences on the where and what these funds invest in. The results do show a number of these dummy variables to be significantly related to different Investment Types. For SWFs with above threshold numbers of elite family members, investments in Social and Industry types are more likely, while those with above threshold numbers of foreigners are less likely to invest in Social, Industry and Technology sectors. While these results are supportive of the hypothesis that such investment allocations may be related to the compositions of the boards and other key decision makers of the SWFs, their inclusion seems to add little to the explanatory power of the models.

In Table 5 we revisit the geographic allocations of Table 3 to the MENA countries and the functional allocations within MENA, without distinguishing the individual SWFs. Two destination country level institutional indicators used by Elbadawi et al. (2018), the Investment Profile and Corruption indexes of the ICRG, are used in Table 5. Unlike Elbadawi et al. (2018), we make use of both country-level and governance indexes and the SWF-level LM index in this table. The results in columns 1 and 2 show, as before, that larger fund size and the passage of time have contributed to larger probabilities of SWFs investing in MENA countries, and that such investments are less likely when in the form of joint ventures (MA). The addition of Investment Profile and Corruption indexes shows that intuitional measures are also important. As before, investments in MENA countries are typically made by SWFs with lower LM scores. The investments of SWFs with high LM scores are skewed to countries where high LM scores are more meaningful (Western countries). Higher scores in column 1 on the Investment Profile Index in a destination MENA does not significantly increase the probability of a MENA country receiving an SWF investment. Conversely, higher scores on the Corruption Index in column 2 increases the probability of investment significantly, but only at the 10 percent level.

The remaining columns of the table show the relationships between the same set of explanatory variables. Here we use Relative Size of the Transaction (its value relative to the fund's AUM) and the Age of the SWF instead of MA. By comparing coefficients across the different pairs of columns, it can be observed that large investment transactions and investments made by older SWFs are more likely to be made in Strategic and Industrial industries.

Destination countries with higher scores on the Investment Profile Index appear more likely to receive investments in Strategic Sectors, but less likely to receive investments in Industrial Sectors. Countries with higher scores on the Corruption Index are also likely to attract investments in Strategic sectors, but not investments in other sectors.

Table 6 presents the empirical results for the absolute size of individual investment transactions measured by the value of the investment (in natural logs) made by that SWF. A full list of explanatory variables is included: the size (AUM), Age, and LM of the SWF; the MA dummy; the GCC dummy; dummy variables for each of the five investment function types; and dummy variables for the same individual SWFs investigated in Tables 3 and 4. As can easily be seen, the effects of Age and LM are negative, while those of AUM and MA are positive and highly significant. Investments whose functions are Social and Finance are associated with individual investments that are larger, while those for Industry and, to a lesser extent, Technology tend to be smaller. After controlling for all these factors, the coefficients of FGCC and many of the individual SWFs are not statistically significant. Investments made by ADIA, however, tend to be smaller and those of TEMASEK and IPIC tend to be larger than otherwise predicted.

V.   Conclusion

When viewed collectively, we believe the table results identify a number of behavioral patterns of GCC SWFs, though certainly not in terms of identifying causal relationships. In Tables 1 and 2 we demonstrate the relatively large number of SWFs in MENA countries and, especially, in the GCC. In several cases, particularly the UAE and even within the individual emirate of Abu Dhabi, there are several different SWFs within a single country. The SWFs vary greatly in size, with Abu Dhabi's ADIA, Saudi Arabia's SAMA, and Kuwait's KIA among the largest in the world, while several UAE SWFs are among the smallest in the world. These funds also vary considerably to the extent that they have taken up membership in the Sovereign Wealth Institute, become more transparent (as exemplified by attaining relatively high scores on the LM Index), and adopted best practice standards similar to those of Norway, whose fund is widely praised for its transparency. Algeria's RRF, Libya's LIA, and UAE's ADIC remain very non-transparent, with low or non-existent LM scores. Oman's SGRF, Qatar's QIA, and Abu Dhabi's

ADIA have reached a score of at least 4 or 5. Kuwait's KIA has reached a score of 6, while several of the smaller and newer SWFs (such as those of Bahrain's Mumtalakat), and both UAE's Mubadala and IPIC have achieved high LM scores approaching those of Norway.

Table 3 identifies several clear differences in the allocation of SWF investments across firms in different regions of the world. Funds from the GCC are more likely to invest in Western countries and MENA, but less likely to invest in Asia and LAC and SSA. These patterns are especially strong in the case of ADIA and KIA. SAMA's investment allocation pattern is quite the opposite, though in recent years the pattern reverts to those of other MENA SWFs. More transparent funds have been more likely to invest in firms in Western countries, but less in Asian firms. Acquisitions involving multiple acquirers have been less likely to occur in Western countries, and more likely in Asian countries.

Table 4 identifies several distinct patterns in the tendencies of SWFs to invest in certain types of sectors. Older and larger SWFs have been more likely to invest in Strategic, Industry sectors, and Technology sectors. More transparent SWFs are more likely to Invest in Social Sectors such as education and health. After controlling for those SWF characteristics, ADIA appears more likely to invest in Industry, and KIA less likely to invest in either Strategic or Technology sectors. Among GCC SWFs, those in which representatives from elite families (Family) appear to play prominent roles tend to invest less in Social sectors and more in Technology. By contrast, GCC funds in which foreigners play a more prominent role invest more in both Social and Industry sectors.

Table 5 delves somewhat deeper into the allocations of SWF investments within MENA countries and the different sectors of target companies, showing the relevance of various SWF characteristics such as size (AUM), Age, joint venture status (MA), and LM Index. Whereas the LM index of the SWF matters in almost all outcome variables, the Investment Profile Index matters only for investments in the Industrial sector. In this case the relationship is negative. While higher scores on the Corruption Index do raise the likelihood that MENA countries will receive an SWF investment (especially in the Strategic industry), in both cases, the significance levels of these relations are rather weak (significant only at the 10 percent level).

Finally, Table 6 identifies some significant factors related to the size of the individual investment transactions. Among SWF characteristics, funds which were larger and which

invested in the form of joint ventures made larger individual investments, whereas those which were older (and, perhaps, had higher LM scores) seemed to make smaller investments. Investment in Social and Finance Sectors tended to be larger, while investments in Industry and, perhaps, also Technology sectors tended to be smaller. Beyond this, certain individual SWFs (such as ADIA) tend to make smaller investments, while others (such as UAE's IPIC) tend to make larger ones.

With respect to the relatively limited literature touching on the aforementioned relationships, especially in the GCC context, the most important conclusions are the following:

(1) The transparency of the individual SWFs is significantly related to all three outcome measures studied: allocations of investments in firms by country and region; allocations of investments in firms by sector; and the dollar size (in natural logs) of the individual investments, indicating that fund transparency tends to have greater influence than the country-level governance indexes that have been employed in the previous literature.

(2) While the age of the SWF plays only a relatively minor role in the choice of geographic destination of its investments, SWF age plays a stronger role in the sectoral allocations (older SWFs invest more in Strategic, Industry and Technology Sectors). From Table 5, moreover, older funds also make their investments in smaller amounts.

(3) Likewise, investments with multiple acquirers (MA) are of course more complicated and are likely to involve larger transaction amounts. These transactions seem to be more prominent in Asia and LAC and SSA where financial markets may not be as well developed and information on individual target firms is less complete, making these transactions riskier. Notably, the risk-reducing benefits of MA may also allow the investing SWFs to make investments that are larger (as shown in Table 5).

(4) The results in Tables 3-5 show that different SWFs in the GCC behave somewhat differently in a number of different respects and, moreover, those in Table 4 show that the compositions of their decision-making boards may play a part in the funds' choice of sector or functional types in which to invest. In particular, those SWFs in which foreigners or local elites seem to be more numerous tend to invest differently than other SWFs.

In view of some of the collinearity among explanatory variables, and in many cases their endogeneity and the relatively weak explanatory power the models presented, further research to deal with these shortcomings is clearly needed. Steps in this direction could include investigating the direction of causality, using simultaneous equations models, and applying panel data methods.

Finally, even though the present findings should be considered very tentative, two mechanisms appear useful in facilitating investments by SWFs into geographic or functional areas of their choice for policy purposes. The results are at least suggestive that those SWFs with higher LM scores have been able to invest in firms in Western countries, despite the great fears that had been expressed in the West during and after the world financial crisis, and perhaps also in LAC and SSA where they may be much less known. Similarly, especially for investments in MENA, GCC SWFs with greater transparency appear to have been able to invest more in Social Sectors which relate rather clearly and directly to the steps needed to abide by Hartwick's Rule. These investments could promote the development of the human capital that will be needed to achieve greater diversification of economies away from oil.

Table 1: Large Sample of Sovereign Wealth Funds and their Assets in Billions of US Dollars by Year

Name of the SWF and their nature (Commodity or Not)	2008	2009	2010	2011	2012	2013	2014	2015	2016
Algeria Revenue Regulation Fund, 2000 (Oil) (RRF)	$47.0	$47.0	$54.8	$56.7	$56.7	$77.2	$77.2	$50.0	$50.0
Angola Fundo Soberano de Angola, 2012 (Oil)					$5.0	$5.0	$5.0	$5.0	$5.0
Angola Reserve Fund for Oil, 2007 (Oil)	$0.2								
Australian Future Fund, 2004 (Non-commodity)	$58.5	$40.4	$59.1	$76.2	$80.0	$88.7	$90.2	$95.0	$95.0
Australia Western Future Fund, 2012 (Minerals)						$0.3	$0.3	$0.3	$0.3
Azerbaijan State Oil Fund, 1999 (Oil)	$3.3	$10.2	$21.7	$30.2	$30.2	$32.7	$36.6	$37.3	$37.3
Bahrain Mumtalakat Holding Company, 2006 (Oil)	$2.6	$14.0	$9.1	$11.3	$9.1	$7.1	$10.5	$10.5	$10.6
Bolivia FINPRO, 2012 (Non-Commodity)								$1.2	$1.2
Botswana Pula Fund, 1994 (Diamonds and Minerals)	$6.9	$6.9	$6.9	$6.9	$6.9	$6.9	$6.9	$6.9	$5.7

Brazil Sovereign Fund, 2008 (Non-commodity)	$5.9	$8.6	$8.6	$11.3	$11.3	$5.3	$5.3	$5.3	$0.5
Brunei Investment Agency, 1983 (Oil)	$30.0	$30.0	$30.0	$30.0	$30.0	$30.0	$40.0	$40.0	$40.0
Canada Alberta's Heritage Fund, 1976 (Oil)	$16.6	$14.9	$13.8	$14.4	$15.9	$16.4	$16.4	$17.5	$17.5
Chile Social and Economic Stabilization Fund, 1985 (Copper)	$15.5	$21.3	$21.8	$21.8	$15.0	$15.0	$15.2	$15.2	$15.2
Chile Pension Reserve Fund, 2006 (Copper)					$5.7	$15.0	$7.0	$7.9	$7.9
China Investment Corporation, 2007 (Non-commodity)	$200.0	$200.0	$288.8	$409.6	$439.6	$482.0	$575.2	$746.7	$813.8
China National Social Security Fund, 2000 (Non-commodity)	$74.0	$82.4	$146.5	$146.5	$134.5	$160.6	$181.0	$236.0	$236.0
China SAFE Investment Company, 1997 (Non-commodity)	$311.6	$347.1	$347.1	$347.1	$567.9	$567.9	$567.9	$567.9	$474.0
China-Africa Development Fund, 2007 (Non-commodity)	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0
Equatorial Guinea Fund for Future Generations, 2002 (Oil)					$0.1	$0.1	$0.1	$0.1	$0.1
France Strategic Investment Fund, 2008 (Fiscal Surplus)		$28.0	$28.0	$28.0	$28.0	$25.5	$25.5	$25.5	
Gabon Sovereign Wealth Fund, 1998 (Oil)					$0.4	$0.4	$0.4	$0.4	$0.4
Ghana Petroleum Funds, 2011 (Oil)				$0.1	$0.1	$0.1	$0.1	$0.5	$0.5
Hong Kong Monetary Authority Investment Portfolio, 1993 (Non-commodity)	$163.0	$193.4	$227.6	$292.3	$292.3	$298.7	$326.7	$400.2	$442.4
Indonesia Government Investment Unit, 2006 (Non-commodity)		$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3
Iran National Development Fund for Iran, 1999 (Oil & Gas)	$12.9	$13.0	$23.0	$23.0	$40.0	$49.6	$58.6	$62.0	$62.0
Iraq Development Fund for Iraq, 2003 (Oil)						$18.0	$18.0	$18.0	$0.9
Ireland National Pensions Reserve Fund, 2001 (Non-commodity)	$30.8	$22.8	$33.0	$33.0	$17.5	$19.4	$19.4	$27.4	$23.5
Italian Strategic Fund, 2011 (Non-commodity)				$1.4	$1.4	$1.4	$6.0	$6.0	
Kazakhstan National Fund, 2000 (Oil)	$21.5	$38.0	$38.0	$38.6	$58.2	$61.8	$68.9	$77.0	$77.0
Kazakhstan Samruk-Kazyana JSC, 2008 (Non-commodity)						$77.5	$77.5	$77.5	$69.3
Kazakhstan National Investment Corporation, 2012 (Oil)						$20.0	$20.0	$2.0	$2.0
Kiribati Revenue Equalization Reserve Fund, 1956 (Phosphates)	$0.4	$0.4	$0.4	$0.4	$0.4	$0.6	$0.6	$0.6	$0.6

Korea Investment Corporation, 2005 (Non-commodity)	$30.0	$27.0	$30.3	$37.0	$43.0	$56.6	$72.0	$84.7	$91.8
Kuwait Investment Authority, 1953 (Oil)	$250.0	$202.8	$202.8	$296.0	$296.0	$386.0	$410.0	$548.0	$592.0
Libyan Investment Authority, 2006 (Oil)	$50.0	$65.0	$65.0	$70.0	$65.0	$65.0	$66.0	$66.0	$66.0
Malaysia Khazanah National, 1993 (Non-commodity)	$25.7	$23.1	$25.0	$25.0	$36.8	$34.0	$39.1	$41.6	$34.9
Malaysia Terengganu Investment Authority, 2008 (Oil)		$2.8							
Mauritania National Fund for Hydrocarbon Reserves, 2006 (Oil & Gas)	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3
Mexico Oil Revenues Stabilization Fund, 2000 (Oil)				$6.0	$6.0	$6.0	$6.0	$6.0	$6.0
Mexico Fondo Mexicano del Petroleo, 2014 (Oil & Gas)									
Mongolia Fiscal Stabiility Fund, 2011 (Minerals)					$0.3	$0.3	$0.3	$0.3	$0.3
New Zealand Superannuation Fund, 2003 (Non-commodity)	$13.8	$9.1	$12.1	$12.1	$15.9	$19.3	$21.8	$21.8	$20.2
Nigerian Sovereign Investment Authority, 2011 (Oil)				$1.0	$1.0	$1.0	$1.5	$1.4	$1.4
Nigeria Excess Crude Account, 2004 (Oil)	$11.0	$11.0	$9.4						
Nigeria Bayesla Development and Investment Corporation, 2012 (Non-commodity)								$1.5	$1.5
Norway Government Pension Fund – Global, 1990 (Oil)	$396.5	$396.6	$443.0	$571.5	$611.0	$803.9	$878.0	$882.0	$885.0
Oman State General Reserve Fund, 1980 (Oil & Gas)	$2.0	$8.2	$8.2	$8.2	$8.2	$8.2	$13.0	$13.0	$34.0
Oman Investment Fund, 2006 (Oil)							$6.0	$6.0	$6.0
Palestine Investment Fund, 2003 (Non-commodity)					$0.8	$0.8	$0.8	$0.8	$0.8
Panama Fondo de Ahorro de Panama, 2012 (Non-commodity)						$0.3	$0.3	$1.2	$1.2
Papua New Guinea Sovereign Wealth Fund, 2011 (Gas)									
Peru Fiscal Stabilization Fund, 1999 (Non-commodity)					$7.1	$7.1	$7.1	$7.1	$9.2
Qatar Investment Authority, 2003 (Oil)	$60.0	$65.0	$65.0	$85.0	$100.0	$115.0	$170.0	$256.0	$335.0
Russia National Welfare Fund, 2008 (Oil)	$162.5	$178.5	$142.5	$142.5	$149.7	$175.5	$88.0	$79.9	$73.5
Russia Reserve Fund, 2008 (Oil)					$86.4	$86.4	$88.9	$65.7	

Russian Direct Investment Fund, 2011 (Non-commodity)						$11.5	$13.0	$13.0	$13.0
Saudi Arabia SAMA Foreign Holdings, 1952 (Oil)	$300.0	$431.0	$415.0	$472.5	$532.8	$675.9	$737.6	$757.2	$598.4
Saudi Arabia Public Investment Fund, 2008 (Oil)	$5.3	$5.3	$5.3	$5.3	$5.3	$5.3	$5.3	$5.3	$160.0
Senegal FONSIS, 2012 (Non-commodity)							$1.0	$1.0	$1.0
Singapore Government Investment Corporation, 1981 (Non-commodity)	$330.0	$247.5	$247.5	$247.5	$247.5	$285.0	$320.0	$320.0	$350.0
Singapore Temasek Holdings, 1974 (Non-Commodity)	$159.0	$134.0	$122.0	$157.2	$157.2	$173.3	$173.3	$177.0	$193.6
Timor-Leste Petroleum Fund, 2005 (Oil & Gas)	$3.0	$4.2	$5.0	$6.3	$9.9	$13.6	$15.7	$16.6	$16.9
Trinidad and Tobago Heritage and Stabilization Fund, 2000 (Oil)	$0.5	$2.9	$2.9	$2.9	$2.9	$5.0	$5.0	$5.5	$5.5
Turkmenistan Stabilization Fund, 2008 (Oil & Gas)									
UAE Mubadala Development Company, 2002 (Oil)	$10.0	$14.7	$13.3	$13.3	$48.2	$55.5	$60.9	$66.3	$66.3
UAE International Petroleum Investment Company, 1984 (Oil)		$14.0	$14.0	$58.0	$58.0	$65.3	$65.3	$68.4	$66.3
UAE Abu Dhabi Investment Authority & Council, 1976 (Oil)	$875.0	$627.0	$627.0	$627.0	$627.0	$627.0	$863.0	$863.0	$902.0
UAE Abu Dhabi Investment Council, 2007 (Oil)							$90.0	$90.0	$110.0
UAE Dubai Investment Corporation of Dubai, 2006 (Oil)	$82.0	$82.0	$19.6	$19.6	$70.0	$70.0	$70.0	$70.0	$196.0
UAE Ras Al Khaimah RAK Investment Authority, 2005 (Oil)	$1.2	$1.2	$1.2	$1.2	$1.2	$1.2	$1.2	$1.2	$1.2
UAE Federal Emirates Investment Authority, 2007 (Oil)							$15.0	$15.0	$15.0
USA Alabama Trust Fund, 1985 (Oil & Gas)	$3.1	$3.1	$3.1	$3.1	$2.5	$2.5	$2.5	$2.5	$2.5
USA Alaska Permanent Fund, 1976 (Oil)	$39.8	$29.0	$35.5	$40.3	$42.3	$46.8	$51.7	$52.8	$53.9
USA Louisiana Education Quality Trust Fund, 1986 (Oil & Gas)						$1.1	$1.1	$1.1	$1.3
USA New Mexico State Investment Council, 1958 (Oil & Gas)	$16.0	$11.7	$12.9	$13.8	$14.3	$16.3	$18.4	$19.8	$19.8
USA North Dakota Legacy Fund, 2011 (Oil & Gas)					$0.1	$1.3	$1.7	$2.4	$3.2
USA Texas Permanent School Fund, 1854 (Oil & other)				$24.4	$25.5	$25.5	$30.3	$37.7	$37.7
USA Texas Permanent University Fund, 1876 (Oil & Gas)						$14.4	$15.3	$17.2	$17.2

USA Utah SITFO, 1896 (Land and Mineral Royalties)	$0.7	$0.9	$0.8	$1.0	$1.2	$1.3	$1.5	$1.8	$2.0
USA West Virginia Future Fund, 2014 (Oil & Gas)									
USA Wyoming Permanent Mineral Trust Fund, 1974 (Minerals)	$3.7	$3.6	$3.6	$4.7	$4.7	$5.6	$5.6	$5.6	$5.6
Venezuela FIEM Macroeconomic Stabilization Fund, 1998 (Oil)	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8
Vietnam State Capital Investment Corporation, 2006 (Non-commodity)	$2.1	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5
Total	$3,839	$3,726	$3,897	$4,538	$5,044	$5,958	$6,693	$7,263	$7,558

Table 2: Large Sample of SWFs and their Scores on the Linaburg-Maduell SWF Transparency Index (1 (low) -10 (high) 2008-2016)

Name of SWF	2008	2009	2010	2011	2012	2013	2014	2015	2016
Algeria Revenue Regulation Fund, 2000 (Oil)	1	1	1	1	1	1	1	1	1
Angola Fundo Soberano de Angola, 2012 (Oil)									8
Angola Reserve Fund for Oil, 2007 (Oil)	1								
Australian Future Fund, 2004 (Non-commodity)	9	9	9	10	10	10	10	10	10
Australia Western Future Fund, 2012 (Minerals)									
Azerbaijan State Oil Fund, 1999 (Oil)	9	9	10	10	10	10	10	10	10
Bahrain Mumtalakat Holding Company, 2006 (Oil)	6	7	7	8	8	9	9	9	10
Bolivia FINPRO, 2012 (Non-Commodity)									
Botswana Pula Fund, 1994 (Diamonds and Minerals)	3	1	1	1	6	6	6	6	6
Brazil Sovereign Fund, 2008 (Non-commodity)		9	9	9	9	9	9	9	9
Brunei Investment Agency, 1983 (Oil)	1	1	1	1	1	1	1	1	1
Canada Alberta's Heritage Fund, 1976 (Oil)	8	9	9	9	9	9	9	9	9
Chile Social and Economic Stabilization Fund, 1985 (Copper)	3	7	9	10	10	10	10	10	10
Chile Pension Reserve Fund, 2006 (Copper)						10	10	10	10
China Investment Corporation, 2007 (Non-commodity)	2	6	6	7	7	7	7	8	8

China National Social Security Fund, 2000 (Non-commodity)	5	5	5	5	5	5	5	5	5
China SAFE Investment Company, 1997 (Non-commodity)	2	2	2	2	4	4	4	4	4
China-Africa Development Fund, 2007 (Non-commodity)		4	4	4	4	4	4	5	5
Equatorial Guinea Fund for Future Generations, 2002 (Oil)									
France Strategic Investment Fund, 2008 (Fiscal Surplus)		9	9	9	9	9	9	9	9
Gabon Sovereign Wealth Fund, 1998 (Oil)									
Ghana Petroleum Funds, 2011 (Oil)									
Hong Kong Monetary Authority Investment Portfolio, 1993 (Non-commodity)	7	8	8	8	8	8	8	8	8
Indonesia Government Investment Unit, 2006 (Non-commodity)									
Iran National Development Fund for Iran, 1999 (Oil & Gas)	2	1	1	1	1	5	5	5	5
Iraq Development Fund for Iraq, 2003 (Oil)									
Ireland National Pensions Reserve Fund, 2001 (Non-commodity)	7	10	10	10	10	10	10	10	10
Italian Strategic Fund, 2011 (Non-commodity)									
Kazakhstan National Fund, 2000 (Oil)	3	6	6	6	6	8	2	8	2
Kazakhstan Samruk-Kazyana JSC, 2008 (Non-commodity)									
Kazakhstan National Investment Corporation, 2012 (Oil)									
Kiribati Revenue Equalization Reserve Fund, 1956 (Phosphates)	1	1	1	1	1	1	1	1	1
Korea Investment Corporation, 2005 (Non-commodity)	9	9	9	9	9	9	9	9	9
Kuwait Investment Authority, 1953 (Oil)	6	6	6	6	6	6	6	6	6
Libyan Investment Authority, 2006 (Oil)	1	2	2	2	1	1	1	1	1
Malaysia Khazanah National, 1993 (Non-commodity)	7	4	4	4	5	5	5	9	9
Malaysia Terengganu Investment Authority, 2008 (Oil)									
Mauritania National Fund for Hydrocarbon Reserves, 2006 (Oil & Gas)	1	1	1	1	1	1	1	1	1
Mexico Oil Revenues Stabilization Fund, 2000 (Oil)					4	4	4	4	4

Mexico Fondo Mexicano del Petroleo, 2014 (Oil & Gas)									
Mongolia Fiscal Stabiility Fund, 2011 (Minerals)									
New Zealand Superannuation Fund, 2003 (Non-commodity)	10	10	10	10	10	10	10	10	10
Nigerian Sovereign Investment Authority, 2011 (Oil)							4	9	9
Nigeria Excess Crude Account, 2004 (Oil)	1	1	1	1					
Nigeria Bayesla Development and Investment Corporation, 2012 (Non-commodity)									
Norway Government Pension Fund – Global, 1990 (Oil)	10	10	10	10	10	10	10	10	10
Oman State General Reserve Fund, 1980 (Oil & Gas)	2	1	1	1	1	1	4	4	4
Oman Investment Fund, 2006 (Oil)							4	4	4
Palestine Investment Fund, 2003 (Non-commodity)									
Panama Fondo de Ahorro de Panama, 2012 (Non-commodity)									
Papua New Guinea Sovereign Wealth Fund, 2011 (Gas)									
Peru Fiscal Stabilization Fund, 1999 (Non-commodity)									
Qatar Investment Authority, 2003 (Oil)	1	5	5	5	5	5	5	5	5
Russia National Welfare Fund, 2008 (Oil)	5	5	5	5	5	5	5	5	5
Russia Reserve Fund, 2008 (Oil)							5	5	5
Russian Direct Investment Fund, 2011 (Non-commodity)									
Saudi Arabia SAMA Foreign Holdings, 1952 (Oil)	4	2	2	2	4	4	4	4	4
Saudi Arabia Public Investment Fund, 2008 (Oil)	3	3	3	3	4	4	4	4	4
Senegal FONSIS, 2012 (Non-commodity)									
Singapore Government Investment Corporation, 1981 (Non-commodity)	6	6	6	6	6	6	6	6	6
Singapore Temasek Holdings, 1974 (Non-Commodity)	7	8	10	10	10	10	10	10	10
Timor-Leste Petroleum Fund, 2005 (Oil & Gas)	7	6	6	6	8	8	8	8	8
Trinidad and Tobago Heritage and Stabilization Fund, 2000 (Oil)	5	5	5	5	8	8	8	8	8
Turkmenistan Stabilization Fund, 2008 (Oil & Gas)									

UAE Mubadala Development Company, 2002 (Oil)	6	7	10	10	10	10	10	10	10
UAE International Petroleum Investment Company, 1984 (Oil)					3	9	9	9	9
UAE Abu Dhabi Investment Authority & Council, 1976 (Oil)	3	3	3	3	5	5	5	6	6
UAE Abu Dhabi Investment Council, 2007 (Oil)									
UAE Dubai Investment Corporation of Dubai, 2006 (Oil)	5	4	4	4	4	4	4	4	5
UAE Ras Al Khaimah RAK Investment Authority, 2005 (Oil)	3	3	3	3	3	3	3	3	3
UAE Federal Emirates Investment Authority, 2007 (Oil)	1	1	1	2	2	2	3	3	3
USA Alabama Trust Fund, 1985 (Oil & Gas)							9	9	9
USA Alaska Permanent Fund, 1976 (Oil)	9	10	10	10	10	10	10	10	10
USA Louisiana Education Quality Trust Fund, 1986 (Oil & Gas)									
USA New Mexico State Investment Council, 1958 (Oil & Gas)	9	9	9	9	9	9	9	9	9
USA North Dakota Legacy Fund, 2011 (Oil & Gas)									
USA Texas Permanent School Fund, 1854 (Oil & other)								9	9
USA Texas Permanent University Fund, 1876 (Oil & Gas)									
USA Utah SITFO, 1896 (Land and Mineral Royalties)									
USA West Virginia Future Fund, 2014 (Oil & Gas)									
USA Wyoming Permanent Mineral Trust Fund, 1974 (Minerals)	8	9	9	9	9	9	9	9	9
Venezuela FIEM Macroeconomic Stabilization Fund, 1998 (Oil)	1	1	1	1	1	1	1	1	1
Vietnam State Capital Investment Corporation, 2006 (Non-commodity)	4	4	4	4	4	4	4	4	4

Table 3: Investment Allocations by Geographic Region

Explanatory Variables	Western Countries			Asian Countries			LAC & SSA	MENA	
	1	2	3	4	5	6	7	8	9
AUM	0.247	-1.298	1.02	1.3 ***	1.296	0.473	0.942	-9.951 ***	1.666
s.e.	0.376	0.928	2.216	0.464	0.958	1.285	2.12	1.453	3.426
GCC	2.564 ***	0.332	0.78	-3.583 ***	-1.178	-1.944 *	-0.204		
s.e.	0.326	0.754	0.936	0.378	0.836	1.04	1.029		
Age	0.0002	0.0038	0.016	0.0288 ***	0.018	0.004	-0.051 **		-0.089
s.e.	0.0053	0.0177	0.019	0.006	0.018	0.019	0.025		0.093
LM	0.4239 ***	0.165 *	0.264 **	-0.662 ***	-0.239 **	-0.33 ***	0.493 **	-0.304 ***	-0.241
s.e.	0.0644	0.089	0.115	0.072	0.099	0.127	0.237	0.115	0.181
MA	-1.211 ***	-0.881 ***	-0.655 ***	1.165 ***	0.856 ***	0.625 **	0.756	-1.637 **	-0.958
s.e.	0.208	0.24	0.249	-0.231	0.252	0.266	0.872	0.83	0.862
ADIA		2.622 ***	2.929 ***		-1.747 *	-1.936			4.487 *
s.e.		0.888	1.121		0.957	1.211			2.818
KIA		2.807 ***	10.74 ***		-2.297 **	-12.36 ***			-0.549
s.e.		1.007	1.899		1.028	2.192			4.444
TEMASEK		-0.525	0.187		-0.435	-0.677			
s.e.		0.644	1.075		0.687	1.176			
SAMA		-0.047	-4.224 ***		0.305	4.918 ***			
s.e.		1.039	1.413		1.063	1.445			
MUBAD		-0.372	-126.7						
s.e.		1.26	10662						
IPIC		-0.808	-1.878		-0.555	1.381			2.922
s.e.		0.992	2.678		1.353	3.378			2.244
QIA		0.835	1.612		-0.185	-0.76			-1.308
s.e.		0.744	1.071		0.852	1.255			0.929
TIME* KIA			-1.402 ***			1.684 ***			
			0.206			0.245			
TIME*ADIA			-0.333 ***			0.296 **			
			0.115			0.119			
TIME*MUBAD			15.61						
			1240						
TIME*IPIC			0.155			-0.239			
			0.443			0.716			
TIME*QIA			-0.146			0.163			
			0.133			0.152			
TIME*SAMA			0.438 ***			-0.529 ***			
			0.131			0.134			
TIME*TEMASEK			-0.196			0.13			
			0.159			0.169			
TIME								0.224 **	
								0.105	
Constant	-3.093 ***	-0.78	-2.343 **	2.924 ***	0.359	1.783 *	-6.334 ***	-0.136	1.383
s.e.	0.525	0.667	0.982	0.529	0.688	0.99	2.335	0.692	1.172
Number of Observations	1446	1446	1419	1446	1441	1415	1446	1446	1232
Pseudo R2	0.155	0.289	0.332	0.137	0.203	0.315	0.26	0.308	0.427

Table 4: Investment Allocations by Type and Function

Explanatory Variables		Strategic 1	Social 2	Industry 3	Technology 4	Finance 5	Strategic 6	Social 7	Industry 8	Technology 9	Finance 10
Age		0.056 ***	0.009	0.026 **	0.071 ***	-0.009	0.028	0.333 ***	0.061 **	0.049	0.011
	s.e.	0.015	0.024	0.017	0.026	0.009	0.03	0.106	0.031	0.045	0.024
LM		-0.06	0.373 **	-0.021	0.02	-0.076	-0.05	-0.666 **	0.132	0.047	0.045
	se.	0.127	0.177	0.101	0.198	0.077	0.146	0.329	0.141	0.207	0.101
Relative Size		0.022 **	-0.233	0.026 **	-0.65	0.005	0.019	0.079	0.026 **	-0.173	-0.002
	se.	0.011	0.249	0.01	0.581	0.006	0.012	0.088	0.01	0.467	0.012
QIA		-0.818	..	0.342	..	0.322					
	se.	1.223	..	0.83	..	0.463					
ADIA		-0.531	0.814	0.582 **	-0.817	0.181					
	se.	0.534	0.535	0.289	0.578	0.225					
KIA		-1.429 ***	-0.1	0.026	-2.31 ***	0.367					
	se.	0.348	0.664	0.322	0.493	0.293					
TEMASEK		0.463	-0.414	-0.634	0.955	1.519 ***					
	se.	0.814	0.994	0.901	1.155	0.529					
Royalty							-0.878		0.807		0.941
	se.						1.558		1.287		1.003
Family							1.615 ***	-2.043 *	0.557	2.634 ***	0.104
	se						0.448	1.202	0.425	0.613	0.368
Foreigner							0.005	0.121 ***	0.025 **	0.017	0.007
	se.						0.013	0.038	0.012	0. 019	0.01
Constant		-3.703 ***	-5.733 ***	3.045 ***	-5.177 ***	-0.846	-3.704	-21.003 ***	-6.408 ***	-6.663 *	-2.477
	se.	1.181	1.869	0.927	2.052	0.653	2.359	5.839	2.09	3.513	1.724
Number of Observations		1420	1368	1420	1368	1420	1301	1247	1301	1247	1301
Pseudo R2		0.071	0.086	0.017	0.131	0.062	0.074	0.038	0.013	0.129	0.003

Table 5: The Relative Importance of Country-Level Governance and SWF Transparency in Geographic and Functional Allocations of SWF Investments

Explanatory Variables		MENA Countries		Strategic		Social		Industry		Finance		Technology	
		1	2	3	4	5	6	7	8	9	12	11	12
AUM		9.629 ***	9.851 ***										
	se.	1.67	1.866										
Relative Size				0.022 **	0.022 **	-0.536	-0.507	0.015 *	0.016 *	0.006	0.006	-0.249	-0.109
	se.			0.009	0.01	0.389	0.391	0.008	0.009	0.008	0.008	0.305	0.233
Age				0.048 ***	0.052 ***	-0.012	-0.009	0.012 **	0.017 **	-0.007 *	-0.01	0.064 **	0.076 ***
	se.			0.009	0.012	0.01	0.012	0.005	0.007	0.004	0.005	0.012	0.018
MA		-2.672 *	-2.04 *										
	se.	1.37	1.233										
LM		-0.641 ***	-0.637 ***	-0.224 ***	-0.376 ***	0.192	0.174	-0.123 *	-0.114	0.042	0.048	-0.231 **	-0.549 ***
	se.	0.19	0.196	0.082	0.11	0.1 *	0.117	0.068	0.074	0.05	0.057	0.106	0.144
TIME		0.423 ***	0.203										
	se.	0.145	0.163										
IP		0.363		0.313 ***		0		-0.151 **		-0.003		0.551 ***	
	se.	0.473		0.098		0.12		0.07		0.061		0.135	
CORR			1.422 *		0.453 *		0.083		0.038		-0.03		0.919 **
	se.		0.808		0.273		0.283		0.171		0.133		0.397
Constant		-3.009	-2.555	-6.49 ***	-4.084 ***	-3.445 **	-3.716 ***	-0.087	-1.956 ***	-1.252 *	-1.2 **	-10.297 ***	-6.405 ***
	se.	5.024	2.067	1.333	1.089	1.469	1.138	0.907	0.659	0.738	0.511	1.888	1.664
Number of Observations		1320	1320	1417	1417	1417	1417	1417	1417	1417	1417	1417	1417
Pseudo R2		0.341	0.357	0.048	0.039	0.016	0.016	0.013	0.01	0.003	0.003	0.076	0.057

Table 6: OLS Estimates of the Relationship between Transactions Value and SWF Characteristics, Functions, and Identities

Explanatory Variables		Value Relative to Assets				Absolute Value (in Natural logs)
		1	2	3	4	5
AUM		-9.092 ***	-9.84 ***	-1.073	-0.043	0.512 ***
	se.	0.916	0.934	2.303	2.361	0.153
Age		-0.11 ***	-0.134 ***	-0.323 ***	-0.217 ***	-0.072 ***
	s.e.	0.012	0.013	0.043	0.055	0.016
LM		0.524 ***	-0.228	0.366 *	0.464 *	-0.12 *
	se.	0.151	0.17	0.21	0.247	0.065
MA		0.263	0.771	0.03	-0.218	0.905 ***
	se.	0.609	0.618	0.627	0.628	0.174
Strategic		2.935 ***	2.949 ***	2.706 ***	2.806 ***	0.291
	se.	0.977	0.874	0.962	0.859	0.239
Social		0.41	0.486	0.723	0.706	0.636 ***
	se.	0.832	0.829	0.818	0.808	0.226
Industry		1.696 ***	1.7 ***	1.593 ***	1.722 ***	-0.29 **
	se.	0.502	0.5	0.499	0.488	0.136
Finance		0.854 *	0.843 *	0.703	0.848 *	0.363 ***
	se.	0.458	0.456	0.453	0.448	0.125
Technology		-2.212 **	-1.958 *	-2.513 **	-2.232 **	-0.246
	se.	1.117	1.114	1.116	1.112	0.31
FGCC			3.305 ***	9.83 ***	17.152 ***	-0.281
	se.		0.89	1.398	2.455	0.729
KIA				-0.452	-12.03 ***	0.701
	se.			0.934	3.216	0.879
QIA				-8.29 ***	-14.48 ***	0.769
	se.			1.762	2.441	0.754
ADIA				-7.803 ***	-17.48 ***	-2.678 ***
	se.			1.273	2.68	0.79
TEMASEK				5.594 ***	4.5 ***	1.85 ***
	se.			1.863	1.951	0.491
SAMA					-12.97 ***	1.258
	se.				3.276	0.921
IPIC					-1.437	3.673 ***
	se.				3.273	0.894
PIF					-15.31 ***	2.911
	se.				6.951	1.931
MUBAD					-17.68 ***	1.031
	se.				4.042	1.164
Constant		12.602 ***	9.333 ***	11.796 ***	9.962 ***	3.363 ***
	se.	1.171	1.461	1.807	1.915	0.763
Number of Observations		1420	1420	1420	1420	1420
Pseudo R2		0.128	0.131	0.162	0.185	0.387

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