

CROSS-COUNTRY VARIATIONS IN SOVEREIGN WEALTH FUNDS' TRANSPARENCY *

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October 15, 2022

Abstract: We explore the drivers of the variation in sovereign wealth funds' transparency across countries. Sovereign wealth funds have emerged as an important instrument for governments to invest and manage excess funds. However, despite serving similar needs, they vary significantly across countries. We integrate agency theory with the varieties of capitalism framework to propose that the country's governance characteristics drive sovereign wealth funds' multi-level agency problem, i.e., politicians acting as intermediaries between the citizens who are the nominal owners and the funds' managers, leading to cross-country variations in the sovereign wealth funds' characteristics. As a result, we propose that the home country's type and quality of government and the origin of the wealth drive cross-country variations in the transparency of the sovereign wealth funds. We provide public policy suggestions for addressing these agency problems and improving sovereign wealth fund behavior.

Keywords: sovereign wealth funds, government, investment, political system, transparency, agency theory, varieties of capitalism

* We thank Javier Capapé, Editor Omrane Guedhami, Marc Goergen, Enrico Onali, Andrea Paltrinieri, Pasquale Scaramozzino, Diego Lopez, and anonymous reviewers for useful suggestions for improvement on previous versions of the article. We also thank Diego Lopez of Global SWF for providing access to the data. Alvaro Cuervo-Cazurra thanks the Lloyd Mullin fellowship at Northeastern University for financial support.

INTRODUCTION

Sovereign Wealth Funds (SWFs) have emerged as crucial and somewhat little-understood global actors. SWFs are a mechanism for governments to manage excess wealth for future generations (Cumming, Wood, Filatotchev, & Reinecke, 2017). They are created as stabilization and commodity funds, tasked with investing the proceeds from exploiting natural resources, exports, or foreign exchange to ensure that subsequent generations will benefit from the accumulated wealth once its sources have dwindled. Much of the literature (see an overview in Cumming et al., 2017) has focused on trying to understand their investment behavior and returns on investments, usually compared to private funds (Wang, Weiner, & Jandhyala, 2021; see a summary in Megginson & Fotak, 2015), by the type of investment used (Johan, Knill, & Mauck, 2013), or the diversity of investments of a single SWF (Vasudeva, Nachum, & Say, 2018). However, despite becoming significant foreign investors, with some like Norway's Government Pension Fund Global holding about 1.5% of all publicly traded firms (Fouche, 2021), there is a limited understanding of their diversity across countries. This opens opportunities for additional theorization that complement the usual comparison of SWFs and private funds.

Hence, in this exploratory study, we analyze the drivers of the variation in the characteristics of SWFs across countries. Building on agency theory (Jensen & Meckling, 1976) and integrating it with the varieties of capitalism framework (Hall and Soskice, 2001), we propose that country-level governance alters SWFs' multi-level agency problems, i.e., politicians acting as intermediaries between the citizens who are the nominal owners and the funds' managers. This results in cross-country variations in the characteristics of SWFs because the ties and nature of contracting among actors, and the relative power of each, are bound up with the institutional setting (Mariotti and Marzano, 2019; Vitols and Engelhardt, 2005). We extend these insights by proposing that the type and quality of government in the home country and the origin of the wealth drives differences in the transparency of SWFs across countries.

We illustrate these ideas with an exploratory analysis of the fifty largest SWFs. We find that SWF transparency is driven by democracy in the political system and government investments. Additionally, from the analysis of the country determinants of SWFs, we suggest a typology of countries with SWFs: interventionist entrepreneurial welfare states; interventionist entrepreneurial states; interventionist welfare states; market-oriented states; welfare states; entrepreneurial states; and entrepreneurial welfare states.

These ideas contribute to two research streams: the study of SWFs and agency theory. First, to the literature on SWFs, we highlight the importance of understanding the conditions of the home country and their effect on these investors and their global expansion, extending work that highlights a variety of agency issues across institutional settings (Mariotti & Marzano, 2019; Vitols & Engelhardt, 2005). Home country conditions have emerged as a topic that helps understand internalization (Garcia-Canal & Guillen, 2009; Holburn & Zelner, 2010; see a review in Cuervo-Cazurra, Ramamurti, Luo & Ang, 2018), with much of

the literature discussing how the level of development of the home country facilitates or constrains internalization (Estrin, Li, & Shapiro, 2020). In contrast, in the analysis of the diversity of SWFs, the home country effects seem to be operating through the conditions of the political system rather than the level of economic development. Countries with similar levels of economic development show diverging levels of transparency. For instance, Venezuela's Macroeconomic Stabilization Fund had a transparency score of one out of ten, while Panama's Fondo de Ahorro de Panama was rated ten out of ten (SWFI, 2021). The reason seems to be that politicians are the ultimate decision-makers that determine the behavior of SWFs. Future research can build on these ideas to go beyond the level of development of the home country or the traditional dichotomy between emerging and advanced economy countries and instead provide additional depth to how the conditions of the political system affect the characteristics and behavior of SWFs.

Second, we help expand agency theory by explaining how it can be modified to accommodate the government as the owner within the broader context of country-level governance. Much of the literature on agency theory focuses on the separation of ownership and control and how managers pursue their agenda at the expense of owners' goals (Fama & Jensen, 1983; Jensen & Mecking, 1976). The application of the theory to state-owned firms has noted that these firms suffer from unique agency problems compared to private firms due to the influence of politicians (Chen, Ghoul, Guedhami, & Liu, 2022; Cuervo-Cazurra et al., 2014; Grøgaard, Rygh, & Benito, 2019; Grosman, Aguilera, & Wright, 2019; Musacchio & Lazzarini, 2014). The analysis of SWFs contributes to our understanding of agency theory by revealing the existence of nuanced multi-level agency relationships in SWFs among citizens, politicians, managers of the SWFs, and managers of the invested firms: citizens are the nominal owners but exert little influence on their behavior; politicians act on their behalf but have different objectives from traditional owners and may seek to use the SWFs as mechanisms to achieve political objectives; SWF managers have career concerns driven by the performance of the fund and their responsiveness to politicians; and managers of SWF-invested firms have preferences for making their firms attractive to investors while maintaining independence in decision-making. Thus, SWF research on these multi-level and multi-principal agency problems can help inform new agency approaches in companies with complex ownership structures, such as business groups or multinationals with mixed ownership. Additionally, connecting agency theory to the varieties of capitalism approach (Hall & Soskice, 2001) helps extend the theory by explaining how country-level governance arrangements interact with firm-level governance to address the agency problems of the organization. Agency theory's strength is in explaining contractual relationships, while the varieties of capitalism framework's strength rests in its explanation of governance arrangements across countries.

These ideas are also useful for government officials. We highlight and explain how SWFs differ significantly across countries and thus caution against the one-size-fits-all approach at providing suggestions for government officials to improve the workings of their SWFs. We suggest that government

officials consider how the characteristics of the political system at home drive much of the strategic behavior of SWFs, particularly their transparency. Thus, a comprehensive upgrading of governance in the SWFs may also require improving country-level governance.

HOME COUNTRY CHARACTERISTICS AND SOVEREIGN WEALTH FUNDS

To understand SWFs and the role of country characteristics in explaining their transparency better, we first review the phenomenon and literature on SWFs. After this, we explain how agency and the varieties of capitalism approach can be used to provide a deeper understanding of the behavior of SWFs.

Sovereign Wealth Funds

Definition. An SWF is an intergenerational savings device for managing a proportion of a foreign exchange windfall, typically, but not only from natural resources. However, SWFs may also fulfill stabilization, national or regional economic development, home country political, and diplomatic purposes (Cumming et al., 2017). Although SWFs share a common origin in their funds, they often serve many functions and, in doing so, encroach on other types of state investment mechanisms, complicating their categorization (Balding, 2011; Megginson & Fotak, 2015; Cumming et al., 2017). There are many state-managed investment funds that occupy something of a grey space (Balding, 2011). These include, for example, public pension funds (for analysis on public pension funds, see Dreassi, Miani, & Paltrinieri, 2017). Identifying SWFs requires careful analysis, especially since the names are sometimes confusing. For example, while the South Africa Public Investment Corporation is a public pension fund, Norway's Government Pension Fund Global is an SWF.

The Phenomenon. The emergence and global growth of SWFs seem to be relatively recent phenomena. SWFs were created in the mid-twentieth century as some countries received large flows of funds from natural resources and saved them, but most were established from the 2000s onwards (Aguilera, Capapé & Santiso, 2016). Despite their recent creation, SWFs have achieved impressive size. Table 1 illustrates their size by country. What is noticeable is the diversity of countries, which is led by China, Norway, Abu Dhabi, Singapore, and Saudi Arabia by assets under management, and by the US, China, Australia, and Kazakhstan by the number of SWFs. This diversity of countries challenges the conventional view that SWFs originate in countries with large oil and gas reserves, because many do not. Governments have accumulated funds not only from natural resources but also from exports of non-energy-related goods and services (Megginson & Fotak, 2015). Additionally, the data challenges the traditional view that SWFs are predominantly created in emerging economies, because many were created in advanced economies like Australia, Norway, and the US.

*** Table 1 about here ***

There is significant diversity among the leading SWFs. Table 2 lists the top SWFs, ranked by assets under management. Norway's Government Pension Fund Global and China Investment Corporation are

the largest. After them, there is a significant drop in the size of SWFs. At the same time, subnational SWFs also exist, like Alaska Permanent Fund Corporation, managing excess funds for government at the province or state level. This not only adds complexity to the phenomenon, but also questions the term SWFs since subnational funds are not owned by a sovereign country.

*** Table 2 about here ***

In addition to being strategic investors at home (Scheda, 2017), SWFs are increasingly investing abroad. One reason is that their size requires expanding outside the home country in search of new investment opportunities and the diversification of risks associated with country events (Cuervo-Cazurra, Grosman, & Megginson, 2022). Another reason is the broad trend in the internationalization of investors, not just SWFs, facilitated by the liberalization of cross-country capital flows and the expansion of capital markets. Finally, some funds, like Norway's Government Pension Fund Global, are not allowed to invest at home, thus becoming international investors by design.

The Literature. The literature on SWFs tends to illustrate their investment strategies, using arguments from optimal portfolio allocation to explain whether the investments followed the theoretical expectations. One theme is the study of how SWFs select location choices for their investments and the role that political relations play in this choice (Johan, Knill, & Mauck, 2013; Knill, Lee, & Mauck, 2012; Makhoul, Musacchio, & Lazzarini, 2019). Another theme is the analysis of how SWFs are used by governments to facilitate development (Haberly, 2014; Kamiński, 2017; Lai, O'Hara, & Wysoczanska, 2015; Sun, Li, Wang, & Clark, 2014). Studies published in management journals use signaling theory, transaction cost economics, and institutional theory to explain their behavior (Aguilera, Bermejo, Capapé, & Cuñat, 2019; Aguilera et al., 2016; Goergen et al., 2018; Haberly, 2011; Vasudeva et al., 2018).

The empirical approach taken by studies seems to branch into two alternatives: investments made by one SWF and companies invested by multiple SWFs. On the one hand, some studies focus on SWFs that are transparent in their investments, which facilitates their study, as is the case of Norway's Government Pension Fund Global (Vasudeva, 2013; Vasudeva et al., 2018) or Singapore's Temasek (Gnabo, Kerkour, Lecourt, & Raymond, 2017; Phelps, 2007). On the other hand, other studies focus on publicly traded companies and identify which SWFs have bought stakes in them to gain insights on the role of the government in such investments (Boubakri, Cosset, & Gira, 2016).

In terms of the study of the investments made by SWFs, the literature seems to focus on two topics: a comparison of SWFs against private funds, and the analysis of the behavior of SWFs, revealing that SWFs differ from private funds in their investments and diversification. First, SWFs seem to seek diversification by investing in selected firms and countries. They tend to invest in large, profitable, international firms (Boubakri et al., 2016; Fernandes, 2009; Karolyi & Liao, 2017; Megginson & Fotak, 2015; Mietzner, Schiereck, & Schweizer, 2015), operating in strategic industries (Boubakri et al., 2016; Chhaochharia,

2009; Haberly, 2011; Sun et al., 2014); and in nations with better growth and legal institutions (Akyol & Çiçen, 2017; Boubakri et al., 2016; Debarsy, Gnabo, & Kerkour, 2017; Megginson, You, & Han, 2013). There are significant differences in investment patterns between SWFs from OECD and non-OECD countries (Avendaño & Santiso, 2011; Candelon, Sy, & Arezki, 2011). Second, governments play an essential role in SWF behavior (Megginson & Gao, 2019). Home country governments induce SWFs to invest abroad in strategic sectors to promote national development (Haberly, 2011; Kamiński, 2017; Lai et al., 2015; Sun et al., 2014) and influence host countries through lobbying and board representation (Calluzzo, Dong, & Godsell, 2017; Kamiński, 2017). Host country governments seem to favor investments by SWFs and local companies and establish connections with their home country owners (Haberly, 2011; Haberly, 2014; Lavelle, 2017; Thatcher & Vlandas, 2016). Summaries of SWF behavior, usually on their domestic investments, appear in Megginson and Fotak (2015), Fotak, Gao, and Megginson (2017), Megginson and Gao (2019), and Bahoo, Alon, and Paltrinieri (2020). Third, SWFs seem to differ from private firms in their selection of investments (Bortolotti et al., 2015; Dewenter, Han, & Malatesta, 2010; Karolyi & Liao, 2017; Kotter & Lel, 2011; Megginson, 2017; Sojli & Wah Tham, 2011).

Despite these advances, there is still a considerable variation in the behavior of SWFs that has not been explored in detail in previous literature, especially differences across SWFs driven by the characteristics of their home countries.

Agency Theory and Sovereign Wealth Funds: Multi-Level Agency Problems

Agency theory studies the relationships between a principal who tasks an agent to make decisions on her behalf (Ross, 1973). Agency problems emerge because the principal has a different objective than the agent, the principal is unable to observe the behavior of the agent because of imperfect and asymmetric information, and the principal is unable to specify fully the actions the agent needs to take because of imperfections in contracting and bounded rationality.

The traditional agency problem studied in finance emerges between owners who employ managers to run companies on their behalf to increase a firm's profitability while managers may want to pursue their career objectives (Jensen & Meckling, 1976). The solution to these agency problems is the implementation of monitoring and control systems over the behavior of managers that limits their freedom to pursue their objectives at the expense of shareholders and aligns their goals (Fama & Jensen, 1983).

Later developments argued that agency problems vary across contexts. Initially, this was taken to assume that agency problems were reduced in the common law and liberal market economy model (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000). However, other work imparted a more nuanced view, recognizing multiple locations of agency failure, and suggesting liberal market superiority only concerns some types of agency failure (Mariotti & Marzano, 2019; Vitols & Engelhardt, 2005; Goergen et al., 2018).

SWFs suffer from a complex multi-level agency problem that requires significant modifications to traditional agency arguments, because they combine the challenges of the separation of ownership and control with the problems of state ownership. Most large companies face agency problems from the separation of ownership and control (Berle & Means, 1932; Jensen & Meckling, 1976) and the divergence in objectives of owners and managers. State-owned firms suffer from multi-level agency relationships between citizens, politicians, and managers (Cuervo-Cazurra, Inkpen, Musacchio, & Ramaswamy, 2014), which create a liability of stateness, i.e., disadvantages or inefficiencies due to state ownership (Cuervo-Cazurra & Li, 2021; Musacchio, Lazzarini, & Aguilera, 2015). SWFs add another layer of complexity to the separation of ownership and control and the multi-level agency problems from among four actors: the nominal principals of the SWFs, i.e., the citizens of the country; the agents representing the citizens, i.e., the politicians; the agents running the funds, i.e., the fund managers; and the agents running the companies, i.e., the managers of the SWF-invested firms (Bernstein et al., 2013). All of these create new subtleties in agency problems. These complex agency situations are summarized in Figure 1.

*** Figure 1 about here ***

SWFs suffer from unusual agency conflicts among their principals. SWFs, as state-owned entities, are nominally owned by the citizens of the country, who are the ultimate principals. However, there is an extra level of complexity in SWFs regarding who exactly the principal is. When SWFs serve stabilization and national development functions, current generations of citizens are the principals. When SWFs serve as inter-generational savings vehicles, current and also future generations of citizens are the principals (Cumming et al., 2017). All this generates a conflicting set of objectives between the desires of current citizens for payments or subsidies today and the preferences of future generations of citizens for returns tomorrow.

SWFs also face the unusual situation of politicians mediating between citizens and manager. Politicians act both as principals and agents. On the one hand, they are the principals of SWFs managers, appointing and controlling their behavior. On the other hand, they are also the agents of citizens in whose name they provide oversight to achieve the stated objectives of the SWFs of benefitting future generations and promoting national prosperity. However, at the same time, politicians have their own goals of ensuring their stay in power by gathering the support of citizens and using SWFs to make investments that facilitate such support. Thus, Bernstein et al. (2013) found that SWFs in which political leaders become more involved in their investment strategies suffer from political bias, and as a result, are associated with greater short-termism. However, the level of influence of politicians on SWFs depends on the political system. Democratic scrutiny means that SWFs are better managed, more transparent, and marry high ethical standards with effective stewardship of assets (Goergen et al., 2018). However, in countries with first past the post electoral systems, there may be more pork-barrel politics to sway ideologically uncommitted swing

voters (Goergen et al., 2009). In non-democratic countries, in contrast, citizens have little recourse to controlling politicians' misbehavior as they cannot vote politicians out of power. This opens additional agency failures (Bernstein et al., 2013) because politicians may be interested in maximizing short-term returns to demonstrate their competence or plunder the fund so that their preferred policies garner support, leaving current and future generations of principals worse off. In some autocracies, especially monarchies or with some form of family dictatorship, the ruler and his kin are seen as the personification of the nation and often claim that national property and their own are indivisible (Weston, 2008; Wood, 2004). Members of the ruling family claim principal status, even if the citizenry, present, and future, have a stronger claim in terms of distributional fairness and collective rights (Moyn, 2018). SWFs can be more volatile, experience rapid depletion, and are generally opaquer (Cumming et al., 2017).

There are also potential agency issues with SWF managers. New agency failures emerge from tensions between fund managers and investors in the fund (Ilhan-Nas et al., 2020; Allen, 2001), most notably around the incentives SWF managers operate under, the choices around investment categories, and the engagement of third-party financial intermediaries such as private equity (Bortolotti et al., 2015; Goergen et al., 2018). Managers of SWFs are the agents who are tasked with investing the excess capital to obtain returns that will support future payments, and they have the objective of ensuring a successful career. Additionally, the autonomy and discretion of SWF managers vary with the size and type of SWF investment in portfolio firms (Makhoul, Musacchio, & Lazzarini, 2019). Other problems SWFs face are transparency, with public accountability needing to be balanced against providing too much information to other investors. SWF transparency has been an issue since their inception, with the Santiago Principles being established to improve SWF investment practices, corporate governance, and accountability (Rose, 2017). In so doing, the set of objectives that SWF managers are tasked with increases in complexity, and results in conflicts among the mandates beyond the traditional owner-manager disparity in objectives.

Finally, managers of SWF-invested firms are the agents of SWF managers, and have their own career desires. Given the limited stakes that SWFs tend to hold on their invested firms, the managers of SWF-invested firms tend to have a large degree of freedom from the control and oversight by SWF managers. These minority stakes, combined with SWFs being passive investors, facilitates managerial misbehavior in target firms, such as earnings management (Chen et al., 2022). Agency problems are further exacerbated when SWFs invest indirectly through intermediaries like private equity or hedge funds (Wright & Amess, 2017).

In short, SWFs' multi-level agency relationships and diversity of objectives among citizens, politicians, managers, and invested-firm managers add complexity to the analysis of objectives and their alignment. Relatively poor SWF performance, when compared to private peer funds, might indicate poor management (Bernstein et al., 2013), but potentially represent agency failures from politicians pursuing

their own interests over those of their principals. Poor SWF performance might also reflect a divergence of interests between ruling families and the public at large, especially when each of them stakes a claim for a principal status (Weston, 2008). Even if there are no such claims, funds may be depleted by rent-seeking officials (Clark et al., 2015).

All this raises the question of where and when such tensions are most likely to arise. Agency theory is a theory of contracting, ultimately backed up by assumptions of individual property-based rights (Lambert, 2001). However, modern states seek not only to uphold individual rights, but also see to ensure some degree of distributional fairness and the interests and rights of collectives (Moyn, 2018). This affects how the principal is defined, the relative degree of transparency, and mechanisms for fund accountability. In other words, agency failures only represent part of the picture. Agency relationships are embedded in country-level governance systems that drive variations in the behavior of SWFs.

Varieties of Capitalism and Sovereign Wealth Funds

We suggest extending agency theory to analyze in more detail how the characteristics of the home country affect the behavior of SWFs by building on country-level varieties of capitalism approach (Hall & Soskice, 2001). This helps elucidate what types of agency problems are associated with particular settings, and explore the effects of different state and regulatory traditions.

The varieties of capitalism approach focuses on cross-country differences and classifies countries according to the characteristics of their economic and political systems. Essentially, the literature holds that national economies can, in the broadest terms, be classified into several distinct categories. Within each category, particular institutional configurations support and encourage specific patterns of relationships between actors. In turn, this leads to dominant paradigms of investor and firm behavior, even if each context has considerable internal diversity.

Countries can be categorized following perceptual and statistical approaches. On the one hand, the early literature grouped countries into perceptual categories. This started with the separation of advanced economies into liberal market economies and coordinated ones (Hall & Soskice, 2001). Later analyses identified other archetypes to cover post-state socialist Eastern and Central Europe (transition economies), Southern Europe (mixed market economies), Latin America (hierarchical market economies), Africa (segmented business systems), China (Chinese capitalism), East Asia (Carney, 2018; Carney & Samphantharak, 2022; Lee & Shin, 2018; Feldmann, 2019; Schneider, 2009; Wood & Frynas, 2006), and Gulf economies (petroleum growth regimes) (Mellahi and Wood, 2002). On the other hand, a complementary approach, and the one used in this study, is country categories derived from data rather than predetermined by stereotypes on how the countries should cluster. This approach has been used in the socio-economic literature, most notably the social systems of production approach, which analyzes the effects of institutional features on choices by firms and societal outcomes (Amable, 2003). It has also been used in

the international business literature (Wright et al., 2021), which argues that all countries, including market economies, have a degree of observable state involvement in the economy. We follow Wright et al. (2021) classification of state capitalism categories and extend it by integrating SWF relevance to the governments and their economies. In so doing, this becomes the first study to integrate home country and SWF characteristics within the varieties of state capitalism framework.

Home Country Conditions and SWF Behavior

Home country differences result in a varying focus of SWFs on economic or political outcomes. Based on an extensive literature review, Alhashel (2015) concluded that, in choosing investments, most SWFs are motivated by economic rather than political goals. The relative emphasis placed on each motive is likely to reflect how national institutions and associated national-political dynamics have evolved (Clark et al., 2013; Cumming et al., 2017; Goergen et al., 2018). There are several potential influences. Country of origin institutions may make for a lesser or greater degree of fund transparency, governance, and type of investment strategy, e.g., short vs. long term. The relative developmental focus of the state, and its concern with distributional issues, will also impact funds, affecting the relative taste for specific types of investment, ranging from those that will help secure technology for national firms to those that will support domestic development (Clark et al., 2015; Cumming et al., 2017). Democracy may result in competing pressures. The need to demonstrate good management versus dispense patronage, and the subsidization of current generations versus prudent long-term investments to support future generations (Cumming et al., 2017). National values, whether those propounded by elites or shared by the masses, will also impact fund investment strategies; a conspicuous example is Norway's Government Pension Fund Global ethical focus (Goergen et al., 2018). Moreover, countries may use funds as a diplomatic instrument to project national influence abroad, promoting national values and exercising discreet power (Cuervo-Cazurra, Grosman, & Megginson, 2022). The latter might include rewarding friendly countries with investments and punishing those exhibiting more critical behavior (Clark et al., 2013; Cumming et al., 2017). An example of such discreet power is UAE's SWF, Mubadala, investing USD14 billion in UK industries (energy transition, infrastructure, technology, and life science) to build strong ties between the two countries (Ziady, 2021).

Although SWFs behave like any other institutional investors, a body of existing work highlights how politics sometimes intrude (Arouri, Boubaker, Grais, & Grira, 2018). Boubaker, Boubakri, Grira, & Guizani. (2018) explore the effects of SWF investments on equity pricing as a proxy for market performance. They find that as risk increases, the cost of equity increases for SWF investments abroad, because such investments expose the target firm to controversy in its home country and the investments serve non-commercial reasons that deflect the firm from its original purposes. The converse happens for SWF investments at home, either because of implied government capital guarantees, or because such investments provide target firms with needed investment capital. Comparing SWF investments' effects on

competing firms, the latter seem to perform better after the acquisition, possibly because of expectations of restructuring (Boubakri, Cosset, & Grira, 2017). SWF investments have a positive effect on industries in target countries, suggesting that pressures toward greater financial protectionism are misguided. However, such pressures are very real and may prompt SWFs to adopt a hands-off approach to acquisitions abroad.

Hence, building on these arguments, we propose running an exploratory analysis of how home country institutions affect SWF characteristics, paying particular attention to their transparency. We argue that there is a combination of economic and political characteristics of the home country that drives the considerable diversity in SWFs. In essence, we argue that country-level governance characteristics affect the agency problems of SWFs. In traditional agency relationships, principals have mechanisms for disciplining agents that misbehave and can ultimately replace them if these control and discipline mechanisms fail. However, in some political systems, citizens have little ability to replace politicians. This results in politicians becoming the *de facto* principals, being able to ignore the demands of citizens, and can influence the behavior of the SWFs despite being technically agents of the citizens.

RESEARCH DESIGN

Data and Sources

To explore the influence of home country conditions on the characteristics of SWFs, we compile data on the fifty largest SWFs in the world and their country characteristics from multiple sources over the period 2010 to 2019. We restrict the analysis to the top fifty SWFs because of data availability on transparency; although these include the largest funds, we acknowledge the potential bias in the findings.

We use data from SWF Institute and Global SWF for the largest SWFs characteristics, such as the number of SWFs per country, assets under management, and transparency. We use the Fraser Institute Economic Freedom Database and the World Bank Worldwide Governance Indicators for variables that represent different aspects of state intervention in economic activities.

Variables and Measures

The dependent variable is *Sovereign Wealth Fund transparency*. The Linaburg-Maduell transparency index developed at the SWF Institute measures the transparency of SWFs. The index identifies ten principles of SWF transparency to the public, giving one point of transparency of each of these (Linaburg & Maduell, 2021): “(1) Fund provides history including reason for creation, origins of wealth, and government ownership structure; (2) Fund provides up-to-date independently audited annual reports; (3) Fund provides ownership percentage of company holdings, and geographic locations of holdings; (4) Fund provides total portfolio market value, returns, and management compensation; (5) Fund provides guidelines in reference to ethical standards, investment policies, and enforcer of guidelines (6) Fund provides clear strategies and objectives; (7) If applicable, the fund clearly identifies subsidiaries and contact

information; (8) If applicable, the fund identifies external managers; (9) Fund manages its own web site; and (10) Fund provides main office location address and contact information such as telephone and fax.”

Other fund characteristics are *SWFs assets under management* which is measured as the total amount of SWF assets under management in billions of US dollars in the country, and the *Number of SWFs*, which is a count of the number of SWFs in the country. Both variables come from the Global SWF database.

The independent variables are institutional characteristics. We focus on these variables rather than more generic measures of institutional quality, because we want to measure specific types of government intervention (Wright et al., 2021). The level of *Democracy* is the widely used measure in political science research, which we measure using Polity. This is an annual coding of the level of democracy for independent states with more than half a million in total population and is compiled by the Center for Systemic Peace. A country’s level of democracy is based on an evaluation of that country’s elections for competitiveness and openness, the nature of political participation in general, and the extent of constraints on executive authority. For each year and country, a Polity Score is determined, ranging from -10 to +10, with -10 to -6 corresponding to autocracies, -5 to 5 corresponding to anocracies, and 6 to 10 to democracies. *Government investments* is an index of government investment to the gross domestic product. *Government subsidies* measures government subsidies over gross domestic product. *Government consumption* is an index of government consumption to the gross domestic product. *Government assets* measures state ownership of assets. These last four variables come from the Fraser Institute Economic Freedom Database. Table A1 in the Appendix summarizes the variables and measures.

Method of Analysis

To understand the impact of the country’s conditions on the variation in SWFs transparency, we use an ordered Probit model because the dependent variable takes positive whole numbers. With a categorical year variable, we control for time and exogenous event effects. We also lag all the independent variables to avoid simultaneity bias.

We complement this with an exploratory factor analysis using the principal factor method. Factor analysis allows us to cluster the countries with SWFs according to types of institutional systems. There are many institutional dimensions one can use, but the more variables used in factor analysis, the lower eigenvalues the factors would get; in other words, we want to avoid multi-collinearity amongst variables. Our methodology is inductive because we do not know the influence of what dimensions should come out of the factor analysis. All the variables included in our factor analysis were available for the 48 countries in which we have information on the top fifty SWFs. These 48 countries include all OECD countries and major emerging economies from around the world.

RESULTS

Descriptive Statistics and Correlation Matrix

Table 3 provides the descriptive statistics and correlation matrix. The average SWF transparency of the top fifty SWFs is about seven. Among the 48 countries with the top fifty SWFs, the average number of SWFs is five and the average assets under management is about USD300 billion

*** Table 3 about here ***

Institutional Determinants of Sovereign Wealth Fund Transparency

We start the exploratory analysis by studying the determinants of the transparency of SWFs, a most important corporate governance factor given how opaque SWFs are. Table 4 provides the results of the ordered Probit analysis. We find that the level of government investment has negative and statistically significant coefficients in models 3 ($p<0.01$), 4 ($p<0.05$), 5 ($p<0.10$), and 6 ($p<0.05$), and the level of democracy has positive and statistically significant coefficients in all models ($p<0.01$). Although the latter result is rather expected, the former is not. Investment to gross domestic product represents the share of public investment over total investment, and we observe a mechanism where public spending decreases the transparency of investments via SWFs. This means that the bigger the size of the state apparatus in terms of capital investments in state-owned enterprises, the lower the SWF transparency and accountability. In other words, for governments that are equally bureaucratic or with similar ownership levels, state investments in state-owned enterprises are associated with more opaque SWFs. Many SWFs are prohibited from investing at home, which, in the case of the largest SWFs would constrain the scale of government investment in the domestic economy. Directing government funds to investments in domestic state-owned enterprises instead may lead to less scrutiny of SWFs investment strategies and transparency. Hence, we observe a substitution effect between the focus and investments in the domestic economy, via state-owned enterprises, and the focus on international investments and transparency in SWFs. More broadly, countries choose to either have large state-owned enterprises or SWFs (except for China which has both), as the decision to have an SWF is typically driven by whether or not the funds are available or can be redirected from other investments, such as in state-owned enterprises (Cuervo-Cazurra et al., 2022). Therefore, investments in state-owned enterprises drive away some of the attention from SWFs, if not making the dealings in SWFs opaquer.

It is worth noting that other country-level government characteristics have not statistically significant coefficients, except for state ownership in model 3 ($p<0.01$) and model 6 ($p<0.01$). State ownership has a negative coefficient, which confirms the substitution effect explained above. State subsidies or consumption do not seem to impact SWF transparency. This creates a puzzle as to why they are insignificant, creating a finding in their own right. It is clearly beneficial to have variation in the measures, as not all measures need nor should be significant. The size of SWFs, as measured by the assets under management, is positive and statistically significant in model 1 ($p<0.05$), model 2 ($p<0.001$) and model 7 ($p<0.05$), which means that larger funds, which are managing more assets, are under increased

investor scrutiny and are striving to become more transparent. The number of SWFs in a country is inversely related to SWF transparency. More specifically, the number of funds is negative and statistically significant in models 1 and 2 ($p < 0.01$), and model 3 ($p < 0.05$). This means that a dispersion of funds creates inefficiencies in their monitoring, but also that some of the smaller funds lack resources and commitments to corporate governance.

We ran additional models without democracy to fully evaluate the impact of government variables, and we also tried alternative measures of democracy. The results show that without the measure of democracy, the government variables determine the transparency of SWFs. Thus, either these dimensions of state intervention or the level of democracy explain SWF transparency. The results remain robust when excluding Norway's Government Pension Fund Global (hence not driven by it), one of the most transparent funds in the world.

*** Table 4 about here ***

Country Classification by Sovereign Wealth Fund

We run an exploratory factor analysis to understand how countries with SWFs cluster according to similarities in their characteristics. We use the principal factor method and orthogonal varimax rotation. This analysis is complementary to the ordered Probit models, since it allows us to separate the determinants of SWFs transparency into different dimensions, and then categorize countries to these dimensions. This type of analysis is commonly used in international business literature, not only as a methodological tool, but also as a foundational tool for sense-making and conceptualization, especially to investigate complex and interrelated dimensions of countries (Witt et al., 2018). Table 5 presents the factor loadings. We select factors whose eigenvalues are above one, the most commonly used criterion for factor selection, i.e., Factor 1 and Factor 2 (Guttman, 1954; Kaser, 1960; Lance & Butts, 2006). Factor 3 is nearly one, so we consider it too to have more than two factors. This criterion is widely used. Although it tends to retain too many factors, in our study, retaining three factors contributes to the richness of country categorization.

*** Table 5 about here ***

The three factors reflect different country characteristics. We refer to Factor 1 as *Non-threatening government* because it is defined by high loadings of government effectiveness, perception that government bureaucracy does not hinder business, and perception that state ownership is not a threat to business; these factor loadings reflect government quality, independence, and credibility, as well as institutional constraints on harmful government interventions. We call Factor 2 *State ownership* because it is defined by very high loadings of state ownership, followed by loadings of state investments. We term Factor 3 as *Statism* because it is defined by high loadings of government consumption and subsidies (a term defined in Wood & Wright, 2015), and total assets under management in SWFs. This factor reflects economic interactions between government and business when the government acts as a consumer or a source of funds for the business.

State ownership and statism dimensions capture the mechanisms of how the state intervenes in the economy (Wright et al., 2021). State ownership captures property rights that allow the governments to direct companies towards specific goals on the political agenda. Statism is the size of the welfare state, where the state is acting either as a consumer of products and services or as a provider of funds. The non-threatening government factor captures how governments use these mechanisms, and how the mechanisms are perceived, that is, whether they are not a threat to business.

Figure 2 plots the factor loadings of the countries for *Non-threatening government* and *State ownership*, *Non-threatening government* and *Statism*, and *State ownership* and *Statism*. Most of the loadings are in line with expectations. China, for instance, has high levels of *State ownership*, and scores low on *Non-threatening government* and *Statism*. Amongst the developed economies, France and Belgium score high levels of *Statism* and *Non-threatening government* and low levels of *State ownership*.

*** Figure 2 about here ***

After creating three factors that summarize the institutional variety of countries, we aggregate them according to how they intersect. For *State ownership* and *Statism*, we define high values as those above the third quartile threshold because otherwise too many countries would end up in the category of high values. For *Non-threatening government*, we define high values to be above the median, which allows for an equitable distribution of countries in either threatening or non-threatening categories.

Using these three factors, we generate eight country categories, which appear in Table 6. We follow Wright et al. (2021) and label the categories as interventionist states (as the below-median measure of non-threatening government is signaling government inefficiency), interventionist entrepreneurial welfare states (all dimensions are high, meaning the government seeks to maximize its profits), interventionist entrepreneurial states (where the government is competing for the assets and crowding out the private sector), interventionist welfare states (where the levels of government subsidies, consumption and government bureaucracy are high), market-oriented states (low levels of the three dimensions), welfare states (high statism), entrepreneurial states (where the state is competing with the private sector for business opportunities and ownership of assets), and entrepreneurial welfare states (low government threat, and high state ownership and statism). Our classification of countries differs somewhat from Wright et al. (2021) because our sample is limited to countries with SWFs, and the funds' size (i.e., importance to the government strategy and economy) is an additional clustering dimension.

In the category of interventionist states, we have countries like Argentina, Brazil, Bulgaria, Chile, Colombia, India, Indonesia, Israel, Jordan, South Korea, Mexico, Peru, Philippines, Poland, Portugal, South Africa, Taiwan, and Turkey. It is worth noting that in terms of SWFs origins, there is more heterogeneity than otherwise would have been expected with other categorizations of countries. Alongside countries with 'oil' SWFs, Brazil or Jordan, we also have SWFs established through funds from other natural resources

such as copper (Chile) or foreign exchange surplus (Taiwan). In the interventionist entrepreneurial welfare states category, we have Qatar, where the government owns many assets, has a large apparatus, and is also highly inefficient. The interventionist entrepreneurial states category comprises China, Kazakhstan, Malaysia, Thailand, and UAE. While these countries are generally highly successful at running their SWFs, as illustrated by China and UAE, that also means that the governments would compete for opportunities with the private sector, and as a result, this may constrain private companies. We have Greece, Italy, Russia, and Spain as the interventionist welfare states. While they are typically characterized by lower levels of state ownership and do not have SWFs (except for Russia), the levels of welfare and government bureaucracy are high in these countries. Again, it is interesting to observe that countries with different levels of economic development can cluster together. The category of market-oriented states includes those with a lean state apparatus, which is also perceived as non-threatening to the private sector. Such countries are Australia, Canada, Ireland, New Zealand, Switzerland, the United Kingdom, and the United States. Iceland and Singapore are entrepreneurial states, efficient at running their state assets with relatively lean states. Finally, in the entrepreneurial welfare category, we have Denmark and Finland. These countries, despite having a large public sector, are not perceived as having a threatening government. In fact, these countries combine a favorable investment climate and a welfare state.

*** Insert Table 6 about here ***

Overall, this categorization provides a novel lens into clustering SWFs and their home countries relative to traditional classifications of SWFs that have primarily been based on the provenance of wealth (i.e., natural resource-rich countries vs. countries with foreign exchange surplus) or level of development (advanced vs. emerging economies). The countries with the largest SWFs are observed in categories with high statism (e.g., Qatar, Norway, Russia), and categories where state ownership is also high (e.g., China, UAE, and Singapore). Thus, this exploratory analysis allows us to uncover clusters of countries according to the characteristics of their home institutions and types of SWFs and establish associations between funds transparency and home country characteristics.

Empirical Limitations and Robustness Tests

Our study has a few empirical limitations we need to note. First, due to the opacity of some of the SWFs, we have limited data. Our sample is limited to the fifty SWFs for which the SWF Institute provides transparency rankings. Nonetheless, they represent the majority of active and largest SWFs. Second, due to possible endogeneity, we cannot ascertain causality; hence we refer to relationships rather than causal effects. To limit reverse causality effects, we lag the independent variables by one year. Third, we might have some unobservable effects, such as the influence of intra- and inter-clan and family squabbles on the relative transparency of SWFs, which might be best addressed with qualitative studies. In Table A2 in the appendix, we provide additional tests to explore the existence of endogeneity. It is recognized that

endogeneity concerns are often ignored; and that there are many possible remedies, none of which is wholly authoritative (Abdallah et al., 2015). At the same time, as with any methodological concern, endogeneity should not be rife, especially as, in logical terms, a country's political institutions are unlikely to be shaped by the characteristics of its SWF; hence, it could be argued that any endogeneity may most likely be the product of confounding. We adopt a two-pronged approach for dealing with the issue; being cautious of claims of direct causality and the introduction of additional instrumental variables, a common remedy for such concerns (Semedeni et al., 2014). More specifically, we use an instrumental variables analysis to address endogeneity concerns (Reeb, Sakakibara, & Mahmood, 2019). We use two instruments for our endogenous variables, the oil rents as a percentage of a country's Gross Domestic Product from the World Bank, and the standardized values of individualism scores of each country from Hofstede's Insights. The oil rents to GDP ratio is an appropriate instrument because the rents directly determine the size of the SWF, but do not have a direct effect on SWF transparency. The individualism score determines to what extent the government prefers more individualistic ways, such as reducing corporate taxes, or more collectivist approaches, such as pulling citizen's money into a fund. The results show a strong and positive link with democracy (that is consistent across all specifications), and mostly positive effects on investments, but negative on subsidies and state assets. The size of SWFs has also a positive and mostly statistically significant coefficient. Overall, these results confirm that a country's democracy determines how SWFs are governed and the extent of disclosure of their international investments. Larger funds tend to be more transparent, while other government characteristics are known to influence SWFs' transparency. At the same time, a caveat is in order; instrumental variables have the potential to mitigate endogeneity biases, but they typically have low levels of statistical power (Semedeni et al., 2014). Nonetheless, these additional checks serve to provide support for our broad findings that is unlikely to be simply coincidental.

DISCUSSION AND CONCLUSIONS

SWFs are becoming increasingly important foreign investors that have been understudied. One reason for the lack of analysis might be that many of them, and especially their foreign expansion, are a recent phenomenon (Aguilera et al., 2016; Cuervo-Cazurra, Grosman, & Megginson, 2022). Another reason is that their behavior does not fit neatly with existing models of foreign investors, which have traditionally focused on understanding the behavior of multinationals. Although they do not take large stakes in companies in which they invest, SWFs nevertheless influence their strategic behavior (Vasudeva, 2013). Additionally, government ownership and the influence that politicians have on them challenge the motives of foreign investors in search of returns. Although SWFs are interested in receiving a return from their foreign investments, they are also subject to the nonbusiness objectives of politicians that alter their behavior compared to private investors (Cuervo-Cazurra et al., 2020).

Hence, in this exploratory analysis, we provide a better understanding of international business and this phenomenon by arguing and explaining how home country conditions drive variations in the behavior of SWFs. Different from much of the literature that has focused on understanding the differences in behavior between SWFs and private funds (Megginson & Fotak, 2015), we instead focus on SWFs and try to understand the differences among them. We classify them based on the level of state capitalism of the home country and analyze the variation in transparency. We find that the home country characteristics seem to impact SWF transparency. Indeed, more effective national institutions – specifically the type and quality of government - may make it easier to enforce the rights of the government and citizens versus the objectives of managers of SWFs and target firms abroad. Of course, there are some exceptions, most notably when SWFs fall under the purview of politicians with a populist bent, but our study identified a general principle: SWFs from undemocratic states are more likely to be opaque, facilitating looting by elites or directing to service vanity projects abroad.

Contributions

We contribute to a better understanding of two topics: SWFs and their differences across countries, and agency theory and its multi-level agency relationship in state-owned investors. First, to the literature on SWFs (Cumming et al., 2017), we provide a better understanding of the variation among SWFs and how this is driven by home country conditions. We go beyond the traditional dichotomy of advanced versus emerging economies that seem to have underpinned much of the recent international business literature (Cuervo-Cazurra & Ramamurti, 2014; Grosse & Meyer, 2019) and instead argue that the type of state capitalism of the country, in other words, the attitude and level of government influence in the economy (Hall & Soskice, 2001), explains the diversity in the transparency of SWFs. This provides a new understanding of not only SWFs but also can guide future research on other investors, both state-owned and private multinationals. The level of the type and degree of state capitalism of the home country is likely to affect the development of the competitiveness of firms and, thus, their ability to invest abroad. The government can take a two-sided influence on the internationalization of SWFs as well as other investors by, on the one hand, interfering and constraining the ability of firms to improve their competitiveness and invest abroad, and on the other hand, supporting the foreign expansion of companies by providing them with resources and diplomatic support in host countries (Cuervo-Cazurra & Li, 2021; Musacchio et al., 2015). Thus, future studies can build on this notion of state capitalism affecting international strategy (Mariotti & Marzano, 2019) as a complement to the traditional home country drivers of foreign investment of level of development, innovation systems, and political structure of the home country.

Second, to agency theory, we provide a deeper discussion of the challenges that state ownership plays on investments and the role of country governance. Most agency theory studies have focused on how the tension between managers and owners from the divergence in objectives creates agency problems

(Eisenhardt, 1989). However, in the case of SWFs, politicians act as intermediaries between citizens and managers, altering the traditional agency problems discussed in the theory. It is not only that politicians will have nonbusiness objectives that modify the achievements of the SWFs' business objectives, but also that despite being nominally agents of citizens, in many cases, they act as free agents without being controlled by the principals. Additionally, the diversity of political systems adds a new and nuanced understanding of the multi-level agency relationship of SWFs. On the one hand, in democratic countries, politicians are subject to potential periodical replacement through elections, which may induce them to guide the SWFs towards investments in activities that ensure their reelection even if these have detrimental effects in the long run; higher levels of transparency make it easier to monitor how the SWF is really doing. On the other hand, in totalitarian regimes, politicians are not subject to periodical replacement and can take longer-term views of the investments of SWFs, as they do with state-owned firms (Clegg, Voss, & Tardios, 2018), but at the same time, they might extract private rents from the SWFs in the knowledge that citizens have little recourse to replacing them, and, indeed, are much better equipped to keep the public in the dark in the first place. In short, we provide an illustration of the multiple possible sites of agency failure and the complex effects of national institutional regimes, representing a departure from early work that suggests that owners and fund managers had essentially the same interests, and the only national model that had positive effects was the mature liberal market common law one (La Porta et al., 2000). In doing so, we deepen the body of work that explores agency (i.e., contractual) issues from within a comparative institutional framework.

Our study also provides a further way of categorizing countries. In line with the social systems of production tradition (Amable, 2003), it suggests that institutional effects are complex and polyvalent, and that a specific set of institutions may confer advantages – or at least sustain particular sets of practice – in one area, even if it confers relative disadvantages in others. Again, institutional effects vary according to specific planes: regional; national; supranational, and according to the varying interpenetration of state and market (Hollingsworth, 1998). Given the apparent global statist turn, our categorization may be vested of particular salience in exploring differences between countries in other areas of state economic activities and actions. Again, our analysis challenges assumptions as to the differences between emerging and mature markets: it will be seen that within some domains, the differences are less than clear-cut.

Policy Implications

This multi-level agency problem, the distinct institutional advantages and challenges conferred by different sets of countries, and the importance of SWF internationalization point to the need to reconsider international business policy. The traditional recommendation for policy is to have the government take an active role in facilitating investments by firms. However, in the case of SWFs, the state ownership of these investors alters these policy recommendations. The same politicians that design the regulations and laws

are the ones that can control the behavior of SWFs. This creates a tension between policy development that is directly done through the creation of laws and regulations that can later be applied to the SWFs, or indirectly through the mandate of politicians that guide SWFs towards preferred activities. Whereas creating laws and regulations can be seen as establishing a clear playing field, this can take time and might not be adapted for rapidly changing conditions. On the other hand, the mandates of politicians in SWFs ensure expediency in resolving important political needs but can be subject to abuse by government officials. Additionally, the state ownership of the SWFs can add another layer of complexity to the design of public policies, given that politicians might be reacting to pressure from citizens to use the money held in the SWF to tackle current developmental needs rather than to save it for future generations.

For firms and countries benefitting from SWF investments, it would seem that close scrutiny of the nature of the country-of-origin institutions may help decode what the fund's agendas really are, how long- or short-term will be its investment focus, and whether domestic exigencies may result in a precipitate curtailment of investments. It may help highlight the relative weighting likely to be accorded to diplomatic objectives, be the latter the projection of national power or values (Bahoo et al., 2019). It is further likely to impact the choice of investments and how closely the fund will monitor investments in target firms. On the one hand, this might suggest that protectionist financial measures might be needed to regulate SWFs from countries with weak institutions and autocracies better. On the other hand, the latter may use the resources of an SWF to exert diplomatic leverage or even acquiesce to the support of key elite segments; the relationship between some SWFs and other categories of foreign government investments and dark money in politics has been noted but is little analyzed or understood (Torres-Spelliscy, 2017).

What SWFs do abroad may be informative to citizens in highlighting the real agendas of their governments, in the absence of transparency at home. SWFs may be concerned with promoting broader-based development, through direct investments within specific domestic regions or in national winners (Thun, 2004), or through investing in companies abroad that are likely to help promote a fairer world. Alternatively, the governments may be primarily concerned with protecting the collective property of citizens, by letting SWFs carefully pick investments abroad that are likely to deliver optimal returns while minimizing risk exposure, or by treating the SWFs as the private property of elites. Or they may be serving their political agendas, as recent evidence suggests, and use national SWFs to dispense patronage or defer harder decisions.

SWFs broaden the realm of what governments may do; it can be seen from our study that countries with the largest SWFs were those with established statist traditions. The backlash against globalization has led to increased government intervention in the economy (Cuervo-Cazurra, Doz, & Gaur, 2018; Kobrin, 2017; Witt, 2019), and events such as the COVID-19 pandemic illustrate much higher levels of state interventionism than supposedly had become the norm in recent years. However, despite the dominance of

neo-liberal ideologies, in practice, even in the liberal markets, rather than simply receding in the 1980s to early 2000s, statism often assumed novel forms (Wood & Wright, 2015). There are many different forms and manifestations of state ownership, but even as state-owned enterprises appeared to go out of fashion, state investment in private firms increased around the world via SWFs (Cumming et al., 2017); however, while liberal markets have made a statist turn, this does not seem to have resulted in an increased appetite for SWFs in such settings. Statism does mean that public rather than private interests are served, even if this falls short of outright state capture. This holds true with SWFs; depending on where they come from and the institutional determinants of modes of governance, SWFs around the world may be broad or narrow-based in this regard; again, a close look at the findings would suggest that under systems with a welfarist dimension, outcomes seem to be better. This has relevance for citizens, target firms, and indeed the polity within both home and host countries.

Final Thoughts

In sum, the paper highlights the importance of the conditions of the home country and, in particular, state capitalism as a new and understudied driver of the heterogeneous behavior of SWFs. We hope that the ideas contained in the paper open new avenues of research on this important phenomenon and a better understanding of agency theory and the design of public policies for state-owned entities.

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Table 1. Sovereign Wealth Funds around the world

Country	SWF assets under management, USD bn	Number of SWFs	Democracy level
Advanced economies			
Norway	1187	2	10
Singapore	821	2	-2
Australia	275	5	10
USA	230	22	8
South Korea	157	1	8
France	34	1	10
Canada	14	2	10
Finland	8	1	10
Transition economies			
China	2269	8	-7
Russia	169	2	4
Kazakhstan	145	4	-6
Uzbekistan	15	1	-9
Turkmenistan	1	1	-8
Developing economies			
UAE - Abu Dhabi	1005	3	-8
Saudi Arabia	819	2	-10
Kuwait	574	3	-7
UAE - Dubai	354	3	-8
Qatar	345	1	-10
Oman	48	3	-8
Malaysia	37	2	7
Turkey	34	1	-4
Chile	21	2	10
Bahrain	19	2	-10
Colombia	19	2	7
Mexico	7	1	8
Peru	5	1	9
India	2	1	9
South Africa	2	1	9

Source: Created using data on SWFs from SWFI (2020) and data on Democracy from Centre for Systemic Peace (2022); data is for the year 2018. The Polity score captures a regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). The Polity scores can also be converted into regime categories in a suggested three-part categorization of "autocracies" (-10 to -6), "anocracies" (-5 to +5), and "democracies" (+6 to +10).

Table 2. Top Sovereign Wealth Funds by assets under management in USD billion

Fund	Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NBIM	Norway	528.000	554.000	686.000	830.000	860.000	846.000	869.000	1034.000	955.600	1143.991	1290.978	1401.824
CIC	China	409.600	482.200	575.200	653.200	746.700	810.000	813.500	941.400	940.600	1045.700	1222.307	1222.307
ADIA	UAE	497.763	482.332	606.292	620.237	710.171	661.879	677.102	804.398	721.545	685.576	829.000	828.519
SAFE IC	China	272.109	285.714	300.000	400.000	500.000	600.000	612.000	690.000	729.000	743.080	817.364	817.364
GIC	Singapore	355.445	443.063	377.711	391.308	455.679	486.893	531.443	484.676	538.960	579.113	549.860	744.000
KIA	Kuwait	292.063	306.667	322.000	434.000	545.000	512.000	529.000	576.000	551.000	558.823	587.622	693.300
HKMA	China	301.700	320.200	358.900	391.100	406.100	439.400	464.500	515.400	520.000	540.140	516.980	586.874
PIF	Saudi Arabia	129.391	133.273	137.271	141.389	145.631	150.000	190.000	230.000	275.000	325.000	400.000	480.420
NSSF	China	130.217	138.142	176.966	204.858	247.238	293.772	294.095	341.675	325.040	376.148	376.148	452.136
QIA	Qatar	135.000	155.000	175.000	185.000	200.000	225.000	250.000	275.000	300.000	345.000	365.561	365.561
ICD	UAE	116.846	127.362	146.444	165.579	183.000	196.011	209.567	229.818	239.318	305.334	301.626	301.708
Temasek	Singapore	132.934	153.146	158.083	173.247	177.285	193.861	179.491	196.790	234.942	231.119	214.659	282.854
Mubadala	UAE	127.168	170.320	182.892	198.101	208.299	207.149	213.971	228.487	228.487	232.272	243.436	243.436
KIC	South Korea	33.000	47.000	60.000	72.000	84.700	91.800	110.800	134.100	131.600	157.300	183.100	201.000
NWF	Russia	88.400	86.800	88.600	88.600	78.000	71.700	71.900	65.200	58.100	125.146	185.870	182.600
Future Fund	Australia	73.267	74.670	85.620	86.103	88.988	86.243	91.783	108.448	103.606	148.701	172.116	177.920
ADQ	UAE	..	..	..	..	..	..	..	..	36.141	47.271	110.000	110.000
NDF	Saudi Arabia	..	..	..	..	..	..	..	44.722	53.472	63.194	77.778	93.415
EIA	UAE	37.132	38.245	39.393	40.575	41.792	43.046	44.337	45.000	50.000	63.110	69.132	86.427
TCorp	Australia	52.217	64.332	71.799	66.671	73.593	53.935	48.425	64.520	69.457	75.157	90.730	82.099
Alaska PFC	USA	33.300	40.100	40.300	44.900	51.200	52.800	52.800	59.800	64.900	68.361	77.771	81.063
PNB	Malaysia	37.590	40.703	42.379	53.153	58.421	61.055	63.784	66.849	71.470	74.702	79.940	79.940
QIC	Australia	43.654	64.546	66.363	64.205	66.611	56.863	56.471	62.984	63.619	66.000	67.000	69.429
Samruk Kazyna	Kazakhstan	86.878	80.855	94.611	93.171	91.022	61.277	67.889	73.155	66.927	79.368	63.832	68.918
UTIMCO	USA	23.000	26.700	27.800	30.000	34.700	35.200	36.800	41.300	45.100	47.700	52.100	68.332
LIA	Libya	55.800	60.000	67.000	67.000	67.000	67.000	67.000	67.000	67.000	67.000	68.400	67.000
NBK - NOF/NIC	Kazakhstan	30.980	43.625	57.927	70.790	73.187	63.392	61.218	58.334	57.988	61.750	58.696	57.059
VFMC	Australia	28.543	38.599	36.925	37.445	43.967	39.218	38.666	43.090	45.295	44.066	49.560	53.362
Bpifrance	France	29.102	28.468	30.335	32.985	33.265	30.405	30.013	34.806	33.826	33.479	51.168	51.168
BIA	Brunei	32.448	33.746	35.096	36.500	37.960	39.478	41.057	42.699	44.407	45.000	49.057	49.057
Texas PSF	USA	28.665	31.259	33.075	35.280	39.820	37.485	39.171	42.414	44.100	48.212	46.676	46.676
SOFAZ	Azerbaijan	22.767	29.800	34.129	35.878	37.104	33.574	33.147	35.807	38.515	43.323	43.564	45.025
NZ Super Fund	New Zealand	14.048	13.688	17.212	20.709	21.575	20.174	22.800	26.891	25.103	31.442	38.987	41.370
FTF	Norway	13.000	15.000	16.632	19.270	21.220	22.711	24.316	27.528	27.413	30.854	40.142	40.142
TVF	Turkey	..	..	..	..	..	..	..	33.500	33.500	33.500	39.000	38.763
Dubai Holding	UAE	40.000	45.000	50.000	40.000	30.000	32.000	33.000	34.000	34.000	35.399	35.399	35.399
New Mexico SIC	USA	14.000	15.000	16.000	17.000	18.000	19.000	18.000	20.000	23.200	27.440	31.344	34.864
OIA	Oman	25.720	27.006	28.356	29.774	31.263	32.826	34.467	36.190	38.000	42.832	35.152	31.962
Khazanah	Malaysia	37.256	34.126	39.781	41.243	41.619	34.979	32.408	38.680	32.763	33.116	30.529	30.529
RDIF	Russia	..	10.000	10.000	10.000	10.000	25.000	25.000	25.000	25.000	30.429	30.590	28.140
WVIMB	USA	12.000	13.000	14.000	15.000	16.000	17.000	18.000	19.000	20.000	20.803	22.761	25.345
WYO	USA	12.497	14.430	15.593	16.831	19.053	19.696	19.522	20.726	20.599	22.608	23.004	24.816
UFRD	Uzbekistan	11.000	12.000	13.000	14.000	15.000	25.000	25.000	25.000	25.000	25.586	23.293	23.293
KENFO	Germany	..	..	..	..	..	..	..	1.000	1.658	13.474	22.388	22.388
AIH	Azerbaijan	..	..	..	..	..	..	..	..	..	..	22.000	22.000
NDFI	Iran	..	58.424	59.592	60.784	62.000	63.240	64.505	65.795	67.111	68.000	64.827	21.160
TL PF	Timor-Leste	6.900	9.300	11.775	14.952	16.500	16.200	15.800	16.800	15.800	17.692	18.990	19.170
Chile ESSF+PRF	Chile	16.557	17.562	20.881	22.754	22.633	22.078	22.634	24.750	23.797	23.045	19.112	19.112

Fund	Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ND RIO	USA	4.800	5.600	7.000	7.500	9.000	10.500	12.000	13.500	15.000	16.285	18.891	18.891
Mumtalakat	Bahrain	10.304	11.025	11.797	12.623	13.507	14.452	15.464	16.546	17.704	18.958	18.958	17.729
SK CIC	Canada	9.891	10.386	10.905	11.450	12.023	12.624	13.255	13.918	14.613	15.344	16.111	16.917
ISIF	Ireland	..	..	..	..	8.709	8.579	7.898	12.482	19.837	16.915	10.578	15.621
Dubai World	UAE	5.950	5.740	6.090	6.300	6.300	6.370	6.650	8.120	8.400	12.847	15.401	15.401
INA	Indonesia	..	..	..	..	..	..	..	..	..	..	7.750	11.800
TSFE	Egypt	..	..	..	..	..	..	..	..	11.180	11.180	11.180	11.180
Solidium Oy	Finland	6.055	6.358	6.676	7.010	7.360	7.728	8.115	8.520	8.947	9.394	9.864	10.357
CADF	China	5.000	5.000	5.000	5.000	5.000	5.000	10.000	10.000	10.000	10.000	10.000	10.000
Texas ESF	USA	..	..	..	..	7.107	7.462	7.835	8.227	8.638	9.070	9.524	10.000
Baiterek	Kazakhstan	..	..	..	..	6.210	6.521	6.847	7.189	7.549	7.926	8.322	8.739
HCAP	Greece	..	..	..	..	..	..	5.851	6.144	6.451	6.774	7.112	7.468
FRC	Monaco	3.596	3.776	3.964	4.163	4.371	4.589	4.819	5.060	5.313	5.578	5.857	6.150
T&T HSF	Trinidad & Tob.	3.600	4.100	4.700	5.200	5.500	5.700	5.600	5.800	6.000	6.478	5.888	5.583
PFR	Poland	..	..	..	..	..	..	4.153	4.360	4.578	4.807	5.048	5.300
CDP Equity	Italy	..	1.294	1.488	1.711	1.968	2.263	2.603	2.993	3.442	3.809	5.122	5.122
NIIF	India	..	..	..	..	..	1.000	2.000	2.000	3.000	4.100	4.440	4.500
BBB IP	UK	..	..	..	..	3.081	3.235	3.397	3.567	3.745	3.933	4.129	4.336
EMGL	Mongolia	2.434	2.555	2.683	2.817	2.958	3.106	3.262	3.425	3.596	3.776	3.964	4.163
Pula Fund	Botswana	7.055	6.974	5.150	5.706	5.815	5.537	5.161	5.763	4.492	4.400	4.366	4.155
FAE+FAEP	Colombia	2.420	2.541	2.668	2.802	2.942	3.089	3.243	3.406	3.576	3.755	3.942	4.140
NSIA	Nigeria	..	1.000	1.000	1.000	1.000	1.000	1.000	1.000	2.440	1.820	2.086	3.560
GIC GCC	Kuwait	2.046	2.149	2.256	2.369	2.487	2.612	2.742	2.879	3.023	3.175	3.333	3.500
KWAN / NTF	Malaysia	1.973	2.071	2.175	2.284	2.398	2.518	2.644	2.776	2.915	3.060	3.213	3.374
CDC TN	Tunisia	..	2.061	2.164	2.272	2.385	2.505	2.630	2.761	2.899	3.044	3.197	3.356
SUGF	USA	1.929	2.026	2.127	2.234	2.345	2.463	2.586	2.715	2.851	2.993	3.143	3.300
Alabama	USA	1.912	2.007	2.108	2.213	2.324	2.440	2.562	2.690	2.825	2.966	3.114	3.270
FSDEA	Angola	..	..	5.000	5.000	5.000	5.000	5.000	5.000	3.667	4.611	3.249	2.978
Oklahoma PF	USA	1.513	1.589	1.668	1.752	1.839	1.931	2.028	2.129	2.236	2.348	2.465	2.588
SFPI / FPIM	Belgium	1.407	1.477	1.551	1.628	1.710	1.795	1.885	1.979	2.078	2.182	2.291	2.406
Utah PSSF / SITFO	USA	1.403	1.473	1.547	1.624	1.706	1.791	1.880	1.974	2.073	2.177	2.286	2.400
Idaho EFIB	USA	1.359	1.427	1.498	1.573	1.652	1.734	1.821	1.912	2.008	2.108	2.213	2.324
Nebraska PF	USA	1.233	1.294	1.359	1.427	1.498	1.573	1.652	1.734	1.821	1.912	2.008	2.108
BIDF	Bangladesh	..	..	..	..	..	..	..	..	..	..	..	2.000
RAKEZ	UAE	1.169	1.228	1.289	1.354	1.421	1.492	1.567	1.645	1.728	1.814	1.905	2.000
SCIC	Vietnam	1.243	1.243	1.243	1.243	1.243	1.243	1.243	1.243	1.243	1.239	1.243	1.963
SAM	UAE	1.140	1.197	1.257	1.320	1.386	1.455	1.528	1.604	1.684	1.769	1.857	1.950
FGIS	Gabon	..	..	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.020	1.020	1.890
Ithmar Capital	Morocco	..	1.839	1.839	1.839	1.839	1.839	1.839	1.839	1.839	1.839	1.839	1.839
FMPED+FEIP	Mexico	0.880	0.500	0.800	1.500	2.200	4.000	5.000	7.000	6.000	7.048	1.521	1.839
Oregon CSF	USA	0.935	0.982	1.031	1.083	1.137	1.194	1.254	1.316	1.382	1.451	1.524	1.600
South Dakota PTF	USA	1.420	1.420	1.420	1.420	1.420	1.420	1.420	1.420	1.420	1.420	1.420	1.420
FAP	Panama	..	..	1.216	1.211	1.261	1.197	1.231	1.282	1.247	1.362	1.400	1.400
Louisiana EQTF	USA	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400	1.400
COFIDES	Spain	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.210	1.210	1.400
Minnesota PSF	USA	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
MID	China	..	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100

Source: Created using data from Global SWF (2022) for SWFs with assets under management over USD1bn in 2021

Figure 1. SWF system, characteristics, and agency problems

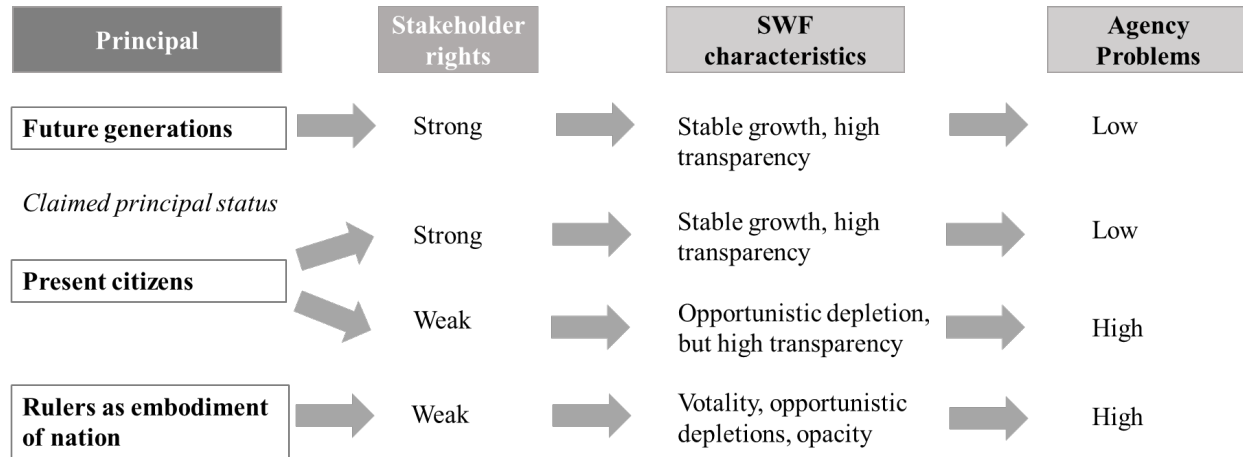


Table 3. Descriptive Statistics and Correlation Matrix

Variables	Obs.	Mean	Std dev	Median	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) SWF Transparency	365	6.98	2.89	8.00	1.00						
(2) Democracy	321	1.55	7.80	4.00	0.58*	1.00					
(3) Government Investments	331	2.74	3.17	1.30	-0.38*	-0.60*	1.00				
(4) Government Subsidies	327	2.44	1.44	2.01	0.35*	0.60*	-0.33*	1.00			
(5) Government Consumption	365	5.58	2.56	5.26	-0.30*	-0.37*	0.42*	-0.01	1.00		
(6) Government Assets	355	3.88	1.87	4.42	-0.43*	-0.83*	0.50*	-0.60*	0.38*	1.00	
(7) SWF assets under management	365	301.82	555.34	68.00	-0.06	-0.31*	0.10	-0.12*	0.22*	0.32*	1.00
(8) Number of SWFs	354	4.64	7.23	2.00	0.30*	0.35*	-0.22*	0.43*	-0.28*	-0.56*	0.10

Significance levels: * for p-value of 0.05 or less

Table 4. Ordered Probit Analysis of the Determinants of Sovereign Wealth Funds' Transparency

	Dependent variable: SWF Transparency						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Government investment, lagged			-0.092*** (0.027)	-0.057** (0.028)	-0.055* (0.028)	-0.067** (0.029)	-0.037 (0.030)
Government subsidies, lagged			0.021 (0.065)	-0.035 (0.062)	-0.028 (0.066)	0.034 (0.067)	-0.034 (0.069)
Government consumption, lagged			-0.017 (0.039)	0.001 (0.038)	-0.002 (0.040)	-0.084* (0.044)	-0.063 (0.044)
Government assets, lagged			-0.178*** (0.051)		0.020 (0.069)	-0.267*** (0.062)	-0.053 (0.083)
Democracy, lagged		0.109*** (0.010)		0.075*** (0.013)	0.078*** (0.018)		0.077*** (0.020)
SWF assets under management, lagged	0.060** (0.027)	0.210*** (0.032)				0.064 (0.045)	0.093** (0.045)
Number of SWFs, lagged	0.026*** (0.009)	-0.025** (0.010)				-0.040*** (0.014)	-0.027* (0.014)
Year fixed effects (2010-2019)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi2	21.83**	146.12**	78.08***	96.87***	96.96***	84.63***	99.49***
Log Likelihood	-619.05	-529.60	-467.56	-458.17	-458.12	-442.50	-435.07
Pseudo R2	0.0173	0.1212	0.0771	0.0956	0.0957	0.0873	0.1026
Observations	322	313	280	280	280	269	269

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

Notes: The dependent variable is the Linaburg-Maduell Index of Transparency of an SWF, taking values between 1 (least transparent) and 10 (most transparent). The transparency index is provided for 50 largest SWFs around the world (SWF Institute). Polity index (polity2) is the measure of democracy in a country of SWF, taking values between -10 (autocracy) and 10 (democracy), and is lagged by one period. Government investment is a measure of investment by a state in the private or public sectors, relative to a country's GDP, and is lagged by one period. Government consumption is an index of government consumption to GDP, lagged by one period. Government subsidies is an index of state subsidies to GDP, lagged by one period. Assets under management of SWFs is a total amount of assets under management by all SWFs in a given country, lagged by one period. Number of SWFs measures the number of established SWFs in a given country, lagged by one period. Further description of variables can be found in Table A1. We control for year fixed effects with year dummies. Standard errors in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.10. Ordered probit models do not have a constant

Table 5. Factor Loadings

Variable	Factor 1 (Non-threatening government)	Factor 2 (State ownership)	Factor 3 (Statism)	Uniqueness
Government subsidies	0.37	-0.51	0.46	0.34
Government investments	-0.20	0.59	-0.07	0.47
Government consumption	0.41	0.20	0.61	0.40
State ownership perception	0.74	0.00	-0.10	0.44
Government bureaucracy perception	0.74	0.51	-0.20	0.12
State-owned assets	-0.30	0.75	0.23	0.28
Government effectiveness	0.94	0.11	-0.02	0.10
SWF assets under management	0.23	-0.17	-0.53	0.53

Notes: Estimated by the authors doing factor analysis in Stata using variables based on the following indexes: Government subsidies to gross domestic product (2014), Government consumption to gross domestic product (2014), Government investment to gross domestic product (2014), State ownership of assets (2014) from the Fraser Institute Economic Freedom Database; Government effectiveness perception from the World Bank Worldwide Governance Indicators (2014); Executive perception that “bureaucracy does not hinder business,” and Executive perception that “state ownership of enterprises is not a threat to business activities” from the IMD World Competitiveness Yearbook Executive Survey (2014); Sovereign Wealth Funds Assets under management from Global SWF database (2020). We display the factor loadings for the three factors with eigenvalues >1.

Figures 2. Factor Analysis

Figure 2.A

Factor 2 (state ownership) on Factor 1 (non-threatening government)

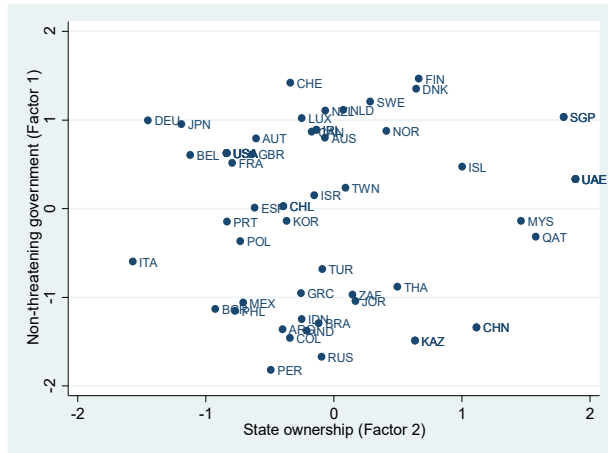


Figure 2.B

Factor 3 (statism) on Factor 1 (non-threatening government)

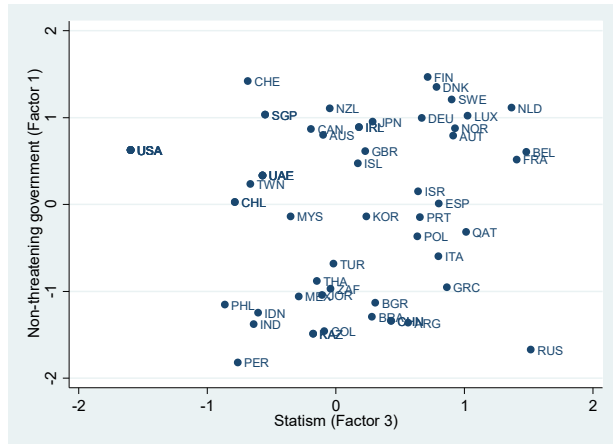


Figure 2.C

Factor 2 (state ownership) on Factor 3 (statism)

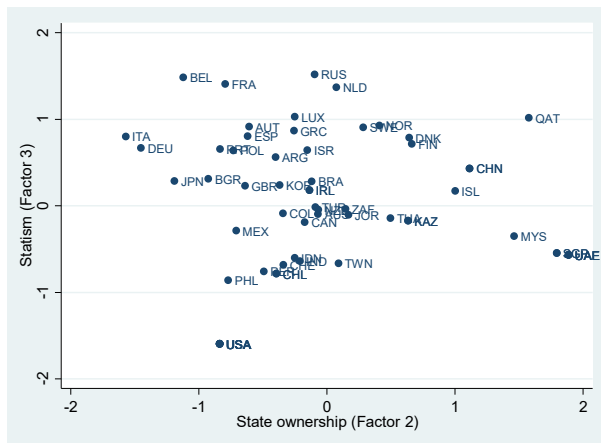


Table 6. Varieties of Institutional Systems: Illustrations of Country Fittings

1	2	3	4	5	6	7	8
Interventionist states [H, L,L]	Interventionist entrepreneurial welfare states [H, H, H]	Interventionist entrepreneurial states [H, H, L]	Interventionist welfare states [H, L, H]	Market-oriented states [L, L, L]	Welfare states [L, L, H]	Entrepreneurial states [L, H, L]	Entrepreneurial welfare states [L, H, H]
Non-threatening government: Below median State Ownership: Low/Medium Statism: Low/Medium	Non-threatening government: Below median State Ownership: High Statism: High	Non-threatening government: Below median State Ownership: High Statism: Low/Medium	Non-threatening government: Below median State Ownership: Low/Medium Statism: High	Non-threatening government: Above median State Ownership: Low/Medium Statism: Low/Medium	Non-threatening government: Above median State Ownership: Low/Medium Statism: High	Non-threat government: Above median State Ownership: High Statism: Low/Medium	Non-threat government: Above median State Ownership: High Statism: High
Argentina Brazil Bulgaria Chile Colombia India Indonesia Israel Jordan Korea, South Mexico Peru Philippines Poland Portugal South Africa Taiwan Turkey	Qatar	China Kazakhstan Malaysia Thailand UAE	Greece Italy Russia Spain	Australia Canada Ireland New Zealand Switzerland United Kingdom United States	Austria Belgium France Germany Luxembourg Netherlands Norway Sweden	Iceland Singapore	Denmark Finland

Source: Categories created by the authors using factor analysis as in Wright et al. (2021) based on data from the Fraser Institute, World Bank, and IMD (2014). Each category corresponds to a combination of three factors (non-threatening government; state ownership; and statism). The threshold values are median for non-threatening government (with countries below the median categorized as threatening governments), the third quartile for state ownership (with countries above the third quartile categorized as high on state ownership), and the third quartile for statism (with countries above the third quartile categorized as high on statism).

Appendix

Table A1. Variables, sources, and definitions

Variable Name	Source	Definition
SWF Transparency	SWF Institute	The Linaburg-Maduell transparency index measures <i>SWF transparency</i> , developed at the SWF Institute. The index identified ten principles of SWF transparency to the public, giving one point of transparency of each of these (Linaburg & Maduell, 2021): “(1) Fund provides history including reason for creation, origins of wealth, and government ownership structure; (2) Fund provides up-to-date independently audited annual reports; (3) Fund provides ownership percentage of company holdings, and geographic locations of holdings; (4) Fund provides total portfolio market value, returns, and management compensation; (5) Fund provides guidelines in reference to ethical standards, investment policies, and enforcer of guidelines (6) Fund provides clear strategies and objectives; (7) If applicable, the fund clearly identifies subsidiaries and contact information; (8) If applicable, the fund identifies external managers; (9) Fund manages its own web site; and (10) Fund provides main office location address and contact information such as telephone and fax.” Collected for 2010-2019 period.
Democracy	Center for Systemic Peace	The <i>Democracy</i> score from Polity captures the regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). Collected for 2010-2019 period.
Government investments	Fraser Institute	Government investments is an index of government investment to gross domestic product from the Fraser Institute Economic Freedom Database. Collected for 2010-2019 period.
Government subsidies	Fraser Institute	<i>Government subsidies</i> is an index of government subsidies to gross domestic product from the Fraser Institute Economic Freedom Database. Collected for 2010-2019 period.
Government consumption	Fraser Institute	<i>Government consumption</i> is an index of government consumption to gross domestic product from the Fraser Institute Economic Freedom Database. Collected for 2010-2019 period.
Government assets	Fraser Institute	State-owned assets is an index of state ownership of assets from the Fraser Institute Economic Freedom Database. In natural logarithm. Collected for 2010-2019 period.
SWF assets under management	Global SWF	<i>SWF assets under management</i> is a total amount of assets under management in SWFs and Public Pension Funds in billion US dollars in each country from Global SWF database. Collected for 2010-2019 period for Tables 3-4, and for 2010-2021 period for Table A1.
Number of SWFs	Global SWF	<i>Number of SWFs</i> in each country from Global SWF database. Collected for 2010-2019 period.

Table A2. Instrumental Variables Analysis of the Determinants of Sovereign Wealth Funds' Transparency

	Dependent variable: SWF Transparency								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Number of SWFs	-0.193 (0.217)	-0.048 (0.068)	0.029 (0.061)	-0.193 (0.217)	-0.048 (0.068)	0.029 (0.061)	-0.193 (0.210)	-0.048 (0.052)	0.029 (0.050)
SWF assets under management	1.464 (1.260)	0.726** (0.318)	0.016 (0.236)	1.464 (1.260)	0.726** (0.318)	0.016 (0.236)	1.464 (1.273)	0.726*** (0.269)	0.016 (0.192)
Government investment		0.134 (0.091)	0.144* (0.077)		0.134 (0.091)	0.144* (0.077)		0.134 (0.098)	0.144 (0.090)
Government subsidies		-0.249* (0.147)	-0.333** (0.129)		-0.249* (0.147)	-0.333** (0.129)		-0.249* (0.134)	-0.333** (0.149)
Government consumption		-0.278 (0.175)	0.041 (0.145)		-0.278 (0.175)	0.041 (0.145)		-0.278** (0.128)	0.041 (0.149)
Government assets		-1.176*** (0.263)	-0.138 (0.275)		-1.176*** (0.263)	-0.138 (0.275)		-1.176*** (0.212)	-0.138 (0.231)
Democracy	0.393** (0.179)		0.233*** (0.044)	0.393** (0.179)		0.233*** (0.044)	0.393** (0.172)		0.233*** (0.048)
Constant	1.260 (5.022)	11.041*** (0.952)	8.121*** (1.119)	1.260 (5.022)	11.041*** (0.952)	8.121*** (1.119)	1.260 (5.067)	11.041*** (0.728)	8.121*** (1.058)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	270	235	235	270	235	235	270	235	235
Chi2	7.43***	7.69***	11.86***	7.43***	7.69***	11.86***	9.12***	14.49***	22.70***
Adjusted R2	n.a.	0.1651	0.4034	n.a.	0.1651	0.4034	n.a.	0.1651	0.4034

Notes: IV regressions, models 1-3 with a regression via 2SLS; models 4-6 regression using the LIML estimator; and models 7-9 regression via GMM using a heteroskedasticity-robust weight matrix; all requesting small-sample statistics. All variables lagged by one year. Instrumented variables: No of SWFs and AUM of SWFs. Instruments: Oil rents as a percentage of GDP; Individualism score, standardized (Hofstede).

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

Table A3. Ordered probit of the Determinants of Sovereign Wealth Funds' Transparency, using the measure of the democratic regime age

	Dependent variable: Sovereign Wealth Fund Transparency				
	(1)	(2)	(3)	(4)	(5)
Government investment		-0.092*** (0.027)	-0.101*** (0.027)	-0.097*** (0.027)	-0.087*** (0.028)
Government subsidies		0.021 (0.065)	0.114** (0.054)	-0.006 (0.067)	-0.023 (0.068)
Government consumption		-0.017 (0.039)	-0.090** (0.036)	-0.029 (0.041)	-0.133*** (0.047)
Government assets		-0.178*** (0.051)		-0.165*** (0.052)	-0.213*** (0.062)
Regime Age	0.511*** (0.087)		0.201** (0.091)	0.154* (0.092)	0.429*** (0.125)
SWF assets under management	-0.076** (0.036)				0.050 (0.056)
Number of SWFs	0.115* (0.069)				-0.410*** (0.111)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	315	280	273	273	262
Chi2	57.83***	78.08***	69.07***	78.95***	93.98
Log Likelihood	-587.83	-467.56	-459.90	-454.96	-425.43
Pseudo R2	0.0469	0.0771	0.0698	0.0798	0.0995

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

Notes: Regime age (in natural logarithms) is the age in years of the current regime as classified by democracy. Democracy is a dummy variable coded 1 if the regime qualifies as democratic, measured in 2008.