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EDITORIAL

The heterogeneous and evolving roles of sovereign wealth funds: Issues, challenges, and research agenda

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Abstract

We introduce this special issue on sovereign wealth funds (SWFs) with a discussion on the four big themes currently affecting their behavior and performance: (1) the impact of recent macroeconomic upheaval on SWF funding and allocations, from COVID-19 economic shocks to Russia's invasion of Ukraine; (2) the growing role of sustainability and responsible investing in the management of SWF portfolios; (3) the progressive switch in SWF allocations, away from public equity markets and increasingly toward alternative asset classes; and (4) the growing demands on SWFs to stabilize domestic economies, drive domestic development, and aid in the implementation of industrial policies. In all cases, the common theme is that SWFs are responding to current challenges and pressing demands in a heterogeneous manner, reflecting differences in social norms, funding sources, and investment mandates. We outline key studies in the SWF literature, and then describe the papers that comprise this special issue. We conclude with policy implications and suggestions for future research.

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INTRODUCTION

The Sovereign Wealth Fund Institute defines a sovereign wealth fund (SWF) as "a state-owned investment fund or entity that is commonly established from balance of payments surpluses, official foreign currency operations, the proceeds of privatizations, governmental transfer payments, fiscal surpluses, and/or receipts resulting from resource exports." They invest worldwide, in various asset classes (stocks, Treasury bonds, etc.) and sectors (financial, real estate and infrastructure, power generation, sports, commodities, airlines, manufacturing, etc.). SWFs have been around for more than 50 years, but they only came under close scrutiny about a decade and a half ago, when the Global Financial Crisis (GFC) highlighted their aggressive acquisition sprees and roles as liquidity providers to failing financial and non-financial firms. At the heart of these funds is that they are owned by governments on behalf of their citizens. The bailout programs that came from the GFC also underlined the phenomenon of "state capitalism."

The number of SWFs and the assets they manage (foreign and domestic) have grown steadily in developed and developing countries, rich and poor countries, and across all continents. By July 2022, SWFs worldwide had accumulated $11.5 trillion in assets under management (AuM) (Megginson, Malik, and Zhou, 2023), compared to $3.1 trillion in 2007.[1] Boubaker et al. (2018) estimate an annual growth rate of around 11% over the last two decades. The sheer size and growth rate of SWFs have led to policy debates over transparency, corporate governance, and regulation. At the same time, corruption scandals have erupted, such as those related to Korea Investment Corporation (KIC) and Malaysia's state-owned fund, 1MBD. This has brought additional scrutiny on SWFs' level of disclosure and conflicting objectives as state-owned investors. Equally important, collapsing oil prices (for natural resource-dependent funds) and global currency imbalances (for currency reserves-based funds) have created a challenging, ever-changing environment for SWFs around the world. However, to date, we know little about these entities, their motivations, asset allocation, overall behavior, and impact at the firm and economy level. Indeed, in their review of the literature on SWFs, Fotak et al. (2017) note that "extant research has failed to provide answers to some of the most fundamental, and most important, questions surrounding SWFs. Foremost is the question of whether SWFs can truly become financing vehicles of economic development, to the benefit of the populations of the sponsoring countries."

Megginson and Fotak (2015) and Fotak et al. (2017), among others, survey the initial academic literature on SWFs. Much of this early literature treats "sovereign wealth funds" as a homogeneous group of investment vehicles in order to draw "generalizable" lessons. However, SWFs operate under a variety of often-opaque and occasionally conflicting mandates, and originate from countries with different cultures and institutional environments. As a result, attempts to draw universal lessons often lead to inconsistent findings. More recently, we have observed the emergence of more-nuanced analyses that recognize the heterogeneity of SWFs as it relates to country-of-origin-specific factors, sources of funding, and fund mandates. The heterogeneous nature of SWFs cuts across discussion themes, and affects our understanding of their behavior, performance, and impact (Table 1).

In this special issue, we focus on four main themes that have been at the core of recent SWF research, while emphasizing the heterogeneity of SWFs. The *first* theme is the impact of the recent macroeconomic upheaval on SWF funding and allocations, including the COVID-19 pandemic and Russia's invasion of Ukraine. We also discuss how recent trends toward deglobalization and the emergence of new trading regimes affect SWF funding and behavior. The *second* theme is the increased role of sustainable and responsible investing in SWF portfolios. This has given rise to a need to develop appropriate tools and metrics to evaluate this novel emphasis on stakeholder impact. The *third* theme is the progressive switch in SWF allocations away from public equity markets and increasingly toward alternative asset classes. These are considered to be more opaque investments, and hence more challenging for researchers and regulators. The *fourth* theme is the growing role of SWFs in driving domestic development and implementing industrial policies, especially in the developing world. In all cases, the common observation is that SWFs respond to current challenges and trends in a heterogeneous manner, which reflects differences in social norms, funding sources, and investment mandates.

In this special issue, López (2023) asserts, along these lines, that some funds with greater liquidity but weaker demand for domestic support are better positioned to profit from the turmoil and evolve. Others, squeezed between volatile energy prices, underperforming investment portfolios, and pressure to support struggling domestic economies, may not survive. As a result, policy recommendations should recognize the heterogeneity of SWFs, and heed the systemic factors that determine differences in outcomes. The manuscripts in this special issue are leading the important trend toward a more-nuanced analysis.

The remainder of this paper is organized as follows. The section titled "The big themes" presents the major themes of recent SWF literature. The section "Additional insights and policy implications from the special issue articles" outlines the contributions of each paper in the special issue and its policy implications. Ideas for future research are presented in "Limitations of current research and opportunities for future research" followed by "Conclusion".

THE BIG THEMES

SWFs and Geopolitics: From the COVID-19 Pandemic to the Russian Invasion of Ukraine

The past few years have seen dramatic shifts in financial markets for all investors, both public and private. SWFs have been particularly affected in terms of funding and investment performance. The COVID-19 pandemic led to widespread intervention by governments in support of domestic economies, which in turn caused heavy demands on SWFs' assets. In this sense, one of the key tenets of the SWF definition has been put to a stringent test: SWFs do not usually carry explicit liabilities (except pension funds, whose inclusion under this label remains controversial), but may carry substantial implicit liabilities, especially during times of economic shocks. These take the form of contingent obligations to their sponsoring governments.

Demands on SWFs in such circumstances include funding public expenses and supporting domestic firms via corporate bailouts. This has resulted in the first wave of asset divestitures by SWFs, as observed by Bortolotti, Fotak, and Hogg (2020). They estimate equity sales by MENA SWFs during the pandemic of $225 billion. Note that capital injections into struggling domestic sectors (e.g., aviation) were most pronounced in Asia, led by SWFs from Singapore and Malaysia. A different model was followed by funds that, instead, offered support by increasing dividend distributions to governments – most notably in Norway, Iran, Kuwait, and Nigeria. As Bortolotti, Fotak, and Hogg (2020) report, in the most extreme cases, SWFs offered direct support to the medical response to the pandemic: Singapore's Temasek and Australia's Future Fund directly funded the development of a COVID vaccine, and the Russian National Wealth Fund financed production of the anti-viral drug Avifavir.

Funds have responded to these demands in various ways. In this special issue, López (2023) discusses how SWF characteristics and, in particular, their investment mandates and sources of wealth, determined their reaction to COVID. His analysis places funds into three broad groups: first responders (SWFs undergoing withdrawals in support of the local economy), secondary responders (SWFs investing in domestic firms to offer support and bailouts), and opportunistic funds (those taking advantage of the crisis to buy cheap assets). López (2023) and Bortolotti, Fotak, and Hogg (2020) also note that the Gulf funds led by Saudi Arabia's Public Investment Fund (PIF) and Qatar's Investment Authority (QIA) were the most active opportunistic buyers during the pandemic. López (2023) ultimately concludes that the current turbulence will push SWFs into a new phase "characterized by increasing size, influence, maturity, and sophistication; an interest in different asset classes, regions, and industries; and a focus on sustainability, collaboration, and long-term survival." The author refers to this new phase as "SWF 3.0."

As the world emerged from the economic shocks of prolonged business closures and supply-chain disruptions due to COVID, the Russian invasion of Ukraine in the spring of 2022 led to new economic upheaval. It contributed to a worldwide spike in inflation (itself partially a consequence of loose monetary policy from COVID-related economic stimuli) and continued turmoil in commodity markets. Inflation, and higher interest rates, subsequently led to poor performance of worldwide financial markets in general, and substantial losses in SWF investment portfolios. Bortolotti, Fotak, and Hogg (2020) estimate that during the pandemic, SWFs lost almost 20% of AuM, with paper losses exceeding $800 billion. Even then, the documented impact was not uniform: some funds entered the crisis with large liquid reserves that allowed for extensive diversification and purchases of discounted assets; those funds were generally able to avoid asset sales at depressed valuations. Other funds that were forced to dedicate significant resources to support domestic budget gaps suffered substantial losses in an attempt to find liquidity during market-wide distress.

Another major event currently shaping global markets is the recent decoupling trend, supercharged by the ongoing trade war between the United States and China. In a world economy that is increasingly polarized and segmented, countries and firms may be forced to "choose sides" between a Western bloc and an emerging Sino-centric area best exemplified by the Belt and Road Initiative (BRI) (Li et al., 2022). This is a series of foreign projects, mostly infrastructure-oriented, but that were recently extended to other areas such as culture and education, financed by China. Thomas and Chen (2018) discuss the role of Chinese SWFs in financing and supporting the BRI. Fang and Weizhong (2016) focus on the need for China to increase the size and reach of its SWFs to support the BRI. Liu (2023) discusses how SWFs and the BRI are fundamentally linked as part of the same

Table 1 The special issue papers

Author(s)	Title	Key findings	Policy implications
Bortolotti, B., Loss, G., and van Zwieten, R. W.	The Times Are They A-Changin'? Tracking Sovereign Wealth Funds' Sustainable Investing	SWFs were late embracing socially responsible investing, but that is changing. Recent years have seen SWFs taking ESG criteria into consideration in their investments. However, the ESG performance of SWF targets tends to deteriorate post-investment	SWFs are well positioned, as long-term, deep-pocketed investors with a fiduciary duty to the broad populace, to drive the transition to a stakeholder-oriented investment regime. For that to occur, explicit ESG mandates and policies need to be implemented
Cuervo-Cazurra, A., Grosman, A., and Wood, G.	Cross-Country Variations in Sovereign Wealth Funds' Transparency	The type of host (sponsor) country government and level of involvement in the economy determine the quality of governance and transparency of SWFs	Host countries need to insulate SWFs from political pressures. Recipient countries need to monitor country-of-origin institutions
Cumming, D., and Monteiro, P.	Sovereign Wealth Fund Investment in Venture Capital, Private Equity, and Real Asset Funds	SWFs are increasingly investing in alternative asset classes, earning lower returns than private sector investors in the same classes. This is particularly true for SWF investments in venture capital, and is consistent with strategic and political investment mandates	Regulators need to improve reporting requirements and scrutiny of alternative asset markets, which tend to be much more opaque than public equity. This is especially vital when invested in by foreign, state-owned vehicles
López, D.	SWF 3.0: How Sovereign Wealth Funds Navigated COVID-19 and Changed Forever	SWFs have responded heterogeneously to the recent COVID-induced crisis. Some have refocused on offering domestic support; others have acted as opportunistic buyers of assets at fire sale prices. Surviving funds are evolving, with a focus on sustainability, collaboration, and long-term survival	Governments can greatly benefit from hosting SWFs, but they need to plan clear mandates tailored to their specific macroeconomic needs. Solid governance frameworks are indispensable for long-term fund survival
Mami, E.	The Role of Sovereign Wealth Funds in Natural Resource-Rich Countries: A Systematic Meta-Narrative Review	Commodity SWFs play a key role in diversifying revenues. In some cases, they can promote industrial development, in particular, by stimulating innovation and entrepreneurship	Resource-rich countries can benefit from SWFs, but institutional design matters. Solid frameworks need to be developed for SWFs to retain independence in decision-making
Megginson, W. L., Malik, A. I., and Zhou, X. Y.	Sovereign Wealth Funds in the Post-Pandemic Era	The source of SWF funding affects their behavior and performance. SWF investments lead to deteriorating performance of target firms. SWFs are increasingly committed to ESG, but performance to date has been lagging	Regulators need more information on the impact of SWFs on broader stakeholder groups, rather than just direct shareholders. South-South partnerships can help developing countries, but more research is needed

overarching policy by the Communist Party of China to project soft power and gain political influence through foreign investments. While the extant literature explores the role of Chinese SWFs in supporting the BRI, little is yet known about how it will affect non-Chinese SWFs. We highlight this gap in the literature here.

Bortolotti, Fotak, and Hogg (2020) conclude by declaring that the "golden age of SWFs" is over. They cite new trends toward investment in green energy, mounting protectionism, and increased barriers to international capital flows. They also find that funds from Norway and the United Arab Emirates are the most resilient. In contrast, funds from Angola, Iraq, Bahrain, Oman, and Algeria are found to be the most fragile, due to their precarious domestic economies, depleted reserves, high levels of government debt, and overreliance on (declining) oil revenues. In these countries, the COVID pandemic compounded the negative impact of their underlying macroeconomic conditions, which could lead to an early demise of these funds.

SWFs and ESG

Sovereign investors, due to their government-owned nature, long investment horizons, and broad fiduciary duty to citizens, are, in theory, well positioned to lead the trend toward socially responsible investing (Liang & Renneboog, 2020; Wurster & Schlosser, 2021). After all, as government agents, they operate under broad mandates to serve virtually all affected stakeholders.

Yet, as Bortolotti, Loss, and van Zwieten (2023) document in this special issue, SWFs have been late to embrace the socially responsible investing trend that has swept Western financial markets during the last decade. More specifically, the authors show that, post-SWF acquisition, the "environmental, social, and governance" (ESG) ratings of investee firms tend to deteriorate. These findings are consistent with those of Chen et al. (2022), who similarly find that SWF investments lead to a deterioration in governance ratings of target firms post-SWF acquisition. This effect is driven by a passive stance by SWFs as investors; evidence points to a lack of monitoring, to which managers respond both by under-exerting effort and by engaging in questionable behavior. In turn, this leads to higher levels of earnings management and reduced investment efficiency. Importantly, the documented effect holds for small investments (with less than 5% shares outstanding). In exploring the underlying mechanisms, the authors show that this adverse governance effect is more pronounced for SWFs from countries with weak investor protection, law enforcement, control of corruption, and government effectiveness. Their findings are echoed by Godsell (2022), who investigates the impact on governance by examining how SWF investments affect target firm earning accruals. That study documents an increase in accruals, consistent with weaker monitoring and a deterioration in governance.

Liang and Renneboog (2020) conduct a somewhat more-nuanced study. They find that SWFs tend to target firms with "good" ESG performance, but they do not lead to subsequent improvement in ESG behavior. Nevertheless, the authors document a positive impact of SWFs on external stakeholders by "rewarding" socially responsible firms with easier access to capital. This incentivizes a corporate orientation toward all stakeholders. Chen, Guedhami, Lui, and Wang (2023) focus on SWF investments in U.S. firms. They find significant increases in CSR, especially for SWFs with weaker governance structures, lower levels of transparency, and greater political motivations. They conclude that investee firms engage in CSR activities to counteract the negative image associated with SWF investments.

However, given recent global developments, this passive approach by SWFs seems to be changing. Funds are maturing toward a more active ESG stance. Bortolotti, Loss, and van Zweiten (2023) note a substantial increase in "sustainable" investments and efforts by SWFs over the past 5 years. These efforts are not purely constrained to investment screening but include increasingly active approaches geared toward socially responsible behavior. Other examples are provided by Norway's GPFG and New Zealand's Superannuation Fund, which strongly focus on climate change and human rights.

In their literature review, Megginson, Malik, and Zhou (2023) point out the budding stream of papers on SWFs and a particular aspect of corporate responsibility – labor issues. For example, they cite Goergen, O'Sullivan, Wood, and Baric (2018), who find that investments in U.K. firms by Norway's Government Pension Fund Global (GPFG) prevent labor force downsizing, particularly in the aftermath of the 2008 financial crisis. Most importantly, the authors find that the avoidance of downsizing does not lead to any subsequent underperformance. Consistent with the notion that funds behave in a heterogeneous manner, Cumming et al. (2020) compare three SWFs' approaches to labor issues. Norway's GPFG is very active in campaigning for labor condition improvements, while China's Investment Corporation (CIC) is openly hostile to organized labor movements. In the middle of these two extremes, Abu Dhabi's Investment Authority (ADIA) takes a mostly passive stance on the issue.

SWFs and Alternative Assets

The low yields in fixed-income markets over the past two decades, and the recent underperformance of equity markets, are increasingly pushing investors (including SWFs) to search for higher returns in alternative asset classes. These range from private equity funds to real estate. Most recent evidence points to private equity markets now receiving a larger proportion of SWF assets than public equity markets (e.g., Wright and Amess, 2017). Megginson et al. (2021) find, for example, that the proportion of SWF investments targeting private markets has increased, from 10% in 2008 to 22% in 2020. A report by Preqin claims that, in 2021, SWF allocation to alternative assets climbed as high as 33%, with smaller funds displaying even larger proportions.[2] In many ways, this is a rational allocation choice: Alternative assets are typically less liquid than public market securities. As such, they tend to carry an "illiquidity premium." Due to their long-term horizon and general low level of liabilities, SWFs are well positioned to invest in illiquid assets and hence capture this premium. Moreover, they do so without the risk of being pushed into a fire sale during a temporary market downturn – unlike, say, pension funds, who must meet short-term liabilities.

While Megginson et al. (2021), as discussed above, observe that the proportion of SWF investments in private markets has doubled between 2008 and 2020, allocations vary significantly across funds. For example, Norway's GPFG allocated 3% to alternative assets, while China's CIC allocated 25% (Megginson & Malik, 2022). Earlier studies report differing estimates of SWF allocations (see e.g., McCahery and de Roode (2017) and Wright and Amess (2017)), but they highlight increasing allocations in private markets, and generally decreasing allocations to public equity. More detailed findings are offered by Johan et al. (2013), who document that SWFs are more likely to invest in private (rather than public) markets in countries with weak investor protection. In this special issue, López (2023) adds to this evidence by showing that SWFs play an increasingly significant role in the venture capital industry, especially in emerging markets. These findings are echoed by Capapé and Rose (2021), who find that SWFs accounted for 9% of global venture capital investments in 2018.

Ward, Brill, and Raco (2022) focus on real estate as an alternative investment and discuss QIA's strategy. Liu et al. (2020) compare real estate investments by SWFs with those by public pension funds. They find that SWFs are more likely to invest across borders, primarily in the West, but also in China, India, the Middle East, and Africa. Cumming and Monteiro (2023), in this special issue, mirror findings from studies focusing on public market investments. They analyze SWF investments in "alternative asset classes" for a sample of 538 SWF investments in venture capital, private equity, and real estate in 52 countries. They find that SWFs tend to earn lower returns from alternative assets than private sector investors. The underperformance appears largely driven by poor exit timing – political considerations lead SWFs to delay exit beyond the economically optimal horizon. To the extent that short investment horizons by limited partners are generally considered a disciplining mechanism for private equity managers, the longer horizons associated with SWFs as partners are once more consistent with a deterioration in fund governance following SWF participation. Given earlier studies on the underperformance of SWF investments in public equity markets (e.g., Bortolotti et al., 2015; Kotter & Lel, 2011), this evidence is significant, as it reinforces the idea that other strategic and political priorities may be in play, beyond sheer economic concerns.

Overall, the movement toward alternative asset classes is largely rational. As discussed above, there is no reason for funds with multigenerational mandates and no short-term liquidity to pay liquidity premia in their investment portfolios. In the past, the lack of abundant large-scale investment opportunities in private equity markets led to a lack of interest by SWFs, which tend to look for large-scale, or at least scalable, opportunities. However, this has changed in recent years, as private firms have expanded. Consider, for example, "unicorn" firms, which exceed $1 billion in valuations. As their name suggests, they were once rare and fabled; now, they are relatively common.

We expect this trend to accelerate in the future, and it poses a novel challenge for researchers and regulators. Indeed, SWFs have traditionally been opaque, which has led external observers to rely on market data to track their investments and impact. As a larger portion of SWF assets are pushed into private equity markets, the danger is that we may lose the ability to track the real impact of these funds.

SWFs as Engines of Growth

As previously discussed, SWF mandates are heterogeneous – and most funds operate under a series of overlapping and occasionally conflicting objectives. However, they typically share a mandate, whether implicit or explicit, to support the domestic economy (Schena et al., 2018). Earlier SWF literature mostly focused on their impact on target foreign firms, markets, and economies. However, with recent massive government interventions worldwide, there is renewed interest by academics in the development role of governments in general, and SWFs specifically. SWFs can support domestic economies in two ways: (1) they can act as a source of diversification, and hence as a stabilizer, or (2) they can directly stimulate growth by serving as "government-backed venture capital funds."

The stabilization role stems largely from the need to reduce government revenue volatility in economies that are heavily dependent on exports of a single commodity – usually oil or natural gas. However, with growing volatility in energy markets, the rationale now is for SWFs to transform energy assets into financial assets and to reduce the impact of commodity price shocks on the domestic economy (Alsweilem & Rietveld, 2018). Empirical findings on the stabilization role of SWFs are mixed (see Frynas (2017) and Mami (2023) in this special issue). Indeed, Rasaki and Malikane (2018) find that SWFs reduce the volatility of fiscal expenditures in African countries. Along these lines, Mohaddes and Raissi (2017) find that SWFs in developing countries reduce the negative impact of commodity price volatility on economic growth and can help defeat the "natural resource curse."

The "growth engine" role of SWFs is to fund and support budding firms and industries. In an earlier study, Triki and Faye (2011) evaluate African SWFs. They document that the positive impact of budget stabilization and control of commodity revenues' volatility on economic growth is hindered by poor country-level governance. Their findings are echoed by Dixon and Monk (2011), who similarly document that poor governance and lack of clear mandates prevent African SWFs from fully enabling economic development. On the other side of this debate, Adonu (2021) argues that SWFs, whether domestic or foreign, can play a leading developmental role in Africa, while Megginson, Malik, and Zhou (2023) argue in this issue that "South–South" partnerships (agreements between countries in the "global South") can indeed help developing countries but more research into their outcomes is warranted.

After reviewing recent literature on commodity-funded SWFs in resource-rich countries, Mami (2023), in this special issue, concludes that commodity SWFs play an increasingly foundational role. They are key to diversifying resource-based revenues and supporting economic growth. They assist industrial development through good governance, and by stimulating strategic innovation and entrepreneurship.

ADDITIONAL INSIGHTS AND POLICY IMPLICATIONS FROM THE SPECIAL ISSUE ARTICLES

The articles in this special issue offer a variety of insights into the nature and impact of SWFs (Table 1). Collectively, the articles in this special issue highlight that the "SWF" categorization applies to a heterogeneous set of investment vehicles, with very different mandates, scales, and levels of expertise. Megginson, Malik, and Zhou (2023), for example, explore how these mandates are often dictated by history. The "first wave" of SWFs originated from a need to stabilize commodity revenues – hence, stabilization was the key mandate, and is still present in the ethos of those early entrants. Additionally, SWFs' revenue sources differ significantly. This affects not only their asset allocations but also their performance.

SWFs belong to a deeply heterogeneous set of sponsor countries (that is, the country in which the fund is headquartered and whose assets it manages) in different stages of political, institutional, and economic development. All of these characteristics affect the perception of their investments in target countries (that is, countries of firms in which the SWF is investing are headquartered) and, in turn, their performance. In fact, research shows that an unwelcoming position in the target country can push funds into adopting a more passive role. This may result in a lack of monitoring and a widening governance gap, which can amplify agency costs and negatively affect investment target performance (Bortolotti et al., 2015).

The policy approaches by target countries toward SWFs should recognize their heterogeneity, but target countries also need to balance market access with heightened scrutiny of foreign investment in the name of national security. A "one-size-fits-all" approach is not generally suitable and creates the wrong set of incentives for funds. In other words, SWFs lack the incentive to behave as responsible investors unless they know their behavior will be considered by the target country when setting policy responses. The right policy response thus needs to balance national security considerations with incentives given to foreign investors as value-enhancing shareholders.

For example, target countries need to implement monitoring guidelines for clear and transparent processes, with consequences spelled out *ex ante* for those who violate those rules (Cuervo-Cazurra, Grosman, and Wood, 2023, this issue). *Ex post* adjudication is politically sensitive, and hence the need for unambiguous rules to be established *a priori*. Regulators should also improve reporting requirements and scrutiny of alternative asset markets, which tend to be more opaque than public equity (Cumming & Monteiro, 2023, this issue).

For SWF sponsor countries, recent years have highlighted that mandates matter. Given the recent multiple, back-to-back economic shocks the world economy has faced, SWFs have had to manage competing, often conflicting, demands for their assets. These range from demands to support budgetary expenses via cash transfers, to requests for assistance to specific companies/sectors ("too big to fail") via capital injections. Simultaneously, SWFs are expected to keep an eye on longer-term goals, such as diversifying economies that are overly reliant on increasingly volatile commodity streams and acquiring assets at discounted valuations. It is imperative that both broad mandates and short-term goals are clearly grounded in the SWFs' mission.

Decisions made under pressure during a crisis by politicians with short-term mandates are often suboptimal. Thus, establishing clear expectations for SWFs *ex ante*, including crisis-specific contingency plans, is vital. Clear objectives and higher transparency levels could also reassure target countries and firms that may be reluctant to welcome SWF investments, often relegating SWFs to the role of "investors of last resort." A greater transparency level could lead to higher levels of co-investment and collaboration.

Transparency would also prevent political changes from affecting SWFs' missions and social contracts. Large pools of long-term capital are always tempting to politicians seeking to boost their profiles through vanity projects; crises give such temptations an air of legitimacy. Of course, sponsor countries should be able to set whatever mandates they see fit – whether intergenerational wealth transfer or supporting industrial policy. Nevertheless, establishing a legal and institutional framework that will prevent politicians in power from distorting such mandates to fit their own ambitions, or from tunneling assets to related parties, is critical (López (2023) and Mami (2023), this issue). To that end, any *ad-hoc* changes to these rules, in response to crises and other contingencies should possibly require super-majority approval. Malaysia's 1MBD provides a good example of politically based looting. Former prime minister Najib was accused of diverting over $1 billion from the fund to his own accounts, and another $2.5 billion to connected parties.

LIMITATIONS OF CURRENT RESEARCH AND OPPORTUNITIES FOR FUTURE RESEARCH

Despite the rapidly growing academic literature on SWFs, there is no consensus yet on a proper taxonomy. For example, researchers do not yet agree on what the label "sovereign wealth fund" covers precisely. As a case in point, consider that each article in this special issue reports different descriptive statistics for the number/value of assets under management in the SWF universe. This is partially attributable to (1) the lack of transparency in SWF disclosures, and (2) the difficulty in tracking and measuring the investments of individual funds. However, ultimately, the discrepancies are largely due to the lack of a solid definition of SWFs.

A complete reconciliation of the various definitions of the term "SWF" is beyond the scope of our discussion, but we note that funds are pooled without specific, clear mandates. For example, the inclusion of pension funds and currency stabilization funds is in dispute. Most definitions of the term SWF exclude funds with short-term liabilities, which would also exclude pension funds. They generally include superannuation funds, which carry long-term commitments and are not subject to short-term liquidity demands. Equally controversial is the inclusion of "non-sovereign" government funds, such as those funded and managed by states within federations (for example, Alaska's and

New Mexico's funds, provincial funds in Canada, and non-federal funds in the United Arab Emirates). We believe the best solution is to include a broad set of funds under the SWF umbrella, along with a solid, objective, meaningful taxonomy for classification within the universe.

Note that the lack of a clear definition for SWFs can also hinder the generalization of results. To date, most analysis in the empirical research on SWFs is *ad hoc*, and describes differences in investment behavior on a case-by-case basis. Linking differences in SWF behavior to systemic factors would allow for more useful SWF classifications. A first group of manuscripts (see, e.g., Megginson, Malik, and Zhou, 2023, in this issue) has classified funds thus far based on their funding source and the distinction between commodity- and non-commodity-funded SWFs. The aggregate evidence indicates that between 60 and 75% of SWF AuM originate from commodity exports (Gangi et al., 2019; Gintschel & Scherer, 2008). Non-commodity funds are mostly Asian, and based in Asia-Pacific countries that run trade surpluses and accumulate foreign currency. Bortolotti, Fotak, and Hogg (2020) discuss how the COVID crisis impacted commodity and non-commodity funds in fundamentally different ways.

A second group of studies has instead relied on stated, or revealed, SWF mandates to provide instructive classifications. In this spirit, Gangi et al. (2019) categorize SWFs into five groups based on mandates: savings, reserves, pensions, development, and stabilization. Similarly, Carney (2021) classifies SWFs as foreign-exchange funds, stabilization funds, pension funds, or savings funds. Megginson et al. (2021), in their literature review, discuss alternative SWF classifications based on a more compact list of investment objectives (stabilization, savings, development). They find that the SWF universe is dominated these days by savings funds, with development funds trailing, and stabilization funds having fallen out of favor.

These classification schemes can help provide a starting point in the discussion of systemic differences across SWFs. However, one of the glaring issues remains that most SWFs appear to operate under multiple, often opaque, directives. In addition, as mentioned above, SWF mandates often evolve over time as macroeconomic conditions change. As a result, the papers listed above do not reach a consensus – and often assign the same funds to different categories.

Moreover, a few studies use SWF mandates to distinguish between those operating on a purely commercial basis and those displaying inherently political priorities. Bortolotti et al. (2015) and Chen, Guedhami, Liu, and Wang (2023) have used Truman scores to classify funds on the basis of their level of political independence. In this special issue, Cuervo-Cazurra, Grosman, and Wood (2023) also recognize the importance of the relationship between politicians and SWFs. They accordingly classify SWF host countries based on their political system and the level of state intervention in their economies as follows: "interventionist entrepreneurial welfare states," "interventionist entrepreneurial states," "interventionist welfare states," "market-oriented states," "welfare states," "entrepreneurial states," and "entrepreneurial welfare states." They then link the different sponsor country types to outcomes related to SWF mandates and behavior, with a particular eye to transparency level.

These classifications are somewhat informative, but they do not reference explicit theoretical predictions or relate to systemic evidence of differences across SWF categories. To date, we have not yet identified the specific factors driving SWF behavior. This is needed to build predictive models, determine optimal SWF structural features, and inform regulatory responses. Led by the U.S., Western countries have strengthened their regulatory regimes and oversight of foreign investment, both incoming and outgoing, with a novel emphasis on export controls. State-owned vehicles are bound to receive an additional layer of scrutiny in this process because of the potential for political interference. However, we consider a greater level of scrutiny inevitable and, in most cases, desirable, given the overall lack of transparency in the broad SWF universe.

Besides the need for additional research on SWF characteristics, we find that lack of available data is another serious limitation for research on the behavior, portfolio allocations, and performance of SWFs. As SWFs increase their investments in alternative asset classes, the gap between the kind of data needed by academics, regulators, and practitioners, and what is available, has only widened. *First*, alternative asset classes are more opaque than public markets. Thus, growing capital allocations to alternative investments make it harder to ascertain true returns on SWF portfolios. *Second*, SWFs are increasingly active as socially responsible investors, but the lack of reliable metrics hinders a solid analysis of asset allocations from an ESG vantage point. It also hampers a clear assessment of the level of socially responsible engagement by firms in SWF portfolios.

Against this backdrop, we pose several key research questions:

1. How do we create a taxonomy for SWFs that is informative and captures a full range of aspects of these funds? How can we distinguish between the political and financial/economic objectives of SWFs? Which funds are most resilient during times of distress?
2. Anecdotal evidence suggests SWFs outperformed financial sector investments over the 2008–2010 period. What was their impact worldwide?
3. How can SWFs adjust their asset allocation strategies to minimize the impact of revenue reductions or fluctuations in the event of, e.g., an oil price collapse?
4. Recent trends suggest that SWFs enter novel markets. In particular, we have seen an increase in corporate lending, infrastructure, and early stage investing. SWFs are increasingly playing a role in government-sponsored venture capital incubators. Are these efforts aimed at diversifying revenue streams, or do they indicate longer-term trends?
5. We observe increasing reports of direct SWF lending. How do SWF loans compare to private sector loans? Do they provide a previously unexplored channel of influence?
6. What role do SWFs play in infrastructure financing? Can they make up for private sector shortfalls?
7. The literature provides mixed evidence on the effects of SWF on ESG practices. What is driving this mixed evidence? What aspects of SWF heterogeneity explain it?

CONCLUSION

We believe that studying SWFs is essential to understanding international business. This is due to the sheer scale and rapid growth of their assets under management and because their sovereign nature raises questions about their political objectives – questions that are compounded by their propensity to invest across borders. Simply put, having a large presence of foreign sovereign shareholders in both private and public firms is unprecedented; the fact that target firms tend be located in Western, democratic, and open societies while many SWFs originate from countries at the opposite end of the political spectrum only compounds interest in their motives and objectives. Yet, we highlight that it is important to recognize that these motives and objectives are heterogenous and that policy responses need to likewise recognize differences across funds. The purpose of this special issue is to encourage research within a global framework that will foster a better understanding of SWFs, their objectives, level of activism, and effects. The six articles in this issue are excellent examples of cross-country research on SWFs. We hope that this introduction to the datasets, methodological challenges, and research in this area will compel more studies in this interesting and promising field. The papers presented in this special issue provide new insights into these issues, but the need for future research remains.

Our first broad call is for studies that use novel datasets to investigate the growing role of SWFs in alternative asset classes. We note the growing allocations to private equity and real estate, and generally away from listed equity. We have only a weak mapping of SWF activities in this space, and even less understanding of the growth in hybrid investment vehicles in the private equity space that allow state-owned funds to co-invest with private entities. The underlying question is whether these partnerships are commercial in nature, or whether political priorities are affecting them.

The second big gap lies in novel trends toward socially responsible investing. SWFs are well positioned, as long-horizon, deep-pocketed investors with broad mandates, to embrace a “stakeholder view.” Yet, to date, they tend to lag the private sector in their embrace of ESG goals, at least in Western markets. To facilitate a transition, we need better data and more sophisticated methodologies for measuring stakeholder impact. This is not a problem specific to SWFs, nor to the broad category of state-owned investment vehicles. However, the authors note that, in private conversations, SWF managers and managers of state-owned enterprises express frustration at their performance being measured on the basis of shareholder wealth or other profit-oriented metrics. Their mandates are much broader, encompassing economic development, budget and currency stabilization, employment maximization, and even the projection of soft power.

Third, and covering virtually all the themes of SWF research, we recognize the need for analysis that focuses on the heterogeneous nature of these funds. Emphasis should be placed on the systemic factors that determine differences in behavior, performance, and valuation. The recent strengthening of regulatory regimes, particularly in the U.S. and Western countries, aims to control the inflows and outflows of investments. This has rendered this work even more urgent.

NOTES

[1]https://docs.preqin.com/samples/The-2017-Preqin-Sovereign-Wealth-Fund-Review-Sample-Pages.pdf.

[2]https://www.preqin.com/insights/research/reports/sovereign-wealth-funds-in-motion.

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