SOVEREIGN WEALTH FUNDS INVESTMENT IN SUSTAINABLE DEVELOPMENT SECTORS

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AUTHOR:

DR. RAJIV SHARMA

Research Director
Global Projects Center,
Stanford University

sharma10@stanford.edu

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Background studies in support of the High-Level Conference on Financing for Development and the Means of Implementation of the 2030 Agenda for Sustainable Development

Author: Dr. Rajiv Sharma

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Executive Summary

In order for the Sustainable Development Goals to be achieved, a large amount of long-term investment capital will need to be deployed in the sectors that can help catalyse improvements in the identified areas. The SDGs in many ways reflect the lack of long-term investment that has occurred in recent times. Theoretically, there is a significant amount of long-term capital available to address some of the most

pressing challenges we are facing in society today. Sovereign Wealth Funds, globally, are a major source of long-term investor capital that have the potential to make long-term investments in the sectors that desperately need it.

There are however, a number of issues that are inhibiting the flow of capital into Sustainable Development Sectors. These are issues specifically related to how the funds themselves are set up and the processes involved with how investments are made. There are also issues on the governmental and public policy side to ensure that long-term SWF capital can flow into the long-term projects that need investment.

On the investor side, the term Sovereign Fund can mean a number of different things, related to how the fund is set up and what the objectives of the fund might be. The type of sovereign fund will impact the risk appetite of the fund and therefore the types of investments made. Sovereign funds can usually be grouped into the following: stabilization funds, savings funds, reserve investment funds, development funds and pension reserve funds. While sovereign wealth funds as a group, have been classed as large long-term investors, the specific function of each, may not enable them to invest as freely in to long-term investments as one might hope, nor might they be incorporating ESG factors into their investment process. Generally speaking, stabilization funds, have a more conservative risk appetite and therefore are usually restricted to lower-risk, passive investments. Such an approach is driven by the liability structure of these funds, where drawdowns may be required at short notice on the request of the government. Investments in illiquid, long-term assets will therefore not be desirable. Pension reserve funds, savings funds or reserve investment funds however, based on their funding ratios may have longer term liabilities and more flexibility to invest in illiquid, more risky longer term assets. Sovereign development funds have been used as a tool for certain countries to support economic growth and development, which has led to a greater proportion of private market assets invested into. Sovereign Development Funds are examples of funds with a more flexible mandate around investments which can lead to both successful development and financial objectives being attained.

When linking the SDGs with investment opportunities to Sovereign Wealth Funds, one can see that across the asset class spectrum (whether in the public or private sphere, debt or equity), a number of investments may contribute to achieving the SDGs. Within the public market space, where the more conservative Sovereign funds may invest, there are assets that would have certain SDG exposure. Most investments in the public market space, however would have secondary exposure to SDGs with very few 'pure plays'. Investors can act as activist shareholders in publically listed companies, however this will usually be restricted to the more sophisticated investors with more robust governance structures in place. Furthermore, in areas where the SDGs are most relevant, the lack of depth in capital markets in these regions, means that the opportunities are few. In the private market space however, particularly in the infrastructure, housing, private equity and innovation sectors, there is arguably much more scope to have greater impact at scale for the SDGs. There is a large amount of evidence to show that investments in private, alternative investments can lead to wider economic and social benefits to the region. As mentioned however, the propensity of Sovereign Wealth funds to invest into alternative asset classes will depend greatly on the risk appetite of these investors. Despite the challenges, industry data would suggest that the allocation of institutional investors to alternative asset classes is increasing, as more investors search for returns in order to help solve their funding deficits. The method of accessing these private market investments will also dictate how effective sovereign funds are for investing in SDGs. The closer, more direct investors are to the underlying assets, the greater their ability to access the specific investments of interest, without the distortion of 'productization' through financial service providers. Regardless of asset class, translating the SDGs to sustainable and measurable metrics for Sovereign Funds is required.

Governments have a significant role to play in matching sovereign capital to the SDGs. Certain sectors such as infrastructure and housing, require governments to procure assets in a way that allows investments to be made by these investors. Infrastructure as an example inherently has a number of wider economic and social benefits that accrue to society when investments are made. The opening up of these assets to private investors however has been a politically sensitive issue providing a barrier to investment, on top of the technical knowledge required to package these investments to investors. Policy and structural reforms within governments are required to help ensure that much needed investment is made in the sectors that provide

essential services to society. There are a number innovations occurring where governments have recognized the value of partnering directly with long-term institutional investors such as sovereign funds. These include setting up Sovereign Development Funds with a specific mandate for investment in the infrastructure sector, such as the NIIF in India and governments 'offloading' assets to sophisticated institutional investors as in Australia and Canada. There are lessons from these initiatives that can be applied to many other regions.

In summary, there is significant scope for Sovereign Wealth Funds to invest in areas that contribute to the SDGs. There is already arguably a large amount of investment that has been made into SDG sectors, although this is primarily done on a secondary or passive basis. A key recommendation for FfD is to look at the development of sustainable and measurable SDG metrics that Sovereign Wealth Funds can incorporate into their investment process. This can then be applied to all investors, regardless of size, sophistication, risk appetite. Governments have a role to play in order to package and provide opportunities for investors in scalable, high impact and attractive sectors. Policy recommendations should center around governments rewarding investors who have shown a meaningful commitment to the SDGs, by partnering with them on major investments that can achieve significant scale and impact such as large greenfield infrastructure projects in emerging economies.

1. Introduction

Sovereign Wealth Funds (SWFs) are expanding quickly in all parts of the world and are becoming a major force in global capital markets. The number of funds specifically has grown five fold since 2000 to approximately 80 and more are being created constantly. Furthermore, the AUM of SWFs has grown $400-500bn per year since the GFC, reaching a total level of over $6.5 trillion currently. Theoretically there is significant scope for SWFs to invest in sustainable development sectors and support the SDGs.

What makes SWFs an attractive match for the financing of sustainable development, is their intrinsic long-term and large scale nature. Because of their unique set up, SWFs tend to have longer term or well-defined liabilities, which enable them to invest in more illiquid assets. Furthermore, certain SWFs such as Sovereign Development Funds have a specific mandate to invest in sectors that support the social and economic development of local economies. While there may be instruments and opportunities to support the SDGs across the asset class spectrum, this paper argues that the most impact in the sustainable development sectors will come from investments made in the private market space, in areas such as infrastructure, real estate, agriculture, timber, venture capital and private equity. Furthermore, investments made into these sectors have proven to not only provide wider economic and social benefits, in line with many of the 2030 Agenda goals, but these investments also provide attractive risk adjusted commercial returns to investors. There are a number of structural issues however that have stymied the flow of SWF capital into long-term sustainable development investments. This paper looks to address some of these structural issues and identify key areas to overcome some of these challenges, both from the SWF investor perspective as well as the government procurement side.

Notwithstanding the inherent problem of a lack of long-term investment being made by SWFs, there are also a number of other ways that this group of capital can help contribute to the SDGs. Quite often, the stumbling block to long-term investment is a lack of governance, shorter term liabilities (in the case of stabilization funds), budget constraints for acquiring talent, all leading to a lower-risk appetite. This has led to a reluctance to take on excessive liquidity risk and a stronger desire to invest in more liquid assets such as publically listed bonds and equities. Regardless of assets there are measures that need to be incorporated across the portfolio of a SWF in order to help support the SDGs. This starts with measuring the exposures of a SWF to the various assets invested into. Such an exercise requires appraising the positive, neutral or negative influences on the SDGs of various assets. A secondary step would be to come up with SDG metrics to measure the performance of a SWF's portfolio across different asset classes. The methodologies for doing the above are not very well developed but with current technological advancements in data science and machine learning there is much scope for this to happen. These possibilities are explored in this paper.

The paper is structured as follows. The next section provides an overview of the different types of SWFs

and how the categorization affects their ability to invest in the SDGs. Section three looks at the predominant models that have been employed by SWFs for meeting their investment objectives and looks at further challenges to sustainable development investing. It also looks at the specific nature of private, alternative asset investing, which is proposed as the most impactful type of long-term investment in sustainable development sectors. Further analysis on what is meant by investment for the SDGs is provided in Section Five, along with recommendations for how SWFs can help support the SDGs through investments across their entire portfolio. In Section Six specific case studies that highlight examples of how SWFs can support the SDGs are provided before the conclusions, implications and recommendations from the paper are summarized in the final section.

2. Sovereign Wealth Funds – History and Categorization

While the first SWF's can date their history back to the 19th Century, the modern wave of funds has steadily increased over the last 50-60 years on the back of a commodity boom in places such as the Middle East, Norway, and many others. In the early years, there were a number of misconstrued ideas formed around the role of sovereign wealth funds, with critics heralding them as 'barbarians at the gate, looking to buy others' strategic assets'. However, more recently on the back of the Global Financial Crisis, SWFs suddenly became in great demand for their long-term capital for all sorts of industries and sectors in most countries. There has also been far more knowledge and understanding created between host and recipient nations of SWF capital, in large part due to the creation of the 'Santiago Principles for Generally Agreed Practices and Principles to SWF investment behavior.

The term SWF is generally known as a pool of state-owned financial assets that are being managed (invested) for specific economic purposes. These economic purposes generally fall into a number of specific categories which impact and affect the investment behavior of the organisations.

Firstly, *stabilization funds* are created with the objective to assist balancing short-term fiscal positions for a government. They are designed to insulate the budget and economy against volatility – generally commodity price fluctuations and act as an additional policy tool for meeting government payments and foreign exchange commitments in countries with less developed capital markets and/or pegged currencies. For example, when commodity prices are low, reserves flow out and are used to stabilize the budget, protecting against shortfalls. When prices are high, surplus reserves flow into the fund. There are examples of stabilization funds in Chile, Russia, Botswana, Mexico and elsewhere.

Savings or Reserve funds are set up with the objective of investing excess reserves for the benefit of future generations. The source of reserves has usually come from current – once in a generation – commodity windfalls. There are certain reserve investment funds that are used to supplement foreign exchange reserves, run by a country's central bank. The objective here is to invest excess reserves in somewhat riskier assets to help bolster returns.

Pension Reserve or 'buffer' funds are saving surpluses that will be used for a specific purpose in the future. The funds come from commodity windfalls or out of the current tax base of a country with the idea to provide for contingent, unspecified pension liabilities on a government's balance sheet from sources other than individual pension contributions. There is a difference between a pension reserve fund and a government pension fund in that the liabilities from reserve funds flow directly to the government and the government uses the fund to offset shortfalls in the pension system. For a government pension fund, the liability stream flows directly to the individuals contributing to the fund. There are examples of pension reserve funds in New Zealand and Australia. There may not be an explicit liability for these funds, but there will be a specific purpose for their development. In New Zealand's case it is to smooth the future tax burden of providing retirement income because of the country's ageing demographic profile.

Development Funds are set up with the primary objective to fund socioeconomic projects or to invest in specific sectors within a country. The mission of development funds is usually to bolster domestic industries while also potentially crowding in foreign institutional investor capital. Development funds have also been

termed Strategic Investment Funds. A more detailed case study on Development Funds is provided in Section Six.

As mentioned, most SWFs formed in the second half of the 20th century were commodity based. Today, the number of commodity based SWFs is approximately 60% while the remaining amount are made up of non-commodity, or trade-based funds. The older funds are generally larger with the average asset size of the 21 SWFs that were formed before 2000 being $260 billion. The newer SWFs, formed since 2000 have an average asset size of $40 billion. There are currently approximately 80 SWFs in the world today with half of these started since 2005. The current value of total sovereign wealth fund assets $6.6 Trillion (Preqin 2017, Kalb 2015).

3. SWFs and Long-Term Investment

As mentioned, the different ways SWFs are created and their unique characteristics influences the way they invest their assets. This is particularly relevant when it comes to the question of long-term investment in sustainable development sectors. It is argued that the most impactful investments that will support the SDGs are long-term investments made in the alternative private market asset classes such as infrastructure, housing, clean energy, agriculture, timber, venture capital and private equity. There are however a number of structural constraints unique to the organisations described above, that may inhibit the flow of capital into these high impact sectors.

The first key constraint that might affect the investment time horizon of a SWF is their *liability* profile. SWFs that need to make pay-outs in the near term may not be able to invest in illiquid investments that have long lock up periods. They may not be able to take on short-term volatility, which prohibits them from holding assets over the long-term in the face of volatility. Generally speaking SWFs have lower short-term liabilities compared with other institutional investors such as pension funds and endowments. As noted above however, stabilization funds may need to draw upon their reserves at short notice which might affect the investment decision making process. An investor who acknowledges that they might be forced into selling positions at short notice may be reluctant to take long-term positions, especially in illiquid assets that they cannot readily exit in the event of redemptions. Savings, Reserve and Development funds would comparatively have lower short term liability issues.

Another consideration is whether a SWF is facing net inflows or net outflows from their fund. Investors will be more confident that they will not be placed in the position of needing to sell into weak markets if they are confident that they will continue to draw inflows. Using data from 152 large superannuation funds in Australia during 2004-2010, Cummings and Ellis (2014) provide evidence that the funds flows of institutional investors influence the weightings held in illiquid assets. In particular, although the authors note that the heterogeneous nature of funds makes correlations difficult, they did deduce that larger funds with larger positive funds flows have a larger weighting to illiquid assets.

The *risk appetite* of a SWF will determine whether a long-term investment strategy will be employed but there are a number of restrictions placed on certain SWFs that affect their risk appetite. A long-term institutional investor should be willing to accept moderate levels of risk, short-term volatility, potential permanent capital loss and not divest from long-term investments in the face of market pressure. However, SWFs that have very close government oversight may affect their risk profiles and how risky assets are treated in their accounts. Some regulators require investors to hold high capital ratios if investments are made into illiquid investments which influences them to invest into low-risk assets. Certain SWFs may be subject to the opinions of politicians who may feel alarmed whenever volatility in asset prices leads to a sharp fall in a fund's value, regardless of whether that volatility had been taken into account. This type of pressure will make the funds cautious about making the investments in the first place. If pressure is placed on SWFs by stakeholders to maintain funded status in the short-term and report to the market on a short-term basis, this may result in these funds having a low-risk appetite. Again, such pressures and influences on risk-appetite will be more pronounced for stabilization funds compared with other types of SWFs.

A number of other factors below have been highlighted as general long-term investing constraints for investment organisations. The factors will be apparent for SWFs in varying degrees depending not only on the structure and type of fund defined above, but also in how the best practices and guidelines contained in the Santiago Principles have been implemented.

The investment *decision-making process* within an institutional investor organisation may provide certain constraints for the implementation of a long-term investment strategy. Laverty (1996) argues that organisational factors are a key contributor to short-termism. For example, organisational inertia and unwillingness to adapt towards the future can stem from group-think, escalating commitment and social structures within firms.

Multidivisional structures can combine with short-term measurement to encourage business units to focus on short-term outcomes. Laverty (1996) also cites managerial opportunism in pursuit of short-term results, building of reputation and avoidance of risk. Investment managers are often incentivised to maximise their performance over the short-term, in line with bonus and other compensation payouts or their performance may be pegged to an index benchmark such as the S&P 500 discouraging investment decisions to be made over the long-term with different performance trajectory to the benchmark employed (Stoughton et al. 2011).

Another important consideration is the length of the decision chain from the principal to the ultimate deployer of capital. The lengthening of the chain helps to foster a short-term culture, as delegated agents attempt to satisfy the expectations of investors who in turn are monitoring them based on the flow of short-term results. Internationalisation has further distanced investors from their assets (i.e. companies they hold). Kay (2012) suggests that this chain creates misalignments such as bias for action, as agents aim to justify their positions. The longer the decision chain, the higher the prospect of misalignment.

Behavioural and Psychological Issues have also been attributed to the short term tendencies of investment institutions (Warren 2014). Academic research in biology and neuroeconomics has shown that there are emotional and cognitive processes that interact and affect the ability to make decisions for the long or short-term. These studies have shown that a preference for immediate consumption may have emerged as a survival strategy (Irving 2009). Similarly, desire for immediate gratification has been found to be stronger when rewards are more salient. From behavioural economics, hyperbolic discounting and myopic loss aversion are two related and well-studied behavioural characteristics that are closely aligned with short-termism. Hyperbolic discount functions (see Laibson, 1997) are characterised by higher discount rates over short horizons relative to long horizons, which creates conflict between today's preferences and those that will be held in future. Myopic loss aversion relates to the idea that losses are feared to a much greater extent than gains are enjoyed. The two effects combine to emphasise an induced focus on the short-term.

Atherton et al. (2007) highlight the role of accepted behaviours and norms such as the materialistic society we live in, which demands immediate returns and satisfaction. This can drive short-termism, and is seen as the accepted way of doing things, creating peer pressure to conform.

Long-term investing requires a certain amount of *resource capability* to address the unique types of risks that are played out over a longer time frame. Certain SWFs face budget pressures that prevent them from acquiring the necessary research tools and internal expertise to help execute a long-term investment strategy. The market for investing talent is highly competitive and there are considerable challenges in attracting the necessary expertise due to restricted compensation levels and relatively fewer staff in organisations such as the SWFs described above.

Quite often the size of assets of a fund will not only dictate the governance and internal capability to evaluate investments but also an institution's access to opportunities. As a result, smaller SWFs tend to have more conservative asset allocations compared with the largest funds.

The average tenure of a chief investment officer is approximately four years meaning that long-term investing can provide a significant career risk. The tenure for more junior staff may be shorter and there can be significant pressure to perform within this period to achieve career progression. As a result, assets with

a short time frame may be more attractive to invest into.

There may also be constraints to long-term investment by institutional investors due to implicit understandings about the market and where the highest returns can be achieved. Long-term investment will require the belief within institutions that the returns generated from making long-term investments will be large enough to justify the associated risks, such as liquidity risk. There is a strong need within SWF organisations for principals, trustees and managers to believe strongly in a long-term investment strategy and understand counterarguments, before investments can be made.

Good governance appears to be the most crucial aspect to the development of robust investment strategies for SWFs and a key determining factor for funds to invest over the long-term. Related to this, is the role of government, who seeks to promote a SWF agenda. Establishing clear independence is a pre-requisite in order to avoid political interference which may erode the fund's ability to effectively achieve its financial and economic objectives. This is particularly relevant for Development funds or Strategic Investment Funds where domestic investments may de-stabilize macroeconomic management and undermine the quality of public investments and the wealth objectives of the funds. A clear separation needs to be made (generally for all SWFs) between the government as a promoter of investments and as owner of the SWF. It is thus necessary to build capacity for a SWF to operate as an expert, professional investor that can independently appraise prospective investment opportunities.

4. SWF Investment Styles and Trends

The investment objectives of SWFs are translated through an asset allocation process that is usually conducted alongside an investment consultant. Strategic Asset Allocation, refers to a target allocation of assets into various asset classes, based on the risk and return characteristics of a Fund. Across the asset class spectrum there are investments that suit certain types of investors more than others based on their risk tolerance, time horizon and expected return. SWFs with a shorter time horizon will have a greater allocation to shorter term, more liquid assets such as bonds and certain public equities. Longer horizon investors will have greater allocations to alternative, illiquid asset classes.

Investment policies should approach performance of the whole fund as opposed to the performance of individual asset classes. Strategic asset allocation can have its drawbacks in that different asset classes, have clear allocations, that lead to a 'bucket filling' exercise leading to the need for asset class experts achieving an asset class specific hurdle. This can lead to a good asset class outcome but it doesn't guarantee a good overall fund outcome. Other funds have taken a Reference Portfolio approach, where a simple passive listed portfolio is used as a benchmark. The investment teams within the fund are then incentivized and remunerated on how much value is added relative to the Reference Portfolio. The actual portfolio therefore deviates from the reference portfolio, only if those investments make the overall Fund better off, not just one division.

In conjunction with the asset allocation decision, a number of distinct investment models seem to have emerged amongst the SWF and wider institutional investor community.

Firstly, there is the Norway model, which is based on the strategy of the Norwegian sovereign wealth fund of investing primarily in traditional public market assets – whether that be equities or fixed income. Returns are generated through benchmarking public market indexes and often uses tracking error constraints relative to these benchmarks. It usually encompasses a traditional 50/50 or 60/40 equity/fixed income mix. The Norway model uses a large in-sourced team with a small allocation to external managers to achieve its objectives.

Secondly, there is the Yale or endowment model, which is based on adding risk to the portfolio by investing in private market asset classes such as private equity, real estate, infrastructure, hedge funds through external managers. A 'top down' model is employed in house for the selection of an asset class/strategy with external managers then taking on most of the responsibility for the investments. The endowment model is

a lot more costly (due to the high fees of asset management firms) and has been based on getting priority access to well-performing external managers.

The third model is the Canadian model, employed by the large sophisticated pension fund investors in Canada, and is characterised through largely insourced (direct) investment with a higher allocation than most to private market alternative asset classes. The driving force behind the Canadian model is the ability to hire expert internal staff to execute the investment program on a more cost effective basis than using external managers.

More recently, we have seen a fourth model of investment emerge that combines aspects of both the Endowment and Canadian model. The Collaborative model recognizes that private market investing in assets like infrastructure, and development projects is consistent with a long-term investment strategy, that the direct method of investing is the most cost effective form of investing and that alternative external investment managers are required but the governance needs to be redefined for more alignment. In this way, the collaborative model involves the platforms/vehicles that SWFs are developing amongst themselves as peers to invest more efficiently in long-term assets and get as close as they can to the direct method. These include co-investment platforms/vehicles, joint ventures and seeding managers. The collaborative model has involved SWFs forming co-investment partnerships amongst themselves or developing more aligned arrangements with their asset manager partners. Examples of the collaborative model amongst SWFs has included Abu Dhabi Investment Authority, NZ Superannuation Fund and Alberta Investment Management Company forming an investment alliance to invest into innovation in Silicon Valley. Government Investment Corporation (GIC) teaming up with manager Highstar Capital to buy GWF Energy. ADIA investing with and through the National Investment and Infrastructure Fund (NIIF) to access infrastructure investments in India (a detailed case study is provided in Section Six).

4.1. Long-Term Private Market Investment for Sustainable Development

As mentioned, long-term investors such as SWFs can make an important contribution to growth in various ways, but perhaps most importantly by financing long-term projects, such as infrastructure, clean technology, real estate and agriculture. Infrastructure in particular has been the subject of much attention for attracting long-term investment, as most nations around the world struggle to address their infrastructure investment deficits. Inherently by its nature, infrastructure provides significant benefits by contributing to economic growth, which further emphasises the value of long-term investors in these assets.

In the broadest sense, infrastructure services are those physical facilities that provide the building blocks of a functioning society. Within this broad concept, social infrastructure (e.g. health and education) can be distinguished from economic infrastructure. Economic infrastructure relates to the channels, pipes, conduits and apparatus that deliver power and water, provide protection from floods and take away waste. It also includes the roads, railways, airports and harbours that allow the safe movement of people and goods between communities. These services directly support the well being of households as well as production activities of enterprises at various points of the value chain, and is thus directly relevant to the competitiveness of firms and to economic development (Morley 2002).

Specifically, the power industry comprising of generation, transmission and distribution form an integral part of the backbone of a modern economy. Without adequate investment and a reliable supply of power, an economy is unable to function efficiently, economic growth targets are difficult to achieve due to outages and blackouts. An integrated transport infrastructure that includes roads, railways, airports and seaports makes it possible to link underdeveloped parts of a country and regions into the global economy. Investments in transport infrastructure allow goods and services to be transported more quickly and at lower costs, resulting in both lower prices for consumers and increased profitability for firms. Water infrastructure relates to the delivery, treatment, supply and distribution of water to its users as well as for the collection, removal, treatment and disposal of sewage and wastewater. Investment into water infrastructure is crucial for sustaining the central role that it plays in human societies while also protecting aquatic ecosystems which is critical for the environment (United Nations 2008).

The impact of infrastructure investments for the wider economy has been formalised by studies carried out in economics. There have been a number of studies to show the relationship between infrastructure investment and economic growth. Most of the research in this area has been based on the production function approach where the output elasticity with respect to public capital (regarded as a synonym for infrastructure) is calculated to determine if higher rates of government expenditure, can increase long run growth rates (Solow 1956). Early work indicated that a positive relationship exists between private sector output and infrastructure investment (Romer (1986), Lucas (1988), Aschauer (1989)). The direction of causality and quality of data were highlighted as limitations of the early studies, nevertheless further work has also shown a positive relationship between public capital and private output (Munnell (1992), Gramlich (1994), Lau and Sin (1997), Berechman et al (2006), Sun and Zhu (2009)). Using an annual time-series growth regression, Égert et al (2009) provide additional evidence showing that the contributions of infrastructure have a positive impact on economic growth.

Investments in other private market asset classes can also be seen to have wider economic impacts. Venture capital investments that back entrepreneurs and new businesses for example have been proven to contribute to economic development (Lerner and Kortum 2000). The businesses that venture capital financing benefit from can result in new employment and the stimulation of related businesses or sectors that support a new venture. Through unique offerings of new goods and services, and production processes, entrepreneurs can improve efficiency, and the innovation leads to economic growth (Timmons and Bygrave 1986, Sampsa and Sorenson 2011, Lerner and Kortum 2000).

Similarly, certain real estate development investments have provided economic benefit, particularly those in underdeveloped areas which could be classed as targeted investments (Hagerman et al. 2007). In fact, certain SWFs that have had a specific development focus, investing in real estate, private businesses and infrastructure have been able to post attractive investment returns.

By 2030, as global population surpasses 8 billion, there will be significant increases in food demand, placing pressure on agricultural crops. Investments in agriculture seem to be suited to SWFs and necessary for improving output productivity to meet global demand. The growing middle class in the developing world will be looking to consume more and more protein. A shift towards greater global protein consumption will increase demand for grain dramatically (TIAA-CREF 2012). On top of this, continued development and industrialisation will reduce the land resources for agriculture. All of these long-term economic factors will drive the value of agriculture assets, highlighting the importance of long-term investment in this area.

Clean technology companies that help mitigate climate change require significant amounts of financing and should be ideally suited to long-term institutional investors. In the past, in order to access green energy opportunities, investors would normally use asset managers to invest through a closed-end private equity fund structure. These investments however require large amounts of capital and longer horizons, not suited to the typical fund structure. SWFs have inter-generational time horizons and deep pockets, which makes them valuable partners for capital intensive and long-gestation companies. In this way, by leveraging off their key attributes (scale and time horizon) SWFs stand to make attractive returns and have significant impact.

4.2. Private Market/ Alternative Investing

Private market investing is an umbrella term encapsulating a variety of illiquid investments that cannot be sold at short notice and therefore require a long-term investment horizon and patient capital. These types of investments as outlined above include infrastructure, renewable energy, agriculture, natural resources, real estate, venture capital and private equity. The opaque nature of private market assets and various information asymmetries has meant a relational form of delegated investing has been adopted by a large number of SWFs for accessing these assets with a large reliance on intermediaries for the investment process. This is in contrast to direct investing or co-investing where capital is deployed directly into the asset or company.

Private companies or assets are not subjected to the information disclosure regulations that publically listed

companies must adhere to, giving investment managers the opportunity to gain access to and act on information not readily available in the public domain. Investments into private markets also often requires managing the assets actively, playing a material role in growing the assets and adding significant value over the investment period. Investment management firms have investment professionals dedicated to taking advantage of informational asymmetries in private markets and have the necessary skill set for sourcing, analysing, executing and managing long-term assets. For these reasons, many SWFs without sufficient governance and resource capability have utilised the services of third party investment managers and consultants for making investments into private markets.

Investors in private markets should thus expect higher returns compared with public markets because of the premium paid for illiquidity and other asset-specific risks. While the benefits from each asset class vary (as well as the data and benchmark used for comparisons), there is substantial academic literature to suggest that private market investing can offer greater returns over investing in the public markets (Harris et al 2013, Axelson et al 2013, Robinson and Sensoy 2011, Ljundqvist and Richardson 2005, Stucke 2011, Fisher and Hartzell 2013). This is particularly true for private equity and real estate. While venture capital fund returns outperformed public equities in the 1990s, they have underperformed in the most recent decade (Harris et al 2013). Infrastructure is a relatively new private market asset class, and so reliable returns data is quite limited. Early studies have shown that infrastructure has been mixed with a large amount of variation in the types of assets and subsequent returns achieved (Inderst 2009).

The allocations of institutional investors to private markets has been increasing over time. Andonov (2013), based on the CEM database[1], shows that institutional investors in developed economies have increased their allocation to alternative assets (which also includes hedge funds) from 8 percent in 1990 to more than 15 percent in 2011. He finds that larger institutional investors have increased their allocation in a higher proportion. Larger investors not only allocate a greater percentage of their assets to alternative investments, but are more likely to invest simultaneously in multiple alternative asset classes. In addition to size, institutional investors that diversify their public equity investment internationally, also invest a higher percentage of their total assets in multiple alternative asset classes at the same time. Institutional investors that use more active rather than passive management in public equity, are investing relatively more in alternative asset classes, where passive investing is virtually impossible. The results suggest that institutional investors do not substitute active management in public equity with alternative investments, but rather engage simultaneously in active investing in public and private markets. Most industry based publications and surveys would indicate that institutional investors will be increasing their allocation to private market asset classes over the next years and beyond (Preqin 2014, Blackrock 2014, Towers Watson 2014). The assets managed by SWFs have been growing by about $400 billion–$500 billion a year. Simply to maintain their current weightings, these funds will have to allocate about $150 billion–$200 billion a year to alternative investments (Preqin 2017).

As indicated, there are a number of principal/agent and governance issues associated with utilizing third party intermediaries for making private market investments. One of the problems with investing in alternatives is that it can be very expensive. A large number of SWFs utilize asset managers for alternative investment which means paying the 2 and 20 fee model. This refers to an annual 2% management fee and 20% performance fee, which can amount to roughly 3-4% in total annual fees. Portfolio construction costs for investing alternatives can add an additional 1-2%, so the total cost of running an alternative investment program can run as high as 5%–6% a year. With this in mind, SWFs expecting to earn an illiquidity premium of 5% on their alternative strategies may end up spending the entire premium on fees. To provide further perspective on this magnitude, a SWF investing $10 million or $20 million or even $50 million with an external manager may still be a good idea for the SWF because it is unlikely that the SWF could replicate the resources of that manager with the fees it is paying. However, if a larger SWF with very large AUM, invests $500 million with an external manager under the 2 and 20 fee structure model, the total fees would be about $20 million per year. Over 10 years, the total would be $200 million in fees. For these reasons

[1] The CEM Benchmarking Inc. collects data from institutional investors through yearly questionnaires. The data used in this study utilises detailed information on the strategic asset allocation and performance of institutional investors during the 1990-2011 period.

SWFs have been looking at new methods of investing and exploring better ways to work together with external managers that is fair and equitable—creating structures where everybody can do well and share in the benefits of good performance (Kalb 2015).

4.3. Emerging Market Investing

In areas that might have the most impact for the SDGs such as underdeveloped regions in Africa, Asia and South America, the appetite for SWFs based in Developed Countries has not been entirely forthcoming. The question of investing in emerging economies relates back to the question of governance, risk appetite with similar considerations as those for investing in illiquid assets. For SWFs based outside of the emerging markets, a key challenge for investing in EM has been to get the right internal culture to invest in a meaningful way. Many funds might have a small number of external managers invest generally in emerging markets but the overall exposure would not be very large. Emerging markets has been more of an opportunistic play, with exposure to different asset classes but lacking focus. Common problems for increasing exposures have been a lack of conviction from GPs, cultural problems and currency risks. It has also been difficult to get the right benchmarks for Emerging Market investments because of the lack of depth of capital markets. Overall, there seems to be sufficient inertia within organisations to invest the necessary resources to invest meaningfully in EM. On a risk adjusted basis, many western based SWFs have not found the opportunity compelling enough.

Despite the above, there are a number of global dynamics that would suggest that emerging markets are an attractive destination for reliable long-term capital to be placed. While the US pubic equities market has been rallying at record levels since the GFC, there is investor caution around how long this will continue. On top of this, the price of assets in developed countries, particularly in a low interest rate environment has meant identifying sources of value in these regions is becoming more difficult. A number of investors may have been underpricing developed country risk and overpricing Emerging Market risk. The larger more sophisticated long-term institutional investors in developed markets have recognized some of these points and have been investing in Emerging Markets in significant ways, some of whom have set up offices in the new regions in order to have a local presence in the geographies that they previously did not have much oversight over. Developing relationships with key local players has been crucial – partnering with family offices, sovereign development funds and multi-national corporations have been some of the strategies employed.

The above discussion has concentrated on the perspectives and challenges of SWFs based in Western, developed countries. For sovereign funds located in developing countries, the potential to invest in their local and surrounding economies is great. This is usually done through Sovereign Development Funds – their nature, unique characteristics and role for the sustainable development agenda are highlighted in the case studies in Section 6.

5. Sustainable Development Sectors

It is argued that the most impact that SWFs can have for the SDGs, is through long-term investments in the alternative, private market asset classes such as infrastructure, real estate, agriculture, timber, venture capital and private equity. As identified, not all SWFs are able to invest in these assets, particularly in a more direct, efficient way. This section thus outlines how the SDGs can be accessed across the asset class spectrum and identifies areas where and how the SDGs can be supported by SWFs more effectively.

Determining how and the extent to which SWFs can access and promote the Sustainable Development Goals requires an assessment of where those SDGs already align with existing asset classes and investment products. It also requires an understanding of the strategies that SWFs have in furthering specific SDGs, measuring their exposure, and establishing programs that facilitate investment.

The SDGs cover a broad range of development objectives and while some of the goals apply to economic development that is readily accessible by current investment products and services, others are mostly accessible through private markets and direct investing programs on a case by case basis. Others will require support from governments and multilateral institutions to make them accessible by SWFs without significantly increasing risks or reducing investment returns. The limitation to access these SDGs is thus often driven by staff time and other resources to package opportunities into investible projects that SWFs are able to support.

5.1. Impact Strategies

There are a variety of strategies that SWFs can take to invest in the SDGs. These will depend on the type of fund, the risk appetite and the portfolio of assets selected.

Passive Investment – Publicly Listed

For most SWFs, constraints in furthering the SDGs are driven by limited staff time and investment opportunities, not capital. The majority of capital currently invested in SDG related assets and companies is thus achieved through passive investing. Passive investing can be direct in publically listed assets or through fund managers with an SDG orientation or strategy.

Investing in public listings that further the SDGs is a low impact but easily scalable way to incorporate SDGs in a SWFs investment strategy. While certainly useful, the breadth of SDGs accessible via public markets is relatively narrow, and the impacts that SWFs are able to have through this model of investing is fairly low because these listings already enjoy access to the capital markets. Thus SWF investments in publicly listed assets have a relatively low impact if individual investments are relatively small.

Passive Investment – Private Funds

Private funds are another model through which SWFs can gain exposure to SDGs, and this strategy has increased significantly in recent years. Impact investing funds vary significantly in their particular strategies, their metrics, and their return targets. These funds effectively overcome the human capital constraints on SWFs in pursuing SDG based investment targets, but they also have significant limitations.

Closed end private funds must generally maintain fairly high return targets to make the economics of the structure work, in part because of the high fees required by the investment vehicles. These fees are also often both a function of assets under management and investment returns, which further incentivizes fund managers to target high returns. The added layer of fees can limit the use of this model in pursuing some UN SDGs that may require concessional returns, and it also may limit the ability of funds to work with governments and multilaterals to develop investment opportunities, in part because governments are often wary of structuring high-return investment opportunities with private funds. Closed end funds also naturally limit the ability of SWFs in actively managing their investments in SDGs subject to the specific terms of the fund.

Active/Direct and Enabling Investment

Direct or active investment is the most resource-intensive but highest impact strategy to access the SDGs by SWFs. The use of the strategy has thus been fairly limited, but innovative examples exist of SWFs that have developed direct investing teams or platforms to further SDG or other economic development mandates. Direct or active investments also often entail additional risk primarily because the ability to diversify is significantly lower through direct investment, and active investment naturally requires ownership of a sizeable share of a target company or asset, or complete ownership. Active investment involves the purchase of a controlling interest in an asset or operating company in order to influence or direct the adoption of practices or new initiatives that would further a particular SDG.

Here the term “enabling investment” is used to describe a form of active investment that could further some

of the SDGs even when the target asset is not directly related to the SDG. While naturally limited, it is highlighted that the potential for SWFs to partner with enterprises or governments in financing programs or initiatives that enable the partner to further an SDG. Investments with partner companies that support transitions to more responsible manufacturing, clean energy or reduced environmental impacts would fall within this sub category of active investment.

5.2. Measuring Exposure

To date, the SWF industry lacks a common metric for measuring exposure to the UN SDGs, and those SWFs that measure and report their exposure use a variety of metrics to do so.

Portfolio Tracking

Portfolio tracking of exposure to SDGs is by far the most common way that SWFs or fund managers have tracked or reported their allocations to goals in public markets. Under this system, individual SWFs and fund managers catalog each of their investments and their exposures to the individual SDGs, and then provide a roll up accounting of each SDG and its weight in their portfolio. Individual investments are "tagged" as furthering SDGs, with some investments accessing several SDGs depending on the nature of the company or asset. A higher order version of tagging individual investments has also been used in categorizing specific industry verticals as impacting each SDG positively (or negatively) and then summarizing the portfolio's impacts based on its exposures to those particular industries[2].

While portfolio tracking using these metrics is clearly useful, and a strong first step by any SWF in assessing their performance in furthering the SDGs, it also has some limitations. While industry tagging is useful in estimating exposure for some of the SDGs, it cannot be used for others, such as gender equality, because progress along those SDGs is really only measurable by assessing specific companies or assets. Even in tagging individual investments, this process involves some subjective nuance on the part of investment staff. Additionally, many operating enterprises impact multiple SDGs, in different ways, that are not easily represented by a simple tagging metric.

Goal-Based Impact Measurement

Some SWFs are turning to more directly measuring the impact of their investment portfolios on furthering the SDGs by rolling up actual operating results. This practice is fairly new and varies significantly among individual investment organizations, and it often requires considerably more resources and operational data in developing an aggregate picture of the portfolio's exposure. While there is no universally accepted standard for measuring all of the SDGs in aggregate, several initiatives have been used to aggregate information relating to some specific SDGs. GRESB Infrastructure and Real Estate, for instance, provides an online assessment tool that investors in those industries can use to measure their climate impact and general sustainability based on a set of eight core aspects and 32 indicators on specific projects and assets[3]. The tool also enables investment organizations to compare practices against their peer group.

These more nuanced operational assessments can give investors a clearer picture of their exposure to specific SDGs, but are naturally more aligned with the same SDGs in which investment and measurement is easiest. While measurements of the impact on industry, economic growth, clean energy and even climate action are more readily available for specific investments, other SDGs such as gender equality or peace and justice lack a readily available measurement system that can be applied to companies or assets. Other SDGs such as poverty reduction or health and well-being can be readily tagged to a particular investment, but the

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2 https://www.nnip.com/SK_en/corporate/News-Commentary/view/NN-IP-sketches-roadmap-for-investing-in-UN-Sustainable-Development-Goals.htm

3 https://api.gresb.com/infra/home

operational impacts of that investment on those SDGs is often difficult to measure clearly.

5.3. Allocation Metrics

In furthering access to SDGs, SWFs and fund managers have experimented with a variety of different metrics or KPIs for their investment teams and asset managers. Each of these metrics faces the same challenges and in some cases subjectivity in measurement described in the preceding section. Here, two different forms of these metrics are characterized broadly as goal-based allocations for asset managers or investment teams and the more nuanced establishment of dual metrics for investment staff and service providers.

Goal-Based Allocations

Goal-based allocations are a fairly simple and more widely-used metric to require a particular allocation to further one or more SDGs or, for that matter, any investor requirement or metric beyond investment returns. Under a goal-based allocation, an investment team is simply required to source investments that impact a particular development goal. Beyond that requirement, an investment team or manager is assessed using the same performance metrics that they would be evaluated on otherwise – they are to construct an investment portfolio that maximizes their risk-adjusted returns.

Goal-based allocations are a simple metric to target investment portfolios towards the UN SDGs, and they have the added benefit of providing clear incentives to investment staff and managers to continue maximizing investment returns within their designated "box" of investment opportunities. They are also fairly easy to establish and administer. Goal-based allocations do still have several shortcomings. First, in practice they can be fairly subjective on the margins, for the same reason that the practice of tagging investments to measure SDG exposure can be. Goal-based allocations also do not provide a measurement or metric for investment staff and managers to compare between two potential investments that both further an SDG and also offer varying risk-adjusted returns. Two clean energy investments, for instance, would be compared based only on their potential risk-adjusted returns as opposed to a goal-related metric such as their carbon reduction over time. While goal-based allocation metrics are unable to capture nuances such as these to maximize impact on the SDGs, they are often beneficial in establishing a simple performance metric without sacrificing returns.

Dual-Metric Establishment

The establishment of dual-metric programs is relatively new but growing in practice in the impact investing industry. Under these programs, investment staff and managers are given specific performance indicators that relate to one or more specific SDGs, and are evaluated using that metric in addition to their investment returns.

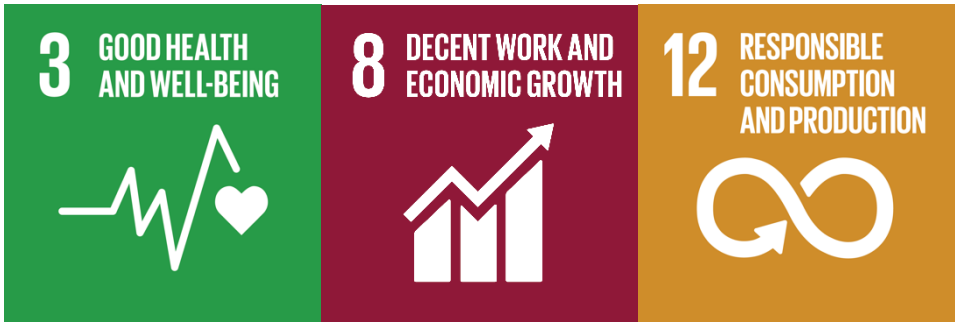
These dual-metric programs provide the benefit of directly incentivizing the furtherance of SDGs for investment staff, but are more difficult to establish in practice. They are generally only applicable for SDGs in which clear operational data can be measured and aggregated in an investment portfolio. They are also significantly more complex than simple goal-based allocations, which may create a complicated and less-clear system of performance evaluation for an investment organization. These metrics are also only as effective as the availability of data and objective measurement available for an investment's impacts on a particular SDG. Because these metrics drive results, care must be taken to design dual-metric evaluations so that they do not expose the allocation to excessive risk or reduce investment performance beyond that targeted by the SWF creating the program.

5.4. SDG Accessibility by Sovereign Funds

In this section, the specific UN SDGs are grouped into four sets based on their accessibility to SWFs in terms

of their ability to gain exposure to the SDG, readily available investment products that support those SDGs, and the availability of clear metrics by which a SWF can currently evaluate its exposure and performance. These groups include a set of Real Economy SDGs that are highly investible, a set of Climate SDGs in which few pure play investments exist but that can be measured across a portfolio, a set of Social SDGs that are difficult for SWFs to access in a programmatic way, and a set of Sustainable Infrastructure SDGs that are accessible as investment opportunities but that require innovative new fund models and approaches on the part of SWFs.

Real Economy SDGs – Highly Investible



These SDGs are readily investible by SWFs and virtually all institutional investors already justifiably have some exposure to them already. The SDG on economic growth is likely a component of virtually all investment portfolios, and the SDGs of responsible consumption and production and health are accessible by virtually any allocation to healthcare or manufacturing and consumer products.

Climate SDGs – Portfolio Approach

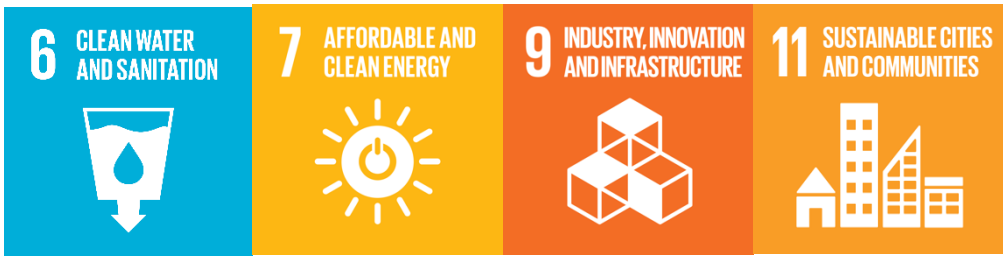
The SDGs focusing on climate change and environmental conservation are difficult to access as "pure play" investments but a portfolio approach to measuring their exposure is viable. For example, investments in sustainable farming companies or clean energy and infrastructure impacts climate change and the environment. The impact of an investment portfolio on these climate SDGs is also better mentioned by specific qualities of individual investments, as opposed to the investments themselves. A real estate portfolio, for instance, does not inherently further a climate SDG, but a portfolio that requires all of its properties to have a low-energy certification or that reports on the energy practices of its assets could justifiably further the UN SDG on climate action.

Social SDGs – Difficult to Access

Many of the social development SDGs do not translate readily to investment opportunities. Some social ventures to provide low income education or reduce poverty may provide select opportunities to have a

social impact through investment, but these opportunities will likely only be accessible through direct private investing or targeted private funds. These SDGs may also be generally accessed by SWFs that have an economic development mandate in emerging economies as these investments naturally target poverty and inequality reduction through second-order impacts.

Sustainable Infrastructure SDGs – Accessible via Innovation



This final set of UN SDGs are considered the next frontier of SWF access. Readily available public investment opportunities are rare for these SDGs, but targeted funds and direct investment programs can make these SDGs accessible for SWFs. Innovative examples exist of SWFs creating direct investment programs that target sustainable development and cities that both further these sustainable infrastructure SDGs and generate investment returns. These SDGs also overlap significantly with government policy, which creates the potential for cooperative programs between SWFs and governments to package investment opportunities creatively that support SDGs and provide risk adjusted returns.

In summary, the different types of SWFs are able to get exposure across the entire asset class spectrum based on their risk appetite and governance capability although the impact of that exposure varies significantly from public market asset classes to private ones. This can be seen in figure 1 below:

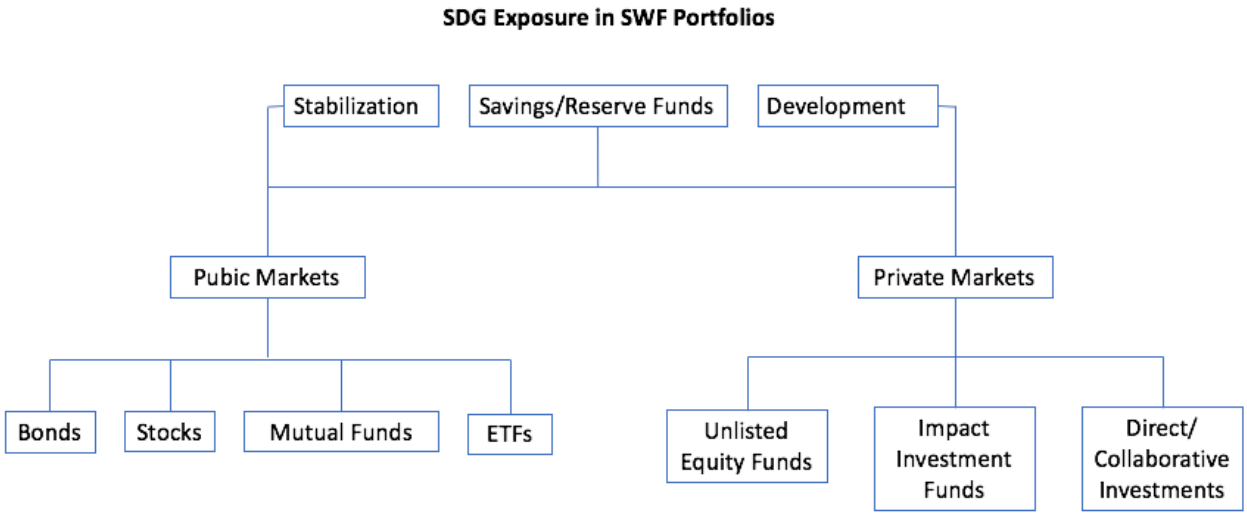


Figure 1: SWF exposure to SDGs

Within the public market asset classes, the exposure to SDGs is very passive in nature and the metrics for measuring SDG exposure is at an early stage of development. There are developments being made, such as through the offering of green and social impact bonds. There are also sustainability indexes that have been developed which are using more and more sophisticated methods for identifying and scrutinizing companies' adherence to the SDGs. Currently, there is a wide spectrum of ESG and SDG incorporation amongst the SWF community. This is related to governance, where the more sophisticated SWFs will have in their mission, an explicit recognition to invest responsibly and integrate ESG and SDG considerations into the investment process. As mentioned throughout this paper however, the most impact that SWFs can have is through the direct investments in the private market space in asset classes such as infrastructure. A such,

we highlight in the next section some of the innovations that are occurring in the private market space to help facilitate SWF investment in the SDGs.

6. Case Studies

6.1. Sovereign Development Funds (General Case Study – Localised SWF Investment)

As mentioned, because of their set-up, Sovereign Development Funds or Strategic Investment Funds have great potential for supporting the SDG agenda. Governments typically create SDFs when domestic financial markets are underdeveloped or capital starved. SDFs do not however replace the functions of budgetary spending in the economy. In the design of a SDF, consideration needs to be given to the local needs, and to the question of whether finance leads or follows development (Dixon and Monk 2014, Patrick 1966). For those that believe that finance and financial intermediaries lead development, there is a large role to be played by investors like SDFs in identifying and financing entrepreneurs and technological changes that lead to growth and development (Schumpeter 1934). Such investors catalyse opportunities and as such require a certain level of sophistication to play an active role in economic growth and change, identifying, researching and financing the most promising sectors, firms and corporates and entrepreneurs. Others that believe that finance follows development take the perspective that investors would facilitate the flow of capital between savers and borrowers, between high-growth areas and low-growth areas, essentially responding to the demand for their services (Robinson 1952). As opposed to the previous view, it is the entrepreneurs or enterprising firm that is the catalytic agent rather than the investors. Investors and intermediaries still matter, but the role is more of a passive one for the growth and development process. Notwithstanding the above, the academic literature on the relationship between financial market infrastructure and economic development is unequivocal for the important role that finance plays for economic development (King and Levine 1993, 1995, Mayer and Vines 1993).

SDF's can be defined as government-sponsored commercial investment funds that combine financial performance objectives with development objectives. Most SDFs are created in countries that have broader economic development agendas, unlike a lot of 'developed' Western countries where the role of government is limited, more akin to implementing shorter term measures consistent with liberal economic concepts.

The comparative advantage of SDFs over other types of financial institutions is that they can have proprietary knowledge of local opportunities, privileged access to opportunities and trusted relationships with other investors, public or private. As a result, certain SDFs have been very successful in generating financial returns, despite their dual objectives. Examples of these include Singapore's Temasek, which has generated a 40 year total shareholder return of 18%, Malaysia's Khazanah Nasional Berhard ('Kazanah') has a 10 year IRR of 13% and South Africa Public Investment Corporation (PIC) has a 10 year IRR of 16%.

While recognizing that not all SDFs are created equally, there are a number of key lessons that can be learned from the successfully operating SDFs currently. Research has shown that instead of being detrimental to financial performance, having a secondary or tertiary mandate can lead to a well-governed and managed investment organization with room to be innovative and dynamic in pursuit of additional objectives. Furthermore the fact that SDFs are 'wealth creators' as opposed to 'wealth accumulators' means that SDFs are more likely to help catalyse new enterprises or projects, link their wellbeing to that of their ecosystem and think about sustainability. The less narrowly defined objectives appear to actually empower SDFs to take a path less travelled which leads to innovative and hopefully profitable strategies being implemented. Such flexibility however needs to be coupled with strong governance and management (Clark and Monk 2015).

When it comes to governance, achieving complete independence from the government is unlikely for any

type of Sovereign fund. 'Arms length' or 'Double-Arms length' arrangements[4] should be made whereby the Board of the funds is made up of a mixture of independents and officials. Oversight however, is subject to company law, rather than to a government department. Boards usually should comprise 9 members, mimicking best practice in the private sector around the world (Clark and Urwin 2008). A Management Executive Committee, chaired by a Managing Director, is usually employed to run the day-to-day activities of the fund, including the framing and implementation of investment strategy, management of the investment team and maintaining the operational services of the fund consistent with the fund's objectives. The objectives of the fund need to be clearly stated at the outset and consist of the 'mandate' of the fund, the sectorial and regional focus, and the functional objectives in realizing the fund's mandate (Clark and Monk 2015).

While there are best practice takeaways from SDFs, there are also certain risks to the local economy as a result of a SDF's presence. In order to mitigate destabilizing macro-economic management and undermining the quality of public investment and wealth objectives of the fund, Gelb et al 2014, provide the following guidleines for SDFs: screening investments for commercial or near-commercial financial return; investor partnerships to diversify risk and increase implementation capacity; design governance to insulate it from political pressure; full transparency on individual domestic investments and financial performance.

6.2. National Investment and Infrastructure Fund (India)

The National Investment and Infrastructure Fund (NIIF) was created by the Government of India (GoI) to catalyse capital from international and domestic investors into infrastructure and allied sectors in India. The GoI has committed $3 billion to NIIF with the remaining capital flowing from other long-term investors such as SWFs, pension funds and other development institutions. The NIIF is set up as a company to act as investment manager to alternative investment funds and will be managed by a team of investment professionals. The Governance of the NIIF entity will include a Board of Directors that will have government representatives, investor nominees and independent directors. The NIIF in many ways is a SDF or Strategic Investment Fund as described above with the specific mandate to help deepen India's infrastructure sector.

The NIIF vehicle consists of two main strategies. The first strategy is that of a Master Fund, whereby outside investors will provide founding investor capital to gain ownership stakes in the vehicle. The Master Fund will then invest in specific platform companies set up in different infrastructure sectors such as roads, railways, airports, and waterways. The Master Fund exemplifies the collaborative model of investment identified above, not only in the way long-term investor capital is pooled together (through a co-investment platform independent of asset managers) but also in how the capital is deployed into projects. The commercial nature of the initiative can be seen through the independence in governance arrangement, as well as the partnerships approach to investments. The NIIF Master Fund is not only attracting investor capital into the vehicle itself, but also providing co-investment side-cars into the platform companies that the vehicle invests into. The NIIF will co-invest into the platform companies alongside other commercial institutional investors. The NIIF has currently secured the investment of another SWF, Abu Dhabi Investment Authority into the Master Fund.

The second strategy of the NIIF is to set up a fund of funds vehicle to invest into private equity funds in the infrastructure growth sectors in India. This second strategy is more passive in nature but leverages the entity's position of having deep oversight over the most attractive opportunities in the sector. This stems from: the sponsorship of the Indian Government, the NIIF's positioning as a balanced solutions provider across line ministries, regulators and sector-focused agencies; it strong network with private equity investors in India; its strong credit-worthiness within the Indian financial sector.

As indicated, infrastructure investment is in many ways core to the 2030 sustainable development agenda

[4] See IFWSF governance guidelines for an elaborate discussion on double arms length governance.

directly and indirectly supporting the SDGs. India is one of the largest economies in the world but it also has one of the largest infrastructure investment deficits in the world. It's projected GDP growth for 2018-2019 is estimated at 7.8%. This economic growth rate will largely depend on whether investments into crucial infrastructure sectors will be made. The NIIF, by adopting best practices in governance, capital pooling and deployment, is emblematic of the potential for SWFs supporting the sustainable development agenda.

6.3. Aligned Intermediary for Climate Infrastructure Investing

The Aligned Intermediary (AI) provides a platform for long-term investors such as SWFs to access climate infrastructure investments in a more effective way than methods that have been utilized in the past. Historically, in order to access green energy opportunities, investors would normally seek out a third party asset manager to do an inventory of the investable assets and make investment decisions through a private equity fund structure. The scale and time horizon of these companies however, did not fit within the fund structures of existing intermediaries, causing many of these investments to fail, and investors deterred from the sector.

Despite this, there is a general consensus that a subset of this generation's green energy and technology companies will go on to be the most profitable companies for generations to come. A subset of these will play a catalytic role in driving large-scale reductions in global greenhouse emissions directly addressing SDGs 13, 14 and 15 and indirectly many others such as 3 and 12. Many SWFs share this view and indeed believe that competitive, long-term investment returns can be generated by catalyzing solutions to the climate crisis.

In many ways, long-term investors such as SWFs are the best sources of capital for clean technology companies as they have intergenerational time horizons and can make large scale investments. Making direct investments into clean energy companies however can be very difficult because of the specific knowledge and sophisticated skill set required, which even some of the largest SWFs do not possess.

The Aligned Intermediary was thus formed as a global investment advisory firm to help channel long-term capital into climate infrastructure. The core function of the Aligned Intermediary is to source, screen, diligence, structure and monitor clean and green technologies and companies for the purpose of connecting them with long-term investors. The climate infrastructure industry requires the development of new financial products, business models, measurements and standardization, in order for the required investments to be ramped up over the next five to ten years, and this is what the AI is setting out to do.

The Aligned Intermediary (AI) currently has nine members of long-term investors, two of which are SWFs, that have committed $1.4bn into transactions identified by AI. The AI essentially guides its LTI members around all levels of capital investment in the climate infrastructure space, early stage, growth and project finance. Deals sourced by AI are global, direct in nature and have a minimum investment size of $25million. On top of this, the organization recently started building out a strategy to de-risk climate infrastructure investments in the emerging markets by blending institutional capital seeking market returns with concessionary capital seeking specific social, development, and/or economic goals.

6.4. Government Innovations for Long-Term Investment
Queensland, Australia and Quebec, Canada

As identified earlier, there is a significant role that governments can play to facilitate the flow of long-term SWF capital into infrastructure. A certain number of governments have recognized the importance of partnering with true long-term investors in this way and have thus come up with initiatives to help facilitate the flow of long-term institutional capital into their infrastructure projects.

The first example to highlight is the Quebec Provincial government and CDPQ Infrastructure partnership in Canada. In this case, the provincial government, which had been under pressure as the second most indebted Canadian province with a large infrastructure investment gap, announced that it would hand over the planning, financing and management of new infrastructure projects to the province's major pension fund,

Caisse de Depot et Placement du Quebec. The arrangement can be seen as a more integrated DBFOM PPP model. After the government has identified its infrastructure investment needs, through the agreement, the pension fund has the discretion to select the projects that will help generate a commercial return for its clients and help propose solutions to the government. Various rounds of dialogue between CDPQ and the government will then proceed, after which the government will either accept or reject the proposal. CDPQ will assume full responsibility for all aspects and stages of the project including planning, financing, execution and operations. The projects that are selected will be removed from the government's balance sheet providing somewhat budgetary relief[5].

Such an arrangement allows the government to form a relationship with a trusted long-term partner to help solve its infrastructure investment needs. A key component is that the projects selected by CDPQ have to be able to generate revenues. By investing in the projects and overseeing their operation, execution, financing and planning, the citizens of Quebec are not only benefitted by improved infrastructure, but they are also benefitted from the proceeds of the investment helping to secure their retirement through the pension fund. It must be noted that CDPQ is a large experienced direct investor in infrastructure with significant capability to carry out the function of investing and managing assets. This program was designed to help fund greenfield projects, which historically have been too risky for pension funds and SWFs to invest in. CDPQ will supplement their in-house expertise by working with well-aligned and complementary partners who will help undertake the stages of construction, logistics, and operations. By being involved at the earliest stage of project origination, CDPQ Infra will be able to carry out substantially deeper research and due diligence, and mould the design of the project to ensure mutually beneficial outcomes.

The first project, a new integrated light rail network linking downtown Montreal with the airport is underway for the new partnership. The project will have construction costs of approximately $6.04 billion, and requires government investment to complement CDPQ's investment. The project is expected to add more than $3.7 billion to Quebec's GDP over four years and enable $5 billion in private real estate developments along the route.

The second example to highlight here is that of the Queensland (Australia) Government's sale of its motorway network to the local defined benefit pension fund manager, Queensland Investment Corporation (QIC)[6]. In 2011, the Queensland government transferred Queensland Motorways (QML), a 70 km road network consisting of two major tolled motorways, to QIC under a long-term concession which valued the asset at AUD $3.088 billion. There were a number of factors that contributed to the sale. Firstly, it must be recognised that both the Queensland government had professionalised its services in developing alternative procurement programs for infrastructure assets and the local defined benefit pension fund had professionalised its services to be able to conduct direct infrastructure investments. In the lead up to the sale, system upgrades and the global recession had necessitated increased tolls for users but in 2010 the entity still reported aggregate deficiencies of equity of more than AUD$500m from its major shareholder – the state government. The Queensland government's finances were also deteriorating with the state's credit rating being downgraded in 2009 and the state budget forecasting a deficit of AUD$1.9bn. QML was identified as an asset to sell or lease in order to address the government's budget shortfalls.

At the same time, the state actuary was completing its three-year review of the state's defined benefit pension and found that the fund's liabilities exceeded its assets by more than AUD $1.4bn. As a result and after weighing up the relative disadvantages and advantages of putting QML through a standard competitive tender process, the Queensland government began an exclusive negotiation with QIC on the transfer of a concession agreement for QML. A key rationale behind the transfer was that value would ultimately be

[5] For further information on the CDPQ/Quebec example, please see *World Economic Forum (2016) Innovations in Long-Term Capital Management. The Practitioner's Perspective*

[6] The case study on QIC/QML can be seen at Bennon, M. and Monk, A.H. B. and Cho, Y.J. (2017), In-Kind Infrastructure Investments by Public Pensions: The Queensland Motorways Case Study. Stanford Global Projects Center, June 5, 2017. Available at SSRN: https://ssrn.com/abstract=2981707

captured by the retirees of Queensland. The shared liabilities between QIC and the government reduced the concerns over the valuation of the asset for the public. The valuation and due-diligence process also benefitted from QIC's experience of evaluating infrastructure investments globally and in Queensland itself. Following consultations with external advisors and independent valuations being commissioned, both entities agreed on a market value of AUD $3.088billion.

Following the sale transfer, QIC was able to make significant operational and efficiency improvements to the network, including adding new assets to the system by acquiring a failed tolled motorway and two other Brisbane City council owned roads. In late 2013, the board of QIC, were presented with a unique challenge in that the QML asset had grown sufficiently in size and value that it was over represented in the pension fund's portfolio of assets. The concentration of QML in QIC's portfolio was so great that the fund was forced to assess the divestment of all or part of QML. It was decided that the entire QML asset would be divested (in order to maximise the value of a sale) at a time when competition for operating brownfield infrastructure assets was extremely high. QIC sold QML to a consortium consisting of a local pension, middle eastern sovereign fund and local road operator for AUD$7.057bn, realising a profit of AUD$3.8bn for the pension fund over a four year period. The sale was made between a pension fund and a consortium that also consisted of long-term investors. In normal circumstances, QIC would have held on to QML, being a long-term investor, however, the unique nature of concentration risk through the significant value creation, led to the sale, a decision that was in the best interest of the beneficiaries of the pension fund.

Both of the cases above provide examples of how the arrangement between governments looking for long-term capital for their infrastructure projects and long-term investors such as SWFs can come to fruition. What is crucially required, is a government that has the ability to procure their assets for alternative financing and SWFs with the expertise to execute infrastructure investments and asset management appropriately. There are challenges with the model, including the conflict of interest of each entity in satisfying each of their beneficiaries appropriately i.e. SWFs should only be investing in assets that maximize commercial return in order to carry out their fiduciary obligation. Certain projects of the government however may not be the best commercially viable projects available. What is evident here though is the desire for governments to partner up with true long-term investors, whose long time horizon point to a closer alignment with the public interest. While these cases are located in developed markets, there are attributes of both that could be applied in developing regions where such investment is likely to be of great impact.

7. Implications and Recommendations

While the assets of SWFs have grown in size to over $6.5 trillion, their unique characteristics means that this large sum is not fully available for investment in the sustainable development sectors. The role of SWFs for investing and supporting the 2030 SDG agenda is substantial, however, a deeper understanding of the drivers and influences of the organisations is required to mobilise the capital effectively.

Out of the universe of investable assets, this paper has taken the assumption that investments in long-term private market asset classes such as infrastructure, real estate, agriculture, venture capital and private equity, are the most impactful strategies to support the SDGs. This is because SDG metrics in other asset classes such as public markets are not developed enough but Investors are able to have more control and invest over the long term, thus providing the ability to make a bigger difference. There are unique organizational as well as structural characteristics to SWFs that prohibit a number of these funds from investing in the most impactful asset classes. Furthermore, in regions where these investments would have the most impact, capital markets might not allow these opportunities to come to market or governments do not have the capability to offer them. Investments into these sectors and regions seem to be restricted to the few savings, reserve investment and development categories of sovereign funds that have the required size, sophistication and governance to manage these investments.

In light of these constraints, this paper puts forward the following recommendations to facilitate the flow of SWF capital into SDG sectors:

- More work is required to develop specific SDG metrics that SWFs are able to appraise their investments on, across their entire portfolio. These metrics need to be developed for both portfolio tracking and goal-based impact measurements. Furthermore, KPI metrics need to be developed that can be used by SWFs and their intermediaries to measure how well the fund is adhering to its SDG mandate. These allocation metrics can be goal based or dual-metric based. There is currently a lot of inconsistency around how SWFs incorporate responsible investment or ESG practices into their investment process. The effectiveness and robustness of such practices will depend on the sophistication of the SWF in question.
- The individual SDGs vary in their ability to provide investable opportunities. Further detailed analysis on how the individual SDGs can translate into a reliable long-term investment program that can specifically address the issues at hand is needed. In particular, the social SDGs 1,2,4,5,10 and 16 are currently difficult to purposefully access.
- Governments in emerging economies have a role to play to help attract SWF investment into their high impact sectors. This could be done through the development of SDFs such as the NIIF in India, which provides foreign SWFs a trusted local partner to co-invest in the priority sectors of the government yet attractive for commercial investors.
- Governments also need to develop the skillsets to procure their assets and package them in a way that is attractive to SWF investors. Further examples such as in Queensland, Australia and Quebec, Canada, where governments have recognized the value of partnering with local and international long-term investors should be explored and where applicable replicated in areas in need of investment.
- Ultimately, SWFs, where possible (mainly for savings, reserve investment and development funds), need to adopt a long-term approach to their investment decision-making process. They should be looking to take advantage of their competitive advantage of having scale and time horizon, and make investments accordingly. By doing so, with the right governance and processes in place, they stand to make substantial financial returns for their beneficiaries, and will also be contributing to sustainable development in a meaningful way.

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