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## Sovereign Wealth Funds and Public Financing for Climate Action



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### Definitions

Sovereign wealth funds (SWFs) are savings and investment vehicles established out of receipts from the extractive and trading operations of finite natural resources, trade surpluses, or pension contributions. Serving primarily fiscal and macroeconomic purposes and/or intergenerational welfare purposes, SWFs hold, manage, and/or administer assets with financial objectives, developing a set of investment strategies. SWFs vary in geographical distribution, source of wealth, and objectives. Numerous SWFs are found in developing countries, and a significant number of SWFs manage revenues from hydrocarbon exports.

### Introduction

The 2018 Special Report of the Intergovernmental Panel on Climate Change calls for measures to limit global warming to 1.5 °C, beyond which the

risk of drought, floods, extreme heat, and poverty for hundreds of millions of people will significantly worsen. There is thus immediate need to implement globally robust climate policies and to transform the energy system swiftly and radically. This will depend on the adoption of new production and consumption models, more efficient technologies, and strong mitigation and adaptation measures. Such changes need to take place in both developed and developing countries, ensuring inclusive growth in accordance with the Sustainable Development Goals (SDGs) of the UN's 2030 Agenda. For these changes to happen, fundamental financial shifts need to take place in favor of green finance, including the internalization of environmental “externalities.”

Climate change mitigation and adaptation measures and the achievement of the SDGs necessitate the mobilization of substantial long-term investment capital that has often to be directed in investments that have a much higher social than private impact. Bending the emissions curve so as to limit global warming is estimated to require annual investments of at least USD 800 billion in climate action (PRI-Novethic 2017). In a period of anemic global economic growth and fragile financial markets, there is a limit to how much of the required long-term investment capital will come from private investors, especially for investment in developing countries with thin financial markets. By contrast, large institutional investors like sovereign wealth funds (SWFs) may offer a financing alternative for climate change

mitigation and adaptation projects with high social value added.

SWFs are directly or indirectly government-owned and government-controlled investment funds (Tsani 2013, 2015; Kotter and Lel 2011; Aguilera et al. 2016). They vary in terms of size, geographical location, and operation. Following the inception of the first oil fund in Kuwait in 1953, SWFs have grown in number from 30 in 2000 to over 100 in 2019. Equally impressive has been the increase in the accumulated assets managed by the SWFs worldwide amounting to a total of more than USD 116 trillion in 2019 (SWFI 2019). The growth in the accumulated wealth managed by SWFs and a string of SWF investments in Europe and the USA have generated an intense debate on the role and the incentives driving SWFs investments (Aizenman and Glick 2009; Ahmadov et al. 2011; Tsani et al. 2011).

Some of the world's largest SWFs, the members of the International Forum of Sovereign Wealth Funds, have agreed on a voluntary basis on the Santiago Principles promulgated in 2008. These are a set of 24 generally accepted principles and practices that aim at promoting transparency, good governance, accountability, prudent investment practices, open dialogue, and a deeper understanding of the SWF operations. On the 6th of July 2018, the President of France, Emmanuel Macron, and the Prime Minister of Norway, Erna Solberg, convened a roundtable discussion with the One Planet SWF Group, comprising the Abu Dhabi Investment Authority, Kuwait Investment Authority, New Zealand Superannuation Fund, Norges Bank Investment Management of Norway, Public Investment Fund of the Kingdom of Saudi Arabia, and Qatar Investment Authority, which manage a combined sum of over USD 3 trillion in assets. The meeting marked the publication of the One Planet Sovereign Wealth Fund Framework with the objective to promote the integration of climate change analysis in the management of large, long-term, and diversified asset pools (One Planet 2018). This framework encourages long-term investors to take into account the principles, methodologies, and indicators related to climate change. The framework also aims at the identification of climate-related risks and

opportunities to improve investment decision-making and better inform SWFs' priorities as pivotal financial market actors.

The proliferation of SWFs and growth in assets under their management combined with the difficulties of raising long-term green capital indicates a need to better understand the SWFs and their potential contribution to climate action. While recent trends point to an optimistic view of future developments with regard to green financing being backed up by large institutional investors, the experience with SWFs to date and a closer look at their operational characteristics indicate the barriers that can impede SWFs from leading green financing. This entry discusses the economic rationales that drive the establishment and the operation of SWFs and the links they can have to green financing and sustainable development with the intention to derive useful insights on the role that SWFs can play in supporting climate action. Next section reviews the main characteristics of the SWFs. The third section considers the potential barriers that may impede the undertaking of green investments from SWFs. The last section concludes with some policy recommendations.

## Sovereign Wealth Funds: Typology and Brief Assessment

The decision to establish a SWF is usually related to fiscal and macroeconomic objectives related to the management of finite resources, pension funds, budget or reserves surpluses (Table 1), and the related limitations (illustrated in Fig. 1). Given their primary establishment and operation objective, SWFs are normally classified along the following lines:

*Stabilization funds* are concerned with revenue volatility. In this subgroup belong among others the funds of Azerbaijan and Russia.

*Savings funds* accumulate capital for future generations. They usually make use of the "permanent income" approach based on Friedman's (1957) consumption theory. The aim is to spend over time a share of the fund's revenue that allows the fund's value to remain constant. This enables stable government expenditure. Examples of

**Sovereign Wealth Funds and Public Financing for Climate Action, Table 1** List of indicative sovereign wealth funds that shows the geographical spread, the

difference in age, and in the primary commodity and source of funds managed by the SWFs

Country	Fund	Funding year	Primary commodity/funding source
Angola	Fundo Soberano Angolano	2009	Oil
Australia	Future fund	2006	Budget surpluses, proceeds from the sale of the government's holding of Telstra and the transfer of remaining Telstra shares
Azerbaijan	State oil fund of Azerbaijan	1999	Hydrocarbons
Botswana	Pula fund	1996	Diamonds
Canada	Alberta's heritage savings trust fund	1976	Oil
China	State Administration of Foreign Exchange	1978	Foreign exchange reserves
Greece	Generational solidarity fund	2013	Hydrocarbons and metals
Kazakhstan	Samruk-Kazyna	2008	Hydrocarbons and metals
Kuwait	Reserve fund for future generations	1953	Oil
Mexico	Stabilization fund	2000	Oil
New Zealand	Superannuation fund	2001	Superannuation and retirement funds
Norway	Norway government pension fund	1990	Hydrocarbons
Oman	State general reserve fund	1980	Hydrocarbons
Qatar	Qatar investment authority	2003	Oil
Russia	Oil stabilization fund of the Russian Federation	2004	Hydrocarbons
Saudi Arabia	Public investment fund	1971	Hydrocarbons
Trinidad and Tobago	Heritage and stabilization fund	2000	Hydrocarbons

Source: Authors' compilation based on Tsani (2013), SWFI (2019), and SWFs web sites

savings funds include the Oman State General Reserve and the Kuwait Investment Authority.

*Development funds* serve development purposes by channeling investments to development projects in the infrastructure, agriculture, or research and development sectors. Indicative funds here are the Saudi Arabia Public Investment Fund and the Samruk-Kazyna Fund in Kazakhstan.

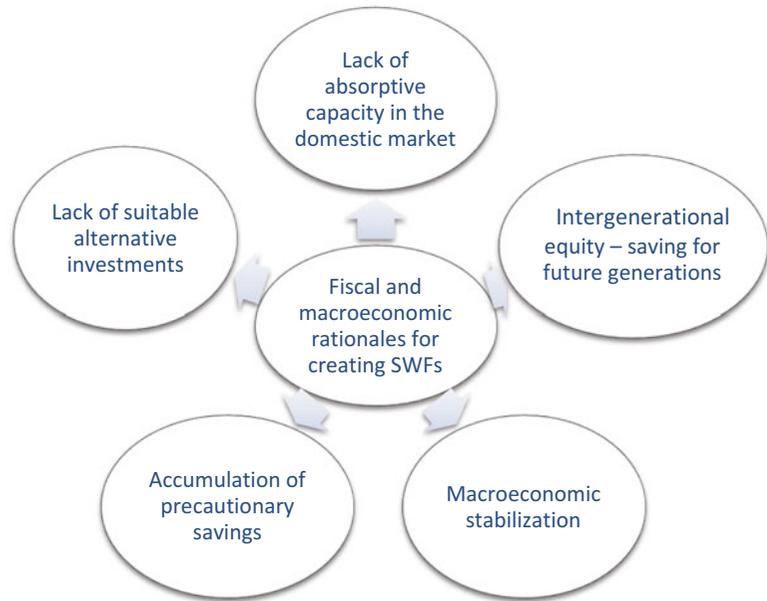
*Pension funds* manage capital saved to pay future pensions. To this group belong the Australian Future Fund, the Norwegian Government Pension Fund, and the New Zealand Superannuation Fund.

*Reserve funds* include funds that manage excess reserves and foreign exchange. Indicative example in this group is the State Administration of Foreign Exchange of China.

The categorization of SWFs is based on their purpose which may be saving, stabilization, or development. However, it is often the case that funds may serve more than one purpose. For instance, a stabilization fund is inevitably also a savings fund. The capital held in a stabilization fund earns a return that can be used to provide future welfare benefits or to finance development projects. Savings funds, being integrated with the budget process, may fulfill an additional

### Sovereign Wealth Funds and Public Financing for Climate Action,

**Fig. 1** Fiscal and macroeconomic rationales in support of sovereign wealth fund establishment. Source: Tsani (2011)



stabilization function as the amounts paid into the fund may vary according to the current price of the country's key export commodity. The Norwegian and Russian stabilization funds have evolved into pension and savings funds, respectively, as the accumulated reserves exceeded the required amounts for short-term stabilization.

### Assessment of the SWFs

Studies on SWFs come mainly from international financial institutions such as the International Monetary Fund and the World Bank (notable works include Das et al. 2009; Al-Hassan et al. 2013; Gelb et al. 2014). The academic literature on SWFs remains rather sporadic but increasing in volume (e.g., Gilson and Milhaupt 2008; Gelpert 2011; Haberly 2011; Johan et al. 2013; Miceli 2013; Rose 2013). The existing literature on SWFs can be divided into two broad thematic categories. The first and largest includes the qualitative, conceptual, and comparative assessment of the funds and the track records and experiences of selected countries. The second category of literature, which is significantly smaller, includes quantitative analysis of the relationship between SWFs and fiscal and macroeconomic outcomes (see, for instance, Barnett and Ossowski 2003;

Avendano and Santiso 2009; Ossowski et al. 2008; Coutinho et al. 2013).

The analysis to date shows that SWFs can be effective tools of economic policy. Governance structures and supportive constituencies remain important for the successful performance of the funds. With regard to the experience in countries that have opted for resource-based SWF establishment, the empirical evidence has led to mixed results. These have been attributed to the differentials that SWFs experience in their establishing goals and the objectives attached, the challenges adhering to the fund rules, the organizational set-up of the funds, and the degree of fiscal discipline in each country.

The mixed results of SWFs have led to the developments of a variety of arguments for and against their creation (see Tsani 2013 for a detailed discussion). Arguments in favor of SWFs are that they effectively address problems of resource price volatility, fiscal and macroeconomic stability, and intergenerational equity of resource revenue share. If coherently integrated with the budgetary process, SWFs can help maintain unified control over fiscal policy and expenditure coordination and thus support macroeconomic stability (Davis et al. 2001). On the opposite end, the usefulness of the funds as

fiscal tools of self-insurance is challenged, as SWFs may either accumulate or exhaust revenues endlessly. The main question here is whether SWFs are merely veils, adding little to economic performance and political economy, or whether SWFs can have real effects.

### SWFs, SDGs, and Climate Action

A small number of recent studies look into the links between SWFs, SDGs, and climate action (e.g., Braunstein 2016; Sharma 2017). SWFs may support climate policies and sustainable development through the financing of infrastructure and development projects, through more efficient management of public wealth and its indirect impact on the private sector and through debt and government spending management. Financing of infrastructure and development projects is at the core of development funds and relevant to several SDGs (1, 4, 6, 7, 9, 11, 13, and 17). Efficient management of public wealth (related to SDGs 1, 2, 3, 4, 10, and 16) is of relevance for all the different types of SWFs and particularly important for saving and stabilization funds.

With regard to climate policies and solutions (SDG13), SWFs may offer the necessary financing for long-term mitigation and adaptation projects with high social impact (relevant to target 13.1 and 13.2). Moreover SWFs may impact on the global capacity to tackle climate imperatives on the global commitment to achieve the climate targets (relevant to target 13.3 and 13A). Last, SWFs operating in least developed or small (island) economies may provide the necessary funding and means for raising awareness and implementing development projects that are aligned with climate targets (relevant to target 13B).

In recent years, many institutional investors, including SWFs, have started investing in alternative assets like green infrastructure, agriculture, and real estate. In many oil-producing countries, diversification efforts to reduce dependence on oil have been going on for decades but have recently been transformed into low-carbon investments on the part of SWFs. For instance, Masdar, owned by the Abu Dhabi SWF Mubadala, acquired 80% of Shams Power, a world leading concentrated solar

power plant (Graves 2016). In 2017, Mubadala acquired a 25% ownership in Hywind wind park in the UK in 2017 (SWFI 2017). In April 2019, the world's largest SWF, the pension fund of Norway, received the green light from the Norwegian government to invest in renewable energy projects that are not listed on stock markets, including wind and solar parks (Carrington 2019; Local 2019).

Well-managed SWFs can indeed support the implementation of climate policy through investment in high social impact green projects, the improvement in public spending, and the fostering of international competitiveness. Through the employment and the promotion of commonly accepted investment standards and practices (such as the Santiago Principles or the One Planet Sovereign Wealth Fund Framework), SWFs can further promote sustainable development through the financing of more green and ethical investment. For countries that operate hydrocarbon-based SWFs, this shift to green investments can have profound implications for their economic diversification and smooth transition to the post-oil era. Investments in clean energy production, renewable energy, and the electrification of transport can enable traditional oil and gas producers to close the gap with other economies in the race of new clean technologies and possibly reap first mover technological advantages.

Despite the potential of the SWFs to undertake green investment, the number of funds that engage in such investments and the amount of SWF capital that goes into green financing remain small. According to World Bank estimates, green investments accounted for 0.7% of the total value of all reported SWF deals between 2006 and 2016 (Halland et al. 2017). SWFs involvement in green financing remains below the average of institutional investors. According to the Asset Owners Disclosure Project, which evaluates institutional investors on the basis of their low-carbon performance, five of the ten lowest-rated large investment funds were SWFs (Halland et al. 2017). Next section discusses *why* SWFs despite being well positioned to undertake green investments yet underperform in this area.

## Some Considerations for Sovereign Investors

According to an assessment of global investor practices, 74% of asset owners state that climate change is one of the most important long-term trends for investments (PRI-Novethic 2017). Nevertheless, just 17% of asset owners apply climate change considerations to asset allocation. Climate- and sustainable development-related investments necessitate patient investors with a longer-term vision and long-term assets under management. In addition, the social benefits of such investments might be greater than the private returns. In the absence of appropriate market mechanisms that incorporate social benefits into the decision-making process of private investors, climate- and sustainable development-related investments might be unattractive.

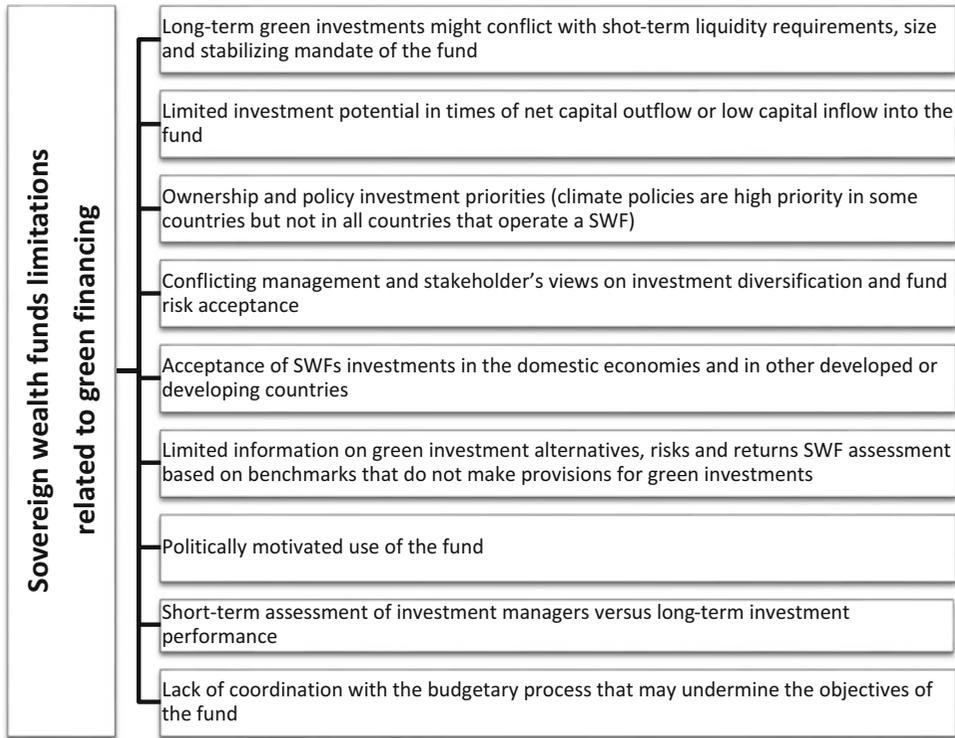
SWFs often serve intergenerational welfare purposes and take very long-term positions. This should give them a higher tolerance for short-term risk and put them in a better position to invest in longer-term green investments such as green infrastructure. While in general SWFs can invest in long-term assets, their short-term liabilities and need to make payments in the near future limit their ability to undertake long-term green investments (Fig. 2). SWFs may be better positioned for green investments when they record a net inflow of capital into the fund. But often funds record a net outflow of capital (especially resource-based funds in times of low resource prices). Capital outflows impact on the available climate financing but also on the type of assets that SWFs may choose to hold in their portfolios.

The risk profile of a SWF is determined by the rules governing the fund, the links with the overall budgetary process, and oversight issues. These factors put pressure on SWFs to mobilize investments in different directions (e.g., public opinion that demands more long-term climate-related investments versus policy makers that worry with the holding of long-term illiquid assets). The time required for decision-making and the levels of governance engaged in the decision-making process may further discourage climate-related investments. This is linked to the different

perceptions and priorities that each level of governance and/or stakeholder groups can have with regard to the risks and the returns associated with alternative investments.

In many cases SWFs need to serve policy goals that not always align with social needs and public opinion. Following the Paris agreement, the establishment of the Task Force on Climate-Related Financial Disclosures and the One Planet Sovereign Wealth Fund Working Group, perceptions on SWF investments seem to change. Nevertheless, this cannot be considered in any case as universal or yet robust enough. In countries where climate is not high in the policy agenda or is not perceived as a high financial risk, investment of sovereign assets into climate-related projects might not be a priority or might be considered a deviation from the long-term policy objectives. Moreover, green financing can be used as a cover for politically motivated investments or corrupted use of funds. (The politicized use of SWFs has been in the recent past, the reason for which SWFs investments in Western markets have been welcomed with skepticism (Ahmadov et al. 2011).) SWFs that invest in the domestic economies may be subject to political interference that may undermine the macroeconomic objectives of the funds or the realization of viable investments. This is related to the lack of creditors to exercise independent due diligence. It further impedes public financial management, accountability in public investment, and transparency in decision-making (Bauer 2015).

Asset allocation of SWFs is determined in large by the policy objectives, fund maturity, and the existing risk constraints (Gilson and Milhaupt 2008; Haberly 2011). In the first years of their operation, SWFs may choose to adopt a low-risk strategy investing only in high-grade fixed income securities. As the funds become larger and the respective governments may gain confidence in the fund management and the investment advisers, they may choose to diversify their asset allocation and make long-term green investments. In addition, governments may be concerned with the location of the funds' assets, specifically with regard to the funds that can be invested in the domestic economy. The



**Sovereign Wealth Funds and Public Financing for Climate Action, Fig. 2** Potential limitations to the undertaking of climate-related investments from sovereign wealth funds. Source: Authors' compilation

investments in the domestic economy come in support of the local firms. Nevertheless, they have to address problems of domestic absorptive capacity.

The financial management of SWFs deserves special attention when assessing their ability to undertake climate-related investments (Sharma 2017). The financial management of the SWFs is often reviewed against financial benchmarks (e.g., S&P 500). Managers are assessed based on short-term performance in cases when external managers are appointed. This assessment may discourage from longer-term investments. There is a need to update the benchmarks used for the assessment of the institutional investors that adequately capture the costs and the benefits of green investments. If these benchmarks are not updated soon, there is a risk that institutional investors will be asked to undertake green financing, while they are also penalized for doing so when their performance is assessed.

Like other investors, SWFs face information asymmetries and limited data availability on climate-related investment opportunities, environmental impact, and performance/goal achievement measurement. Despite the recent related efforts to measure and assess green investments (see Inderst et al. 2012), progress has been slow and not enough so as to encourage investors to take up more investments. Limited information on green investment opportunities together with long-term investment constraints induced by management practices may further limit the ability of SWFs to invest in climate and sustainable development projects. Limited information about the new green market may deter SWF management from opting for longer-term green investments as it is often assessed on short-term performance and accepted risk.

This indicates further the need to establish in the SWF management a strong belief in the long-term green investment strategy and a deep understanding of any arguments against climate-related

investments before these can be made. This understanding needs to be backed up with adequate quantitative estimations and scenario analysis. Such analysis is inherently uncertain. A way to compensate for this is to assess different variants of future developments in order to get a richer characterization and assessment of the alternative future paths. However, this can be a costly and lengthy procedure that requires a lot of expertise which is lacking or overly expensive for many (developing) countries.

In many cases SWFs are not allowed to invest in the domestic economy. This is particularly the case for oil-based SWFs, which aim at protecting the economy from overheating or Dutch disease effects. Nevertheless, green investments might offer attractive returns in the home country, or the home country may have the greatest need for climate-related investments. In this case, management of the capital accumulated in the SWFs might be trapped between conflicting mandates of not investing in the domestic economy and investing in projects with the highest return (including the energy sector, climate change mitigation, and adaptation), which might be in the domestic economy.

## **Concluding Remarks and Policy Implications**

The analysis of the main SWFs characteristics and the potential challenges related to green financing show that governance and oversight remain detrimental for SWF engagement in climate and sustainable development investments. Good governance is essential for the development of robust long-term investment strategies for SWFs. Political independence is crucial so as to ensure that SWFs' investments are not politically motivated. Political independence is further important for the acceptance of SWF investments from the public and foreign host countries. Independence necessitates a clear distinction between the dual role of the state as an owner of the SWFs and promoter of investments. Good governance is also essential so as to build communication channels between the different stakeholders that

oversee SWFs and the financial managers of the fund. Clear communication channels are important for all parties to fully understand the objectives of the SWFs, investment priorities, associated risks, and returns of the different investment alternatives.

Good governance should be coupled with high levels of transparency that can allow for the close monitoring of SWF investment practices. Transparency is important for the end beneficiaries – the residents of the country that operate the fund – and for the countries that are recipients of the SWF investments. When fund operations are transparent, local communities and residents can follow closely the investments made by the funds, assess their performance and management, and not feeling alienated from their current and future wealth. Transparency is also important for the acceptance of investments from host countries as it can lower concerns for politicized investments.

In cases where climate policies and sustainable development goals necessitate intervention through small-scale projects, active partnership with governments and aid organizations might be helpful. The creation of pooling mechanisms that bring together small investments into larger investment projects would make it easier for SWFs to invest.

SFWs need to develop tangible green investment policies and targets and appropriate performance indices and strategies and to actively participate in sustainable investment coalitions or platforms. These require resources and time to build and might appear costly in the short run. Nevertheless, they can pay off in the longer term and can be part of the greater efforts of institutional investors to develop green investment criteria and indices of performance. Here the role of the governments in supporting national and international efforts is important.

The update in investment priorities along with the improvements in SWF governance can be supported from international efforts such as the Santiago Principles and the International Forum of Sovereign Wealth Funds and the One Planet Sovereign Wealth Fund Working Group. Governments can further encourage green investment through explicit government policies that will

require from the institutional investors reporting on how they integrate climate and sustainable development goals in their investment portfolios. Developing, more open, democratic countries, and countries in which climate change is high on the policy agenda may bear a greater burden in promoting sustainable investment practices as they are faced with greater pressure on greening their investment portfolios. Their increasing green investments will facilitate the building up of momentum and of a critical mass of sustainable investments. This in its turn may put increasing pressure on more SWFs to join.

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