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Book

Sovereign wealth funds' investments and climate change

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Working Paper

Sovereign Wealth Funds' investments and climate change

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CIRIEC No. 2024/06

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Sovereign Wealth Funds' investments and climate change

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Working paper CIRIEC No. 2024/06

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Abstract

In recent decades an important resource-accumulating agent, whose financial investments have spread across the world, has emerged: The Sovereign Wealth Fund (SWF). This capital comes chiefly from economies that control natural resources and from budget surpluses that some nations can generate. The principal players are in the Middle East and Asia, whose resources come from oil and associated exports. SWFs, with their huge investment portfolios, have taken control of companies around the world, becoming, in turn, not just a principal provider of resources for the businesses but also creditors of various countries, with the objective of diversifying their investment portfolios. In practical terms, SWFs are state-owned investment vehicles that invest globally in various types of assets ranging from financial to real to alternative assets.

The main purposes for their establishment are stabilising government and export revenues (fiscal), accumulation of savings for future generations in resource-rich countries to offset the future lack of natural resources (savings), and or/the management of foreign reserves. SWFs, however, could be pursuing more than one objective, mixing macro (fiscal, savings, reserves management) and development issues. SWFs are then capable of solving the Dutch Disease that characterise natural resource rich countries, even having a key role in transforming the economic structure. Developmental issues were basically associated with (traditional) industrial policies; SFWs goals, however, have recently, although timidly started to expand to include sustainable goals, as climate change issues. In Latin America, SWFs have mainly pursued macro-stabilization goals, whereas development related objectives are increasingly considered by funds in Asia and Africa. Furthermore, whereas the latter group has timidly begun to explore and invest in "green", Latin America keeps ignoring the issue due to its fiscal restrictions and urgent needs of income.

Keywords: Sovereign funds, Climate change, energy transition, Investments and Financing

JEL Codes: F3, F55, H23, Q01

1. Introduction

In the IPCC Group II report (IPCC, 2022a), the scientific community warns us over the urgency of action: if transformative action is not taken now, the global catastrophe would be real. The report clearly indicates that the places where people live, and work may cease to exist if the world fails to cut emissions in half by 2030. Global net anthropogenic Greenhouse Gas (GHG) emissions during the last decade (2010-2019) were higher than any previous time in human history (IPCC Group III Report, 2022b). Securing a safe and just society operating within the planetary boundaries is crucial, and access to finance is crucial to manage the transition needed to achieve it.

Traditional finance prioritises short-term gains which does not allow to finance infrastructure in the long term, which is necessary to tackle climate change. Before humanity realised the real relevance of the climate crisis, however, the world suffered a global financial crisis in 2008. Therefore, when the COVID-19 crisis started, the neoliberal model was already under scrutiny. Financial markets pitfalls led the International Monetary Fund (IMF) to reconsider its former position on capital controls, whereas the COVID-19 crisis made the Financial Times to call for market regulation¹. Strong financial markets, however, still have strength, threatening governments around the world if challenged. Challenges are more acute among emerging economies and developing countries (EEDC), with reduced long-term financing options and limited capital development.

In response to these trends, originally observed in the wake of financial crisis in the 1990s, and to safeguard their autonomy and power, several (emerging market economies) governments have set up long-term financial schemes, commonly referred as sovereign wealth funds (SWFs or Funds, thereafter). Almost 60% of funds corresponds to oil or gas, while 40% corresponds to Asia and 35% the Middle East (Global Sovereign Wealth Fund, 2021). Thus, the main contributors to these funds are countries with oil reserves, which generate funds with profits from the extraction of this raw material.

Whereas global financial flows have been recently flourishing, most of the funds might observe a short-term speculative character. If the analysis goes to energy-related foreign direct investment (FDI) flows, most of the capital inflows favours non-renewable projects. In other words, the funding problem has two main drawbacks (short-termism, non-sustainability) that should be addressed. To meet the 1.5°C and 2°C and CO₂ targets fixed at Paris, additionally,

¹ FT Editorial (2020) "Virus lays bare the frailty of the social contract" Financial Times, April 3, 2020.

a large portion of world oil and gas reserves need to remain stranded (McGlade and Ekins 2015; Welsby et al., 2021)². Henceforth, the associate carbon budget would put Funds' expected cash flow under challenge. A delayed deployment of climate funding and consequently limited alignment of investment activity with the Paris Agreement tend to strengthen carbon and thus to increase the magnitude of stranded assets (IPCC, 2022).

2. Climate change and long-term financing

The 2018 Special Report of the Intergovernmental Panel on Climate Change calls for measures to limit global warming to 1.5°C, beyond which risk of drought, floods, extreme heat, and poverty for hundreds of millions of people will significantly worsen. The future is highly unknowable and unpredictable; we live in a world of radical uncertainty (Weitzman, 2009; Kunreuther et al., 2012; Thomä and Chenet, 2017; Chenet et al., 2019; Bolton et al., 2020).

Climate Finance relates to finance whose expected effect is to reduce net GHG emissions and/or enhance resilience to the impacts of climate variability and projected climate change (IPCC, 2022b). The tragedy of the horizon became the central metaphor on Mark Carney 2015 speech, when he described the need to simultaneously address climate change and financial risks as both events remain closely interrelated (Carney, 2015). During the same year, two other key events took place. First, the United Nations Climate Change Conference at Paris, where global leaders reached a global agreement on the reduction of global temperature to 2°C. The enactment of the UN Sustainable Development Goals (SDGs) became the second, a template of series of societal, environmental and governance goals where climate related issues are central. For all these problems and challenges, long-term funding becomes crucial, a crucial factor permitting reaching all the goals as stated at Article 2.1c, Paris Agreement when asking member states to make *"finance flows consistent with a pathway towards low greenhouse emissions and climate-resilient development"* (UNFCCC, 2015).

Aware of the challenges life on earth is facing, sovereign funds would need to reset priorities and redirect funds to protect citizens from the catastrophe. Unfortunately, almost all SWFs remain attached to a fiscal rule, basically directed to insulate the economy from volatility as to preserve the fund's value for future generations. Fund goals often include both economic and ethical considerations,

² Fossil fuel reserve and resource estimates exceed the equivalent quantity of CO₂ with virtual certainty, leading to the stranded assets of fossil-fuel companies amounting to 90% of global coal reserves, 60% of global oil reserves.

but the former prevails. Traditional risk management models do not reflect climate risks appropriately, as non-linear, non-cyclical, long-term risks are likely to be missed. When analysing the viability of an investment, therefore, Fund investors only observe the rate of return. It is all that matters, as they detach themselves from the social and environmental consequences generated by the project being considered.

This behaviour reflects the predominant neoliberal vision associated with Friedman's doctrine "The Social Responsibility of Business is to Increase its Profits" (Friedman, 1970) or, in other words, the business of the business is business, which prioritises short-term gains and narrow focus neglecting all societal and environmental costs the firm might generate on the society (externalities). Additionally, the vision disregards the long-term risks and thus refrains from financing the infrastructure necessary to avoid the climate tragedy. Through all the talk about sustainability, one clear message is delivered to the boards and managers of listed companies: maximise returns (Lazonik and O'Sullivan, 2000; Schoenmaker and Schramade, 2019). The social norm of shareholder primacy has led to a short-term and narrow focus on what is falsely perceived to be the duty of the companies, including those that do have a long-term mandate as SWFs. Shareholder primacy becomes in plain contradiction of SWFs scope.

Climate risks represent a major source of systemic risk, particularly for those investors whose portfolio concentrates on carbon-intensive economic sectors. This might force managers to leave the short-term vision that currently characterises their decision-making process. Climate change exposes investors to massive losses and to a new type of (physical) risk, but the calling for an increase in investments in transition might induce the likelihood of a new (financial or transitional) risk, closely related to the presence of the problem of stranded assets³. A new risk emerges for those with no influence in transition dynamics, oil and gas industry marginal players: a spillover negative effect threatening sovereign fiscal and external balances (Monasterolo and Gallagher, 2021).

Objections to the traditional vision on finance are not just found in academic circles but are increasingly coming from business groups and investment funds (Hart and Zingales, 2017; Dyllick and Muff, 2017)⁴, or recommended

³ The stranded asset problem reflects a change in asset valuation, as assets might suffer from unanticipated or premature write-downs, devaluations, or conversion to liabilities. <https://www.thesustainableinvestor.org.uk/are-we-thinking-about-stranded-assets-incorrectly/>

⁴ Over 1.500 finance institutions around the world, representing over US\$ 40 trillion in assets, have already committed to some level of fossil fuel exclusion (Stand.earth "Fossil fuel divestment movement hits \$40 trillion in represented assets" February 22, 2022 webpage: <https://www.stand.earth/advisory/divestment-40-trillion>).

by ethical committees to SWFs (Sjåfjell et al., 2017; Bhopal, 2021). According to the IMF (2023a), a major share of climate mitigation investment in emerging market economies must come from the private sector. However, it is necessary to close the gaps in the perspective of financiers. So, there exist still asymmetries of information and uncertainty due to the horizon. It therefore supports an alternative view on finance: sustainable finance (SF), which looks at the intersection of finance with economic, social, and environmental issues (Schoenmaker and Schramade, 2019). The “tragedy of the horizon” imposes complex decisions while bringing new questions to the profession, new tasks for governments. It implies leaving the short-term situation that currently characterises the markets, which disregards the long-term risks and thus refrains from financing the infrastructure necessary to avoid such tragedy (Tragedy of the Horizon Program, 2017). But: how to transform the economic agents’ decision-making process?

SF assesses value creation from another vision, aimed to adopt a long-run perspective, in short, to think in the common good. SF calls for rethinking the financial system and ensuring that the banks also fulfil their social function. Obviously, to ensure the resilience of the system, prudent liquidity management is essential as well as keeping the system simple; such is the legacy of the global financial crisis. To move forward with decarbonization SWFs investment decisions must be reconsidered: to avoid polluting companies, placing funds in green companies.

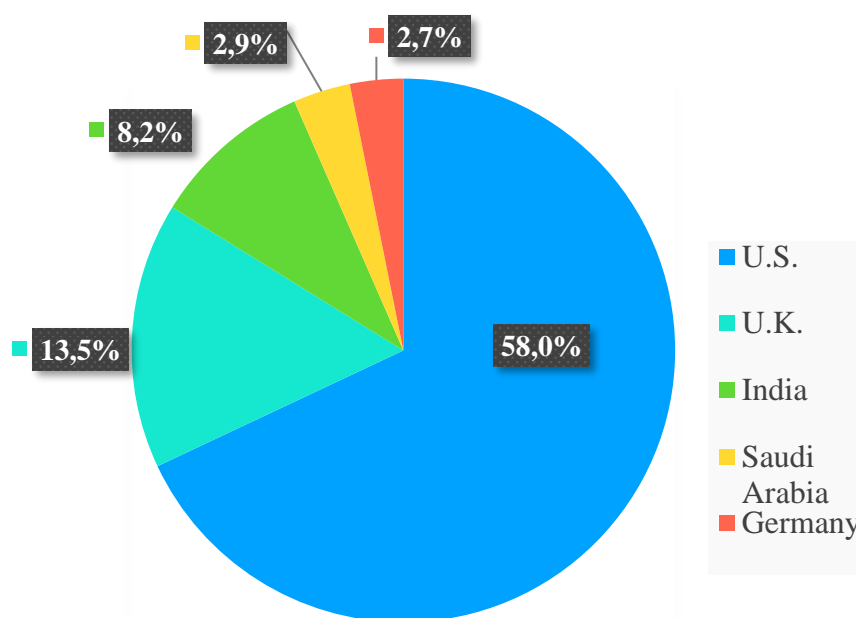
The “tragedy of the horizon” imposes complex decisions while bringing new questions to the firm’s financial management. How to transform the Fund’s decision-making process? How to mobilise funds to finance alternative energy if investments in traditional industries are more profitable than green ones? How does the presence of (market) failures and the (underdeveloped) nature of financial markets influence the outcome? Why should authorities avoid a green financial bubble? How to assess the magnitude of the exposure to these risks for SWFs, and ultimately for future generation’s savings?

3. Sovereign wealth funds and climate change

Funds are becoming a major, transforming force in global capital markets, quickly expanding all around the world (including natural resources rich countries in the Global South), emerging as major investors in corporate and real resources worldwide. As Megginson et al. (2023, p. 1) show *“Sovereign wealth funds (SWFs) have over \$11.5 trillion in assets under management (2023) and most of these 176 funds are sponsored by non-Western countries and*

their growth has made SWFs important international investors, particularly in private equity funding". Their increasing impact in global financial markets gives them an important leverage role, which could be used to induce large market transformations.⁵ However, this view needs to be deepened and discussed. With the data provided by IE Center for the Governance of Change (2023) (Graph N°1), USA and UK during 2022 have the largest share of the total deal volume of sovereign funds (71%), being the other two top destinations Saudi Arabia and India. It poses a challenge for developing countries in terms of attracting financial resources to carry out energy transitions which are essential to fight climate change.

Graph N°1: Top 5 destination countries in 2022 by deal volume



Source: Sovereign Wealth Research (ICEX - Invest in Spain and IE University, 2023).

One of the leading justifications for creating a SWF lies natural resource rich nations' failure to save the wealth being generated after a commodity boom (the resource curse), but also originated from the proceeds of privatisation, and foreign exchange reserves. These investment vehicles, in short, are usually funded by *"commodity export revenues or the transfer of assets directly from official foreign exchange reserves. In some cases, government budget surpluses*

⁵ Incentivized to monitor, Funds often take position in the boarding rooms of companies in which they invest.

and pension surpluses have also been transferred into SWFs” (Butt, Shivdasani, Stendevad, & Wyman, 2008).

Usually defined as government-owned and controlled funds, the sovereign wealth funds are defined as *“a special investment fund created by the government to hold foreign assets for long-term purposes”* (IMF, 2007, p. 45). In other words, SWFs should be considered as strategic investors not wealth maximising ones (Bahoo et al., 2020). Kotter and Lel (2011) define them *“as government-owned investment vehicles with no explicit liabilities to their owners other than internal to the government, significant exposure to high-risk foreign assets, and a long-term investment horizon”*. For Helleiner (2009), SWFs could be defined as *“state-owned or state-controlled pools of capital that are actively invested, at least partially, outside the country.”*⁶ Under public governance, functionally SWFs are expected to behave as private investors (Richardson, 2011)⁷. Others define Funds as pools of assets serving national governments to project their geopolitical and strategic interest abroad (Cumming et al., 2017; Haberly, 2017), and managed directly or indirectly to achieve national objectives (Blundell et al., 2008; Bernstein et al., 2013).

SWFs objectives, therefore, range from macroeconomic or stabilisation ones, but also pursuing geopolitical, socio-developmental, long-term growth goals. Stabilisation funds are created with the objective to assist balancing short-term fiscal positions: a contra-cyclical fund directed to insulate the budget and the economy against volatility. Reserve funds are set up to the benefit of future generations, often feeding from commodity windfalls. Developmental or strategic investment funds, in turn, are created with the objective to fund long-term projects as to promote investments in some specific sector. Developmentalist SWFs are channeling investments to projects aiming to economic diversification and structural policies, which might be key to move towards a sustainable growth path (Gelb, Tordo, & Halland, 2014). Funds’ investment strategies, in this sense, are wide ranging, mostly focused on debt and relatively small non-equity stakes; although an increasing number of deals involve quite substantial or even controlling shareholding (Cumming et al., 2017).

Considering the transparency of the SWFs, Cuervo-Cazurra et al. (2023) point out that some conditions of the country-home of SWFs seem to impact their transparency (see Annex 1). Applying the agency theory under this context, the democratic governments and with better national institutions:

⁶ Some Funds are directly prohibited from domestic investments.

⁷ The traditional, neoliberal vision on SWFs, recommends (independent, external) managers to follow investment strategies with the high price-to-earnings industries (Bernstein et al., 2013).

may make it easier to enforce the rights of the government and citizens as principals vis-à-vis fund managers and target firms abroad (Cuervo-Cazurra et al., 2023, p. 319). It is basically because more transparent systems reduce the conflict of interests when the public policy is not guided for the interest of citizens. In this context, state investment in private firms increased around the world through SWFs and it does not guarantee that these investments benefit the public interest. Therefore, the abroad investments of SWFs are very informative for the citizens because they could know the real agendas of governments. And it depends on the quality of democracy.

On the other hand, financial assets might be managed on behalf of the general interest (Richardson, 2011), aiming to preserve value for future generations well-being. This means that SWFs are supposed to allocate their assets in the best interests of the people, with the social and environmental performance as important as the financial one (Al Ayoubi and Enjolras, 2022). Proclaimed as having a long-term vision, Funds' investment strategies, however, remain short-term oriented. To some extent, this reflects sovereigns' originally attempt: SWFs were designed to capture the benefits of financial globalisation, therefore, following global financial investors' short-term strategies (Haberly, 2017). However, some Funds, particularly those originated in Asia, have also embarked towards the achievement of long-term developmentalist goals (Dixon, 2022). A *"double bottom line"* strategy (Haberly, 2011), pursuing shareholder returns and developmental externalities, which might end up in a sort of *"financialization of development"* as described by Dixon and Monk (2014). By virtue of the SWFs, capital flows started becoming bidirectional, with sovereigns from the South starting to invest in financial as in real (strategic) assets in the North (host). The political clash confronting Developed Countries (DCs), and Emerging Economies (EMEs) does not originate in the shareholder value strategy but in the role played by the market.

As wealth preservation for future generations represents one of the most influential goals, if not the main one, Funds actions should be directed to reduce greenhouse emissions considering that decisions made today have climate implications which largely affect the interest of future generations (Sjåfjell et al., 2017; Bhopal, 2021). This explains why a huge branch of literature starts to investigate the relation of SWFs and sustainability, although for most studies an empirical measurement of sustainability commitments made by these funds as well as the quantitative analysis of factors influencing their behaviour are still missing. In November 2016 during the annual meeting of the International Forum of Sovereign Wealth Funds (IFSFWF), a sub-group decided to explore the investment implications of the global commitment to curb greenhouse gas emissions and to identify the most relevant and pressing challenges

and opportunities with a view to establishing a long-term program on this subject. A year later a group of six SFWs decided to establish the “One Planet Sovereign Wealth Fund Working Group”, committed to develop an environmental, social and governance framework (ESG Framework) to address climate change issues⁸.

Funds might be thought as natural institutions to solve this problem, the inter-generational saving gap previously mentioned and observed elsewhere. SWFs are an important source of investment, patient capital. As observed by the UN – Environment (2018), policymakers should ambition a broad, green mandate to SWFs, to move away from hydrocarbons and tapping funds into burgeoning sectors such as clean technology, renewable energy, and low-carbon transport, and enhancing resilience against climate change. This timid but expanding role is promising, as observed by Tsani and Overland (2020), *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*. Unfortunately, SWFs involvement in green financing remains below the average observed among other institutional investors (Halland et al., 2017).

Funds are long-term, patient investors, which need to focus on sustainable investments but are not. Over 1500 finance institutions around the world, representing over US\$ 40 trillion in assets, have already committed to some level of fossil fuel exclusion. It is time for SWFs to follow the example. Through all the talk about sustainability, one clear message is delivered to the boards and managers of listed companies (where SWFs decided to invest their surplus funds): maximise returns. This does not contradict the pursuit of the social justice goal (current generation mandate) (Heffron, 2018)⁹, although it affects the environmental one (intergenerational mandate).

Independently of the type of fund (stabilisation, reserve, developmental), portfolio decisions have social as environmental implications. Funds, henceforth, should avoid undertaking unethical or harmful investments decisions. Management perceptions, fortunately, might be changing (Velayutham and Hassan, 2021).

⁸ The “One Planet Sovereign Wealth Fund” framework encourages long-term investors to consider the principles, methodologies, and indicators related to climate change. It also aims to also identify climate-related risks and opportunities.

⁹ SWFs could better deal with redistribution than the traditional taxing system, permitting authorities in least-developing countries to circumvent multinational tax evasion practices.

After the global financial crisis, SWFs realise the need to switch their portfolio from short-term assets towards long-term investments in all sorts of industries and sectors.

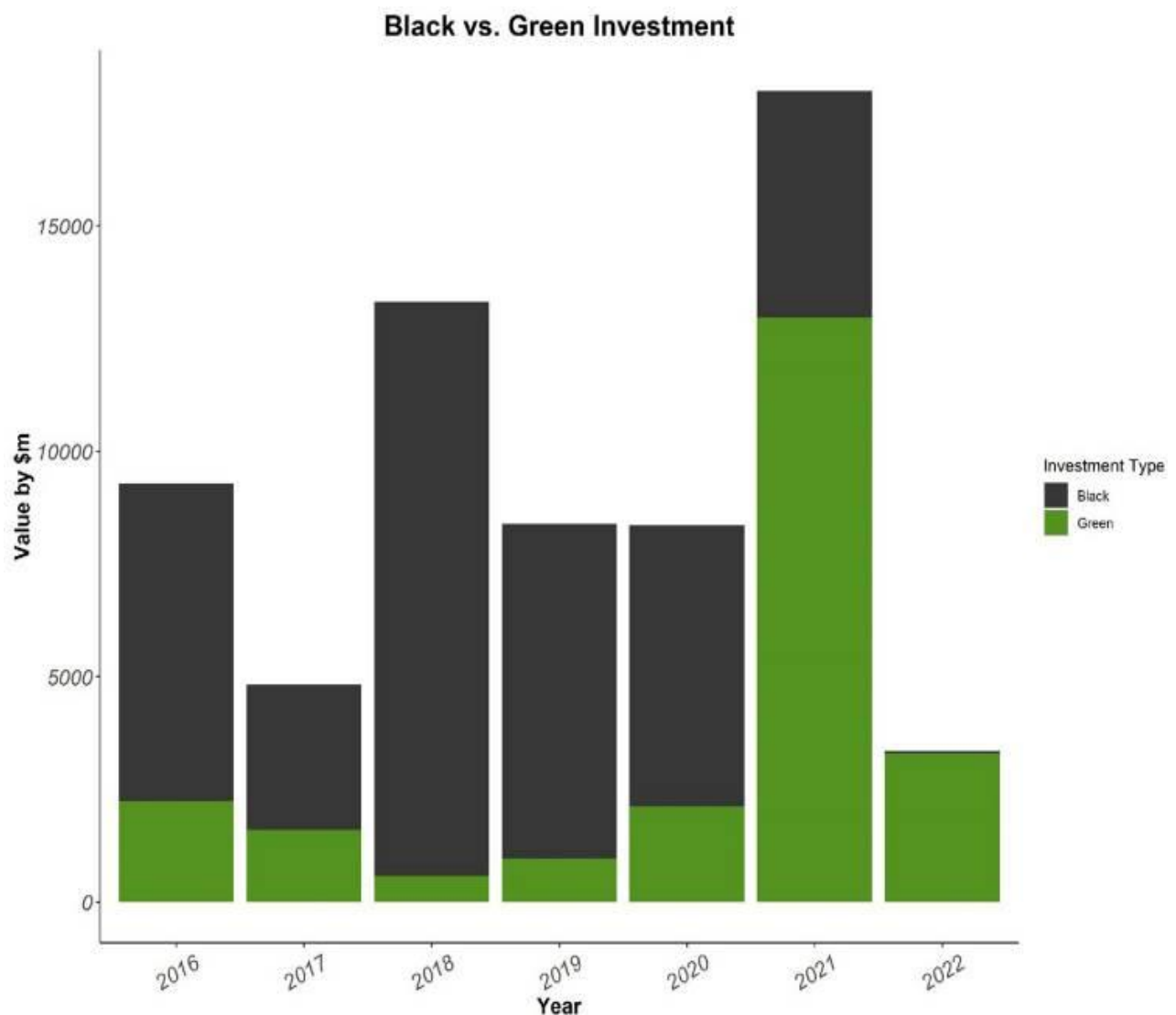
By conviction, convenience or being pressured by the civil society (Al Ayoubi and Enjolras, 2022)¹⁰, Funds' management had soon realised the need to fulfil the sustainability mandate. A socially responsible investments (SRI) framework guides investment and divestment decisions, considering both economical and ethical considerations¹¹. Consider, for example, the establishment of the Task Force on Climate-Related Financial Disclosures created by the Financial Stability Board in 2015 following the Paris Agreement or, more specifically, the One Planet Sovereign Wealth Fund Framework initiative launched in July 2018 by the President of France, Emmanuel Macron, and the Prime Minister of Norway, Erna Solberg (<https://oneplanetswfs.org/>). In sum, whereas actions were mostly associated with economic reasons (financial risks assessments), ethical issues are becoming somehow relevant at Funds' investment decisions (Nilsen et al., 2019; Wurster and Schlosser, 2021). Recently, and under the ethical council, Rio Tinto, a miner company faces possible Norway fund divestment over alleged environmental damage in the Brazilian Amazon (Steinberg, 2024).

The increasing awareness of climate change, as the recognition of climate related risk is pushing large institutional investors to adopt a qualitative approach to finance. Funds should integrate environmental and climate related risks in their portfolio management practices, a strategic asset allocation conducting to sustainable goals (Caldecott and Harnett, 2019). Afraid of being brought down with stranded assets and in line with institutional investors, a group of SWFs has recently decided to divest from fossil fuels. Funds are not just debating about climate change, but pursuing energy transition goals (Ackah, 2021). Some are investing in green portfolios: Norway's \$1tn oil fund to plunge billions of dollars into wind and solar power projects, follows Saudi Arabia's oil fund to sell off all its oil and gas assets. Though important, both divestment decisions are being taken by more SWFs, such as it is shown in the Graph N°2. Nevertheless, it is necessary to consider that the biggest holdings of Norway's SWF are Royal Dutch Shell (Szatow, 2020), apart from Microsoft, Apple and Nestle.

¹⁰ Several SWFs follow negative screening practices in their decisions, excluding sectors or firms that did not complain with their ethical considerations. To name a few, such behaviour is observed with the GPF (Norway), NZSF (New Zealand), the Ireland Strategic Investment Fund (ISIF), and the Future Fund of Australia (FFA).

¹¹ AT <https://www.nbim.no/en/the-fund/responsible-investment/exclusion-of-companies/> the list of excluded companies from Nordisk Bank.

Graph 2. Investment in Energy by SWFs



Source: Taken from the paper “Sovereign wealth funds in the post-pandemic era”. Megginson et al., 2023.

However, in the last years, the general measure regarding black and green energy investments¹² by SWFs shows a positively advance of these latter. Between 2016-2020 the black energy assets proportion was of 75% while in 2021 the ratio had fallen to 25% of energy investments (Megginson et al., 2023). This trend in the focus of investments of SWFs towards green energy should be able to support energy transitions in developing countries.

¹² Classification is done by Global SWF. Black assets are those related to oil, gas and propane while green assets are if they are related to decarbonization and include investments in sectors like solar, wind, hydroelectricity, and geothermal energy.

De-investment decisions, in addition, are being induced by investor's perception of climate-related risks. SWFs may support sustainable development and climate policies through several actions, including 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 (Tsani and Overland, 2020). Until very recently, green investments were performing below compared to black, oil-related ones preferred by SWF funds; but the trend reversed in 2021¹³.

This ethical mandate might be critically undermined by those in the financial department, as SRI considerations might affect Funds' financial performance (Al Ayoubi and Enjolras, 2022). If sin investments outperform green ones an opportunity cost follows¹⁴, which entails a reduced portfolio diversification with a dilemma confronting present with future generations. In other words, ethical goals might become impossible to match with wealth maximisation objectives.

4. Sovereign Funds in Latin America: A general view

Considering the SWFs in Latin America, there are eight funds (Table 1). However, only six of them currently operate as sovereign wealth funds. These are Mexico, Trinidad and Tobago, Panama, Peru and Chile. In the case of Brazil and Venezuela, the funds have been consumed. On the other hand, Colombia manages public funds that are very similar to a sovereign fund: aimed at investing in new technologies and digitalization of the country (Capapé, 2016). The Brazilian Sovereign Fund was dismantled in 2019 after a 40% drop in the shares of the oil company Petrobras, in which the sovereign fund had invested. The assets were eventually sold to meet the national debt. In Mexico, the development of the new Mexican Petroleum Fund born from the new Hydrocarbons Law should accumulate even more capital in the long term.

¹³ "Sovereign wealth funds find opportunity in energy transition" HIS Markit – S&P Global, 09 February 2022.

¹⁴ SWFs suffer from an opportunity cost insofar as screened portfolios do not benefit from the superior profitability offered by sin stocks.

Table 1: Ranks by Total Assets

Rank	Profile	Type	Region	US\$ Millions	Country
60.	Social and Economic Stabilization Fund	Sovereign Wealth Fund	Latin America	7.514	Chile
62.	Chile Pension Reserve Fund	Sovereign Wealth Fund	Latin America	6.450	Chile
66.	Colombia Savings and Stabilization Fund	Sovereign Wealth Fund	Latin America	3.644	Colombia
86.	Fondo de Ahorro de Panama	Sovereign Wealth Fund	Latin America	1.432	Panama
87.	Guyana Natural Resource Fund	Sovereign Wealth Fund	Latin America	1.412	Guyana
90.	Mexico Budgetary Income Stabilization Fund	Sovereign Wealth Fund	Latin America	1.264	México
91.	Fondo Mexicano del Petroleo	Sovereign Wealth Fund	Latin America	1.144	Mexico
94.	Fundo Soberano do Municipio da Estancia Balnearia de Ilhabela	Sovereign Wealth Fund	Latin America	1.000	Brazil

Source: Sovereign Wealth Fund Institute.

But there are two relatively successful examples of SWFs in the region: Peru and Chile. Peru's fund, the Fiscal Stabilization Fund, which contribute finance investment in infrastructure. And the case of Chile its two funds total 23 billion dollars (8% of Chile's GDP). The Economic and Social Stabilization Fund (ESSF) consists of a stabilization fund to insulate the budget from volatile commodity prices, as well as a saving fund that seeks to accumulate resources on a longer time-horizon (it is complementary with debt's issuing for financing fiscal deficits; during pandemic period was widely used. However, these adopt (by law) a very conservative investment strategy: these invest mainly in very low risk assets (mainly treasury bills or foreign sovereign bonds) for securing the investment but with a very low rate of return. These funds accumulate the wealth that comes from copper extraction (Chile is a leading producer of this raw material) and invest it in international assets. When the government needs it, according to a very well-defined fiscal rule, it uses part of the fund to meet specific needs. The second sovereign fund is the Pension Reserve Fund (PRF); it was created to support the State guarantee for pension and disability solidarity benefits. In terms of transparency of these two funds, the ESSF and PRF present regular publications of reports (Law of Fiscal Responsibility) informing the results of investments (IMF, 2023b).

As IMF (2023b) shows, four country cases; Colombia, Chile, Mexico and Peru, are particularly relevant because they are commodity exporters and adopt fiscal rules (countercyclical rules) (see Annex 2). These are mainly devoted to fiscal stabilization. There are no objectives of development (supporting specific industrial sectors), economic diversification or intergenerational equity purposes.

Analysing the Latin American SWFs, there are certain similarities considering the conservative investment strategies. It obeys the chronic fiscal deficits and their impact on the inflation rate. Hence the objective of the authority of set linkages between higher incomes for export of natural resources (oil, copper), fiscal saving (into the funds) and keep sustainability in the public debt.

- Mexico integrates three funds to insulate budget revenues from the volatility of oil prices and economic activity.
- Peru's Fiscal Stabilization Fund (FSF) aims at ensuring fiscal balance or surplus in the medium-term.
- Colombia maintains several sovereign wealth funds, each with different objectives and sources of funding. Three main funds experienced significant financial difficulties during the pandemic and one of them was liquidated in 2020.

It seems more aligned with the data from Cuervo-Cazurra (2023) in which the Index of Transparency of SWFs for the case of Chile and Peru is consistent with the democracy's quality and how it is perceived by population (see Annex 1). Nevertheless, specifically the Chilean SWFs, spite contribution to finance fiscal deficits in periods of economic downturn, do not maintain equity stakes in some companies with developmental business models (some SWFs in the literature clearly defines it). According to this latter, there would have a space for contribute the energy transition investing in projects/firms involved in decarbonizing the economies. Certainly, with the prudence in the use of these fiscal resources (reducing the risks, taking insurances, and so on).

It is possible to observe that in the case of sovereign funds in Latin America, investment criteria related to mitigating the negative effects of climate change are not included, at least specifically (see Annex 2), although there are some SWFs with focus in the development of traditional infrastructure. The opportunities for SWFs' investments range from financing the energy transition of small and medium-sized companies to developing ambitious infrastructure plans related to renewable energy. It is an important opportunity to combat the negative effects of climate change; direct investments towards

socially desirable objectives, which can even be co-investments with the private sector to leverage more resources.

4. Final Remarks

A series of events occurred during 2015 that were pushing financial institutions to acknowledge climate change as a strategic priority. Consider the Paris Agreement which, for the first time, mentioned the key role of aligning financial flows to climate goals. However, the real effects, the policy signals might have not been strong enough to induce investors to align their investment portfolios to climate goals. António Guterres, the UN secretary general, described the latest intergovernmental panel on climate change report as an *“atlas of human suffering and a damning indictment of failed climate leadership,”* with nearly half of humanity highly vulnerable to the impacts of climate change as the brief window for action closes (IPCC, 2022). Funds are needed, policies changes are desperately urgent. Also, Guterres (2024) points that *“by matching the speed of climate change with radical climate action that aligns with sustainable development”*. In regard to finance issues, he points out (among other things) that *“it is necessary and urgent by delivering finance for climate action in developing countries, including to adapt to extreme weather”*.

The IPCC report warned that the extent and magnitude of climate impacts are even larger than estimated, to highlight the need once again for financial institutions to stop financing fossil fuel expansion.¹⁵ If the trend continues, financial flows will lock-in (energy) *“GHG emissions that may be inconsistent with remaining carbon budget and, with emission pathways to reach the Paris Agreement goals”* (IPCC, 2022), to conclude that *“without immediate and deep emissions reductions limiting global warming to 1.5°C is beyond reach”*. SWFs are under increasing focus, managers’ portfolio decisions are increasingly being assessed over the consistency or alignment, as well as respectively the inconsistency or misalignment, with climate policy objectives. In virtue of the abysmal amount of funds needed for the transition, development of local capital markets becomes a crucial option – although recognizing the need of external support as well as the presence of adequate financing policy support from developed countries (IPCC, 2022). For those advocating for new sources of funding, SWFs’ involvement becomes a real alternative (bringing guarantees, offering partnership), likely to help domestic climate capital market expansion. SWFs’ portfolio strategy should make a huge change, moving away their holdings

¹⁵ Scientific evidence overwhelming demonstrates that, to achieve the 1.5°C objective, the share of fossil fuels in energy supply must decrease.

from fossil fuels companies and related industries towards renewable energy and green related industries.

Eventually, Funds could adopt a developmentalist approach and invest in early-stage companies operating in renewables or green related industries¹⁶. Oil-rich countries such as Qatar, the United Arab Emirates and Saudi Arabia are directing state funds towards renewable energy and carbon dioxide capture, utilisation, and storage (CCUS). A smaller group is accepting risks as seeking for high returns, an investment pattern observed at Temasek – Singapore or Mubadala Investment Co – UAE. Those more risk adverse Funds, however, would be expected to invest in mature technologies industries, such as solar and wind. Whether taking risks in their search for higher returns (or preferring normal returns for those adverse to risks), SWFs have started to invest in clean technologies.

A large sum is required, indeed. According to the International Energy Agency (IEA), global energy investments (IEA 2023) in clean energy were 1,7 trillion US\$, growing steadily 8% a year from 2015. However, in the same year (2023), the investment in fossil fuels reached 1,05 trillion US\$. Scaling up clean investment is a need for sustainable and secure transformation of the energy sector. In the IEA's scenarios posed by IEA to 2030, it is forecasted an investment of 4,6 trillion US\$ in clean energy to have zero net emission by 2050.

SWFs could certainly help in filling this gap. It would be natural. Unfortunately, SWFs currently have a limited role in climate finance and green investment. Funds should visit the IPCC report, to install a responsible investing strategy aligning long-term investment strategies with a safe climate future. This means investing in a just economy through a comprehensive climate strategy that excludes destructive fossil fuels and aligns the portfolio with the goal of limiting global temperature increases to 1.5°C.

A responsible investing approach is becoming imperative, leading SWFs to alienate savings with a climate future. This means an investment strategy that excludes destructive fossil fuels, aligning portfolios with the goal of limiting global temperature increase to 1,5°C.

¹⁶ Despite their traditional risk adverse profile, some Funds began to invest in hydrogen – a highly disruptive technology. For example, during 2023 Saudi Arabia's Public Investment Fund (PIF) came to announce a memorandum of understanding on a feasibility study for a green hydrogen plant, in partnership with South Korean technology and engineering companies Posco and Samsung C&T. Similarly, the joint venture made by Kazakhstan National Fund and ADQ to build solar and wind farms in Kazakhstan.

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Annex 1: Sovereign wealth funds (SWFs) around the World and comparison with democracy level

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

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

Source: This table and text was produced by Cuervo-Cazurra et al., 2023.

Annex 2: International Experience of Stabilization and Saving Funds in the Context of Fiscal Rules

Country and Name of the Sovereign Wealth Funds	Size (USD mn; percent of GDP in parentheses)		Type of Funds	Purposes or Objectives	Fiscal Rules and Fiscal Anchors and Targets	Withdrawal rules/mechanism	Accumulation mechanism
	Pre-pandemic (end-2019)	Latest (end-2023)					
Chile							
Economic and Social Stabilization Fund (ESSF)	12,233 (4.4)	7,514 (2.4)	Stabilization Fund	Created to finance fiscal deficits arising from low growth and/or low copper prices with the aim to stabilize primary expenditures.	•Structural budget balance rule with structural balance targets over the medium term. •Debt rule with a prudent debt ceiling at 45 percent of GDP.	Flexible. Resources can be used at any time to complement fiscal revenues to finance public expenditures; for amortization of public debt; financing the annual contributions to the PRF.	Receives any positive remaining balance after deducting the PRF contributions from the budget surplus, net of the amortization of public debt and other contributions made in the previous year.
Pension Reserve Fund (PRF)	10,812 (3.9)	6,475 (2.1)	Saving Fund	Established to back the state guarantee for pension and disability solidarity benefits. Since 2022, used for funding obligations from the Universal Guaranteed Pension and Disability.		Withdrawals from PRF cannot exceed 0.1 percent of the previous year GDP.	Receives a minimum annual contribution of 0.2 percent of previous year GDP; if the overall fiscal surplus is above 0.2 percent of GDP, the PRF receives a contribution equivalent to the surplus, up to a maximum of 0.5 percent of GDP.
Colombia							
Fund of Savings and Fiscal Macroeconomic Stabilization	n.a.	n.a.	Budget Account	Contribute to the fiscal and macroeconomic stability of the country. Fiscal stabilization objective, by countercyclical spending in case of deficit and savings in case of surpluses	•A structural primary balance rule: target set for the next five years: •A new debt rule with a debt limit of 71 percent of GDP and a medium-term debt anchor at 55 percent of GDP	In case of budget deficit, a withdrawal amount of maximum 10% of the previous year Fund balance at 31 December is authorized.	Possible to transfer anytime budget surpluses; Income from the Fund are automatically kept in the Fund: Ad-hoc extraordinary funds anytime.
Savings and Stabilization Fund (FAE)	3,576 (1.1)	3,628 (1.1)	Saving Fund	Save non-renewable resources revenues destined to the regions which have a limited capacity to spend and, thereby, stabilize investments over time.		If savings are lower than budget savings, withdrawals are authorized up to 10% of previous year Fund balance.	If savings are higher than budget savings, contributions to the Fund are authorized up to maximum of 30% of the difference.
Mexico							
Mexican Petroleum Fund (FMP)	1,191 (0.1)	1,218 (0.1)	Reserve Fund	Save excess of oil revenues in good times for difficult fiscal years.	•A budget balance rule with an anchor of a balanced budget. •An expenditure rule sets the ceiling on the structural current expenditures.	The reserve fund can be used to complete required outflows when oil revenues are not sufficient.	Receives government oil revenues and channels the funds to the budget and transfer it. If inflows are higher than outflows, difference is kept in the reserve fund.
Budget Revenues Stabilization Fund (FEIP)	8,401 (0.7)	1,342 (0.1)	Stabilization Fund	Created to stabilize oil and non-oil tax revenues of the Government and, therefore, maintain a adequate level of budget expenditure.		If oil and non-oil revenues are below the budgeted revenues	The main source is the transfer from FMP but can receive shares of the excessive oil revenue, profit from central bank operations and treasury debt operations.
Federal Entities Revenues Stabilization Fund (FEIEF)	3,764 (0.3)	1,081 (0.1)	Stabilization Fund	Compensate for a possible drop in the federal entities revenues due to a drop in government revenues.		When federal entities revenues are below budgeted revenues	The main source is the transfer from FMP.
Norway							
Government Pension Fund Global (GPGF)	1,145,882 (283)	1,291,392 (256)	Saving Fund	Intergenerational Fund. Build long financial wealth for future generations.	•A structural budget balance rule that sets the anchor on the nonoil structural balance	Flexible, budget deficits are financed through withdrawals from the Fund. The fiscal discipline is enforced through fiscal rules on structural balance.	Budget surplus are automatically transferred to the Fund.
Government Pension Fund Norway (GPFN)	30,669 (7.6)	32,729 (6.5)	Saving Fund	Saving Fund from surplus of the national insurance scheme		Deficits from the national insurance scheme are financed through withdrawals from the fund.	Surplus from the national insurance scheme are automatically transferred to the fund.
Peru							
Fiscal Stabilization Fund (FEF)	5,472 (2.4)	1,506 (0.6)	Stabilization Fund	Ensure fiscal balance or surplus in the medium term, by accumulating surpluses in favorable periods and by allowing moderate and non-recurring fiscal deficits in periods of lower growth.	•A budget balance rule; •An expenditure rule limit; •A debt rule that sets a medium-term anchor.	If current revenues decrease more than 0.3% of GDP (compared to a 3-year average) but no more than 40% of the Fund balance; If the amount of accumulated in the Fund cross 4% of GDP, the excess can be used for debt amortization; In extraordinary situations.	Budget surplus can be transferred to the Fund. 10% cash of government assets sales in case of asset sale; 10% cash of initial payment for licenses in case of new license.

Country and Name of the Sovereign Wealth Funds	Size (USD mn; percent of GDP in parentheses)		Activities Financed by the Funds	Asset allocation	Fund managers	Asset returns 2022	Operations during the pandemic
	Pre-pandemic (end-2019)	Latest (end-2022)					
Chile							
Economic and Social Stabilization Fund (ESSF)	12,233 (4.4)	7,514 (2.4)	•Finance budget deficit •Amortize public debt •Cover contributions to the PRF	96% sovereign bonds; 4% inflation-linked bonds.	Central Bank of Chile	-11.4%	Withdrawal of US\$4,090 million in 2020 and US\$6,197 million in 2021 to help finance the national budget, complied with the Economic Emergency Plan, and financed the external debt service. Increased withdrawals from the PRF in 2020 and 2021 to fund the expenditures associated with the Solidarity Pillar. A total of US\$2,960 million was withdrawn from the PRF in 2021. Temporary suspension of contributions to the PRF in 2020 and 2021.
Pension Reserve Fund (PRF)	10,812 (3.9)	6,475 (2.1)	•Finance the solidarity pension benefits	34% sovereign bonds 30% equities 13% corporate bonds 8% inflation-linked bonds 15% others	Central Bank of Chile and private asset managers	-16.0%	
Colombia							
Fund of Savings and Fiscal and Macroeconomic Stabilization	n.a.	n.a.	•Debt amortization •Extraordinary expenditures •Countercyclical expenses				Information not publicly available
Savings and Stabilization Fund (FAE)	3,576 (1.1)	3,628 (1.1)	Regions and Public entities investments	53% sovereign bonds 34% corporate bonds 9% equities 4% Others	Banrep and private asset managers	-12.5%	A total amount of approximately US\$ 400 million was withdrawn
Mexico							
Mexican Petroleum Fund (FMP)	1,191 (0.1)	1,218 (0.1)	•Transfer to budget for expenses •Transfer to FEIP •Transfer to FEIEF •Other minor expenses	81% sovereign bonds 10% corporate bonds 9% others	Trust Fund managed by the Banco Mexico	-4.3%	The reserve fund acts as a cash buffer for the FMP operations. This buffer is relatively stable over time.
Budget Revenues Stabilization Fund (FEIP)	8,401 (0.7)	1,342 (0.1)	Finance budget deficit	Excess liquidity held in deposits	TESOFE	N/A	FEIP was drawn down to finance expenditures during the pandemic (from a balance of USD 8.4 billion in 2019 to USD 476 million in 2020).
Federal Entities Revenues Stabilization Fund (FEIEF)	3,764 (0.3)	1,081 (0.1)	Support local government finances	Excess liquidity held in deposits	TESOFE	N/A	FEIEF resources were reduced to half of the closing balance of 2019 and used to support local government finances.
Norway							
Government Pension Fund Global (GPGF)	1,145,882 (283)	1,291,392 (256)	Saving current revenues for future pensions benefits	Approximately: 70% equities 25% bonds; 4% real estate 1% green infrastructure	Norges Bank Investment Management	-14.1%	Withdrawal of US\$31,701 million in 2020 and US\$13,839 million in 2021 to finance budget deficit.
Government Pension Fund Norway (GPFN)	30,669 (7.6)	32,729 (6.5)		60% equity; 40% fixed income (only in Scandinavian region).	Folketry-gdfondet	-5.4%	
Peru							
Fiscal Stabilization Fund (FEF)	5,472 (2.4)	1,506 (0.6)	•Finance budget deficit but resources have to be used primarily to cover the costs of targeted programs aimed at alleviating poverty •Debt amortization	More than 99% of the assets of the FEF are invested in term deposits in the BCRP between 31-60 days (in USD)	BCRP	2.8%	In 2020, FEF was completely emptied (US\$5.4 billion) due to an extraordinary situation (COVID-19). A budget transfer was made to the FEF in 2022 (US\$ 1.49 billion).

Source: Chile Technical Assistance Report (IMF, 2023b).

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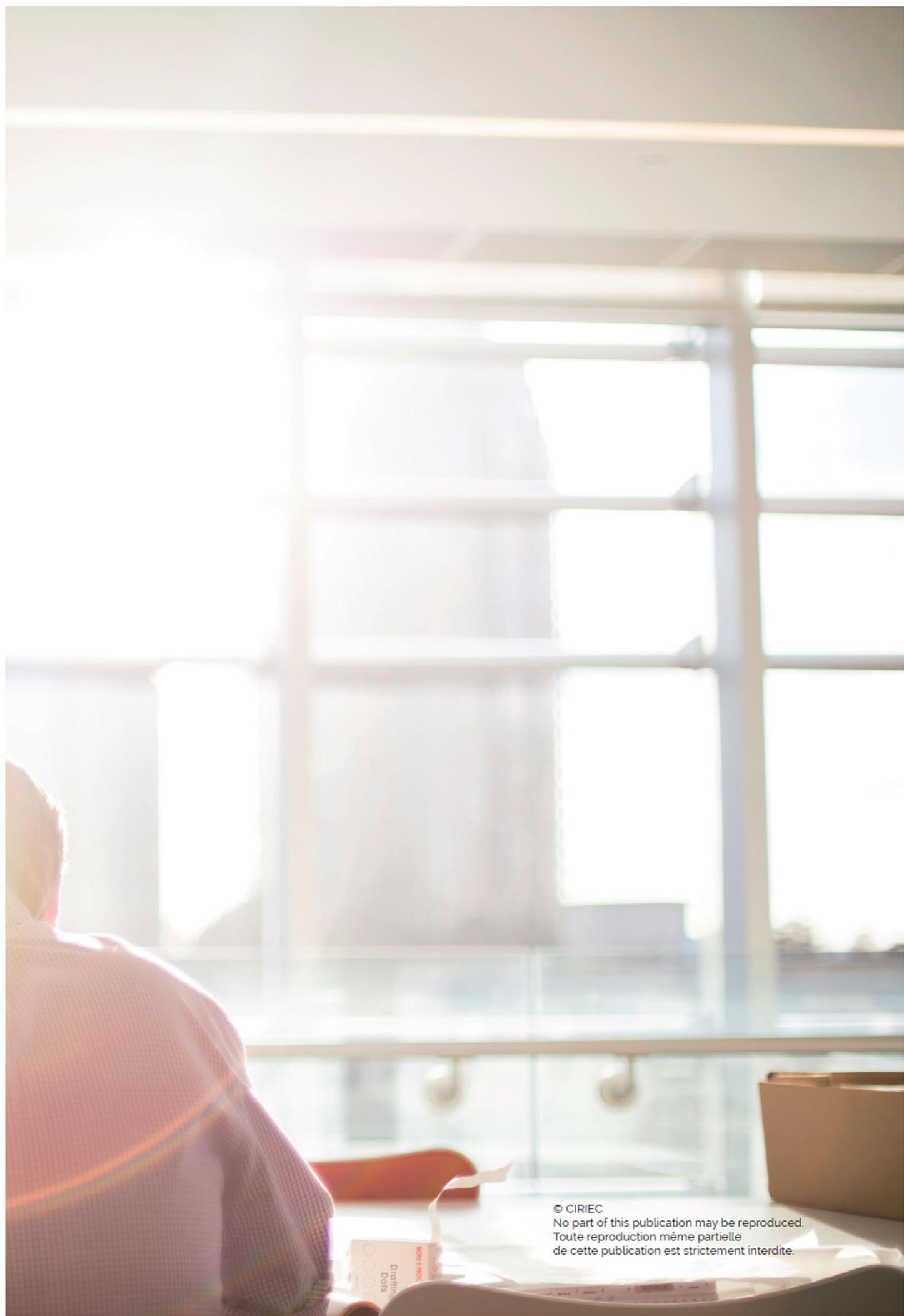
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