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SUSTAINABILITY TRANSPARENCY IN SOVEREIGN WEALTH FUNDS: BENCHMARK AND CASE STUDY APPROACH

ABSTRACT

The COVID-19 pandemic and the current food, energy, and safety crisis caused by the war in Ukraine strongly affected the existing gap in Sustainable Development Goals funding. Restoring global sustainability progress and the 2030 Agenda requires reshaping responsible investment architecture and rethinking the role of sovereign wealth funds as the largest investors in this process.

The current study explores the ways in which the most transparent sovereign wealth funds act towards sustainability values and incorporate environmental, social, governance, and ethical criteria (ESGE) into their investment strategy, portfolio, and reporting. Also, 16 high-ranked funds by the Sustainability Transparency Index (Cavagnetto et al., 2022) were investigated by using the case study and benchmark analysis. Study results demonstrate the similarity of all funds disclosure within some questionnaire criteria like sustainability policy, scoring (voting) rules for decision-making, ESGE criteria, stakeholder engagements, and assurance of the financial information disclosed. Nevertheless, qualitative differences were identified between the sustainability transparency criteria of A and B-ranked funds. There is also huge variation in the implementation of funds' ethical criteria, sustainability coherence, relevance of sustainability goals, disclosure of specific climate-related goals, and foundation membership criteria.

Policy implications derived from the differences in sovereign funds' benchmarks are aimed at enhancing the sustainability context in funds' operating frameworks, developing impact measurement metrics, prioritizing the most material stakeholder requests, sustainability verification procedures, and standardizing funds' sustainability reporting. Specific channels, instruments, and regulatory measures towards greater funds' sustainability transparency and their involvement in bridging the sustainable development funding gap may be the subject of further investigation.

Keywords: sovereign wealth fund, responsible investment, sustainability, ESG, SDG, accountability, transparency

JEL Classification: E22, G11, G23, H54, Q01

INTRODUCTION

According to the OECD (2020), the estimated Sustainable Development Goals (SDGs) gap in a developing country due to COVID-19 is USD 1.7 trillion. This gap adds to the existing gap of USD 2.5 trillion in annual financing for all 17 SDGs by 2030. The recent global food, energy, and safety crisis has deepened this gap unprecedentedly.

Sovereign wealth funds (SWFs), as the largest long-term institutional investors, intend to sustain the wealth for future generations and have the mandate to allocate the fund from non-renewable country assets in different types of investment (e.g., sustainable). Such SWFs' intentions unify their strategies with the main notion of sustainability by the United Nations Brundtland Commission (WCED, 1987) as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

SWFs are well positioned to join opportunities for institutional investors globally, especially in lower-middle to low-income countries, given their hybrid nature as government-

owned entities with a market orientation, and due to the inherent long-term nature of ESG goals. Their characteristics allow SWFs to efficiently mobilize resources to obtain both financial returns and a positive sustainability impact (Kozmenko et al., 2014; Kozmenko & Korneev, 2014; Rose&Capapé Aguilar, 2020; Rieznyk et al., 2023).

SWFs' investments in renewables slightly outperformed traditional investments just in 2016 and 2021 (Figure 1). Despite the slight increase in the volume of SWFs' green transactions, sustainable investment and environmental, social, governance and ethical (ESGE) criteria are not yet widely used by SWFs as their strategy targets and background for investment decision-making.

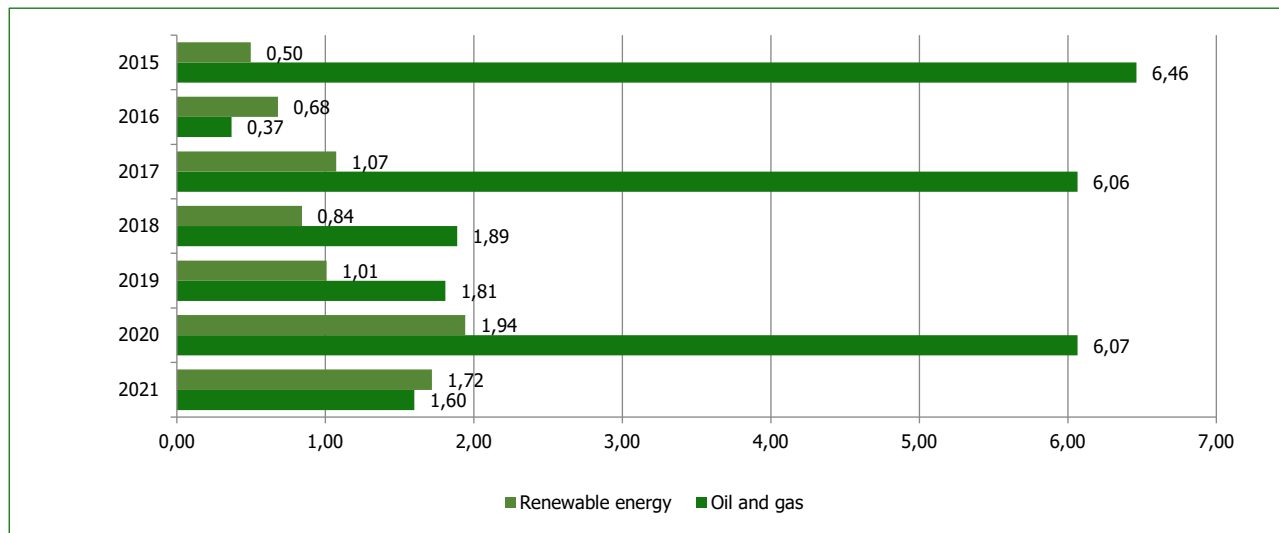


Figure 1. SWF investments in oil and gas vs renewable energy, USD billion. (Source: Reuters, 2021)

The positive thing is that in November 2016, during the International Forum of SWFs, a group of SWFs decided to investigate the investment consequences of CO2 emissions. In December 2017, a group of SWFs established the "One Planet Sovereign Wealth Fund Working Group", to integrate financial risks related to climate change. But now, in this group, there are only 18 SWFs out of 161 officially registered. 12 SFWs are signatures of UN Principles of Responsible Investments, 6 – TCFD, and 2 – Net Zero Asset Owner Alliance (Global SWF, 2022).

So, still, the negative thing is low SWF involvement and the impact of these funds' initiatives on SDGs progress. Moreover, the opacity of these funds creates threats not only to their countries' revenues, good governance, and fund financial performance but also to the future countries' progress in SDGs. The scandal in which SWFs were involved is Malaysian Development Berhad (1MDB) corruption issues in the amount of USD 700 billion (Velayutham & Hasan, 2021). Several approaches were developed for SWF transparency rankings and indices (International Forum of SWFs, Santiago Principles, Linaburg-Maduell Transparency Index (LMTI), Truman scoreboard (Bagnall & Truman, 2013), Responsible Asset Allocator Initiative (Graziano & Magni, 2022; Liang & Renneboog, 2020; Wurster & Schlosser, 2021)). However, these approaches do not cover the SWFs' adherence to SDGs and sustainability-oriented investment policy.

SWFs might be considered the headliners of transparency and sustainable investment in SDGs for other investors and their approaches to sustainability disclosures, portfolio diversification, and sustainable policy in asset management as best-in-bread practices.

The current study explores the ways in which the most transparent sovereign wealth funds act towards sustainability values and incorporate ESGE criteria into their investment strategies, portfolios, reporting, etc.

The main idea of this study is to investigate SWFs' transparency with the outlined sustainability focus and analyze best-in-bread cases of sustainability disclosures in the most transparent funds to create benchmarks in SDG promotion by SWFs.

LITERATURE REVIEW

Under the complexity of the SWF investment process, a review of previous research papers in the field of their transparency, sustainability, and responsible investment was proposed to be carried out based on bibliometric analysis. The combination of these methods (In-built Scopus instruments by Elsevier, In-built Web of Science instruments by Clarivate

Analytics, and VOSviewer software) is used to select and summarize the academic background related to the SWF and sustainability issues.

Each search and request within the meta-analysis instruments are formed using a logic operator AND as of May 5, 2022, for 2016–2022. This period of academic paper selection is grounded by the adoption of SDGs in 2015 at the New York Summit on Sustainable Development. The wide research queries are as follows: 1) sovereign wealth funds; sovereign wealth funds and transparency; sovereign wealth funds and sustainable investment; sovereign wealth funds and Sustainable Development Goals.

Cluster and chronology analysis of all imported publications from Scopus, WoS, and Google Scholar conducted via VOSviewer (Figure 2) proved the novelty of studying sustainability issues and SWFs. First, the biggest cluster in SWF research by keyword co-occurrence is red one (38 keyword types), where SWFs are described as public institutes that influence a country's economic growth. There are weak links between sustainability and SWFs in the green cluster, where SWFs are described as investment funds. SWF transparency is a rather new matter in the blue research cluster, where SWFs are described in the context of investment decision-making and geographical context. SWFs' sustainability is a relatively new aspect that appeared in academia after 2018.

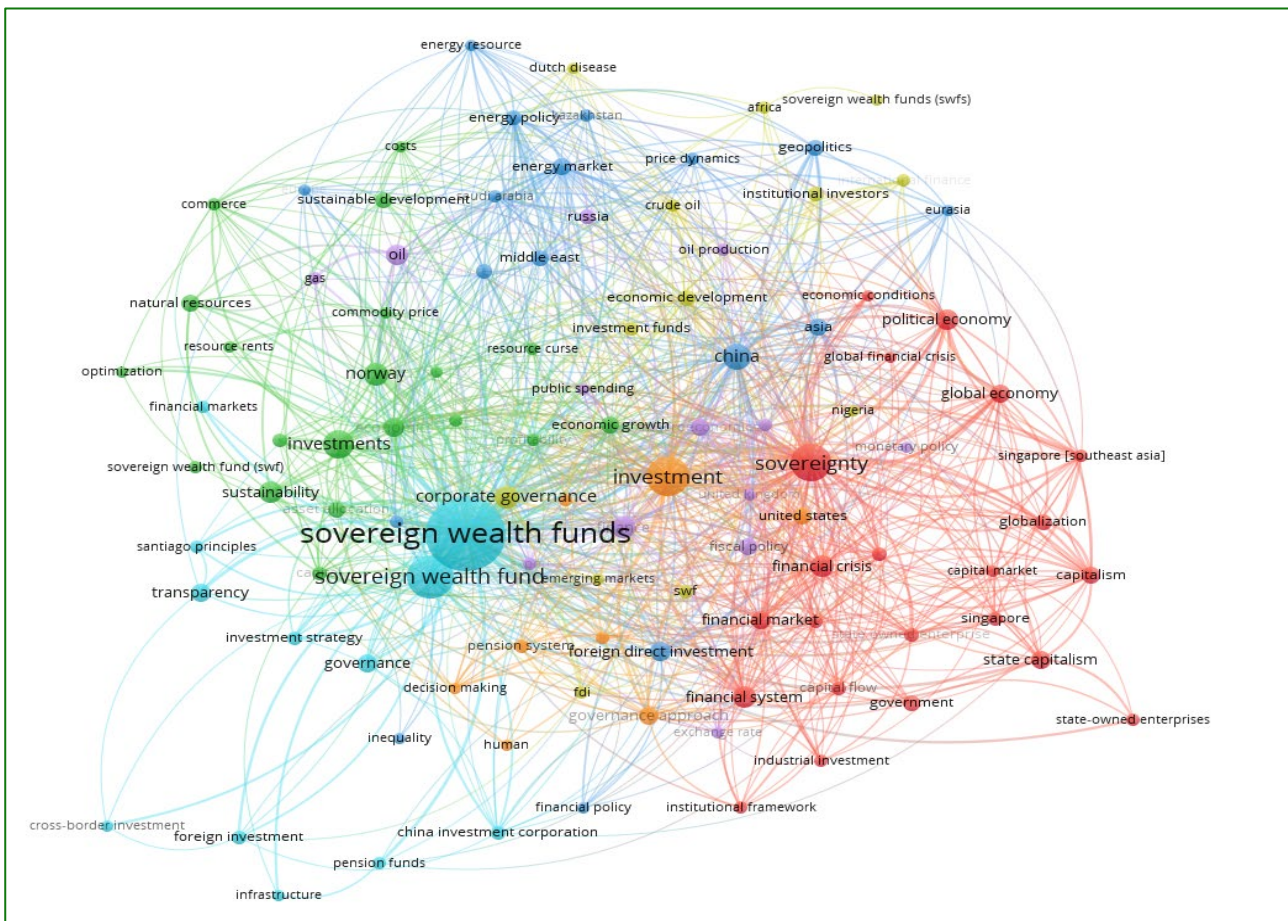


Figure 2. Bibliometric map of publication keywords on SWF and related queries according to Scopus, WoS, and Google Scholar databases in 2016–2022 (co-occurrence mode). (Source: Compiled by the authors using VOSviewer via Scopus, WoS, and Google Scholar databases)

After preliminary bibliometric analysis, qualitative analysis proved that SWFs, SDGs, and transparency are insufficiently researched academic areas.

For example, SWFs, sustainability, and responsible investment studies mainly cover the peculiarities of funds' investment strategies and social responsibility policies in targeted countries:

1. African SWFs (Nwali, 2021);
2. Qatari SWFs' role in social investment (Weber, 2014), retrospective and prospective analysis of UK SWFs (Atkinson & Hamilton, 2020);

3. Trinidad and Tobago SWFs' investment role in countries' economic growth and sustainable development (Affuso et al., 2022);
4. Indonesian SWF corporate governance features in the context of ESG (Suwinto, 2022);
5. Brazilian Social Funds' role in combating poverty and stimulating sustainable development (de Medeiros Costa & Silva, 2021);
6. The most researched regarding SWF sustainability investment is the famous Norwegian Government Pension Fund Global: addressing climate change and ethical aspects of its investment (Halvorsen & Eldredge, 2014);
7. EU Green Deal incorporation (Gasparini, 2022);
8. Norwegian Government Pension Fund Global investment approaches (Moses, 2021).

Cross-country studies include the comparison of SWFs; corporate responsibility and sustainability matters include: 3 European SWF comparisons – Ireland Strategic Investment Fund (Ireland), Government Pension Fund Global (Norway), Cassa Depositi e Prestiti Equity (Italy) (Garcia Nebot, 2020), Norwegian Government Pension Fund, and the New Zealand Superannuation Fund (Richardson, 2011), comparison of French and Norwegian SWFs (Richardson, 2012), and Norway's Government Pension Fund Global and Abu Dhabi Fund for Development (Velayutham & Hasan, 2021).

SWFs and sustainability transparency do not receive as much support in academia as the area of SWFs and sustainability investment in SDGs area. Commonly, transparency is defined as "the degree to which information is available to outsiders that enables them to have an informed voice in decisions and/or to assess the decisions made by insiders" (Florini, 2007). The transparency of SWFs as the largest investors, with resources derived from the natural revenue, is defined as "clear roles and responsibilities for managers and policymakers, publicly available information, open decision-making processes, reporting and assurances of accurate information" (Toledano & Bauer, 2014). In the context of sustainability, the abovementioned definition can be corrected to understand the information disclosed. In a broad sense, SWFs must disclose not only economic (financial) information about their financial performance but also all types of socially and environmentally important information for stakeholders.

Thus, the current academic situation with SWFs and sustainability and SWFs and transparency is under-researched. Understanding SWFs as a key enabler of funding for SDG progress requires an analysis of good and transparent funds' practices in SDGs and the inclusion of ESGE criteria in the investment activities of the funds.

AIMS AND OBJECTIVES

This study aims to investigate the ways in which the most transparent public investment funds act towards the values of sustainable development and include environmental, social, governance, and ethical (ESGE) criteria in their investment strategies, portfolios, and reporting.

METHODS

The SWF sample was created based on the current Global SWF ranking 2022 <https://globalswf.com/ranking>. At the preliminary stage, we selected 105 funds. However, after tracing the funds' sites, ESG, and sustainability information, the final sample covers 91 SWFs from different regions. Also, 14 SWFs were excluded because of their site unavailability.

In a previous article (Cavagnetto et al., 2022), we developed SWF STI methodology and evaluated the SWF performance from the point of funds' sustainability disclosure as a cornerstone for making sustainable and responsible investments and these criteria incorporation into the fund investment strategy. STI methodology is based on the best-in-bread practice (IMF Guidance on Good Fiscal Transparency Practices for Resource Revenue Management (IMF, 2007), Santiago Principles (GAPP, IWG, 2008), OPSWF Framework (OPSW, 2018), addressed to SWF transparency general SWFs activities principles, as well as SWFs' climate change ESGE and SDG criteria targeting (Table 1). The evaluation period covers 2020-2021. We traced the last available reporting information provided by SWFs.

Table 1. STI main questions and criteria.

Type	Question	Criteria
Primary questions	General sustainability focus	ESG/Sustainability Policy
		Sustainability Reporting
		ESGE/SDG scoring (voting) rules for decision-making
		Stakeholder involvement and material request incorporation
	ESGE	Environmental criterion
		Social criterion
		Governmental criterion
		Ethical + anticorruption criterion
	SDGs	SDG alignment
		Relevant SDGs
		Specific climate-related target
	Assurance	Type of opinion
		Provider
Secondary questions		IFSWF membership
		LMTI
		OPSWF or similar membership
		Compliance with other standards

Using these criteria, we calculated SWFs’ STI for the entire fund final sample and chose 16 A and B-ranked funds for the purpose of this study (Appendix A). As key methods for the characteristics of these high-ranked funds, we used benchmark analysis and a case study approach. In each criterion, we underlined the most transparent fund and described its case.

Benchmark analysis is common for SWFs (Gelb et al., 2014; Martínek, 2021; Ang, 2011). For instance, Ang (2011) proves that SWFs can be compared by the following benchmarks: legitimacy, liabilities in government fiscal and other macro policies, and the long-term horizon. Elements of the case study approach connected to SWF and sustainability investment are presented in Sharma (2017). He illustrates specific instances of the use of SWFs and sovereign development funds (SDFs) in pursuing the 2030 Agenda and SDGs progress.

Our case-study approach appeals to the main STI question and criteria. For each criterion, a benchmark analysis of all 16 SWFs was performed.

RESULTS

The characteristics of the entire SWF sample are presented in Appendix A, and the STI score for the most transparent SWFs is in Figure 3.

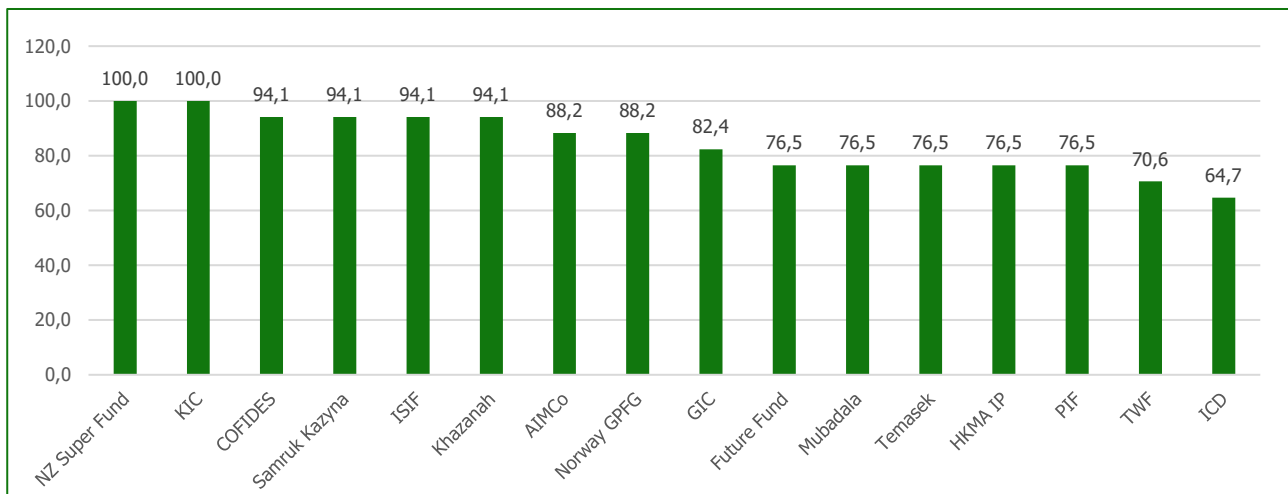


Figure 3. A and B-ranked SWFs’ STI score.

The a-ranked group includes KIC (Korea Investment Corporation), NZ Super Fund (New Zealand Superannuation Fund), COFIDES (Spain), ISIF (Ireland Strategic Investment Fund), Khazanah (Khazanah Nasional), Samruk Kazyna (Kazakhstan), AIMCo (Alberta Investment Management Corporation, Canada), Norway GPF (Norway Government Pension Fund Global), and GIC (GIC Private Limited, Singapore).

B-ranked group includes Future Fund (Australia), HKMA IP (Hong Kong Monetary Authority), Mubadala (Mubadala Investment Company, United Arab Emirates), PIF (Public Investment Fund, Saudi Arabia), Temasek (Temasek Holdings, Singapore), ICD (Investment Corporation of Dubai, United Arab Emirates), and TWF (Turkey Wealth Fund).

ESG, or Sustainability policy criterion, is covered for all 16 SWFs investigated. Each fund has a separate guidance, framework, or at least a short list of rules for conducting responsible or SDG investment.

However, there is a qualitative difference between the responsible investment guidance of different funds. Some of them have a comprehensive set of sustainability-related guidance (KIC (2021), ISIF (2020)), some incorporate sustainability values as a core for their investment (COFIDES (2020)), and some have a general ESG context (Mubadala, 2021; Makarenko et al., 2022).

For example, COFIDES (2020) provides a wide range of policies, covering not only traditional ESG but also SDGs issues: COFIDES social-environmental policy (2001) Adherence to UN Global Compact Principles (2005), IFD Statement on Corporate Governance (2007), EDFI Principles for Responsible Financing (2009), COFIDES gender policy for operations (2015), COFIDES development policy (2017), and EDFI Principles for Responsible Financing of Sustainable Development (2009 update in 2019).

Besides KIC ESG Core and ESG Global Strategy Funds, this SWF has adopted the specific Green, Social, and Sustainability Bonds policy according to the Green and Sustainability Bond Framework of The Republic of Korea. These document's provisions illustrate the main pillar of the KIC Investment Policy Statement outlining the responsible investment-related work. In March 2021, KIC invested more than USD 500 million in green and social projects using entrusted bond proceeds to enhance environmental and social value KIC (2021).

Sustainability and Responsible Investment Strategy ISIF 2020 presents a clear set of SWF rules and longstanding commitments as a responsible investor and enhances the long-term value of the fund ISIF (2020).

To sum it up, while SWFs incorporate ESG criteria into their investment policies by default, the main difficulties for some B-ranked SWFs are formalizing the SDG framework and incorporating SDG values as a core investment portfolio strategy.

All SWFs marked as A and B have disclosed sustainability information during 2020-2021, the latest disclosure date can be assigned to 2022 as a publication date.

The most common approach is to disclose information as a separate section about ESG/SDGs engagements and responsible investment SWF portfolio in funds' annual reports. There are examples such as Future Fund (2021) Future Fund's Annual Report 2020-2021, Khazanah (2021) Khazanah Annual Report, and NZ Superfund (2021) New Zealand Superfund Annual Report. Temasek (2022) 2022 Review Highlights, TWF (2020) Türkiye Wealth Fund Management Co. Annual Report.

In this regard, special cases are the cases of international monetary authorities such as the HKMA (2021) Annual Report or NTMA ISIF (2021) Annual Report and Financial Statement, where SWF is integrated into the government reserve.

Corporate social responsibility and responsible investment sections are presented on the websites of funds mainly in the Middle East. Sustainability reporting issuance is not typical for ICD (2022) Investment Corporation of Dubai, Mubadala (2022) Mubadala Responsible Investment and the PIF (2022) Public Investment Fund of the Kingdom of Saudi Arabia Impact. Meanwhile, they are evaluated as B-ranked funds.

Separate and regular responsible investment reports are inherent to typically A-ranked funds with a strong sustainability focus: AIMCo (2021) Future in focus/AIMCo Responsible Investment Report, COFIDES (2020) Activity and Sustainability Report, GIC (2021-2022) Report on the Management of the Government Portfolio retrieved on August 30, 2022; KIC (2021) Korea Investment Corporation Sustainable Investment Report, NBIM (2021) Norway Responsible investment Government Pension Fund Global, Samruk Kazyna (2020) Ensuring Security and Prosperity Sustainability Reporting.

Several SWFs produce a wide range of sustainability reporting types according to specific requirements, such as PRI Signatory, TCFD participants, GRI-indexed or Hermes-referenced reports (NTMA ISIF (2021)), and the NZ Superfund (2021).

The longest sustainability reporting period of disclosure is characteristic of Khazanah (2021) and AIMCo (2021). They published their responsible investment information, stakeholder engagements, and corporate responsibility regularly from early 2013.

Thus, while some A-ranked funds provide comprehensive sustainability and responsible investment disclosure on a regular basis, some B-ranked Middle East SWFs need to be more precise in sustainability disclosure and separate report issuance.

As in the case of the ESG/Sustainability Policy, all funds integrate ESG issues into their decision-making processes by providing scoring (voting) rules and active ownership principles, which positively impact shareholders' value.

Though all funds have good exclusion policies, the most detailed guidance is presented by NGPFG and ISIF.

ISIF exclusion is used on a limited basis and, inter alia, on a sustainable basis in addition to the exclusions mandated by legislation. The main statutory and non-statutory acts included in the ISIF negative screening framework are Cluster Munitions and Antipersonnel Mines Act 2008, Tobacco Manufacturing 2016, High Carbon Companies (Oil & Sand) 2017, and Fossil Fuel Divestment Act 2018 NTMA ISIF (2021).

Norway GPFG deployed Ethical guidelines from the Parliament and Ministry of Finance of Norway into the responsible investment exclusion process NBIM (2021). The Norwegian parliament has decided that the fund should not be invested in companies that contribute to violations of fundamental ethical norms, manufacture certain types of weapons, base their operations on coal, or produce tobacco. So, the GPFG publishes clear expectations on companies' corporate governance in its portfolio. This expectation is in line with SDGs and covers children's rights, water management, climate change and other relevant topics (NBIM, 2021). The list of excluded companies covers nuclear weapons manufacturers, producers of coal and coal-based energy, companies that violate individuals' rights in situations of war and conflict, etc.

For all investigated A and B-ranked funds, there is a common challenge in further exclusion policy implementation in the context of the food, safety, and energy crisis caused by the Ukrainian-Russian war. Disruption of traditional agri-food and energy value chains and an increase in safety and defence costs bring new requirements to SWF screening models.

All A-ranked and all B-ranked funds, except one, have a clear stakeholder-oriented sustainability disclosure in the main aspects of stakeholder relationships. Unfortunately, only a few funds provide detailed descriptions and matrices of the most material stakeholder requests. These sustainability requests are a prerequisite for strong stakeholder engagements and communication policy on sustainability matters.

Only two SWFs, Samruk Kazyna and TWF, devoted separate sections in their reports to a detailed description of stakeholder requests.

In Samruk Kazyna case (2020), the fund classified the inbox stakeholders' requests by the relevance for business activity (anti-pandemic crisis action, fund strategic development, competitiveness, transparent and sustainable public procurement) (Samruk Kazyna, 2020). Moreover, the fund's report contains a description of the main stakeholder groups, their prioritization by the level of involvement and interest, and communication channels. Samruk Kazyna also provides a detailed list of requests according to these main groups, actions taken, and results of action.

Priority ESG target areas for TWF (2020) are identified through interviews and in-depth analyses with internal and external stakeholders. In addition to the priority areas, other ESG-related topics are also considered by the TWF and studied in the long-term TWF (2020).

These target areas are prioritized by the impact on business, social and environmental impact and include corporate governance (objective, management, quality of management unit, risk, and opportunity watch), water management (including freshwater availability and water pollution), climate change and emissions, cybersecurity (cyber-attacks, data hack, fraud...), and other ESG and sustainability-related areas.

While the general level of SWF stakeholders' engagement is rather high, qualitative matters like prioritization of the most material stakeholder requests. Clear disclosure of company sustainability action in accordance with these requests plays a vital role in consistent and credible SWF sustainability and responsible investment reporting.

Quite interesting peculiarities in SWF disclosure are that B-ranked funds are mostly oriented on ESGE criteria, while A-ranked funds go beyond B-ranked not only in ESGE disclosure but also in SDGs. Nevertheless, all SWFs investigated have comprehensive disclosure of all traditional ESG criteria and addressed investment policies to these criteria.

The benchmark of comprehensive ESG disclosure is the AIMCo report. The fund systematically considers material ESG factors within investment processes in accordance with our fundamental responsibility to clients. Among the two highest priorities, all ESG factors, climate risks and energy transition were mentioned. SWF conducted ESG due diligence and

screening on 27 investment deals worth ~USD 6 billion in the reporting year and conducted 180 ESG-related engagements with companies in 11 countries (AIMCo, 2021).

COFIDES (2020) is a benchmark of comprehensive ethically oriented disclosure. The Code of Ethics includes not only the behaviour that COFIDES expects from its professionals but also the fund's actions towards stakeholders. Its purpose is to serve as an ethical guide by establishing the values and obligations that should guide professional conduct within the SWF.

The Code of Ethics is supported by many funds' detailed guidance and procedures. The Anti-Fraud Action Plan contains various measures to prevent fraud, corruption, conflict of interest, and double funding, as does the Agreement on Combating Corruption of Foreign State Agents in International Commercial Transactions and the Manual of Procedures for Preventing Money Laundering and Financing of Terrorism.

In 2005, COFIDES joined the UN Global Compact initiative and introduced a model for the management of criminal risks. Moreover, COFIDES ensures the confidentiality and security of the personal data it deals with by implementing security policies and developing appropriate operational and technical measures COFIDES (2020).

While, in general, the ESG criteria are covered in SWF reporting, the main problem in ESG SWF disclosure remains ethical and anti-corruption disclosure, especially for B-ranked funds.

Just one fund from the A-ranked does not provide strong SDG alignment. The majority of B-ranked funds have a slight sustainability context. Of this group, only Mubadala, PIF, and Temasek have some general sustainability context and the 2030 Agenda references in their publicly disclosed information. For example, PIF focuses on sustainable investments, it is the world's most impactful investor, enabling the creation of new sectors and opportunities that will shape the future global economy (PIF, 2022). The main goal of Mubadala is to manage a diverse portfolio of assets and investments, create opportunities for future generations, and generate sustainable financial returns for its shareholders (Mubadala, 2022). However, this formulation is too general in terms of sustainability.

The general context of SDGs framework alignment is published in the AMICO Responsible Investment Report AIMCo (2021). All 17 SDGs are mentioned in the context of fund advisory activity without any further details.

A rather general understanding of the sustainability context in SWFs needs to be revised to better understand key fund opportunities and risks in this area.

It is obvious that many SWFs have ESG- and SDG-related engagements. Some investment portfolio criteria and projects generally can be referred to one or several SDGs or their targets. According to Sharma (2017), there has already been a large amount of investment made in SDG sectors, although this has primarily been done on a secondary or passive basis.

This study focused on the embedded and prioritized SDGs in the SWF investment activities and reporting and strict funds' alignment with the SDG framework.

In IE University (2021), there are several cases of SWFs' SDG-related deals:

- SDG 7 Affordable and Clean Energy – Temasek has 6 deals totalling USD 2519 million;
- SDG 9 Industry, Innovation and Infrastructure – PIF - USD 1853 million, GIC - USD 1570 million, ADIA - USD 1250 million;
- SDG 11 Sustainable Cities and Communities – QIA - USD 671 million, Mubadala USD 459 million;
- SDG 12 Responsible Consumption and Production – NIIF USD 671 - million, KIA USD 280 - million.

We have italicized the SWFs marked as A and B in our study because of the clear SDGs alignment disclosed in reports. Other SWFs have a general SDG-oriented focus but do not prioritize their investment engagements according to SDG targets and do not confirm them.

For SDG grouping, we used their typology, proposed by Sharma (2017), with one major correction. SDGs 1, 2, 4, 5, 10, 16, and 17 are not difficult to assess even through innovative new fund models, and public-private partnership investments. We pretended all SDGs were achievable through the specific SWF investment engagements, appropriate policy rules, and investment portfolio strategies. The abovementioned SDGs just have to be achieved through cumulative progress effect and depend on the progress of other SDGs.

Screening of our SWF sample with several SDGs disclosed and their strong priority allows us to draw conclusions (Table 2) about the existence of highly prioritized SDGs in funds' investment strategies.

Table 2. Prioritization of SDGs in SWF investment activity. Note. +++ High-priority SDGs by the number of engagements and projects mentioned, ++ Middle-priority, + SDGs mentioned.

SWF	SDGs																
	Highly investible			Climate SDGs			Assessable via innovation				Cumulative achievable SDGs						
	3	8	12	13	14	15	6	7	9	11	1	2	4	5	10	16	17
KIC	++	+++	+++	+++	+	+	+	++	+	+	++	+		++	+	+	
NZ Super Fund	++	+++	+++	+++	+	+	+	+	+	+	++	+		++	+	+	
COFIDES		+++		+				+	++		+			++	+		+
ISIF	++	++	+++	+++	+	+	+	++	++	+	+	+	+	++	++	+	+
Khazanah	+	+	+	+							+		+	+	+	+	+
Samruk Kazyna	+++	+++		+				++	++	+			++	+	++		+
PIF			+			+	+	+	+	+							

SDG priority and tracking the SDG progress in SWF reports is the key difference between A- and B-ranked funds. Also, 6 A-ranked funds provide a detailed description of SDG relevance and importance. Just 1 B-ranked fund has mentioned SDGs as a key eligible criterion for investing in green projects (PIF).

Among the most frequently mentioned and relevant to SWF investment priorities we should name SDGs 3 "Good health and well-being", 5 "Gender Equality", 7 "Affordable and Clean Energy", 8 "Decent work and economic growth", 9 "Industries, Innovation and Infrastructure", 10 "Reduced inequalities", and 12 "Responsible consumption and production". Insufficient attention is paid to SDGs 1 "No poverty", 4 "Quality Education", 6 "Clean water and sanitation", 11 "Sustainable cities and communities", 14 "Life below water", and 15 "Life on land".

There is a huge issue with SWFs' SDG 2 "Zero Hunger", 16 "Peace, Justice and Strong Institution", 17 "Partnership for the Goals" relevance and disclosure, which is rather low among all funds investigated. Nevertheless, they are the most affected SDGs by the food, safety, and energy crisis, caused by the Russian-Ukrainian war.

Some A-ranked funds have strong SDG orientation: NZ Super Fund (1,324 engagements prioritized within SDGs and 415 not prioritized engagements), and ISIF (2,457 engagements prioritized within SDGs). Some of them, such as COFIDES, describe an integral SDG implementation in one project called COFIDES Renewable Energy Program for Sub-Saharan Africa and include SDGs 1, 7, 8, 9, and 13. The Project devoted to indirect management of international institutions' budgets to achieve shared goals is one of the primary capacities developed by the company since it was accredited by the European Union (EU) to support development projects in host countries and by the Green Climate Fund to engage in climate finance (COFIDES, 2020). In these regards, COFIDES obtained the UN awards for the Investment Promotion in the SDG. Moreover, besides SDG prioritization, COFIDES is the only fund that provides a snapshot of fund portfolio added impact in accordance with relevant SDG targets: +4,234 jobs for women, 23,549 direct jobs, EUR 1,591.35 million rise in gross national product, etc.

Samruk Kazyna has a simple approach to SDG prioritization, namely, to demonstrate the general list of actions, related or planned to each SDG prioritized (Samruk Kazyna, 2020).

Khazanah developed the funds' Sustainability Targets to tackle the various challenges affecting Khazanah's portfolio in accordance with ESG and SDGs. Despite the absence of target prioritization, they have clear and measurable performance indicators, like Khazanah Carbon neutral operations by 2023 (according to environmental criterion and SDGs 12 and 13), 30% women in Board and senior leadership by 2025 (according to social criterion and SDGs 5), ESG-linked KPIs for key leadership positions for portfolio companies by 2023 (according to social criterion and SDGs 5 (Khazanah, 2021).

PIF is one of the SWFs whose efforts in SDG implementation are on the rise in 2022. PIF is supported by the Kingdom of Saudi Arabia's green agenda and committed to developing 70% of Saudi Arabia's renewable energy target by 2030 within the Green Finance Framework (PIF (2022)). This framework was adopted in accordance with the ICMA Green Bond Principles 2021 and Climate Bonds Initiative Climate Bonds Standard. In the Framework, the list of Eligible Green Projects is provided in the SDG context. The results of the project completion are expected after the reporting period ends.

To sum up, SWFs' ESG disclosure is more comprehensive than SDGs'. SWFs' SDG alignment is characterized by a too-general approach. Even the majority of the most sustainability transparent A and B-ranked funds demonstrate low efforts in incorporating SDGs into investment strategy, policy targets, portfolio screening criteria, and reporting.

Supporting the idea that SDG 13 is one of the most prioritized SDGs, we should stress that half of the SWFs investigated use the Taskforce on Climate-related Financial Disclosures (TCFD) framework. NZ Super Fund, COFIDES, ISIF, Khazanah, HKMA IP, GIC, Temasek, and Norway GPFG have mentioned this Framework in their reporting. The last one even published a separate TCFD report.

Though 4 SWFs do not have any specific climate-related target, other funds provide detailed scenarios of their carbon footprint or measure the GHG emissions of the entire portfolio, screening the investment in the context of the Paris Agreement, the United Nations COP26 conference, and the Glasgow Climate Pact.

The best-case example in this regard is Temasek. The Fund introduced Climate Impact X (CIX), a global exchange and marketplace for high-quality carbon credits, and targeted the reduction of the portfolio to half the 2010 levels by 2030, as we aim for net zero emissions at the overall portfolio level by 2050. To achieve this target, the fund focuses on investing in climate-aligned opportunities, enabling carbon-negative solutions, and encouraging decarbonization efforts in businesses (Temasek (2022)).

The assurance criterion is very important for SWF accountability under future generations, governments, societies, and other stakeholders, general financial transparency, as well as sustainability transparency.

As in the case of ESG and Exclusion policies, all A and B-ranked SWFs have approved their transparency with third independent auditing parties.

When the type of auditor opinion is that the "financial statement presents fairly in all material respects the financial position of the fund" for all funds investigated, there is a difference between the types of opinion providers.

The statutory auditor, like one of the assurance providers, is primarily addressed to SWFs acting as part or a core of countries' monetary authorities (ISIF, Future Fund, HKMA IP, Norway GPFG). SWFs, through their Auditor Committee, also assign mid-tier auditor companies (like Grant Thornton for KIC) or Big 4 companies – for mostly B-ranked SWFs.

It should be outlined that specific sustainability reporting verification is not typical for funds. The assurance provider issued an opinion primarily for SWF's financial statements as a core for evaluating the fund's performance, even in a sustainability context. The economic pillar is a vital pillar of sustainable development and is incorporated into the Santiago Principles (GAPP), OPSWF Framework, and LMTI index. So, this case is considered in our research as good and sufficient proof of funds' accountability and valuable support of stakeholders' trust and engagement.

Otherwise, several funds are now working in an "area for improvement" for other funds with demonstrated sustainability and responsible investment verified reports. For example, the NZ Super Fund used internal verification for the PRI transparency report. The first audit, according to IFC Impact Management Operating Principles, was conducted by COFIDES (COFIDES, 2021). PIF is the first fund in which the Green Finance Framework is aligned with the ICMA Green Bond Principles 2021 and the LMA Green Loan Principles 2021. This alignment is approved by DNV Business Assurance Service (UK), an internationally accredited registrar and classification company.

IFSWF membership, LMTI, OPSWF, or similar membership or other well-recognized standard adherence are the proofs of SWF institutionalized adherence to the principles of good governance, accountability, and transparency.

A-ranked funds have more active participants and founders of SWF communities, forums, and initiatives. Among A-ranked funds, only Norway GPFG is not a member of the International Forum of Sovereign Wealth Funds because of its status as a pension fund, and COFIDES is not included in the LMTI ranking, while all necessary criteria are fulfilled (Table 3).

An exceptional example of A-ranked funds is the One Planet Sovereign Wealth Fund initiative aimed at accelerating efforts toward the transition to a low greenhouse gas economy among SWFs and asset managers and founded by mostly B-ranked funds.

Other standards adhered to include the comprehensive set of sustainability or responsible and climate-related standards like IFRS, SASB, GRI, TCFD, CDP, PRI, Hermes Principles, UN Global Compact, etc.

Table 3. A and B- ranked SWF memberships and compliance with other standards.

Short name	IFSWF membership	LMTI	OPSWF membership	Other standard adherence
A-ranked funds				
KIC	1	1	1	1
NZ Super Fund	1	1	1	1
COFIDES	1	0	1	1
ISIF	1	1	0	1
Khazanah	1	1	0	1
Samruk Kazyna	1	1	0	1
AIMCo	1	1	1	1
Norway GPF	0	1	1	1
GIC	1	1	0	1
B-ranked funds				
Future Fund	1	1	0	1
HKMA IP	0	1	0	1
Mubadala	1	1	1	0
PIF	0	1	1	1
Temasek	0	1	0	1
ICD	0	1	0	1
Turkey Wealth Fund	1	1	0	0

In the case of B-ranked funds, there is a necessity to act as members of internationally recognized organizations and provide their activity in accordance with well-recognised frameworks.

DISCUSSION

Despite the importance and crucial role of SWFs in supporting sustainability progress (Graziano & Magni, 2022; Liang & Renneboog, 2020; Wurster & Schlosser, 2021), the researchers largely ignore this issue. Aspects related to the SDGs and SWFs are discussed in less than 0.01% of cases (7 publications on SDGs and SWFs out of 742 in Scopus and 8 publications out of 496 in the WoS database).

The results of the SWF publication dynamic analysis show a slight increase in SWFs' sustainability-related papers during the last five years. Subject area analysis shows the prevalence of Economics, Econometrics and Finance, Business, Management and Accounting, as well as Social Sciences in SWF and sustainability studies.

Summarized policy implications derived from the differences in SWF benchmarks are addressed first of all to enhancing the sustainability context in SWF operating frameworks and principles such as Santiago Principles – GARP and promoting the sustainability transparency best practice sharing among SWF associations. This matter requires regulatory partnership and coordination among government and SWF forums.

For all investigated funds, there is a huge problem with the further implementation of the exclusion policy caused by the current global food, safety, and energy crises. Disruption of traditional agri-food and energy value chains and increased safety and defence costs bring new requirements to SWF screening models.

There should be a clear articulation of SWFs' role in the 2030 Agenda for Sustainable Development and acceleration of SWFs' investment allocation into SDGs and ESGE-related projects with a set of specific sustainability or impact measurement metrics and indicators. The set of such metrics can be linked to industries and sectors of companies in SWFs' portfolio.

For all SWFs, strengthening the stakeholder partnership should be used constantly with deep prioritization of the most material stakeholder requests. Strong stakeholder engagement and communication policy are the prerequisites for a successful investment strategy.

Assurance practice in the SWF reporting process should be expanded for all fund reports: not only obligatory financial ones but also sustainability and responsible investment information with clear verification criteria and procedures.

Enhancing the SWF sustainability transparency of B-ranked and lower-ranked funds is connected with the standardized approach to funds' sustainability reporting and disclosure. So, developing specific sustainability disclosure standards and guidance oriented on SWFs is quite important to unify their reporting practice for greater accountability and stakeholder trust.

CONCLUSIONS

The existing gap in SDG funding is strongly deepened by the COVID-19 pandemic, the current global turmoil times, and the food, energy, and safety crisis caused by the war in Ukraine.

SDGs and the responsible investment architecture need to be revised completely. In this regard, SWFs' role as key funding enablers of SDG progress can be considered fundamental. The current study covers the ways in which SWFs act towards SDGs and sustainability value promotion and incorporate ESGE criteria into their investment strategies, portfolios, and reporting.

The main idea of this study is to investigate SWF transparency with an outlined sustainability focus and analyse best-in-bread cases of sustainability disclosure of the most transparent funds for creating benchmarks in SDG promotion by SWFs.

Bibliometric analysis proved that SWF sustainability transparency is quite new and insufficiently researched, as well as SWF sustainability and responsible investments. In the methodological aspect, the current study is a continuation of the previous 91 SWFs STI study. The questionnaire for the SWF reporting and sustainability disclosure was based on the best-in-bread practice (IMF Guidance on Good Fiscal Transparency Practices for Resource Revenue Management, Santiago Principles – GARP, OPSWF Framework) and covered SWF general sustainability focus, ESGE, SDGs, assurance and membership criteria. Case study and benchmark analysis were chosen as a methodology for detailed investigation of the 16 most transparent SWFs from all 91 samples.

Despite the difference in region, AUM, business strategy, and investment approach, A and B-ranked funds provided several sustainability transparency criteria if met for the entire fund sample. For example, all funds disclose ESG/Sustainability Policy, ESGE/SDG scoring (voting) rules for decision-making, and ESG criteria, articulate the active stakeholder engagements, and provide third-party assurance of the financial information disclosed.

Nevertheless, there is a qualitative difference between A and B-ranked funds in these common criteria as well as in the ethical criterion, SDG alignment, relevant SDGs, and specific climate-related target disclosure and funds membership criteria.

The main differences, sustainability disclosure challenges, and recommendations, especially for B-ranked funds are as follows:

1. A-ranked SWFs provide a more detailed set of sustainability and responsible investment policies. B-ranked funds should be more active in creating their own framework and incorporate SDG values and ESGE criteria as core in investment policy and strategy.
2. A-ranked funds provide more comprehensive sustainability and responsible investment reporting with defined regularity frequency. Some B-ranked SWFs should disclose their sustainability information on a more accurate and timelier basis.
3. Despite the general ESG criterion coverage, B-ranked SWFs should use A funds' experience in formalizing ethical, anti-corruption, crime, money laundering and cybersecurity policies.
4. As in previous recommendations, SWFs, especially B-ranked ones, should be more careful in SDG articulation: not list the general sustainability intentions and planned engagements, but show how SWFs are going or already proceeding with them. Impact measurement and key SDG targeting alongside SDGs and sustainable values should be incorporated, monitored, and disclosed on all levels of SWF governance and strategic documents.
5. In the case of climate-related targets or alignment with SWF internationally recognized frameworks and standards, B-ranked funds must engage more actively and ensure the implementation of these membership principles and standards.

The current results are the basis for future investigation of the specific channels, instruments, and regulatory measures for enhancing SWF sustainability transparency and their involvement in bridging the SDG funding gap.

ADDITIONAL INFORMATION

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CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

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ПРОЗОРІСТЬ СТАЛОГО РОЗВИТКУ СУВЕРЕННИХ ФОНДІВ: ПОРІВНЯЛЬНИЙ АНАЛІЗ І ТЕМАТИЧНЕ ДОСЛІДЖЕННЯ

Пандемія COVID-19 і поточна продовольча, енергетична та безпекова криза, спричинена війною в Україні, дуже вплинули на наявний дефіцит фінансування Цілей сталого розвитку. Відновлення глобального прогресу сталого розвитку та Порядку денного на період до 2030 року вимагає перебудови архітектури відповідального інвестування та переосмислення ролі суверенних фондів як найбільших інвесторів цього процесу.

У статті досліджено, як найбільш прозорі суверенні фонди діють у напрямі цінностей сталого розвитку, включають екологічні, соціальні, управлінські та етичні критерії (ESGE) до своїх інвестиційних стратегій, портфелів та звітності. Діяльність 16 фондів із високим рейтингом за індексом прозорості стійкості (Кавагнетто та ін., 2022) проаналізовано з використанням методів тематичного дослідження та порівняльного аналізу. Результати вказують на подібність розкриття інформації всіх фондів у рамках деяких критеріїв анкети, таких як політика сталого розвитку, правила підрахунку балів (голосування) для ухвалення рішень, критерії ESGE, взаємодія із зацікавленими сторонами та гарантія розкритої фінансової інформації. Однак було виявлено якісні відмінності між критеріями прозорості сталості фондів рейтингів А та В. Є також суттєві відмінності в реалізації етичних критеріїв фондів, узгодженості принципів сталого розвитку, актуальності його цілей, розкритті конкретних цілей, пов'язаних із кліматом, і критеріях членства у фондах.

Політичні наслідки, що витікають з відмінностей у контрольних показниках суверенних фондів, спрямовані на поліпшення контексту стійкості в операційних структурах фондів, розробку показників вимірювання впливу, визначення пріоритетності найбільш суттєвих запитів зацікавлених сторін, процедури перевірки стійкості та стандартизацію звітів про сталий розвиток фондів. Конкретні канали, інструменти та нормативні заходи, спрямовані на підвищення прозорості сталості фондів та їхньої участі в подоланні дефіциту фінансування сталого розвитку, можуть стати предметом подальшого дослідження.

Ключові слова: суверенний фонд, відповідальне інвестування, сталий розвиток, ESG, SDG, підзвітність, прозорість

JEL Класифікація: E22, G11, G23, H54, Q01

Short name	SWF	Year	Region	Country	Total Assets (USD billion)	LMTI 2021	GSR rank 2021	STI SWFs Score 2021	STI SWFs Rank 2021
NZ Super Fund	New Zealand Super-annuation Fund	2001	Australia and Pacific	New Zealand	39	10	3	100,0	A
KIC	Korea Investment Corporation	2005	Asia	South Korea	205	8	10	100,0	A
COFIDES	COFIDES	1988	Europe	Spain	1	-	15	94,1	A
Samruk Kazyna	Samruk-Kazyna	2008	Asia	Kazakhstan	69	10	19	94,1	A
ISIF	Ireland Strategic Investment Fund	2014	Europe	Ireland	16	8	4	94,1	A
Khazanah	Khazanah Nasional	1993	Asia	Malaysia	31	6	29	94,1	A
AIMCo	Alberta Investment Management Corporation	1976	North America	Canada	108	10	10	88,2	A
Norway GPF	Norway Government Pension Fund Global	2006	Europe	Norway	40	10	8	88,2	A
GIC	GIC Private Limited	1981	Asia	Singapore	799	7	32	82,4	A
Future Fund	Future Fund	2006	Australia and Pacific	Australia	183	10	2	76,5	B
Mubadala	Mubadala Investment Company	1984	Middle East	United Arab Emirates	284	10	9	76,5	B
Temasek	Temasek Holdings	1974	Asia	Singapore	283	10	1	76,5	B
HKMA IP	Hong Kong Monetary Authority Investment Portfolio	1993	Asia	Hong Kong	587	8	6	76,5	B
PIF	Public Investment Fund	1971	Middle East	Saudi Arabia	620	6	33	76,5	B
ICD	Investment Corporation of Dubai	2006	Middle East	United Arab Emirates	300	5	47	70,6	B
Turkey Wealth Fund	Turkey Wealth Fund	2017	Middle East	Turkey	22	6	56	64,7	B