

EMERGING RISKS FOR SOVEREIGN WEALTH FUNDS



AN OVERVIEW OF SOVEREIGN WEALTH FUNDS AND THEIR RISKS

PREPARED BY MICHELA SCHENA T'20, CBGS FELLOW



CENTER FOR ——— **BUSINESS, GOVERNMENT** Tuck & SOCIETY

TABLE OF CONTENTS

01

Executive Summary

04

Background on Sovereign Wealth Funds

09

Type of Funds

06

Emerging Risks for Sovereign Wealth Funds

Low or Negative Interest Rates12
Demographic Changes13
Geopolitical Shifts in Power15
Technological Disruption17
Climate Change18
Water Scarcity20

21

Unknown Risks and Adaptability

23

Conclusion

24

References

EXECUTIVE SUMMARY

The focus of this report is the six emerging global risks that are most important to publicly owned investors, as identified by the World Economic Forum. These risks are:

1. Low or Negative Interest Rates

Central banks lower interest rates below zero in order to incentivize banks to lend money and businesses to spend money rather than pay a fee to keep deposits at a bank. Negative central bank rates push down shortterm rates on other types of lending, which in turn influence consumer and business rates. Government owners are liability driven, withdrawing from their SWFs based on the fund's mandate. Thus, lower expected interest rates translate into a lower discount rate on the liabilities and a lower expected rate of return. As a result, a fund's investment policy and strategy may need to change in order to modify the strategic asset allocation, potentially increasing the risk tolerance of the fund. In terms of a fund's portfolio, highly liquid assets will be most affected by declining short-term rates, causing potential issues for stabilization and strategic development funds.

2. Demographic Changes

Demographic changes most commonly refer to an increasing elderly population and declining birth rate, but these issues can be exacerbated by immigration levels. An increase in the older cohort may bring about an asset meltdown, while a shrinking number of young people (who tend to buy rather than save) will further reduce the demand for all types of investments. Investment and consumer behavior may further change as a result of immigration, especially given less predictable rates of immigration in comparison to population aging. With either an aging population or a high youth population, governments may need to increase benefits related to pensions, healthcare, or unemployment, putting pressure on SWFs to meet these new expenditures. SWFs should also be concerned about these trends globally if they invest directly internationally or indirectly via markets.

3. Geopolitical Shifts in Power from Developed to Emerging Markets

The shift in power from developed countries to emerging markets is a result of developed market financial crises and a shift in the geopolitical landscape in recent years. This shift will define the emerging markets investment opportunity set going forward, wherein many emerging markets have become more resilient. Emerging market economies will be increasingly concerned with access to liquid capital markets in developed countries. In addition, sovereign investors must be aware of and willing to accept this heightened risk tolerance as emerging markets gain power in global capital markets.

4. Technological Disruption

Technological disruption will continue to become an increasingly persistent condition affecting both industries themselves and financial markets. SWFs need to consider how technology might accelerate change or have the potential to enhance domestic innovation capabilities. Further, the decision to include disruptive technology in the portfolio will depend on a fund's level of risk tolerance and its portfolio's current level of diversification.

5. Climate Change

Climate change poses a risk to portfolio performance, as well as potential systemic risks beyond underlying assets or individual fund portfolios. The physical risk of climate change is likely to cause damage to infrastructure, resulting in a loss of productivity and disturbance of international trade. The transition risk of climate change will result in the revaluation of assets as a result of the transition to a low or zero carbon economy. The liability risks of climate change will result from climaterelated legal liabilities for parties that have contributed to the problem, failing to properly manage climate-related risks or properly disclose them.

6. Water Scarcity

Water scarcity risks are increasing as a result of drought cycles, water quality concerns, and political and regulatory concerns. Governments, particularly in developing countries, will become increasingly responsible for bearing some cost of mitigating water scarcity. Thus, these risks may require SWFs to shift to a domestic investment focus in order to raise funds for mitigants such as desalination and water treatment.

The policies available to sovereign wealth funds (SWFs) to mitigate these risks will vary by the type of fund, specifically its investment mandate and institutional structure.

There are both institutional and portfolio risk factors associated with each of the emerging risks. Consideration of these risk factors will determine the recommended steps for mitigation. Furthermore, a discussion of how unknown or unexpected risks may affect the institutional and financial structure of SWFs highlights the need for adaptability. At the time of writing, the coronavirus (COVID-19) pandemic is one such unknown risk that poses an immense threat to global financial stability.

This report will provide background on the institutional structure and operations of SWFs. It will also introduce five classifications of SWFs, highlighting the variety of priorities and risks that funds face. Under this context, it will then examine the financial risk associated with six emerging risks identified by the World Economic Forum. It will specifically focus on the institutional and portfolio risk factors that impact how SWFs think about these themes.

BACKGROUND ON SOVEREIGN WEALTH FUNDS

Institutional investors are facing a growing number of complex and interconnected challenges that pose global risks to their portfolios. Sovereign wealth funds (SWFs) are one type of institutional investor that must undertake strategies to mitigate these risks at both the institutional and portfolio level.

A sovereign wealth fund is a state-owned investment entity whose funds are typically sourced from: balance of payments surpluses, official foreign currency operations, the proceeds of privatizations, governmental transfer payments, fiscal surpluses, or commodity export revenue. The scope of SWFs generally excludes foreign currency reserve assets, state-owned enterprises, and government employee pension funds. Total assets under management by SWFs have been growing rapidly, but estimates of their total holdings can vary considerably based on the definition of a SWF. High estimates put total SWF assets at around \$5 trillion.

SWFs are critical to global macroeconomic and financial stability. These funds are closely linked to public finances, monetary policy, and external accounts; as a result, coordination with macroeconomic policy and public sector assets and liabilities is essential for SWFs. A SWF's mandate, governance, source of funds, and investment strategy characterize the scope of the fund, and the robustness of these characteristics often determine the success of a sovereign investor.





Governments create SWFs for a variety of reasons specific to the economic and investment goals of that country. As a result, each fund has its own objective.

These can include stabilizing the budget and economy from volatility in revenues or exports, diversifying away from nonrenewable commodities, increasing savings for future generations, funding social and economic development, or furthering political strategy.

SWFs generally indicate that they do not engage directly in macroeconomic policies with three exceptions:

- 1. Transfers to the budget for targeted needs
- 2. Transfers to the central bank in cases of exceptional balance of payments or monetary policy needs
- 3. Stabilization of domestic businesses that are critical to the economy

There are two key determinants of an appropriate investment mandate: the objective and the risk tolerance of the fund. In general, the longer a fund's investment horizon, the higher its capacity to take on investment risk. Investment funds with an objective of intergenerational savings tend to view their long horizon as a competitive advantage and accordingly allocate more towards higher risk assets.

OWNERSHIP AND GOVERNANCE

The governance structure of SWFs is subject to much concern about a lack of transparency and political capture. Many funds have political leaders on their boards and may be tempted to inject capital into domestic firms due to political pressure. This can create product market distortions by favoring well-connected or poorly performing firms. The quasi-public nature of SWFs also highlights the gap in time horizon for fund investors, who seek to maximize financial returns for the benefits of long-term public policies, and political officials, who often have more short-term goals.

Regardless of the governance framework, the operational management of SWFs should be conducted on an independent basis to minimize political influence or interference. The governance and operational management will depend on the objectives of the fund and nature of its investments. Funds that function operationally as separate legal entities usually have a governance structure that differentiates an owner, a board, and the operational management of the fund. When the fund functions within the central bank, operational independence could be achieved through a clear legal foundation and oversight framework, in addition to a wellestablished relationship between the owner and central bank.

Finally, the governance structure must be commensurate with the risks and complexities of the investment strategy. As funds move into riskier assets and more complex investment strategies, governance and risk management must be strengthened as with large, private institutional investors.

SOURCE OF FUNDS

SWFs are often capitalized with balance of payments surpluses, official foreign currency operations, the proceeds of privatizations, governmental transfer payments, fiscal surpluses, or commodity export revenue.

The transfer of funds into SWFs are commonly made annually at the government's discretion. Norway represents a rare case where the allocation of revenues is dictated by a fiscal-rule framework, transferring all of the government's petroleum revenue to the fund and net revenues from the sale of shares in Norway's national oil company. Similarly, Singapore implemented a spending rule that caps the amount of returns the government may withdraw from its fund. These types of rules-based frameworks generally enhance transparency and accountability, especially when they are accompanied by political buy-in. Sound public financial management that dictates a SWF's funding, withdrawal, and spending operations should be clear and consistent with the purpose of the fund. Fiscal processes should allow for some flexibility in withdrawals so as to avoid borrowing, but this approach must be accounted for in the fund's strategic asset allocation.

INVESTMENT STRATEGY AND PORTFOLIO

The investment decisions and portfolio allocation of SWFs are often closely linked to their investment objectives and governance structure. SWFs typically allocate their assets across four investment classes: cash and equivalents, fixed income securities, public equities, and alternative investments (including private equity and venture capital, hedge fund, real estate, and infrastructure investments). Portfolio mixes, including liquidity preferences, are driven by the underlying economic and strategic priorities of the asset owners. Alternative investments are most commonly held by domestically focused strategic investment funds, which provide capital for domestic development, often focusing on infrastructure projects.

SWF holdings traditionally focus on external assets, using securities traded in major markets to respond to the fund's objectives; domestic holdings constitute less than a quarter of total investments by SWFs. Investment in infrastructure is not uncommon in SWFs portfolios with long-term investment horizons, but most SWF infrastructure portfolios focus on nondomestic, high-return existing infrastructure and low-risk, new infrastructure projects in Europe and Asia. The exception lies in domestically focused strategic development funds.

A fund's combination of asset classes is typically expressed as a strategic asset allocation, which sets a target allocation to asset classes. The rationale for this model rests on the belief that the most important determinant of a fund's risk and return characteristics is its exposure to a chosen mix of asset classes. An alternative approach, used by the Canada Pension Plan and the New Zealand Superannuation Fund, is a reference portfolio approach. Under this approach, the fund owner grants more discretion to the fund manager to determine the appropriate mix of assets. The owner provides only a hypothetical mix of listed equities and fixed income as a guide to the owner's risk preference.

TYPES OF FUNDS

Sovereign wealth funds (SWFs) are typically categorized based on their mandated policy objectives and resulting asset allocation. Although there are many variations on the accepted classifications, the International Monetary Fund (IMF) and the Santiago Principles distinguish five types of SWFs.

SOVEREIGN INVESTOR TYPE	MANDATE AND POLICY OBJECTIVES	MAIN SOURCES OF FUNDS	TYPICAL INVESTMENT STRATEGY
Stabilization Funds	Insulating the budget and economy from commodity price volatility and external shocks	 Resource revenues Excess foreign exchange reserves 	 Highly liquid portfolio Fixed-income dominated Low risk-return profile
Savings Funds	Share wealth across generations	 Resource revenues Excess foreign exchange reserves 	 Diversified portfolios Long-term horizon Active investment management with high risk- return profile
Pension Reserve Funds	Meet future pension-related outflows on the government's balance sheet	 Earmarked fiscal provisions Surplus government contributions 	 Diversified portfolios Long-term horizon
Reserve Investment Funds	Reduce negative carry costs on holding excess reserves	 Earmarked fiscal provisions Surplus government contributions 	 High allocation in equities and alternative investments High risk-return profile
Strategic Development Funds	Investing in high priority socio-economic projects	• Government transfers	• Large variation in assets and portfolios (may include debt, public and private equity, infrastructure and public- private partnerships)

EMERGING RISKS FOR SWF

The World Economic Forum's 2019 Global Risks Report identifies several themes that should be of increasing concern to players in the global economy.

First, macroeconomic risks include an increase in financial market volatility, as well as a gradual slowdown in the rate of global growth over the coming years. The global debt burden is significantly higher than before the financial crisis, and a general tightening of global financial conditions has increased pressure on countries that built up dollardenominated liabilities while interest rates were low.

The second theme relates to geopolitical and geo-economic tensions. Strained relationships appear to be rising among the world's major powers as the world evolves into a period of divergence following a period of globalization. Deepening tensions in the international system suggest that systemic risks may be building and that it will become increasingly more difficult to make collective progress on other global challenges.

Third, environmental risks have dominated the results of the World Economic Forum's Global Risks Perception Survey for several years. In 2019, they accounted for three of the top five risks by likelihood and four of the top five risks by impact. Survey respondents are increasingly worried about environmental policy failure as the results of climate inaction become clear.

Finally, concerns about technological vulnerabilities, including data fraud and cyber-attacks, were prominent in the Global Risks Perception Survey. Two-thirds of respondents expected the risks associated with fake news and identity theft to increase in 2019, and three-fifths said the same about loss of privacy to companies and governments. In 2018, there was evidence that cyber-attacks pose a risk to critical infrastructure, further heightening concern about broader technological disruption and the risks it poses.

EMERGING RISKS FOR SWF

This section provides brief background on each of the following emerging risks: low or negative interest rates, demographic changes, geopolitical shifts in power, technological disruption, water scarcity, and climate change. The background focuses specifically on the financial and market risk factors associated with the identified risk. This is followed by a set of potential institutional and portfolio risk factors that are important to sovereign wealth funds (SWFs) when considering each risk. Institutional risk factors are associated with the risk that the owner bears and has direct consequences for the operations of the fund relating to mandate, investment policy, or investment strategy. Portfolio risk factors are associated with the long-term volatility of returns relative to the current expected return of the fund.

SWFs have taken initial steps over the past few years to alter their investment strategies in a manner that begins to mitigate some portfolio risk associated with these six emerging risks. However, changes to mandate and governance are likely needed to provide further protection against a quickly evolving global investment environment. With differing mandates and objectives, each type of SWF will prioritize different risks. This section therefore also provides risk mitigation recommendations for each emerging risk.

LOW OR NEGATIVE INTEREST RATES

When an economy faces deflationary pressures, central banks typically reduce interest rates in an attempt to encourage consumers and businesses to spend money and raise prices. If conventional monetary policies fail to stimulate the economy, central banks may lower interest rates below zero to incentivize banks to lend money and businesses to spend money rather than pay a fee to keep deposits at a bank. Negative central bank rates push down short-term rates on other types of lending, which in turn influence consumer and business rates. This policy change also spurs banks and other investors seeking yield to buy short-term government debt, pushing up prices and lowering yields on these securities. Thus, rates on corporate bonds are in turn linked to yields on government debt. Moreover, because negative central bank rates affect bond market yields, they also affect bond benchmarks. There have been two prominent instances of negative interest rate policy in recent years. The European Central Bank lowered rates below zero in 2014, and the Bank of Japan dropped rates in January 2016.

Institutional Risk Factors

Most SWFs are liability driven, whereby the fund owner (typically the government) can withdraw from the fund based on its governing mandate. Since owner's are thus liability driven, lower expected interest rates translate into a lower discount rate on the liabilities and a lower expected rate of return. Because the liabilities have a higher value under this scenario, there are fiscal implications for owners. As a result, a fund's investment policy and strategy may need to change in order to modify the strategic asset allocation, potentially increasing the risk tolerance of the fund. This can be a significant change for funds such as the Norwegian Government Pension Fund, which has a clearly defined asset allocation and investment policy.

Portfolio Risk Factors

High liquidity assets (low-risk cash or nearcast assets) will be most affected by declining short-term rates. This is a high risk for:

- Stabilization funds, which typically invest in a highly liquid portfolio in order to smooth boom and bust cycles.
- Strategic development sovereign wealth funds, which may maintain a portion of their assets in a liquid portfolio in order to maintain capital for strategic investment.

A relatively short investment time horizon exacerbates this risk, leaving few alternatives to a low or negative yield in a low or negative interest rate environment. However, most SWFs have a long enough investment time horizon that they are not primarily concerned with short-term volatility.

DEMOGRAPHIC CHANGES

Declining birth rates and an increasing number of pensioners appear likely to have a disastrous impact on pension schemes and wealth creation globally. Even in a world of fully informed and rational agents, differences in the demand and supply of financial assets, a reflection of the differences in size across generations, may not be arbitraged away. This intuition is based on the trend of young adults increasingly investing as they begin to think about retirement, first in stocks and then in bonds. As individuals slide into retirement, they begin to sell assets in order to buy goods and services that they no longer produce, either directly through their own investments or indirectly through pension benefits. Retirees tend to liquidate their riskiest assets (stocks) before less risky assets (bonds).

From an economic perspective, an increase in the elderly population has a negative effect on savings, which causes interest rates to increase. This is a result of many elderly people running down the assets that they accumulate before retirement. An aging population is accompanied by an increase in longevity has a positive effect on savings, as people either spend less or work longer to earn more income, causing interest rates to decrease. At the same time, a decrease in the working-age population results in a decrease in labor input and raises the level of capital stock per labor input, making capital inputs relatively abundant and reducing the need for additional investment. Investment is also reduced when firms expect that the population, and therefore the future demand for production, will decline. These factors push interest rates down. However, when technological progress or labor-saving investment is prompted to compensate for decreased labor input, interest rates are pushed upwards.

Thus, demographic changes may result in several possible scenarios. First, an increase in the older cohort may bring about an asset meltdown. As post-war baby boomers retire, they will convert their investments to cash in order to consume more. At the same time, a shrinking number of young people (who tend to buy rather than save) will further reduce the demand for all types of investments. Second, investment and consumer behavior may change as a result of immigration, especially given less predictable rates of immigration in comparison to population aging. This is especially worrisome for countries with lower immigration rates.

Institutional Risk Factors

There are two possible scenarios associated with demographic change: an aging population and a high youth population.

When a country experiences an aging population, the government typically needs to increase benefits to the elderly, such as pension benefits and healthcare.



Simultaneously, an aging workforce is generally associated with slowing economic growth. Thus, the fund owner may seek to increase their withdrawals in the future, depending on when government expenses are expected to increase. This is a particularly large risk for pension reserve and savings funds.

In contrast, when the youthful population of a country is expected to increase, the government may need to pay out higher unemployment benefits or deal with high levels of immigration. Under this scenario, the fund owner may request more domestic investment in order to create more domestic jobs, changing the investment policy and strategy of its SWF.

Consistent with Japan's rapidly aging population, the Government Pension Investment Fund Japan (GPIF) is the world's largest pension fund, with approximately \$1.5 trillion assets under management. The fund manages the pension reserves for two of the country's main public pensions. Notably, the fund has an investment horizon of 100 years, demonstrating Japan's focus on demographic change. Further, GPIF announced in September 2019 that it plans to increase the range of sustainable indices to which it allocates money, enhancing the fund's efforts to hold companies accountable for their environmental, social, and governance responsibilities. In addition to several other innovative sustainable investing initiatives, this plan illustrates the extent to which GPIF has incorporated the principle of intergenerational dependency. The fund aims to achieve its investment goals with minimal risk for the benefit of pension recipients from a long-term perspective.

Portfolio Risk Factors

SWFs should be concerned about these trends globally if they invest directly internationally or indirectly via markets. There is significant literature estimating the effect of demographic change on portfolio returns and asset prices that is outside the scope of this report.

GEOPOLITICAL SHIFTS IN POWER

The shift in power from developed countries to emerging markets is a result of developed market financial crises and a shift in the geopolitical landscape in recent years. This shift will define the emerging markets investment opportunity set going forward, wherein many emerging markets have become more resilient. In addition to a lessening dependence on foreign borrowing, most emerging markets have moved to floating exchange rates, which serve as buffers against external financing shocks, such as an unanticipated tightening of U.S. monetary policy. Further, many emerging markets have established track records as credible inflation targets, and most emerging market central banks no longer need to embark on procyclical monetary policy tightening in the face of large exchange rate depreciations. As a result, domestic bond markets are better insulated, which in turn gives many governments recourse to counter-cyclical fiscal policies to stabilize growth and preserve debt payment capacity. In addition, the slow pace of monetary policy normalization in developed economies, which has resulted in low equilibrium interest rates and inflation pressures globally, is an important anchor for emerging market domestic and external debt prices. Given aging demographics, high debt levels, and

and weak productivity growth in developed economies, this trend is likely to continue.

However, these positive developments are juxtaposed against a fresh set of challenges, such as increasingly procyclical liquidity provision, a rising propensity for populist policies, and a temptation to rely on currency depreciation as a substitute for structural reforms. Thus, the liquidity risk premium for emerging market assets may be more procyclical than in the past. The less liquid nature of emerging market assets has always demanded extra care in scaling positions, but regulatory changes have reduced the intermediation capacity for traditional liquidity providers, while new computer-driven intermediaries with negligible capital buffers are prone to withdraw from the market when volatility rises.

Institutional Risk Factors

The increasing geopolitical power of emerging economies such as China, India, Brazil, Russia, Saudi Arabia, and Turkey is directly related to their enhanced economic and financial power in the world. These countries have amassed sizable capital that they are beginning to invest in sovereign funds. In this changing world order, savings and wealth flows from developed to emerging economies, while capital flows from emerging to developed economies.

GEOPOLITICAL SHIFTS IN POWER

As a result, one of the most critical concerns for emerging markets is access to liquid capital markets in developed countries. There are both soft barriers (access to markets) and hard barriers (trade barriers and sanctions) for these increasingly wealthy emerging powers. To the extent that developed economies can weaponize market access, this is a risk for emerging market funds.

Portfolio Risk Factors

There are several well-documented sources of risk for investors in emerging markets. Sovereign investors must be aware of and willing to accept this heightened risk tolerance as emerging markets gain power in global capital markets. First, there are liquidity constraints relating to market capacity, operational efficiency, and foreign accessibility in emerging markets. Market capacity refers to a country's domestic credit markets, the size of its equity and bond markets, the number of listed companies, and trading volumes and liquidity. These factors collectively facilitate the efficient allocation of capital and financial development of a country. Operational efficiency can refer to explicit trading costs, as well as implicit costs such as bid-ask spreads, market impact costs, market depth and breadth considerations, and market integrity. These costs may be exacerbated by both direct legal and indirect practical restrictions on foreign investment.

Other sources of risk in emerging markets are a result of the political, legal, and economic landscapes of developing countries. Corporate governance practices within countries and corporate transparency may affect investment opportunities in emerging markets. In addition, legal protection for investors tends to be less robust in developing countries. Finally, many investors consider political and economic stability to be primary sources of risk when investing, particularly in countries with a history of instability.

TECHNOLOGICAL DISRUPTION

Technological disruption will continue to become an increasingly persistent condition affecting both industries themselves and financial markets. Accenture has created a disruptability index to understand how the nature of disruption has evolved between 2011 and 2018 for 18 industry sectors. They found that 83 percent of industry sectors analyzed spent at least five years in the same period of disruption between 2011 and 2018. The consumer goods and retail sectors have been hit especially hard by technological disruption.

Despite the entrance of companies like Tesla and Netflix, technology represents a very small portion of the global high yield-bond market. Because bond investors prefer to avoid lossmaking companies with high growth plans, instead favoring more solid cash flows from companies whose prospects they can analyze, credit may be a safe haven from the technology fallout. The disruptive impact of technology may be reaching into parts of credit portfolios that are considered insulated. Examples include electric vehicles and self-driving cars in the automotive sector, as well as apps that are changing the nature and frequency of patients' hospital visits in the healthcare sector. Equity investors are more likely to tolerate the impact of disruption because of the potential upside, but the upside for credit investors is much more limited, resulting in a high risk.

Institutional Risk Factors

For heavily resource dependent countries, SWFs need to consider how technology might accelerate change, particularly their resource dependency. They might also become proactive investors in disruptive technology in order to diversify their portfolio, but this bears an increased risk appetite. Technological disruption may also give rise to more strategic investment funds as a strategy to enhance domestic innovation capabilities.

Portfolio Risk Factors

Technological disruption presents a considerable opportunity for high returns but also presents a significant risk to funds' current portfolios. By virtue of investing in disruptive technology, a fund might disrupt other companies in its portfolio. The decision to invest in disruptive technology will depend on a fund's level of risk tolerance and its portfolio's current level of diversification.



With their long-term investment horizons, SWFs are well positioned to play an important role in aligning capital markets with inter-generational sustainability and its associated investment risks and opportunities. Climate change poses a risk to portfolio performance, as well as potential systemic risks beyond underlying assets or individual fund portfolios.

The physical risk of climate change (the direct impact of changing weather patterns and natural disasters) is likely to cause damage to infrastructure, resulting in a loss of productivity and disturbance of international trade. SWFs are exposed to this risk through their ownership of individual assets and companies (particularly strategic investment funds).

The transition risk of climate change will result in the revaluation of assets as a result of the transition to a low or zero carbon economy. In addition, an estimated \$90 trillion in investment is required by 2030 in new sustainable infrastructure. As a result of the transition, the competitive advantage of regions is expected to shift.

The liability risks of climate change will result from climate-related legal liabilities for parties that have contributed to the problem, failing to properly manage climate-related risks or properly disclose them.

In addition to the physical, transition, and liability risks of climate change, which are primarily related to infrastructure and other assets, climate change poses a substantial risk that is interrelated with demographic change: migration. In 2017, 68.5 million people were forcibly displaced, and an estimated one-third of these were forced to move as a result of drastic and unforeseen weather events. In 2018, the World Bank estimated that three regions (Latin America, sub-Saharan Africa, and Southeast Asia) would generate 143 million additional climate migrants by 2050. Deterioration in desertification, sea-level rise, ocean acidification, air pollution, rain pattern shifts, and loss of biodiversity will exacerbate humanitarian crises and may lead to migration patterns that drastically shift countries' demographic makeups.

CLIMATE CHANGE

Institutional Risk Factors

Governments that choose to make a proactive investment in mitigating climate change risks and moving towards a net zero carbon economy may use SWFs as a vehicle for domestic investment in sustainability projects. Increasing domestic investment or shifting investment from an international to domestic focus both pose challenges to existing mandates and governance structures.

Portfolio Risk Factors

Investing concerns over climate change fall within the realm of environmental, social, and governance investing. Companies best insulated from climate change risk include renewable energy and corporations with green initiatives. Broadly, investors in renewables should take a long view and cast a wide net. From an investment perspective, these investments are held against comparable expenditures generated by traditional energy sources, which still remain highly profitable. Moreover, renewable and green tech investments can take many years to generate a return.



WATER SCARCITY

According to the United Nations, there are three major types of financial risk that a project or facility might experience due to water scarcity:

- 1. Financial losses due to disruption of operations
- 2. Increased financial investments due to required water treatment
- 3. Loss of an anticipated revenue base due to cancelled or delayed growth and expansion in a region due to quality, quantity, or stakeholder considerations

Financial institutions, which deal with these companies and projects as bankers, investors, or development aid organizations, face potential water scarcity risks associated with the financial losses or increased investment of their portfolio.

Water scarcity risks are increasing as a result of drought cycles, water quality concerns, and political and regulatory concerns. First, unexpected or chronic decline in water supply can significantly jeopardize business operations or raise the cost of operations, especially for companies that are water intensive. Lack of access to suitable clean water may in turn affect a company's financial performance and ultimately its ability to meet financial obligations. Second, most developing countries lack the capability to support advanced technologies to treat industrial wastewater and sewage. As a result, industrial and municipal pollution pose a significant risk for operations in developing countries, which are then passed through to businesses and financial institutions in the form of water pollution liabilities. Finally, strengthening regulatory mechanisms for water use and water pollution may affect businesses in addition to potentially higher water tariffs.

Institutional Risk Factors

Water scarcity and its associated risks will be particularly challenging for developing countries with a large population, such as India. Governments will become increasingly responsible for bearing some cost of mitigating water scarcity. Thus, these risks may require SWFs to shift to a domestic investment focus in order to raise funds for mitigants such as desalination and water treatment. By including domestic assets in its portfolio, a SWF may need to adjust its governance structure and mandate.

Portfolio Risk Factors

From an investment perspective, companies that require large amounts of water for processing, such as mining, will have portfolio risk for the reasons outlined above.

UNKNOWN RISKS AND ADAPTABILITY

While each sovereign wealth fund (SWF) has its own investment strategy and goals, many have a mandate to help stabilize government budgets.

The adaptable nature of these types of funds can provide resources needed to mitigate unknown or unexpected risks.

At the time of writing, the coronavirus (COVID-19) pandemic is putting immense pressure on the financial and organizational resources of governments around the world, and SWFs are in a unique position to help insulate the economy.

Norway has already utilized its pool of oil revenues to fight the economic impact of the coronavirus pandemic. On March 19, 2020, Norges Bank announced that it would draw down on its SWF to ease the economic impact of coronavirus in Norway. The Norwegian government typically uses oil revenues from the GPFG every year to offset budget deficits. As a fiscal rule, the petroleum revenue spending should not exceed the expected real return of the fund, which is currently at 3 percent. However, this extraordinary withdrawal aims to offset the increase in government spending and decline in government revenues that have resulted from the global pandemic.

RISKS AND Adaptability During Covid-19

In addition to the negative shocks of unknown risks, unexpected crises also have the potential to exacerbate existing institutional and financial risks. For example, the current economic conditions created by the coronavirus pandemic have resulted in a low interest rate environment. Coupled with a declining stock market, these conditions put immense pressure on funds' portfolios. In contrast, the pandemic has generated considerable interest in technology and biotechnology. These sectors, which have already experienced an increase in investment over the past decade, are likely to see heightened transaction volume post-crisis. The extraordinary circumstances caused by the pandemic have reinforced the need to invest in novel ways to maintain economic resiliency.

SWFs have large financial resources that they should use to address this crisis and protect against future ones. The crisis may focus attention on how these investment vehicles could adjust their operating principles for a post-coronavirus world. SWFs should define, with their governments, where risks need to be mitigated, aligning this aim with their nations' development needs. On the basis of their national priorities, SWFs should organize and implement concerted strategies and investment initiatives, pooling resources in areas of common interest. This strategy could lead to considerable international investment in fields such as medicine, pharmaceuticals and biotechnology, carbon management, food and water sustainability, and education. It will be critical for SWFs and their owners to carefully define investment strategies for development. In addition, the coronavirus pandemic has highlighted the need for adaptability in mandate and governance in order for funds to maintain resiliency.

CENTER FOR BUSINESS, GOVERNMENT & SOCIETY

CONCLUSION

Sovereign wealth funds (SWFs) experience many of the same priorities and challenges as traditional institutional investors, but they are inevitably and uniquely intertwined with their public sector owners' policy objectives.

This report has highlighted the importance of a well-defined mandate and robust governance structure to strengthen the relationship between fund and owner, resulting in greater fund independence and transparent investing principles.

The recommendation provided for each emerging risk are not dependent on the SWF's classification but rather provide operational and structural changes that will help funds to mitigate each risk. In addition, the need for resilience is highlighted through the acknowledgment of unknown risks; SWFs can be important assets in tackling unexpected crises if their adaptability is ingrained in the fund's mandate and structure.

REFERENCES

- Al-Hassan, Abdullah, et al. Sovereign Wealth Funds: Aspects of Governance Structures and Investment Management. International Monetary Fund, 2013.
- Bernstein, Shai, et al. "The Investment Strategies of Sovereign Wealth Funds." Journal of Economic Perspectives, vol. 27, no. 2, 2013, doi:10.3386/w14861.
- Debrun, Xavier, et al. "Fiscal Rules: Make them Easy to Love and Hard to Cheat." International Monetary Fund, 13 Apr. 2018, https://blogs.imf.org/2018/04/13/fiscal-rulesmake-them-easy-to-love-and-hard-to-cheat/.
- Gelb, Alan, et al. Sovereign Wealth Funds and Domestic Investment in Resource-Rich Countries: Love Me, or Love Me Not? The World Bank, 2014.
- The Santiago Principles consist of 24 generally accepted principles and practices voluntarily endorsed by members of the International Forum of Sovereign Wealth Funds. The Principles promote transparency, good governance, accountability and prudent investment practices. They also encourage a more open dialogue and deeper understanding of SWF activities.
- IMF January 2020 WEO
- "World Economic Outlook, September 2004: The Global Demographic Transition." World Economic Outlook, 2004.
- Kuroda, Haruhiko. "Demographic Change and Challenges for Financial Sector." Remarks at the Paris EUROPLACE Financial Forum in Tokyo, 2018.
- Riding, Siobhan. "World's Biggest Pension Fund Steps Up Passive Stewardship Efforts." Financial Times, Financial Times, 16 Sept. 2019, www.ft.com/content/8e5e0476-f046-3316b01b-e5b4eac983f1.
- Frieda, Gene. "Shifting Realities and Opportunities in Emerging Markets." PIMCO, Sept. 2018, www.pimco.com/en-us/insights/viewpoints/shifting-realities-and-opportunities-in-emerging-markets.
- Foulke, David. "6 Risks of Emerging Markets Investing." Wharton Magazine, 16 July 2015, magazine.wharton.upenn.edu/digital/6-risks-of-emerging-markets-investing/.
- Abbosh, Omar, et al. "Breaking Through Disruption." Accenture, www.accenture.com/_acnmedia/Thought-Leadership-Assets/PDF/Accenture-Breaking-Through-Disruption-Embrace-the-Power-of-the-Wise-Pivot.pdf#zoom=50.
- Fletcher, Laurence. "Credit Investors Should Be Wary of Tech Disruption Risk." Financial Times, 7 Jan. 2019, www.ft.com/content/650f5376-129c-11e9-a581-4ff78404524e.
- "Challenges of Water Scarcity." The United Nations Environment Programme Finance Initiative and Stockholm International Water Institute, 2005.
- "Challenges of Water Scarcity," 2005.
- Podesta, John. "The Climate Crisis, Migration, and Refugees." Brookings, Brookings, 4 Sept. 2019, www.brookings.edu/research/the-climate-crisis-migration-and-refugees/.
- Benedetti, Davide, et al. "Climate Change Investment Risk: Optimal Portfolio Construction Ahead of the Transition to a Lower-Carbon Economy." Annals of Operations Research, 2019.
- Min, Sarah. "Norges Bank Draws Down Oil Revenues to Ease Coronavirus Impact." Chief Investment Officer, 19 Mar. 2020, www.ai-cio.com/news/norges-bank-draws-oil-revenuesease-coronavirus-impact/.
- de Montpellier, Louis. "New Focus for Sovereign Funds." OMFIF, 1 Apr. 2020, www.omfif.org/2020/04/new-focus-for-sovereign-funds/.