

# CHAPTER 1

## Sovereign Investors Rising in Crisis

*Passing through the understory of lounge chairs and low tables, you approach the bar with a view of televisions carrying the major international news channels. The suited barista serves up the coffee of your choice and you relax briefly as you scan your emails on the free wifi, glance at a few of the international papers and periodicals, and recover from the constant bustle just outside the lounge – business professionals from a multitude of lands clearing security and taking elevators from the towering atrium.*

*No, you are not in the first-class lounge at an international hub airport (although it might well be one from all appearances). You have arrived, instead, at the visitor lounge in the hometown high-rise offices of Abu Dhabi Investment Authority, one of the world's largest and lowest profile sovereign wealth funds. ADIA manages its vast \$700 billion plus global portfolio from this edifice where it employs investment professionals from around the world in a gleaming glass tower that would not look out of place in any world city. And ADIA is but one of the growing number of large sovereign wealth funds that remain below the radar but have an increasing impact on global markets.*

**T**heir low profile is in contrast to the better known deal-makers in the centers of finance. But their checkbooks and influence on the world at large outweigh the erstwhile titans of finance.

And as the number and size of such operations continue to surge, their influence does as well. Large as they are, in crises they have an even larger role to play. As this book went to press, the world was facing a pandemic, an inflection point where two themes of this book converged in sharp relief: the

power of these massive funds in times of crisis and the world's now urgent march to the digital economy.

## Trillion-Dollar Club

The global economy has witnessed the emergence of a new set of key actors over the last two decades – the Sovereign Investors. In this group we include Sovereign Wealth Funds (SWFs) and the very large Public Pension Funds (PPFs), which are active in the global marketplace and have many of the characteristics of SWFs. The concept of SWFs also includes sovereign development funds (SDFs), government established investment vehicles with development objectives.

These Sovereign Investors have become pivotal players in global financial markets thanks to their enormous capital base, and they continue to increase in number, size, variety, and scope. This group of highly heterogeneous funds has different backgrounds, structures, and missions, but they share one ultimate goal: to preserve capital and maximize the return on investments. As such, in this book they are collectively referred to as the **Sovereign Investment Funds (SIF)**.

How much money are we talking about? Tens of trillions of dollars sit in these funds. **Table 1.1** shows the top ten sovereign wealth funds ranked by assets under management (AUM). The very top funds manage monies exceeding the GDP of

**Table 1.1 Top Ten Sovereign Wealth Funds**

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1.	<b>Government Pension Fund of Norway</b> , Europe, \$1,108,170,000,000
2.	<b>China Investment Corporation (CIC)</b> , Asia, \$940,604,000,000
3.	<b>Abu Dhabi Investment Authority (ADIA)</b> , Middle East, \$696,660,000,000
4.	<b>Kuwait Investment Authority (KIA)</b> , Middle East, \$592,000,000,000
5.	<b>Hong Kong Monetary Authority</b> , Asia, \$509,353,000,000
6.	<b>GIC Private Limited</b> , Asia, \$440,000,000,000
7.	<b>National Council for Social Security Fund</b> , Asia, \$437,900,000,000
8.	<b>SAFE Investment Company</b> , Asia, \$417,844,700,460
9.	<b>Temasek Holdings</b> , Asia, \$375,383,000,000
10.	<b>Qatar Investment Authority (QIA)</b> , Middle East, \$328,000,000,000

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Data Source: Sovereign Wealth Fund Institute, March 2020.

good-sized European countries. If AUM were GDP, they would rank among the top 20 nations.

As is discussed in more detail below, these sovereign investors are derived from different sources and serve different ends. But a common factor is their growth in size and geographic spread. Commonly thought of as a Middle Eastern phenomenon, broadly viewed, the funds are based in much of the developed world and include very large funds from North America, East Asia, and Europe as well as the Gulf. Increased growth is expected to come from other regions, most notably, sub-Saharan Africa, where natural resources may be the source and domestic economic development the objective.

Currently, according to the Sovereign Wealth Fund Institute's (SWFI's) "Top 86 Largest Sovereign Wealth Fund Rankings by Total Assets," the top ten largest sovereign wealth funds ranked by total assets are as shown in **Table 1.1**.

Public Pension Funds are important members of the SIF tribe. They are even larger, as the table below indicates; they are global and they are innovative, increasingly focused on tech innovation. GPIF (Japan), NPS (Korea), CPPIB (Canada), and CalPERS (US) are well known in the capital markets for their active investments (see **Table 1.2**). This combination of

**Table 1.2 Top Ten Public Pension Funds**

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1.	<b>Social Security Trust Funds</b> , North America	\$2,925,789,929,172
2.	<b>Government Pension Investment Fund Japan (GPIF)</b> , Asia	\$1,490,240,000,000
3.	<b>Military Retirement Fund</b> , North America	\$813,555,000,000
4.	<b>Federal Employees Retirement System</b> , North America	\$687,000,000,000
5.	<b>National Pension Service of Korea (NPS)</b> , Asia	\$593,192,000,000
6.	<b>Federal Retirement Thrift Investment Board</b> , North America	\$572,370,000,000
7.	<b>Zenkyoren Pension Japan</b> , Asia	\$523,463,576,000
8.	<b>Stichting Pensioenfonds ABP</b> , Europe	\$476,000,000,000
9.	<b>Canadian Pension Plan Investment Board (CPPIB)</b> , North America	\$385,634,000,000
10.	<b>California Public Employees Retirement System (CalPERS)</b> , North America	\$370,300,000,000

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Data Source: Sovereign Wealth Fund Institute, March 2020.

characteristics reinforces the perception of SIFs as savvy, silent heavyweights in the world's private and public markets.

Given this enormous concentration of wealth, it is no surprise that these giants have been viewed as **economic superheroes**, repeatedly turned to in times of crisis: in war, in the global financial crisis, and now in pandemic. Like superheroes, each has a role to play and some have even morphed to encompass additional roles, particularly when, as now, a new crisis arrives on the scene.

And their ranks continue to swell at an increasing pace. Assets under management continue their relentless rise while new funds emerge. The establishment of new funds is not a region-specific trend, as can be illustrated by funds being set up across the globe, including the Hong Kong Future Fund, Holdings Equatorial Guinea 2020, and West Virginia Future Fund. Europe is especially interesting, because Europe traditionally is not a significant player when it comes to sovereign wealth. (The **Norway Government Pension Fund** (also known as the Oil Fund), managed by Norges Bank Investment Management (**NBIM**), is considered the world's largest SWF, but it sits outside the European Union.)

There is now a Luxembourg entrant into the SWF world: Fonds souverain intergenerational du Luxembourg, which will invest for many generations to come. Also in Europe, the French, Italian, and Spanish funds, among other nations, emerged as a solution to attract other foreign players to co-invest with them in their respective domestic economies. Even a UK Citizens Wealth Fund has been proposed. But look to sub-Saharan Africa for the next surge of sovereign investors. While Nigeria and Kenya are highlighted in case studies later in this chapter, there are also sovereign funds in Algeria, Angola, Botswana, Ghana, Libya, Morocco, Namibia, and Rwanda. Not to be left behind, others, such as Japan and India, have also joined their ranks.

### Talk vs. Walk

There are two main approaches that institutional investors deploy when they seek to influence the strategies of their portfolio companies. To achieve environmental, social, and governance (ESG) aims, for example, they may remain as shareholders and engage with the top management and boards of such companies in order to reduce emissions (the “talk” channel). Or, they can “vote with their feet,” by divesting polluting companies from their portfolio (the “walk” channel).

NBIM is well positioned for active engagement with public companies’ management. By most accounts, its \$1 trillion plus portfolio holds, on average, 1.5% of every listed company on Earth. NBIM’s latest report on responsible investing released in March 2020, covering its 2019 voting, engagement with management, and follow up, runs to over 100 pages. Of the more than 9,000 companies in which it holds voting shares, NBIM cast votes in more than 97%, and it was not shy about voting against management even in its top holdings, such as Google, Amazon, and Facebook.

For climate change, NBIM has exercised both options: on the one hand engaging with companies developing strong decarbonization strategies; and on the other hand, divesting from heavy polluters like coal and fossil fuel companies. An ongoing and intriguing debate among SIF investors is whether it is better to divest, or better to engage. In practice, many SIFs use both channels and typically start with “talk.”

Arguably, both strategies can be effective, and they can interact with each other, as the threat of “walk” can reinforce the influence of “talk.” And sometimes the line is quite nebulous. “It’s easy to have a slogan,” said Raphael Arndt, the **Australia Future Fund**’s Chief Investment Officer. “But if someone says, ‘Get rid of fossil fuel companies’, do I sell AGL? That’s also my biggest exposure to renewables.”

**Their size alone** means that their actions, collectively and even individually, can have material impacts even when the intent is simply prudent management. For example, Norway’s fund holds, on average, 1.5% of every listed company on earth, making it an investor that boards around the globe must heed (see **Box: Talk vs. Walk**). Japan’s **GPIF**, the world’s largest pension fund, was fingered by financial journalists as

the mover behind an unexpected drop in the value of the yen. The action by GPIF to rebalance its portfolio in favor of more non-Japanese investments was enough to change the course of the \$6 trillion daily volume of the foreign exchange markets. Wherever these giants turn their gaze, the impact is felt.

Their rise is taking place at a time when governments become ever more active players in markets across the board. This chapter surveys the universe of sovereign investors from a comparative political economy perspective. We will introduce their little-known enormous capital power for global investments, looking at how each is cast in a role, and how many have responded to the crisis of today, those of the past, and are anticipating those of the future.

## Follow the Money

Understanding how these actors of gargantuan proportions are funded and assigned their missions is key to grasping the unique nature of their power in the world. It is important to understand that the funding source and motivation for creating a sovereign investment fund varies widely and has an impact on its operations, structure, and investment profile. Most funds, with increasingly broadened mandates from their home states, perform more than one of the functions outlined here; in countries like Nigeria, multiple sovereign funds are established for different policy objectives of savings, stabilization, and development (see **Figure 1.2**).

**First**, the most widely known SWF is the **long-term savings fund** for the country's future generations (as such, also known as "**intergenerational funds**"). Savings funds are often set up by commodity-rich countries to save a portion of their resource wealth for the future. (As the cases below illustrate, sometimes the future arrives sooner than expected. And in unexpected ways.) Oil, gas, and precious metal reserves are finite: one day they will run out. There is also a risk that these resources will become stranded assets as climate-change regulation and green-energy alternatives may render hydrocarbon extraction uneconomic.

Using their SWFs to convert today's resource wealth into renewable financial assets, governments can hope to share the windfalls of today with the generations of tomorrow. The world's oldest SWF, the **Kuwait Investment Authority (KIA)**, is a good example, dating back to 1953. According to its website, it invests financial reserves to "[provide] an alternative to oil reserves, which would enable Kuwait's future generations to face the uncertainties ahead with greater confidence ...". Such uncertainties did arrive, with war and pandemics.

The fund for future generations of Kuwaitis did not have to wait for the oil to run out before it was called upon. After Kuwait had been sacked during the seven-month long Iraqi occupation in 1990, KIA provided over \$85 billion (nearly \$169 billion in 2020 dollars) to rebuild the Emirate. Its oilfields set ablaze by retreating Iraqi forces, the country was devastated in the wake of the occupation. With funds invested abroad for nearly four decades, the fund was at the ready to reconstruct its economy and physical infrastructure. And now, as recounted in **Chapter 4**, Kuwait sovereign funds are building, snug against the Iraqi border, a smart city of the future featuring a planned kilometer-high skyscraper.

The long-term savings funds of the oil-laden Gulf States also got the call to save the world a scant two decades later as the global financial crisis of 2008–2009 threatened to kill off the world's largest financial institutions and take the global economy with them. As we will explore in **Chapter 8**, KIA and **ADIA** of UAE in short order poured more than \$10 billion into Citibank alone. And the Gulf States were not alone in riding to the rescue: **CIC** of China put nearly \$10 billion in Morgan Stanley, and Singapore's twin SIFs, **GIC** and **Temasek**, dropped nearly \$24 billion into Merrill Lynch, UBS, and (yes, again) Citibank (see **Figure 1.1**).

And now, as the coronavirus pandemic has rocked the world's financial markets, these economic superheroes are at it again. Amid the stock market turmoil, by early April 2020, **Saudi Arabia's PIF** had spent well over \$7 billion to pick up stakes in the battered oil majors of Europe, ENI, Equinor, and Royal Dutch Shell as well as others. The moves provoked a

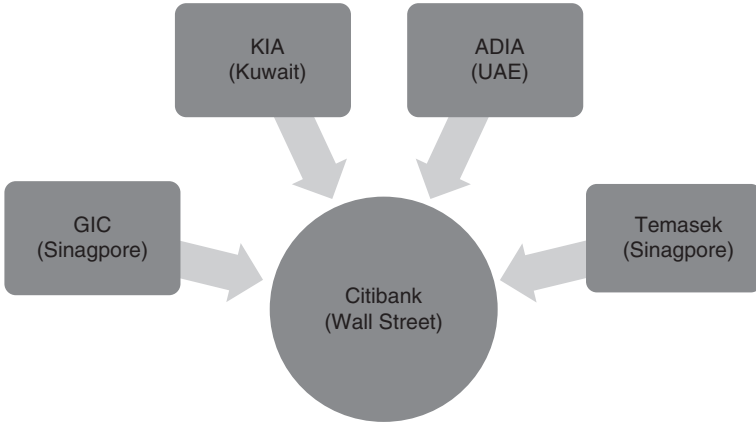


Figure 1.1 **SIFs to the Rescue of Citibank**

tightening of foreign investment restrictions in Italy, Germany, and Spain, exacerbating the tensions explored in **Chapters 8 and 9** (hugely different from the “white knight” cheers received during the previous global crisis).

Interestingly, PIF also laid out nearly \$370 million to scoop over 8% of Carnival Cruises after the company’s shares had plummeted over 75% due to the coronavirus pandemic and then over \$500 million on a nearly 6% stake in similarly depressed live entertainment giant, LiveNation. Filling its pandemic shopping cart, PIF abandoned a £300 million purchase of English football club Newcastle United. As we will see in later chapters, PIF is instrumental in weaning the Kingdom’s economy from its dependence on oil, with tourism as a focus. What looks like an opportunistic (or, from another viewpoint, perhaps even altruistic) move, is just as likely a move to serve the economic transformation.

Meanwhile, in the **US**, the economic dislocation has positioned the US to enact a \$2 trillion stimulus package in 2020 known as the CARES Act. The legislation contemplates the US government owning shares in companies as a result of its bailout cash injections, a switch from its loan-based bailouts of the global financial crisis. Apparently anticipating voter demands that the taxpayers enjoy the potential corporate

upside of the \$2 trillion stimulus package, the Act mandates that, this time, loans include warrants, equity or participating senior debt. Only seen to a limited extent in the past (for example in the bailout of the US auto industry), the equity requirement is across all sectors and could result in the US government creating what is, in effect, a sovereign wealth fund.

Alaska already enjoys a SIF. In the pandemic, it is expected to disburse from its oil-funded coffers \$3.1 billion, about 5% of its assets.

In addition, in a parallel to sovereign funds in many nations, the **Federal Reserve**, the US central bank, has been given a role as equity investor of last resort. The CARES Act provides for \$454 billion fund for investment by the Federal Reserve. Within that fund is a facility specifically authorizing the Fed to purchase new security issuances in its efforts to maintain liquidity in markets. In this new age, Congress has not limited the facility to purchases of debt obligations. Yet, Janet Yellen, former Chair of the Federal Reserve, has argued for increasing the role of the Federal Reserve in capital markets even more, citing examples of other central banks like Japan that have broader authority to buy equity securities in the open market. When the world is facing down a global pandemic, the utility of sovereign investment funds becomes evident to the most seasoned observers.

### Dutch Disease

The Dutch Disease was first diagnosed by *The Economist* in 1977, in reference to the economic conditions burdening the Netherlands after the discovery of large offshore natural gas deposits in the 1950s which were blamed for loss of competitiveness.

In connection with natural resource windfalls, currency appreciation can distort the local production economy, as exports become less competitive and labor shifts into the extractive industry. In the case of the Netherlands, unemployment soared from 1.1% to over 5% in the 1970s and investment moved abroad while gas exports surged.

Studies have since examined the other detrimental effects of commodity dependence and ways to mitigate its effects. Moving the commodity cash to a sovereign investment fund is one approach, which may save some of the natural resource wealth for the benefit of future generations while promoting a diverse and sustainable economy after the resources are exhausted. By investing strategically in the domestic economy, a sovereign investment fund can encourage a more diversified export sector.

Sovereign wealth funds have also long been deployed to fight more metaphorical health risks. By investing overseas, savings funds in commodity-rich countries can also help prevent Dutch Disease, whereby a surge in commodity exports leads to a sharp rise in foreign exchange inflows, generating inflationary pressures and damaging the competitiveness of other economic sectors (see **Box: Dutch Disease**). With natural gas reserves dwarfing those of the Netherlands and a much smaller economy, Qatar has followed this approach and invests its massive surpluses abroad.

In 2019, the **Qatar Investment Authority (QIA)** reportedly acquired the stately St. Regis Hotel, steps from the Trump Tower on New York City's Fifth Avenue, one in a string of trophy hotel properties snapped up with funds from abundant natural gas exports of the lightly populated sheikdom. This is clearly a move that fits well within the accepted paradigm: a prime property in a global city functioning as a store of wealth for a small country in an unstable region. It also demonstrates that being a global investor when a pandemic hits may have its downside. Unlike the more recent move by PIF on Carnival Cruises, however, the timing of the move into hospitality could have been better. But a long-term investor will not worry. In fact, Qatar has reportedly borrowed £10 billion in anticipation of pursuing foreign assets at bargain prices.

Another source of savings in trade-based economies like **China**, is foreign exchange reserves accumulated from import and export. The “made in China” companies sell their

goods overseas – shoes and jeans, or assembled iPhones and laptops – to American and European buyers, bringing back dollars or other foreign currencies. Then the central bank intervenes by printing local currency and buying the dollars for cash from the exporting companies. Traditionally, the central bank, through its investment arm **SAFE (State Administration of Foreign Exchange)**, mostly invested the dollars in the US government treasuries for safety and liquidity. As China's reserve reached trillions of dollars (at its peak, an astounding \$4 trillion), the second sovereign fund, China Investment Corp (CIC), was established in 2007 to seek better risk-adjusted returns.

**Second, fiscal stabilization funds.** SWFs in this category aim to facilitate the fiscal stability of their country's economy, as well as stabilize its exchange rate in certain cases, in the event of an external shock. Often, commodity-rich nations create these funds to manage revenue streams; when commodity prices are high, money goes in, and when commodity prices are low, money goes out – to stabilize the budget. By helping to smooth out commodity revenues, stabilization funds can help governments avoid extreme peaks and troughs in the cycle. These funds are also used to help stabilize the value of the country's currency during macroeconomic shocks.

To fulfil this objective, these funds have short investment time-horizons and tend to hold a large proportion of their assets in liquid investments (and fewer private market investments). This largely limits them to fixed income products, as high exposure to equities and alternatives investments could result in more volatility and less liquidity, putting their ability to intervene on behalf of their economy at risk. **The Economic and Social Stabilization Fund (ESSF) of Chile**, the copper-rich country in Latin America, is the classic example. Founded in 2007 to repay public debt and fund fiscal deficits, ESSF is not a return-oriented fund, and it has kept its original objective over the years.

This can be seen in action in the 2020 coronavirus pandemic. One of the functions that the oil funds of the Middle

East have come to provide is budget stabilization, and they are called back from their day jobs to sustain their home economies. Suffering the double whammy of record low oil prices and the economic shock of the coronavirus, the Gulf states are expected to draw down from their enormous funds to cover government deficits and to fund stimulus spending.

In April 2020, Bloomberg News estimated that bankrolling their governments' stimulus packages, coupled with the decline in asset values and loss of oil surplus inflows, would cause a \$300 billion drop in the assets of the funds of Abu Dhabi, Kuwait, Qatar, and Saudi Arabia. With over \$2 trillion in assets going into the crisis, they are up to the task. Of course, Wall Street feared that much of the needed cash would be derived from liquidating the funds' massive investments, sending the money managers scrambling to replace the capital on which they have become reliant. In fact, the Gulf SIFs generated even more fees for the money managers by borrowing billions instead of selling at depressed prices. These giants have impacts that reverberate globally.

On the Gulf's frontline in the pandemic battle, the **UAE's Mubadala Investment Company (Mubadala)** was reported to be in discussions to invest in a rescue package for a troubled local healthcare company, NMC Health, the UAE's largest healthcare provider. While the AI and biotech companies in the portfolios of Mubadala and other SIFs search for cures and preventatives around the world, Mubadala is being called upon to keep the healthcare system afloat at home. In Southeast Asia, oil producer **Malaysia** is also turning to its sovereign fund, **Khazanah**, to aid the discount airline Air Asia. Khazanah has been called upon to guarantee loans to the discount airline, which is suffering from the dire effects of the coronavirus on the travel industry.

**Norway's Oil Fund**, the world's largest sovereign fund, is also at the ready to stabilize its domestic economy. Started in 1996 as a budget stabilization vehicle, the fund has grown to well over twice the country's GDP, hence it is viewed more as an intergenerational savings fund (see **Box: Transparency at**

**its Core**). However, to cover the massive costs to Norway of coronavirus-induced shock, the fund will be called upon to provide cash directly to fund its government – anywhere from \$13 billion to as much as \$25 billion or more, as the price of oil, its sole funding source, drops to record lows in 2020.

### Transparency at its Core

Norway's Oil Fund could be the dictionary definition of “transparent.” It even once displayed on its website a constantly changing calculation of its market value, spinning like the numbers on a gas pump – or a slot machine. With population statistics, each Norwegian could immediately calculate his or her “share.” And that share is not insignificant. At \$1.1 trillion, for a country Norway's size, that works out to over \$200,000 per person.

Its dedication to transparency has limited it largely to public markets, unlike its more opaque peers that allocate heavily to private markets for better returns. Initially, bonds comprised the entire portfolio, with the fund moving into a 60/40 allocation in favor of equities just at the dawn of the global financial crisis a decade ago. It promptly lost 23% of its value. During the crisis, the fund doubled down on its equities bet, buying \$175 billion of listed shares, representing 0.5% of the world market (and enjoyed a long bull market run). The same tactic may not work in 2020, as the fund will be called upon to perform its budget stabilization function amid the coronavirus pandemic and record low oil prices. The government will call upon 4.8% of the fund's assets to fund pandemic costs.

Despite the nickname, the fund has also long been a leader in ESG principles. As an oil-based fund, that may seem odd. But there is a prudent rationale behind the bias. Norway's wealth is derived from oil and an intergenerational or budget stabilization fund has a mandate to mitigate the risk of that concentration. Looked at that way, the focus on sustainability makes for prudent investment management for a fund destined to support future generations even after the oil runs out.

ESG leadership and dedication to transparency nonetheless did not prevent an embarrassing misjudgment. The fund's retiring head failed to disclose his accepting a ride home from the United States in a private jet belonging to the hedge fund manager who was then a candidate to replace him. The succession remained in question for the scheduled September 1, 2020 start date over conflicts of interest. Living in a glass house is not easy.

But even this heightened Nordic obsession with transparency does not prevent some window dressing: also known as the Government Pension Fund of Norway, the fund name misleads with the inclusion of the term “pension,” since

the fund has no obligations to any pensioners. But it apparently could not forgo the friendly, easily marketed, and non-threatening nature of the term. In practice, nonetheless, it is commonly called “the oil fund.”

**Third, development funds.** For a world economy frequently in and out of recession, this SIF group is expanding rapidly. Instead of prioritizing the fund’s growth with international investments, development funds – like **Irish Strategic Investment Fund (ISIF)** or Russia’s RDIF – focus on boosting a country’s long-term productivity. They do so by investing in physical infrastructure (roads, railways, etc.), social infrastructure (education, healthcare, etc.), and, increasingly, digital infrastructure (telecom networks, data centers, etc.). They also promote strategic industries to diversify their domestic economies, often partnering with outside institutions (for example, peer SIFs) to attract foreign capital.

During the global financial crisis of 2008–2009, ISIF’s core function was suspended, another example we see again and again when a crisis hits. The same fund was drafted in to play an out-of-character superhero role, as the bulk of the fund assets were morphed into the source of funding to bail out the Irish banking sector. Once it had saved the day and dropped off its pot of gold in the banks’ coffers, it started to focus on economic development. By 2019, ISIF was credited for spurring over \$3.5 billion inward investment into the Republic of Ireland through co-investments.

Also within the EU, **Spain** has taken an interesting approach with its “cooperation” sovereign fund model. The Spain–Oman Private Equity Fund (SOPEF) was created in 2018 as a 50/50 venture of **Oman’s State General Reserve Fund (SGRF)** and Spanish state entities Compañía Española de Financiacional al Desarrollo (Cofides) and its Fund for **Foreign Investment (FIEX)**. Each country contributed €100 million and they jointly selected a private sector PE manager to run the new fund.

The fund's focus is developmental: to support and enhance the overseas expansion of Spanish firms with a focus not only on Gulf countries but also on the wider region, including the Gulf, portions of Africa, India, and even Latin America. The arrangement contemplates investments in the €15 million range, with Oman the source of capital and Spain providing deal flow. Oman expects to benefit domestically, as well, from Spanish expertise in infrastructure, logistics, healthcare, and tourism. Later chapters will include more instances of this interesting "cooperation" fund trend in Europe, including France, Ireland, and Italy.

The "cooperation" trend has legs and is not unique to Europe. **Indonesia** and the UAE have announced a \$23 billion commitment by the UAE to invest in Indonesia. The investment is to be made through Indonesia's new sovereign fund (set to be launched in mid-2020) which is designed to support local startups and boost growth. Indonesia's fund is reportedly modelled on Singapore's sovereign funds, Temasek and GIC. Indonesia lacks the foreign reserves of Singapore; the UAE funding appears to overcome that impediment and should enable Indonesia to foster further its already vibrant startup market, on which both the Singapore giants have placed multiple large bets. Indonesia itself, and the UAE, will now be joining Temasek and GIC in the hunt for tech unicorns (private startups with \$1 billion valuation) in the archipelago nation.

Some SIFs are both a global investor and a domestic development fund. For example, **Mubadala** has a tech investment focus, maintaining offices in Silicon Valley and London; however, the stated objective of the fund is to "accelerate economic growth for the long-term benefit of Abu Dhabi." This is achieved by simultaneously investing in domestic infrastructure and tech sectors, such as the innovation accelerator program Hub71 launched in early 2019. The Hub71 initiative includes both a fund of funds component as well as a direct investment portfolio, aiming to drive the economic

development of Abu Dhabi and the Middle East by stimulating tech innovation. Chapter 5 delves into Hub71 in detail.

In a context very different from the wealthy Gulf, Africa has been fertile ground for sovereign investment funds. There's the Rwanda Research and Innovation Fund which targets startups, for example, but more common are resource-based funds. In addition to multiple oil-based funds (including **Angola, Gabon, Ghana, Nigeria, Mauritania, and Uganda**), there's a diamonds-based fund (**Botswana's Pula Fund**) and a minerals-based fund (**Namibia's Minerals Development Fund**). More on these emerging funds in **Chapter 5**, which share the common policy objective to promote their respective economic development.

In Africa, the Kenya and Nigeria sovereign wealth funds are interesting case studies. The government of **Kenya** introduced legislation in early 2019 to establish a sovereign wealth fund – apparently as a result of the discovery of significant oil fields in 2012. The aim of the legislation is to create a sovereign wealth fund to ensure effective management of the proceeds from oil and other mineral exports. It is early days for the Kenya oil sector and the future of the proposal remains to be seen. Its appearance, nonetheless, reinforces the trend in sub-Saharan Africa – so evident elsewhere – to create sovereign funds to manage resource windfalls and diversify the economy.

**Nigeria** is the largest economy in Africa, and the **Nigerian Sovereign Investment Authority (NSIA)**, established in 2011, is favorably cited by the IMF as seeking to comply with the Santiago Principles on transparency, good governance, accountability, and prudent investment practices. NSIA consists of three separate, ring-fenced funds representing the three different functions of savings, stabilization, and development (see **Figure 1.2**), namely: (a) the Fiscal Stabilization Fund, to provide relief to the economy in times of financial stress; (b) the Future Generations Fund, which undertakes growth investments; and (c) the Nigeria Infrastructure Fund, which undertakes investment in domestic infrastructure projects.

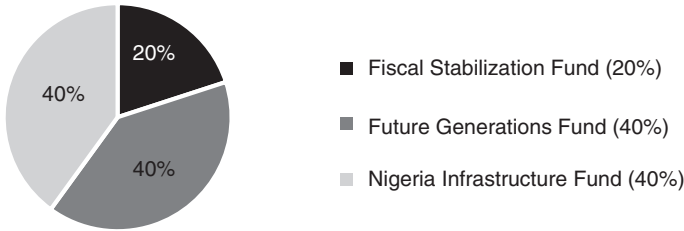


Figure 1.2 NSIA Divided into three Ring-fenced Sub-Funds

**Finally, the public pension funds (PPFs).** As illustrated by the name of the Norwegian fund, the term “pension” could mean multiple things. There are mainly two types of PPFs. **For one**, pension reserve funds, which can be understood as pension-fund-type sovereign wealth funds. These funds, such as **Australia’s Future Fund**, the **New Zealand Superannuation Fund (NZ super)**, and **Chile’s Pension Reserve Fund**, typically invest budget surpluses in global markets to help defray their sponsoring government’s future pension obligations.

Unlike orthodox pension funds, the assets they manage remain the property of the government and no individual has any claim on them. The liability stream goes to the government and then the government deploys the capital on behalf of the people. As a result, these funds can remain long-term investors even as they are drawn upon. Proceeds from a government privatization may conveniently be parked in a fund to provide funds for specified future needs or simply to keep them out of the hands of the politicians. They can feature among the most transparent funds.

**For two**, sovereign pension funds. The difference from the former is the liability stream. With a sovereign pension fund, the liability flows directly to the constituents of the fund. The Canadian government employee pension funds like **CPIIB** are good examples of the latter. They seek a rate of return that will enable them to meet their pension obligations to their members. They balance outflows to fund pension payouts with employer and employee contributions supplemented by their returns from investments. While longer term investors than private equity or venture capital funds, they must take into

account actuarial liabilities, hence are often more limited than the intergenerational or pension guarantee funds such as NZ Super or Future Fund.

In North America, one sovereign fund with the management of pensions assets among its assigned tasks has taken on its superhero rescue mission. Dealing with the impact of the pandemic on the local economy, Quebec's **Caisse de Depot et Placement du Quebec (CDPQ)** in early 2020 created a C\$4 billion fund to support Quebec companies adversely affected by the corona virus, whether or not they are in its portfolio. This program was quickly introduced to enable the recipient companies to survive the pandemic and underpin the recovery of the local economy. Before that, CDPQ was already deeply involved in Quebec's development; one major project is a C\$6 billion high-speed, light-rail network in Montreal connecting with existing transport.

Such innovation – here seen in response to the coronavirus pandemic – is not out of character for public pension funds. Despite being increasingly subject to governance and regulatory obligations – like the global sovereign wealth funds (SWF) – public pension funds (PPF) have constantly braved new territories. Canadian funds are often acknowledged to be among the leaders in new asset classes, such as infrastructure and venture capital, in growing in-house capabilities rather than relying on outside managers, in opening outposts abroad, and in paying competitive compensation to attract talent.

Adding to the rapid ferment of ideas in the world of sovereign investors, PPFs frequently actively co-invest with the sovereign wealth funds. Sovereign Wealth Funds 2018, the report of the IE Foundation, provides a representative sampling of recent PPF/SWF co-investments of \$1 billion or more (see **Table 1.3**).

Four Canadian PPFs, **CPPIB, British Columbia Investment Management Company (BCI), Ontario Teachers' Pension Plan (OTPP), and Public Sector Pension (PSP)** rank high on the league table of sovereign wealth fund co-investors, ahead of others such as Morgan Stanley and Macquarie (the banks

Table 1.3 Representative Volume of PPF/SWF Co-investments

Pension Fund	Co-investments with SWFs
CPPIB	6
OTPP	3
BCI	3
PSP	3
(deal size \$1 billion minimum)	

Data Source: IE Sovereign Wealth Research 2019.

having rated only three each). Kuwait’s sovereign investor teamed with OTPP and AIMCo (also Canadian) to acquire London’s City airport; CPPIB has joint ventured with GIC to acquire and manage student housing; with Temasek, CPPIB also joined in the investment into South Korea’s Homeplus, just to name a few. Therefore, this book will cover the sovereign wealth funds (SWF) and public pension funds (PPF) together as “sovereign investment funds” (SIF) and “sovereign investors.”

### Big Spenders, ESG Promoters

For decades, sovereign investment funds preferred to remain in the shadows. Little was known about them and their nature as long-term passive investors helped keep it this way. In recent years, however, the nature of sovereign investors has begun to evolve. Alongside accumulating a large and growing pool of capital, once very passive holders of government wealth, sovereign investors have transformed operations in three critical ways: attracting better talent, adding more asset classes, and expanding into active investment strategies.

The Canadian pension funds, for example, have rebalanced to favor direct investments into alternative assets, including tech startups traditionally viewed as out of SIF’s comfort zone. For example, at the end of the 1990s, **CPPIB** invested close to 100% in Canada; today, that figure is only 15%. The fund is

global in its pursuit, placing tech bets in India from its office in Mumbai, among overseas offices in multiple continents. Also headquartered in Toronto, **Ontario Municipal Employees Retirement System (OMERS)** has established a ventures arm that directly invests in early stage tech companies and has dedicated venture teams in Silicon Valley as well as London. Notably, the Canadians have been savvy players in Washington, successfully lobbying for tax treatment on an equal footing to US pension plans.

Combining big spending on direct investments with promotion of ESG goals, a pair of deep pocketed SIFs, **GIC** and **ADIA**, have teamed up to back green, sustainable energy in the developing world. Both participated in 2019 in a nearly \$500 million equity round to back a pair of green energy projects totaling \$2 billion in India. This brings their aggregate investment to \$2.2 billion in the issuer, Greenko Holding. With the latest round, Greenko Holding will be developing the two (2.4 GW total) projects, each with wind and solar generation and hydro energy storage. GIC is majority shareholder of Greenko, which holds the record for Asia's largest green bond issuance at \$1 billion.

### Politics, Ethics, and International Diversification

In a country with a total equity market capitalization of \$1.9 trillion (2018), South Korea's nearly \$600 billion national pension fund has announced its intention to rebalance its portfolio from about 45% domestic fixed income and 18% domestic equities to 30% and 15%, respectively, while raising overseas equities from 20% to 30%.

Asset managers of the fund – which reports to the cabinet and South Korean parliament – will now have to deal increasingly with the politically charged determination of which Japanese issuers may have engaged in war crimes during the Japanese occupation of Korea. In the face of proposed South Korean legislation that would ban South Korean pension funds from investing in “war crime companies,” the sovereign pension fund has announced a review of its portfolio of more than \$1 billion in Japanese equities, the *Financial Times* has reported.

Of course, cross-border activity is not without baggage. In **South Korea**, the **National Pension Service (NPS)** has grown so large that the local markets are simply not deep and wide enough to absorb its moves. When expanding its overseas portfolio, however, the pension fund has faced difficult investment choices due to rising political tensions with Japan (see **Box: Politics, Ethics, and International Diversification**). In extreme cases, sovereign investors may turn into rogue traders themselves like those in the urban legends of the Wall Street (see **Box: 1MDB the Outlier**).

### 1MDB the Outlier

No survey of the sovereign investor playing field would be complete without a shout out to fugitive Malaysian financier Jho Low and **1Malaysia Development Berhad (1MDB)**, founded by former Malaysian Prime Minister Najib Razak. The fund was created to finance infrastructure and other development projects in Malaysia; instead the funds ended up “invested” in Hollywood films (“Dumb and Dumber,” “The Wolf of Wall Street”), a mega yacht, a private jet, a van Gogh, a Picasso, and luxury real estate.

Mr. Low, who remains at large and the subject of criminal charges for his alleged central role in defrauding up to \$4.5 billion from 1MDB, recently agreed to forfeit over \$700 million in assets to settle accusations of fraud involving the fund. That included a \$125 million yacht, a \$35 million jet, a \$51 million New York City penthouse, the \$139 million Park Lane Hotel in New York City, and, literally, a settlement from the producers of the “Wolf of Wall Street,” a movie that was partly financed with 1MDB-embezzled funds.

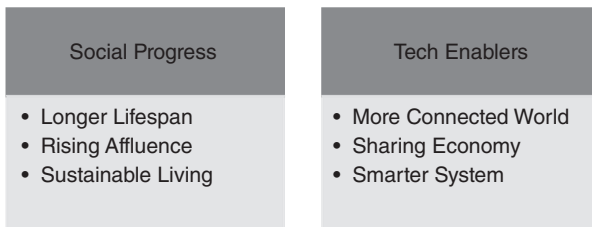
A former Malaysian prime minister has been sentenced to prison in the scandal. And the Malaysian government reached a \$3.9 billion settlement with Goldman Sachs in the same affair, after a Goldman Sachs partner pled guilty in August 2018 to bribery and money laundering. Even a failed sovereign fund has a big impact on Wall Street.

It is far from clear what transpired with all the monies transferred to the fund by the Malaysian government and further funds borrowed by it from investors. What is clear is that controls and governance were sorely lacking and that in the sovereign investor leagues, the numbers are big – even in the worst case.

Given their typically global mandate and long-term investment horizon, sovereign investors increasingly **build their portfolios based on major future trends**, rather than on short-term market movements. Furthermore, they are not just passive actors affected by global megatrends, instead they actively influence the megatrends by their investments. For example, Temasek of Singapore has identified six structural trends, which collectively define the direction of its investment strategy: “Investing for a Better, Smarter, More Sustainable World” (see **Figure 1.3**):

Tech revolution essentially is the common denominator of all megatrends. Amid disruptions from new technologies, the sustainability of the world economy is critical for SIFs that seek long-term, sustainable returns from their investments. Consequently, most SIFs make global tech investments, either through external funds or directly; at the same time that they are integrating ESG factors into their investment process, leveraging tech capabilities for data analysis.

Take **APG**, the pension manager for **ABP** and a few other Dutch pension schemes, as an example. APG expresses its commitment to responsible investing by codifying such investing within one of its nine headline investment beliefs, and it has used digital tech for implementation. For instance, relating to the ESG/sustainable development goals (SDG) discussions in the previous section, whereas some asset owners say they are waiting for standardized data or more academic proof to implement ESG strategies, APG has used artificial intelligence (AI)

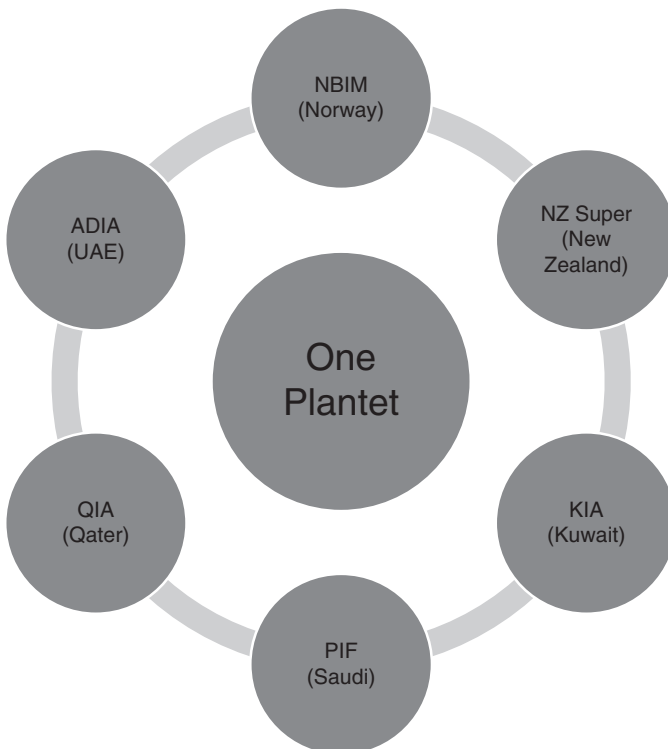


**Figure 1.3** Temasek Identified Six Structural Trends

Source: Temasek.

to select companies that contribute sufficiently to the UN Sustainable Development Goals. ENTIS, the data analysis team of APG, uses smart algorithms to assess SDG-oriented investments, based on criteria that APG formulated itself.

On climate change, the most significant movement is the **One Planet** SWF Working Group formed by five hydrocarbon wealth powers (Norway and four Middle East funds) and the NZ Super (see **Figure 1.4**). Representing several trillions of assets under management, the six funds held the One Planet Summit on December 12, 2017, which was followed by the Climate Finance Day (building upon the success of the 2015 Paris Agreement to collectively mitigate the effects of climate change), and the working group was established at the event.



**Figure 1.4** One Planet SWF Working Group

For sovereign investors, climate change is both a financial risk for long-term portfolios, and an opportunity, as the development of technology and changes in government policy create new avenues for investments. During the transition to a lower-carbon economy, SIFs have embraced opportunities ranging from solar and wind energy infrastructure in both developed and emerging markets, to early stage venture investments in the battery and mobility sectors. In July 2018, One Planet published an Investment Framework designed to accelerate efforts to integrate financial risks and opportunities related to climate change in the management of large, long-term asset pools like those of SIFs, including the following aims:

- foster a shared understanding of the key principles, methodologies, and indicators related to climate change;
- identify climate-related risks and opportunities in their investments; and
- enhance their investment decision-making frameworks to better inform their priorities as investors and participants in financial markets.

One Planet hopes that more SIFs and then the general institutional investors industry will adopt the Investment Framework. Its success, interestingly, is dependent on data and technology. That's because across the industry, high-quality company-level environmental data – for example, those relating to carbon emissions and environmental impact – is still not readily available. To make informed investment decisions, institutional investors demand timely, relevant, accurate, and complete climate-related data. As such, the Investment Framework encourages SIFs to adopt agreed standards that promote the disclosure of material climate-related data. With the help of big data technology, the SIFs collectively would improve the volume, quality, and consistency of financial data to promote ESG investments effectively.

Besides being the only non-oil SWF fund in the One Planet, NZ Super also signed onto a broader grouping launched at the

same time which is more favored by pension funds. Characterized by Bloomberg Business Week as “the biggest, richest, and possibly the most benevolent bully the corporate world has ever seen,” **Climate Action 100+** has been signed by more than 450 investors from across dozens of countries, who collectively control more than \$40 trillion in assets, including aforementioned prominent pension funds such as **ABP, BCI, CDPQ, CalPERS, GPIF, ISIF, and OTPP**. They have pledged to work with their investee companies to ensure that they are minimizing (and disclosing) the risks and maximizing the opportunities presented by climate change.

Now the tech revolution is presenting the same mix of opportunities and risks for sovereign investors. On the one hand, investing into the high-growth tech sector can diversify their portfolios and generate superior financial returns. Given both their capital power and long-term investment horizons, they are best positioned for digital infrastructure (such as smart cities) that’s critical for a sustainable global economy. On the other hand, major technological and disruptive innovations are disrupting traditional industries, putting SIFs’ existing portfolio companies at risk. SIFs must act to “future-proof” their portfolios, as well as their own operating models. As will be seen in the next section, SIFs are all rushing into the digital economy revolution.

## Rush into the Digital Revolution

The overall trend of the sovereign investor world is to invest in the digital future – whether existing funds seeking to facilitate a digital transformation, or new funds established with that goal from the beginning. What’s interesting is that this is not a new phenomenon: the states have (always) been active in tech investments. Silicon Valley and Tel Aviv were largely the creation of the US and Israeli states. Many of the innovations we take for granted today – such as the Internet, cloud computing, and virtual reality – were fostered by state seed capital or driven by government agencies.

And this continues to be partly the case: in 2014, the Pentagon, the US Defense Ministry, teamed up with the CIA

to invest in cybersecurity startups. The CIA has been running its Q-Telventure capital fund since 1999, with extensive investments in tech companies. This state–military link is particularly important for understanding the rise of startups in Israel and its famous Yozma program, which unleashed the technical miracle Start-up Nation. Not to mention that space, initially the sole preserve of governments, now hosts Blue Origin (Jeff Bezos), SpaceX (Elon Musk), and Virgin Galactic (Richard Branson), backed in part by sovereign investor cash.

### The IPO to end all IPOs

One notable change in equity markets around the world can be laid at the feet of the patient, cash-rich sovereign investors: the dramatic decline in IPOs. The *Financial Times* headlined 2019's 10% drop from 2018 in capital raised in public listings, with the fewest flotations for three years. The massive investments by sovereign investors, eager to gain exposure to the digital economy, have enabled these tech stars to remain private far longer than would have been possible in the past (see the detailed discussion in the next chapter).

One result has been a dramatic drop off in IPOs; another, hefty pre-IPO valuations that are challenging for the tech giants to sustain in public markets. In the absence of patient, massive equity inflows from the sovereign investors, things may have played out quite differently. Others speculate that it was the arrival of SIFs into the market for late stage growth companies that enabled them to put off SEC scrutiny and meddlesome public shareholders, thereby shrinking public markets. Others see the mirror image, with the SIFs not as enablers but as driven to unicorns by the shrinking public markets.

Ironically, the largest IPO of 2019 was Saudi Aramco, which topped \$2 trillion in market cap briefly after its listing. Nearly \$30 billion in proceeds will largely fund PIF, which has as a goal the digital transformation of the economy and has heavily funded (via Vision Fund and directly) late stage tech stars such as Uber. In 2020, the oil price war with Russia and the economic impact of the coronavirus on the Saudi economy may cause PIF to redirect more proceeds to stimulus and funding deficits. But Vision 2030, the transformative digital future, remains in its sights.

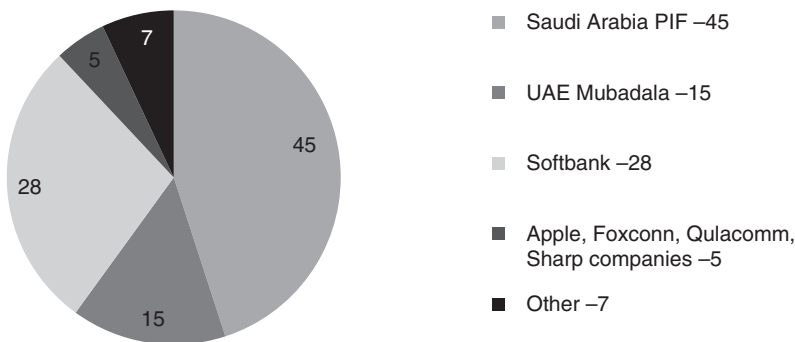
The rest of this book will cover the tech investments of SIFs in detail. **The most prominent example of this trend is Saudi**

**Arabia and its Public Investment Fund (PIF)**, whose exceptionally large capital contribution to the **Vision Fund** has consequently had a profound impact on the global tech startups and capital markets. PIF is the beneficiary of the country's oil wealth and, most notably, the beneficiary of proceeds from the flotation of Aramco, briefly the most valuable company on Earth (see **Box: The IPO to end all IPOs**).

Saudi Arabia has successfully leveraged its resource-based capital in PIF to raise its profile as a major player in venture capital for tech companies. PIF committed \$45 billion to the first Vision Fund's total raise of \$100 billion (see **Figure 1.5**), at the time an unheard of fund size for venture capital – nearly double the amount raised by all other VC funds in a good year. Reportedly, PIF was contemplating a similar commitment to the second Vision Fund. The Fund also committed to a \$500 million investment in Neom, the future oriented (flying taxis, robot dinosaurs) city Saudi Arabia is planning for its Red Sea coast.

Using its sovereign fund, Saudi Arabia has succeeded in drawing tech thought leaders to its “Davos in the Desert,” despite talk that its domestic policies were anathema to the Silicon Valley ethos. The link to Neom city is of note as well. It is possible that the reciprocal investment promised by Softbank, Vision Fund's sponsor, in Neom will elevate its chances of

**Vision Fund's LP Investors (Billions)**



**Figure 1.5 SIFs Lead \$100 billion Vision Fund**

Data Source: FT Research 2017.

attracting additional tech sector players to the country. Such a result would mean that PIF had also indirectly propelled the digital transformation of the Saudi economy by securing an anchor investor in its show piece of the digital future (see the more detailed discussion in Chapter 5).

**Another case in point is the European Union**, which is a late-comer to the world of sovereign investment funds and digital economy investments. With the rest of the world aggressively investing into tech ventures domestically and internationally, Europe has actually looked more like a net seller. Chinese buyers have acquired large robotics firms in Germany and Italy; in the UK, SoftBank bought the chip-maker ARM and one of its affiliates is set to bid on the UK's upcoming 5G auction. The UK's DeepMind, the AI pioneer that built the Alphago algorithm to beat the best human player in Go Chess, was sold to US Internet giant Google's parent company, Alphabet.

For Europeans, Apple of the US (and Samsung, from South Korea) are the most popular phones. Similarly, US companies dominate digital platforms in Europe: Facebook operates the most widely used social networks, Google rules online search and advertising, and Amazon reigns over e-commerce. Cloud infrastructure from Amazon and Microsoft is indispensable to Europe's companies. Meanwhile, China's Huawei produces the physical equipment on which Europe's digital economy runs. Driving home the extent of foreign digital dominance, EU officials had to call Los Gatos, California to ask US tech giant Netflix to lower its video streaming quality to prevent a European system crash during the coronavirus-induced surge in Internet traffic.

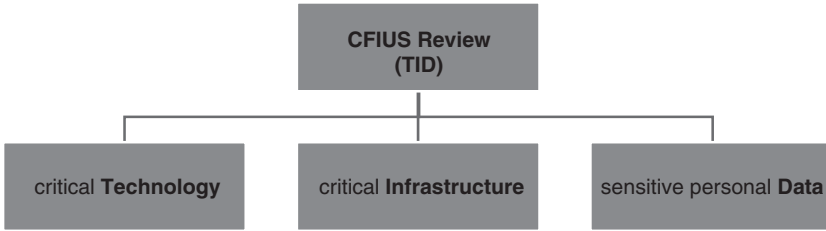
Things are set to change in 2020 and beyond. The European Union in February 2020 unveiled a plan to restore what officials called "technological sovereignty," with more public spending for the European tech sector. With the global economy becoming ever more reliant upon digital technology, European leaders are concerned that the European economy is overly dependent on technology developed and controlled elsewhere. As Ursula von der Leyen, the president of the

European Commission, the executive branch of the EU, said at a news conference: “We want to find European solutions in the digital age.” Hence new sovereign investment funds in Europe.

According to media reports in August 2019, EU staff have drafted a plan to launch a €100 billion (\$110 billion) sovereign wealth fund, to be called the “European Future Fund.” The main goal of this proposed fund will be to invest into future “European tech champions,” which could potentially compete in the same league as China’s BAT (Baidu, Alibaba, and Tencent) or the US GAFA (Google, Apple, Facebook, and Amazon). Due to the complex EU politics, it is not clear that the fund will ever be realized; but the determination to compete with American and Chinese dominance, using a sovereign fund, in the future digital economy is clear.

**The third example is China** and its endeavor to reduce its semiconductor dependency on US technology. According to the *Wall Street Journal*, even after the creation in 2014 of its initial fund specifically targeted at fostering its domestic semiconductor industry, in 2018 alone China imported \$312.1 billion in semiconductors well more than the year’s \$240.3 billion in oil imports. China has stepped up the effort to bolster its own chip industry through various means, including the acquisition of foreign technology companies, but the effort encountered push back by the US Committee on Foreign Investment in the United States (CFIUS), the agency that screens foreign direct investment for national security risks.

With an eye to further constraining foreign incursions in the sensitive tech sector, in 2018 (effective from early 2020) the Trump administration developed new CFIUS rules to scrutinize Chinese and other foreign investments more carefully, especially in high-tech fields. The new rule emphasizes national security review of transactions involving “TID” technologies – critical technology, critical infrastructure, and sensitive personal data (see **Figure 1.6**). While the rules would apply to any foreign investment, the effort is likely aimed at preventing China from gaining access to sensitive American



**Figure 1.6 The TID Focus of CFIUS**

technology and other valuable assets – after years of Chinese sovereign capital’s activities in the Silicon Valley.

Still, China is not deterred from its determination to become more independent from US technology and keep pursuing global technology leadership. In October 2019, China set up a new national semiconductor fund (its second in less than five years) with 204 billion yuan (\$28.9 billion) – its predecessor was capitalized with \$20 billion in 2014. The fund’s registered capital comes mainly from state organizations, according to company registration information, which include China’s Ministry of Finance (22.5 billion yuan) and the policy bank China Development Bank (22 billion yuan), as well as state-owned enterprises such as China Tobacco Co. The new fund has an ambitious goal to cultivate China’s complete semiconductor supply chain, from chip design to manufacturing, from processors to storage chips.

What’s next for the US? Its own sovereign funds to develop 5G network technology (see **Figure 1.7**), a field in which Chinese company Huawei is the global leader. Whereas Europe’s Ericsson and Nokia companies are close competitors to Huawei, the US has no 5G champions. In January 2020, a bipartisan group of US senators introduced legislation that the Federal Communications Commission (**FCC**) would create a research and development fund for Western alternatives to Huawei. Further, the newly created US **International Development Finance Corporation (DFC)**, with \$60 billion in funding, would also invest in the development of mobile networks. More recently, one US government official suggested that the

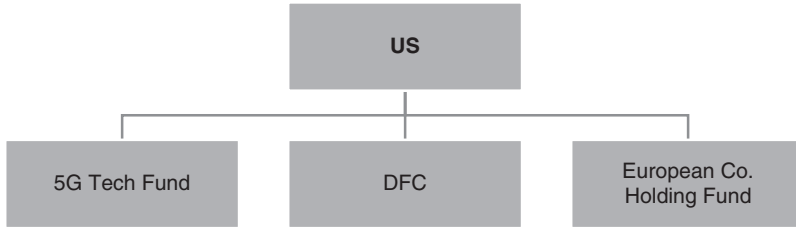


Figure 1.7 **New US SIFs for 5G**

US may consider a fund to take controlling stakes in the two European telecoms firms.

Meanwhile, the investment power of US federal, state, and local pension funds has not gone unnoticed in the corridors of the US Congress. Like their sovereign wealth fund cousins, cross-border tech investments are for them both attractive and politically charged. No longer passive allocators, they, too, live with the heightened scrutiny their profile and investment choices now attract.

In November 2019, a bill was introduced, notably with joint Republican and Democratic sponsors, that would limit the ability of the \$600 billion federal **Thrift Savings Plan** to pivot its index investing to include Chinese equities, a reflection of the ongoing US–China battle over determining the future of technology. And there were reports of the White House contemplating a general ban on US pension funds (federal, state, and local) investing in technology plays in China. As US–China tensions continue, there is mounting talk of restricting the ability of US domestic pension funds to invest in Chinese tech companies. In fact, in August, 2020, the US State Department asked university endowments to divest Chinese equities, warning of more burdensome measures to come.

In summary, sovereign investors are throwing their considerable heft and influence into keenly investing in digital technology in domestic and foreign markets. Along with rising SIF activities, there is a sharp rise in global tensions, because the power of innovation is now viewed by all nations not only as an economic growth engine, but also as the key to future geopolitical dominance.

As a result, more countries are building up regulatory barriers around tech know-how and data resources as if they are “national treasures.” The following chapters will follow the SIFs into their global unicorn hunting, and the hope that through the economic independence created by the SIFs of different nations, the world may find a new equilibrium and collectively develop a shared digital future.

*As you step out from the bustling, air-conditioned comfort of the ADIA tower into the Gulf heat, it strikes you that you are far from the financial centers of traditional finance or the tech hubs of the digital economy. But you will see, as you continue your journey through this book, that you have come to the doorstep of a force that will help determine their position in the post-pandemic world order. Next stop: the global village.*