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HUNTING UNICORNS

Sovereign Wealth Fund
Annual Report 2016

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Contents

3 From the Editor

7 Introducing Sovereign Wealth Funds

Laura Pellizzola

16 SWF Investment in 2016

Bernardo Bortolotti, Giacomo Loss, Nikola Trajkov

16 Activity

20 Sectors

30 Geography

38 Articles

38 Technology and Disruptive Innovation Investing by Sovereign Wealth Funds:
Current Landscape, Opportunities and Challenges

Markus Massi, Alessandro Scortecchi, Pratik Shah

53 Sustainable Investment Practices of Sovereign Wealth and Government Pension Funds

Scott E. Kalb

63 Building in-house investment capacity: the early case of GIC

Jürgen Braunstein, Mattia Tomba

71 A Spotlight on Recent Research

Veljko Fotak

77 Appendix

77 Methodology



From the Editor

2016 will probably be remembered by SWF investors as a year of coping through chaos. Two major and completely unexpected political events, the Brexit vote in Britain and the election of Mr. Trump as US president, hit the “new normal” which we have been used to consider the prevailing regime governing global investments, with massive impacts on financial markets and geopolitical relations. In a low oil price scenario further stressed by heightened political uncertainty, SWF investments collapsed to pre-crisis record lows.

The knock-on effect on sovereign investors in commodity exporting countries, especially in the Gulf, has been strong. They quickly realized that the long played game of rapid accumulation of surplus and associated spending spree is over, and that a fundamental change in strategy is needed to preserve the wealth of nations for future generations. In some countries, stabilization mandates have been streamlined, and new funds have been launched and older ones revamped, protected by stronger governance rules. In some countries, notably Saudi Arabia, new funds have been assigned the most challenging task: diversify away the national economy from the underlying resource.

Yet managing the transition will be difficult and politically costly. Painful fiscal adjustment (already underway) is needed to allow for saving and investment, with the benefits accruing to citizens only in the distant future. The failure of austerity programs in many advanced democracies provides a revealing example of the trade-off between maintaining political consensus and implementing structural reforms. The jury is out on the better chances less democratic countries have to solve this dilemma.

Another related issue is the shift in economic power occurring during the same transition, as lower commodity prices advantage exporting countries, notably China or other Asian economies. After the great deceleration of the last years, trade in emerging markets hit the bottom in 2016, and is gradually picking up. We thus expect Asian economies to power ahead in the next years, and export based SWFs to increase their foreign investments, probably at a faster pace than their commodity-funded counterparts. In the years ahead, a rebalancing in the distribution of asset under management in favor of “trade-surplus” SWFs is in the cards.

Moving forward, one of the most interesting trends to follow is the increasing appetite for venture-capital style investment in technology and disruptive innovation. The bets that SWFs have taken in 2016 in this sector are astonishing, and the latest announcements suggest that the game has just started. The abrupt shift in the risk profile of their investments, from real, safe assets to the frontiers of venture capital, suggest that across the board SWFs are willing to play a leading role in the forthcoming Second Machine Age. Whether they will succeed or fail will depend largely on their execution capabilities to source the right deals, and in-source the right talent. In their hunt for unicorns, SWFs will have to take a stance towards sophisticated and nimble investors such as venture capitalists dominating this space up to now. The race is open. With the sand of political uncertainty settling, and global growth on the rise, 2017 promises to be an exciting year.

We are glad to present our annual report on SWF investment in 2016. The reader will find here the usual high quality data and contributions by industry experts such as Markus Massi, Alessandro Scortecci, Pratik Shah, Scott Kalb, Jürgen Braundstein, and Mattia Tomba.

Our main findings for 2016 can be summarized as follows:

- ***Investments hitting the bottom:*** in 2016, we observed 21 SWFs completing 158 investments with a total publicly reported value of \$39.9 billion. This represents a 14 per cent decrease in the number of transactions we reported in 2015 and a 16 per cent decrease in investment value, reaching the lowest value since 2006.
- ***Fluctuat nec mergitur:*** SWFs completed 45 divestments worth in total \$7.9 billion, implying a net investment value of \$31.9 billion, representing a 25 per cent increase in net investment value compared to the previous year. Even in one of the most difficult years for investors in recent history, SWFs showed resilience and stayed the course.
- ***Hunting unicorns:*** With 31 publicly reported deals worth \$13.4 billion SWF investments in hi-tech companies accounted for 33 per cent of investment value and 19 per cent of total investments. In 2016 SWFs invested in the sector more than they did in the last 10 years combined.

- **The retreat from safe assets:** High valuations and sensitivity to political and macro-economic volatility took away SWFs' appetite in these assets. SWF have invested less than half in this sector compared to previous year's value. Total investment value in 2016 was \$11.8 billion coming from 30 transactions, with a consistent decline across main categories such as real estate, infrastructure and hospitality.
- **Banks out:** since the financial crisis, investments in the financial sector have progressively lost momentum, hitting the bottom in 2016 with a tiny \$2.1 billion representing 5 per cent of total deal value.
- **The unstoppable rise of Sovereign-Private-Partnerships:** in another record year for partnerships, SWFs have teamed up with a strategic or financial private partner on 54 per cent of the reported deals representing an aggregate value of \$21.4 billion.
- **America First:** after a couple of years of decreasing investments, in 2016, the USA made a big comeback and once again emerged as a safe haven amid global chaos. With \$14.9 billion worth of SWF investments, it was by far the most attractive market in 2016. Europe recorded one of the worst years in the last decade attracting only \$7.2 billion worth of investments.
- **The ascent of Singapore:** GIC and Temasek jointly completed 62 deals worth \$17.9 billion, accounting for an impressive 39 and 45 per cent of total deals and investment value, a tangible sign of the rising power of Asian emerging markets' funds.

Finally, we are glad to announce that the Sovereign Investment Lab in collaboration with the SDA Bocconi School of Management has launched this year the Sovereign Investment Academy, an executive training program on sovereign wealth management and investment, endorsed by the International Forum of SWFs (IFSWF). We are excited by this new venture, a tangible sign of cross-fertilization of high-quality research and training, and relevance to our stakeholders' community.

Bernardo Bortolotti
Sovereign Investment Lab,
Director





Introducing Sovereign Wealth Funds

Laura Pellizzola, SIL, Bocconi University and FEEM

The term “sovereign wealth fund” has come to be used as a moniker for any state-owned investment vehicle funded from budget surpluses. In reality, the sovereign investment landscape is populated by a heterogeneous group of funds with distinctive features reflecting the structural and macroeconomic needs of individual countries. For example, resource-based economies, such as Chile, Mongolia, or Algeria, choose to establish stabilization funds to protect their currencies and budgets against excess volatility of the underlying commodity. Others, like India, keep large surpluses in foreign exchange reserves due to the volatility of their income streams and structural deficits. The Japanese perceive that providing for their aging population is their most pressing priority, so they maintain their wealth in large pension funds. Oil-rich nations in the Persian Gulf region or Norway invest their oil revenue surpluses abroad to provide for future generations when their oil reserves will be depleted. Finally, windfall revenue from privatizations, or the need to boost long-term investment and spur economic growth lead to special development funds, like those operating in Ireland, or Kazakhstan, owning stakes in companies deemed strategic for the national economy. Sovereign investment vehicles have thus immensely diverse objectives and strategies, which in turn are reflected in their asset allocation and investment choices. If we examine their portfolios in term of their exposure to financial risk, they can be loosely grouped into buckets along a spectrum of financial risk from central banks and stabilization funds (which hold the most-liquid and lowest-risk assets), pension and social security funds (also interested in seeking returns for their beneficiar-

Within the large, heterogenous group of sovereign investors, SWFs display unique characteristics

ies), to development funds (which have the riskiest and most-illiquid assets).

Sovereign wealth funds are just one type of sovereign investment vehicle and can be placed in the middle of this spectrum. SWFs have an independent corporate identity (they are not managed by a central bank or finance ministry) and invest for commercial return over the long term. Unlike central banks, stabilization funds, or public pension funds, SWFs have no explicit liabilities — i.e., their assets are not routinely called on for stabilization or pension contributions — so they can have a greater tolerance for risk and illiquid assets to generate superior returns. As such, these funds have a strategic asset allocation that can include equities, bonds, private equity, real estate, infrastructure, hedge funds, exchange-traded funds, derivatives contracts, commodities, etc., diversified by geographies and sectors to achieve the desired risk-return profile of the fund. Finally, due to both the need to diversify revenue streams often too dependent on a single commodity (oil, in many cases) and to the danger of “Dutch disease” by investing large quantities of foreign currency in often small domestic economies with poorly developed financial markets, SWFs invest a large portion of their portfolios abroad, unlike other sovereign investment vehicles.

Table 1: Sovereign Wealth Funds, Assets Under Management

Country	Fund Name	Inception Year	Source of Funds	AUM 2016 (US\$bn)
Norway	Government Pension Fund – Global [£]	1990	Commodity (Oil & Gas)	903.96
UAE-Abu Dhabi	Abu Dhabi Investment Authority [†]	1976	Commodity (Oil & Gas)	828.00
China	China Investment Corporation ^{**}	2007	Trade Surplus	813.76
Kuwait	Kuwait Investment Authority [†]	1953	Commodity (Oil & Gas)	592.00
Singapore	Government of Singapore Investment Corporation [†]	1981	Trade Surplus	353.58
Qatar	Qatar Investment Authority [†]	2005	Commodity (Oil & Gas)	335.00
China	National Social Security Fund [†]	2000	Trade Surplus	294.85
UAE - Dubai	Investment Corporation of Dubai [£]	2006	Commodity (Oil & Gas)	200.82
Saudi Arabia	Public Investment Fund [£]	1971	Commodity (Oil & Gas)	190.00
Singapore	Temasek Holdings [£]	1974	Trade Surplus	179.71
UAE-Abu Dhabi	Mubadala Development Company PJSC [£]	2002	Commodity (Oil & Gas)	125.00
Russia	National Wealth Fund and Reserve Fund [£]	2008	Commodity (Oil & Gas)	110.85
UAE-Abu Dhabi	Abu Dhabi Investment Council [†]	2007	Commodity (Oil & Gas)	110.00
Australia	Australian Future Fund [£]	2006	Non-Commodity	92.51
Republic of Korea	Korea Investment Corporation ^{**}	2005	Government-Linked Firms	91.80
Libya	Libyan Investment Authority [†]	2006	Commodity (Oil & Gas)	66.00
Kazakhstan	Kazakhstan National Fund ^{**}	2000	Commodity (Oil & Gas)	65.70
Brunei	Brunei Investment Agency [†]	1983	Commodity (Oil & Gas)	40.00
Malaysia	Khazanah Nasional Berhad ^{**}	1993	Government-Linked Firms	34.95
UAE	Emirates Investment Authority [†]	2007	Commodity (Oil & Gas)	34.00
Azerbaijan	State Oil Fund of Azerbaijan [£]	1999	Commodity (Oil & Gas)	33.21
New Zealand	New Zealand Superannuation Fund [£]	2001	Non-Commodity	21.74
Ireland	Ireland Strategic Investment Fund [£]	2001	Non-Commodity	21.70
East Timor	Timor-Leste Petroleum Fund [†]	2005	Commodity (Oil & Gas)	16.90
UAE - Dubai	Istithmar World [†]	2003	Government-Linked Firms	11.50
UAE - Dubai	Dubai International Financial Center ^{**}	2002	Government-Linked Firms	11.00
Bahrain	Mumtalakat Holding Company ^{**}	2006	Government-Linked Firms	10.51
Russia	Russian Direct Investment Fund [£]	2011	Non-Commodity	10.00
Oman	State General Reserve Fund [†]	1980	Commodity (Oil & Gas)	9.15
Oman	Oman Investment Fund [†]	2006	Commodity (Oil & Gas)	6.00
Angola	Fundo Soberano de Angola ^{**}	2012	Commodity (Oil & Gas)	4.75
UAE-Ras Al Khaimah	Ras Al Khaimah Investment Authority [†]	2005	Commodity (Oil & Gas)	1.20
Nigeria	Future Generations Fund ^{**}	2012	Commodity (Oil & Gas)	1.07
Kingdom of Morocco	Ithmar Capital [£]	2011	Government-Linked Firms	1.00
Vietnam	State Capital Investment Corporation ^{**}	2005	Government-Linked Firms	0.87
Palestine	Palestine Investment Fund [£]	2003	Non-Commodity	0.80
Kiribati	Revenue Equalization Reserve Fund [†]	1956	Commodity (Phosphates)	0.65
São Tomé & Príncipe	National Oil Account [†]	2004	Commodity (Oil & Gas)	< 0.01
			Total OIL & GAS	3,625.41
			TOTAL TRADE SURPLUS	1,641.90
			TOTAL OTHER	357.23
			TOTAL AUM	5,624.54

£ AUM as of December 31, 2016

† Estimate by SWF Institute as of 19 April 2017

** AUM as of 31 December 2015

¥ AUM as of 31 March 2016

£ AUM as of 30 June 2016

* Sovereign Investment Laboratory estimate of assets under management as of December 2016.

£ On 21 January 2017, the President, His Highness Sheikh Khalifa bin Zayed Al Nahyan, as the ruler of Abu Dhabi, issued a law creating the Mubadala Investment Company, a company wholly owned by the government of Abu Dhabi. This new company will comprise both the International Petroleum Investment Company and Mubadala Development Company, and their respective assets. This law formalizes the 29 June 2016 announcement that IPIC and Mubadala would merge. The value of assets under management is updated as of April 2017.

Against this background, a “Sovereign Wealth Fund” is an investment vehicle that is:

- 1 Owned directly by a sovereign government
- 2 Managed independently of other state financial and political institutions
- 3 Does not have predominant explicit current pension obligations
- 4 Invests in a diverse set of financial asset classes in pursuit of commercial returns
- 5 Has made a significant proportion of its publicly reported investments internationally

This is the definition that the Sovereign Investment Lab uses to identify the funds addressed in the body of this report and listed in *Table 1*. In 2016, we report four important additions to the SIL’s distinguished list, bringing to a total number of covered funds to 38. The first new entry is Ithmar Capital of Kingdom of Morocco, previously known as Fonds Marocain de Développement Touristique (FMDT) and recently reorganized and broadened in scope to support national strategic sectors. The second new SWF on the list is the Palestine Investment Fund established in 2003 as a public shareholding company enjoying financial, administrative and legal independence within the framework of the Financial Reform Program of the Palestinian National Authority. Another important addition to the list was the Russian Direct Investment Fund (RDIF) with total reserved capital of \$10 billion under management. In the last years, the fund played a very active role by teaming up with world’s most respected investors and SWFs (through several partnered investment platforms), making sizable direct investments in leading companies and projects primarily

in Russia and abroad. Last but not least, we register the remarkable entry of the Public Investment Fund (PIF) of the Kingdom of Saudi Arabia, with estimated \$200 billion of assets under management. In 2016, this fund qualified for entry in the SIL’s list due to a landmark, first investment abroad: the acquisition of a stake of about \$3.5 billion in Uber. Another notable change in the list is the merger of the two Abu-Dhabi based SWFs, the International Petroleum Investment Company and the Mubadala Development Company. On 21 January 2017, the President, His Highness Sheikh Khalifa bin Zayed Al Nahyan, issued a law establishing the Mubadala Investment Company, a SWF wholly owned by the government of Abu Dhabi. This new vehicle comprises both the International Petroleum Investment Company and Mubadala Development Company, and their respective assets worth \$125 billion as of April 2017. This merger wave in the SWF space is likely to continue in a quest for cost savings and efficiency gains. Reportedly, Oman, the largest Arab oil producer outside the Organization of Petroleum Exporting Countries, is planning to consolidate the State General Reserve Fund with the Oman Investment Fund to create an entity with estimated \$25 billion in assets.

The landscape of sovereign investment has changed in the last years as many countries have launched or proposed new funds. We follow closely these developments, as some of these new born sovereign investment funds (SIF) may graduate in the future as fully-fledged SWFs, and enter our radar screens. *Table 2* tracks the evolution of SWF projects announced since 2008, and lists the funds which came in operation, along with the missing require-

Table 2: New Sovereign Investment Funds Launched or Proposed Since January 2008

Country	Date fund proposed officially	Rationale for Fund, funding source, and discussion	Status, as of May, 2017	SIL Definition Items				
				S	I	L	C	A
Australia	December 2012	Western Australia Future Fund was launched in December 2012. The purpose of this fund is to provide for the accumulation of a portion of the revenue from the State's mineral resources and other money for the benefit of future generations. The fund invests in overseas cash and bonds but not in equities. The AUM are USD 0.72 bn.		x	✓	✓	✓	x
Brazil	June 2008	Brazil established the Fundo Soberano do Brasil (FSB) in 2008 with the purpose to reduce inflationary impact of government spending, minimize real appreciation, and support Brazilian firms' foreign investment. It was funded with \$6.1 bn initial capital and an additional government bond issue of \$5.9 bn.	In September 2014 and December 2015, \$1.5bn and \$ 216ml withdrawn to finance the budget, respectively. In 2016, in order to squeeze the public debt, Ministry of Economy decided to start selling the SWF's assets.	✓	x	✓	x	x
Canada	2014	The provinces of British Columbia, Northwest Territories, Saskatchewan has set forth proposals to set up their SWFs.	Planned but not yet approved.					
Chad	November 2014	On 14 November 2014 the Government of Chad launched a call for proposal to support the establishment of a Sovereign Fund for the Strategic Investment in Chad.	Planned but not yet approved.					
France	2012	Set up by law on 12th July 2013, Bpifrance is: "A public group aiming at financing and developing companies, and acting in accordance with the public policies conducted both by the State and regional authorities"	Permanence of Bpifrance's Legal Status as a public institution but unlikely to become a SWF. As of June 2016, BPIFrance has total assets for €65.2bn.	✓	✓	x	✓	x
Gabon	February 2012	FFonds souverain de la République Gabonaise (FSRG), created by the law 005/2012, was established to assist Gabon in developing new industries capable of generating enough revenue to replace oil revenues. As the exclusive agent for the Gabonese government, the FGIS's main mission is to build on the resources of the Sovereign Fund of the Gabonese Republic (FSGR) through the various types of available financial instruments by seeking for the best possible risk-return trade-offs as provided under the investment policy. Along with its role as the exclusive agent of the FSRG, the FGIS is also responsible for managing the government's investments (not assigned to another delegated structure) in companies with which the government has a special historical connection and a strategic, economic and social interest.	In April 2017 the Islamic Development Bank "IDB" and the Fonds Gabonais d'Investissements Stratégiques "FGIS" signed a Memorandum of Understanding on the occasion of the first IDB Member Countries Sovereign Wealth Funds Investment Forum, in Jeddah.	✓	✓	✓	✓	x
Georgia	December 2013	In the coming period, the government plans to convert the Partnership Fund into the Sovereign Wealth Fund (SWF). The latter will be composed of two components reflecting their separate functions: SWF for asset management and SWF for investment. This move follows the recommendations of international financial institutions to mitigate risk with the strategic assets owned by the Fund, particularly those that issue bonds. Under the new organization, they will be completely independent arms and the SWF will have more flexibility over investments and an increased flexibility to shape its investment portfolio. It also plans to hire the World Bank's International Finance Corporation as a consultant for the SWF.	Planned but not yet approved.					

Introducing Sovereign Wealth Funds

Country	Date fund proposed officially	Rationale for Fund, funding source, and discussion	Status, as of May, 2017	SIL Definition Items				
				S	I	L	C	A
Ghana	2010	In 2011 the government has launched two funds: Ghana Heritage Fund and the Ghana Stabilization Fund with a minimum of 30% of state's projected oil revenues to be allocated. Initially funded with \$69.2 mn, by the end of 2013 the funds managed \$450ml.	Within one year after petroleum reserves are depleted, the moneys held in both the Ghana Stabilization Fund and Ghana Heritage Fund shall be consolidated into a single Fund to be known as the Ghana Petroleum Wealth Fund after which the Ghana Stabilization Fund and the Ghana Heritage Fund shall cease to exist.	✓	✓	✓	✓	✗
Hong Kong	January 2016	Hong Kong's "Future Fund" was set up on January 1, 2016. The Future Fund is an investment tool which seeks to secure higher investment returns for the fiscal reserves, so that ultimately Government has more resources to cope with our long term expenditure needs. The Fund will have an initial endowment HK\$219.7 billion (approx. US\$28 billion) and will remain an integral part of Hong Kong's fiscal reserves - which amount to about HK\$828.5B or about US\$106.2B (as at end March 2015).	A major fund set up a year ago to generate higher investment returns for government fiscal reserves might not have performed as well as hoped in its first 12 months due to lower-than-expected yields and low interest rates, Hong Kong's top financial official has warned.	✓	✗	✓	✓	✗
India	2008	National Investment and Infrastructure Fund (NIIF) is a fund created by the Government of India for enhancing infrastructure financing in the country. NIIF was proposed to be set up as a Trust, to raise debt to invest in the equity of infrastructure finance companies such as Indian Rail Finance Corporation (IRFC) and National Housing Bank (NHB). The idea is that these infrastructure finance companies can then leverage this extra equity, manifold. In that sense, NIIF is a banker of the banker of the banker. NIIF is envisaged as a fund of funds with the ability to make direct investments as required. As a fund of fund it may invest in other SEBI registered funds. The objective of NIIF would be to maximize economic impact mainly through infrastructure development in commercially viable projects, both greenfield and brownfield, including stalled projects. It could also consider other nationally important projects, for example, in manufacturing, if commercially viable.	National Investment and Infrastructure Fund (NIIF) Ltd. signed a Memorandum of Understanding (MoU) with RUSNANO of Russia on 2 February 2016 to set up the RUSSIA-INDIA HIGH TECHNOLOGY PRIVATE EQUITY FUND for joint implementation of investments into projects in India. RUSNANO is a Russian development institute with interest to invest in projects in the field of high technologies and defense including the projects aimed at establishment of manufacturing industrial enterprises in India.	✓	✓	✓	✓	✗
Iran	2010	The National Development Fund of Iran, established in 2011, has a dual mandate to serve as a quasi-development bank and save oil revenues for future generations. Since 2011, the Oil Stabilization Fund's mandate has been to stabilize the budget.	Up to \$50bn belong to the National Development Fund of Iran, a sovereign wealth fund that collects oil price windfalls for infrastructure investment. In 2016 National Development fund of Iran and kazakhstan sovereign wealth fund (Baiterek National Holding) signed MOU to cooperate on bilateral investments and financing private sector projects.	✓	✓	✓	✓	✗
Israel	January 2012	After two enormous natural gas fields were proven off Israel's coastline, the government proposed a new SWF to be funded from the state's future gas revenues invest in education and health and will help develop Israel's high-tech export industries. The Israeli Citizens Fund was approved by the Parliament on July 2014.	The law states that the fund will begin operating a month after the state's tax revenues from natural gas exceeds one billion. The fund was originally supposed to become operational by 2017. but more recent estimates expect this threshold to be passed by 2020.					

Country	Date fund proposed officially	Rationale for Fund, funding source, and discussion	Status, as of May, 2017	SIL Definition Items				
				S	I	L	C	A
Italy	2011	Italy launched the Fondo Strategico Italiano with a seed capital of euro 4.4 bn. FIS's purpose is to acquire minority interests in promising, large Italian companies, strengthen infrastructure and strategic sectors for the national economy. Signed partnerships and JV with Qatar Holding, Russian Direct Investment Fund, Kuwait Investment Authority and Korea Investment. After the reorganization of Cdp, the fund changed name in Cdp Equity in 2016.	Total investments for €1.7bn.	✓	✓	✓	✓	✗
Kenya	2014	In 2014 the Treasury drafted the National Sovereign Wealth Fund Bill indicating that dividend income from State corporations and proceeds from privatisation of government corporations would build the fund ahead of oil production. The cash was to help set up the fund whose operations were initially set to rely on revenues from oil that Tullow Oil Plc and Africa Oil expect to start pumping after seven years. The sovereign wealth fund will shield the economy from cyclical changes in commodity prices, build savings for future generations and be used to invest in infrastructure.	Planned but not yet approved. Political and economic landscape in Kenya is changing and the probability to effectively establish a SWF is becoming higher.					
Luxembourg	April 2015	The European Investment Fund and the Société Nationale de Crédit et d'Investissement (SNCI) have set up the Luxembourg Future Fund (LFF). This EUR 150m fund to which EIF contributes EUR 30m and SNCI EUR 120m, will be deployed over a five year period and will focus on innovative European SMEs. The Luxembourg Future Fund strategy focuses on direct or indirect investments in Venture Capital funds and SMEs to foster the sustainable development of Luxembourg strategic sectors (i.e. companies active in the ICT, cleantech and other technology sectors excluding health technologies and life science sectors). The Luxembourg Future Fund comprises three sub-funds: investments in Venture Capital funds; Co-investments with Venture Capital funds; Co-investments with Business Angels and Family Offices.	In April 2017, the LFF started to invest abroad.	✓	✓	✓	✓	✗
Mongolia	June 2005	Government announced plans to use proceeds from mining vast newly-discovered mineral deposits to set up SWF with an initial \$600 mn capitalization, but the struggle against declining mineral revenues and inflation has slowed down the process. In 2009 Parliament established the Human Development Fund.	A draft law on the proposed Future Heritage Fund was submitted by the President on 12 June, 2015.					
Mozambique	2014	The creation of the Mozambique Sovereign Wealth Fund was announced in 2014. As a medium and long-term investment strategy, the establishment of a SWF is expected to increase the country's independence on international finance institutions.	Planned but not yet approved.					
Namibia	2015	The creation of the Namibian Sovereign Wealth Fund was announced in 2015. The Sovereign Wealth Fund could act as a facilitator of infrastructure financing with the target of a return on invested capital after the construction period. Preservation of fund capital in real terms (inflation based) should be the target investment return.	Planned but not yet approved.					
Panama	May 2012	Legislation passed to establish the Fondo de Ahorro de Panamá (FAP), a sovereign wealth and stabilization fund, to be funded through Panama Canal revenues in excess of 3.5% of GDP.	Launched in May 2014, FAP reported assets worth \$1.38bn as of the end of 2016.	✓	✓	✓	✓	✗

Introducing Sovereign Wealth Funds

Country	Date fund proposed officially	Rationale for Fund, funding source, and discussion	Status, as of May, 2017	SIL Definition Items				
				S	I	L	C	A
Papua New Guinea	February 2012	Prime Minister Peter O'Neill announced that one new liquefied natural gas (LNG) project would ultimately contribute over \$30bn (ten times the country's GNP) to a new SWF. The SWF bill was quickly approved unanimously by PNG's Parliament in February 2012.	The Organic Law on Sovereign Wealth Fund, was approved by Parliament in July 2015 and the preliminary work on establishing SWF board had already began at the end of 2016.					
Philippines	2013	The aim is creating a Philippine Sovereign Wealth Fund as a long term investment vehicle for the Philippine government. As defined in the bill, a SWF is a special purpose investment fund or arrangement owned by the national government. Created by the government for macroeconomic purposes, a SWF holds, manages, or administers assets to achieve identified financial objectives. It also employs a set of investment strategies that include investing in foreign financial assets. An act for the establishment of the Philippine investment Fund Corporation has been formally issued at the end of 2016.	Planned but not yet approved.					
Romania	2017	The government led by Sorin Grindeanu has initiated the legal procedures for the creation of Romania's sovereign wealth fund. This fund, which will include all the state-owned companies that are profitable, will be used to finance the construction of hospitals and of new roads and railways. He explained that once it becomes operational, the Sovereign Fund for Development and Investments (FSDI) will issue bonds that can be acquired by retail and institutional investors. According to the government's plan, the fund should grow to EUR 10 billion in a 4-year period.	Announced but not yet established or funded.					
Rwanda	2012	The Agaciro Development Fund (AgDF), is a sovereign wealth fund launched in 2012 by President Paul Kagame. The government will annually be contributing Rwf 5 billion (currently \$6.7 million) from the national budget towards the sovereign wealth fund.	Agaciro Development Fund has raised over Rwf 35 billion which was invested in different ventures and has earned a profit of Rwf 8 billion.	✓	✓	✓	✓	✗
Senegal	December 2012	The Sovereign Fund for Strategic Investment (FONSIS) was created by Law 2012-34, voted on December 27, 2012 by the National Assembly of Senegal and promulgated on December 31, 2012 by the President of the Republic of Senegal Mr. Macky Sall. FONSIS was incorporated on July 29, 2013 as a limited liability investment holding company with a board of directors. Its initial share capital of CFA francs 3 billion is wholly held by the State of Senegal. FONSIS officially launched its operations in October 2013 with the appointment of its CEO.		✓	✓	✓	✓	✗
Syria	January 2012	In 2012 Syria's Presidente announced his willness to establish a sovereign wealth fund called the "National Investment Fund". The objective of the fund is to support and stabilize the Syrian financial markets through a long-term investment policy.	Announced but not yet established or funded.					
Tanzania	September 2012	The Natural Gas Revenue Fund (NGRF) is the proposed sovereign wealth fund of Tanzania. It will manage the revenue accrued from the sale of its natural gas. The fund will be managed by the Bank of Tanzania.	It was expected to be launched in 2015 after the enactment of a bill by the National Assembly but it still pending.					

Country	Date fund proposed officially	Rationale for Fund, funding source, and discussion	Status, as of May, 2017	SIL Definition Items				
				S	I	L	C	A
Turkey	August 2016	Law no. 6741 (the "Law") sets forth the purpose and targets of the Turkish sovereign wealth fund (the "Fund"). The Fund was created to help grow the Turkish economy and to address some of its structural problems. The Law establishing the Corporation sets forth ambitious targets for the work of the Fund, including: contributing to the growth rate by 1.5% annually over the next ten years; providing financing for strategic mega-projects such as the third Istanbul international airport and nuclear power plants; accelerating the growth and deepening of the capital markets; popularizing the use of sukuk and other Islamic finance instruments; encouraging local companies involved in strategic technology-based sectors such as defence, aviation and software to become global players by supporting them through equity investments and financing on a project basis; creating the opportunity for direct investments by the Corporation outside of Turkey in strategic sectors including oil and gas.	The government has set the initial target for the asset size of the Fund at \$200bn.	✓	✓	✓	✓	✗
Uganda	October 2015	Earlier 2015, Ugandan President Yoweri Museveni signed the Public Finance Management Act (PRMA) 2015 into law and established a sovereign wealth fund—called the Petroleum Revenue Investment Reserve—to be managed by the Bank of Uganda.	Approved but still not operating.					
United Kingdom	December 2014	Chancellor of the Exchequer George Osborne confirmed plans for a new sovereign wealth fund for the North of England. The new fund would use tax receipts from the exploitation of shale gas reserves in the North of England to invest in economic development projects in the region.	Announced but not yet established or funded.					
Zambia	2014	Zambia plans to establish a sovereign wealth fund to spur investment outside the mining industry of Africa's biggest copper producer, President Michael Sata said. The fund will be set up through the Industrial Development Corp., which will oversee the southern African nation's state-owned companies. It will focus on stimulating investment in strategic non-mining industries among others, thereby expanding the country's investment portfolio and thus creating jobs.	Planned but not yet approved.					
Zimbabwe	November 2013	In Zimbabwe, the senate on 23 September 2014, passed the Sovereign Wealth Fund of Zimbabwe Bill (H.B. 6A, 2013) that will see the establishment of a Zimbabwean SWF. The proposed SWF will be funded from up to a quarter of mining royalties in respect of gold, diamonds, coal, coal-bed methane gas, nickel, chrome, platinum and such other mineral that may be specified, mineral dividends and government grants.	Planned but not yet approved.					

(S) Owned directly by a sovereign government

(I) Managed independently of other state financial and political institutions

(L) Does not have predominant explicit current liabilities

(C) Invests in a diverse set of financial asset classes in pursuit of commercial returns

(A) Has made a significant proportion of its publicly reported investments abroad

Source: *Sovereign Investment Lab*

ments to qualify for inclusion in SIL's SWF list. The government of Hong Kong in January 2016 established the Future Fund with the goal to secure higher investment returns for the fiscal reserves until then conservatively managed by the Hong Kong Monetary Authority. However, the Future Fund, which starts with an initial endowment of 219.7 billion HK dollars, will most likely enjoy limited independence and remain tightly controlled by the Treasury. At the beginning of 2016, the Indian National Investment and Infrastructure Fund (NIIF), born to fill the glaring infrastructure gap in part by attracting foreign investors, has signed a Memorandum of Understanding (MoU) with Rusnano of Russia to set up the Russia-India High Technology Equity Fund for joint implementation of investments into high-tech projects in India. In a similar vein, the National Development fund of Iran and Kazakhstan sovereign wealth fund (Baiterek National Holding) signed MOU to cooperate on bilateral investments and financing private sector projects. Although these funds have become operational, it is unlikely they will meet all the SIL criteria in the short term since the investment's focus seems to remain domestic. Most of the African funds, which have been announced in the past years, are not yet in operation as of 2016. Instead in 2016, we recorded an important evolution in the European landscape. At the beginning of 2017, the Romanian government has initiated the legal procedures for the creation of Romania's sovereign wealth fund. This fund, which will include all profitable state-owned companies, will be used to support the financing of the construction of hospitals and of new roads and railways. According to the government's plan, the fund should grow to

EUR 10 billion in a 4-year period but it is unlikely it will become operational anytime soon. Instead, two new funds are the most likely candidates to enter the SIL list: the recently launched Turkiye Wealth Fund (TWF) and the Luxembourg Future Fund (LFF). The first one was created in August 2016 with the aim to further development and increase economic stability in the country. TWF has set forth a very ambitious agenda: contributing to the growth rate by 1.5% annually over the next ten years, providing financing for strategic mega-projects, encouraging local companies involved in strategic technology-based sectors such as defense, aviation and software to become global players, and, finally, creating the opportunity for direct investments outside of Turkey in strategic sectors including oil and gas. The grand duchy has launched in August 2015 its SWF with a strong focus on innovative European SMEs and the sustainable development of Luxembourg strategic sectors. It has very recently started to invest abroad through a co-investment with the US-based Fund Promus Ventures in CrossLend, a Berlin, Germany-based fintech company. The LFF will thus enter officially in the SIL list in 2017. The Fundo Soberano do Brasil (FSB), established in 2008 with the purpose to reduce inflationary impact of government spending, minimize real appreciation, and support Brazilian firms' foreign investment, could risk to disappear in the next few years if the public debt recovery should not take place. It was funded with \$6.1 billion initial capital but in the past two years it has been withdrawn of almost \$2 billion to finance the public budget, furthermore in 2016 the Ministry of Economy decided to start selling the SWF's assets.

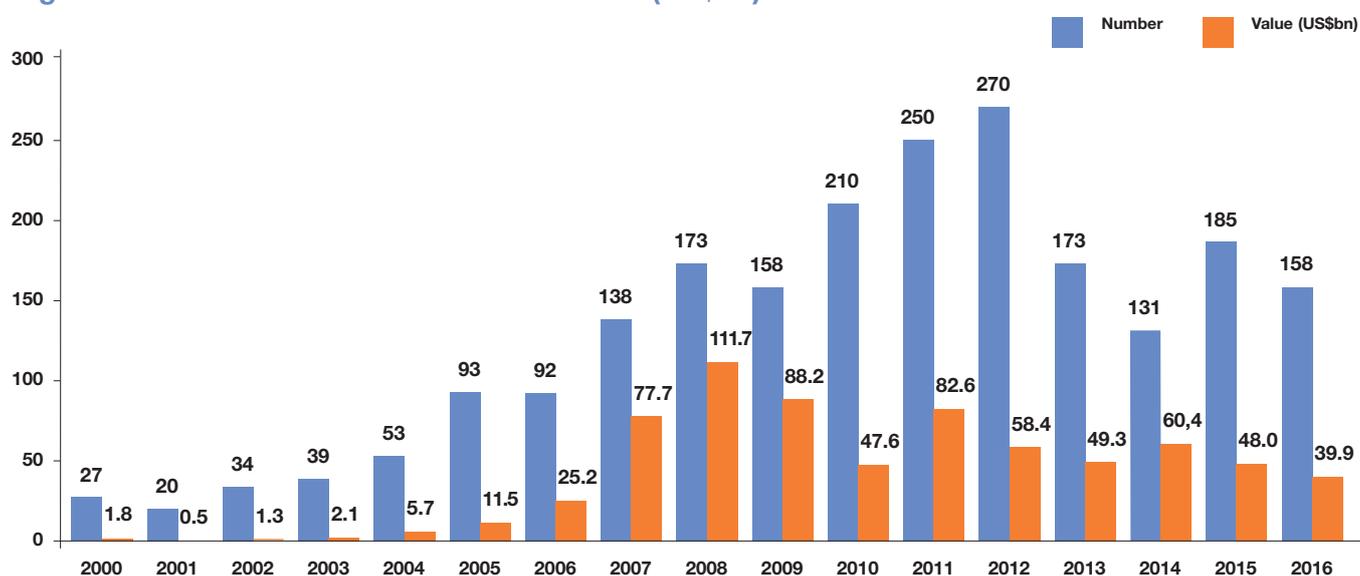
SWF Investments in 2016

Bernardo Bortolotti, SIL, Bocconi University, and University of Turin

Giacomo Loss, SIL, Bocconi University

Nikola Trajkov, SIL, Bocconi University

Figure 1: Direct SWF Investments since 2000 (US\$bn)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

Activity

In 2016, we observed 21 SWFs completing 158 equity investments with a total publicly reported value of \$39.9 billion. This represents a 14 percent decrease in the number of transactions we reported in 2015 and a 17 percent decrease in investment value. The year-over-year decline in aggregate investment value, the second in a row, brought the total value of reported investments in 2016 down to the lowest value since 2006, a reflection of the global economic and political turmoil marking another difficult year.

With two thirds of SWF assets hosted by commodity exporting nations, the recent upswings in the

crude oil price are certainly a critical determinant of SWF investments in key countries. Oil prices have recovered from a low of \$30 per barrel at the start of 2016 to a yearly average of \$43, but are still at half of their pre-2015 levels (Figure 3). The disruption caused by the oil shock triggered a reaction by OPEC that decided at its November 2016 meeting to limit production to 32.5 million barrels per day in the first half of 2017, with the possibility of an extension of this limit for the remainder of the year. This decision, the first agreed production cut by OPEC since 2008, has started to pay off, determining a price forecast for 2017 in the range of \$55 per barrel. Nevertheless, OPEC's ability to rise oil prices higher is challenged by the presence of unconventional oil producers, notably U.S. shale oil, which can respond rapidly to changing market conditions. Indeed, rising prices have already led to

We wish to thank Veljko Fotak and Bill Megginson for insights, comments, and useful suggestions.

a rebound in rig counts in the US, where production is expected to bottom in 2017.

The new price scenario deeply influenced the macroeconomic outlook in producing countries. Gulf Cooperation Council (GCC) countries experienced a slowdown in activity in 2016 with growth decelerating by nearly 2 percentage points. Oil sector weakness spread to non-oil sectors, causing a contraction of investment, predominantly through a severe terms-of-trade deterioration. In addition to constraining growth, declining oil prices worsened external and fiscal balances. The current account, historically in the two digits range as a percentage of GDP, reached a -4 percent, while GCC's general governments borrowing was 11 per cent on an aggregated basis, causing a surge in public debt, reaching on average a value close to 36 percent of GDP.

The worsening macroeconomic conditions in the region triggered since mid-2016 a painful structural adjustment, which is still underway. Kuwait increased fuel prices in August, as did the United Arab Emirates in September. Oman has removed electricity subsidies for large users in early 2017. Saudi Arabia announced significant reductions to public wage spending in September, one of the many provisions of the National Transformation Plan approved in June. Several oil-exporting economies have also cut capital spending.

Yet, our data (see Box 1) does not support the widely held view of cash-stripped governments divesting sovereign funds' assets to fill the holes in public finances. With the notable exception of Norway, which for the first time since establishment tapped \$12 billion of its GPF to cover the 2016 budget,

most governments did not resort to SWFs to achieve short-term fiscal adjustment, but maintained them as pools of assets to be invested with a long-term view over and above one country's liquidity needs. Obviously, even if SWFs remained mostly unscathed, the new energy scenario deeply affected investment. Indeed, as we already reported last year, investment flows quickly adapted to this new regime, where a lower value of exports reduces the pace of accumulation of foreign exchange reserves, capital allocations to the funds, and ultimately equity investments at home and abroad. The sizable reduction of SWF investment activity by value and deal number observed this year in GCC countries is thus a delayed consequence of the 2015 oil shock.

While the value of SWF investments has declined, the deal flow has not dried up completely. Total assets under management, meanwhile, have actually increased, albeit at a much slower pace than the past. Host countries have shown restraint by not treating SWFs as pure rainy-day funds, but a source of diversified revenues for countries overly dependent on commodity-based income. At this time of turmoil, commodity producers are seeking ways to diversify their revenue stream. A notable case in point is Saudi Arabia that has recently launched a visionary masterplan aimed at turning by 2030 an old oil-based economy into an investment powerhouse, and a hub connecting three continents. The milestones of this strategy are the privatization of Aramco, the Saudi oil giant, in 2018, and the consequent capitalization of the Public Investment Fund to be transformed in the largest SWF in the world, with a double mandate to diversify through international investments and to stimulate the local econo-

Box 1. SWF's divestitures in 2016

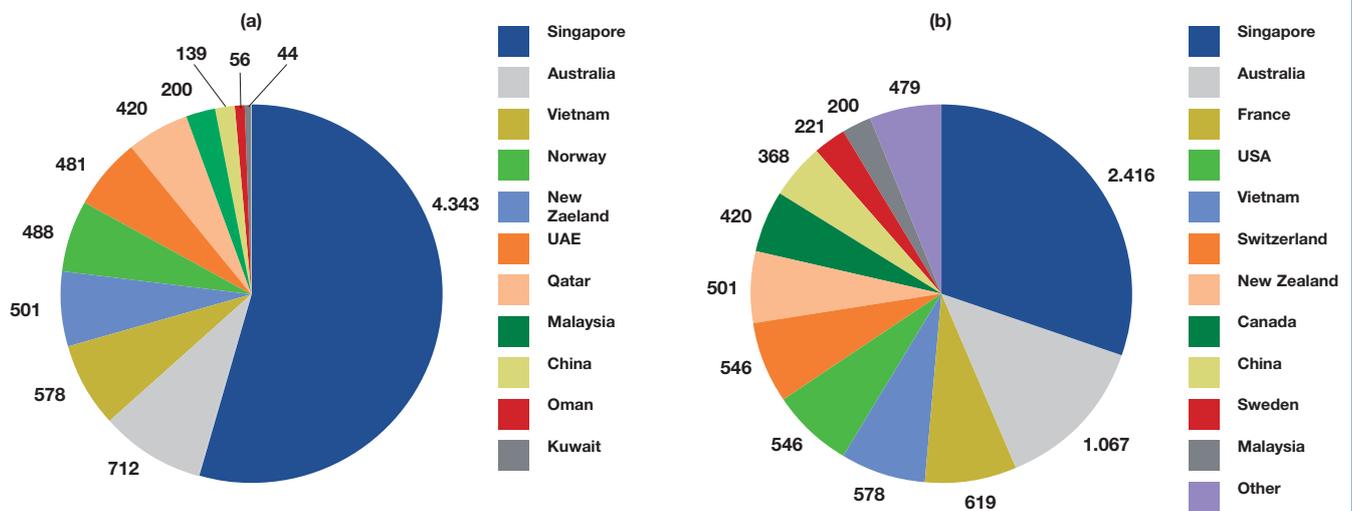
In 2016, we tracked SWFs' divestitures worth \$7.9 billion, which is roughly in line with 2015 figures. Around 60 percent of disinvestments by value took place in the Asia-Pacific as target region whereas those in the US and Europe accounted for only 32% of the total. The limited extent of these redemptions casts doubts about the disruptive effects on the stock markets of developed economies overshadowed by some media commentators in early 2016.

Indeed, SWFs responsible for the lion's share of divestitures are two "non-commodity" SWFs, Temasek and GIC, with more than \$ 3.8 billion in 2016, presumably in the context of portfolio rebalancing. The largest operation is Temasek's sale of

its holding in Neptune Orient Lines, a Singaporean shipping company struggling for falling shipping rates caused by overcapacity in the industry. The company was sold to the French CMA GCM Group (Compagnie générale maritime et la Compagnie maritime d'affrètement), a top global player in the shipping industry.

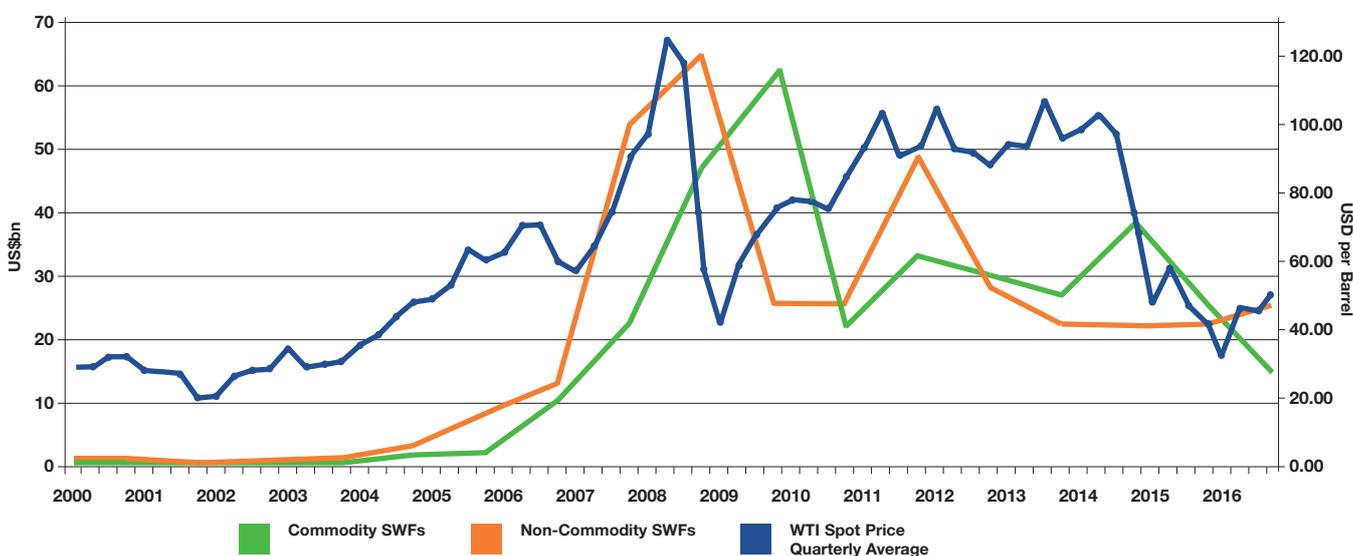
The sectoral distribution of redemptions confirms the declining SWF's interest in the financial industry. Disinvestments in this sector account for more than \$1.6 billion, including the sale of the Singaporean ACR Capital Holdings by Temasek and Khazanah Nasional Bhd and of Ariel Reinsurance to the strategic investor Argo Group by the Abu Dhabi Investment Council.

Figure 2: SWF Disinvestments by Home (a) and Target (b) Country, 2016 (US\$m)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

Figure 3: SWF Investments by Source and the Price of Oil, 2000 - 2016



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

my with targeted funding of strategic projects. The jury is still out to decide whether these plans will pass a reality check. However, the Saudi case illustrates the deep SWF implications of this transition to lower energy prices, and how they may lead even to an increase in assets under management by SWFs, in contrast to most predictions.

While observing the immediate implications of the oil show last year, we pointed out that the new “age of plenty” in commodities market could have redistributive effects between exporting and importing nations, and different implications for commodity as opposed to surplus, non-commodity SWFs. While low prices strain the fiscal position of exporters and their growth prospects, they lower energy costs for countries that are net importers, strengthening the competitive position of local businesses. One would

expect a boost in exports for large energy consumers especially amongst emerging countries, leading to significant accumulation of reserves, and an increase in the pace of sovereign investment.

Investment flows in 2016 are broadly consistent with this view. As Figure 3 shows, while commodity SWFs experienced a \$10 billion contraction in their equity investment, non-commodity, trade surplus countries increased their spending by \$3 billion. Growth differentials clearly explain this “tale of two groups”. Commodity exporting emerging countries grew by an estimated 0.3 percent in 2016, markedly below the long-term average of 2.8 percent, while commodity importing emerging countries boasted a 5.6 growth rate. Within this group, China, one of the largest commodity consumer, decelerated to a still remarkable 6.7 per cent.

These reallocations and their reflections on 2016 SWF investment activity suggest that a power shift is currently underway from resource rich countries in favour of large exporting countries such as the Asian economic powerhouses. Still, and most importantly, we must bear in mind that subdued growth, stagnant global trade, and heightened political uncertainty marked 2016 as another difficult year for the world economy. Global growth at 2.3 per cent scored the lowest level since the financial crisis, while international trade recorded one of its weakest performance, compounded by rising protectionism, shrinking global chains, and abrupt currency movements. Policy uncertainty has markedly increased, amid elections and referenda called upon in countries accounting for almost 50 percent of global GDP. As it is widely known, political uncertainty tends to rise risk premia, tighten credit conditions, and depress investment and consumption. These unusually high level of political uncertainty, in combination with a fragile global economy, have a great bearing in explaining the low level of SWF activity.

But SWFs are taking stock of this new complexity, and have started to react proactively, by executing a more conservative strategy, mitigating investment risks by diversification, co-investments, and careful sectoral allocation.

Sectors

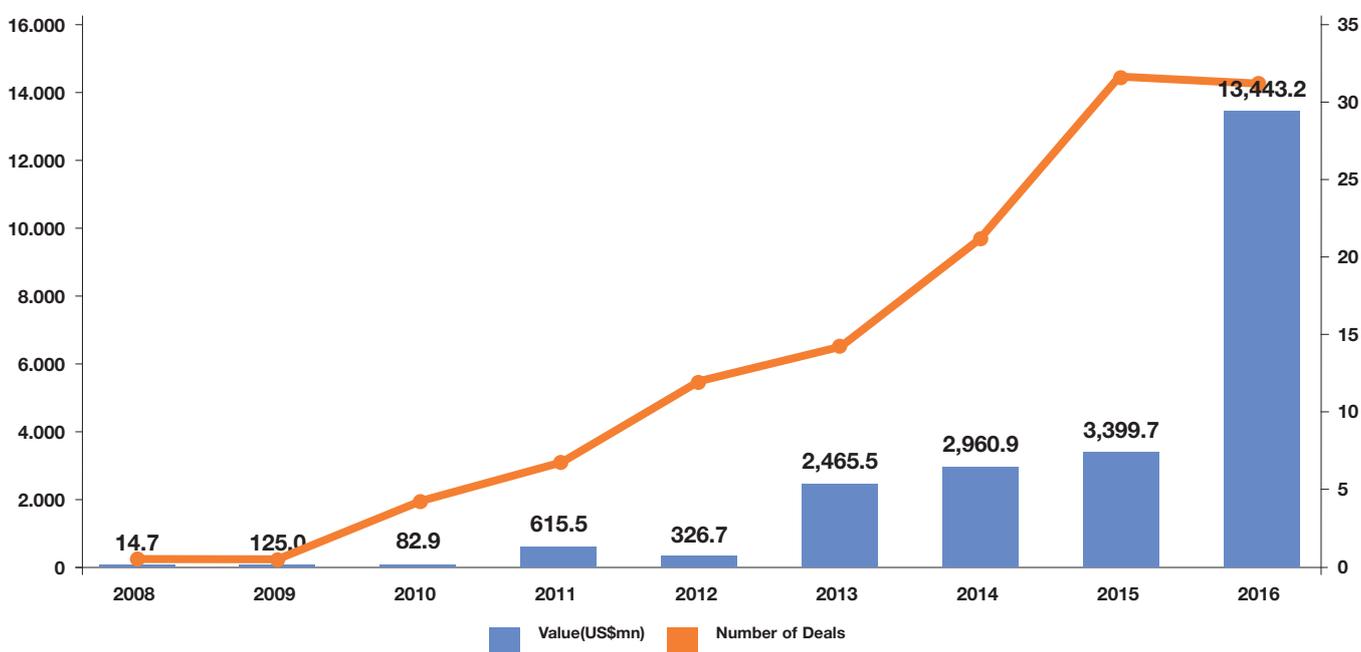
Our devoted readers might remember that in the last two annual reports we noted two important trends in the sectoral distribution of SWF investment. In 2014, we observed an increasing appetite for inno-

vative sectors and a larger venture capital role in SWF investing. In last year's report, we observed that a significant sectoral portfolio reallocation was underway. In 2016, these two trends have combined and the data most certainly confirms our previous observations. Investment value in companies linked to innovative technologies has almost quadrupled compared to 2015. With 31 publicly reported deals, worth \$13.4 billion, SWF investment in high-tech companies accounted for 33.6 per cent of investment value and 19.6 per cent of total investments. After gradually increasing their exposure in technology in the last three years, it is now safe to say that SWFs have finally decided to join the party. Since technology investing is a rather risky game and is not a SWF's natural habitat, one may wonder why they are increasingly attracted to it. The reason is simple: sluggish economic growth in many countries and low yields in most traditional sectors and asset classes are pushing SWFs towards earlier stage investing in businesses with high disruptive potential which promise healthier returns.

SWFs are not only increasing their investments in the tech field, they are also changing their strategy. More and more SWFs are opting for direct investments along with PE/VC fund managers, instead of joining such funds as LPs. In line with this trend, the most active funds have started opening offices in the Silicon Valley and hiring people with abundant transaction experience. The goal is to cut costs and get closer to the action.

Unsurprisingly, 88 per cent of the investment value in the innovative segment is linked to companies in the personal and business services industry. Overall

Figure 4: SWF Investments in IT-linked Sectors, 2008 – 2016



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

in 2016, the personal and business services sector accounted for 39.9 per cent of investment value and 25.9 per cent of all transactions. In absolute numbers that is \$15.9 billion of investment value in 41 transactions. This makes the personal and business services sector by far the most popular group this year. Moreover, SWFs invested more money in this sector during this year than they did in the last 10 years combined.

The investment boom in services in 2016 is characterized by several features. First of all, 98 per cent of investment value is foreign rather than domestic. Only two deals happened in domestic markets. Developed markets are most attractive with about

76 per cent of investment value flowing their way. Finally, 91.1 per cent of the deals, calculated on investment value, were completed in the first half of the year, demonstrating the impact the political uncertainty in the second half of the year had on the deal flow, especially in this relatively new sector for SWFs.

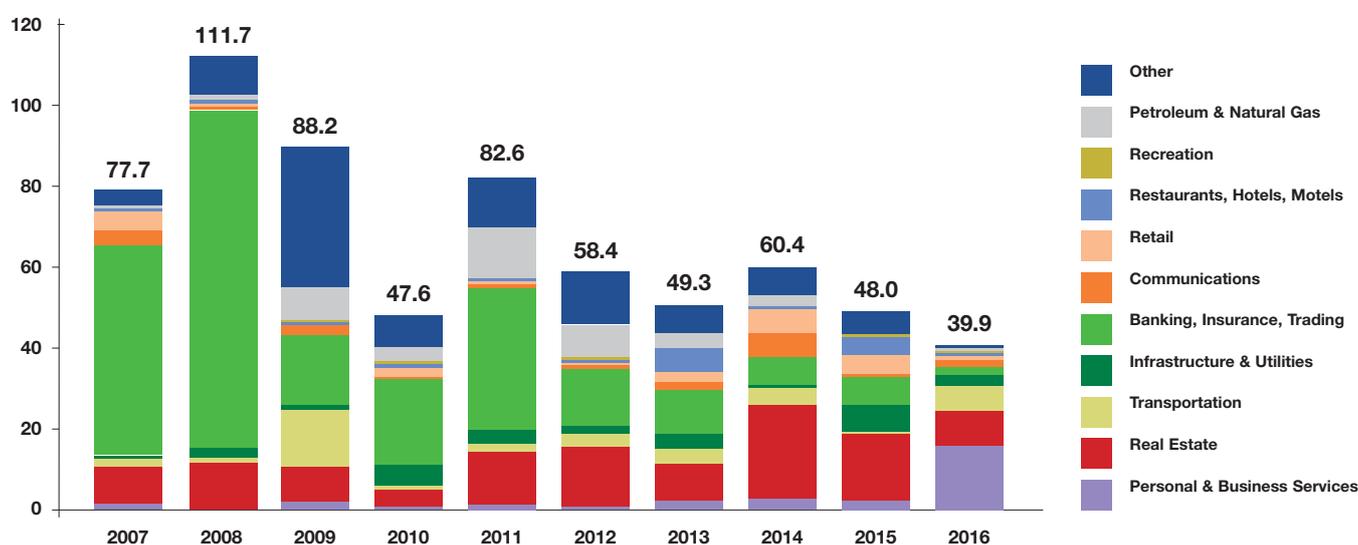
Non-commodity funds are getting the lion’s share, accounting for 37 out of the 41 transactions completed in 2016. Singaporean funds GIC and Temasek are the leaders of the pack with 67 per cent of deal value. GIC wins the prize for the largest services investor and for the largest transaction in this sector, which also happens to be the largest

SWF investment this year. At the end of January, GIC, together with the Carlyle Group, completed the \$7.4 billion acquisition of Veritas Technologies Corporation, a company offering information management solutions to businesses, which already has 86 per cent of the global Fortune 500 in its portfolio of clients. Together with private equity groups Hellman & Friedman and Leonard Green & Partners, GIC completed another massive deal in the USA by acquiring MultiPlan Inc., USA's largest provider of transaction-based solutions that reduce medical costs. In Europe, GIC teamed up with ADIA, Danish pension funds ATP and PGGM, as well as private equity group TDR Capital to acquire LeasePlan Corporation, a leading fleet management company. GIC also diversified geographically its portfolio by investing in emerging markets, mainly in China and India. In a three-way SWF deal, worth \$1.5 billion, including Temasek and Malaysia's Khazanah Nasional Berhad, accompanied by Primavera Capital Group, GIC participated in the first round of financing of Cainiao Network, the logistics affiliate of Alibaba Group. GIC also invested \$500 million in Alibaba Group itself. In India, GIC made two investments in the e-commerce space. First, they partnered with Tiger Global and Nexus Venture Partners to participate in the last funding round of Shopclues before its planned IPO. With this last round of financing, the e-commerce platform joined the unicorn universe of India with a valuation of \$1.1 billion. Second, GIC invested in the Bangalore-based app Little that provides real time local deals to customers across services like restaurants, movies, hotels, salons, gyms and spas.

Second on the list of largest investors in this sector is the latest addition in our SWF universe, Saudi Arabia's Public Investment Fund. The Saudi have completed only one transaction in this sector, however, it was one of the landmark deals of the year: the astonishing \$3.5 billion investment in the ride-hailing app Uber. This represents one of the largest single investments ever made in a private company and a very tangible sign of commitment to the implementation of the broader "Vision 2030" plan.

Temasek is another brand we are accustomed to seeing in the top of the lists of most active funds across industries. This year, they kept up with the expectations and ended third on the list with \$2.6 billion worth of investments in the personal and business services industry. Unlike the other Singaporean fund, GIC, Temasek's main focus in 2016 were emerging markets. Besides the investments in Cainiao Network and Alibaba Group, for which they partnered up with GIC, Temasek took part in one more massive investment in China. Alongside China Investment Corporation, Tencent, DST Global, TBP Capital, Canada Pension Plan and others, Temasek joined the latest round of financing of China Internet Plus Holding also known as Meituan-Dianping, China's largest group deals site. The whole financing round was worth \$3.3 billion, which makes it the largest single funding round ever raised by a venture-backed Internet startup in China. Another interesting deal completed by Temasek in emerging markets was the acquisition of a 74 per cent stake in the data center business of Tata Communications. For a price of \$468 million, Temasek will gain control of 14 data centers located in India and three in Singapore, which

Figure 5: Value of SWF Investments by Target Sector, 2007 - 2016 (US\$bn)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

already service a large number of customers. Temasek completed three investments in the services sector in developed markets in 2016, out of which the most notable is the 100 per cent acquisition of Australian Smec Holdings, an infrastructure consultancy firm, for about \$300 million. Temasek will merge the firm with its own Surbana Jurong, creating the largest development consultancy group based in the Asia-Pacific.

After last year’s all-time high for investments in safe assets, including real estate, hotels and tourism facilities and infrastructure and utilities, the investment value in this asset class has dropped significantly. SWF have invested less than half in this sector compared to previous year’s value. Total investment value in 2016 was \$11.8 billion coming from 30 transactions. This represents 29.6 per cent of over-

all 2016 investment value and 18.9 per cent of completed deals. The sharp decline is consistent in all three categories. Investment value in infrastructures and utilities is 2.5 times lower, investment value in real estate is two times lower and investment value in hotels & tourism facilities is 10 times lower compared to the previous year.

The lower investment values in infrastructure and utilities and in hotels and tourism facilities are not particularly indicative given the nature of these sectors. Investment in both sectors has varied greatly in the past and both depend highly on availability of suitable investments. On the other hand, the lower investment in real estate can be attributed to three global trends. First, nominal real estate prices are at historic highs. The returns remain attractive mainly due to near-zero interest rates in most countries.

A sectoral shift is underway, with IT-linked sectors replacing “safe assets”, including real estate and infrastructure

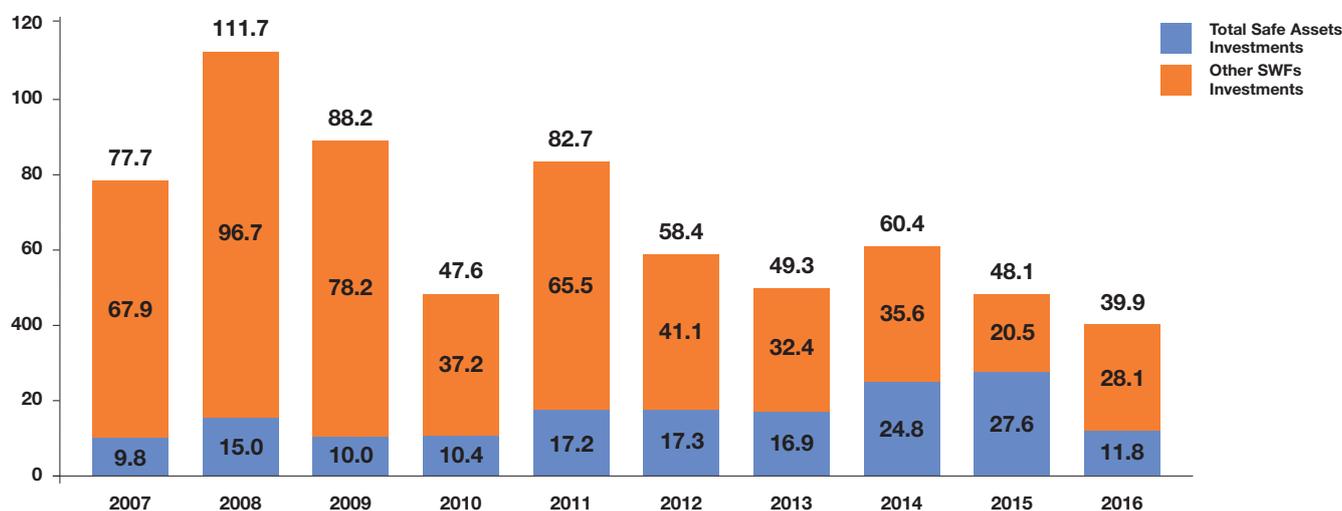
However, it seems the wheel is turning, Norway’s GPFG for example reaped double digit returns on its real estate portfolio in the three years before 2016, this year its return from real estate was only 0.78 per cent. Second, commodity financed SWFs were the trailblazers in real estate investing and traditionally the biggest spenders in this sector. The decline in oil prices in the last two years, especially in 2016, strongly impacted these SWFs and their war chests. Finally, 2016 was a very turbulent year for geopolitics as well. As we saw above, in the paragraph for innovative technologies, this year SWFs focused more on investments that are more idiosyncratic and less dependent on the overall economy; unfortunately, real estate does not fulfill these criteria.

The noteworthy features of real estate deals this year are to a certain extent similar to previous years with one major difference. It seems that the UK has paid the price for the political uncertainty caused by the Brexit referendum. SWFs invested only \$555 million in the UK in 2016, down from \$3.6 billion in 2015. The UK’s place was taken over by France, which attracted \$1.86 billion of SWF real estate investments. France together with the USA and Singapore, which attracted \$3.44 billion and \$2.5

billion respectively, account for around 90 per cent of investment value in the real estate sector in 2016. In terms of location, preferences have not changed, vibrant cities with diversified economies, economic powerhouses hosting high growth firms and the most creative entrepreneurs are in high-demand, especially for the hefty returns in the office and commercial property segment of the industry.

Real estate remains a playground for a few hyperactive funds. This trend is even more profound in 2016; QIA, GIC, CIC and Norway’s GPFG account for an impressive 98 percent of deal value. QIA wins the prize for the largest real estate investor in 2016, as well as for the largest real estate deal in 2016. For a third year in a row QIA shows that it is particularly attracted to trophy properties and that it is not intimidated from making high profile deals that make a noise in the investment world. In June, QIA announced that they have agreed with BlackRock Inc. to acquire their office building Asia Square Tower 1 in Singapore’s Marina Bay business and financial district for \$2.5 billion. This is an impressive deal from two aspects. First, QIA set a new benchmark in the region with this acquisition, since this is officially the largest ever single tower deal in Asia-Pacific. Second, it is a bold move considering its timing. There was a concern over the stability of the Singaporean office market due to increased supply, and many analysts saw the deal as a turning point for the whole market. However, rents in Singapore continued to fall, albeit more slowly, even at the time of writing of this report. Time will tell if QIA made a winning bet. The rest of QIA’s activity was mainly concentrated in the USA in line with their ongoing plan to invest up to \$35 billion in the

Figure 6: SWF Investments in Safe Assets*, 2007- 2016 (US\$bn)



* Safe Assets category includes Infrastructure & Utilities, Real Estate and Restaurants, Hotels, Motels sectors.

Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

US real estate market over the next 5 years. One of such investments was acquiring a 9.9 per cent stake in the owner of the Empire State Building, Empire State Realty Trust, for \$622 million. SWFs usually go for direct stakes in properties instead of buying REIT shares, however, considering it is New York City, this deal makes sense. With this transaction QIA gained small ownership in 20 different properties in the New York area. On the West Coast, QIA formed a joint venture with Santa Monica-based REIT Douglas Emmett Inc. to acquire 4 office buildings in Westwood, Los Angeles for \$1.34 billion, completing one of the largest office deals in L.A. in recent years.

The Norwegian government has withdrawn money for the first time from its SWF, Government Pension

Fund Global, the largest SWF in the world. The SWF recorded its first annual outflow, around \$12 billion, in 2016 and this has reflected on its real estate investments during the year. In 2016, total real estate investment value for GPFPG was around \$2 billion, less than half compared to last year. GPFPG's largest acquisition in 2016 was the Vendome Saint-Honore property in central Paris. For a little over \$1 billion GPFPG acquired 26,800 square meters of first class real estate that is comprised of 80 per cent office space and 20 per cent retail space. GPFPG was the only SWF that made a sizable acquisition in the UK real estate market in 2016. First, it acquired retail and office property on 355/361 Oxford Street in central London for \$163 million. Later in the year it acquired the 73/89 Oxford Street property, which is still under develop-

ment, from Great Portland Estates plc. for \$354 million. GPFG diversified their annual purchases by acquiring a 44% stake in two office buildings in San Francisco for \$453 million.

CIC stayed on course with their updated strategy to diversify foreign investments away from stocks and bonds and into assets including infrastructure and property to fit its long-term investment horizon. In 2016, CIC spent around \$1.7 billion on real estate which was enough to place itself on the third spot in the ranking of largest real estate buyers of the year. CIC's largest real estate acquisition in 2016 was the 45 per cent stake they bought in 1221 Avenue of The Americas in New York's iconic Rockefeller Center. CIC paid just a little over \$1 billion to acquire the stake from the Canada Pension Plan Investment Board. Another significant investment for CIC in 2016 was the acquisition of leading French residential real estate manager Foncia. CIC teamed up with private markets investor Partners Group and Canadian fund manager Caisse de dépôt et placement du Québec to share the \$2 billion price tag.

The list of largest spenders in real estate would not be complete without Singapore's GIC. This year, with around \$1 billion worth of investments, GIC is fourth; however, in terms of activity, with five publicly reported transactions it shares the first spot with QIA. GIC's investments this year were directed toward the USA, France, India and South Korea. In the USA, GIC, together with an undisclosed partner, bought a 71 per cent stake in YES! Communities, a manufacturer and owner of pre-fabricated homes that is valued at more than \$2 billion, according to

people familiar with the deal. Just like CIC and Norway's GPFG, GIC also tapped the French real estate market in 2016. It acquired a 25 per cent stake in French REIT CeGeReal for \$137 million, thus gaining ownership in the REIT's four office buildings jointly valued at \$1.1 billion.

Despite last year's record annual investment value and strong encouragement and positive outlook by industry experts and investment professionals, SWF investments in infrastructure and utilities have dropped significantly compared to the level of 2015. Considering the volatile historical trend of SWF investments in this industry, it is possible that last year's record was a one-off event. This does not mean that SWFs are not exhibiting increasing interest for the industry, it just shows that SWFs and national governments still have not found the right *modus operandi* and have yet to jointly build a proper framework for investing in this asset class. Considering that the World Economic Forum estimates that the current global investment gap for infrastructure is \$1 trillion per year and that SWFs represent one of the most suitable investor types for this asset class, all forecasts point to an increasing SWF presence in the industry. The main issue is finding an approach to structure projects in a way that satisfies all stakeholders, including governments, investors and the general public.

A landmark investment in 2016 in the sector was GIC's acquisition of 19.9 per cent in ITC Holdings Corp., the largest independent electric transmission company in the United States. The \$1.2 billion deal is one of the biggest investments Asian companies have made in US power lines operators. The

deal was part of the financing for a bigger transaction in which Canadian Fortis Inc. acquired ITC Holdings Corp. for a total of \$11.3 billion. The distribution segment recorded another significant deal in 2016, that was ADIA's acquisition of 16.7 per cent in Scotia Gas Networks Ltd., for which it paid \$760 million. In emerging markets, KIA and the State General Reserve Fund of Oman partnered up with ICICI Group, Tata Group and Canadian CDPQ to form a \$850 million fund that will be used as a platform to facilitate investment in power projects in India. Resurgent Power Ventures will target acquisition of controlling stakes in power projects that are in advanced stages and near operational readiness or already operating. In the last segment of the safe assets group, hotels and tourism facilities, deal activity was extremely low. With only three transactions worth around \$460 million, this year's level is far behind the one from 2015 when SWFs invested around \$4.5 billion in this segment.

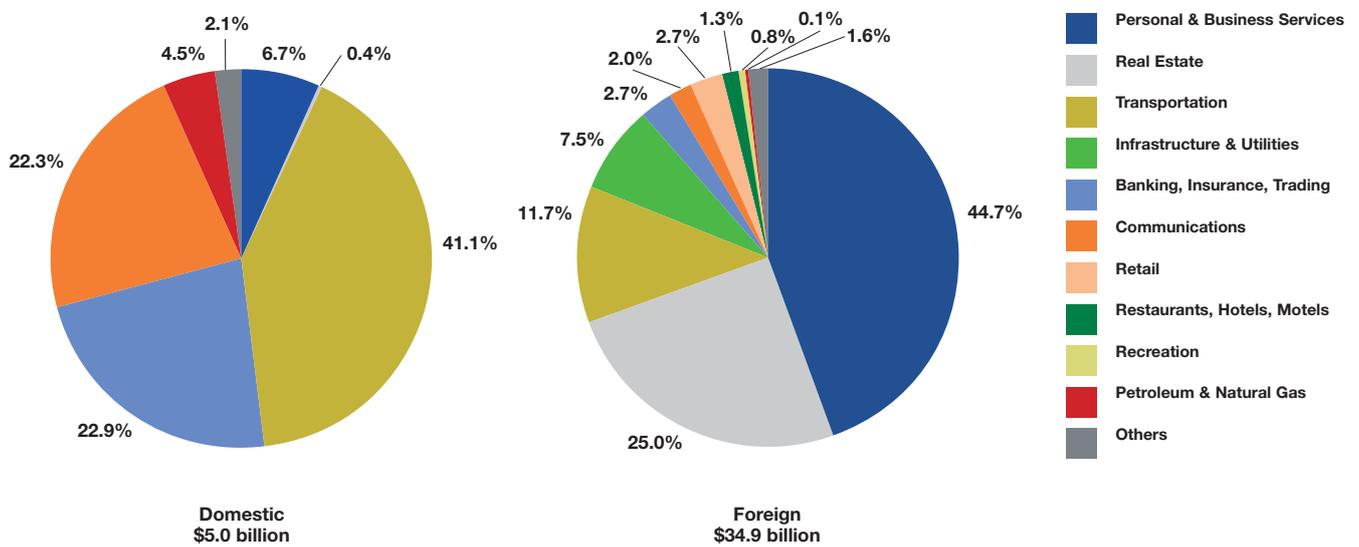
In relative terms, 2016 is a record year in transportation investment, as SWFs completed 22 sizable deals worth \$6.1 billion. The amount invested in transportation increased thirteen times with respect to 2015, reaching an all-time high. The transportation sector had 11 different funds investing in it, becoming one of the most popular sectors this year. Only personal and business services attracted the same number of SWFs. SWFs showed a preference for developed markets with 66 per cent of deal value flowing in their direction. Foreign markets were also preferred over domestic ones with 66 per cent share of the deal value. Australia was the number one destination for transportation

Infrastructure deals dropped, in spite of a reported \$1 trillion global investment gap

investments in 2016 capturing more than half of total investment value.

The highlight of the year was the massive bid for a 50-year lease on the Port of Melbourne. The sale is part of Australia's privatization program in which the country plans to sell more than A\$100 billion worth of assets in order to cut debt. Australia's Future Fund and CIC were part of the Lonsdale consortium which paid an impressive \$7.16 billion for the port, a price tag very close to the highest privatization deal on record, last year's sale of TransGrid, in which SWFs were also involved. CIC's investment was done through a fund managed by Global Infrastructure Partners; other members of the consortium were Queensland Investment Corporation and Canadian pension fund OMERS. Both Future Fund and CIC will have 20 per cent stakes in the asset. The Lonsdale consortium edged out its competitor, an IFM Investors led consortium, by just \$11 million. This transaction was important for Australian foreign policy as well. A month before the confirmation of the deal the Australian government blocked an attempt by State Grid Corporation of China to buy the country's largest power network, Ausgrid, on security concerns. This move caused diplomatic

Figure 7: SWF Investments by Sector in Domestic and Foreign Markets, 2016



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

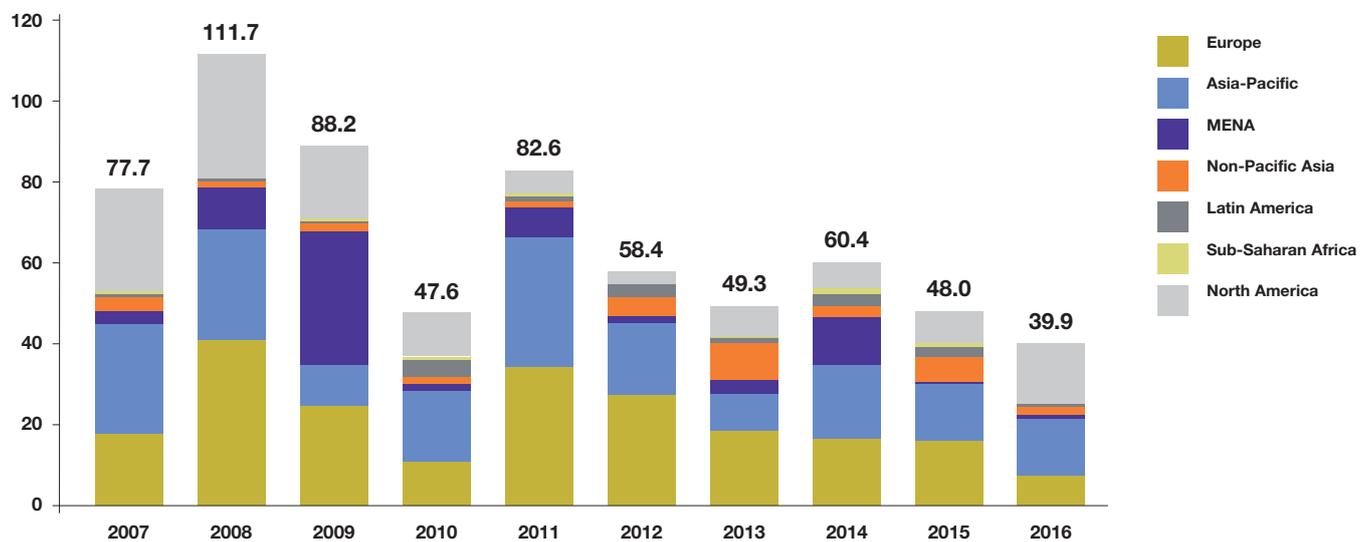
tension between the two countries. Australian officials hope that the Port of Melbourne transaction will ease this tension and show that Australia still welcomes Chinese investment.

Another landmark deal in Australia was the sale of ports and rail group Asciano. After months of fierce competition between two consortiums led by logistics group Qube and Brookfield Infrastructure, and tensions with Australian competition watchdog ACCC, the two prospective buyers decided to join forces and place a bid together. In order to pass competition checks with the ACCC, the partners divided Asciano’s ports and rail businesses. CIC was part of the Qube led group through its subsidiary Shurong, other members of the group were Global Infrastructure Management LLC and Canada Pension Plan

Investment Board. The Brookfield consortium included GIC’s subsidiary Buckland, QIA and British Columbia Investment Management Corp. The whole deal was worth around \$6.8 billion. Under the terms of the transaction, CIC and GIC received 16 per cent and 12 per cent, respectively, in Asciano’s rail business; QIA received 5.5 per cent in Asciano’s ports business; GIC and QIA received 11 per cent each in Asciano’s bulk and automotive ports services business.

Emerging markets in 2016 recorded two notable transactions. First, Temasek, which already owned 54 per cent, bought the remaining shares of Singaporean subway operator SMRT, effectively delisting the company. Temasek paid \$850 million for the remaining 46 per cent of the rail operator. In a different part of the world, ADIA purchased 20

Figure 8: Value of SWF Investments by Target Region, 2007 - 2016 (US\$bn)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

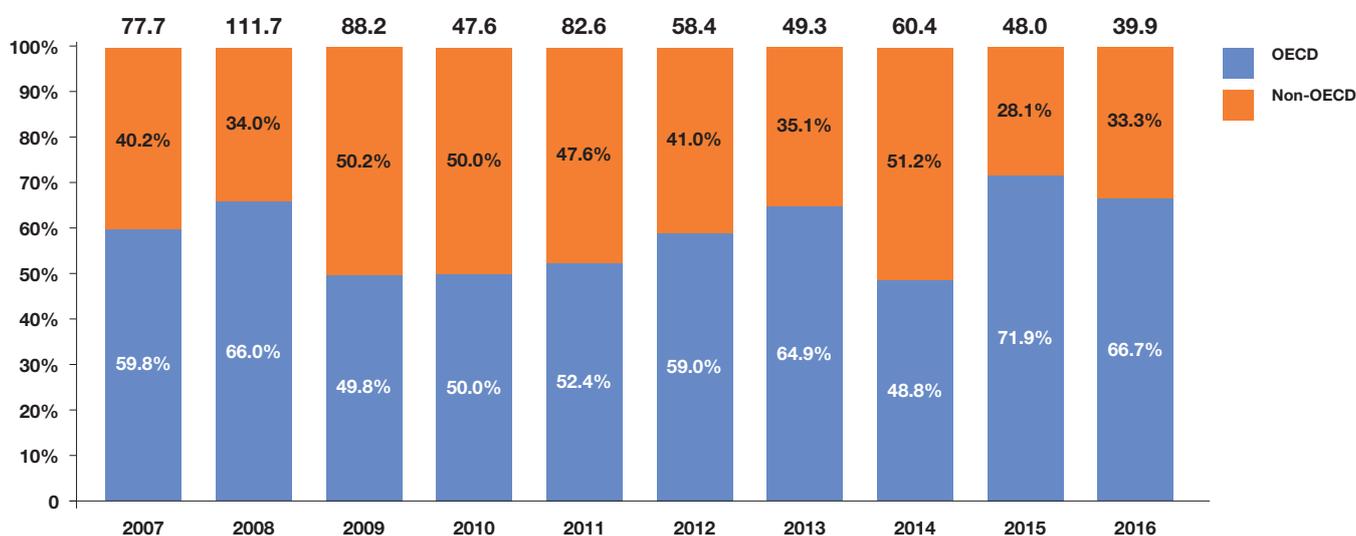
per cent of Abertis’ Chilean business. Abertis is a Spanish manager of toll roads that operates six concessions in Chile with a total length of 772km. ADIA paid \$554 million for the stake.

Since the financial crisis, investments in the financial sector have progressively lost momentum, both in absolute and relative terms. The results from 2016 show us that SWFs have officially lost their interest for the financial sector. SWFs have allocated only 5 per cent of total investment value to this industry in 2016. In absolute numbers that is a tiny \$2.1 billion, thanks to 22 transactions. These numbers only confirm our belief that a long-played game in the financial sector is over. On top of the bail-in regime prevailing in Europe and developed countries, the industry faced myriad other headwinds in 2016. The turbulent geopolitical environ-

ment, to which banks are especially sensitive, persistent negative and near zero interest rates and, of course, Europe’s massive \$1 trillion of NPLs did not make the sector any more attractive during the last year.

The trend to increase exposure to financials in emerging markets is also noticeable this year. SWFs directed 70 per cent of deal value and 63 per cent of transactions towards emerging markets. China and India were especially popular, seizing 56 per cent of overall investment value. Domestic investment was higher with around 55 per cent of investment value; however, foreign investment recorded more activity with 16 out of the 22 transactions happening abroad. Communications is the last sector in 2016 that attracted a more sizable share of investment. It had the same number of transaction

Figure 9: SWF Investments in OECD and Non-OECD Markets, 2007 - 2016 (US\$bn)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

as the previous year, but investment value increased three times. The total reported investment value in the sector is \$1.8 billion, almost entirely in emerging markets.

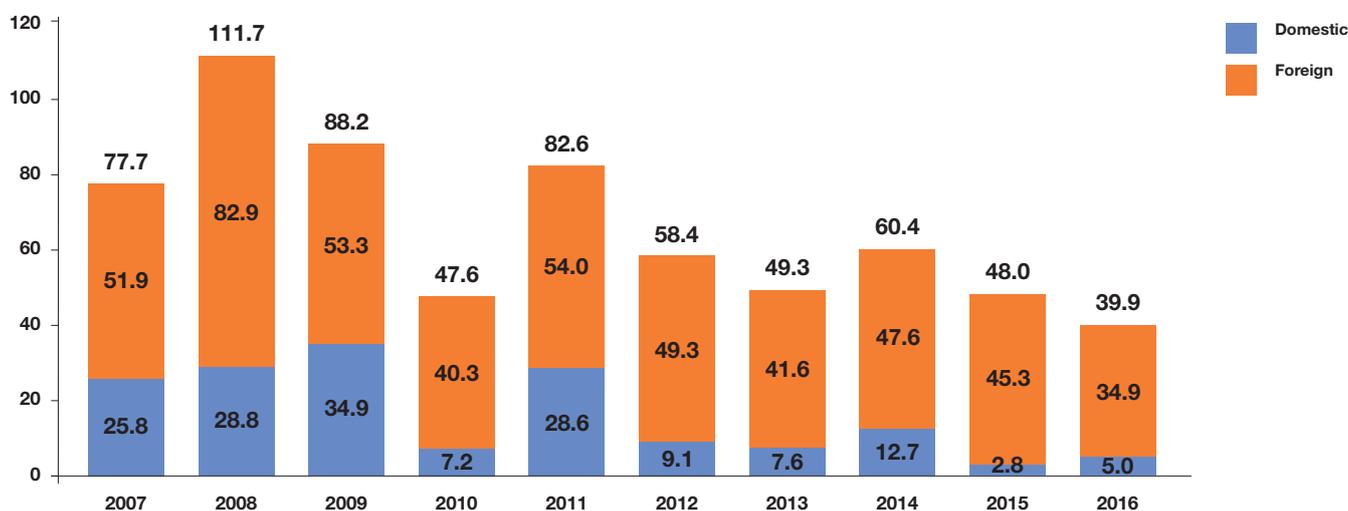
Investments in the retail and healthcare sectors have dropped significantly from their 2015 level both in terms of number of deals and in value invested. Emerging markets were the main destination for both sectors in 2016. In retail, three out of the four transactions were in the e-commerce sphere confirming the trend of dramatic reshaping of the industry influenced by innovation and on-line shopping. As a matter of fact, the largest transaction in 2016 was PIF’s establishment of an e-commerce venture worth around \$1 billion that will try to tap the fast growing, although still underdeveloped, Middle Eastern online retail market. PIF contributed \$500

million to the venture, while the rest was investments from various Middle Eastern businessmen.

Geography

Since 2009, the geographical breakdown of SWF direct equity investments showed a strong preference for developed economies. Even more, the proportion of SWF investments allocated to OECD countries has been steadily growing since 2009. In 2016, we record a slight inversion of this trend with OECD markets attracting 5.2 per cent less of overall investment value relative to the previous year. This is primarily due to the increase in domestic investments of non-commodity funds from the Asia-Pacific region. Temasek and CIC invested \$2.3 billion and \$1.3 billion, respectively, in their domestic economies. This represents 42 per

Figure 10: SWF investments in Domestic and Foreign Markets, 2007-2016 (US\$bn)



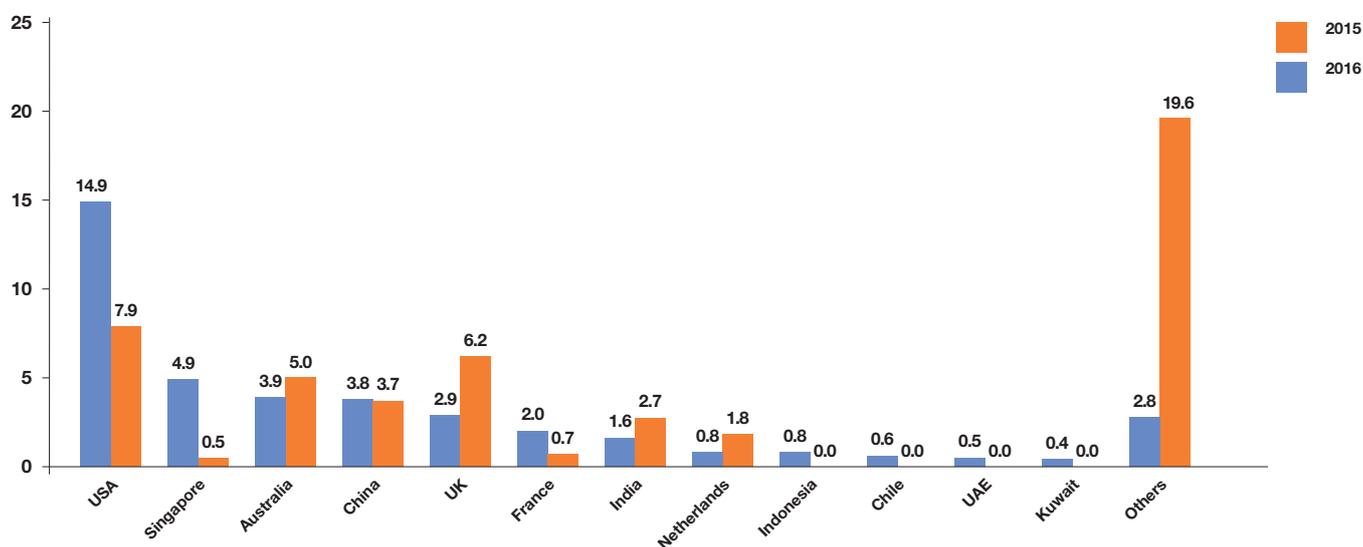
Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

cent and 27 per cent, respectively, of their overall 2016 publicly reported investment value. These two funds combined account for 70 per cent of the domestic investment value in 2016 and 25 per cent of the investment value in non-OECD markets. On the other hand, commodity financed funds showed impressive resilience, even in the two worst years for oil producers in the new millennium; SWFs coming from these countries did not succumb to the pressure to use their capital to prop up their national economies. On a broader level, domestic deal value has almost doubled from \$2.8 billion to \$5.06 billion, while foreign deal value was nearly a quarter lower compared to the level of 2015.

Europe has always been a premier destination for SWFs, however, in 2016 Europe recorded its worst year in the last decade and for the first time it was

not the first or second most popular region in the world. At an aggregate value of \$7.2 billion for 50 deals, inflows into Europe show a tremendous decline from the 2015 value of \$16.2 billion. Besides the fact that Europe has the highest deal number, the relative size of inflows has almost been halved and it receives a disappointing 18 per cent of global investment value. Sluggish economic growth, security issues, Brexit, NPLs and the overall instability of the EU contribute to the region's declining popularity. With all its issues, 2016 was probably one of the most difficult years in recent history for the old continent. The UK is still the largest target market, but Brexit took its toll. At \$2.85 billion, investment inflows in 2016 were the lowest since 2006. Considering the turbulence that the British economy endured, the fact that it still accounts for 39 per cent of the European SWF investment value

Figure 11: SWF Investments by Target Country in 2015 and 2016 (US\$bn)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

just shows the state of the rest of Europe and the severity of the issues the region is facing.

Within the Eurozone, France is the only interesting story this year. After three years of continuous decline in inflows, in 2016 France returned as an attractive market for SWF investment. SWFs were particularly interested in French real estate, or more precisely Parisian real estate. 92 per cent of the \$2 billion France attracted during 2016 was in the real estate sector. The Netherlands is the only other EU country that received a more sizable (\$826 million) SWF investment during the year, the other countries that made the list mostly attracted one or two minor investments.

North America made a big comeback in 2016 as the top choice for SWF investment. After the finan-

cial crisis of 2008, SWFs were consistently lowering their exposure to this market, but this year that trend has halted. The United States accounted for 100 per cent of North American SWF investment. Despite going through a turbulent presidential campaign in which Mr. Trump emerged as the victor, and contrary to forecasts and market expectations, the US managed once again to become a safe haven amid global chaos. The presidential campaign was filled with intimidating rhetoric and gloomy scenarios, however, after the dust had settled and the official numbers for 2016 were out, it appears the American economy fared quite well, especially compared to the rest of the developed world. Growth and productivity are still unsatisfying, but unemployment reached its lowest level since the financial crisis and Mr. Trump's promise for a more business friendly administration got

Box 2. Sovereign Private Partnerships: a trend consolidates

Under the new normal, the more limited resources available for investment have incentivized to scale down deal size, while the “lower-for-longer” yield scenario has pushed funds to chase alternative assets such as private equity and infrastructure projects.

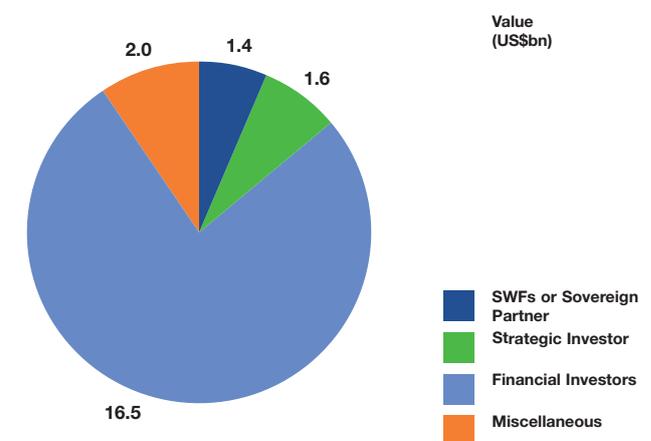
These facts have a strong bearing on the increased willingness of SWFs to team up with other investors with above-average investment skills. These alliances, that we define “Sovereign Private Partnerships” (or SPPs), accounting for around 50% of the total deal value in 2015, in 2016 increased further, both by value and deals (53% and 58% of the total respectively).

SWFs’ most sought for partners are either strategic or financial investors, mostly private equity/venture capital funds. Some of the largest deals of 2016 are co-investments with private equity houses, i.e. the acquisition of Veritas Technology, a leading provider of information management solutions, and Multiplan, specializing in cost and risk management systems for healthcare providers, both by GIC of Singapore in partnership with Carlyle and Hellman & Friedman, respectively, for a total deal value of more than \$ 6 billion.

The sectoral distribution of the SPPs reveals the SWF’s preference towards partners with industry

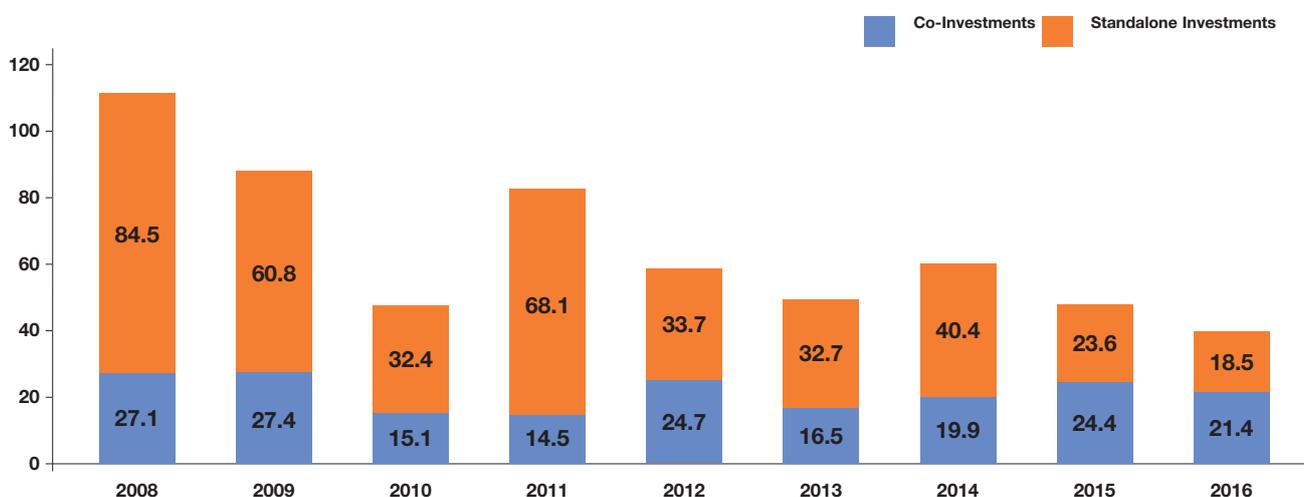
specific competence and skills. More than 50% of total SPP deal value is referred to IT companies; broadly defined, SWFs have in effect taken part to multiple rounds of financing of companies such as the \$ 4.5 billion fundraising of Ant Financials in China or the setting up of the e-commerce platform Noon for \$ 1 billion.

Figure 12: Type of Co-investor by Deal Value, 2016 (US\$bn)



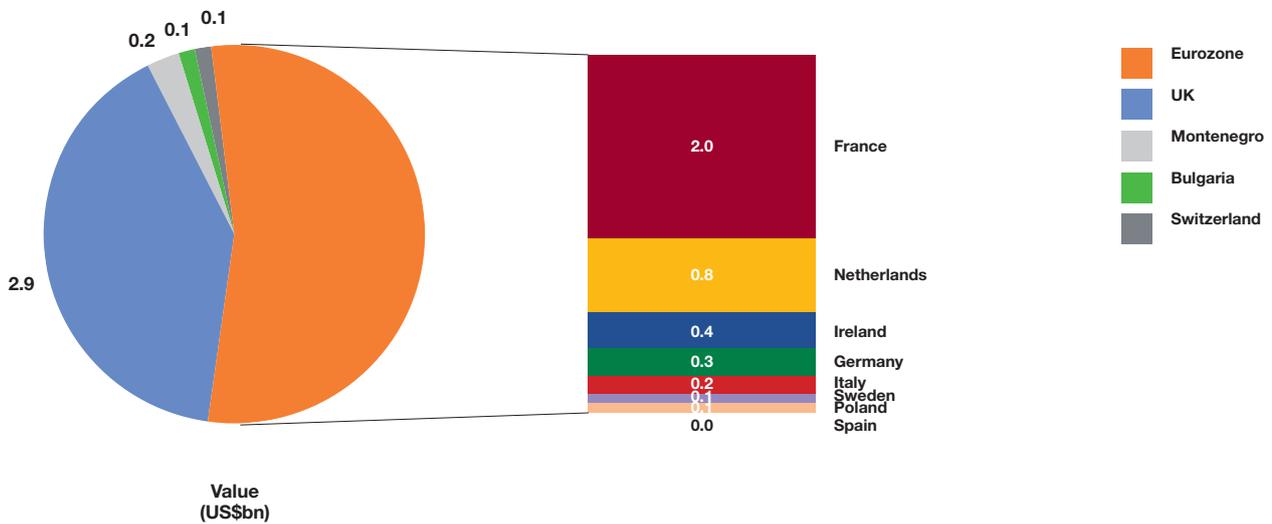
Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

Figure 13: Distribution of Standalone and Co-Investments by Deal Value, 2008-2016 (US\$bn)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

Figure 14: Foreign SWF Investments in Europe, 2016 (US\$BN)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

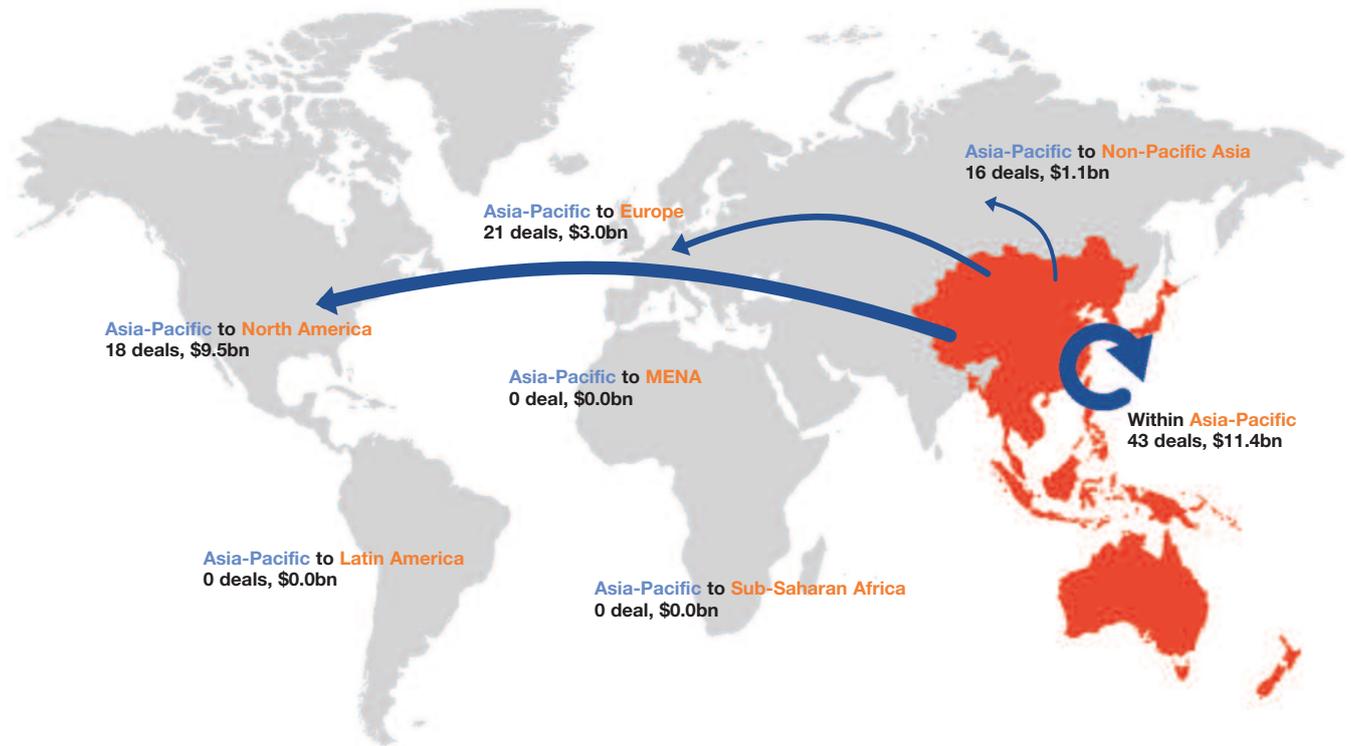
Despite going through a turbulent presidential campaign, the US managed once again to become a safe haven amid global chaos

markets exited, which contributed to all the major stock indices posting solid annual returns. This was enough for SWFs to pour \$14.9 billion worth of investment in the country, making it the number one choice for 2016. In terms of sectors, real estate was quite large as usual, with 23 per cent of investment value, and in line with the latest trend, the personal and business services sector accounts for

66 per cent of investment value. If this trend of investing in innovative technologies continues, we believe the US will continue being one of the top countries for SWFs.

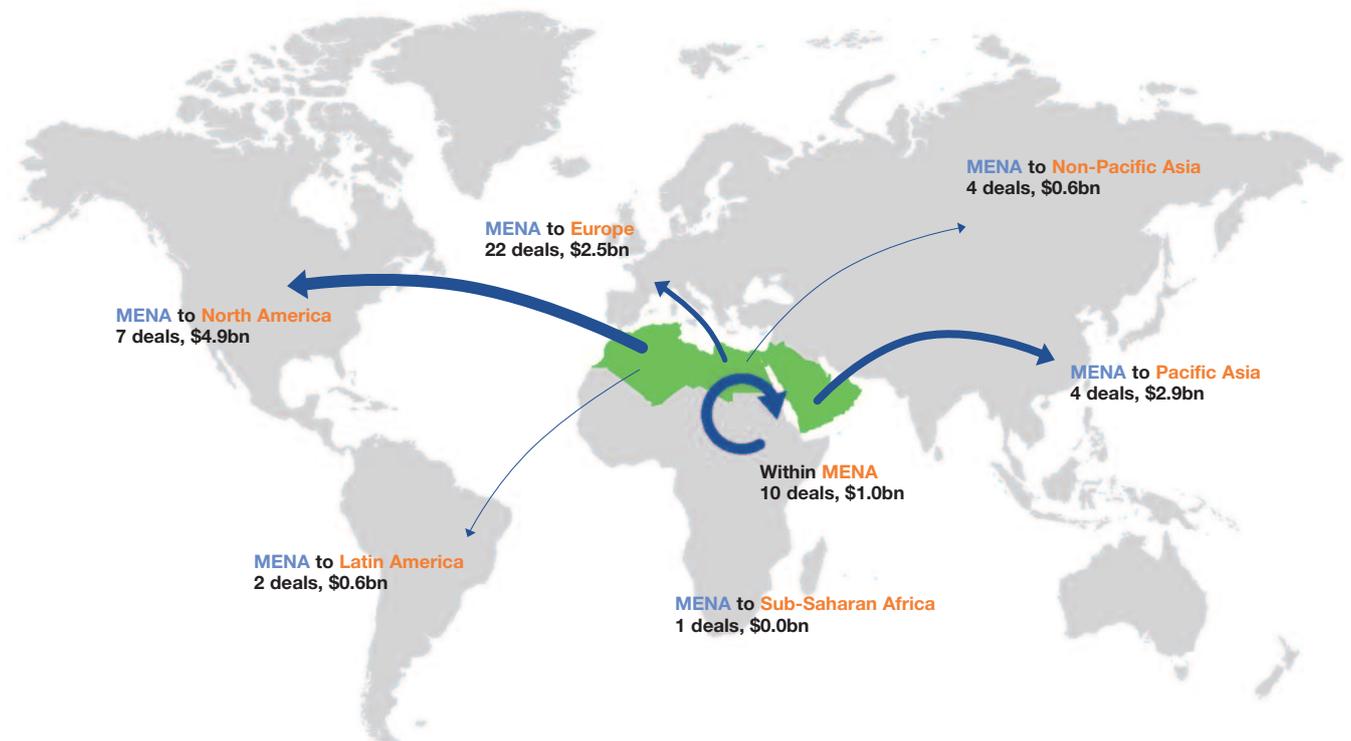
Asia-Pacific recorded a slight increase compared to 2015, with total investment value rising a little more than 2 per cent to reach \$14.3 billion. The relative size of inflows into Asia-Pacific accounts for approximately one-third (35.69 per cent) of total investments. Within this region, the main beneficiaries of last year’s reallocation were Singapore (\$4.9 billion), Australia (\$3.85 billion) and China (\$3.82 billion). These three countries accounted for 88 per cent of the investments in the region. Even more, these three countries, in their respective order, are right behind the US on the list of countries with the highest levels of SWF invest-

Figure 15: Investment Flows from Asia-Pacific SWFs, 2016 (US\$bn)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

Figure 16: Investment Flows from Middle East & North Africa SWFs, 2016 (US\$bn)



Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

Table 3: SWF Investments of over US\$1 billion, 2016

Fund	Target Name	Target Country	Sector	Deal Size (Value US\$BN)
GIC Pte Ltd	Veritas Technologies Corporation	USA	Personal & Business Services	3.70
Public Investment Fund (PIF)	Uber Technologies Inc.	USA	Personal & Business Services	3.50
Qatar Investment Authority (QIA)	Asia Square Tower 1	Singapore	Real Estate	2.51
GIC Pte Ltd	Multiplan Inc.	USA	Personal & Business Services	2.50
GIC Pte Ltd	Itc Holdings Corporation	USA	Infrastructure & Utilities	1.23
Temasek Holdings Pte Ltd	Singapore Telecommunications Ltd	Singapore	Communications	1.13
Government Pension Fund - Global	Vendome Saint Honore Property	France	Real Estate	1.04
China Investment Corporation (CIC)	1221 Avenue Of The Americas New York	USA	Real Estate	1.03

Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections. Source: Sovereign Investment Lab, Bocconi University

ment for 2016. Previously we mentioned Temasek and CIC's inclination for domestic investments this year, this has also reflected in the composition of investment of their home countries. Singapore had 46 per cent of investments coming from a domestic SWF and China recorded 34 per cent. Most targeted sectors in Asia-Pacific were transportation, services and real estate.

The rest of regions attracted minor amounts of investment in 2016. MENA was the only one that recorded an increase compared to last year's values, albeit a minimal one. Last year's winner in geographical distribution, Non-Pacific Asia, recorded three times less investment and India with \$1.6 billion was the only country in the region that attracted a more significant amount of SWF investment. With the sand of political uncertainty settling and global growth on the rise, 2017 promises to be an exciting year.



Technology and Disruptive Innovation Investing by Sovereign Wealth Funds: Current Landscape, Opportunities and Challenges

Markus Massi

Senior Partner & Managing Director, BCG

Alessandro Scortecci

Principal, BCG

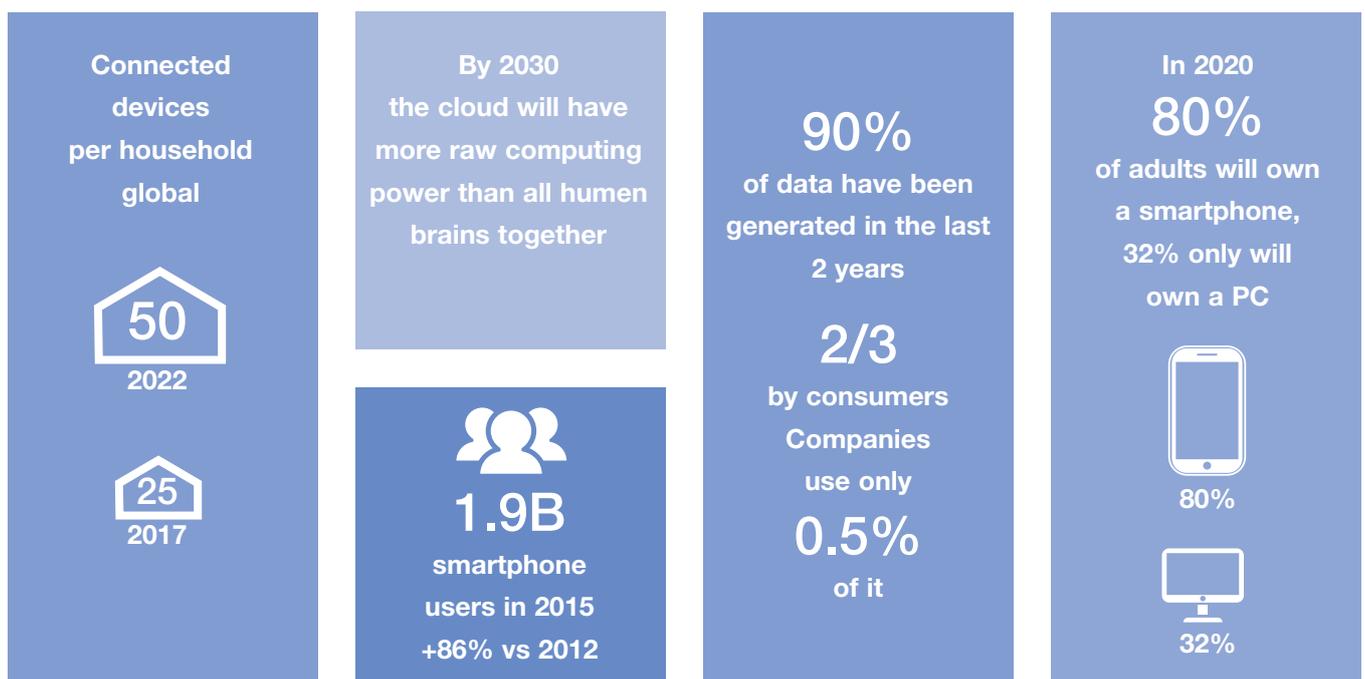
Pratik Shah

Expert – Principal Investors & Private Equity, BCG

Introduction

The world that we live in has witnessed significant change over the past twenty years, analogous to the rapid strides made across economic systems during the industrial revolution of the mid-19th century. One may say that we are now in a “digital revolu-

tion” of sorts, where ways of planning for and executing everyday tasks, processes for creating value and systems to identify, collect and synthesise information across multiple dimensions, have been fundamentally altered through significant advances in technology and its wider applications.



Source: BCG analysis

Corporate leaders' perspectives on technology and disruption:

"It's about what we are and its growth...you don't have to make a hard sell if your numbers back it up. The bottom line is that there are lots of rides, hundreds of millions of trips happening, and that number is growing really, really fast over time at a level...which is unprecedented"

Travis Kalanick, former CEO, UBER

"At least 40% of all businesses will die in the next 10 years, if they don't figure out how to change their entire company to accommodate new technologies..."

John Chambers,
Executive Chairman, Cisco Systems

Importantly, these advances in innovation and technology are combining with what is a wider "rebalancing" in the world today. The Emerging Markets are now characterised as "Growth" markets¹, trade and capital flows are increasingly being redirected away from the safety and low yield² environment of the developed world, to environments which offer significant risk-adjusted growth opportunities – the Growth Markets – increasing their attractiveness as both a source of and destination for investment. The

¹ Abraaj Capital, one of the largest Emerging Markets-focused investors in the world, is credited with initially coining the term, which has now been widely adopted by commentators globally

² Refers to low financial returns driven by a low interest rate environment

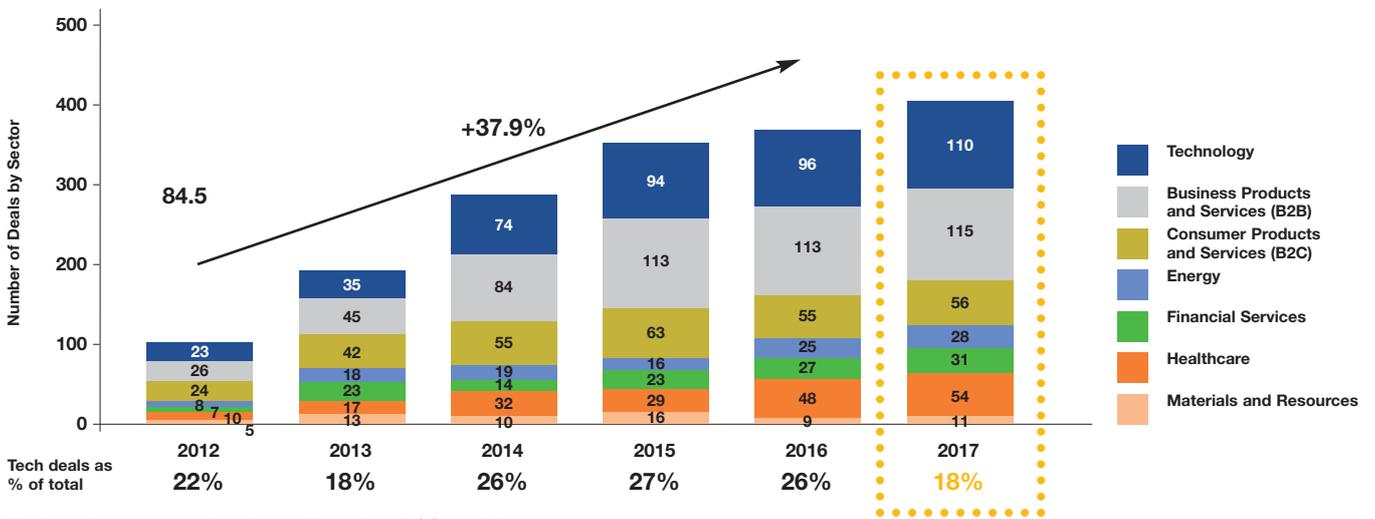
Growth Markets are also starting to drive real leadership in innovation and technology – gone are the days when their constituents were solely characterised through their abundant, low cost labour supply, cheap production processes and plentiful commodity platforms – these nations are now being seen as leaders across digital, innovation and technology: China invests more in technology-focused venture capital than most of Europe combined; Huawei is the world's largest technology industry supplier; Lenovo is the largest global producer of laptops and personal computers; Samsung sells more phones than Apple; Chinese mobile phone manufacturers constitute 5 of the top 10 mobile phone companies globally.

The world is changing rapidly; macroeconomic systems and their respective constituencies are recalibrating for the digital and technology age. This report examines the role that global sovereign wealth funds ("SWF's") play across this process and how they, as a source of strategic investment capital, are responding to a pace of change that is unprecedented in the modern era.

SWF's and Technology / Disruptive Innovation Investing ("TDII")

A low interest rate environment in the Western world has increased the attractiveness of private assets relative to public instruments (both equities and fixed income), leading many major institutional investors (Limited Partners – LP's – in general private equity funds, or those LP's with direct investing capabilities) to reallocate their search for yield accordingly: Private markets returns have continually outpaced those from other (public) instruments, net cash distributions to LP's have been positive for the last five years and consequently, 93%³ of LP's

A. Global TDII becoming an increasingly important part of the SWF investing agenda...



Deal numbers for 2017 is estimated based on BCG analysis.

Note: Excluding deals where size was not disclosed or completion was uncertain. Source: Pitchbook, Preqin, BCG analysis

intend to maintain or grow their allocations to the private assets space over the medium- to long-term.

“State-of-the-Union”

- 1 SWF’s are executing an increasing number of direct⁴ deals across sectors and the trend is expected to continue, as LP’s develop their direct investing capabilities, and access to top-quartile private equity and venture capital funds becomes progressively more difficult
- 2 The share of TDII within those deals has increased from c.20% five years ago, to almost 30% today – SWF’s see TDII programmes as playing a key role across their wider investment mandates

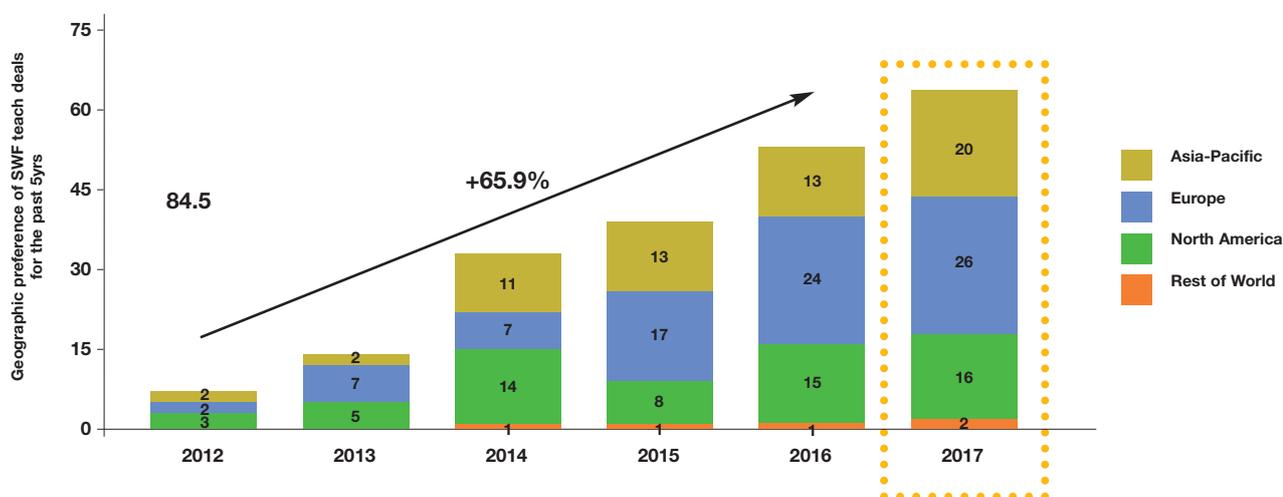
“Technology is a very important part of our investment universe, and will be increasingly so. It’s critical for GIC to stay involved as all these changes are producing big opportunities as well as risks.”
 Lim Chow Kiat, Chief Executive Officer, GIC

- 3 Asia is becoming increasingly influential across the global TDII landscape and now widely regarded as a “hub” for global, cutting-edge technology and innovation
- 4 SWF’s are starting to understand and enter smaller investment “playgrounds” – deals of a much smaller size than their usual mandate – and are becoming increasingly aware of the technology life-cycle and where pockets of value are likely to present themselves

³ Preqin 2016 LP Survey

⁴ Deals structured as sole directs, co-sponsorships (alongside other SWF, LP’s, private equity or venture capital funds) or through co-investment

B. Strong year-on-year deal volume growth, with Asia becoming increasingly influential⁵...



Deal numbers for 2017 is estimated based on BCG analysis.

Note: Excluding deals where size was not disclosed or completion was uncertain. Source: Pitchbook, Preqin, BCG analysis

5 SWF’s from Asia-Pacific and the Middle East dominate the global technology investment agenda and are gradually becoming viewed by competitors (established private equity and venture capital names) as serious and “tech-experienced” providers of capital

In conclusion, SWF investments into the TDII space have increased and are projected to comprise an even greater percentage of total SWF deals in the years to come. As expected, the Middle Eastern behemoths and Asian “tiger funds” comprise the majority share of SWF dealflow – this tends to support the broader investment mandates of entities from these regions, i.e., domestic development and macroeconomic diversification (Middle East) and nurturing high-growth tech centres / becoming technology centres of excellence (Asia).

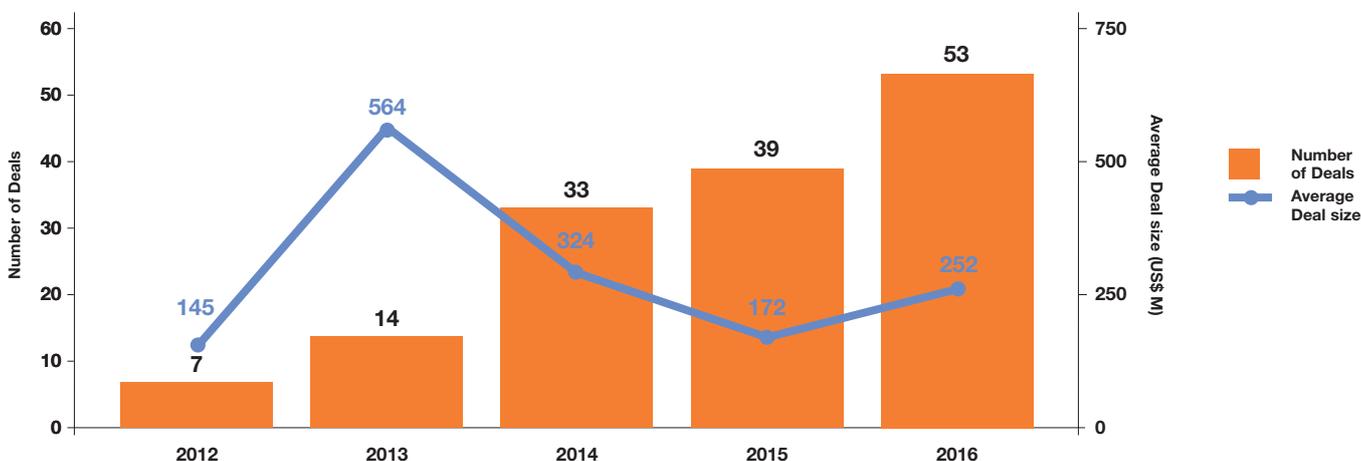
Key drivers of investment momentum

1. Idiosyncratic growth, exciting potential and superior, risk-adjusted financial returns

The traditional sectors of SWF investing – Healthcare, Consumer & Retail, Energy and Financial Institutions – have all seen declines in their relative, risk-adjusted returns over the past few years. Given modest global economic growth, sustained multi-class risk premia, macro-structural imbalances and continued geopolitical instability, it has become harder to drive organic growth within these industries. In addition, classic inorganic value programmes (i.e. M&A) are increasingly beset with difficulties around integration and synergy extraction, not to mention the explosive growth in entry deal multiples as described above.

⁵ European dealflow is heavily concentrated around one major investor (BPI France) and hence not entirely representative

C. Deal volumes increasing but average deal sizes broadly down, suggesting a shift towards early-stage investing...



Note: Excluding deals where size was not disclosed or completion was uncertain. Source: Pitchbook, Preqin, BCG analysis

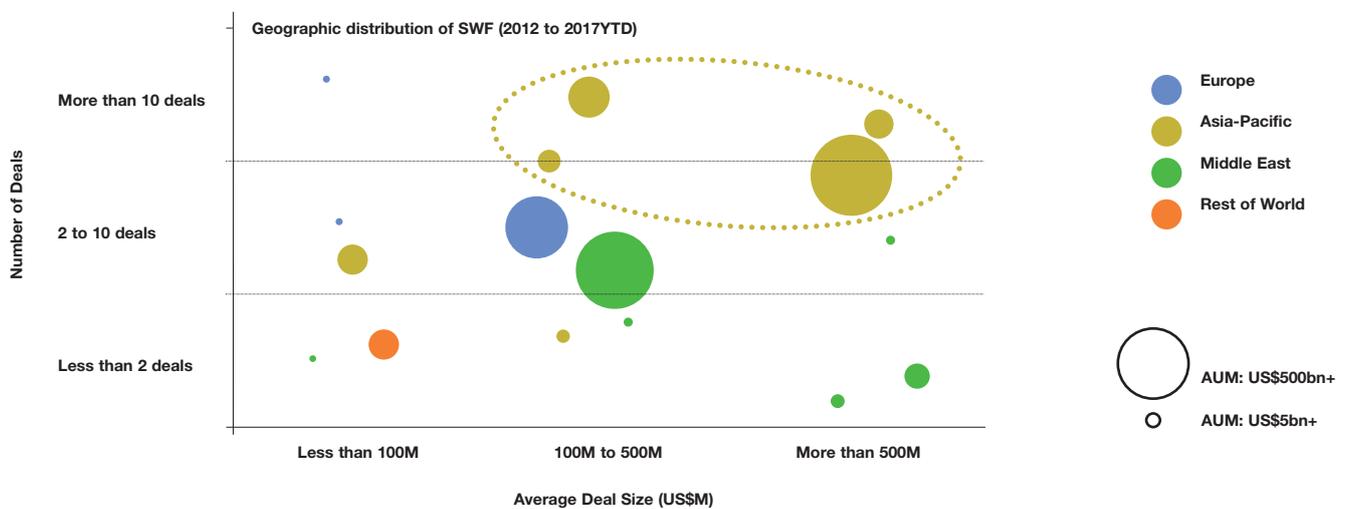
Given this, TDII has become increasingly attractive:

- a There exist a significant number of applications of technology (in all its forms) to every facet of every industry, with that number growing exponentially, so the opportunities for intrinsic growth are tremendous
- b These intrinsic growth characteristics coupled with the rapid development of the technology and disruptive innovation life cycle mean a more rapid financial return, with premia being paid for businesses with proven “ideas” (vs. those with actual proven growth)
- c Investing in TDII, especially at the earlier-stage of the investment spectrum, is often uncorrelated with core GDP growth – high-growth technology businesses can be a strong hedge against potential macroeconomic headwinds

2. Leveraging insights through a “window-to-the-world” approach and its subsequent application to the domestic macroeconomic infrastructure

For many of the SWF’s that we have studied, generating financial returns forms just part of their overall mandate – almost all have an articulation of a strategy, to varying degrees of intervention, to diversify away from their “current” mainstays of economic growth (i.e. commodities) towards a more “future-proofed” economy driven by technology and innovation. An example of this is Saudi Arabia’s Vision 2030 and the role of Saudi Public Investment Fund (PIF) in that evolution – the Fund’s investment in ride-sharing app Uber and its US\$45bn commitment to the SoftBank Vision Fund are widely expected to yield domestic benefits through technology transfer, their applications to different sectors, skills and productivity upgrades, etc. Other examples include Mumtalakat (Bahrain) and SGRF (Oman).

D. Asian and Middle Eastern funds dominate the landscape in deal volume and size...



Note: Excluding deals where size was not disclosed or completion was uncertain. Source: Pitchbook, Preqin, BCG analysis

Of course, the importance of these developmental considerations greatly depends on the strategic vision of the country, how many other national wealth funds it has (and their objectives, i.e. stabilisation, savings / reserves, strategic development, etc.) and the rate of progress of the country’s macro-economic system.

“Window-to-the-world” considerations are also becoming increasingly important – one of the largest public pension funds globally is actively considering investing in early-stage technology and disruptive innovation opportunities, without consideration to financial performance and cost in order to gain insights “much earlier, and with much more clarity into disruptive trends, which are likely to drive growth across the world” – insights that simply cannot be gleaned or effectively understood from other, “non-participatory” channels.

3. Leveraging insights for portfolio asset value and other SWF investment strategies

TDII can also benefit the SWF’s wider portfolio of traditional (and / or mature) assets, as well as its other investment strategies (i.e. public investments, real estate, infrastructure, etc.). By building up investment and knowledge expertise in TDII (and perhaps even using a derivation of “window-to-the-world” programme), SWF’s would be able to both accurately and expeditiously judge the multi-dimensional impact of global technology, digital and disruptive innovation trends on their positions in publicly-listed instruments (primarily equities). These insights can then inform their subsequent strategies to optimise financial return.

Private equity-style investments in traditional sectors would also benefit from TDII. On-the-ground insights gained from a TDII programme would inform and stimulate bespoke operational value cre-

E. Recent flagship deals illustrate SWF involvement in household digital and technology names...

Year	SWFs Investors	Target	Country	Capital Invested (\$B)	Industry	Deal Partners
2016			U.S.	3.5	Sharing Economy	Accelerate-IT Venture, Caspian VC Partners, GSV Ventures, Moneytime Ventures, LetterOne, Morgan Stanley, Shumway Capital Partners, T. Rowe Price, Tiger Global Management ¹
2016			U.K.	2.0	Mobile Telecom	BTG Pactual, CDPQ, CPPIB
2016			U.S.	0.9	Media & Information Services	Golden Gate Capital
2014	  		China	0.9	Big Data, SaaS, Communication Software	Alpinvest, China Broadband Capital, China New Era, CITIC Capital, InnoValue Capital
2014			U.S.	0.8	SaaS, Educational Software	Insight Venture Partners, Norwest Venture Partners
2014			U.S.	0.8	SaaS, Workflow Software	The Blackstone Group
2016			U.S.	0.7	Computer Hardware	
2014			China	0.7	Sharing Economy	DST Global, GGV Capital, Hillhouse Capital, Tencent Industry Win-Win Fund
2016			Spain	0.6	Media & Information Services	Summit Partners, Vente-Privee.com
2016			U.S.	0.5	Mobile E-Commerce Platform	DST Global, Formation 8, GGV Capital

1. For "Uber Technologies", 9 out of 21 deal partners presented. 2. HNL's British Mobile Business.

Note: "Capital Invested" is the size of the investment made by SWFs and does not represent the total deal size. Source: Pitchbook, Preqin, BCG analysis

ation programmes, for example, investments in early-stage Artificial Intelligence or Robotics businesses could yield interesting insights and determine the best way forward for large portfolio companies in the industrial goods, energy or consumer spaces. These same insights could also provide more colour into digital transformation programmes, more accuracy around technology budgeting / working capital and greater return on investment around ways to improve the customer / end-user experience.

Inevitably, a key challenge is how to crystallise, codify and disseminate learnings from TDII across the SWF and its business lines – in a structured way – to ensure that insights and learnings are actionable.

Main investment approaches taken by SWF's to TDII: Mode of entry and investment strategy

The mode of entry is vitally important – how do SWF's participate in TDII? Insights gained from proprietary research and interviews suggest that mode of entry is not an “either-or” strategic decision, rather, a “when-and”, i.e. highly-complementary and at different stages of the opportunity life-cycle. Issues around alignment, access, cost, internal organisational structure and resources, scale and degree of strategic and developmental bias, are all factors that SWF's actively consider when evaluating mode of entry.

Strategic entry path for SWF's in TDII

Based on proprietary research and client interviews, we can chart the following development path (see also the figure on next page):

The development path demonstrates the complementarity of investment strategies used by SWF's

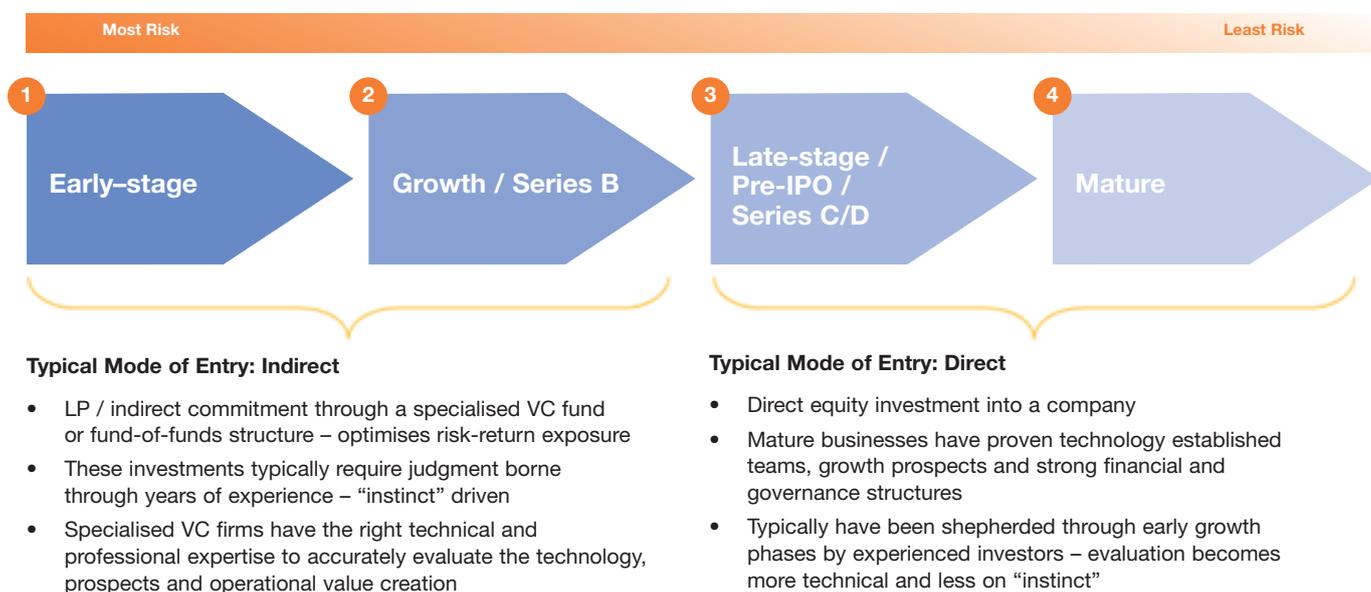
for TDII. Early-stage TDII tends to be through LP positions in established VC funds, as the risk associated with those investments doesn't compensate for the internal risk-return mandate for a typical SWF; early-stage investing is also less technical and more judgmental (“instinct-driven”), attributes for which most SWF's are unsuited. SWF models morph into more direct strategies once TDII businesses become classic growth capital plays, i.e. more mature (and by extension, once the business has been somewhat “de-risked”), have better and more clearly-defined opportunities for growth and more established structures around governance and financial return.

Indirect vs. Direct

1. Indirect investments

Indirect participation yields diversified (and often higher quality) deal flow, specialised technology expertise during origination and due diligence, and access to a deep network of industry executives that can be leveraged by the external manager for operational value creation and growth.

As with direct investing, there are significant challenges: First, there is significant fee exposure (management fee plus carry – with fund-of-funds structures, there may be additional fees). Second, getting access to the best-performing and “brand-name” managers is exceptionally difficult in this market (given unprecedented allocations of capital from LP's) without having deep relationships, which by their nature are increasingly difficult to develop. Third, it is hard to crystallise and codify knowledge resulting from TDII exposure – there is only so much that can be learnt through an arm's length relationship.



2. Direct investments

Participating directly leads to an optimal outcome for financial returns, insight generation and knowledge transfer. Through this structure (and each sub-structure therein), SWF’s can take a deeper and more hands-on role with their investee, potentially placing a representative on the board or management committee and maybe seconding professionals into those companies that are felt to be on the forefront of the TDII space. Participating directly also has the added advantage of a lower fee platform and greater exposure to returns outperformance (the classic exponential nature of “home-runs” in the technology space).

SWF’s have also set up separate units and / or alliances to look specifically at direct TDII, i.e. Khazanah Ventures, Impulse Ventures and IDO (Oman). Some funds have even established outposts

in Silicon Valley to remain close to major venture capital funds, potential investee companies and leading personalities across the space. The separation point is an important one – most see TDII as being completely different to classic investing, from the sourcing and evaluation process, to the portfolio growth opportunity, to the team make-up and culture being developed.

Direct investments, whilst providing exposure to significant upside, also present risks: First, building direct investment capabilities take time – hiring the right (and expensive) resources, fundamental recalibrations of a fund’s investment value chain (internal operating model and risk appetite) and general governance model are resource-intensive exercises; second, fundamental value in direct TDII is derived from a fund’s origination engine – this engine takes years to build effectively and to build trust and



In 2016, Mumtalakat invested in Envirogen Technologies, a specialized provider of environmental technology and process solutions for the treatment of water. Through this investment, Mumtalakat is aiming to expand and domestically apply Envirogen’s environmental technology across Bahrain, to help serve the growing demand for effective water treatment solutions.



In 2016, SGRF bought a 32% stake in Mecanizados Escribano, a family-owned Spanish precision mechanical components maker for the aerospace, defence and other industrial sectors. SGRF is looking to leverage the insights gained from investing in the company to develop the company’s machining capabilities and technologies across Oman, through the creation of an Oman-based joint-venture.

transparency with the right people in the right industries; third, TDII opportunities require nuanced and specific angles-of-conviction to understand where value and growth can come from – these angles are developed through due diligence and expert growth planning, and are borne through experience and prior exposure to the space

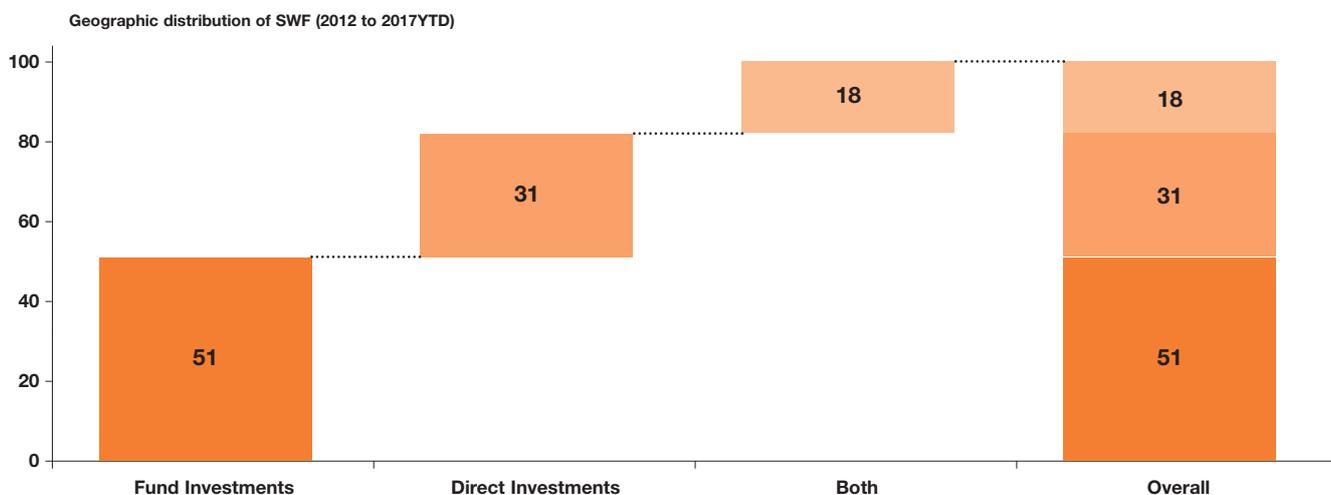
A “third” approach?

In addition to the classic indirect and direct modes of entry, some SWF’s are also considering a “hybrid” approach, where they take significant (anchor) LP positions in specific funds – positions which effectively function as “investment platforms” for the SWF. In these platforms, the SWF has the right (but not the obligation) to invest in a deal, can undertake their own due diligence and play a strong role in governance and value creation post-acquisition. This is a much more hands-on approach where the GP is still in the lead, but the SWF participates almost like an equal partner. It is not seen or structured like a single co-investment, but rather a commitment to several deals.

The most well-known example of this approach would be Saudi PIF’s US\$45bn commitment to the SoftBank Vision Fund.

TDII from across the table – the attraction of SWF capital

Sovereign wealth capital has typically been viewed by high-growth technology and related companies as being “last resort” money, i.e. a funding source for companies when all other avenues have been exhausted, investing just for the sake of investing, not doing the right diligence, not asking the right



Source: Pitchbook, Preqin, BCG analysis

questions and having inexperienced investment professionals on the deal. That perception has now drastically changed – SWF’s have re-tooled their investment teams (with similar skillsets to what can be found in major private equity and venture capital funds), have become more prominent as global investors in their own right and importantly, have become “smart” on the industry.

With few exceptions, investee companies now actively consider SWF’s as being broadly *pari passu* with global venture capital funds, for the following reasons:

- **Patient capital and returns expectations:** SWF’s are by their very nature considered to be “patient” investors (i.e. longer investment horizons than classic VC’s, without any LP pressure) and often less-aggressive once an investment has been made, specifically when it

comes to programmes intended to drive financial returns. Although observers are split on the relationship between the degree of intervention and its effectiveness on value creation, anecdotally, high-quality technology businesses prefer their investors to take a patient approach, focused on growth and allow time for testing and application of their platforms, rather than having to worry about cash-out and returns expectations of aggressive venture capital funds

- **Alternative form of IPO – “Private IPO”:** TDII businesses increasingly view investment by an SWF as a “private IPO”, where capital would be infused (often combining a Series B and C financing), almost always in an “up-round” (i.e. keeping valuations intact and avoiding volatility associated with a “real” public listing). SWF’s now comprise a limited group of institutional investors with both the deep-pock-

ets and intent to create real value in young TDII businesses

- **Influence in key markets:** In keeping with the global rebalancing as described earlier, major SWF's are not only able to leverage their portfolio assets (as potential testing grounds for technology), but importantly, are also able to provide deep knowledge of specific markets (especially their own markets) as well as consumer behaviour and regulatory trends. That knowledge can translate into actionable insight to TDII businesses, further accelerating their growth prospects

Key success factors for TDII

Successful TDII investing needs to be balanced across the following core dimensions – financial returns, learning / knowledge transfer to the domestic agenda and applications to the fund's wider ecosystem – all underpinned by a patient approach to the investment programme (i.e. a long-term outlook and investment horizon).

From detailed interviews undertaken with key SWF's, we outline the following success factors for TDII:

- **Clearly-defined vision and objectives:** The SWF must have a clear strategy for entering the TDII space, articulate realistic returns objectives, be open to longer hold periods and be clear in how a potential TDII programme will contribute to the wider goals of the fund (portfolio resilience, domestic development agenda, etc.)
- **Clearly-defined definition of success:** An SWF needs to clearly define what constitutes a successful investment and how that success feeds into its broader investment strategy. How do you balance an opportunity that generates an IRR of 25%+ vs. one that yields much less but provides a “window-to-the-world” and informs best practice around technology transfer?
- **Have the right team in place:** Whether the fund intends to go direct or indirect (through a fund), having the right team in place is critical. The professionals – defined as investment and portfolio teams, and an external, separate group of advisers – best suited to this endeavour are those with deep technology and innovation backgrounds, with exposure to companies across the development curve and (ideally) experience of principal investing. These professionals are typically few and far between, and hence expensive to recruit, but exponentially increase the odds of a successful programme.
- **Ensure that internal “enablers” and risk models are primed for TDII:** SWF's need to have the infrastructure to execute a TDII programme; investing into these companies is quite different from traditional sectors and as such, designing and implementing the right monitoring protocols, KPI's and dashboards to judge progress, having the right incentive structures in place for investment teams within the SWF and management teams in investees, having the right governance and risk and investment committee models, are all important
- **Elucidate a strong, multi-dimensional value proposition:** Global supply and demand imbalances within the private assets world make this point extremely important. Whether an SWF chooses to go via a fund route (as an LP) or direct, developing a strong value narrative is important. Top LP's (SWF's, pension funds, family offices)

are all queueing outside the door of top venture capitalists to gain access to top-quartile funds. The same is true for the highest-quality technology and disruptive innovation businesses, those with cutting-edge technology, exciting prospects and management teams, are under offer from multiple sources of capital. Demonstrating how an SWF adds value, either as an LP or as a direct investor, becomes paramount

- **Have processes in place to crystallise and disseminate learning and thinking:** Investing in (and being involved on-the-ground with) high-growth technology and disruptive innovation businesses can yield significant insight into cutting-edge trends affecting the global economy, their wider applicability and sustainability. It is therefore crucial that knowledge capture and crystallisation is a dynamic, continuous process, almost “Pavlovian”, and that these insights are then disseminated through a structured mechanism to the wider ecosystem (other portfolio assets, other sovereign investment entities, etc.)
- **Invest across the cycle:** Most technology and innovation plays are, in fundamental terms, “cycle-agnostic”, but in reality, investment activity across the technology and disruptive innovation space tends to fall during recessions. By keeping investment activity steady through peaks and troughs, SWF’s are able to 1. Capture opportunities at the most opportune times at attractive valuations and 2. Develop a strong investment reputation with top venture funds and potential investee companies alike
- **Develop a specialised network and “origination engine”:** It is important to have a disintermediated, thematic-driven approach to origination –

build a proprietary network of industry professionals and experts, and nurture and grow early relationships with businesses before their need for funding arises

Key challenges to successful TDII

In addition to the obvious inverse of the arguments presented above, the following points represent the most acute challenges:

- **Avoiding operating model “confluence” by identifying the right opportunities to mitigate an inherently high relative failure rate:** A key theme to the success factors outlined above is recalibrating or “priming” the entire investment value chain to account for the nuances and specificities of TDII. Unsuccessful attempts to launch TDII programmes often conflate the investment processes of traditional investments with TDII, when they are both fundamentally different (i.e. nature and development of conviction angles through due diligence, financial valuation, post-acquisition bias towards growth, etc.). Having well-primed and calibrated origination and due diligence functions (and partners) helps mitigate the high failure rate inherent in TDII: Approximately 25%⁶ of growth stage TDII businesses fail to return their initial investment, a risk profile that is much greater than that of late-stage investments across more traditional sectors
- **Accurately predicting the technology life cycle (“TLC”):** The TLC seeks to predict the evolution of a particular innovation, from its adoption,

⁶ Source: BCG analysis

acceptance and maturity, to eventual decline. By modelling and applying these insights, SWF's can better predict return on investment and offset R&D investment once the evolution is mapped. This process is exceptionally difficult and borne through decades of experience

- **Competition from other institutional investors:** Conditions within the global private assets market are such that competition for high-quality assets is intense. Contesting through price-premia is simply not enough – the value narrative has to take centre-stage
- **Conflict with “old friends and partners”:** As SWF's build their experience in TDII, they will inevitably begin to do more direct investing, putting them in direct competition with GP's and other venture funds that at one stage, may have been partners (through GP / LP relationships). Clear communication is needed between all parties
- **Having structured knowledge transfer infrastructure:** As vehicles with a mandate to help drive their domestic development agendas, SWF TDII programmes need to have strong knowledge capture, synthesis and transfer mechanisms – difficult to gain “national” returns if there is no such structured mechanism in place

Impact of TDII on SWF internal operating models

We earlier mentioned the major dimensions upon which a TDII programme is ideally balanced: Financial return, domestic agenda strategic development and knowledge transfer to the SWF's wider ecosystem. We discuss this third dimension in more detail here. The SWF “ecosystem” in this

context includes both the fund's internal investment value chain and operating model, and its portfolio companies.

Impact on an SWF's internal operating model.

Application of technology to internal operating models is an increasingly important consideration. Major global investors, from the largest global buy-out funds to powerful LP's, are all looking at “digitising” their investment value chains, in particular, using proprietary knowledge of technology and disruptive innovation to inform their wider origination engines (across the more traditional sectors, i.e. consumer, healthcare, energy, etc.) and to form deeper grades of conviction during the due diligence process – angles that provide further, more informed avenues for operational growth post-funding.

Potential impact on other SWF portfolio companies.

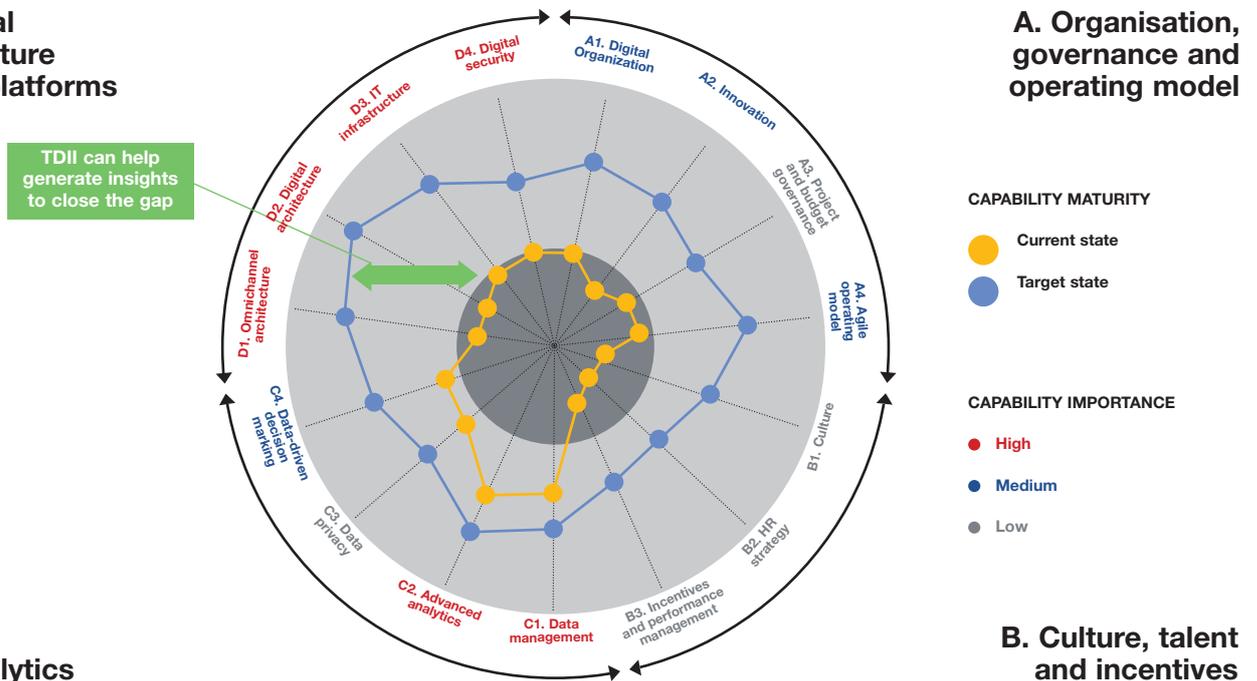
Classic operational “playbooks”, i.e. approaches to driving operational value creation in companies post-acquisition, are no longer enough. Principal investment funds, comprising global private equity and LP investors, have to incorporate technology and disruptive innovation-style thinking when attacking portfolio company inefficiency.

We are now seeing many more portfolio companies undertaking digital transformation journeys alongside classic programmes around cost and growth – navigating those digital journeys would be much easier and more effective if funds have a ringside seat to the most cutting-edge technology and disruptive innovation trends, both current and projected.

Net impact of this application: Increased cash flows

D. Digital architecture and IT platforms

A. Organisation, governance and operating model



Source: BCG

and profitability, leading to higher valuations on exit. “Future-proofed” companies always command higher valuations from the market, and strategic acquirers will pay a higher multiple for successfully digitised and technologically-adept businesses, as they provide strong platforms from which to build expansion strategies.

The figure above illustrates how digital can help drive technology and innovation within a portfolio company.

Conclusion

In addition to diversifying portfolios and generating superior financial returns, SWF’s have realised that having insight into major technological and disruptive

innovation trends provides them with strong opportunities to accelerate their domestic development agendas and “future-proof” their own operating models.

With each opportunity comes an associated challenge, chief amongst them being a singular mindset to undertake this type of complex investing and priming and re-calibrating internal operating and risk models to accommodate nuances to TDII. Funds must also compete aggressively with other principal investors to gain access to the best venture funds or exciting investment prospects.

These challenges aside, TDII is an exciting and growing area of development, and will continue to form a core part of the SWF agenda for years to come.

Sustainable Investment Practices of Sovereign Wealth and Government Pension Funds

Scott E. Kalb

KLTI Advisors and Bretton Woods II,
New America

I. Overview

The proposition is a simple one - no institution wants to invest in companies that exploit labor, pollute the environment or that operate unethically, and few believe that these practices are beneficial to long-term value creation. Given this is the case, why not include criteria in the portfolio selection process to mitigate such risks?

Over the long-term, SWF/GPF can create better value for stakeholders with lower risk by combining analysis of non-traditional sustainability factors¹ with traditional financial metrics in their portfolio selection process. Including such risk factors is a rational way for asset allocators to generate commercially appropriate risk-adjusted returns, fulfill fiduciary obligations and align portfolios with broader goals of society. It makes good business sense, and academic studies over the last decade support the idea, demonstrating that companies with higher scores on ESG factors, for example, generate higher financial returns over time. Pressure also is mounting from stakeholders and the public, who would like to see sustainable risks incorporated into their pensions and long-term savings funds. As stewards of long-term capital, the question is not can SWF/GPF afford to integrate sustainable investment practices into their portfolios but rather, can they afford not to?

This whitepaper examines how sovereign wealth and government pension funds think about incorporating sustainable investment criteria, along with traditional financial metrics, into their investment process. It looks at examples of leadership in sustainable investing by select SWF/GPF, and addresses some of the concerns that may be inhibiting others from making progress.

¹ There is considerable confusion around the terms used to define investment strategies focused on addressing long-term, non-financial social risks, such as ESG (environmental, social and governance issues), RI (responsible investing), SRI (socially responsible investing), CSR (corporate social responsibility), impact investing and other related strategies. Bob Eccles, Chairman of Arabesque Partners and Professor of the Harvard Business School, has referred to this problem as a "Tower of Babel" (See Forward, European SRI Report 2016, Euro SIF, pgs. 4-5). We use the term "Sustainable Investing" to include all these strategies, as recommended by Dr. Eccles, and to remain on track with the Sustainable Development Goals of the United Nations. As used here, sustainable investing is not to be confused with strategies solely focused on climate change or renewable energy, an important investment risk addressed by many SWF/GPF and included as part of the Index. The Sustainable Development Goals (SDG) are a UN Initiative adopted in September 2015. Officially known as Transforming our World: the 2030 Agenda for Sustainable Development, the SDG is a set of seventeen aspirational "Global Goals" with 169 targets between them.

<http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

II. Background on SWF/GPF

SWF/GPF and Sustainable Investing Practices

Sovereign Wealth and Government Pension Funds are among the largest investors in the world, with trillions of dollars in assets under management and large internal resources. As government entities, they are mission-, rather than profit-, driven organizations, investing to generate returns to pay for the retirement and healthcare benefits for their constituents, accumulate savings for future generations, foster development or supplement state budgets. Not only do they award mandates to external asset managers and general partnerships but they also collaborate, co-invest and invest directly in deals, to accomplish their missions more cost effectively.² Different from many other institutional investors, SWF/GPF often have low liabilities relative to assets, allowing them to invest with a long-term investment horizon. This is a considerable advantage as they can weather short-term declines in the financial markets and invest counter-cyclically to take advantage of lower prices. They also can invest in promising sectors that require patient capital, like green technology or infrastructure.³

Many SWF/GPF are leading the way when it comes to sustainable investing and are having a significant impact on global capital markets. Highlighted below are two examples of such leadership.

The New Zealand Superannuation Fund and Responsible Investing

When the New Zealand Superannuation Fund (NZSF), New Zealand's sovereign wealth fund with current assets of about US\$30bn, began investing in 2003, the Guardians (management team) were keenly aware of a directive "to manage the fund in a manner that avoids prejudice to New Zealand's reputation as a responsible member of the world community." Some management teams would have been happy to comply with the directive by implementing a traditional, well-worn approach to asset allocation and investing. The Guardians, however, took a more courageous approach, embracing the concept. They decided to integrate responsible investing as a core principle of the fund, in the belief that RI could increase returns and lower risk over the long-term.

This wasn't an easy process and took years of discussions with the Board. However, by 2006, NZSF had become a founding signatory of the UNPRI, and started using its principles to manage ESG factors in the portfolio. It joined the United Nations Global Compact, using it to benchmark corporate behavior on human rights, labor, and anti-corruption issues. That same year, based primarily on international and New Zealand law, as well as policy positions of the New Zealand government, NZSF initiated a program to exclude undesirable industries and companies from the portfolio. They started by excluding manufacturers of anti-personnel weapons and eventually expanded to excluding manufacturers of cluster munitions, tobacco, whale meat products and explosive nuclear devices.

² Kalb, Scott, "Sovereign Wealth Funds in the Global Capital Markets: Reintermediation and New Collaborative Models. CFA Institute Conference Proceedings Quarterly, Fourth Quarter 2015.

³ Ang, Andrew and Kjaer, Knut, Investing for the Long Run. Nov 11, 2011, Colombia Business School.

In 2007, NZSF launched its responsible investment framework, including the following key elements: the integration of ESG considerations across all investments; active engagement with external managers and portfolio companies; consideration of social returns in addition to required financial returns; a disciplined process for companies that breach RI standards; and benchmarking performance against RI standards. In 2015 and 2016, NZSF completed the UNPRI benchmarking assessment and achieved an A or A+ rating in eight reporting categories. In 2015 NZSF released a white paper on responsible investing, and the fund continues to be a model among asset allocators for sustainable investment practices⁴

APG and Sustainable Investing in Real Estate

In the mid-2000s, APG, the Dutch government pension fund with current assets under management of about US\$450bn, decided it needed a systematic way to assess sustainability risks for its real estate investments, including such things as waste production, power utilization, carbon emissions and labor practices. APG was already quite advanced when it came to sustainable investing, having included it as part of its core principles and committing dedicated resources to the effort. The problem in its real estate portfolio was that APG had to rely on individual asset managers to track sustainability metrics on an ad hoc and proprietary basis. This made it difficult to create valid comparisons between properties and account for all the risk factors embedded within the portfolio.

To address this concern, APG teamed up with Maastricht University (the Netherlands) and other funds to create a standardized approach to measuring non-financial, sustainable risks in real estate. In 2009, thanks to these efforts, the GRESB (the Global Real Estate Sustainability Benchmark) was established and APG as well as hundreds of institutional investors and asset managers have been making extensive use of it ever since. The GRESB organization, founded at the same time, applies the benchmark to assess sustainable risk factors in public and private real estate portfolios around the globe. As of July 2015, 707 listed real estate companies and private equity fund managers were participating in the GRESB survey, covering 61,000 buildings with an aggregate value over \$2.3 trillion.⁵

Still Not Where We Should Be

While SWF/GPF are proud to highlight portfolio investments that generate jobs, contribute to a cleaner environment or support inclusive growth, many of these investments occur incidentally rather than as deliberate outcomes. The fact is, despite the leadership shown by certain SWF/GPF, as shown above, many more funds have yet to incorporate sustainable investment practices in a meaningful way into their investment process. According to a preliminary analysis of the Bretton Woods II Sustainable Asset Allocator Index, over half of the SWF/GPF examined scored less than 50% in terms of basic sustainable investing crite-

⁴ NZSF, Why We Believe Responsible Investing Pays Off, Nov 2015.

www.nzsuperfund.co.nz

⁵ APG, 2012-2015, Responsible Investing Annual Report. World Economic Forum White Paper, Innovations in Long-Term Capital Management: The Practitioner's Perspective, Pgs. 22-28,

ria, including disclosure, accountability and performance measurement.⁶ As most assets are managed externally, an easy place to start for SWF/GPF would be in requiring their asset managers to report on the sustainability factors of companies they hold in their portfolios. Yet, according to a study conducted by the United Nations Principles for Responsible Investing (PRI), a leading global initiative supporting the adoption of sustainable investing practices, less than half of asset allocator contracts require their asset managers to report on ESG. Moreover, less than a quarter include voting requirements and less than 15% require engagement with company managements.⁷

There are a variety of factors that may be causing asset allocators to move slowly in adopting sustainable investing practices, including confusion about standards, fears that it may detract from performance and worries that it could be inconsistent with fiduciary responsibilities. Most of these concerns are outdated, as over the last 5-10 years investment trends have evolved, academic research has become highly supportive of ESG and regulators stand behind the inclusion of long-term non-traditional financial risks in the portfolio selection process. Yet they continue to exert a negative influence on the

community. These issues are addressed in greater detail below.

III. New Standards, Tools and External Asset Management Products for Sustainable Investing

Rapidly Evolving Strategies for Implementation

Sustainable investing has been around for decades and besides the proliferation of terms used to define it, there also are many strategies and methodologies for implementation that have evolved over the years. The original and still most widespread form of implementation for sustainable investing, in terms of total assets invested, is “Exclusion” or “Negative Screening,” the elimination of companies or of sectors because they are undesirable or controversial, for example munitions or explosive nuclear devices.

The second most popular implementation for sustainable investing is “Norms-based Screening,” referring to the use of international guidelines, such as the United Nations Global Compact, to screen companies based on their practices concerning human rights, labor policies or anti-corruption. In Europe, where sustainable investing is widely practiced, “negative” and “norms-based” screening comprised two-thirds of the total 22 trillion Euros deployed by the end of 2015 in sustainable investment strategies.⁸

Over the years these two strategies have been helpful in achieving select social and/or political goals,

⁶ The Bretton Woods II Sustainable Asset Allocators Index (SAAI), is a benchmarking tool that measures SWF/GPF on sustainable investment practices. SAAI is based on ten core principles and criteria, such as disclosure, accountability, and performance measurement, and analyzes data in the public domain. It is expected to be officially released in July 2017.

⁷ PRI, 2014 Report on Progress. More information on the Principles for Responsible Investing can be found on www.unpri.org

⁸ Eurosif European SRI Study 2016, pg. 9.

and have been a valuable “first cut” at sustainable investing. However, “negative” and “norms-based” screening have become somewhat controversial during the last decade, for several reasons. First, they are static in approach and have the unhappy consequence of removing from the process the very institutions that could be effective in influencing corporate behavior toward more sustainable outcomes. Second, they are “values-based” rather than “value-based” strategies, invoking social judgements, political objectives or religious beliefs, that may be entirely appropriate for certain stakeholders and less applicable for others. Third, negative and norms based screening have little validation in terms of financial or economic outperformance. This undermines one of the fundamental arguments in favor of considering long-term non-traditional financial risks in the investment process - that it is return enhancing and risk reducing over the long-term.

This is not to say that asset allocators should avoid excluding undesirable companies or sectors from their portfolios. Quite the contrary, it can be an important component of a sustainable investing strategy, and particularly meaningful for stakeholder groups. Rather, negative screening should not be the whole picture, or a substitute for more active sustainable investing practices. When negative screening is implemented, excluded companies may also be eliminated from relevant benchmarks, to avoid confusion when it comes to measuring financial outperformance.

“Negative” and “norms-based” screening continue to grow at a steady rate, but in recent years institutions have begun looking for different, more sus-

tainable investment solutions. In this regard, five newer, dynamic, strategies have been gaining traction among investors and showing rapid growth, especially during the last five years. The most popular of these is “Engagement and Activist Voting,” (sometimes referred to as “Active Ownership” or “Corporate Engagement”) where investors seek to positively influence the behavior of invested companies, not only to maximize risk-adjusted returns, but also to improve business conduct, advance ethical considerations, and contribute to sustainable development.

Next biggest is “ESG Integration,” the systematic inclusion of ESG risks and opportunities in the portfolio analysis process. These two strategies have grown rapidly and now comprise about 30% of total capital deployed in sustainable investing. The remaining three forms of implementation most widely followed are “Best-in-Class,” the screening and selection of companies based on their ESG ranking; “Sustainability Themed Investing,” focusing on specific themes such as climate change or renewable energy; and “Impact Investing,” the intention to generate social and environmental impact, sometimes at the community level. Assets in these three strategies grew by about 200% to 400% over the last few years, from a very low base.

Tools for Analyzing Companies

In addition to implementation strategies, a lot of progress has been made in recent years regarding reporting and analysis tools, enabling investors to better assess long-term sustainable risks in portfolio companies. For example, the Global Reporting Initiative (GRI), based in the Netherlands, publish-

es guidelines that are used by 7,500 companies for sustainability reporting.⁹ The Sustainable Accounting Standards Board (SASB) produced a guide in 2016 that identifies the sustainability issues impacting companies in 79 industries. SASB also offers a course on sustainability analysis and reporting.¹⁰ The PRI has a very extensive and detailed reporting program used by its signatories for all asset classes, and together with the Institutional Limited Partners Association (ILPA) publishes detailed guidelines that investors can use for their private equity managers regarding ESG.¹¹ The Global Real Estate Sustainability Benchmark (GRESB) does the same for Real Estate.¹² Arabesque, a quantitative ESG asset management firm, recently released S-Ray, a platform that ranks the sustainability of over 4,000 global companies based on criteria from the United Nations Global Compact, the PRI and other ESG factors.¹³ The Chartered Financial Analyst Institute (CFA Institute) includes corporate governance and ESG in its curriculum, providing training for analysts, with on-line study modules and updated readings.¹⁴

Organizations Dedicated to Sustainable Investing, Resources and Data for Investors

The last ten to fifteen years have seen the establishment of many organizations dedicated to sustainable investing, providing useful resources, information and data for investors. The CDP (formerly Carbon Disclosure Project), measures more than 5,600 companies and organizations in 80 countries and 300 cities on their greenhouse gas emissions, water management efforts, and climate change strategies.¹⁵ The Council of Institutional Investors (CII) a non-profit association of over 125 pension funds, promotes good corporate governance and strong shareholder rights. The Global Impact Investment network (GIIN), a nonprofit organization dedicated to increasing the scale and effectiveness of impact investing, offers a database of impact investment funds, and a free toolkit called IRIS that investors can use to measure impact investing.¹⁶ The United Nations Environment Program Finance Initiative (UNEP FI), a coalition of more than 200 global financial institutions, works in partnership with the UNEP to promote sustainable finance.¹⁷

⁹ More information on GRI standards can be found on their website, www.globalreporting.org

¹⁰ SASB. "Engagement Guide for Asset Owners and Asset Managers." July 2016. www.sasb.org. The "Fundamentals of Sustainability Accounting (FSA) Credential," for further information see the SASB website, www.sasb.org

¹¹ The PRI reporting tools for asset allocators can be found on their website at the following link www.unpri.org/report. PRI, ESG Disclosure Framework for PE Funds, 2017. ILPA, Due Diligence Questionnaire, Revised Sept 2016.

¹² GRESB, The GRESB Real Estate Assessment Reference Guide, April 2016.

¹³ Further information can be found on the company website <http://www.arabesque.com/s-ray/>

¹⁴ The Chartered Financial Analyst credential is awarded to candidates that pass three tests based on the program curriculum, providing a strong foundation of advanced investment analysis and portfolio management skills.

www.cfainstitute.org

¹⁵ The Climate Disclosure Project signed up its first 35 institutional investors in 2002, comprising \$4tn in AUM. Today, nearly 6,000 companies disclose environmental data through CDP. For further information see www.cdp.net.

¹⁶ The GIIN was established in 2008 by the Rockefeller Foundation, Acumen and B Lab which together initiated IRIS, a set of common metrics, based on standards from over 40 reporting frameworks, to measure performance of impact investments. For further information see www.thegiin.org.

Increased Supply of Externally Managed Sustainable Funds

In addition, the supply of externally managed sustainable investment funds, focused on everything from climate change to ESG to human rights, has been growing rapidly in response to surging demand. As of the end of 2015, US\$24 trillion was invested globally in externally managed sustainable fund strategies.¹⁸ Morningstar, an independent research and fund management company in the US, partnered with Sustainalytics to evaluate and rate 20,000 mutual and ETF funds based on ESG metrics of companies in their underlying portfolios. Asset management firms with trillions of dollars under management are beginning to integrate ESG criteria into their total portfolio selection process for all funds, as sustainability enters the mainstream.

IV. Is Sustainable Investing a Drag on Returns? The Proof is in the Performance

Some SWF/GPF fear that sustainable investing will be a drag on returns, perhaps unaware that academic studies over the last decade have largely debunked this myth.¹⁹ For example, in a mega-study published in 2012, analyzing over 100 academic research

papers on sustainable investing, 100% of the studies showed that companies with high ratings for ESG factors had a lower cost of capital—thus considered less risky—than companies with lower ratings. The study also noted that 89% of companies with high ratings for ESG factors exhibited higher financial returns over the long-term. As for socially responsible investing, the mega-study found no correlation with outperformance, but neither did it find any evidence of under-performance.²⁰ In other words, investors employing socially responsible investing criteria enjoyed competitive financial returns in their portfolio.

A further mega-study, published in 2015, reviewed 2,200 research papers on ESG and found that 2,100 of the studies indicated a positive correlation between companies that rated highly on ESG and financial outperformance. In addition, companies rated highly in ESG factors in asset classes such as emerging markets, corporate bonds and real estate also showed outperformance.²¹ A recent study published in 2016 using factors from the SASB reporting framework, came to the same conclusion - companies highly rated on material sustainability factors

¹⁷ UNEPFI was established in 1992 by Deutsche Bank, HSBC, Natwest, RBC and Westpac with the UNEP to catalyze banking sector involvement in the environmental agenda. Today over 200 global financial institutions, including banks, insurance companies and institutional investors are signatories of UNEPFI, working on policy for sustainable finance and development. For further information see www.unepfi.org.

¹⁸ The US Forum for Sustainable and Responsible Investment (US SIF), "Report on US SRI Investing Trends 2016."

¹⁹ Kotsantonis, Sakis, Pinney, Chris, Serafeim, George, ESG Integration in Investment Management: Myths and Realities. Spring 2016, Journal of Applied Corporate Finance, Vol. 28, Issue 2, pp. 10-16, 2016

²⁰ Fulton Mark, Kahn, Bruce, and Sharples, Camilla, Sustainable Investing: Establishing Long-term Value and Performance. Deutsche Bank, 2012

²¹ Friede, Gunnar, Busch, Timo and Bassen, Alexander, ESG and financial performance: aggregated evidence from more than 2000 empirical studies. Journal of Sustainable Finance & Investment, 2015 Vol. 5, No. 4, 210-233, <http://dx.doi.org/10.1080/20430795.2015.1118917>.

significantly outperformed firms with low ratings.²² These studies affirm that over the long run, including sustainable criteria in portfolio selection not only leads to lower risk but also financial outperformance, while achieving important social benefits.

Institutional investors are beginning to get the message. In a recent survey of 600 institutional investors, more than 50% of the respondents disagreed with the notion that “consideration of ESG factors in the investment process means missing out on potential returns.”²³

V. Consideration of Non-Financial Criteria for Fiduciaries

Fiduciary Responsibilities

For a long time, asset allocators worried that including sustainable risks in the investment process could be inconsistent with fiduciary duties. To uphold the duty of care required to protect the financial interests of stakeholders, it was thought that fiduciaries should consider only traditional financial metrics in their investment decisions. Sustainable investing factors would be excluded on this basis as non-financial inputs. A further worry was that including sustainability criteria in the investment process might result in limiting options to diversify risk.

These concerns were largely addressed in rulings by the US, the UK and European regulators in the second half of 2015, indicating that consideration of sustainable factors can be considered an integral part of fiduciary responsibility. The U.S. Department of Labor stated in its bulletin:

*“Environmental, social, and governance issues may have a direct relationship to the economic value of the plan’s investment. In these instances, such issues are not merely collateral considerations or tie-breakers, but rather are proper components of the fiduciary’s primary analysis of the economic merits of competing investment choices.”*²⁴

The UK Pensions Funds Regulator stated the following:

*“You (pension fund trustees) should bear in mind that most investments in DC schemes are long term and are therefore exposed to longer-term financial risks. These potentially include risks relating to factors such as climate change, unsustainable business practices, unsound corporate governance etc. These risks could be financially significant ... and you should therefore decide how relevant these factors are as part of your investment risk assessment.”*²⁵

²² Khan, Mozaffar, Serafeim, George, and Yoon, Aaron, Corporate Sustainability: First Evidence on Materiality, Nov 9, 2016, The Accounting Review, Vol. 91, No. 6, pp. 1697-1724.

²³ Eccles, Robert, Kastropelli, Mirtha, The Investing Enlightenment: How Principle and Pragmatism Can Create Sustainable Value Through ESG, State Street Center for Applied Research, March 2017.

²⁴ Interpretive Bulletin Relating to the Fiduciary Standard Under ERISA in Considering Economically Targeted Investments. Department of Labor, Employee Benefits Security Administration 29 CFR Part 2509 RIN 1210 AB73, 26 October 2015.

²⁵ <http://www.thepensionsregulator.gov.uk/trustees/investment-management-in-your-dc-scheme.aspx>.

The European Commission, while stopping short of addressing the role of fiduciaries, ruled that large public companies should report on long-term sustainable risks, including environmental matters, social aspects, anti-corruption and diversity, so that investors can make proper investment decisions.²⁶

In other words, over the last couple of years, regulators have been signaling that non-traditional financial risks, such as ESG factors, can impact the long-term value of portfolios and therefore should be considered by fiduciaries in the investment process. SWF/GPF are beginning to feel the impact of this shift in fiduciary responsibility. In fact, 40% of asset allocators strongly agreed, in a recent survey, that fiduciary duty now encourages or requires the consideration of ESG factors.²⁷

VI. Meeting the Expectations of Stakeholders

Soaring public interest

Decades ago, public interest in sustainable investing was limited to a handful of companies and organizations, often derided as “tree-huggers” and “nature-lovers.” Today it is a different story, as the movement has gone mainstream and public interest has soared, particularly as Millennials have entered the workforce over the last decade. According to a recent study, Millennials, those aged 19-35, are

three times as likely to choose a job based on sustainability considerations and nearly twice as likely to invest based on sustainable factors.²⁸ In the US, Millennials recently passed the “Baby Boomers,” those aged 52-70, as the largest living generation, at 75.4 million versus 74.9 million, and the gap will continue to widen, according to current demographic trends. Within five years, Millennials will comprise a majority of the workforce in the US.²⁹ Moreover, Generation X, those aged 36-51, have also become highly favorable on sustainable investing, swayed by their younger counterparts, interested in growth opportunities, and recognizing the positive implications for long-term value creation. Investments in sustainable assets in North America have followed this growth trend, reaching 8.7 trillion dollars by the end of 2015, representing over 20% of total portfolio investments. Sustainable investments grew fourteen-fold from 1995 and 4.7 trillion dollars was held directly by institutional investors.³⁰

The movement to invest sustainably is not just a US phenomenon, but a global one as well, evidenced by massive growth in sustainable strategies worldwide. In Europe, sustainable investments reached 22 trillion Euros by the end of 2015, up from 16.8 trillion at the end of 2013, growth of 25%. Nearly 80% of these assets were held by Institutional

²⁶ http://ec.europa.eu/finance/company-reporting/non-financial_reporting/index_en.htm#related-documents.

²⁷ Eccles, Robert, Kastropelli, Mirtha, *The Investing Enlightenment: How Principle and Pragmatism Can Create Sustainable Value Through ESG*, State Street Center for Applied Research, March 2017.

²⁸ Morgan Stanley Institute for Sustainable Investing, “Sustainable Reality,” March 2015

²⁹ Pew Research Center, “Millennials overtake Baby Boomers as America’s Largest Generation;” April 2016

³⁰ USSIF, “US Sustainable, Responsible and Impact Investing Trends 2016.”

Investors.³¹ In Japan, sustainable investments reached 26.6 trillion yen by September 2015, comprising about 11.5% of total professionally managed assets.³² In Australia, sustainable assets reached 633 billion Australian dollars by the end of 2015, representing 47% of total professionally managed assets.³³ Case in point, when it was founded in 2006, the UNPRI had 100 signatories comprising 6 trillion of assets under management. Today, just ten years later, the PRI has 1,600 signatories from around the world, representing 62 trillion dollars in AUM, a 16- and 10-fold increase, respectively.

Asset allocators waiting for marching orders regarding the inclusion of long-term non-traditional sustainable metrics in their investment process may be falling behind the curve. Public interest in these matters has been soaring, especially among the younger generation, and stakeholders clearly care about the issue. Research also shows that Boards are receptive to the consideration of sustainable investment risks in the portfolio selection process, when fund leadership takes charge of the issue.³⁴

VII. Summary

- SWF/GPF have large internal resources, scalable assets and a mandate to develop investment capability. As stewards of long-term capital, they are well-positioned to invest trillions of dollars in strategies that not only generate commercial returns but that also address long-term environmental, societal, and governance challenges.
- Consideration of these factors in the investment process helps to mitigate risk, identify growth opportunities and produce better returns for the portfolio over time.
- Despite growing efforts by many SWF/GPF, the total amount of capital deployed in sustainable strategies is not at the level that it could or should be.
- Academic studies over the last ten years have put paid to many lingering concerns and have shown that including sustainable investing criteria in the investment process can lead to better value creation over the long-term.
- Regulations now explicitly welcome the careful consideration of non-financial risks in the investment process.
- The introduction of better tools, access to data, detailed guidelines and investment products supports thoughtful inclusion of sustainable investing criteria in the investment process
- Growing public interest in sustainable, responsible and impact investing is making the issue a priority for asset allocators.

³¹ EUROSIF, "European SRI Study 2016."

³² JSIF, "White paper on Sustainable Investment in Japan, 2015."

³³ Responsible Investment Association Australia, "Responsible Investment Benchmark Report 2016 Australia."

³⁴ Eccles, Robert, Kastropelli, Mirtha, *The Investing Enlightenment: How Principle and Pragmatism Can Create Sustainable Value Through ESG*, State Street Center for Applied Research, March 2017.

Building in-house investment capacity: the early case of GIC

Jürgen Braunstein

London School of Economics

Mattia Tomba

National University of Singapore

The current interest in in-house capacity building among large institutional investors is often linked to fees and to the development of internal capability with regard to hybrid investment models, where the money is managed by external asset managers and internal investment professionals. Given high management fees in an era of ultra-low yields¹, large institutional investors are reassessing their investment approaches – with an eye on increasing their direct exposure to areas like private equity, which so far had been outsourced to third party managers.¹ For example, Sovereign Wealth Funds (henceforth SWFs) developing allocation decisions in a more active way, though they continue to pay for alpha where such value-add is difficult to attain internally.

An increasing number of SWFs are trying to bypass investment intermediaries through the building of in-house investment capacity.² The building of in-house investment capacity refers to an activity whereby SWFs extending their exposure in the direct and day-to-day management of their portfolios across different asset classes (Clark and Monk, 2012). Thus far,

authors have identified a number of mechanisms, such as co-investing and recruiting, through which SWFs can increase their in-house investment capacity (Clark and Monk, 2012; Singh Bachher and Monk, 2013).

The financial press, market practitioners and academics have shown keen interest in issues relating to in-house investment capacity building of SWFs. Reflecting this interest, a number of articles and papers have been published on best practices (see Clark and Monk, 2012), on particular trends, such as co-investments (Singh Bachher and Monk, 2013) or the establishment of satellite offices (Al-Kharusi, Dixon and Monk, 2014). These studies offer comprehensive snapshots and provide roadmaps for in-house investment capacity building. This paper adds to this emerging stream of studies by looking at how the building of in-house investment capacity actually took place in a particular case. Through a heuristic case study, it identifies the mechanisms at work at different stages of in-house investment capacity building over time.

The Government Investment Corporation: A case of SWF in-house investment capacity building

The Singapore Government Investment Corporation (henceforth GIC) is an interesting instance of SWF

¹ See Kalter, E. "Institutional Investor Asset Management in a Low Return/High Risk World", delivered at the Institutional Investor Americas Government Funds Roundtable in September 2012 accessed at <http://fletcher.tufts.edu/sovereignnet>.

² A similar statement was made by Clark and Monk (2012).

in-house investment capacity building. It is one of the longest and most established SWFs. Its asset assets under management increased from approximately 10 billion USD in 1981 to about 315 billion USD, and thereby making it in 2016 to the fifth largest SWF worldwide (supra, Sovereign Investment Lab, 2016, p.; Lee Kuan Yew, 2006, p.1). During this period the GIC has built significant in-house investment capacity across different asset classes, ranging from securities and equities to alternative investment classes. Mirroring this process, GIC's publicly available performance benchmarks also have changed.³ For instance, in 1986 the GIC used the Central Provident Fund⁴ deposit rate as benchmark to gauge its performance, and over time GIC's performance indicators have become more complex through the adaptation of industry specific benchmarks (see *Business Times Singapore*, 28 May 1986; Wu, 2008). In the 2000s, for example it uses the MSCI World Equity Index and Lehman Brothers World Bond Index (Wu, 2008). This suggests that GIC's in-house investment capacity building process – from treasury bonds to equities and alternative assets – has taken place over a period of more than three decades.

The creation of the GIC and its early years: Consulting, recruiting, leveraging, opening of satellite offices (1980s)

The creation of the GIC in 1980/1981 was itself an act of capacity building. Instead of sourcing the

management of Singapore's reserves out to the private sector, the government of Singapore created its own investment entity.⁵ The key actor behind this was Deputy Prime Minister Dr. Goh Keng Swee. He emphasized the need to develop capacity in the long-term management of Singapore's reserves (see *The Straits Times*, 13 March 1981).⁶ Due to a lack in domestic senior fund managing executives, the Singapore government starting to look abroad. The government appointed London Merchant Bank Rothschild to advice on the organizational structure of the GIC and provide investment consultancy service (*Financial Times*, 20 July 1981). Interestingly, the vice chairman of Rothschild's at that time was Sir Claus Moser, a long-standing friend of Goh and former colleague at the London School of Economics. Singapore's policy makers asked domestic banks, such as the Overseas Chinese Banking Corporation and the Overseas Union Bank, for seconding senior members of their staff for the

⁵ "In forming GIC, the government made an act of faith that it could assemble and develop a competent team to manage reserves. There was the option to farm out the money to experienced fund managers in London and New York. That would have been a decidedly less attractive option in the long term. We would have had less control over the national reserves, and foregone the benefits which a vibrant GIC has made to the financial services industry in Singapore (Ng Kok Song cited in GIC Yearbook, 2001, p.26)"

⁶ According to Goh the reserve management of MAS was more appropriate for economies with deficits but not for surplus economies with balance of payment surpluses. Goh's argument that the "surpluses have been allowed to accumulate to amounts in excess of what is required to meet the legal obligation of the Currency Board or the resources needed by the MAS to manage the floating parity of the Singapore dollar" highlights the need for reviewing the adequacy of Singapore's reserve management (*The Straits Times*, 28 February 1981, p.1).

³ Publicly available performance benchmarks are useful indicators for estimating the level of in-house investment capacity building among SWFs.

⁴ The Central Provident Fund is Singapore's mandatory state run pension fund.

training and ‘back up’ of the GIC (*The Straits Times*, 10 March 1981, p.1). For example, senior banker Yong Pun How was seconded by the OCBC to become the GIC’s first managing director (*The Straits Times*, 13 Mar 1981, p.8). Consulting was the major mechanisms in the building of in-house investment capacity during the creation of the GIC in 1980/1981.

GIC’s initial investments in 1981 took place during a turbulent time in international finance. The US interest rate shock 1980/1981 led to very high short-term interest rates making it attractive to invest into US treasury bonds. Despite its stated official purpose of long-term asset management, by the beginning of 1981 the GIC liquidated most of its long-term low yielding equity assets (*The Straits Times*, 1 August 1982, p.1). According to Dr Goh Keng Swee, as of August 1981 “the GIC keeps 90 per cent of funds in cash and short-term assets” mainly in US dollars and treasury bonds (*The Straits Times*, 1 August 1982, p.14). Shortly after this started to change. Sparked by 1982 consolidation in the international financial markets in terms of interest rates and changes in return opportunities the GIC was expected to start its long-term investments (*The Straits Times*, 17 January 1982, p.12). In a 1982 interview, Deputy Prime Minister Goh Keng Swee indicated a shift of GIC investments back into long-term assets. Goh’s statement that the “short-term rates of interest are going down and some long-term investment seem to look pretty attractive” draws attention to a restructuring of the GICs investment patterns (Goh cited by (*The Straits Times*, 17 January 1982, p.12). Hence, international market developments affecting the exposure to particular

asset classes, and thereby influencing in-house investment capacity building. The GIC started re-allocating its short-term assets into long-term asset and the diversification into alternative investments.

From 1981/82 onwards the careful recruiting of international talent went hand in hand with the creation of specialist in-house departments. These included the incorporation of the GIC Special Investment unit, which is GIC’s venture capital unit, the Pacific European Equities Department, the Real Estate Department and the USEquities Department (*MAS-GIC Link Newsletter*, February 1984, Issue 4). An internal GIC newsletter’s statement that the objective is to “[t]o build an organization of excellence that will attract, motivate and retain employees of quality” draws attention to the focus on talent (*MAS-GIC Link Newsletter*, April June 1986, Issue 3, 2). For example, an executive from the College Retirement Equities Fund who was a specialist in Japanese stocks was recruited to head GICs Pacific & European Equities Department (*Fortune*, 21 March 1983; *MAS-GIC Link Newsletter*, February 1984, Issue 4). In a similar fashion a former Regional Vice President of Prudential Insurance Real Estate was recruited in 1982 to head GIC’s Real Estate Department (*MAS-GIC Link Newsletter*, February 1984, Issue 4). Likewise in 1983 a partner of investment management firm

⁴ <https://www.crunchbase.com/organization/square#/entity>

⁵ Forthcoming, Cambridge University Press. Javier Santiso is the Head of IE’s SWLab

⁶ <http://www.ibtimes.co.uk/alibaba-com-group-ecommerce-share-buy-back-345228>

Hagler Mastrovita & Hewitt was recruited to lead the United States Equities Department (*MAS-GIC Link Newsletter*, February 1984, Issue 4). Each of these departments had clear outlined overall principles and targets with regard to capacity building.⁷

Another means of in-house capacity building refers to a mechanism whereby SWFs farming out funds to established asset managers and get in exchange access to gain staff training and expertise. There is only occasional publicly available evidence for this. For example, during the 1980s there is merely one publicly known instance where the GIC farmed out funds in exchange for staff training. It was in 1983, when at the advice of James D. Wolfensohn's – former executive partner at Salomon Brothers – the GIC turned to asset manager Hagler Mastrovita & Hewitt Inc. The firm provided a manager and it provided staff training for GIC employees in return for managing a part of GIC's funds (*Fortune*, 21 March 1983). Although there is numerous evidence available for the interactions between the GIC with buyout funds, such as Kholberg, Kravis & Roberts, and venture capital firms, such as Sequoia Capital, Matrix Partners, Summer Ventures and TA Associates, there is little information available about the exact form of their interaction (*Fortune*, 21 March 1983).

Following its organisational consolidation, the GIC started from the mid 1980s onwards with the systematic opening of satellite offices in major international financial centres. According to Al-Kharusi, Dixon and Monk (2014) SWFs create satellite offices in financial centres as an attempt to tap into local talent, improving the deal flow, make direct investments, and cooperate with other local investment firms and knowledge transfer. The GIC created its first satellite office in the mid 1980s in San Francisco (GIC Yearbook, 2001). During this time the GIC aimed to increase its exposure to US sunrise industries, particularly in the computer sector (*Business Times*, 31 May 1985).⁸ Interestingly, from the beginning of GICs operations in 1981 there were rumors about the creation of satellite offices in New York and London (*Business Times*, 7 November 1981, p.1). But it was with the opening of Eastern Europe in the early 1990s and the prospects of a European Common market when the GIC opened an office in London. An analyst's statement that “[the] GIC is putting a foot in Europe before it closes” draws attention to the fear of protectionism as a key driver behind the creation of GIC's satellite office in London (*Business Times*, 20 November 1990). In the years following, it opened further offices in New York, Beijing and Mumbai Shanghai Seoul Tokyo Sao Paulo (GIC, 2014).

⁷ Bond Department: create an environment where decision makers benefit from sharing of information and quantitative analysis, and upgrade their skills. Real Estate Department: consider joint ventures with reputable institutions. Special Investment Department: objective to develop the staff of the department to their fullest potential. Equities Department: develop team of decision makers with good judgements about trade off between risk and return (MAS GIC Link Newsletter, April June 1986 Issue 3).

⁸ “Some information gained (say, a new method in manufacturing microchips that promised to revolutionise the computer industry) could eventually prove to be of great importance to the GIC's bluechip investments.” Mr Koh Kueh Chiang (*Business Times*, 31 May 1985).

Table 1: Public equity investments of GIC between 1989 and 1991

Investors	Target Company	Nationality of the Target	Sector	Size of the stake in %	Size of the stake in million	Date
GIC, Temasek, Yeo Hiap Sing	Chun King	US	Food	50%	US \$ 52	1989
GIC, Temasek,	Brierley Investments Limited	New Zealand	Finance	4.7%	Sing \$ 820	1991
GIC, Temasek,	Mount Charlotte	New Zealand, UK	Hotel	30%	n.a	1991
GIC	China International Capital Corporation	China	Finance (Investment Banking)	n.a	n.a	1994

Source: *Far Eastern Economic Review*, 23 May 1991, pp.60-61.

GIC's entrance into new asset classes: Co-investing, partnering, retaining talent (1990s and 2000s)

In line with Singapore's internationalisation strategy of the late 1980s and 1990s the GIC embarked on capacity building in the equity sector via co-investing. Co-investing allows investors to tap into specialist expertise and to get important exposure to market transaction to which it is not yet prepared to do on its own (Ramanathan, 2013). Through a couple of high profile equity investment the GIC departed in the early 1990s from being an investing in money-market instruments only company (*The Straits Times*, 21 April 2001). The first "(albeit passive) direct stake in a foreign company" made by the GIC and Temasek was in 1989 in conjunction with Singapore food conglomerate Yeo Hiap Sing. Together they acquired a 50 percent stake interest in the US food company Chun King. This became pub-

licly known when the GIC made together with Temasek in 1991 a large investment of US \$465 million, which was equivalent to a 4.7 percent stake, into Brierley Investments Ltd. a New Zealand based investment trust, and a 30 percent stake investment into the Mount Charlotte hotel chain, a subsidiary of Brierley Investments. Another widely published investment of the GIC's was its purchase of an undisclosed stake into China's newly created International Capital Corporation, which was China's first joint venture investment bank (see Table 1).

During the same period broad-scale US corporate restructuring provided opportunity for the GIC to extend its exposure to a variety of alternative asset classes via partnerships and interaction with well established investment firms.⁹ GIC teamed up with investment firms, specifically those operating in niche markets in which GIC not yet developed in-house investment capacity. GIC's strategy was to 'select' and to 'cultivate' the 'best performing' investment firms in particular sectors and to farm

⁷ <http://www.nprf.ie/Publications/2015/ISIFEventPresentation.pdf>

⁸ <http://www.strategy-business.com/article/A-Strategists-Guide-to-Blockchain>

out funds with them, with the aim of making co-investments with them at a later stage (GIC Yearbook, 2001, pp.106-109). An official statement that “[t]hese partnerships have helped us to gain insights into high-quality investment ideas and research, as well as industry best practices in the areas of investments and operations” draws attention to the link between partnering and in-house capacity building (GIC, 2012, p.20). The GIC benefitted from market and investment insights of external managers, and thereby allowed the improvement of internal capability with regard to macroeconomic forecast and asset allocation.

Conclusion

This paper has provided an in depth account of in-house investment capacity building in a major SWF over a period of three decades. The findings are of particular interest for market practitioners engaging with SWFs, and academics writing on capacity building. Firstly, capacity building is not solely an outcome of governance and internal factors but also a product of opportunity and external circumstances.

The GICs exposure to markets and asset classes have changed over time. As such, capacity-building efforts should be analysed in a broader environment of international market developments. Secondly, this paper has found a sequence of capacity building activities starting with the development of exposure to debt-securities, which is followed by equities and then by alternative asset classes. But in order to make broader claims about sequencing across SWFs it needs to be assessed whether capacity building follows similar sequences in other cases. Thirdly, this paper has illustrated a variety of mechanisms, which are at work at different sequences of in-house investment capacity building. While in the early stages consulting and recruiting have played a dominant role, in the later stages the GIC has increased its exposure to new asset classes, specifically through co-investing and partnering. Further case studies are needed to corroborate these theoretical claims for the better understanding one of the key organizational developments in the SWF industry at large.

⁹ These including: Barton M. Biggs (MD at Morgan Stanley Investment Management), Rolf E. Breuer (Chairman Deutsche Bank), Raymond T. Dalio (Chairman Bridgewater Associates), David I. Fisher (Chairman, Capital Group International), Maurice R Greenberg (Chairman American International Group), William H Gross (MD Pacific Investment Management Company), Yoshinari Hara (President Daiwa Securities Group), David H. Komansky (Chairman Merrill Lynch & Co), Duncan M McFarland (President Wellington Management Company), John Olcay (Vice Chair, Fischer Francis Trees and Watts), Ramon De Oliveira (Chairman, J.P. Morgan Fleming Asset Management), Marcel Ospel (President, UBS), Henry M. Paulson (Goldmann Sachs) (GIC Yearbook, 2001).

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SWFs are finally considered a distinct type of institutional investor, inspiring a flourishing research and a vibrant debate amongst practitioners and policymakers

A Spotlight on Recent Research

Veljko Fotak, SIL, Bocconi University, and University at Buffalo

Academic research on Sovereign Wealth Funds (SWFs) has, in the past, focused heavily on their impact on the foreign firms and markets they invest in, reflecting, perhaps, the Western bias of many researchers. A big gap was left, with academics failing to look at SWFs from the perspective of their host countries and governments, which some of the recent research has started to fill. The biggest themes in recent SWF research are (1) the interplay between domestic institutions and culture and the governance of SWFs and (2) the challenges of volatile energy markets for SWF host countries.

The internal organization of SWFs is the topic of a recent paper by Di Wang and Quan Li. The authors look at whether a country's regime type and constraints on the executives affect the governance of SWFs. They find that, while the presence of a moderate number of "veto players" improves the behavior of funds, a large number of those can be counter-productive, leading to paralysis. In contrast, a forthcoming paper by Raj Aggarwal and John Goodell argues that SWF governance is determined by national culture, rather than institutions. The political economy of SWFs was covered also by Artur Grigoryan, who models a ruler's decision to set up a SWF in a society dominated by a powerful elite in order to channel resource rents to connected firms and individuals.

The link between SWFs and natural resource wealth has also received strong attention recently, perhaps due to the challenges faced by SWFs depending on natural resources in the recently volatile energy markets. Joe Amoako-Tuffour discusses how resource-rich countries should balance three competing objectives when setting SWF priorities: future generation

savings, budget smoothing, and public infrastructure investing. Ton Van Den Bremer, Frederick van der Ploeg, and Samuel Wills argue that SWFs fail to properly consider the impact of below-ground reserves when allocating assets, and point out that subsoil oil should increase a fund's portfolio's leverage and alter its hedging strategies. Patrick Schena and Asim Ali discuss the impact of lower commodity prices on SWF financing and asset allocation in broader terms. Finally, Tomasz Kamiński looks at the relationship between oil and sovereign wealth from a different vintage point, arguing that China is using its SWF to gain control over energy companies and critical energy infrastructure in Europe.

Despite the novel streams, the topic of SWF asset allocations is always alive. Narjess Boubakri, Jean-Claude Cosset, and Jocelyn Grira find that, compared to pension funds, SWFs are more likely to invest in firms operating in strategic industries (financials, energy, mining, transportation, telecommunication, and utilities) and in countries with weak legal and institutional environments, but strong recent growth. Alessio Ciarlone and Valeria Miceli present evidence that SWFs invest in countries with a higher degree of economic development, larger and more liquid financial markets, with stronger institutions and a more stable macroeconomic environment. Yet, in sharp contrast with Boubakri and co-authors, Ciarlone and Miceli find evidence that SWFs provide counter-cyclical financing.

Other interesting papers include a study by Mark Thatcher and Tim Vlandas, who examine the response by Western governments (Germany and France in particular) to foreign investments by

SWFs. They find that policymakers actively welcome SWF investments, at least partially under pressure from industrial groups seeking access to “patient” capital. Ruth Aguilera, Javier Capapé, and Javier Santiso offer a review of the literature on SWFs, with a particular focus on their governance structure. Gianfranco Gianfrate and Enrico Merlin document co-investments by SWFs, finding that they are increasingly common, in particular for large investments in infrastructure and public utilities. They find that many of these partnerships involve strategic alliances with local funds when entering foreign markets.

The abstracts of the papers cited above follow in the remainder of this section.

Democracy, Culture, and Governance

Wang, Di, and Quan Li. “Democracy, Veto Player, and Institutionalization of Sovereign Wealth Funds.” *International Interactions* 42.3 (2016): 377-400.

Sovereign Wealth Funds (SWFs) have become important and controversial in global economy. We analyze why some SWFs have more encompassing and clearly specified governance rules than others. We argue that SWF institutionalization is structurally rooted in a country’s regime type and number of veto players in public policymaking. Democracy promotes SWF institutionalization by its need for strong rule of law, voters trying to constrain opportunistic behaviors of politicians, and the free flow of information. In contrast, the number of veto players has a curvilinear effect. When the number of veto players is very small,

institutionalization is too rigid, constraining, and not preferred; when the number of veto players is moderate, it is optimal for veto players to manage their conflict over SWF governance in a more routine and institutionalized fashion; and when the number of veto players grows above a threshold, it becomes too costly to coordinate and produce mutually agreeable institutional rules. Our empirical analysis of 46 SWFs in 30 countries from 2007 to 2009 provides robust confirming evidence. SWF governance is more institutionalized and transparent in democracies and in countries with four veto players. Our research has important theoretical and policy implications for the ongoing debate over SWF.

Aggarwal, Raj, and John W. Goodell. “Sovereign wealth fund governance and national culture.” *International Business Review* (2017), Forthcoming.

As sovereign wealth funds (SWFs) are owned and directed by sovereign governments which often have non-economic strategic motives and concomitant lack of transparency, there is much confusion, suspicion, and concern regarding the purpose of their investments. Strategic or non-economic motives for SWF investments are usually conveyed via respective governing boards of directors. Therefore, there is much need for understanding SWF governance. Using data for 49 large SWFs globally, we document significant and economically important evidence of the impact of national culture on SWF governance. Even when controlling for the quality of respective national governance, we find that poorer SWF governance is associated with the cultural dimensions of power distance, individualism, and most likely masculinity; while better SWF governance is associated with long-

term orientation, indulgence and uncertainty avoidance. These results are consistent with what others have noted: good governance means different institutional dynamics in different countries (cultures). We also find that SWF governance is negatively associated with greater investment in foreign assets. Policy makers, capital-market participants, and managers will be interested in these results, as SWFs have become large and important global investors.

Grigoryan, Artur. “The ruling bargain: sovereign wealth funds in elite-dominated societies.” *Economics of Governance* 17.2 (2016): 165-184.

This paper generates new results on the creation and use of sovereign wealth funds (SWF) as tools for maximizing political power of the ruling class. It models a ruler’s decision to set up a SWF in a society dominated by a powerful elite in order to pacify the elite’s political ambitions by transferring resource rents. Furthermore, it shows under which circumstances the ruler is able to gain the elite’s support using a fund and to overcome the danger of coups d’état. SWFs can serve as appropriate instruments for this purpose because they are long-term oriented and strongly institutionalized.

Sovereign Wealth Funds and Natural Resource Wealth

Amoako-Tuffour, Joe. “Should Countries Invest Resource Revenues Abroad When Demands for Public Infrastructure Are Pressing at Home? The Dilemma of Sovereign Wealth Funds in Sub-Saharan

Africa.” *Journal of African Economies* 25.suppl 2 (2016): ii41-ii58.

Setting aside some resource revenues for future generations is not controversial. So is the need to set aside some of the revenues as fiscal buffers against the risk of uncertain revenue flows. There is merit in both on equity and efficiency grounds. For capital-constrained resource-rich economies, the conundrum is whether to invest the savings in external financial assets, or to invest them in whole or in part in domestic infrastructure development. Conventional advice is for the former. There is growing voice, however, that there is room for both. An emerging strategy is to establish ‘umbrella’ sovereign wealth funds (SWFs) with three components each with a clear savings objective: for future generations, for budget smoothing buffers, and for public infrastructure investment. In sub-Saharan Africa Angola, Ghana and Nigeria are most recent examples. But will this innovation become a source of patronage or will it improve the efficiency of domestic infrastructure investment? What guidelines should countries follow to stay true to the objectives of SWF and at the same time meeting their development objectives?

Van Den Bremer, Ton, Frederick van der Ploeg, and Samuel Wills. “The elephant in the ground: managing oil and sovereign wealth.” *European Economic Review* 82 (2016): 113-131.

One of the most important developments in international finance and resource economics in the past twenty years is the rapid and widespread emergence of the \$6 trillion sovereign wealth fund industry. Oil exporters typically ignore below-ground assets when allocating these funds, and ignore above-

ground assets when extracting oil. We present a unified stylized framework for considering both. Subsoil oil should alter a fund's portfolio through additional leverage and hedging. First-best spending should be a share of total wealth, and any unhedgeable volatility must be managed by precautionary savings. If oil prices are pro-cyclical, oil should be extracted faster than the Hotelling rule to generate a risk premium on oil wealth. Finally, we discuss how our analysis could improve the management of Norway's fund in practice.

Schena, Patrick, and Asim Ali. "Sovereign Wealth Fund Investment in Economic Transformation: Toward an Institutional Framework." *World Economics* 18.1 (2017): 123-144.

The prospect of prolonged lower hydrocarbon and commodity prices has forced many countries to reconsider both fiscal policy and sovereign wealth fund asset allocation to address possible liquidity needs. In order to analyze the diversity and effectiveness of public investment vehicles it is necessary to recognize that a sovereign wealth fund is a genre of state investment. As a type of state investor sovereign wealth funds sit within an institutional continuum that includes many other bodies, such as national development banks. Well-functioning operating and governance models have evolved among large-scale private equity investors and components of these are suited to government application.

Kamiński, Tomasz. "Sovereign Wealth Fund investments in Europe as an instrument of Chinese energy policy." *Energy Policy* 101 (2017): 733-739.

Chinese Sovereign Wealth Funds (SWFs) are new instruments of Chinese 'Go Global' strategy and the politics of maintaining raw materials and energy security. Europe has lured 60% of the total USD 27.3 billion invested by Chinese SWFs in the energy sector globally, which provokes the question as to how important SWF investments are in the political sense and what security concerns they bring. This paper is the first that presents a comprehensive picture of Chinese SWF investments in the European energy market and one of the very few papers about SWFs based on multiannual, comprehensive empirical data. The author argues that Chinese SWFs are different players on the energy market than private investors, could be potentially harmful for some European interests. By installing representatives on the company boards, China gains access to sensitive information that could be then transferred to Chinese competitors. Moreover, through its SWFs China could take control over energy companies or critical infrastructure and increase its political influence in European countries, making them more vulnerable to political pressure. Therefore, the European policy-makers should consider taking special steps to monitor and maybe limit Chinese SWFs expansion in the energy sector.

Asset Allocation

Boubakri, Narjess, Jean-Claude Cosset, and Jocelyn Grira. "Sovereign wealth funds targets selection: A comparison with pension funds." *Journal of International Financial Markets, Institutions and Money* 42 (2016): 60-76.

This paper investigates the determinants of sovereign wealth funds' (SWFs) decisions to invest in publicly traded firms in comparison to pension funds. Using a sample of 344 firms targeted by SWFs over the 1991–2011 period and a control sample of 663 firms targeted by pension funds, we find that SWFs, in comparison to pension funds, are more likely to invest in firms operating in strategic industries as defined by Fama and French (1997) (financial sector, natural resources, mining, transportation, telecommunication and utilities) and in countries with sustainable economic growth and weak legal and institutional environment. Our findings are robust to disproportional size of some SWFs, their financing sources, their transparency level and acquisition activities during the recent financial crisis.

Ciarlone, Alessio, and Valeria Miceli. “Escaping financial crises? Macro evidence from sovereign wealth funds' investment behaviour.” *Emerging Markets Review* 27 (2016): 169-196.

This paper investigates the determinants of the investment activity of Sovereign Wealth Funds (SWFs) at a macro level, with special emphasis on the possible reaction to a financial crisis in a potential target economy. The analysis relies upon a specially built proprietary database, which encompasses 1,903 acquisition deals spanning the period 1995–2010 and involving 29 out of the 79 existing SWFs. According to a three-step modelling approach, we find that this class of investors prefers to invest in countries with a higher degree of economic development, larger and more liquid financial markets, institutions that offer better protection of legal rights, and a more stable macroeconomic environment. Most importantly, and in stark

contrast with the existing empirical literature on other major institutional investors, SWFs seem to engage in ‘contrarian’ investment behaviour, i.e. increasing their acquisitions in countries where crises hit. The results are shown to be valid if we consider both the likelihood of a country being the target of SWFs' investments and the amount SWFs choose to invest in each country. Capital flows stemming from SWFs' acquisition activity worldwide may therefore have a stabilizing effect on local markets during periods of financial turmoil, protecting the targeted countries from foreign shocks instead of propagating them globally.

And More...

Thatcher, Mark, and Tim Vlandas. “Overseas state outsiders as new sources of patient capital: Government policies to welcome Sovereign Wealth Fund investment in France and Germany.” *Socio-Economic Review* 14.4 (2016): 647-668.

Strong debates in the varieties of capitalism literature as to whether financial liberalization and internationalization undermine ‘insider’ corporate governance systems based on patient capital in coordinated and state-led market economies have focused on ‘impatient’ overseas private capital. However, cross-border state investment has also grown. We examine government policies towards a prominent type of state investment—equity purchases by sovereign wealth funds (SWFs). We argue that policymakers in ‘insider’ corporate governance systems can see such investment as an attractive international source of patient capital to offset declines in traditional sources of patient capital. We

compare Germany and France and show that policymakers actively welcome SWF investment. Policy is driven by coalitions of ‘insiders’ of the managements of large industrial firms and governments who seek passive patient capital and beneficial relationships with overseas investors. Thus, financial liberalization and internationalization can allow new sources of patient capital through overseas state investors.

Aguilera, Ruth V., Javier Capapé, and Javier Santiso. “Sovereign wealth funds: A strategic governance view.” *The Academy of Management Perspectives* 30.1 (2016): 5-23.

Recent tectonic, global economic and political shifts have spurred the emergence of new organizational forms such as sovereign wealth funds (SWFs)—state-owned investment organizations without pension liabilities—primarily in emerging and frontier markets. Although scholars have begun to explore SWF macroeconomic trends, little is known about the challenges these institutional investors face or their strategic capabilities to address these concerns. Drawing on comparative and strategic corporate governance research, we develop an organizing framework to better understand the firm-level characteristics of SWFs and their consequences. Our analysis of these investment funds’ multidimensional strategic governance traits contributes to the literature on state capitalism and comparative corporate governance.

Gianfrate, Gianfranco, and Enrico Merlin. “Who Is the Sovereign among Sovereign Wealth Funds? A Network Analysis of Co-Investments.” *The Journal of Private Equity* 19.4 (2016): 7-18.

This article studies the co-investment patterns of global sovereign wealth funds (SWFs) in the 1980–2014 period. Data show that collaborative investments are gaining momentum among SWFs. In terms of targets, large-capitalization stocks and companies operating in the infrastructure and public utilities industries appear to be the preferred targets. There is evidence of a home-bias effect and of a preference to invest in foreign countries in partnership with local funds. The co-investments within a social network framework show the existence of a “small world” of relationships among most SWFs. In particular, the network of co-investments is rather segmented, with some funds being “brokers” of relationships within their subgroup but with no one fund being able to dominate the strategies of the whole network.

Appendix

Methodology

Our data research methodology focuses on two main objectives: comprehensiveness of research and accuracy of information. To ensure comprehensiveness, we survey multiple sources, primarily relying on established business and financial databases but employing also press releases, published news, fund annual reports and many other data sources. To ensure accuracy, we follow a strict process for capturing deal information and we establish a clear hierarchy of sources, based on our estimate of reliability:

- 1 Financial transaction databases: Bloomberg, Thomson One, Zephyr (we have also used Datamonitor and Dealogic in the past).
- 2 Database for target firm information: DataStream.
- 3 Sovereign Fund disclosures, including annual reports, press releases and other information contained on their websites.
- 4 Target and vendor company disclosures: press releases and other information contained on their websites.
- 5 Regulatory disclosures: stock exchange filings for publicly listed companies; Regulators; SEC 13D and 13G Filings; Land Registries; Competition Commissions, and Bond/IPO prospectuses etc.
- 6 Service provider disclosures: such as lawyers, investment banks, and project financiers working with the SWFs.
- 7 Information aggregators: LexisNexis and Factiva. Those include news reported by newswires (Dow Jones, Reuters, Business Wire, Associated Press and others) and national news agencies (KUNA, Xinhua, WAM etc.) numerous well-regarded selected newspapers (e.g. *The Wall Street Journal*, *Financial Times*, *New York Times*), and their regional equivalents (e.g. *Economic Times*, *China Daily*, *The National*), and the local trade press.
- 8 Other websites, including Zawya.com, Google Finance, Yahoo! Finance, AME Info, BBC News and others. Most of the deals are amassed and consolidated from the financial transaction databases, while the other sources are mostly used for corroboration where necessary. At least one high-quality source is captured for each data point, and, where possible, multiple sources are identified. News items from information aggregators such as LexisNexis are carefully examined to ascertain the reliability of the original source.

