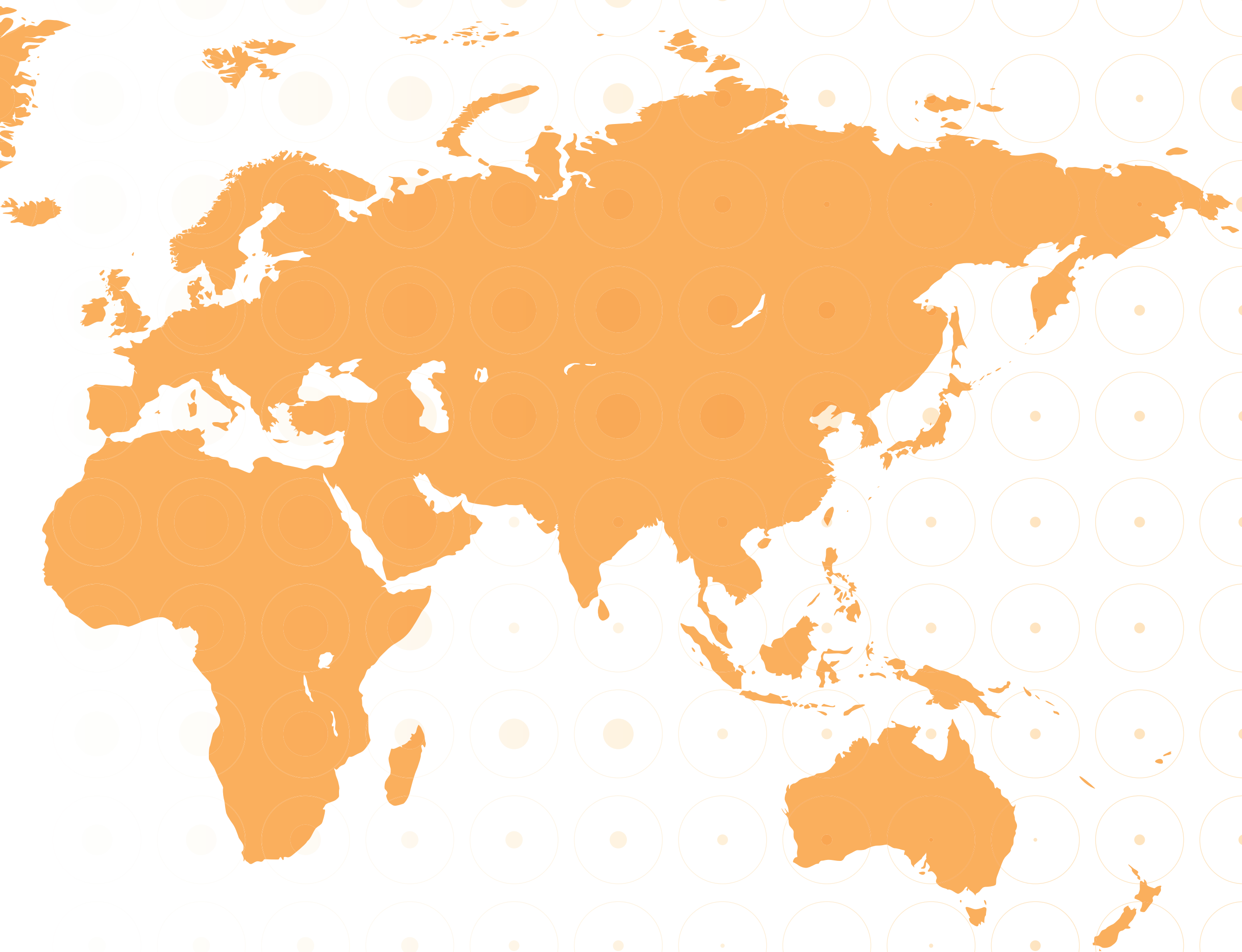

Sovereign wealth funds

2015

ESADE
Ramon Llull University
ESADEgeo-CENTER FOR GLOBAL ECONOMY AND GEOPOLITICS

KPMG

INVEST IN SPAIN

ICEX España Exportación e Inversiones

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Index

Preface

1. Preface

The pattern of world economic growth during 2015 has undergone a significant change relative to previous years. While the developed economies succeeded in shaking off their lethargy and improving their economic growth rates, the emerging economies have seen their growth prospects curtailed. Nonetheless, they continue to have high levels of economic development, and their contribution to world growth will remain significant.

The U.S. and European economic situations have improved thanks to the non-conventional monetary policies put in place on both sides of the Atlantic. The United States, which moved ahead of Europe in implementing these measures, is expected to normalise its monetary policy by means of a hike in interest rates this year, once the improvement in its economy is confirmed. This move has been anticipated by the market, leading to an appreciation of the dollar which has put pressure on emerging markets that are dependent on foreign investment. Additional tailwinds such as the fall in the price of oil and new oil and gas extraction techniques have contributed positively to the recovery of the developed economies.

The emerging economies have started on a path of gradual deceleration. China is carrying out a transition of its exports-based economic model, which has been showing clear signs of fatigue, to one based on public investment and domestic consumption. This change towards a higher quality kind of growth, more stable and sustainable over time, is however leading to lower annual growth rates of around 7%. The Middle East for its part has been affected by increased uncertainty as a consequence of the fall in commodity prices in general, and oil and gas prices in particular.

After several years of expansion, the economic models of other emerging markets such as Brazil and Russia have been showing clear signs of burnout, and they have started to feel the effects of their significant imbalances - shortcomings in infrastructure, education and institutional development in Brazil's case, excessive economic concentration in natural resources and overly timid pro-market reforms in that of Russia.

In both 2014 and 2015 developed and emerging countries' sovereign wealth funds have continued to feature prominently in significant strategic transactions worldwide. In view of their increasingly high profile in world investment, and with the aim of taking an in-depth look into their strategies and behaviour as investors, ESADE Business School, KPMG and ICEX-Invest in Spain present the fourth edition of the Sovereign Wealth Funds Report.

In this new edition, the report focuses on the transactions and strategies carried out by the sovereign wealth funds during 2014 and the early part of 2015. From a geographical perspective we take a close look at three Asian funds, one each from Singapore, Hong Kong and Korea. Also, we analysed funds established in Latin America and Caribbean. From a sector point of view we examine in detail the activity of the sovereign wealth funds in sectors in which they have not traditionally been present: agribusiness, venture capital, digital economy, art and football. We also carry out a preliminary review of funds from countries with Muslim majorities which are driving Islamic finance and the halal industry.

As in previous editions, the report includes a specific chapter dedicated to the relations of the sovereign wealth funds with Spain and its companies, which have seen some significant transactions in recent years and which will continue to be one of the major investment destinations for sovereign wealth funds in the future.

Jaime García-Legaz
Secretary of State for Trade

Javier Solana
President, ESADEgeo

John Scott
President, KPMG España

Executive Summary

2. Executive Summary

This edition of the Sovereign Wealth Funds Report is the fourth one produced by ESADEgeo with the support of KPMG and Invest in Spain, which is now part of ICEX. We should therefore like to start by repeating our thanks to both institutions for their support, without which this fourth edition of the Sovereign Wealth Funds Report would not have seen the light of day. We should also like to thank Javier Capapé and Tomás Guerrero for their excellent work analysing and coordinating the Report, and the infographics team, driven by Samuel Granados, who once again has produced some magnificent graphic design work.

This work is the result of the activities driven by the ESADEgeo-Global Economy team over the past four years. In 2011, Javier Santiso advised the Colombian government together with the then Minister of Finance, Juan Carlos Echeverry, on the creation of a sovereign wealth fund (now dedicated to innovation). A series of lectures on emerging markets, or the ESADEgeo Globalization Lab, has also been launched, since many of these countries have institutions of this kind. On 30 May 2011 a Lab was held on sovereign wealth funds with Victoria Barbary, at that time with Monitor Group, London. On 7 February 2012 we welcomed Christopher Balding from Peking University HSBC Business School, Shenzhen, China, who presented his latest book. We also contributed to a book called Sovereign Investment, edited by Karl P. Sauvant, with a chapter on the political bias of sovereign wealth funds' investments. During the 2013-2014 and 2014-2015 academic years we contributed a chapter on Sovereign Wealth Funds and Latin America to the Global Public Investor 2014 report published by OMFIF, London; we strengthened our collaboration with The Fletcher School (Tufts University) incorporating Patrick Schena's analysis of trends in funds; and we presented an overview of the sovereign wealth funds industry at Sciences Po, Paris. The Report was the only source specialising in sovereign wealth funds quoted by the World Investment Report 2013, published by UNCTAD, Geneva. We took part in the sixth annual International Forum of Sovereign Wealth Funds, held in November 2014; the Report was quoted in the announcement of the three-year strategic plan signed by the IFSWF in Doha. We gave several talks on the role of sovereign wealth funds at various Spanish universities. Together with two Polish researchers we held a seminar on the investment strategies of Chinese and Middle Eastern sovereign wealth funds, which brought together Spain's leading experts in the field. Lastly, we presented the 2014 edition of the Report together with the Secretary of State for Trade and prominent specialists; the presentation took place at Bloomberg's London headquarters and enabled us to achieve an international impact which resulted in articles and reviews in specialised magazines such as Forbes.

This year's Report is divided into three themed sections. In the first of these, we address the main trends shown by sovereign wealth funds in 2014 (Patrick Schena). In the second, dedicated to geographical analysis, we focus on Spain and Latin America (Javier Capapé), funds from countries with Muslim majorities (Tomás Guerrero and José María Fuentes) and funds from Singapore, South Korea and Hong Kong (Jürgen Braunstein). In the third section, we study the sovereign wealth funds' activity by sector: the venture capital sector (Javier Santiso), agriculture (Marc Garrigasait), art (Andrew Rozanov), the digital economy (Patrick Schena) and football (Javier Capapé).

Several conclusions can be drawn from the analysis carried out in the Sovereign Wealth Funds Report 2015:

- The number of funds and their purchasing power continue to increase, although investment capacity continues to be largely concentrated in four areas: Norway, the countries of the Gulf Cooperation Council, Southeast Asia and China. At present **there are 92 sovereign wealth funds in operation — their assets under management reached a new record high of $7.1 trillion. In addition, there are 25 countries that are studying the possibility of setting up funds.** Sovereign wealth funds are playing an increasingly prominent role in emerging regions such as Africa and Latin America.

- During 2014 **the total number of investments made by sovereign wealth funds was close to 140, involving nearly $90 billion.** Many of them, such as the $2 billion of the QIA (Qatar Investment Authority) and the RDIF (Russian Direct Investment Fund), came about through joint ventures or co-investments. As in previous years, investments were concentrated in sectors such as real estate ($21 billion), infrastructure ($20 billion) and in countries such as the United States, which received 30 investments, and China, which received 17. However the funds also left their mark in sectors such as start-ups and agriculture and in countries as diverse as Brazil and the United Arab Emirates.

- **On the podium of the most active funds Temasek led the field again** for the second consecutive year, with more than 40 transactions, followed by GIC with 23, maintaining second place; third placed this year was Norway's sovereign wealth fund GPFG (managed by Norges Bank Investment Manager, NBIM) which with 14 transactions pushed QIA into fourth place. Of the five largest transactions carried out this past year, three were in the real estate sector: QIA acquired the offices of UK bank HSBC at Canary Wharf for close to $1.7 billion, GIC spent the same amount, $1.7 billion, on buying Pacific Century Place Marunouchi in Tokyo, and the Norwegian fund acquired three office buildings in Boston for $1.5 billion.

- Attracted by the economic recovery, sovereign wealth funds once again targeted Spanish assets as an ideal destination for European investment. **More than €4.6 billion has been pumped into Spain since January 2014.** Investments were largely concentrated in the real estate sector, highlights being the equity stakes taken by Singapore's GIC in property group GMP and by QIA in Colonial and its French subsidiary SFL. These transactions confirm the return of investor confidence in the sector. Moreover, 2014 was also **the year the Kuwait Investment Authority (KIA) returned to Spain.** It paid €1 billion to acquire 40% of E.ON's Spanish assets; it took an equity stake in Global Power Generation (Gas Natural Fenosa's international power generation subsidiary) for €485 million; and through its technological arm Impulse it led the financing round for Tyba, a Spanish start-up. The volume of the investments and the sectors into which they were channelled show that Spain continues to present excellent investment opportunities. Completing the top five transactions in Spain are the recent stakes taken by Mubadala in Matsa (estimated at €447 million),and China's State Administration of Foreign Exchange in Madrileña Red de Gas for an estimated €417 million.

- In the last edition we proposed a systematic strategy for structuring **bilateral co-investment funds** in Spain, taking the example of countries such as Italy, France and Ireland as a reference. At the end of April 2015 the government, through COFIDES, signed an agreement with SGRF of Oman to create **a €200 million co-investment vehicle.** Additionally, COFIDES is in talks with the Qatar Investment Authority to create a joint fund, in this case €500 million, to support the international expansion of Spanish companies, especially SMEs.

- Some of the most active and sophisticated sovereign wealth funds are to be found in Asia. Those of **Singapore** (GIC and Temasek) **South Korea** (KIC) and **Hong Kong** (HKMA) are studied in this report. They are among the sixteen biggest funds, managing assets worth $987 billion. The first two are among the "usual suspects", in that in the past few years they have taken positions in companies such as Santander, Euskaltel, Repsol and Applus+, while the latter two are complete unknowns, not yet having set foot on our shores. All four present common characteristics as regards investment strategy: they are betting on investment in technology and on models involving co-investment with other institutional investors such as pension funds.

- The sovereign wealth funds of **countries with Muslim majorities** account for 40% of active sovereign wealth funds (36 of 92) and **46.4% of assets managed by the funds worldwide** ($3.3 trillion out of the $7.1 trillion). Following the onset of the financial crisis, many of these funds started directing their investments into new sectors: Islamic finance and the halal food industry. In both cases the entry of these funds has produced something of a bandwagon effect, with other funds from non-Muslim countries piling in to this world of opportunities.

- In the coming decades, sovereign wealth funds could lead a new wave of **investment in agricultural assets.** Compared with other institutional investors, sovereign wealth are more patient and better equipped to accept and withstand the high volatility of agricultural prices in the short term. According to our estimates, total investments of sovereign wealth funds in the pure agricultural sector amount to barely 1%, representing a **total volume of investments of approximately $60 billion.** We will see this amount grow in the next few years, given the expectation that the sector's long-term profitability will continue to be attractive, with lower volatility than the stock exchange.

- Sovereign wealth funds are also increasingly betting on innovation and technology. This phenomenon has given rise to ***sovereign venture funds:*** sovereign wealth funds dedicated to new technologies and innovation, start-ups and venture capital. In the past two years, investments have increased substantially, no longer being confined to the "unicorns" (Xiaomi, Uber, Spotify and Flipkart all have sovereign wealth funds among their shareholders) and major listed start-ups such as Alibaba. Furthermore, the equity positions taken by sovereign wealth funds in start-ups in very early financing rounds show the sophistication of some of these funds, which **are making strategic plays on the digital economy,** most notably Temasek and GIC.

- New alliances in strategic sectors such as **football,** with its highly visible international profile, **and art** (as a means of geopolitically and culturally positioning the country) lead to long-term relations between the receiving countries and sovereign wealth funds. Headed by funds from the Gulf, especially from Qatar and the United Arab Emirates, **investments in sponsorship of European football amount to nearly $300 million a year.** In the art sector, we note the astronomical sums paid by Qatar for paintings such as Cézanne's "The Card Players" ($250 million) and the rumours pointing to the Qatari royal family as being behind the biggest art sale ever: the $300 million paid in a private transaction for Gauguin's "When Will You Marry?"

Direct investing by sovereign wealth funds in 2014: The worst of times, the best of times

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3. Direct investing by sovereign wealth funds in 2014: The worst of times, the best of times

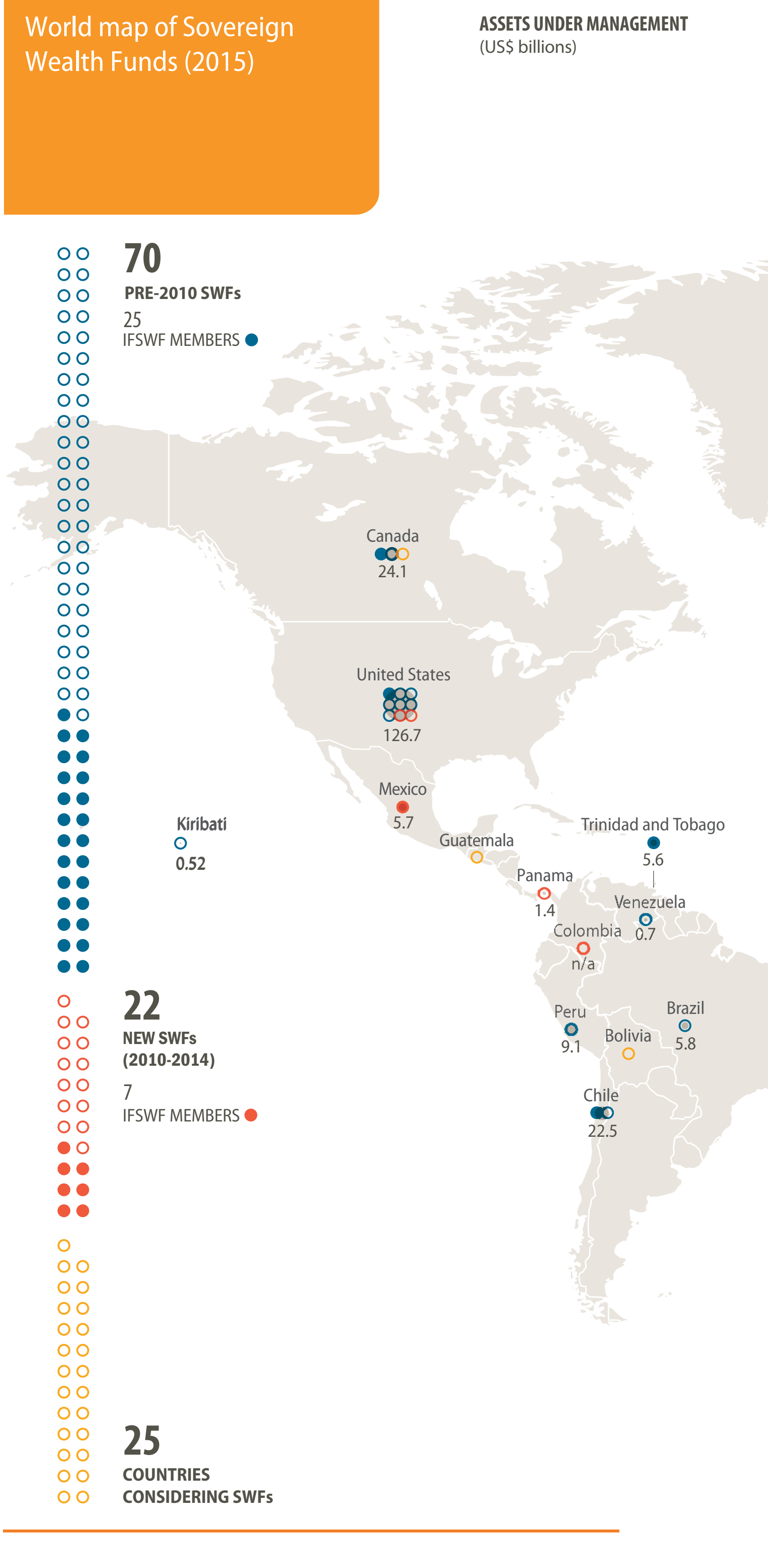
2014 was a year marked by considerable change in the global macro-economy with particular impact for large, public investors. SWFs, with their links directly to the fiscal programs, and so financial stability, of sponsoring governments, were hardly insulated, but rather buffeted by a host such developments - both macro-economic and geopolitical - that have strained traditional operating models and complicated the ability to effectively deploy capital in scale. Despite such pressures, our review of the direct investing activities of SWFs in 2014 suggests that traditional investments patterns generally prevailed, though distinct elements of opportunity, adaptability and change were clearly discernible at the individual fund level. Interesting too were in increasing number of inter-fund investments and joint ventures.

In 2014 SWFs participated in nearly 140 deals or confirmed rounds that raised approximately $90 billion. Beyond the usual destinations for this capital – the US and China, real estate and natural resources, new geographies – e.g. Brazil - and sectors – e.g. agribusiness and bio/life sciences - emerged. Among inter-fund deals of note were those sponsored or received by the former Irish National Pension Reserve Fund, the Russian Direct Investment Fund (RDIF), the Fondo Strategico Italiano (FSI), and China's Silk Road Fund. Furthermore, the appeal of institutionalizing the management of state assets continued to root, as SWF assets under management expanded in 2014 to over $7 trillion, while investor ranks grew with the introduction of new funds in Mexico, West Virginia (USA), China and France.

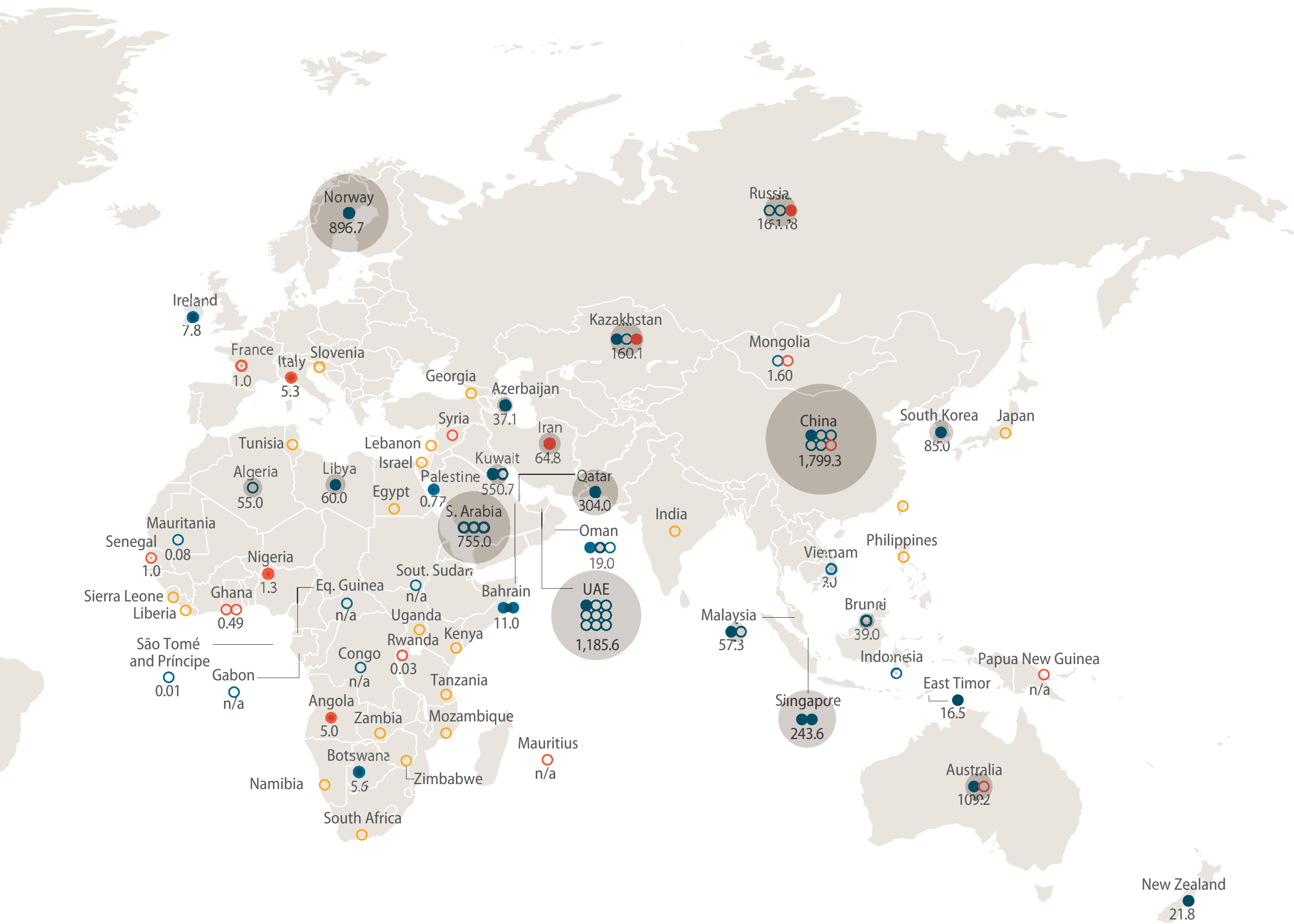
As 2014 unfolded the structural decline in the price of oil certainly emerged as a critical challenge to sovereign investors. This was especially the case as rapid and dramatic price drops placed strains on the fiscal positions of petroleum producers, which extended operationally to the management of petroleum-based funds. Breaking $100 per barrel in August 2014 and ending the year at nearly $50, this rapid fall raised the prospect of material outflows from oil-based funds and a significant slowing in both the scale and growth of future inflows. The result has been a reconsideration of well-established operating principals among such funds related to both asset allocation and risk management. In the Gulf, geopolitical disruptions owing to the advance of ISIS, al Qaeda, and other insurgent elements have further accentuated these fiscal pressures, in some cases – e.g. Iraq –threatening the very viability of investment platforms.

Infographic 1

World map of Sovereign Wealth Funds (2015)



Currently, there are 92 active sovereign wealth funds, eight more than our 2014 Report. 55 countries have established at least one SWF. Middle East, China, Southeast Asia and Norway are the four most active centers of SWFs. Assets under management exceed 7 trillion dollars. SWFs have widely spread in recent years: since 2010, 22 new funds were established. Other 25 countries are considering establishing one. Debates over new SWFs are growing in East and South Africa and in Latin America. Thus, in 2015, there are more than 115 operating or in projected-SWFs. There are 32 funds members of the International Forum of Sovereign Wealth Funds.



Fuente: ESADEgeo SWF Tracker (2015).

3. Direct investing by sovereign wealth funds in 2014: The worst of times, the best of times

Table 1

Number of deals and average deal size (USD million) by SWF (2014)

Sovereign Wealth Fund	Country	Number of deals	Average value*
Temasek Holdings	Singapore	44	170
GIC	Singapore	23	621
Government Pension Fund - Global	Norway	14	411
Qatar Investment Authority	Qatar	11	848
Kuwait Investment Authority	Kuwait	9	359
Abu Dhabi Investment Authority	UAE	9	223
Mubadala Development Company	UAE	8	1,718
China Investment Corporation	China	7	369
State General Reserve Fund	Oman	5	265
Khazanah Nasional	Malaysia	3	115
National Social Security Fund	China	1	2,100
National Pension Reserve Fund	Ireland	1	50
TOTAL		**135**	**604**

* Millions of dollars
Source: Fletcher SWF Transaction Database (2015).

For Russia's sovereign entities – the Reserve Fund, the National Wealth Fund (NWF), and the RDIF – these fiscal challenges were further accentuated by the introduction of sanctions against discrete Russian interests in Spring 2014 in response to the government's actions in the Crimea and eastern Ukraine. For example, while assets of the Reserve Fund, consistent with its mandate, were used to cover fiscal shortfalls,[1] NWF assets of as much as $7 billion (at then prevailing exchange rates) were used between August and December 2014 to recapitalize three Russian state banks – VTB, Gazprombank, and Rosselkhozbank, all of which were impacted by the sanctions regime.[2] Conversely, the assets of the RDIF did not directly fall under the sanctions regime[3] and despite the sanctions it continued to complete new deals such as those signed with Qatar Holdings, CIC, and Bahrain's Mumtalakat amounting to over $6B in targeted capital.

In Asia, China's launch of the Silk Road Fund, minority seeded by the CIC, and the announced Asia Infrastructure Investment Bank, raises a number of questions about the future leadership multi-lateral finance in Asia. This is the case not only for the much discussed implications to the Bretton Woods framework, but more immediately as it will impact both the supply of and the competition for quality deal flow, particularly for infrastructure deals in the region. With relevance here as a direct SWF investment, the Silk Road Fund was reportedly capitalized at $40 billion, with 65% of its capital originating from foreign exchange reserves, 15% each from the CIC and the Export-Import Bank of China, and 5% from the China Development Bank.[4]

As we reflect on the broad expanse of SWF deals and direct investment patterns, we note that in 2014 direct investments were once again concentrated among the largest funds, i.e. those with long-established direct investing programs. Furthermore, despite the volatility in resources prices, except overtly in the case of sanctions, the challenges we outlined above appear on the surface to have had marginal impact on the investing activities of SWFs when viewed over the entire year. We believe this is in part a result of lags in large deal activity reacting to macro-economic changes that evolve over time, as compared to events, such as sanctions, whose impacts can be more abrupt.

1 See "Sovereign Wealth Funds Start to Leak Oil", Financial Times, 22 March 2015.

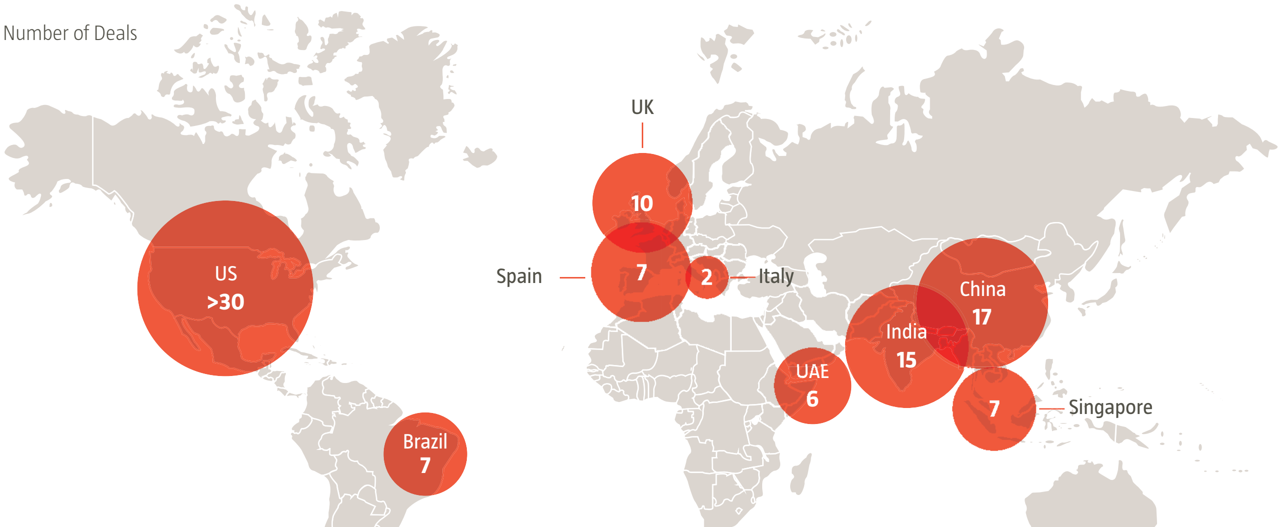
2 See "Russia's 'Anti-Crisis' National Wealth Fund: An Overview", The Moscow Times, 6 February 2015.

3 The RDIF's management company is a wholly-owned subsidiary of VEB, the Russian state development bank, whose activities were sanctioned.

4 "With New Funds China, Hits a Silk Road Stride", Caixin, 3 December 2014 accessed at http://english.caixin.com/2014-12-03/100758419.html

Chart 1

Deals of Sovereign Wealth Funds by country in 2014



Source: Fletcher SWF Transaction Database (2015).

Our deals analysis includes only direct deals in operating entities, joint venture or specialized fund structures, general investment partnerships, and real estate investment trusts and so is exclusive of exchange-intermediated transactions. By fund based on confirmed closes, Temasek emerges at the top, with 44. This includes both direct transactions and those completed through various of its affiliates, such as Vertex Ventures.[5] The pace of this investment appeared about twice that of Temasek's average deal count during the previous five years. Among the most active funds, Temasek was followed in the rankings by GIC with 23 investments (approximately its previous five year average), then Norway with 14, the Qatar Investment Authority (QIA) with 11, the Abu Dhabi Investment Authority (ADIA) and Kuwait Investment Authority (KIA) each with 9, then the China Investment Corporation (CIC), and Mubadala each with 8. While most funds appeared to investment, based on their capacity, in a manner consistent with their prior direct experience and annual averages, Norway's advance into real estate quickened considerably relative to its earlier investment pace, while CIC's pace of direct investing appears to have slowed. In the case CIC, this trend may be an indication of capacity or opportunity, rather that of liquidity constraints.

With regard to average deal size, based on confirmed deals for which a SWF share was reported, Mubadala, perhaps reflective of its structure and strong development orientation, leads with capital commitments that can average over $1billion (Table 1). As an exception, NSSF from China, was to some degree an outlier dominating by just one transaction (see Note 8 for some more clarification). By contrast, heavily investing in real estate, Norway's, average transaction size is approximately $400 million. Temasek, which leads by deal volume, does direct deals that average approximately $175 million, in rounds that frequently average over $200 million, while rounds in which venture capital subsidiary Vertex participates average much lower between $20 - 50 million.

By way of geographic segmentation (Chart 1) in 2014 over 30 SWF deals were closed in the US, followed by China (17), India (15), UK (10), Singapore and Brazil (7), and UAE (6). Temasek and GIC combined for over 20 out of the 34 investments made in US, which among which there was heavy representation in the digital and e-commerce sectors. Also heavily represented among SWF deals conducted in the US was Norway with 6 transactions all in the real estate sector. Temasek and GIC were likewise investors in over half of the investments made by SWFs in both China and India.

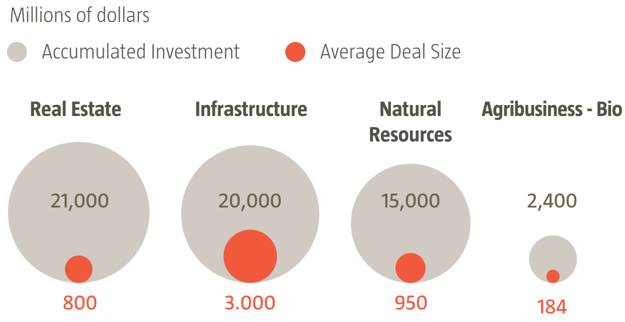
5 See our entry below on SWF participation in the digital economy for specific details concerning Temasek's investment strategy and portfolio building in that sector.

3. Direct investing by sovereign wealth funds in 2014: The worst of times, the best of times

In Europe, by contrast, SWF investment was dispersed across 21 deals, including real estate transactions in Germany, investments by both CIC and the Irish Strategic Fund in the China-Ireland Technology Growth Fund, 2 deals in Italy, including a JV between the KIA and the Fondo Strategico Italiano, 7 deals in Spain among them KIA's investment in Tyba, the Madrid-based on-line recruiting platform, and Temasek's participation on the sale of the custody division of Bank Santander. We also confirmed 7 deals in the UK, among them several real estate transactions, suggesting that London maintains its appeal as a property investment destination among SWFs. Finally, we reiterate that Russia, despite the sanctions regime, was also a destination for SWF flows into the RDIF.

Chart 2

Deals of Sovereign Wealth Funds by sector in 2014



Source: Fletcher SWF Transaction Database (2015).

With respect to destination, an interesting development to note in 2014 is the concerted flow of investment into Brazil. Here we identify 7 deals in rounds valued at nearly $2 billion undertaken among GIC, Temasek (via Vertex), ADIA, and Mubadala. The investments are across several discrete sectors and include e-commerce (Netshoes), infrastructure, insurance, and natural resources. The investment flows reflect the diversity of the Brazilian economy and the interest and commitment demonstrated by SWFs to it.

Deal partnering has been an oft-employed execution strategy among SWFs. We had previously documented a co-investment rate of nearly 50% among SWF transactions completed beginning in 2009. In 2014 interest in institutional co-investing became even more acute. Among key partnering initiatives is the establishment of the Co-Investment Roundtable of Sovereign and Pension Funds in September 2014.[6] CROSAPF is structured to exploit the long-term investment horizon of public financial investors to "share investment opportunities in an active manner and to pursue "concerted" co-investment as opposed to the passive "accidental" co-investment. The initiative notwithstanding with regard to 2014 deals, co-investment by SWFs nonetheless remained robust in 2014, reflected in 88 investments or about 65% of our total by count. Prominent among such partnerships is that between NMIB and TIAA-CREF, who have undertaken investments in real estate through joint venture structures.

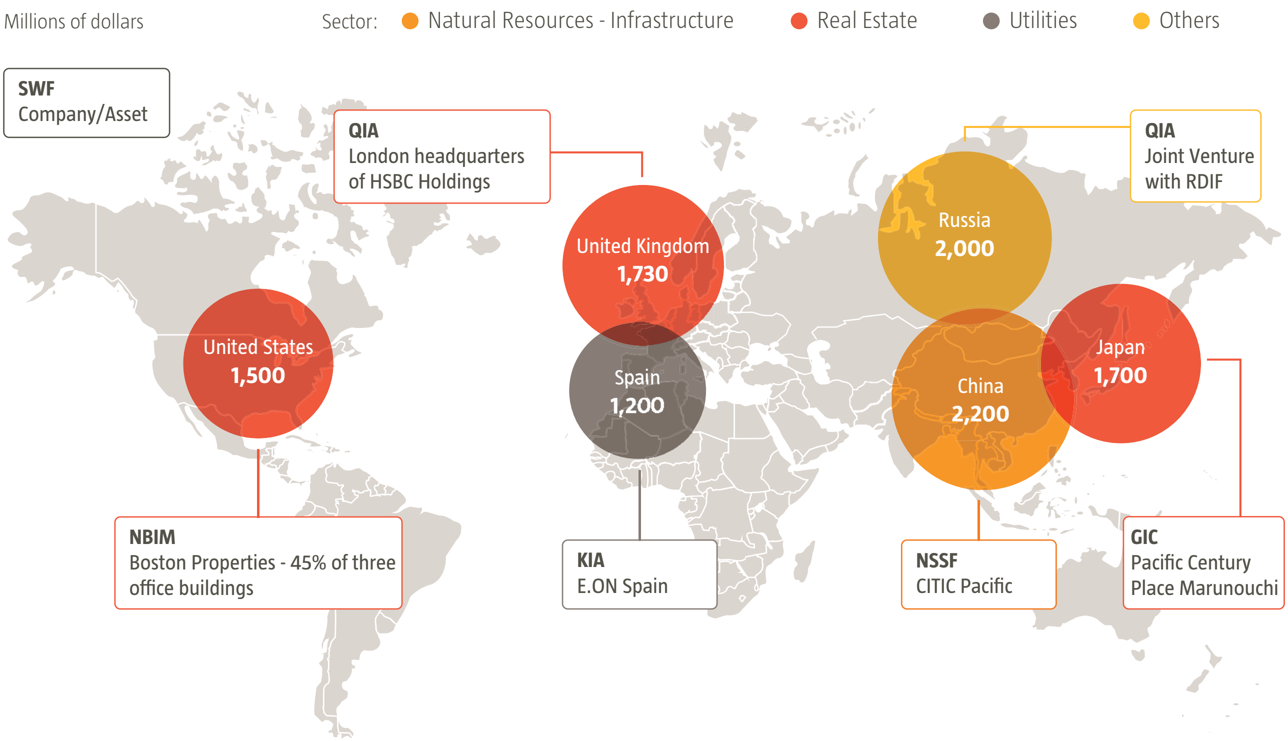
Turning to a sector analysis, real estate again was among the lead targets for SWF investment in 2014, numbering nearly 27 deals, with NBIM continuing to build out its allocation by itself completing 12 deals valued at nearly $5B. Investments in e-commerce and IT/Telecom combined to number 28 deals – 10 in the latter and 18 in the former. Elsewhere in this volume we present a detailed analysis of SWF investment in digital assets, including e-commerce. We suffice here to note that investment interest in the sector in 2014 represented a considerable increase from prior years and was dominated by both GIC and Temasek, the latter investing directly and through its venture capital subsidiary, Vertex. In natural resources and financial services, two sectors that typically garner sizable SWF flows, we identified 15 deals and 8 deals respectively. It is interesting to note among the latter that, despite - or perhaps due to - the decline oil prices, 7 deals were in the oil and gas sector. Among the financial sector transactions, 6 were direct investments in banks (not including the capitalizations of the 3 Russian banks by the NWF noted earlier) and 2 were in insurance companies. Finally, we identified 9 infrastructure transactions across a range of subsectors, including utilities, power generation, ports, and transport.

By deal size (Chart 2), real estate led with an aggregate deal value of slightly over $21 billion, followed closely by infrastructure ($20 billion), then natural resources ($15 billion). None of these is especially surprising in light of the capital commitments required in each sector. When measure by average deal size understandably infrastructure dominates at almost $3 billion per transaction, followed by utilities (here separated out from infrastructure) at $1.7 billion per deal. By contrast, average natural resource transactions average $950 million, real estate $800 million, while e-commerce, IT/Telecom, and bio range between $200-300 million. Agribusiness deals averaged considerably smaller at approximately $80 million.

[6] See http://www.ifswf.org/pst/6thamiwswf/crosapf.pdf

Chart 3

Largest Deals of Sovereign Wealth Funds in 2014



Source: Fletcher SWF Transaction Database (2015).

With final reference to sector we call out another interesting development, which emerged more robustly in 2014: Investment volume directed to each agribusiness and bio/life sciences. We identified 13 transactions across both sectors in 2014 at a combined deal value of nearly $2.4 billion. This represents about one third of the deals we confirmed in both sectors since 2011 and is a significant increase over 2013 (8 deals at $1.2 billion). Temasek dominated SWF investment in both sectors (7 transactions and total deal size of almost $1.5 billion) echoing its focus on secular trends to exploit shifting demographic and income dynamics.

Directionally, SWF investment again was primarily outbound with the vast majority of capital invested as outward foreign direct investment. We identified 16 transactions that constituted a domestic investment on the part of the investing fund, again excluding the NWF's three bank capitalizations. Excluding several deals by Vertex in Singapore, which we acknowledge as consistent with its mandate from Temasek to invest in early stage technology firms in Singapore, the majority of the balance of the deals appeared to represent investments in strategic transactions by the likes of Mubadala, Oman, the QIA, KIA, and the restructuring Irish fund.

Finally, we turn our focus to a review of several of the largest transactions of 2014 (Chart 3). We consider transactions both in terms of total deal size and also based upon the SWF share in any deal. The former provides a useful gauge of the overall deal size preference of individual funds, while the latter informs of the actual commitment of discrete investments. It is important to note as reference that the very process of data aggregation is challenged by the lack of disclosed deal size information. Thus, any exercise to estimate the dollar volume of SWF investments will necessarily exhibit an inherent and unintended selection bias. Accordingly we take care to report both total round size, as well as SWF

3. Direct investing by sovereign wealth funds in 2014: The worst of times, the best of times

participation, when available. Expected large deals tend to cluster in sectors that typically require scale. In 2014 these included a buyout funded in part by the China's NSSF, several infrastructure transactions, one of the several investments in the RDIF noted earlier, and, consistent with our sector analysis, three real estate transactions.

By deal size, we believe that the largest transaction in which a SWF participated in 2014 involved Queensland Motorway, centered on a toll-road network in Brisbane, Australia. The deal was for a reported \$6.6 billion through a consortium that was led by Transurban Group, who manage and develop urban toll road networks in the US and Australia. In addition to Transurban, the consortium included a local pension fund - Australian Super Pty - and the Abu Dhabi Investment Authority. ADIA's interest was reported at 12.5% implying a capital commitment of \$825 million.

Following on Queensland is a deal involving China's National Social Security Fund's[7] totaling \$5.1 billion that permitted CITIC Pacific Ltd to purchase \$36 billion in assets from its state-owned parent. China's NSSF is the largest investor, having agreed to buy HK\$16.8B (\$2.2 billion) of shares. Insurer AIA Group Ltd acquired \$300 million, while Qatar Holding and Singapore's Temasek Holdings invest \$200 million and \$100 million respectively.[8]

Third in our roster is the sale by German power utility E.ON of its Spanish assets to Australia's Macquarie Group and the KIA in a transaction valued at €2.5 billion (\$3.1 billion). As reported, the deal terms indicated that post-money Macquarie would hold 60% of the equity of the assets, while Wren House Infrastructure Management, a unit of the Kuwait Investment Authority, would hold the balance of 40%, implying a capital commitment of approximately \$1.24 billion.[9]

At \$2 billion Qatar's investment via joint venture with Russia's state-backed private equity fund RDIF also makes our list of large deals 2014. The \$10 billion RDIF, investing alongside foreign partners, had previously concluded partnerships with a number of SWFs - the Kuwait Investment Authority, and Abu Dhabi's Mubadala – as well as the Abu Dhabi Department of Finance.

In addition to participating in the CITIC Pacific and RDIF deals, Qatar Holdings also completed the purchase of the London headquarters of HSBC Holdings PLC, in a transaction that was the U.K.'s largest-ever real-estate deal. The investment gives Qatar a sizable presence in Canary Wharf office space. The acquisition - 8 Canada Square in the Canary Wharf business district – was London's largest office building at more than a million square feet. According to a statement from J.P. Morgan Asset Management, who advised on the deal, the counterparty was the National Pension Service of Korea. The sale price was reported to have been approximately GBP 1.1 billion or \$1.73 billion. This transaction was closely followed by a second large real estate deal – GIC Singapore's acquisition of Pacific Century Place Marunouchi, Tokyo. Deal value was a reported as \$ 1.7 billion. Finally, a third real estate transaction completes out our review of large deals 2014. This was the \$1.5 billion purchase by NBIM of three office buildings from Boston Properties. The deal represented a 45 percent stake in three buildings, including two in Boston.

7 For clarity, with respect to earlier reported average deal size by SWFs, given the magnitude of this deal and that in our view it represented outlier to the deal activity by NSSF, we elected to highlight it here rather than as it impacted the NSSF's average deal size.

8 See "Transurban Group Buys Queensland Motorways for A\$7.1 Billion", Bloomberg, 24 April 2014 accessed at http://www.bloomberg.com/news/articles/2014-04-23/transurban-led-group-buys-queensland-motorways-for-a-7-1-billion

9 See "Macquarie Group, Kuwait's Sovereign-Wealth Fund to Buy E.On's Spanish Assets", The Wall Street Journal, 27 November, 2014 access at http://www.wsj.com/articles/e-on-to-sell-spanish-assets-1417107498

I
Geographic Analysis

Sovereign wealth funds in Spain and Latin America: Spain's consolidation as an investment destination

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4. Sovereign wealth funds in Spain and Latin America: Spain's consolidation as an investment destination

Introduction

This past year Spain was once again in the sights of sovereign wealth funds. In 2011, whilst Spain was going through the worst point of the worst economic crisis since the democratic transition, sovereign wealth funds placed their bets on our country's companies. In that year, which had been preceded by two years of recession and was to be followed by another two of negative growth rates, International Petroleum Investment Corporation (IPIC) bought Total's shareholding and became the 100% owner of Cepsa. Now, the Norman Foster building, which dominates Madrid's Castellana, houses Cepsa's headquarters and has been renamed Cepsa Tower; IPIC also has a purchase option on this property –an icon of twenty-first century Madrid. This is an eloquent symbol of the growing presence of sovereign wealth funds in Spain's economy and companies.

Three years later, in 2014, sovereign wealth funds continue to bet on Spain. The world's largest sovereign wealth fund, Norway's Government Pension Fund Global (GPFG), with assets under management of nearly $900 billion, is one of the funds that best reflects this improved outlook for the Spanish economy. Its investment in Spanish government debt has changed pro-cyclically (a strategy that contrasts with that of other funds which do maintain long-term investment policies, as we shall see). Thus in 2012, the Norwegian fund reduced its exposure to Spanish government bonds by 70%, to €715 million. One year later, GPFG had investments of €3.35 billion, an increase of 369%. At the end of 2014, the upward trend was continuing, with an investment in Spanish sovereign debt of €5.13 billion, an increase of 53%. Spanish government bonds are the Norwegian fund's seventh most preferred investment (see Table 1). It should be remembered that in 2012, Spain was in 40th position, rising to 12th in 2013, and at the end of 2014 it already formed part of the exclusive top ten, ahead of Brazil, South Korea and the Netherlands, and only just behind Mexico.

The news however does not concern only sovereign investors at the top of the ranking tables. Other, smaller sovereign wealth funds have taken positions in Spanish companies in 2015 or have initiated new collaboration agreements that put Spain on their investment radar. For example, 2015 will be remembered as the year in which Spain matched other European countries and established a co-investment agreement with the State General Reserve Fund of Oman. This kind of agreement, as we shall see, has been employed for some years already in Italy, France, Ireland and Belgium. The setting up of this kind of agreement, which in the case of Spain was signed by COFIDES (Spain’s Development Finance Company, a public-private enterprise), represents a clear opportunity for establishing close and durable relationships with sovereign wealth funds. In 2012, the first report in this ESADE-KPMG-ICEX-Invest in Spain series already recommended the possibility of co-investing with these players in sectors where Spanish international cooperation could represent significant added value. Two years later, in 2014, we recommended the specific creation of bilateral funds, and in 2015, in line with the European trend we captured, this has come about in the form of this first fund of €200 million with the SGRF of the Sultanate of Oman.

Table 1

Exposure of the Norwegian fund GPFG to sovereign debt (Top 10)

Ranking	Country	Value (NOK)	Value (USD)
1	United States	422,199,852,096	56,311,708,771
2	Japan	186,044,385,997	24,814,024,047
3	Germany	84,020,597,296	11,206,407,066
4	United Kingdom	76,340,668,494	10,182,081,946
5	Italy	52,368,847,860	6,984,794,748
6	Mexico	47,306,873,893	6,309,644,336
7	Spain	46,730,783,514	6,232,807,186
8	Brazil	43,504,577,232	5,802,505,783
9	South Korea	41,106,995,075	5,482,723,700
10	The Netherlands	37,120,857,558	4,951,065,022

Source: The author, with data from Norges Bank Investment Management, NBIM (2015)

Apart from this, we should point out that after years of drought as far as Kuwaiti investment in Spain is concerned, in 2015 we have seen significant transactions in the Spanish energy sector, with acquisitions of assets in E.ON in Spain and Portugal (a co-investment transaction which we will analyse in detail) and Gas Natural Fenosa. Through various investment arms, Kuwait Investment Authority is once again taking equity positions in companies established in Spain. Furthermore, as we mentioned in last year's Report, its investment in Madrid start-up Tyba was also notable, and showed Kuwait's potential as a sophisticated investor.

Moreover, Spain is once again present in the countries receiving the largest investments in the real estate sector. Foreign investments and the incorporation of new SOCIMI (similar to real estate investment trusts, REITs) have marked the trend in a sector that is now recovering from the collapse that followed the bursting of the bubble. We analysed this trend and the Spanish real estate sector's relations with the sovereign wealth funds and other institutional investors.

Spain: Notable investments of 2014-2015

The main transactions since the last Report was published in 2014 have been concentrated in energy companies: E.ON decided to divest its assets in Spain and Portugal, which were acquired by a consortium formed by KIA (through its subsidiary Wren House International Management) and the Australian giant Macquarie. KIA also acquired through Wren House 25% of Global Power Generation, the subsidiary of Gas Natural Fenosa dedicated to international generation, for €485 million. Gingko Tree Investments, the European investment arm of China's SAFE (State Administration of Foreign Exchange), also took part together with a Canadian pension fund (PGGM) and France's EDF Invest in the purchase of Madrileña Red de Gas from Morgan Stanley, in a transaction valued at €1.25 billion, not counting the debt assumed by the new owners of Spain's third biggest distributor of natural gas[1]. Both investments in energy and distribution fit within the dual financial and strategic logic that we have dealt with on other occasions and which we shall develop presently. Mubadala established a joint venture with commodities trading house Trafigura which includes 50 per cent share in Trafigura's Minas de Aguas Teñidas (Matsa) valued at €447[2]. Moreover, Globalvia, the infrastructure concessionaire held 50-50 by Bankia and FCC, was targeted by Khazanah Nasional, Malaysia's sovereign wealth fund, for an estimated €420 million. Finally, the transaction was aborted when Globalvia's creditors exercised their preferential right to buy its shares and took over the company. Another noteworthy transaction was the entry of GIC of Singapore as a shareholder in GMP, a real estate investment company now converted into a SOCIMI (REIT), paying €200 million for a 30% stake in the private family-held group. Also of note was the investment by ADIA (Abu Dhabi Investment Authority) in airport operator AENA, in which it now holds a 1.3% stake valued at €120 million (See Table 2).

The energy (distribution), construction, infrastructure and real estate sectors have thus been sovereign wealth funds' main sectors of interest in the past few months. To these must be added the investments by Qatar in Colonial (and its French subsidiary Société Foncière Lyonnaise), by GIC in Applus+ and by Katara Hospitality (the Qatar Investment Authority's "hotel" arm) to acquire the Hotel InterContinental in Madrid (cases already explained in the 2014 Report).

Direct investments by sovereign wealth funds in Spanish companies since January 2014 total €4.6 billion. As sovereign wealth funds continue to extend their presence in Spain, new players arrive, old ones return, and in general Spain is consolidating its position as an attractive destination for global sovereign investment: Norway, the Middle East (Kuwait, Qatar, Oman, United Arab Emirates) and Asia (China, Singapore and Malaysia) have targeted Spain as an attractive investment destination in this period, and all the signs point to their continuing to do so in the medium term. This interest is explained by the economic recovery and the perception of both Spain and Spanish companies as being solvent. It is further reinforced by other factors, such as the euro/dollar exchange rate, instability in other regions of the world (North African tourist destinations affected by recent acts of terrorism) and other parts of Europe (the contrast with Greece may prevent populism in Spain exceeding present levels). All these considerations, together with the quest for profitability over and above current very low fixed interest rates, make Spain one of the most attractive countries in Europe for sovereign investment.

The logic of the active investor: Kuwait makes a comeback

Kuwait has started investing again in Spain, through Wren House Infrastructure Management (WHI). In December 2014 it invested together with the infrastructure fund Macquarie in E.ON, acquiring the German energy company's Spanish assets. The transaction, valued at €2.5 billion (including debt), has a very interesting strategic spin-off. KIA is thought to have contributed €1 billion to the transaction . The strategic co-investment dimension follows a similar logic to that of IPIC with Cepsa.

In April 2013 Macquarie, which manages $375 billion, closed the Macquarie European Infrastructure Fund 4 (MEIF4), following the success of its three previous European funds which involved the acquisition of airports in Brussels and Copenhagen, telecommunications infrastructure in the Czech Republic and water utilities such as Thames Water in the U.K.[3] With the support of WHI, the MEIF4 fund made a more attractive offer for E.ON's Spanish assets than that made by Gas Natural together with Morgan Stanley. As we showed in the 2014 and 2013 Reports, sovereign wealth funds are increasingly participating in consortia for co-investment in infrastructure. This ability of sovereign wealth funds to

[1] The official sources have not disclosed details of the transaction, but the data agree with what the Wall Street Journal says at http://www.wsj.com/articles/dutch-pension-manager-chinas-gingko-tree-near-deal-for-madrilena-red-de-gas-1429633638

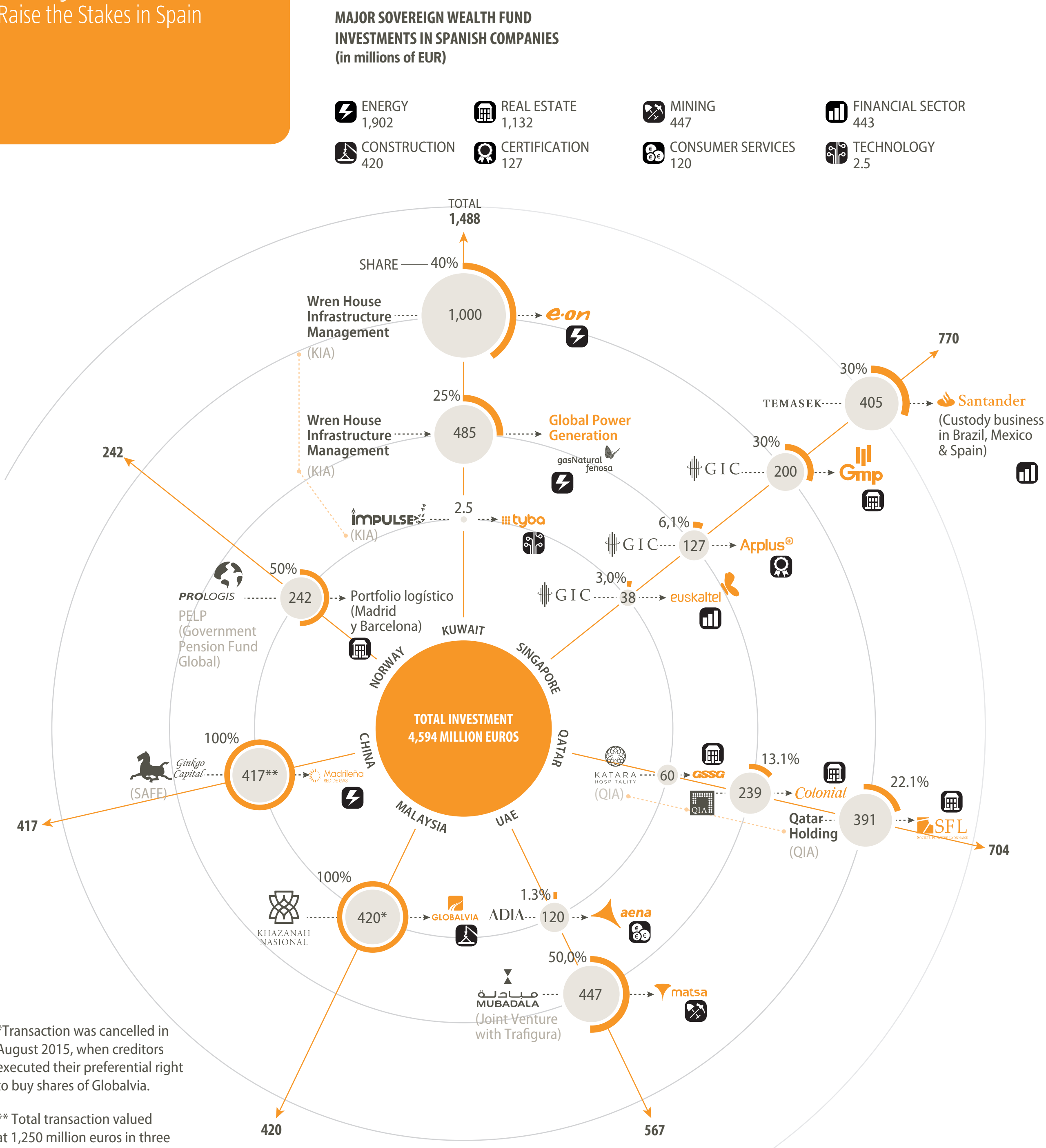
[2] Figures weren't disclosed, and Financial Times estimates in $500m http://www.ft.com/intl/cms/s/0/44ceaa74-1e37-11e5-aa5a-398b2169cf79.html#axzz3fxEC1Fwx whereas Expansion values it at €600m http://www.expansion.com/empresas/energia/2015/06/29/559121cdca4741bd708b4580.html

[3] Complete information at https://www.macquarie.co.uk/mgl/uk/meif/

4. Sovereign wealth funds in Spain and Latin America: Spain's consolidation as an investment destination

Infographic 2

Sovereign Wealth Funds Raise the Stakes in Spain



*Transaction was cancelled in August 2015, when creditors executed their preferential right to buy shares of Globalvia.

** Total transaction valued at 1,250 million euros in three strages; the figure thus represents a third of overall investment.

Source: Elaboration of the author with data from web sites, news reports and the European Commission. Transaction including other investors only display the Sovereign Fund's share.

Table 3

Sovereign wealth funds' main direct investments in infrastructure (2014-2015)

Asset	Country	Industry	Investor(s)	Volume ($M)	Stake (%)	Date
Queensland Motorways	Australia	Toll motorways	**Abu Dhabi Investment Authority,** AustralianSuper, Transurban Group	6,518	100	Apr-14
3B Power Plant	Malaysia	Nuclear power station	**1Malaysia Development Berhad,** Mitsui & Co - Innovation & Corporate Development Business Unit	3,230	100	Feb-14
E.ON Spain & E.ON Portugal	Spain & Portugal	Energy distribution	Macquarie (MIRA4), **Wren House Infrastructure (KIO-KIA)**	3,112	100	Dec-14
Madrileña Red de Gas	Spain	Energy distribution	PGGM, **Gingko Tree Investment (SAFE)** and EDF Invest	1,250	100	Apr-15
RetireAustralia	Australia	Old age homes	Infratil, **New Zealand Superannuation Fund**	544	100	Dec-14
Global Power Generation (Gas Natural Fenosa)	Spain	Energy	**Wren House Infrastructure Management (KIA)**	528	25	Mar-15
Neptune Stroika Holdings	Philippines	Healthcare/Hospitals	**GIC**	85	14	May-14

Source: In-house, with data from the funds' websites and Preqin (2015).

establish themselves as investment partners of more sophisticated managers has been made possible by the gradual recruitment of more talent to their governing bodies[4]. KIA is no exception: it established WHI in 2013 under the management of Hakim Drissi Kaitouni, who had previously been with BoA Merrill Lynch and has experience in mergers and acquisitions, renewable energy, utilities, airports and ports. A very different background to that of the somewhat amateurish teams that characterised KIO's investments in the 1980s.

Macquarie and WHI are already turning E.ON Spain around. They have started by going back to the (pre-E.ON) Viesgo trade name to launch the strategic plan of this electricity company, which formed the bulk of E.ON's assets in Spain. The plan envisages investments and acquisitions. Viesgo is currently Spain's fifth biggest electricity supplier, with 4,150 MW installed capacity between conventional and renewable energy. As well as Viesgo, Macquarie and WHI manage wind farms, combined cycle stations and coal-fired power stations[5]. It would not be surprising if, together with the specialist impetus of Macquarie, we were to see Viesgo grow significantly, entering markets for which governments hold the door keys, as is the case with countries in the Middle East.

In addition to this transaction, in March 2015 WHI acquired 25% of Global Power Generation (GPG), a subsidiary of Gas Natural Fenosa (GNF), this time carrying out the capital increase alone. The transaction, worth €485 million, enables GNF to underpin GPG's international expansion together with an expert partner, just a few months after the subsidiary's October 2014 incorporation. GPG, which was established to drive GNF's overseas power generating activities, holds GNF's power generating assets in Mexico, Costa Rica, Puerto Rico, the Dominican Republic, Panama, Kenya and Australia[6].

WHI is a good example of the process of increasing management sophistication that the funds are going through. This is coming about both through the recruitment of specialist teams, as we have mentioned, and through the learning process that comes from alliances with investors with expertise in specific sectors. In this regard, WHI forms part of the group of sovereign wealth funds that have co-invested together with specialist infrastructure funds in 2014 (see Table 3). In total, more than €15 billion was invested in seven co-investment projects (5) or solo investments (2). The "learning" rationale combines with risk sharing. The giant Abu Dhabi Investment Authority, in alliance with two local groups,

[4] See the recent article by Aguilera, R., Capapé, J. and Santiso, J. "Sovereign Wealth Funds: A Strategic Governance View" to be published by the magazine Academy of Management Perspectives. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2612813.

[5] See http://economia.elpais.com/economia/2015/06/10/actualidad/1433961444_880609.html

[6] More information from GNF's press release http://www.gasnaturalfenosa.com/es/sala+de+prensa/noticias/1285338473668/1297274826890/gas+natural+fenosa+y+kia+a+traves+de+wren+house+se+asocian+para+desarrollar+proyectos+de+generacion+internacional.html

acquired Queensland Motorways, a concessionaire whose toll-roads carry 81 million vehicles a year. This transaction fits well within the "learning" strategy, which involves taking equity stakes alongside local experts and avoiding direct control of assets involving operational complexity.

The transactions of New Zealand's NZSF and Singapore's GIC have a strategic component that is characteristic of sovereign wealth funds: investments in sectors with long-term "guaranteed" returns. We refer to two investments based on two unstoppable demographic trends: the aging populations of Australia and New Zealand, and the rise of the middle class in the Philippines. NZSF acquired the fourth biggest operator of old age homes in the region, and GIC took a significant equity stake in the Philippines' most exclusive hospital operator. NZSF's investment was made against the background of population projections for Australia and New Zealand according to which between 25% and 30% of the population will be over 65 years old by 2040, when the baby-boomers will be 80-85 years old, which can be expected to lead to increased demand for this kind of service and care. For these reasons it made sense to acquire RetireAustralia. GIC followed a similar rationale: The Philippines has one of the world's fastest growing economies. GDP per capita is expected to double in the next ten years; a more affluent population tends to demand a better healthcare system. This explains why GIC has taken a 25% stake in the leading private hospital operator, which caters mainly to the emerging Philippine middle classes. In both cases, the sovereign wealth funds' patient capital sown today may yield abundant harvests in the medium and long term. Furthermore, developing alliances with local investors enables them to obtain specific know-how, fertilising these investments so that future harvests and profitability are increased. Indeed, the growing financial sector in Latin America, explains why Temasek participated along with Warburg Pincus in the acquisition of Santander's global custody business. The deal, subject to legal and regulatory approvals, enables the Singaporean investor to access key markets in Spain but especially priority access to Brazil and Mexico, where Temasek has already established international offices (Mexico DF and Sao Paulo). These investment strategies form part of the new long-term capitalism of which sovereign wealth funds, pension funds included, are obvious exponents.

Khazanah: new players in Spain.

Khazanah Nasional Berhad is a Malaysian fund established in 1993. It manages $41.6 billion and calls itself the "strategic investment fund of the Government of Malaysia". Khazanah devotes itself to nurturing and driving various strategic industries in Malaysia with a view to building an economically stronger nation, as well as undertaking investments beyond its borders. It is currently invested in more than 50 companies, some of which are veritable national champions. Additionally, as in the case of Temasek, Khazanah acts as the holding company for government-linked companies; its challenge in this role being to maximise the value of its holdings, in many cases with a view to subsequent disposal. Leading regional companies such as Axiata (telecommunications), UEM (infrastructure and construction), IHH Healthcare (one of the world's biggest private healthcare providers by market capitalisation) and CIMB (a universal bank), are some of the major companies in which Khazanah has a shareholding (major in the case of Axiata, IHH and CIMB, sole in that of UEM).

Khazanah was about to acquire Globalvia, the international infrastructure concessionaire owned 50/50 by Bankia and FCC. Globalvia was established in 2007 and has motorways abroad (19 tollways in 7 countries), eight rail concessions, two hospitals and two ports. Khazanah expected to pay a total of €420 million for Globalvia, allowing Bankia and FCC to continue with the divestment plan they have established. For Bankia, the transaction allows it to continue the divestment of industrial holdings to which it was committed as part of the bank bailout; for the construction company, the deal enables it to complete the adjustment plan started in January 2014 which has put FCC back in the black[7]. The transaction is still in doubt because Globalvia's creditors (Dutch, Canadian and UK pension funds, owed €750 million) have an option exercisable in 2017 to convert the debt into shares, which would dilute the Malaysian holding[8]. The outcome of negotiations on this point determined the failure of the transaction[9].

If this transaction had take place, Khazanah had been added to the list of sovereign wealth funds with a presence in Spain. Malaysia's arrival in Spain is hardly surprising. Beyond the "Visit Malaysia" emblazoned on Sevilla footballers' shirts to the tune of €2 million a year[10], the 2013 Report pointed to the possibility of extending the hospital business of Khazanah's subsidiary IHH, (already present in Turkey) to Spain. In fact it would not be surprising if the transaction started with Globalvia (which as well as operating motorways also has two hospitals) were to lead to future acquisitions in the Spanish hospital sector the Malaysian fund, which has experience in this field.

[7] With information from Europa Press, 13 May 2015 at http://www.europapress.es/economia/noticia-fcc-bankia-preven-cerrar-venta-globalvia-mes-20150513142931.html

[9] With data from Expansión, 1 July 2015, which talks of the transaction's being closed at €420 million, http://www.expansion.com/empresas/inmobiliario/2015/07/01/5593919822601de2188b456d.html

[10] See the chapter dedicated to football in this Report.

Table 4

Government Pension Fund Global: top ten investments in Spanish listed companies

Name	Sub-Industry	Value (€ millions)	% Voting rights	% Share capital
Banco Santander SA	Banks	1,477.60	1.68	1.68
Telefónica SA	Telecommunications	960.68	1.74	1.74
Iberdrola SA	Electricity and Gas	874.29	2.45	2.45
Banco Bilbao Vizcaya Argentaria SA	Banks	671.00	1.39	1.39
Inditex SA	Textiles, Clothing and Footwear	665.67	0.90	0.90
Ferrovial SA	Construction	259.91	2.17	2.17
Repsol SA	Petroleum	208.72	1.00	1.00
Banco de Sabadell SA	Banks	200.27	2.26	2.26
Amadeus IT Holding SA	Electronics and Software	196.21	1.33	1.33
Gas Natural SDG SA	Electricity and Gas	182.29	0.88	0.88

Source: in-house, with data from Norges Bank Investment Manager as at 31 December 2014 (nbim.com)

The Norwegian fund: greater presence, increasing demands

At the end of 2014, GPFG, Norway's sovereign wealth fund and the world's biggest, with nearly $900 billion under management and stakes in 9,134 companies around the world, had investments in Spanish listed companies valued at €8,569 million. The companies with the biggest investments from the fund, which is managed by Norges Bank Investment Management, the asset management arm of the Norwegian central bank, are Santander, Telefónica, Iberdrola, BBVA and Inditex (Table 4).

Last year[11] we looked at the role that sovereign wealth funds can play in improving the governance of the companies in which it invests. Given the size of the transactions involved, they quite often take significant and indeed decisive positions in companies. For years, the funds elected not to take part in the management of the companies, adopting a passive shareholder stance.

However, starting with the GPFG, this trend is changing. One symptom of this change is the strategy recently deployed by GPFG of announcing in advance how it intends to vote on the agenda items of the AGM. GPGF, which has had an Ethics Committee since 2004, has decided to act in this way with companies in which it has a considerable ($1 billion) investment, and with other companies on (basically ESG) matters that it considers important. By means of this strategy of announcing its voting intentions in advance, it aims to persuade other institutional investors to join forces in voting at AGMs. On 15 April, 2015, given the weight of its shareholdings in oil companies Royal Dutch Shell ($4.33 billion) and BP ($2.5 billion), GPFG announced its intention of voting on matters relating to the environmental impact reports; in the case of US electrical power company AES Corporation the intention to vote concerned a matter of governance: the inclusion of an internal company regulation allowing shareholders to nominate candidates for seats on the board of directors in addition to those proposed by the board.

In the case of Spain, the Norwegian fund's Ethics Committee has not determined the need to announce its voting intention in advance in any case. Nor has any Spanish company been excluded from GPFG's investment universe. However, the effects of its "active shareholder" strategy can be clearly seen in the voting at Spanish companies' AGMs. It has voted in the AGMs of 70 Spanish listed companies (and in 10,500 shareholders' meetings worldwide in 2014 alone). In accordance with its principles as a responsible investor, GPFG voted against numerous proposed resolutions on the re-election, change or appointment of directors. For example, among IBEX 35 companies it voted against the re-election of chairmen and CEOs; it also voted against the reappointment of auditors and opposed en bloc the re-election of entire boards in specific. However, by no means all its interventions are confrontational, as demonstrated by its full support for the management teams of other firms included in IBEX 35.

[11] See Capapé and Guerrero, "Equity investments of Norway's GPFG: a European sovereign wealth fund for Europe" in the 2014 ESADEgeo-KPMG-ICEX Report, available at http://itemsweb.esade.edu/wi/Prensa/SWF2014_ENG.pdf

4. Sovereign wealth funds in Spain and Latin America: Spain's consolidation as an investment destination

It remains to be seen whether other sovereign wealth funds will gradually join this new wave of responsible investment. Perhaps, for other funds that are less sophisticated and have fewer capabilities in terms of human resources or internal organisation (ethics committee, regulations, procedures, producing reports backing up every decision, etc.), the easiest course will be to follow the leader. If a herd instinct were to take over among "responsible" institutional investors as regards certain ESG matters, it might strengthen principles and standards, but it might also lead to turbulence in listed or private companies that could increase market volatility. Pre-announcement policies such as that adopted by GPFG through its manager Norges Bank Investment Management, and a declaration of "good will" as included in the IFSWF's Santiago Principles, may soften any adverse side effects of well-intentioned actions by responsible investors and thus reduce the risk of political aims going beyond ESG standards.

Sovereign wealth funds and technology

For countries dependent on natural resources, transforming the production basis is a common challenge. In many countries, sovereign wealth funds have been put in charge of channelling governments' investments into developing new manufacturing sectors, attracting technology and talent and developing projects with greater added value. One of the areas on which the United Arab Emirates have placed most emphasis is the renewable energy sector. This is demonstrated by the founding of Masdar, a designer city created by Foster + Partners, the practice set up by Norman Foster, winner of the Pritzker Architecture Prize. Masdar, surrounded by desert, is powered exclusively by renewable energy and houses innovation and development centres, numerous laboratories and clean energy start-ups. Masdar comes under the umbrella of Mubadala, a public investment and development company of the government of Abu Dhabi which is difficult to classify in view of the high degree of operational involvement in its investees. As part of the effort to attract the best technology in the world, Masdar establishes agreements with some of the world's most innovative companies in the field of clean energy. In this context, it has established a joint venture with the Spanish engineering company Sener, called Torresol Energy, which has three concentrated solar energy plants. In 2008 it signed a collaboration agreement with Indra, with a view to developing joint projects. As a continuation of this link between engineering and the Emirate, in January 2015, Masdar Institute and Spain's Abengoa signed a research agreement. The purpose of this research project is to improve the yield and productivity of desalination plants, and to reduce the volume of discharge generated, improving the environmental sustainability of the process[12].

[12] For further details, see Abengoa's website http://www.abengoa.es/web/es/noticias_y_publicaciones/noticias/historico/2015/01_enero/abg_20150127.html

The real estate sector continues to arouse the interest of sovereign wealth funds

It is hardly news for anyone that in the past two years Spain's real estate sector has become one of the preferred destinations for international investment funds. Having come through a period of withdrawal, driven by both internal and external demand, they are now bolstering the sector's recovery.

In Spain, three SOCIMIs (real estate investment companies) are already listed in the stock exchange: LAR Spain, Merlin Properties and Axiare Patrimonio[13]. A further five[14] are listed on the MAB Alternative Market. Created in 2009, and revised in 2012, the SOCIMI (similar to a REIT) has constituted a key mechanism for facilitating investment in properties and logistics, both for the major Spanish family offices and as an entry point for international investors. The market accelerates every time a high profile investor enters a SOCIMI, and with specialisation. Blackstone has set up Fidere, listed on the MAB; Merlin Properties has acquired Testa from Sacyr for €1,793 million.[15] The merger of Testa and Merlin creates a giant, with assets valued at around €5.5 billion and a market capitalisation of some €4.4 billion. Hispania Activos Inmobiliarios was set up not as a SOCIMI but as a property company, although it is envisaged that it will convert to a SOCIMI in the future. International investors have entered Hispania through their usual investment vehicles; such is the case of George Soros, who injected €92 million, and John Paulson, whose holding is estimated at €124 million. Hispania in turn offered to buy Realia, which is 25% held by Mexican magnate Carlos Slim, who recently responded with a counterbid for 62% of Realia. Carlos Slim is in fourth place on the daily list of billionaires published by Bloomberg, George Soros is in 24th and John Paulson in 113th place.

In the logistics segment alone, 2014 was a record year for property investment in Spain, with investment transactions valued at €620 million and more than 690,000 m2 of floor space contracted in Madrid and Barcelona. The sector has revived thanks to SOCIMIs (REITs) such as Merlin and Axiare and major international funds such as Blackstone and TPG and their respective Logicor and Almindus platforms."[16] In this regard, Prologis European Logistics Partners (PELP), a 50-50 joint venture between Prologis and Norges Bank Investment Management (NBIM) acquired 150,000 m^2 logistics facilities in Madrid and Barcelona to SABA Parques Logísticos. Deal was valued at €240 million.

[13] See the listing on BME (Bolsa y Mercados Españoles): http://www.bmerv.es/esp/aspx/Empresas/Empresas.aspx

[14] See the list at https://www.bolsasymercados.es/mab/esp/SOCIMI/Listado.aspx

[15] See news item in Expansión, 9 June 2015 http://www.expansion.com/empresas/inmobiliario/2015/06/09/55767e7322601d03338b456a.html

[16] Information from the magazine Metros2, the leading sector publication.

The renewed interest in the property market has also attracted sovereign wealth funds. Thus in addition to the significant investments of Qatar in Colonial and its French subsidiary, other players have returned to Spanish real estate. In October 2014 Singapore's GIC acquired a shareholding in GMP, the property holding company specialising in offices and industrial estates in Madrid and Barcelona, paying €200 million for a 30% stake. GIC had already made forays into the Spanish office market in the past; in 2000 it bought the headquarters of the multinational IBM, selling it six years later to Morgan Stanley for €220 million[17].

In addition to Singapore, Qatar too has been present in Spanish real estate, through Katara Hospitality. In June 2014 Katara Hospitality bought five InterContinental hotels in five European cities including Madrid (the others being Cannes, Amsterdam, Frankfurt and Rome). In the case of Spain, it is estimated that the hotel subsidiary of QIA (the former Qatar National Hotels) which already has 30 hotels, would have paid €60 million for the Madrid hotel to its former owner Ghanim Bin Saad & Sons Group Holdings (GSSG), also from Qatar.

Sovereign co-investment funds. The case of Spain

In Europe there have been several examples of public co-investment instruments capable of attracting the capital of the sovereign wealth funds. Italy, France, Ireland and Russia have all set up investment instruments capable of attracting cash from the major sovereign investors. The main idea consists in creating a public investment vehicle (a sovereign wealth fund in itself, or a sovereign co-investment fund for want of a better name) with the mandate of establishing joint investment funds together with other sovereign wealth funds. The mandates of these sovereign co-investment funds vary depending on the purpose to be achieved.

In February 2014, France established CDC International Capital (CDCIC), wholly owned by the Caisse des Dépôts Group, dedicated to negotiating investment agreements with sovereign wealth funds and other institutional investors to support the internationalisation of French companies. It already has agreements with Qatar Holding, Mubadala and the Russian Direct Investment Fund (RDIF)[18].

Ireland, following the bailout of its banks, redesigned the former National Pensions Reserve Fund and created the Ireland Strategic Investment Fund (ISIF). This represents a change from the strategy of generational saving to fund future pensions towards a strategy of domestic investment to strengthen manufacturing and employment. Within this framework, the ISIF signed an agreement in 2014 with China Investment Corporation (CIC) to create a €100 million fund to invest in technological companies. An additional purpose of the agreement is to help Ireland's technology companies sell to China, and conversely to make Ireland the point of entry for Chinese technology companies to Europe[19].

As shown in the 2014 Sovereign Wealth Funds Report, Italy too, through the Fondo Strategico Italiano (FSI), has formed a joint venture in Qatar and set up an investment company with the Kuwait Investment Authority. In the case of Italy, the purpose of the joint venture with Qatar Holding is to internationalise the companies that best reflect the "Made in Italy" concept in sectors such as food, luxury goods, design, tourism, etc. In the case of the joint venture with KIA, which is 77% held by FSI, it envisages investments in the same range as the FSI, excluding any investment in the gaming industry or alcoholic drinks. FSI has also signed investment agreements with KIC, CIC and RDIF (commitments which may reach €1 billion each)[20].

Spain has followed the same path as its European partners, and in April 2015 COFIDES and the State General Reserve Fund (SGRF) of Oman signed an agreement creating an investment fund for the internationalisation of Spanish companies. Oman, which is interested in having Spanish multinationals establish a presence in the country, will contribute €100 million, which will be matched by the Spanish state to form a fund of €200 million. The fund, which involves the creation of an asset management company, will be available to subsidiaries of Spanish companies with plans for international projection and intending to set up in Oman. As well as Oman, the agreement has a much wider geographical reach, including GCC member states and countries in East Africa, South Asia and Southeast Asia. Oman's objective, like that of most of the Gulf states, is to position itself as a linking platform between Europe and Asia (as well as East Africa). Oman is seeking to benefit from Spanish companies' experience in technology, as well as job creation, technology transfer and profitable investments. Among the sectors of interest are construction materials, infrastructure (in a country where much infrastructure remains to be developed),

[17] See Financial Times, http://www.ft.com/cms/s/2/73468dec-8c31-11da-9efb-0000779e2340.html#axzz3eRxWxO5T

[18] More information and details of investor networks at http://www.cdcicapital.fr/en/

[19] More information at https://www.dfa.ie/news-and-media/press-releases/press-release-archive/2014/january/china-investment-fund/

[20] More information on the FSI's website http://www.fondostrategico.it/en/joint-venture/joint-venture.html

4. Sovereign wealth funds in Spain and Latin America: Spain's consolidation as an investment destination

agrifood (of key importance to a country with a more benign climate than its competitors to the north), energy (seeking efficiency improvements and diversification, given the dependence of government revenues on oil, which currently accounts for 77%) and tourism (which is less developed than that of its regional competitors, Qatar and Dubai.)

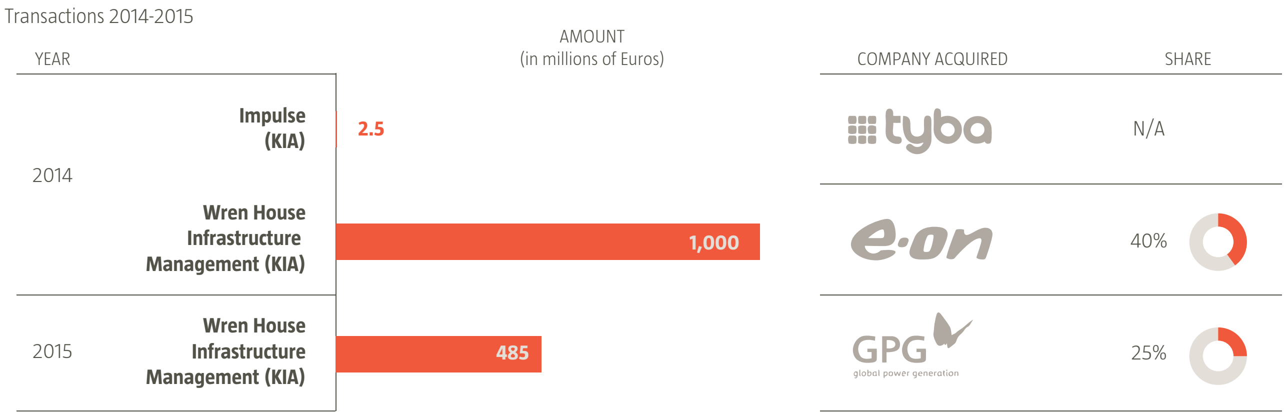
In addition to Oman, talks are ongoing with a view to establishing similar agreements with Kuwait and Qatar. In the not too distant future, COFIDES can be expected to create a unit similar to France's CDCIC to serve as a reference for the outside world and facilitate new agreements. In this way a Spanish sovereign co-investment fund could obtain advantages of visibility, efficiency, control, impact and profitability. So a new strategic task starts for this public-private entity. (COFIDES is 54% state owned, through ICEX, ICO and ENISA, and 46% owned by the private sector in the shape of four banks: BBVA, Santander, Banco Popular and Sabadell, in descending order of contribution to the capital). The potential benefit for Spanish companies abroad is significant and clear: financing and the opening of new markets; in parallel, the relations generated by this kind of agreement between countries can serve as a basis for establishing long-term relationships between Spain and some of the world's most important funds.

Latin America: Two speeds, both slow

Latin American economies have been going through a difficult time recently. Specifically, the eight countries of the region that have sovereign wealth funds averaged growth of around 1.8% in 2014, although there were clear disparities among them. For example Venezuela, with a fall in GDP estimated by the International Monetary Fund at 4%, contrasts with the 6.2% growth posted by Panama. In general, and as more and more analysts are confirming, Latin America is rather a set of Latin Americas, and currently we may think in terms of two well differentiated groups. The Pacific Alliance, comprising Mexico, Colombia, Peru and Chile, posted average growth of 2.5% in 2014 , whereas the Atlantic countries such as Brazil (0.2%) and Venezuela (-4%) show a more worrying trend. More so in Venezuela than in Brazil, which is going through the low point of an economic cycle which may turn into structural in a country with a well educated population, stable healthcare and legal systems, and a strong financial market.

The region grew at a faster rate than the ASEAN-5 (Malaysia, Indonesia, the Philippines, Thailand and Vietnam) in 2011, dodging the worst of the world economic crisis. In fact the region grew at more than the average world rate until 2012. However, by 2014

Chart 1
The Kuwait Investment Authority (KIA) returns to Spain



Source: Author's elaboration.

Table 5

Exports of commodities by Latin American and Caribbean countries with sovereign wealth funds

	Exports of commodities (% GDP)	Three main exports (% total)	Concentration of destination markets (China)*	Main destination	Main export	Price of main commodity, (Change 2012-2015, %)
Trinidad and Tobago	37	90	82 (0)	United States	Natural Gas	-32.89%
Chile	24.7	68	79 (30)	China	Copper	-20.92%
Venezuela	20.2	94	88 (17)	United States	Petroleum	-40.53%
Panama	19.2	49	79 (0)	Ecuador	Petroleum	-40.53%
Peru	18.6	53	75 (20)	China	Gold and Copper	-37.90% -20.92%
Colombia	13.2	78	80 (8)	United States	Petroleum	-40.53%
Mexico	7.7	61	91 (4)	United States	Petroleum	-40.53%
Brazil	6.8	45	69 (29)	China	Iron ore	-53.13%

Source: In-house, with data from "State of Commodity Dependence" UNCTAD (2014), IMF Primary Commodity Prices (2015). *Percentage of total exports represented by the five main markets (and China).

Latin America and the Caribbean were already growing at below the European Union average, and showing signs of fatigue (see Graph 1) due to flagging international demand, particularly the slowdown in Chinese demand for raw materials, the end of expansive monetary policies in the United States, which brought with it a significant depreciation of currencies throughout the region, and the end of the commodity price super-cycle, which was exacerbated by the fall in the price of oil. The IMF does not foresee a recovery in the region until 2016, when it should return to growth, albeit at an inadequate rate (2%).

Movements in commodity prices have affected the countries in the region that have sovereign wealth funds very substantially. The Latin American countries that have sovereign wealth funds do not at all have the same degree of dependence on commodities (Table 5). Brazil, México and Colombia are countries whose exports of commodities represent less than 15% of GDP. At the other extreme, commodity exports of Trinidad and Tobago, Chile and Venezuela represent more than 20% of GDP (as much as 37% in the case of Trinidad and Tobago). An analysis of the concentration of exports shows that Venezuela and Trinidad and Tobago continue to be very heavily (more than 90%) dependent on oil and natural gas respectively. In contrast, Brazil, Panama and Mexico have a more balanced diversification of commodity exports, with concentrations of around 50%.

This variety contrasts with the fall across the board in the majority of commodity prices since 2012. Headed by iron ore (Brazil's main export commodity) prices of which fell by more than 50% from 2012 to June 2015; other commodities such as oil, gold and natural gas have suffered very significant falls, in excess of 40%, 37% and 32% respectively. If we combine these falls in price with the slowdown in demand from China, which is the main commodities export destination for Chile, Peru and Brazil, the end of the commodities super-cycle for Latin America is only too clear.

Latin American sovereign wealth funds

Latin American sovereign wealth funds have suffered from these ups and downs in the global economy. All in all, the region's eight sovereign wealth funds had $50.8 billion in AUM at the end of 2014, down by $1 billion relative to 2013. The funds that have suffered most are Chile's FEES (*Fondo de Estabilización Económica y Social* or "Economic and Social Stabilisation Fund"), the recently created Mexican fund, and Brazil's *Fundo Soberano do Brasil*. We discount the evolution of the Venezuelan fund, whose assets have fallen by more than 60% in the past year, the country being mired in a serious economic and social crisis (see Table 6).

4. Sovereign wealth funds in Spain and Latin America: Spain's consolidation as an investment destination

Table 6

Latin American and Caribbean sovereign wealth funds

ESADEgeo ranking	Fund	2014 ($bn)	2013 ($bn)	Change % (14/13)	Country	Established	Source of resources
35	Fondo de Estabilidad Económica y Social	14.60	15.42	-5.32%	Chile	2007	Copper
40	Fondo de Estabilización Fiscal	9.16	8.60	5.81%	Peru	2011	Fiscal
41	Fondo de Reserva de Pensiones	7.94	7.40	6.76%	Chile	2006	Copper
46	Fundo Soberano do Brasil	6.85	7.10	-3.43%	Brazil	2008	Fiscal
47	Fondo Mexicano del Petróleo para la estabilización y el desarrollo	5.70	6.00	-5.00%	Mexico	2015	Petroleum
49	Heritage and Stabilization Fund	5.60	4.70	19.15%	Trinidad and Tobago	2000	Petroleum
59	Fondo de Ahorro de Panamá	1.40	1.30	7.69%	Panama	2011	Royalties
67	Fondo para la Estabilización Macroeconómica	0.70	1.80	-61.11%	Venezuela	1998	Petroleum
n/a	Colombia Sovereign Wealth Fund	n/a	n/a		Colombia	2011	Petroleum
	TOTAL	50.8	51.8	-1.97%			

Source: In-house, with data from the funds' websites and ESADEgeo (2015)

Chile's FEES is the region's biggest sovereign wealth fund. With $14.6 billion under management, it exemplifies the way stabilisation funds work: offsetting the deficits resulting from reduced tax revenues, in the case of Chile coming mainly from copper, as well as amortising public debt.

The FEES has not received contributions since the second quarter of 2013 (these contributions to the fund's capital are governed by a "fiscal rule" allowing the Fund's assets to be increased in certain circumstances). On the other hand there have been "withdrawals" in the amount of $500 million (in the second quarter of 2014), transferred to the FRP (*Fondo de Reserva de Pensiones* or Pension Reserve Fund, Chile's other sovereign wealth fund).

The FEES' exposure to liquid instruments and fixed income has not helped to mitigate the lack of contributions: since the third quarter of 2014, the FEES has experienced cumulative losses of capital of more than $1.15 billion. The return on investments in the money market and sovereign bonds in the past 12 months is a negative 5.7%, in stark contrast with the positive profitability of its equity portfolio (5.78%). However, the FEES maintains a conservative investment policy and invests only 8.1% of its portfolio in equities. The main positions are Apple, Exxon and Microsoft, with $23 million, $11 million and $10 million respectively[21].

[21] See Report for 2015 (I), available at http://www.dipres.gob.cl/594/articles-133152_doc_pdf.pdf

In the case of the FRP, which is intended to finance future pension contingencies, the portfolio does not include bank deposits, and its exposure to sovereign bonds represents 46.9%, compared with the 66.8% of the FEES. Furthermore, the FRP invests 15.8% of its assets in equities, with returns similar to those of the FEES, and with the very same companies heading the equity positions. The profitability of the portfolio however has fallen by nearly 1.81% in dollar terms[22]. Only the contribution received from the FEES explains the FRP's growth in assets (6.8%).

Peru's FEF, in contrast, has seen its assets increase by nearly 6% over the past year, reaching $9.1 billion. Established in 2000 with just $100 million, it has multiplied the value of the fund by nearly 100 in the past fifteen years, following a clear fiscal rule. An example of "austerity" in the region, which has not escaped criticism. Peru has increased the volume of its assets, but the profitability of its investments is only around 0.2%, insufficient for an economy with a clear need for investment in infrastructure, innovation and education[23]. Just as Chile started to show some years ago, flexibility in the investment strategy could drive profitability.

[22] See Report for 2015 (I), available at http://www.hacienda.cl/fondos-soberanos/fondo-de-reserva-de-pensiones/informes-trimestrales/informe-enero-marzo-2015.html

[23] Information on the profitability of the fund in Gestión, 16 April 2015: http://gestion.pe/opinion/desaceleracion-y-fef-contrasentido-juan-jose-marthans-2129193

Peru could establish a co-investment fund to facilitate the arrival of private and public capital funds (pension funds or sovereign wealth funds) with the spotlight on innovation and infrastructure. A more flexible rule that included domestic investment in other kinds of assets could help close the investment gap faced by the country, but should be accompanied by a process of transparency and governance. The FEF (*Fondo de Estabilización Fiscal* or "Fiscal Stabilisation Fund") has very limited transparency. The only official information available shows the annual simplified balance sheet, but gives no information on the fund's corporate governance, investment policy, geographical distribution or objectives[24].

For its part, the *Fundo Soberano do Brasil* lost 3.43% of its value relative to 2013, ending 2014 below $7 billion. With considerably more transparency than Peru's FEF, the FSB publishes quarterly progress reports[26]. Thanks to this transparency it is possible to assess the serious impact of the depreciation of the real against the dollar on the value of the FSB's assets. The FSB's Advisory Board continues with the decision to invest only in domestic assets denominated in reais, although there is no legal prohibition on investing abroad (the so-called *"carteira efetiva internacional"* or foreign equity portfolio)[26]. This policy of domestic investment leads to the entire portfolio being held in assets denominated in Brazilian reais. Thus in the past twelve months the FSB in local currency has increased the value of its assets by 10.23%, from 16,678 million reais to 18,384 million, showing a substantial improvement in the fixed income portfolio compared with the equities portfolio (consisting mainly of shares in Banco do Brasil, which fell by 2.6%). However, in the same period, the real depreciated by 14.1% against the dollar. The net result is a loss in the FSB's value in dollar terms of nearly 3.5%. The exchange risk to which the FSB is exposed is not seen in the case of Chile or Peru, whose assets are mainly denominated in dollars.

[24] The latest information available at: http://www.mef.gob.pe/contenidos/tesoro_pub/fef/FEF2014.pdf

[25] Available in Portuguese at http://www.tesouro.fazenda.gov.br/relatorios-de-monitoramento

[26] International investment is a basic criterion for determining whether a state-owned fund is a sovereign wealth fund. The work by Capapé and Guerrero (2014) on the definition of "sovereign wealth fund" can be consulted at: http://fletcher.tufts.edu/SovereigNet/Research/More-Layers-Than-an-Onion

Sovereign wealth funds from Muslim countries: Driving the Halal industry and Islamic finance

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Former IMF Under-Secretary for sovereign wealth funds

5. Sovereign wealth funds from Muslim countries: Driving the Halal industry and Islamic finance

If we match demographic projections by religion with the economies showing the highest growth rates and with an emerging middle class, we find that present and future economic growth, and consequently the most attractive business opportunities, are concentrated in the short, medium and long term in countries with Muslim majorities.

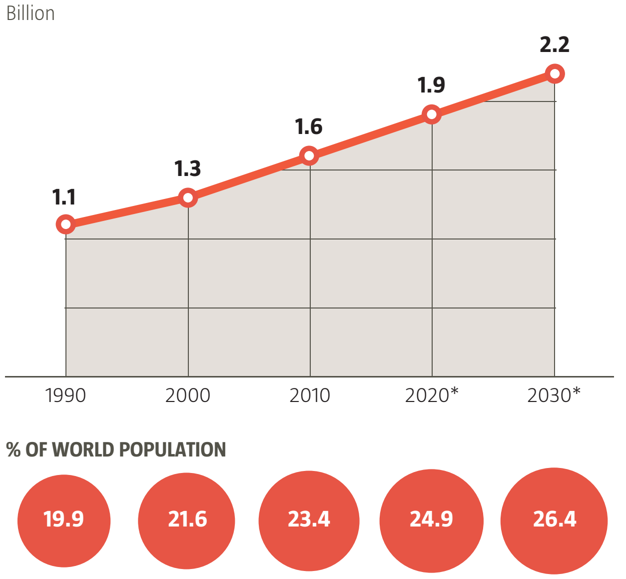
In 2010, Muslim population represented 23.4% of the world population, numbering nearly 1.6 billion people. According to the latest estimates, in 2030 this figure will exceed 2.2 billion, and account for 26.4% of the world population[1], which implies expected growth of 37.5% in the next twenty years.

This population, with an average age of around 25, is concentrated in the world's most dynamic regions. For the period 2013-2018 the latest estimates indicate that the GDP of the 57 member countries of the Organisation of Islamic Cooperation (OIC) will grow by 6.3% on average, compared with a 5.3% world average. It is also estimated that by 2030, 66% of the world's middle class will be living in the Asia-Pacific region, of which Muslims represent nearly 25% in 2014, and with a population expected to exceed 1.3 billion inhabitants by 2030 (there were 1 billion in 2010.)[2]

Recently, the International Monetary Fund (IMF) has published a list of the ten economies it expects to grow the most in 2015. Among them, we find several countries with Muslim majorities, such as Turkmenistan (9%), Côte d'Ivoire (7.75%) and Chad (7.59%), and countries such as India (7.46%), which while not being a majority Muslim country, remains the country with the third largest Muslim population, 140 million[3].

In order to manage the wealth generated by this growth, deriving in large part from the exploitation of their abundant natural resources, and to develop a model of intergenerational solidarity that will allow future generations to enjoy the wealth that the finite natural resources are producing for the present generation, many of these countries have decided to establish sovereign wealth funds.

Chart 1
Muslim Population Growth



* Forecast / estimation

Source: The Halal Economy and the Islamic Capital Market, KFH Research Ltd (2014)

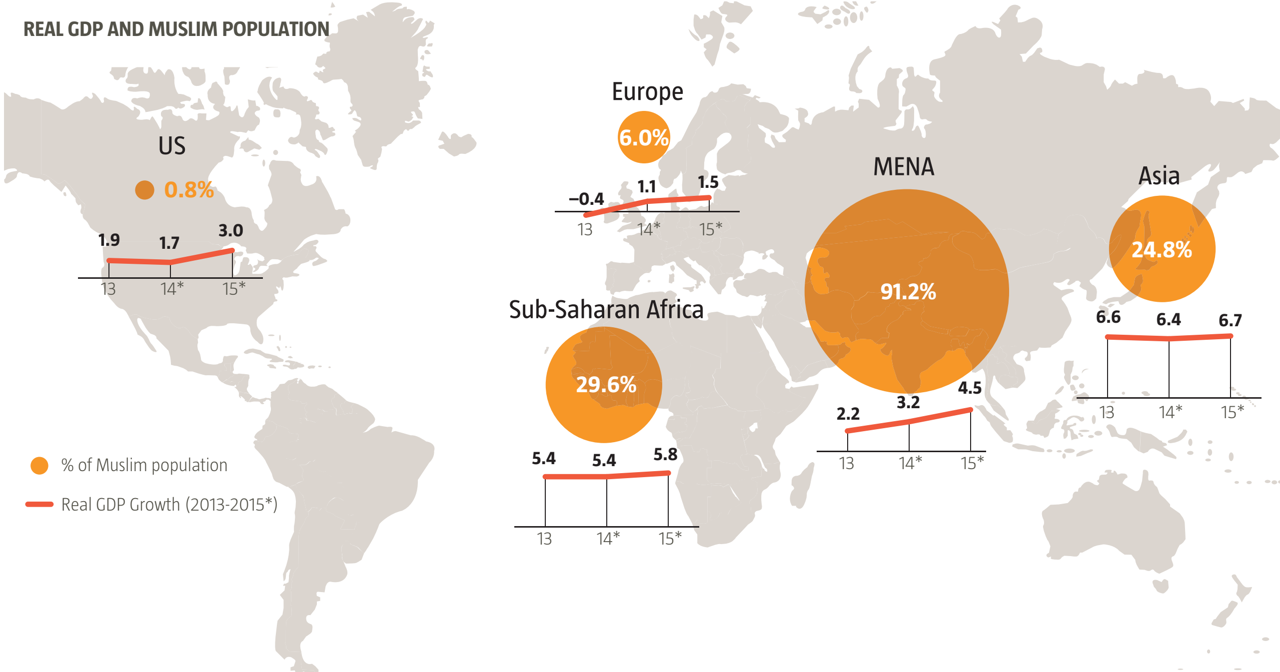
Leading the sovereign wealth funds industry

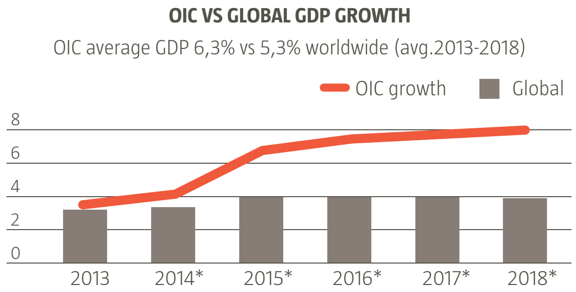
The establishment of sovereign wealth funds in Muslim countries, while not really taking off until this century, in fact dates from as long ago as 1953, when Kuwait became the first sovereign state to create a fund of this kind. At present there are 92 sovereign wealth funds in the world, with a total value in excess of $7 trillion. The majority of them are in the Middle East, home to a large number of countries with Muslim majorities. In fact, 39% of the world's sovereign wealth funds (36 out of 92) are in Muslim countries, and 46.4% of the assets managed by such funds worldwide ($3.3 trillion of the more than $7 trillion) are in these countries' funds. Regionally, 64% of Muslim countries' vehicles are in the Middle East, with the rest almost equally divided between Africa, Asia-Pacific and Central Asia.

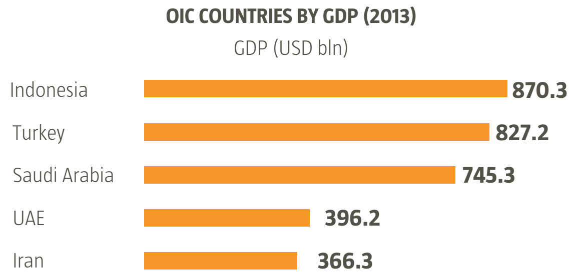
1 The future of the Global Muslim Population, Pew Research, 2011.
2 Hitting the sweet spot: The growth of the middle class in emerging markets, Ernst & Young, 2013.
3 IMF World Economic Outlook, April 2015

Chart 2

Growing above the world average







* Forecast / estimation

Source:The Halal Economy and the Islamic Capital Market, KFH Research Ltd (2014)

Some of the world's biggest sovereign wealth funds have been set up in Muslim countries (Table 1), most notably the large funds of the Middle East. Placing second and third after Norway's fund, the world's biggest in terms of assets under management are the UAE's Abu Dhabi Investment Authority and Saudi Arabia's SAMA Foreign Holdings, managing $773 billion and $744 billion respectively. They are followed, interspersed with other non-Muslim Asian countries, by Qatar, Kuwait and other emirates' funds, all with more than $100 billion under management. Below the $100 billion mark we start to see funds from Central Asia, Asia-Pacific and Africa, completing the list of regions where Muslim countries' sovereign wealth funds are located.

We should point out that the United Arab Emirates have as many as nine sovereign wealth funds, managing more than 1 trillion in assets, all deriving from oil and gas export, meaning that a single country controls one third of all the assets of Muslim countries' sovereign wealth funds and one seventh of the world total.

5. Sovereign wealth funds from Muslim countries: Driving the Halal industry and Islamic finance

As for the source of the resources feeding these funds, it should be borne in mind that those belonging to Muslim countries have mainly been developed from revenues generated by the export of natural resources such as oil and gas, only seven of them having sources of a different nature

The performance of these funds has been influenced by different macroeconomic, social and geopolitical circumstances which have determined their investment strategies. We should also stress that in these countries, the majority religion of Islam, irrespective of whether or not it constitutes to a greater or lesser degree a source

Table 1

Sovereign wealth funds of Muslim countries

Ranking	Sovereign Wealth Fund	Assets under management ($ millions)	Source	Country	Established
1	Abu Dhabi Investment Authority	773.00	Oil	UAE	1976
2	SAMA Foreign Holdings	744.10	Oil	Saudi Arabia	1952
3	Kuwait Investment Authority	548.00	Oil	Kuwait	1953
4	Qatar Investment Authority	304.00	Oil & Gas	Qatar	2005
5	Investment Corporation of Dubai	160.00	Oil	UAE	2006
6	Abu Dhabi Investment Authority	90.00	Oil	UAE	1999
7	Samruk-Kazyna	88.30	Fiscal Surplus	Kazakhstan	2008
8	National Oil Fund of the Republic of Kazakhstan	71.80	Oil	Kazakhstan	2000
9	International Petroleum Investment Company	68.30	Oil	UAE	2000
10	Mubadala Development Company	66.30	Oil	UAE	2002
11	National Development Fund of Iran	64.80	Oil & Gas	Iran	2011
12	Libya Investment Authority	60.00	Oil	Libya	2006
13	Revenue Regulation Fund	55.00	Oil & Gas	Algeria	2000
14	Khazanah Nasional	41.60	Fiscal Surplus	Malaysia	1993
15	Brunei Investment Agency	39.30	Oil	Brunei	1983
16	State Oil Fund of Azerbaijan	37.10	Oil	Azerbaijan	1999
17	1 Malaysia Development Fund	15.70	Fiscal Surplus	Malaysia	2009
18	Emirates Investment Authority	15.00	Oil	UAE	2007
19	State General Reserve Fund	13.00	Oil & Gas	Oman	1980
20	Dubai Investment Capital	13.00	Oil	UAE	2004
21	Bahrain Mumtalakat Holding Company	10.60	Fiscal Surplus	Bahrain	2006
22	Oman Investment Fund	6.00	Oil	Oman	2006
23	Arab Petroleum Investment Corporation	5.60	Oil	Saudi Arabia	1975
24	Sanabil Investments	5.30	Oil	Saudi Arabia	2009
25	Gulf Investment Corporation	2.70	Oil	Kuwait	1982
26	Government Investment Unit	1.30	Fiscal Surplus	Indonesia	2006
27	Nigerian Sovereign Investment Authority	1.30	Oil	Nigeria	2011
28	Fonds Souverain d'Investissements Stratégiques	1.00	Fiscal Surplus	Senegal	2012
29	Palestine Investment Fund	0.77	Fiscal Surplus	Palestine	2003
30	National Fund for Hydrocarbon Reserves	0.08	Oil & Gas	Mauritania	2006
31	Future Generations Fund	0.40	Oil	Bahrain	2006
32	National Investment Corporation	n/a	Oil	Kazakhstan	2012
33	RAK Investment Authority	n/a	Oil	UAE	2005
34	Oman Investment Corporation	n/a	Oil	Oman	2005
35	Dubai World	n/a	Oil	UAE	2006
36	National Investment Fund	n/a	Oil	Syria	2012
	Total	3,300			

Source: ESADEgeo, 2015.

of law in the country's legal system, is in any case a source of rules, solutions and restrictions for business and finance which are different from conventional non-Muslim ones, thus creating additional possibilities of action in the market that other countries do not consider.

Governance, transparency and supervision

More than half of all Muslim countries' sovereign wealth funds were created in the first ten years of this century, coinciding with the rise in oil prices. Thus at the end of the twentieth century there were only eight funds: within the first ten years of the twenty-first, 22 new funds were established, tripling the number of Muslim countries with sovereign funds.

The last international crisis led to sharp corrections, due to excessive risks incurred, coinciding with the rise in oil prices. This translated into sharp internal criticism and adjustments to governance and the management of risks, which now, with the fall in oil prices, are once again starting to increase. Muslim countries' sovereign wealth funds, especially those of the Middle East, are transforming the image of their countries, basing themselves more on financial asset economies and leaving behind that of oil and gas producers.

There has also been internal pressure to increase the weight of Islamic finance, in view of how this sector held up better than most during the crisis. Accordingly funds are considering increasing their investment in Islamic banking, *takaful* insurance, etc., and the use of Shariah-compliant financial vehicles.

The geopolitical position of these funds is an important factor, above all for those that are in areas with open conflicts or geostrategic struggles, since certain investment decisions may be taken as political and not strictly financial decisions, which in some cases has led to sharp criticism.

From a legal point of view, the majority of sovereign wealth funds from Muslim countries have been established through entities with their own legal personality (Kazakhstan, Azerbaijan, Algeria, Iran, Oman, Indonesia, Qatar, Bahrain and the majority of the Emirates' funds). Some, however, such as that of Brunei, are merely agencies of one or another public administration branch. Those of Malaysia and Palestine are public limited companies.

The majority of sovereign wealth funds from Muslim countries report to their respective governments or rulers, whereas those of other countries generally report to the central bank or an independent board of directors.

In terms of governance structure and transparency, these are the funds that give rise to the greatest concerns in this respect, and this has led them to making greater efforts to improve and bring themselves into line with international practices. Thus, only one third of sovereign wealth funds from Muslim countries belong to the International Forum of Sovereign Wealth Funds (IFSWF).

Muslim countries' sovereign wealth funds and Islamic finance

In analysing the strategies and transactions of Muslim countries' sovereign wealth funds under the precepts of Islamic finance, the terms of these investments must be differentiated by reference to the greater or lesser extent to which they comply with these rules or promote this way of operating in the market[4].

Apart from this, and in highly practical terms, those that promote the use of Islamic finance in sovereign wealth funds' transactions base their arguments on the fact that its precepts promote transparency in transactions in order to achieve social justice, equity and equanimity (Quran, 2:282). Furthermore they explicitly stress compliance with contracts and commitments based on honesty (Quran, 4:135; 5:89; 5:108). They therefore press for sovereign wealth funds' transactions to be conducted within the framework of Islamic law, whilst simultaneously implementing reforms and enhancing commitments to best practices, such as the Santiago Principles[5], attention be paid to the precepts that stem from their culture and share the same philosophy.

There are several circumstances that are bringing about changes in the strategy of using or not using Islamic finance in the transactions of Muslim countries' sovereign wealth funds. The recent international crisis has shown how the sectors under the umbrella of these precepts have suffered much less, gradually becoming a refuge for capital from Muslim and non-Muslim countries alike.

[4] The data will be presented in aggregate form, since the information is highly sensitive for these funds, given the implications as regards compliance or otherwise with rules promoted by or forming part of the legal system of the states on which they depend. Apart from this, it is obviously impossible to confirm whether in their investment transactions the various sovereign wealth funds are using Shariah-compliant contractual forms, or to what extent the rules of Islamic finance are incorporated into them. Therefore the data presented are estimates based on information gathered on investment transactions and statements of senior management of the majority of the sovereign wealth funds dealt with here. Obtaining these data in the course of this research required us to undertake not to disclose their source and not to report them in such a way as to make it possible for calculation to reveal to which sovereign wealth fund they correspond. The opinions expressed by those consulted, while they correspond to the highest levels of governance, may not necessarily correspond to the reality of the whole institution, although we have shown that they are at least highly representative. In any case we express our thanks for the trust placed in us in sharing this information.

[5] Soft regulation, proposed by the International Working Group (IWG) of SWFs in 2008, under the supervision of the IMF, seeking to alleviate fears among recipient countries and to improve the governance of its members.

5. Sovereign wealth funds from Muslim countries: Driving the Halal industry and Islamic finance

Different social movements have asked the managers and rulers of these countries, who like them are under Islamic law (in some cases applied very strictly), to bring the strategies and transactions of their sovereign wealth funds into line with such precepts.

The rapid growth of Islamic finance, with two main centres in the Middle East and Southeast Asia, has led to the development of markets specialising in Shariah-compliant products, making more opportunities available to sovereign wealth funds.

At the same time, the arrival of Islamic finance in the financial markets of non-Muslim countries (remembering the legal reforms carried out in several European countries[6] to be able to operate under Islamic finance) has led to opportunities being generated beyond Muslim countries, primarily Western countries' needing to attract capital, resulting in their offering these transactions as a way of capturing funds.

On the other hand, Muslim countries' sovereign wealth funds' use of Shariah-compliant financial instruments or promotion of Islamic businesses with its foreign investments is seen by some sectors as Islamisation of the economy and imposing a cultural and religious heritage that do not belong to the countries in which these investments are made.

The use of Islamic finance in the investments of Muslim countries' sovereign wealth funds cannot be considered as a homogeneous block of transactions, since depending on how and where the investment is carried out, large differences arise. Thus we could group these funds' transactions into: a) certified transactions or investments in Shariah-compliant financial products, b) investments that comply with the rules of Islamic finance but are not certified as such, c) investments in Islamic institutions or projects and d) the rest.

There is also a great difference between the investments they make in their own countries and those they carry out internationally: both the transactions and the investees might already be subject to Islamic laws if the legal system so decrees.

There are 1,181 Islamic funds[7] in the world, none of which is a sovereign wealth fund. At present there are no Islamic Sovereign Wealth Funds (ISWF), although there is some work dealing with the pros and cons of creating them[8].

With regard to how Islamic finance forms part of these funds' investment strategy, we would point out that:

- Of the funds from Muslim countries where we have had access to the necessary documentation, not one includes in its legal documents of establishment, statutes or basic principles, a mandate to operate or a preference for operating under Islamic precepts or investing in Islamic products. A few refer to Islamic law, but only as the legal framework of the country in which the institution operates.

- The governance bodies of 77% of Muslim countries' sovereign wealth funds have expressed the wish to increase significantly the number of transactions carried out under Islamic finance.

- 28% of them have support for Islamic businesses as a strategy, but only for their domestic investments. 3% list the promotion of Islamic businesses in international investments as a strategy, although always taking up action policies from other branches of the government or public bodies that promote Islam abroad.

- 71% of those consulted say that the precepts of Islam are not, in principle, a parameter taken into consideration when taking investment decisions.

We were not able to determine, for lack of data, the possible differences from one sector to another. However, in general terms:

- 26% of those consulted say that they use both Shariah-compliant and conventional instruments.

- Of the respondents stating that they operate with projects under Islamic finance, 72% say that this usually depends on the partner with whom they are working on each investment.

- 61% acknowledge that the possibilities for transactions under Islamic finance in financial markets of non-Muslim countries have increased.

6 Countries such as the UK, France and Ireland have recently carried out the necessary legal changes for Islamic finance to be able to operate easily in their respective economies. Spain, in contrast, has still not decided on the possibility of this regulatory change, although there has been an initiative on the part of the country's experts in Islamic finance, in collaboration with international institutions, to promote it and make information on it available to the government.

7 Thomson Reuters, 2015.

8 Lawrence, Jonathan, "The pros and cons of an Islamic sovereign wealth fund", Islamic Finance News, 2011.

Using the classification set out above, we estimate that 21% of investments can be considered Islamic, taking the first three categories as being such (a, b, and c). This figure is surprisingly high in view of the above remarks, bearing in mind that, as we have explained, Islamic finance does not constitute a specific mandate for the sovereign wealth funds. However, it is explained by the number of investment transactions carried out in the internal market or in other Muslim countries, and also in industries that fall within the Islamic category (banking, issuance of *sukuk* bonds, *halal* agrifood industry, *takaful* insurance, etc.) Of these, approximately 87% correspond to domestic investment transactions.

The most typical investment in this regard is that made in a national Islamic bank, as we shall see presently. We should also highlight the increase in transactions with *sukuk* bonds. The importance and the volume of *sukuk* in international markets in the past few years have grown increasingly, going far beyond the borders of the Islamic world, becoming attractive investments for sovereign wealth funds in their own right. In fact, the sovereign wealth funds are not only buying them, but have also started issuing them (Table 2). Recently, one of Bahrain's sovereign wealth fund, Mumtalakat Holding Company, raised $600 million by selling Islamic bonds, and Malaysia's two sovereign wealth funds, Khazanah Nasional and 1MDB, announced new issues of $278 million and $2.4 billion respectively. Khazanah Nasional is planning to launch this year the first $27 million tranche of the $280 million of the Sustainable and Responsible Investment *Sukuk*" (SRI *sukuk*). Executives of sovereign wealth funds consulted on the issue of *sukuk* bonds said it was desirable to issue them at short term as an instrument for controlling liquidity management.

Muslim countries' sovereign wealth funds differ among themselves, as regards the transactions they carry out, depending on how long they have been in existence. Those that came into being in this decade have learnt from the experience of those that went through the worst of the crisis and suffered the effects of market downturns on their assets. Apart from this, in the first years of a fund's life the weight of domestic investments, to support the country's economic development, is greater. Secondly, the funds that came into being around the time of the peak in oil prices and lived through the crisis from the outset have built up experience which, in general, has led them to restructure their governance bodies and consider investment strategies within a framework of greater control and study.

Bearing in mind that the vast majority of Muslim countries' sovereign wealth funds are fed by revenues from oil and gas, the initial tendency to invest in this sector, in which they are experts, and to seek to maintain the economic structures, has gradually shifted towards greater diversification, without of course missing opportunities presented by new finds or primary development of resources.

The funds with the longest track records and experience have also significantly increased the number of transactions in emerging countries, leading to a surge in South-South relations which, in many cases, have been developed with collaboration and joint investment formulas. This is further driven by the drying up of opportunities that the crisis opened up for these funds in developed markets. One by one, the best available investments have been gobbled up, and the improvement in the economy has also led to prices gradually recovering. This is very clearly seen in the real estate sector, in which recent developments have decisively influenced the sovereign wealth funds' interest.

In any case, we cannot escape the fact that these funds, particularly Middle-Eastern ones, have historically held strong positions in the most conservative portion of their portfolios, with public debt, currencies, etc.

As has been explained, the development of the Islamic financial market has led to investment opportunities for the internal development of this sector, particularly by taking stakes in Islamic banks, companies and *takaful* insurance providers, etc. (Table 3).

Internationally too, Muslim countries' sovereign wealth funds have carried out transactions under Islamic finance, even in non-Muslim countries, an example being the establishment of the Hyperion Australian Equity Islamic Fund through the Central Bank of Bahrain and with the support of its sovereign wealth fund.

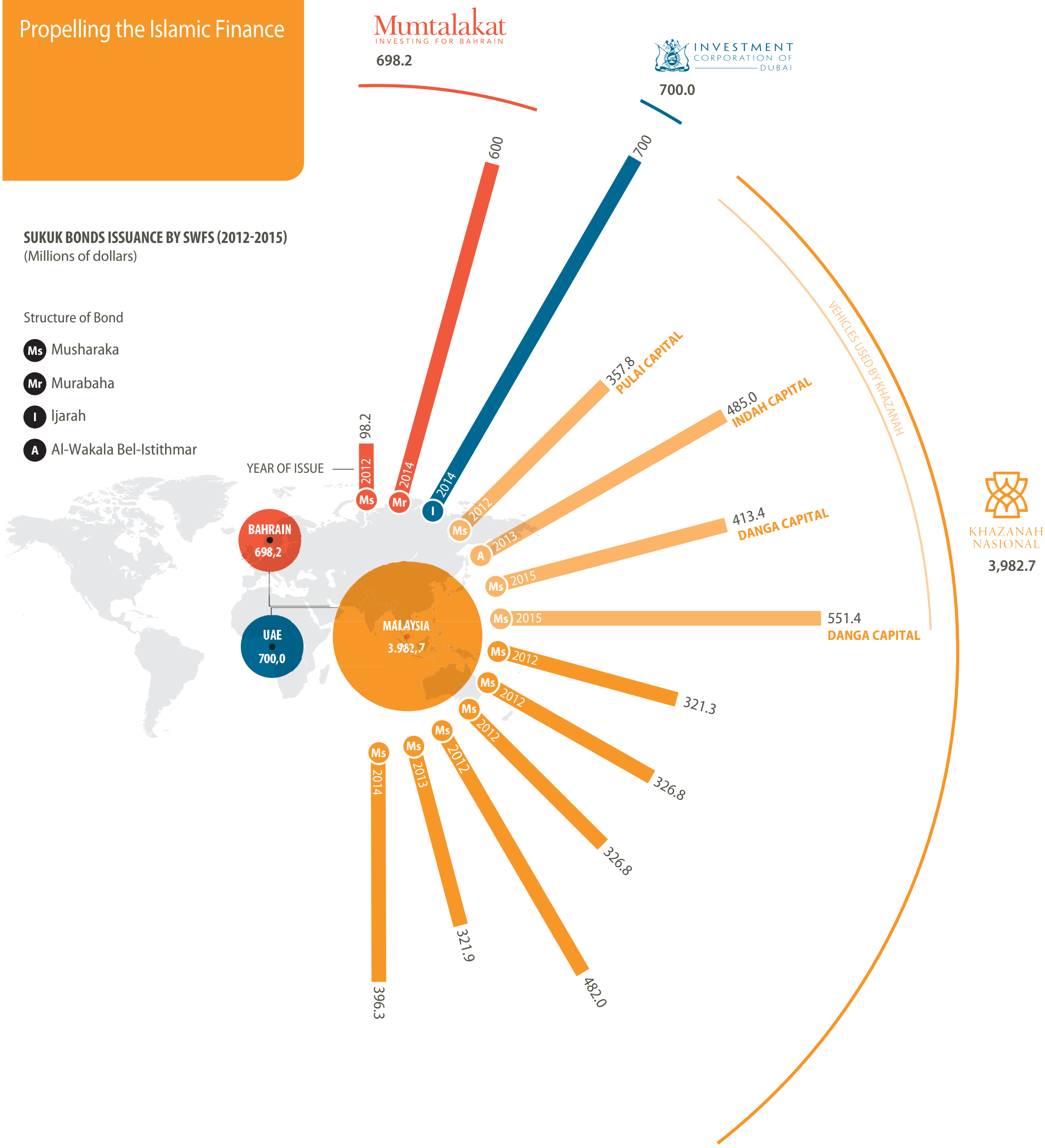
In summary, it can be said that with the drying up of the great opportunities that the crisis brought with it in developed countries, the weight of transactions in emerging countries is increasing, with new formulas of joint investment with other operators also being explored for these transactions. At the same time, the increasing development of Islamic finance has led to more and more resources being channelled into this alternative.

5. Sovereign wealth funds from Muslim countries: Driving the Halal industry and Islamic finance

Infographic 3

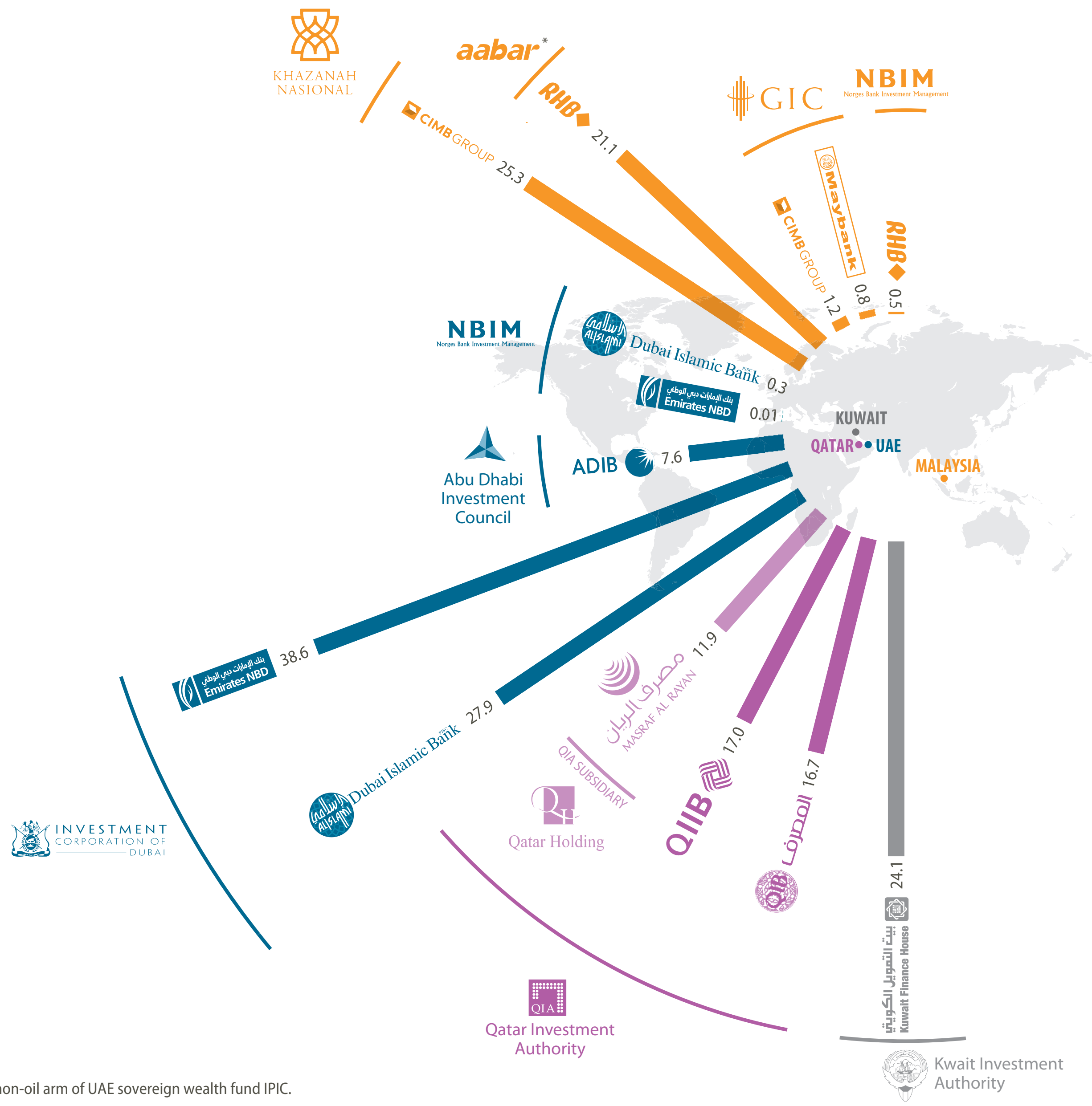
Propelling the Islamic Finance

SUKUK BONDS ISSUANCE BY SWFS (2012-2015)
(Millions of dollars)



Source: Thomson Reuters (2015).

SWFS IN THE ISLAMIC BANKING
(Stake in percentage)



*The non-oil arm of UAE sovereign wealth fund IPIC.

Source: In-house based on Annual Reports (2015).

5. Sovereign wealth funds from Muslim countries: Driving the Halal industry and Islamic finance

Halal food: arousing the appetite of sovereign wealth funds

Nearly all countries with Muslim majorities currently import much of the food they consume. They are net importers of food, the vast majority of it *Halal*. In 2013, Muslims spent $1.2 trillion on food and drink, the equivalent of 17.7% of total world expenditure on food in that year. Of this, $1 trillion was spent on *Halal* food by the Muslim communities in the 57 member countries of the Organisation of Islamic Cooperation (OIC)[9].

There are three main factors explaining this dependency: adverse climate, the lack of the know-how and technology needed in order to boost food productivity, and the rapid growth of populations with increased disposable income who are starting to adopt Western patterns of consumption.

Even still, there are considerable disparities. According to the latest estimates of the World Integrated Trade Solution (WITS), a joint project of the World Bank, the United Nations and the World Trade Organisation (WTO), the most dependent countries in 2013, and therefore the most vulnerable to changes in food prices (which, lest we forget, were the detonator for the popular uprisings in the Maghreb known as the Arab Spring) were: Saudi Arabia, United Arab Emirates (UAE), Algeria and Egypt. These countries run food trade balance deficits of close to $21 billion, $11 billion, $10 billion and $7 billion respectively. As can be seen in Chart 3, other countries with Muslim majorities such as Qatar, Morocco and Kazakhstan, also had deficits, albeit much more modest ones.

At the other extreme, we find Southeast Asian majority-Muslim countries Indonesia and Malaysia, net food exporters, with trade surpluses in 2013. Outside Southeast Asia, only Turkey is comparable with these two. Compared with Indonesia's $15.57 billion and Malaysia's $9.50 billion, Turkey's trade balance for 2013 showed a surplus of $5.86 billion.

This dependence on imports seen in many Islamic economies has led their governments to take new measures. The objective is two-fold: on the one hand, to develop the necessary internal capacity to supply the growing domestic demand for food and thus gradually reduce the degree of dependence; and on the other hand, to seize the excellent opportunity presented by the boom in food in general, and *Halal* food in particular, in order to generate wealth. In order to attain these objectives, the governments of many of these countries, particularly those of the Middle East, have turned to their sovereign wealth funds.

The most representative case is without a doubt that of the Qatar Investment Authority, Qatar's sovereign wealth fund, which manages assets worth $304 billion. In 2008, the fund spent $1 billion on acquiring an investment arm specialising in the agriculture and livestock sector: Hassad Food. With an investment horizon of 50 to 100 years, the vehicle's mandate is to make investments in the agrifood sector so as to secure the supply of the country's *Halal* food in the long term and to obtain juicy returns.

Active since 2009, it set up Hassad Qatar, its domestic arm, with the initial aim of securing the supply of food for the animals of Qatar's livestock operations by producing and buying fodder. Through this subsidiary it also signed an agreement worth $68 million with Oman's A'Saffa Foods to establish a poultry operation in the south of Qatar with the capacity to produce 17,000 metric tons a year of *Halal* chicken and 90 million eggs, approximately 20% of Qatar's demand for these foods.

Hassad Food also announced the setting up of a joint venture with the Sudanese government. With capital of approximately $100 million, the new company, 75% held by Hassad Food, intended to farm 250,000 hectares in the north of Sudan to secure the supply of *Halal* food for both countries.

In 2010, it spent $500 million on setting up its Australian subsidiary, Hassad Australia. Through this company it has acquired poultry and agricultural operations in New South Wales, Queensland, Victoria and Western Australia worth more than $200 million[10]. It currently owns more than 287,000 hectares, with the capacity to produce 125,000 metric tons of grain and 100,000 heads of *Halal* lambs a year.

Highlights of its recent activity include its intention of investing $500 million in poultry operations in Turkey, the possibility of entering the Brazilian market, and the acquisition, for $100 million, of a 33.25% stake in the aforementioned A'Saffa Foods, the sultanate's leading producer of *Halal* chicken.

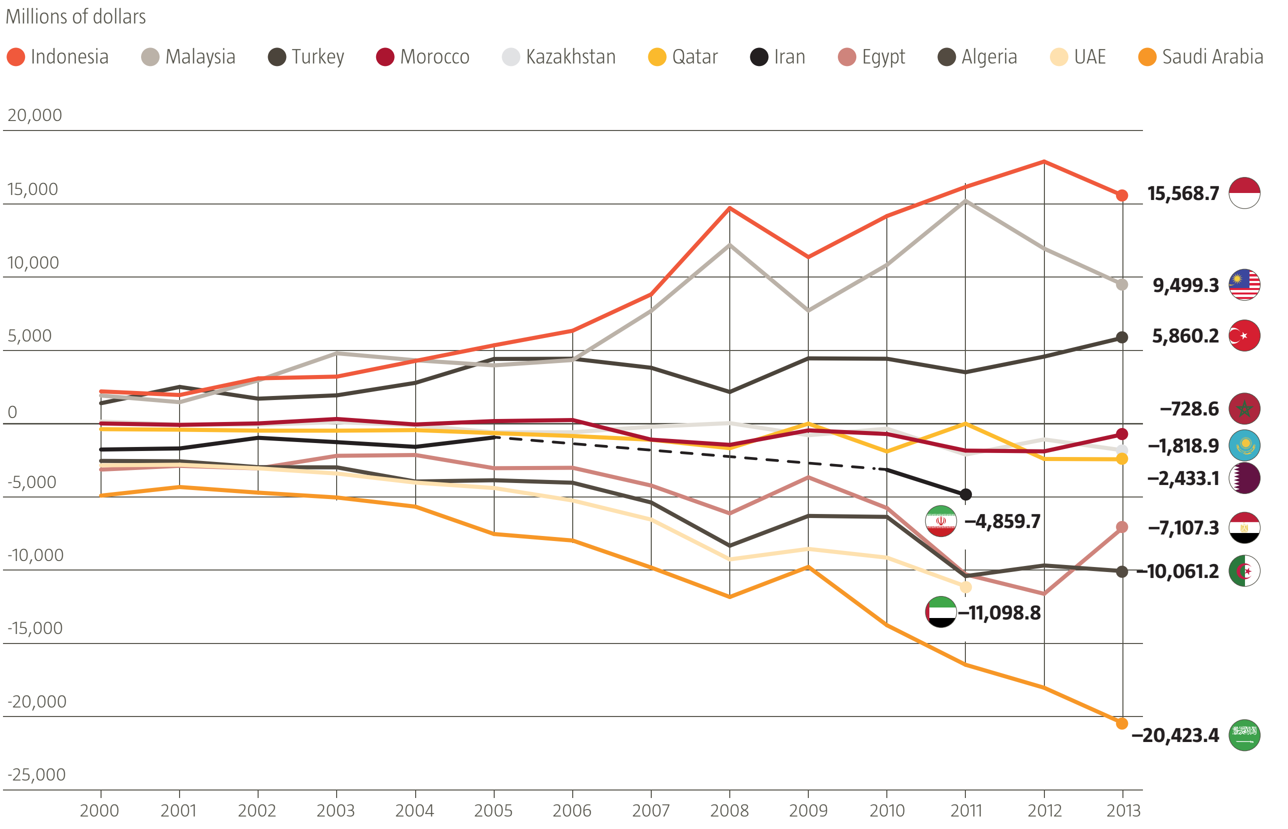
However, Hassad Food is not the only Gulf fund to have decided to enter this attractive market segment. The Investment Corporation of Dubai holds a significant stake in Emirates Rawabi, the leading producer of *Halal* poultry products in the UAE. In 2011 one of Bahrain's sovereign wealth funds, the Future Generations' Reserve Fund, launched a $265 million fund to invest in *Halal* food companies in the country and beyond. In 2005, the Kuwait Investment Authority (KIA), together with Kuwait's Alghanim Industries and the National Investment Company, set up Kuwait

[9] State of the Global Islamic Economy, Thomson Reuters & DinarStandard (2015)

[10] http://www.hassad.com.au/Properties.aspx

Chart 3

Food trade balances: A challenge and an opportunity for sovereign wealth funds



Note: Data for Iran missing (2006-2009)

Source: World Integrated Trade Solution (2015).

China Investment Corporation, a fund with more than $340 million in assets at the end of 2013, one of the objectives of which is to invest in poultry operations in Asia. Similarly, Gulf Investment Corporation, the sovereign wealth fund set up in 1982 by the six member countries of the Gulf Cooperation Council (GCC), managing assets of $2.7 billion, recently invested $196 million in the Gulf Japan Food Fund, created jointly by Japan's Mizuho Bank and Norinchukin Bank. This vehicle, with $426 million, aims to facilitate access to financing for Japanese companies exporting or seeking to export *Halal* food to countries in the Gulf.

In Southeast Asia, Singapore's two sovereign wealth funds, GIC and Temasek, have also seized this opportunity. The city-state's proximity to both Malaysia and Indonesia (280 million Muslims between the two nations) gives it a certain advantage in seeking markets and finding reasons to invest in the sector. In mid-2014, GIC increased its shareholding in BRF (formerly Brasil Foods) by 0.6% to 4.4%—an expected move. BRF, the result of the merger of Brazilian companies Sadia and Perdigão in 2009, is one of the world's ten biggest food companies and one of the biggest producers of *Halal* meat. Proof of this giant's interest in capturing the *Halal* meat market is the $160 million investment it made in 2013 to set up a *Halal* food processing plant in the Khalifa Industrial Zone of Abu Dhabi[11].

[11] http://ir.brf-global.com/conteudo_en.asp?idioma=1&tipo=52177&conta=44&id=206306

5. Sovereign wealth funds from Muslim countries: Driving the Halal industry and Islamic finance

At the same time as increasing its holding in BRF, GIC acquired 11% of Century Pacific Food, in the Philippines, for $76 million. With this transaction the fund was following the same logic: positioning itself in a *Halal* food producer with strong growth potential and a strategic location.

Temasek, for its part, decided to go for domestic food companies, since Singapore serves as a distribution hub for ASEAN. In 2006 it invested $584 million in acquiring 15% of Singaporean company Fraser & Neave Limited. This company has a long tradition of producing and selling *Halal* food, and at the end of 2011 it opened a new *Halal* dairy products factory in Malaysia's Selangor *Halal* Hub, investing $150 million in the transaction. Three years later, in 2009, it made another domestic investment, this time of $305 million, buying 13.76% of the multinational Olam International.

Western sovereign wealth funds such as Norway's GPFG, the Australia Future Fund and the Alaska Permanent Fund, unlike those from the Gulf or Southeast Asia, have accessed this growing market by means of their holdings in multinationals with wide exposure, such as Nestlé, which has 150 *Halal*-certified plants and produces more than 300 *Halal* items, Mondelēz International, one of the leading producers of *Halal* chocolate, which recently invested $90 million in setting up a *Halal* biscuit plant in Bahrain, and Tesco, 27 of whose supermarkets in the UK sell *Halal* meat.

In short, no-one is willing to forego this mouth-watering market, which is expected to reach $2.5 trillion a year in 2019. Therefore, and also as a result of global agrifood tensions[12], it will become increasingly common to see these giants investing in *Halal* food companies.

[12] For further information, please refer to the chapter on sovereign wealth funds and agriculture in this report.

Different Twins and a Distant Cousin: Sovereign wealth funds in Hong Kong, Singapore and South Korea

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6. Different Twins and a Distant Cousin: Sovereign Wealth Funds in Hong Kong, Singapore and South Korea[1]

Hong Kong and Singapore have some of the oldest and largest SWFs. They are under the top 15 SWFs in terms of size and have become role models for other SWFs to follow. While most of the SWFs arise from commodity wealth, Hong Kong and Singapore's SWFs arose out from years of conservative fiscal policy resulting in fiscal surpluses, internal fund transfers, foreign exchange interventions.

Similar to Singapore, Hong Kong's government deposits its surpluses and reserves with its SWF, the Hong Kong Monetary Authority Exchange Fund. Also Hong Kong's monetary base is backed through foreign currency held by the Exchange Fund. In addition to that it also holds the assets of Hong Kong's former Land Fund. Between the mid 1980s and late 1990s half of the premiums generated in Hong Kong through the sale of land were allocated into the Land Fund.[2] The Land Fund grew especially during the property boom in the 1990s.[3]

A significant part of Singapore's sovereign wealth is attributable to its foreign exchange interventions. These took interventions took place via three channels: the balance of payments channel, the foreign investment channel, and the domestic saving channel.

Recurring balance of payments surpluses allows the accumulation of foreign exchange reserves. Foreign investors in Singapore convert their foreign currencies (e.g. US $) into local currency (i.e. Singapore $) through banks, which again exchange the foreign currency (e.g. US$) with the Monetary Authority of Singapore (MAS) for domestic currency (i.e. Singapore $). A strong foreign demand for Singapore $ can add to a rapid and uncontrolled appreciation of the Singapore $. To smoothen appreciation of the Singapore $ the MAS can intervene by injecting Singapore $ into the system through the purchase of foreign currencies (e.g. US $). By doing this the MAS again acquires foreign exchange reserves. The final way through which Singapore accumulates foreign exchange reserves relates to its high saving policy and non-sterilised foreign exchange interventions. Through Singapore's high saving policy (i.e. Singapore's mandatory Pension Fund, and Singapore's public surpluses) liquidity is constantly withdrawn from the system and thereby putting constantly substantial pressure on the Singapore $ to appreciate too erratic and too fast. To smoothen the appreciation of the Singapore $ the MAS intervenes by selling Singapore $ in exchange for foreign currency (e.g. US $). Together these three processes "have led to a prodigious growth in Singapore's foreign reserve over time."[4].

Table 1

Sovereign Wealth Funds in Hong Kong and Singapore & country GDP

	SWF name	Type of SWF mandate	Est.	Size of SWF in US$bn	As part of country's GPD (PPP) In percentage
Singapore	GIC Pte Ltd	Saving	1981	320	70.7
	Temasek	Development	1974	167.4	37.0
	Monetary Authority of Singapore	Stabilisation	1971	273*	60.3
Hong Kong	Hong Kong Exchange Fund	Saving/Stabilisation	1935	414.6	104.3
South Korea	Korea Investment Corporation	Saving/Development	2006	85	4.7

Source: Calculation based on ESADEgeo (2015) and CIA Factbook (2015).
* This amount refers to the official reserves.

1 Because of their striking similarities in terms of history, economics Hong Kong and Singapore have been regularly described as twins or cousins.

2 "The Land Fund was created in 1986 under a Sino-British arrangement that recognized Chinese worries that the British administration would sell too much land before the handover and divert funds to British interests. Therefore, whenever the colonial government sold property in the territory, proceeds would be split 50-50 between the government and the Land Fund, officially known as the Hong Kong Special Administrative Region Government Land Fund (Asian Wall Street Journal, 15 May 1997, p.8)."

3 Dow Jones International Media, 30 Nov 1995

4 MAS (2011) MAS 40th anniversary book, Monetary Authority of Singapore.

What is the special thing about SWFs in small open economies like in Hong Kong and Singapore, is these are the largest SWFs worldwide in terms of total asset size vis-à-vis domestic GDP. South Korea's KIC, for example, is much smaller in relative terms to South Korea's GDP.

Small open economies like Hong Kong and Singapore are highly exposed to international economic developments and their SWF adjust accordingly. Unlike larger economies, such as China, the option of reverting to domestic investments, without creating bubbles is limited for small open economies with SWFs. This makes international equity investments specifically attractive as a means of risk diversification for small open economies.

This article will briefly discuss the Hong Kong Monetary Authority and the Monetary Authority of Singapore – two large sovereign asset managers which have received little attention in the SWF debate. Then it focus on the Government Investment Corporation and Temasek and by looking at some of the recent developments, particularly with regard to Temasek's activity with startups and GIC's activity concerning real estate. Recent developments stand at the end of a long process. Therefore, it is useful to briefly map their past trajectory and analyze their overall asset portfolio today.

Lineal ancestors: The Hong Kong Exchange Fund & the Monetary Authority of Singapore

The Hong Kong Exchange Fund

The Hong Kong Exchange Fund and the Monetary Authority of Singapore are the earlier ancestors of the Hong Kong Monetary Authority (established in 1993) and the Government Investment Corporation of Singapore (established in 1981). Created in 1935 under the Hong Kong Exchange Fund Ordinance Cap 66 the Hong Kong Exchange Fund was originally an account of the government. In 1993 the Exchange Fund was reallocated under the auspices of the newly created Hong Kong Monetary Authority (HKMA). Interestingly, the HKMA refers to a person (i.e. the Chief Executive of the HKMA) and not to a corporation.[5] The HKMA is held responsible for the management of the Exchange Fund, and it is supported by the Exchange Fund Advisory Committee, which acts as a Board.

Its purpose was to safeguard the exchange value of the Hong Kong Dollar through foreign currency backing. Later it became central in sustaining the integrity of the monetary and financial system in Hong Kong. It was regularly used to build confidence by supporting Hong Kong's stock exchange during banking and stock market crisis. For example, in the mid 1980s banking crises the Hong Kong authorities drew on the Exchange Fund to bail out domestic banks. Likewise during Asian Financial Crisis 1997 and the Financial Crisis 2007/2008 the Exchange Fund was used for acquiring substantial parts of the domestic equity market in order to avoid a collapse of the Hong Kong stock market. For example, on the 7th of Sept 2007 the Hong Kong Exchange Fund expanded its share from 2.5% to 5.9% at costs of HK$313 million converting itself in a minority controller of the Hong Kong Stock exchange.[6] Following the large-scale interventions in 1997 and 2007/2008 the Hong Kong government created investment corporations in order to liquidate the equity stakes of the Exchange Funds in an orderly fashion.

Over the years the volume of the Exchange Fund has grown beyond what was needed to cover the value of the Hong Kong $ in foreign currency.[7] For example, as of February 2015 Hong Kong has foreign currency reserves of US$332.5 billion, which is equivalent to seven times the currency in circulation.[8] In order to manage such a huge amount of international reserves, Hong Kong has historically relied in both internal and external managers. Internal managers comprises HKMA staff in the Reserve Management Department managed in 2010 around 80% of the Exchange Fund's assets internally whereas in 2013 this decreased to 75% (including the "backing portfolio" and part of the "investment portfolio").[9] This suggests that the HKMA is gradually outsourcing investment responsibilities to external managers.[10] Appointing external managers with good track records allows the HKMA to benefit from different investment expertise, knowledge transfer, and information from market to in-house professionals.[11]

5 See Exchange Fund Ordinance, Chap 66/Section 5A Appointment of Monetary Authority

6 Available: https://www.hkex.com.hk/eng/exchange/invest/mc.htm

7 Assets held by the Government's general reserve account as well as the assets of Hong Kong's Coinage Fund and later also the Hong Kong's Land Fund were placed into Exchange Fund.

8 Available: http://www.hkma.gov.hk/eng/key-information/press-releases/2015/20150306-3.shtml

9 HKMA Annual Report 2013

10 HKMA Annual Report 2010

11 Ibid

6. Different Twins and a Distant Cousin: Sovereign Wealth Funds in Hong Kong, Singapore and South Korea

The assets of the Exchange Fund are managed as four portfolios: the Investment Portfolio, the Long-Term Growth Portfolio, the Strategic Portfolio and the Backing Portfolio. Ensuring the coverage of the monetary base the Backing Portfolio holds highly liquid US $ denominated securities of the highest credit.[12] The Strategic Portfolio was created in 2007 with the purpose of holding the Exchange Funds shares in the Hong Kong Exchange and Clearing Ltd.[13] Preserving the long term purchasing power of a part of the reserves the Investment Portfolio is invested primarily in the bond and equity markets of OECD countries.[14] Increasing the Exchange Fund's exposure to alternative asset classes the long term growth portfolio holds its assets in private equity and real estate assets. The market value of assets under the long term growth portfolio has grown by one third from US$ 11.4 billion to US$ 14.9 billion between the end of 2013 and the end of 2014. This mirrors an increase in the Exchange Fund's private equity exposure from US$ 8.3 billion to US$ 10.4 billion, and a rise of its real estate exposure from US$ 3.1 billion to US$4.5 billion over the same period.[15]

Table 2

Hong Kong Monetary Authority Exchange Fund: Portfolios

Portfolio	Goals
Investment Portfolio	Emerging market and Mainland bonds and equities.
Long-Term Growth Portfolio (LTGP)	Private equity and real estate investments. The cap for the net asset value of the LTGP is maintained at one-third of the Accumulated Surplus of the Exchange Fund.
Strategic Portfolio	Shares in Hong Kong exchanges and Clearing limited that were acquired by the government for the account of the Exchange Fund for strategic purposes.
Backing Portfolio	Highly liquid US dollar-denominated assets to provide full backing to the Monetary Base as required under the Currency Board arrangements.

Source: Hong Kong Monetary Authority Annual Reports.

Confronted with declining return on traditional assets, they decide to enter new asset classes with the aim of increasing returns.[16] Since mid 1998 diversification has been growing, including emerging market bonds and equities, private equity, RMB denominated assets, real estate; diversification takes place primarily in "investment portfolio." At the end of 2011 HKMA started to shift into riskier assets, at the end of 2011 US$ 10.8 billion were invested in new asset classes; one third of that amount was PE; and remaining in emerging market bonds and shares, RMB denominated assets in China, or property-related investments.[17] Via a number of fully owned investment subsidiaries, such as the Real Horizon Investment Ltd., Real Gate Investment Company Ltd., Real Summit Investment Company Ltd., the Exchange Fund has direct exposure to the real estate sector.[18]

The Monetary Authority of Singapore

Unnoticed by the wider world public, the Monetary Authority of Singapore (MAS) is Singapore's third large sovereign assets manager. The MAS was established with the MAS Act 42 of 1970 as a corporation, and it empowers the MAS to establish agencies and satellite offices outside Singapore for carrying out businesses.[19] This has been untypical for a traditional Central Bank. Two of its core functions relate to the development of Singapore into an international financial centre and to manage Singapore's official reserves. This converted the MAS into the government's key financial agent. If taken up in SWF rankings the MAS would probably rank among the largest in terms of assets size. Singapore's official foreign reserves which in 2013 stood around are around US$340 billion (excluding special drawing rights and reserve position in the IMF).[20]

For managing these reserves the MAS also employs external fund managers which contribute to knowledge transfer for the in-house fund managers.[21] Although its investments are primarily in highly liquid and secure assets, such as gold coin/bullion, notes, coins, money at call, treasury bills, its legal scope is larger, allowing also for alternative investments, notably securities and financial instruments and investments approved by the board (MAS ACT Chapter 186/ Part IV, 24). The MAS is allowed 'at least in theory' to invest into equity and other alternative assets. For example in the 1980s the MAS made an investment into London's property sector (BT 28 Feb 1981).

12 Ibid
13 Ibid
14 Ibid
15 HKMA Annual Report 2014; HKMA announcement of Exchange Fund's investment results for 2013.

16 Total portfolio in 2011 returned only 1.1% in the year (HKMA Annual Report 2012; EIU, 2012).
17 EIU (2012) Hong Kong's Exchange Fund achieves poor returns, June 11th
18 HKMA Annual Report 2013
19 This included the opening of a MAS office in London (MAS Annual Report 2011).
20 Available: http://www.mas.gov.sg/Statistics/Reserve-Statistics/Official-Foreign-Reserves.aspx
21 Straits Times, 33 Jul 2004

In early 1980s, senior policy makers in Singapore were looking for alternatives, getting higher return on Singapore's increasing levels of reserves.[22] Singapore's leadership wanted to take the advantage of emerging international investment opportunities, and thereby securing Singapore's future purchasing power.

At the beginning of 2012, Singapore's government has officially deposited about $113 billion into the MAS.[23] But due to the lack of data it is difficult to estimate how much of these assets are allocated by the MAS to the GIC for management.

The GIC Private Limited

The creation of the Government Investment Corporation (GIC) in 1981 was the first step to improve the return on a part of Singapore's reserves and savings, which had largely been managed by the MAS. The GIC received its first capital through a transfer of a part of reserves managed previously by the MAS. The GIC does not own the funds that it manages. It also manages a part of the proceeds from Special Singapore Government Securities (SSGS) that are issued and guaranteed by the government.[24] The major purchaser of SSGS is the Central Provident Fund – Singapore's large and mandatory social security system.

The GIC's assets under management increased from approximately US$10 billion in 1981 to about US$320 billion, and thereby making it in 2014 to the eight largest SWF worldwide.[25] It has evolved from a conservative stance in the 1980s and the 1990s to an endowment approach in 2000s to an opportunity-based approach from 2012 onwards. 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. 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 have also changed.[26]

It started its operations in the early 1980s – an era of high uncertainty in international finance and hiking interest rates. These made it lucrative to invest in US debt at that time. Dr. Goh Keng Swee – GIC architect and former Finance Minister of Singapore – highlighted that, as of August 1981 "the GIC [kept] 90 per cent of funds in cash and short-term assets" primarily in US dollars and treasury bonds.[27]

In the late 1980s and early 1990s the GIC made its first publicly known equity investments. These included co-investments with Temasek into Chun King food – a large US based food conglomerate – and into into a New Zealand Investment Trust and a hotel chain.[28] Simultaneously GIC started to enter partnerships with well-established private investment firms in the US in an environment of large scale corporate restructuring.[29] Its focus was on in-house capacity building through co-investments and strategic partnerships with the aim of getting exposure to specialist market expertise.[30]

Between 2007-2014 GIC's portfolio shows an OECD bias with about 75% of its total investments allocated in Europe, United Kingdom, United States and Japan. Despite the financial crisis 2007/08 the exposure to OECD has remained stable over this period. Nevertheless there are nuanced adjustments taking place with increasing share of Asia at the costs of Europe.

Likewise, in terms of asset classes there was a clear bias towards developed market equities and bonds. These made over 60% of GIC's total portfolio. But again alignments took place. While in 2008 developed market equities, bonds cash and others accounted for about 69%, four years later, in 2012/2013 this was down to 61%. This decline in 2012/2013 correlates with a decrease in GIC's overall exposure to Europe due to the Euro crisis. Simultaneously, this period saw a solid increase in emerging market equities from 10% in 2008 to 20% in 2014, and in Private Equity from 11% to 15% over the same period.

22 This was highlighted in a number of newspapers (The Straits Times 28 Feb 1981, p.1; Business Times, 28 Feb 1981,p.1)

23 Available: http://www.gov.sg/government/web/content/govsg/classic/factually/Factually-041012-IstheresomethingwrongwithourReserves

24 Available: http://www.mof.gov.sg/Policies/Our-Nations-Reserves/Section-IV-Is-our-CPF-money-safe-Can-the-Government-pay-all-its-debt-obligations

25 ESADEGeo (2014), Lee Kuan Yew (2006) Keynote Address by Minister Mentor Lee Kuan Yew, Chairman, GIC, at the GIC 25th Anniversary Dinner, 11 July, available: GIC Homepage.

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

27 *Straits Times*, 1 August 1982, p.14

28 Braunstein, 2015, Sovereign Wealth Funds and the building of in-house investment capacity: the Government Investment Corporation of Singapore (1980s-2000s), Working Paper, The Fletcher School, SovereigNet, pp1-7

29 Ibid.

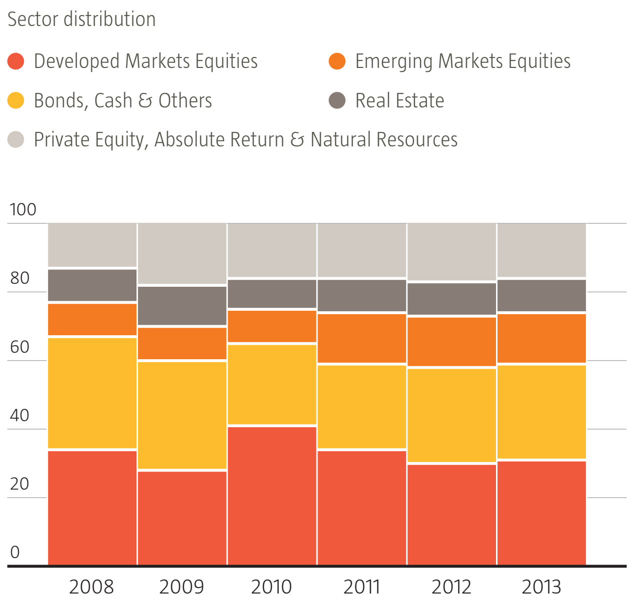
30 Ibid.

6. Different Twins and a Distant Cousin: Sovereign Wealth Funds in Hong Kong, Singapore and South Korea

Despite the dominant position of developed market equities and bonds GIC's exposure to the real estate sector has experienced a clear increase from 10% to 13%. Given that the GIC manages around US$320 billion, this would make GIC's real estate exposure even bigger than the Hong Kong's Henderson Land Co Ltd. which is with US$39.2 billion assets the world's 14th largest publicly traded real estate company.[31] A growing part of GIC's portfolio is allocated to the real estate sector in emerging economies, which reflects an overall trend among large institutional investors.[32]

Chart 1

GIC's Portfolio (2008-2013)



Source: Author's elaboration from GIC Annual Reports.

GIC has gained exposure to the real estate sector via its real estate arm (i.e. GIC Real Estate Pte Ltd) and a number of other channels, such as real estate funds. For example, most of GIC's exposure to China's real estate market is via a complex network of subsidiaries. In the centre of this web is Recosia Pte Ltd, which is a fully owned subsidiary of GIC Real Estate Pte Ltd. It was created in 1994 as an asset management holding company. Recosia owns China-based Recosia China Pte Ltd, which offers property investment services.[33] And Recosia China Pte Ltd holds 19.6% in Global Logistics Properties Limited, which is a global provider of logistics facilities, with a focus on China, Japan and Brazil, and it manages property portfolio of 272 million square feet across 63 cities and supply chain infrastructure.[34] Reco Shine Pte Ltd is with nearly one third of ownership the largest stakeholder in Yangguang Co. Ltd. Yangguang's focus is on commercial real estate, such as shopping centres and urban complexes, with focus on Beijing Tianjin and Shanghai.[35]

Between 2006 and 2013 most of GIC's direct deals took place in OECD countries. For example, in 2007 out of GICs eight largest publicized deals four took place in the UK, when GIC acquired Chapterhouse Holdings Ltd, shopping mall CSC Metro Centre (Dunston), Merrill Lynch Financial Centre and West Quay Shopping Center (Southampton). Following the 2008 property crash, the GIC refrained from large real estate deals in the UK. It was only until December 2013 when the GIC acquired Broadgate Office Complex, which was one of the biggest real estate deals in Europe following the financial crisis.

More recently, in December 2014, GIC made a deal with Mumbai-based real estate developer Nirlon Ltd acquiring more than 60% stake for US$200 million.[36] Other recent examples of GIC's entrance into India's real estate sector include the joint venture between GIC and Ascendas Pte to allocate around US$483 million in Indian commercial property, and the partnership between GIC and KKR & Co – a US-based private equity fund – for structured lending in India.[37] Another noteworthy transaction was the entry of GIC of Singapore as a shareholder in GMP, a Spanish real estate investment company now converted into a SOCIMI (REIT), paying €200 million for a 30% stake in the private family-held group.

[31] *Forbes 2000*. Available: http://www.forbes.com/global2000/.

[32] See Invesco Global Sovereign Asset Management Study (2014) and ESADEgeo (2014).

[33] See *Orbis* BvD database.

[34] Idid.

[35] Ibid.

[36] *The Wall Street Journal*, 24 Dec 2014.

[37] Available: http://ir.kkr.com/kkr_ir/kkr_releasedetail.cfm?ReleaseID=890227 http://www.bloomberg.com/news/articles/2013-11-19/gic-ascendas-to-invest-up-to-s-600-million-in-indian-property

Table 3

Selected Real Estate Deals by GIC (2006-13)

Name of Subsidiary	Target Name	Target Location	Type Specialization	Announced Year	SWF Share in deal (local currency)*	SWF Share in deal (%)
GIC Real Estate	Hines-Office Properties	Germany	Building	2006	S$ 607	100
GIC Real Estate	Property in Nanjing, China	China	Land	2006		n.a
GIC	Chapterhouse Holdings Ltd	UK	Building	2007	GBP 480	100
GIC Real Estate	CSC-MetroCentre	UK	Shopping Malls	2007	GBP 426	100
GIC Real Estate	Hawks Town Corp	Japan	Shopping Malls	2007	Yen 100 (bn)	100
GIC Real Estate	Lasalle-Kungshuset Office	Sweeden	Building	2007	€123	100
GIC Real Estate	Merrill Lynch Financial Centre	UK	Building	2007	€710	n.a
GIC Special Investments Pte Ltd	Shapoorji Pallonji & Co., Ltd's Special Purpose Vehicle	India	Township	2007	US$ 160	50
GIC	Westfield Parramatta	Australia	Shopping Malls	2007	US$ 593	100
GIC Real Estate	WestQuay Shopping Center	UK	Shopping Malls	2007	GBP 299	100
GIC Real Estate	Iso Omena	Finland	Shopping Malls	2008	52.64	40
GIC Real Estate	Mexico Retail Property	Mexico	Shopping Centres	2008	n.a.	n.a
GIC Real Estate	Township in Mytischi	Russia	Township	2008	US$ 233	n.a
GIC	E-Land-Shopping Outlet Bldg(2)	South Korea	Shopping Malls	2009	US$ 177	100
GIC Real Estate	Westfield Whitford	Australia	Shopping Complex	2009	n.a.	n.a
GIC Real Estate	OpernTurm Tower Frankfurt	Germany	Building	2010		
GIC Real Estate Pte Ltd	Salta Properties portfolio of industrial properties	Australia	Land	2010	Aus$ 220	100
GIC	Brisbane Radius Industrial Park	Australia	Buildings Office Complex	2011	Aus$ 20	100
GIC	Home Plus Facilities and Land Located at Hyoja-dong, Jeonju-si	South Korea	Property	2011		
GIC	HUL Brigade Road	India	Building	2012		
GIC	Broadgate Office Complex	UK		2013	S$ 3.4 (bn)	100
GIC	Time Warner Building	USA	Building	2013		
GIC	Time Warner, Columbus Circle	USA	Building/Office Complex/Retail	2013	US$ 300	23
GIC	Office Tower, Jakarta	Indonesia		2013	US$ 350	100

Source: Fletcher, SovereigNET database (2015).
* Figures in millions.

6. Different Twins and a Distant Cousin: Sovereign Wealth Funds in Hong Kong, Singapore and South Korea

Temasek

Temasek was created under the Singapore Companies Act in 1974 as a private exempt company. As such it has been released from filing reports and accounts with the Registrar of Companies and it was exempted from the public budget. Also, it was allowed to expand into different economic sectors.[38]

Initially it held and managed a portfolio of S$345 million invested into 36 companies. That was done transferring shares of public enterprises previously held by the Ministry of Finance. These included blue chip companies of strategic importance, such as Singapore Airlines, Keppel Shipyard, Development Bank of Singapore and Sembawang Holdings.[39]

In the late 1970s Temasek adopted a more active approach towards its companies, by providing more focus and direction in terms of identifying new investment opportunities as well as considering mergers with other profitable companies.[40] Temasek's gross assets in the late 1970s were estimated to more than S$3.5 billion making it to the largest conglomerate in Singapore.[41]

Over the years Temasek has become the majority owner in former statutory boards which were corporatised in the 1990s. These including Sing Tel (1992) Singapore Power (1995), Post Office Savings Bank (1998), the second biggest global port operator Port of Singapore International (1997). Singapore Broadcasting Corporation (1994) was corporatized as Telegroup Coporatisation and lately renamedas Media Corporation Group (owned by Temasek). Public works Department was corporatized as CPG Corporation in 1999 (under Temasek) and one year later it became a part of Australia Downer EDI Group. On its side, Commercial and Industrial Security Corporation used to be a statutory board, but since 2005 it's owned by Temasek.

During the 1980s and especially in the 1990s Temasek's focus shifted from domestic to international markets.[42] It started to embark on overseas investments, with an eye on technology and skills transfer as well as market access.[43] Temasek's emphasis was on 'building world-class companies' by setting performance benchmarks and through the hiring of talent and the acquisition of technology.[44]

[38] *Straits Times*, 16 Feb 1977
[39] Ibid.
[40] *Straits Times*, 25 June 1999, p.74
[41] *Business Times*, 8 Aug 1978, p.40
[42] Asian Business, June 1990.
[43] Straits Times, 25 June 1999, p.74
[44] Ibid.

Supporting the regionalization of Singaporean and multinational companies Temasek started regional infrastructure projects, such as industrial parks in neighbouring countries. Therefore government linked companies got an official waiver from their original charter, which spells out their scope of activity. This gave them further flexibility to seize market opportunities. As a consequence, they started to internationalise beyond ASEAN countries into the Chinese market, New Zealand, Great Britain, the US, and neighbouring countries. Singapore started to foster co-operation with neighbouring countries, notably Malaysia, Indonesia and Thailand. These economies at that time implemented dynamic liberalisation reforms and experienced high levels of growth. Singapore's plan was to outsource labour-,water-,and land intensive production and industry to neighbouring Batam (Indonesia) and Johor (Malaysia), while retaining high productive business and high value added activities, such as R&D and financial services in Singapore (Business Times, 24 July 1990; Far Easter Economic Review, 3 Jan 1991). The strategy of the growth triangle (i.e. Batam-Johor-Singapore) targeted specifically multinational companies to retain or establish operational headquarter in Singapore, while taking advantage of regional division of labour.

Temasek overall Portfolio, and trends between 2007-2014

Between 2007-2014 Temasek's portfolio shows an Asia bias with about 70% of its total portfolio allocated in Asia (including Singapore). Following the Financial Crisis 2007/08 Temasek's exposure to OECD countries has increased from 20% in 2007 to 24% in 2014.

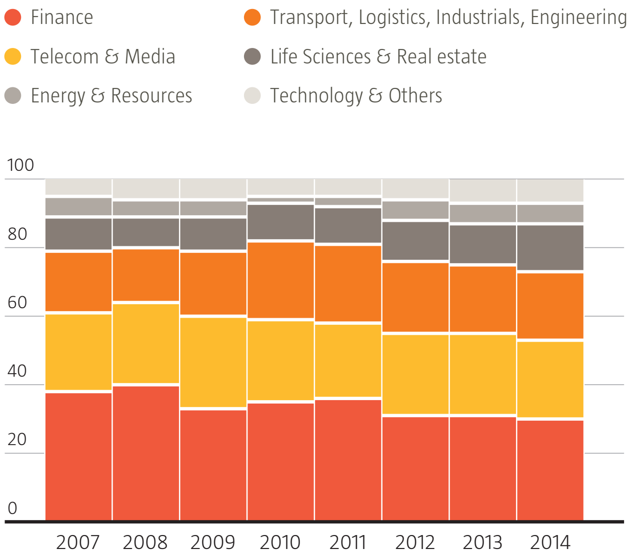
Shortly after Temasek's loss in US financial firms, finance as overall part of Temasek's portfolio decreased from 38% in 2007 to 30% in 2014. According to commentators within three months between January and March 2009 "Temasek lost about US$4.6 billion from its original investment in Merrill [Lynch]" (Wall Street Journal, 18 May & 29 May 2009). Transport /Logistics experienced slight increase from 18% to 20 %. Energy remained same with 6%, and also telecom and media, most dynamic growth in relative and absolute terms live science 10-14% and technology from 5 to 7%.

From 2007 onwards Temasek expanded its exposure to the technology, the media, and the life science sectors – increasingly through unconventional means notably venture capital. Venture capital investment in Singapore's high tech sector has increased to US$1.71 billion in 2013 – which is equivalent to a 60 fold gain from 2011 – making Singapore the leader in venture capital funding in Asia, just behind China.[45]

[45] Future Tense (2014, p.68). Available: http://www.mti.gov.sg/ResearchRoom/Pages/Future-Tense-July-2014.aspx.

Chart 2
Temasek's Portfolio (2007-2014)

Sector distribution



Source: Author's elaboration from Temasek Annual Reports.

Increasing the exposure to venture capital comes along with Singapore's strategic long term plan to establish Singapore as a startup financing and technology hub in Asia. Temasek has its own venture capital arms, notably Vertex (est. in 1988). Vertex plays an important role for Temasek for getting exposure to growth sectors across countries. It has a total deployed capital in excess of US$1.2 billion and presence in Singapore, Beijing, Shanghai, Taipei, Bangalore and Silicon Valley.[46]

Drawing on publicly available information together with the Orbis database on ownership structure this paper compiled a sample of 82 discrete investments. Thereby it is able to identify some interesting investment patterns in terms of sectors and countries.

With regard to its presence in Singapore, Vertex has a focus on financing growth through specialist venture funds, such as Vertex Asia Fund Pte. Ltd, Vertex China Chemicals, Vertex Technology Fund (III) Ltd. Thereby Vertex contributes to Singapore's role as the regional hub for startup financing and financing the regional expansion of home-grown companies.[47] Investments focusing on software, internet and media sector include firms such as eG Innovations, GrabTaxi, muvee Technologies, or Paktor.

In line with its focus on financing Singaporean high-growth companies Temasek created more recently Clifford Capital and Heliconia Capital Management Pte Ltd, which has a mandate of at least investing 50% in Singapore companies. In addition to that Temasek has established in 2013 the Enterprise Development Group with a mandate of seeding and developing new business opportunities, such as clean energy.[48]

Over the last decade Singapore has already established itself as an international research hub, with world class homegrown universities (e.g. the National University of Singapore is regularly ranked as number one university in Asia) and numerous partnerships, with world leading institutions, such as Yale, ETH Zurich, Johns Hopkins, Duke, INSEAD, and MIT. Surprisingly, thus far little focus has been placed on the commercialization of R&D.

With an eye on developments in the United States and Israel, Singapore's SWFs are entering into pre-seeding and seed financing in areas, that are specific promising for growth. Drawing on successful examples, such as Seattle-based Accelerator Corp, Singapore is to become Asia's future "Silicon Valley".[49] Via its subsidiaries Temasek increases its exposure to firms with high growth potential in niche markets. In 2011 the National University of Singapore Enterprise in cooperation between Singtel Innov 8 – a Temasek subsidiary – and the Media Development Authority started the incubation programme Block 71. It has been quoted as the 'heart of Singapore's start-up ecosystem' and it accommodates more than 100 startups, including venture capital firms and tech incubators.[50]

[46] Vertex [Homepage]. Available: http://vertexmgt.com.

[47] Future Tense (2014)

[48] Available: http://www.temasekreview.com.sg/en/institution/seeding-future-enterprises.html

[49] Report of the Economic Strategies Committee (2010), Future Tense (2014)

[50] *Straits Times* 7 Jan 2014

6. Different Twins and a Distant Cousin: Sovereign Wealth Funds in Hong Kong, Singapore and South Korea

Table 4

Vertex discrete investments (cross-sector & cross-country)

Country\Sector	Software/ Internet/Media	Healthcare	Clean Technology	Telecommunications	Electronic & Semiconductor	Funds	Others
China	20	2	0	1	5	0	5
India	8	0	0	0	0	0	0
Singapore	4	0	0	0	0	5	0
Asia Others	4	0	2	0	4	0	0
US	2	5	2	2	0	1	0
UK	2	0	0	0	0	0	1
Europe	5	1	0	0	0	0	1

Source: Author's elaboration from Vertex, Orbis BvD database

Concerning developed markets Vertex concentrates on investments in early stage firms with high growth potential in the life sciences and clean technology sector. Particularly in the US Vertex's focus is on health care firms, such as Holaira – a company focusing on the development of systems that make breathing easier for patients suffering from obstructive lung diseases. Other examples include Ivantis Inc, which provides innovative solutions for glaucoma treatment, and Visterra, a biotech company focusing on infectious diseases through novel applications of modern data processing. More recently, in 2015 Vertex established a new US-based company Vertex Ventures US to focus on enterprise apps and web infrastructure. Vertex Ventures US was launched with Jonathan Heiliger, former general partner of North Bridge Venture Partners and In Sik Rhee, former general partner with Rembrandt Venture Partners.[51]

In large emerging markets, such as China and India, Vertex targets specifically firms in consumer technology, digital and interactive media sectors. In India, for example, Vertex has invested in firms providing travel, hotel and holiday booking services, such as Travel Guru PVT Ltd, Yatra Online Private Ltd. and Magic Rooms Solutions India (P) Ltd. In a similar fashion, Vertex has made investments in China's emerging online travel industry, including Shanshui Holiday Travel Agency, Breadtrip – a travel recommendations and sharing app. Likewise Vertex has invested in China's and India's online baby and kids retail platforms, notably Babycare (China) and FirstCry (India). Because of SWFs long term return perspective it is easier for them to relate their investments to anticipated long term changes and trends.

The Korean Investment Corporation

Emulating the success of Singapore's SWFs, specifically that of the GIC Pte Ltd, South Korea established in 2005 its own SWF. The Korea Investment Corporation (KIC) was created with a mandate of maximising the return on South Korea's reserves through international investments, and thereby developing the domestic financial industry. Similar to the GIC Pte Ltd, the KIC does not own the assets that it manages. It manages assets on behalf of the government, notably the Minstry of Finance and the Bank of Korea, and receives a management fee.[52]

Initially endowed with US $ 1billion in 2005, the AUM of the KIC grew to US $ 21.6bn in 2008 and reached US $ 85 billion by the end of 2014.[53] Similar to Singapore's GIC Pte. Ltd., the KIC's initial investments focus was on traditional asset classes, notably equities and bonds mainly in OECD countries. But over the period between 2005 to 2014 the KIC broadened its investment spectrum, and included private equity, real estate, commodities, and hedge funds. From 2010 onwards KIC has also been increasing its investment exposure to emerging markets.[54]

[51] *Fortune* 13 Jan 2015

[52] KIC Annual Report 2007
[53] KIC Annual Report 2014
[53] KIC Annual Report 2013

The KIC has offices in New York and London, and considers the creation of additional offices in Asia and the Middle East.[55] This reflects the KIC's recent efforts of in-house capacity building, which included in 2014 the creation of a research centre. It focuses on macro and sectorial analysis, such as energy, telecom media technology, healthcare and consumer markets.

Portfolio Trends between 2007 -2014

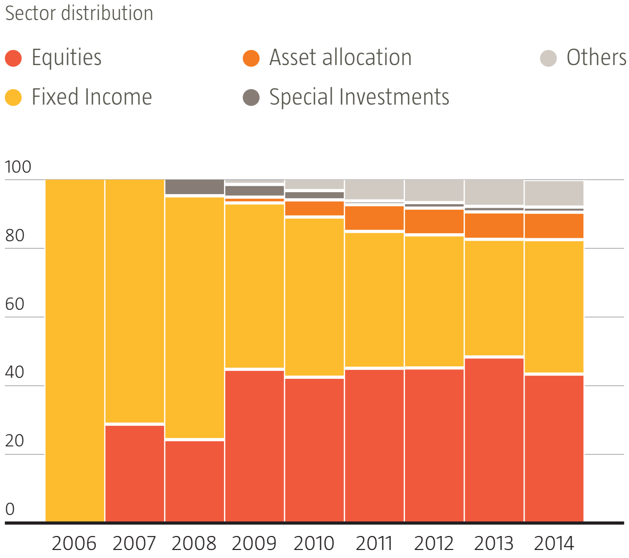
Over this period some noteworthy portfolio alignments took place. In terms of asset classes over the period 2007-2014 the KIC's portfolio shows a clear bias towards developed market equities and bonds. The KIC's portfolio in 2010 shows an OECD bias with about ¾ of its total investments allocated in, Europe, UK, US and Japan.[56] Developed market equities and bonds made over 80% of the KIC's total portfolio. Fixed income as an asset category saw a relative decline as a percentage of total AUM over this period, whereas other asset classes gained importance, notably equities, real estate, hedge funds, private equity and special investments.[57] Alternatives as an asset class experienced the strongest growth from just 1.7% in 2009, reaching 8% of the KIC's total portfolio in 2014 which is equivalent to about US $ 6.8 billion.[58]

The KIC invests directly and indirectly via external asset managers. Like Singapore's GIC Ptl. Ltd., it seeks alpha through external managers with good track records, and expertise in sectors and areas in which the KIC has little in-house investment capacity.[59]

At the end of 2007 out of the KIC's total AUM US$ 14.8bn, about US $ 10.8bn was invested in bonds, and out of the total bond investment only US $ 2.3 bn were managed internally while the remaining US $ 8.5bn entrusted to external managers.[60] In stark contrast, at the end of 2010 approximately 70% of KIC's traditional portfolio was managed internally and about 30% was managed by external managers.[61] The trend towards inhouse capacity building was reflected by a high level KIC official who highlighted the need for capacity building and reduce KIC's reliance on private research firms.[62]

Chart 3

KIC's Portfolio (2006-2014)



Source: Author's elaboration from KIC Annual Reports.

Recent Developments

Following an ambitious start it was reported that the KIC experienced "disappointingly lower returns" on its direct investments and especially poor return on direct deals in the energy sector, partly due to lack of experience.[63]

Responding to this KIC's CEO announced in late 2014 a strategy of fostering partnerships and co-investments with other SWFs and Pension Funds.[64]

Under the KIC's leadership the Co-investment Roundtable of SWFs – a co-investment platform – was established in 2014, with the purpose of fostering co-operation and co-investments among large institutional investors and SWFs.[65] That was followed by the formation of a number of strategic partnerships and the creation of bilateral funds.

55 *Pensions & Investments*, 26 Mar 2015

56 KIC Annual Report 2010

57 Special investments referring to companies engaged in the energy and natural resources development sectors (KIC Annual Report 2010)

58 KIC Annual Report, 2013, 2014

59 KIC Annual Report 2013

60 KIC Annual Report 2007, p.23

61 KIC Annual Report 2010, p.4

62 *The Korea Times*, 17 Dec 2013

63 *The Wallstreet Journal*, 22 Oct 2014

64 Ibid.

65 Available: http://www.crosapf-summit.org/sub1.html

6. Different Twins and a Distant Cousin: Sovereign Wealth Funds in Hong Kong, Singapore and South Korea

Shortly after, in November 2014 the KIC signed a memorandum of understanding with the Qatar Investment Authority to create a US $ 2bn joint investment fund.[66] Following this, in early March 2015 the KIC entered a strategic partnership in the private equity sector with the Kingdom Holding Company (Saudi Arabia) and the Investment Corporation of Dubai.[67]

Conclusion

Singapore's Government Investment Corporation introduced in April 2013 a new governance framework targeting a more active management away from a traditional endowment model towards an opportunistic investment model. This model follows the Canadian Pension Fund and has a particular focus on equities in emerging markets and real estate. With regard to real estate GIC's investments follow the broader among SWFs to invest in 'real assets', but it also pioneers into new markets, notably the property sector in India.

In the meantime also Singapore's other SWF Temasek is re-calibrating its investment style by including start ups with high potential in dynamic sectors, such as consumer software, internet, healthcare and clean technology. Supporting the establishment of Singapore as 'Silicon Valey of Asia', Temasek increasingly starts to compete with other investment firms on an international level for the best startups.

Following in Singapore's footsteps, notably that of the GIC Pte. Ltd., the KIC has increased its exposure to alternative asset classes, and increasingly focuses on inhouse capacity building, co-investments and joint ventures with other large institutional investors and SWFs.

Largely unnoticed by the public the HKMA and the MAS, have a great the potential to shift a significant amount of assets into alternative asset classes. According to market observers also Hong Kong has started a more active management of its reserves from 2012 onwards in order to improve its overall return. At the end of 2011 the Hong Kong Monetary Authority started to shift into riskier assets, at end of 2011 10.8US$bn invested in new asset classes; one third in PE; and remaining in emerging market bonds and shares, RMB denominated assets in China, property-related investments.[68]

KIC, on its part, has initiated a new promising strategy helping SWFs to co-invest through an innovative platform. Through co-investments and cooperation, SWFs benefit from shared search and execution costs, save expertise external management fees and might enter into more complex and profitable businesses. Co-investment among SWFs and with public pension funds might lead to a new paradigm where public money is wisely spread all over the geographies and asset classes. The state capitalism is taking steps towards new and innovative ways to interact with the old capitalism as we already know it.

Common to all is a trend towards diversification and sophistication, through a variety of means, such as outsourcing, co-investing, and partnerships.

[66] *Business Korea*, 6 Nov 2014

[67] *Saudi Gazette*, 5 Mar 2015, The National 4 Mar 2015

[68] EIU (2012) Hong Kong's Exchange Fund achieves poor returns, June 11th

II
Sector Analysis

Sovereign wealth funds and the geopolitics of agriculture

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[1] wish to thank Luis Torras, financial consultant and expert on China, for his help in preparing this article.
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7. Sovereign wealth funds and the geopolitics of agriculture

Introduction

Despite its geostrategic importance, agriculture occupies only a very marginal place in the portfolios of institutional investors such as investment funds, insurance companies, hedge funds, pension funds, private equity and sovereign wealth funds. Yet there are persuasive reasons to believe that this trend is already changing.

In the next few years agriculture will have to face exponential growth in demand for food due to the population explosion, the increase in per capita income, substantial changes in diet and, to a lesser extent, the rise of biofuels. At the same time agriculture has a number of limiting factors stemming from its close relationship with the physical environment, such as climate, quality of soil nutrients and the very nature of the crops, which limit production in the short and medium term. These two factors, strong demand and limitations on the supply side, have required the sector to make huge strides in productivity over the past 50 years in order to feed the world's population. Large-scale mechanisation, the generalised use of fertilisers and, new pesticides and cultivation techniques, as well as more and better irrigation, are some of the factors explaining the equally large increase in agricultural productivity. In the 1960s and 70s, world agricultural productivity was improving at a rate of more than 3% a year, thanks to the aforementioned improvements, but in the past few years this rate has gradually fallen and is now between 0 and 1%. Significant investment in the sector will be needed to face this challenge, but it will not be forthcoming unless there are improvements to the institutional and land ownership framework ensuring the legal certainty of the investments, which –in view of the nature of agriculture– are necessarily very long-term.

Apart from that, the growing demand for food is very unevenly spread. The countries most affected are those with large populations, strong GDP per capita growth expectations and relatively limited available acreage for growing crops. As a result of this uneven spread, many countries depend, and indeed increasingly so, on imports to ensure food security. One example is the Gulf countries, which import around 80-90% of the food they consume. This structural agricultural trade deficit constitutes an increasingly significant determinant in these countries' foreign and trade policies. Just as in the case of countries that rely on fossil fuel imports, these countries have to develop strategies to limit excessive dependence on any one country, securing a reliable and diversified food supply and possibly even undertaking investments in the agricultural sector in countries with surplus production. These are the dynamics configuring what we call the geopolitics of agriculture.

Our conclusion is that the weight of agriculture in the portfolios of the various financial institutions in general, and of the sovereign wealth funds in particular, will increase in both absolute and relative terms in the course of the next few years and even decades. The emerging markets are hungry, and to satisfy this growing demand major capital expenditure on farmland will be needed to make it more productive. It is a daunting challenge.

Given this scenario, sovereign wealth funds will play a particularly active role, for a number of different reasons. Firstly, because food security is a crucial issue and sovereign wealth funds are very powerful financial instruments in many countries with agrifood deficits. Secondly, because the nature and long-term investment strategy of these funds are a good match for the time horizon inherent to investments in agriculture. Lastly, because many of the countries with the greatest agricultural potential still have weak legal and property systems, and this seriously hampers investment by private agents. In the final analysis the sovereign wealth funds have the support of their countries' authorities, and this protects the legal security of their investments.

The global dynamics of the agricultural sector

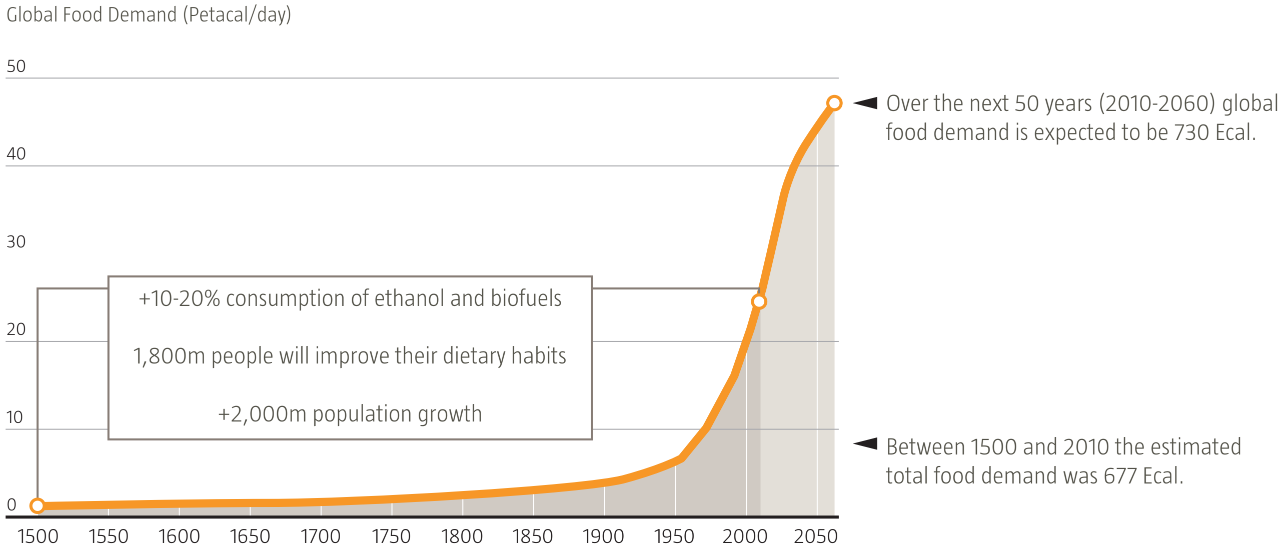
Over the past fifty years we have seen a process of strong growth and global convergence unfold. The figures bear witness to this: global GDP has increased six fold, while GDP per capita has increased just threefold, due to strong population growth.[2] The advent of cheap transport, the technological revolution, the increase in global trade and the boom in public and private borrowing are some of the factors explaining the strong economic growth seen in the past fifty years, in which the global economy has grown at an annual rate of 3%. This growth process has been accompanied by a drastic reduction in levels of poverty and a steady increase in disposable income, especially in the emerging markets where much of this growth has been concentrated, leading to an unprecedented process of convergence. Progress has spread like an oil slick to practically all parts of the world, with their particularities, specificities and limitations, giving rise to a new, more fragmented, multipolar and diverse scenario.

There is nothing new in this: more people in the world living better than just a few years ago. One consequence of this to which we tend to pay less attention, however, is the heavy pressure that this development has brought to bear on the use of the world's resources in general, and agricultural resources in particular.

2 "Global Growth: can productivity save the day in an aging world?", McKinsey Global Institute, January 2015.

Chart 1

Growth Projections for Demand in Agricultural Products



Source: Cribb (2011).

Moreover, this phase of rapid demographic and economic growth in many of the emerging countries is far from over. The FAO[3] estimates that total demand for food will grow by between 50% and 70% from now to 2050. This means that in the next forty years humanity must produce roughly as much food as it has produced in the past 10,000 years (graph 1).[4] The magnitude of the challenge can hardly be overstated.

In order to understand this pressure on available agricultural resources –and also to put the major increases in the sector's productivity into context– a useful indicator is the evolution of the number of arable hectares per capita. Since 1960, with the start of the population explosion, the number of hectares per capita has fallen by 55%, from 0.42 to 0.19. The big increase in population of the so-called emerging countries has coincided with stagnation in the total world area under cultivation in the past 20 years. In 1960 the developed countries as a whole had an available area of nearly 7,000 m^2 per capita (almost as big as a football pitch), compared with half that (3,350 m^2) in the emerging countries. This area is now around 4,500 m^2 in the developed countries and 1,800 m^2 in the emerging ones. By 2050 this is estimated to fall to 4,000 m^2 per person in the developed countries and some 1,390 m^2 in the emerging countries.[6]

Therefore the future of agriculture will be linked inexorably –as it has been for the past two hundred years[7]– to constant growth and advances in productivity. Legal certainty is especially sensitive in the case of agriculture and very closely linked to land ownership regimes.[8]

3 Food and Agriculture Organization

4 Between 1500 and 2010 (410 years) it is estimated that humanity produced 677 exa-calories of food (1 exa-calorie = 1018 calories). In the 40 years from 2010 to 2040 it is estimated that it will have to produce 730 exa-calories. CSIRO, "Sustainable Agriculture: Feeding the World", Megan Clark; "Barbarians at the farm gate", The Economist, 3 January 2015.

5 Cribb, J. 2011, "The Coming Famine, Risks and solutions for the food challenge of the 21st century": http://www.holysee.embassy.gov.au/files/hyse/Global%20Food%20Security%20Oct11.PDF. "The different aspects of the sustainable food production focusing on greenhouse technologies": http://www.scientific-publications.net/get/1000000/1401626820381277.pdf

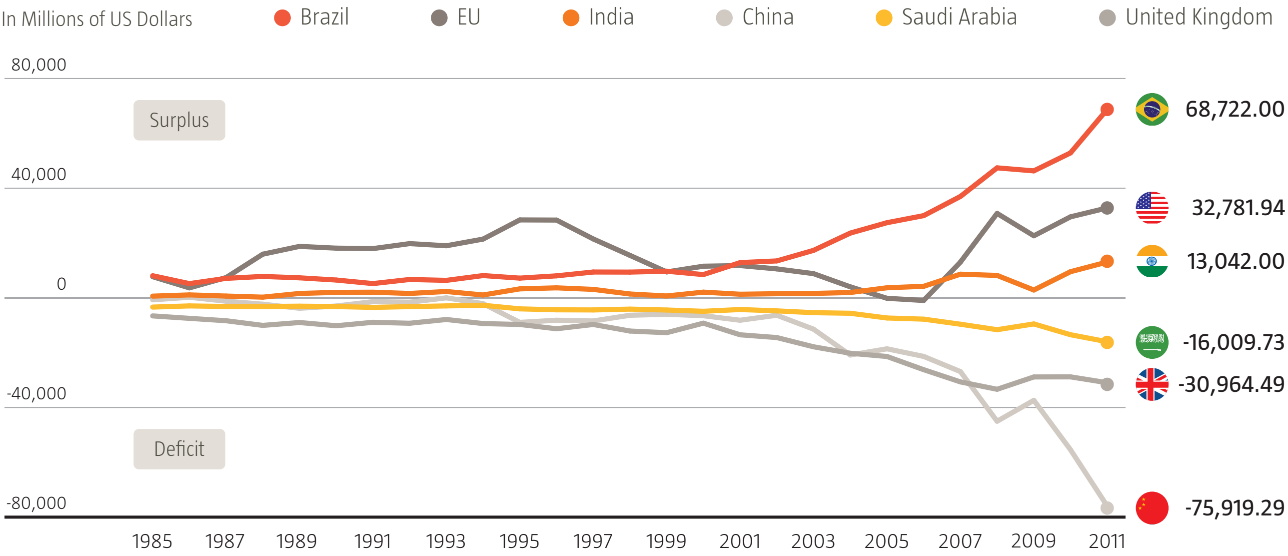
6 Soil Atlas 2015. A football pitch has an area of 7,140 square metres. Report available online: https://www.boell.de/sites/default/files/soil_atlas_2015.pdf

7 Giovanni Federico points out that, in summary, agriculture "has been a great success story", with continuous improvement in productivity which has been especially intense from 1800 on. Federico, G., Feeding the World: An Economic History of Agriculture, 1800-2000 (Princeton University Press, 2005), pp. 1-4.

8 Salvador Millet i Bel, at the request of Catalonian politician and businessman Francesc Cambó, carried out a detailed study of the history of agriculture in Spain, in which he concluded that the main determinant was the land tenure regime. Millet i Bel, S., *Història de la agricultura espanyola als segles XIX i XX* (Pagès, 2001).

Chart 2

Agricultural trade balance (1985-2011)



Source: FAO (2015).

The most important factor determining a country's long-term growth is the quality of its institutions. A solid institutional framework is one that enables wealth to be created and spread fairly, without discouraging saving, work or responsibility. In the past few years we have seen how the countries we used to call the "third world" thirty years ago, and which we now call "emerging" due to their high growth rates, have been converging little by little towards the standards of development and welfare of the advanced countries. Underpinning this convergence is institutional improvement in the emerging countries, which - little by little, and often idiosyncratically - have adopted the basic institutions that have made possible the development of Western countries since the Industrial Revolution.[9] Any reform involving institutional improvement is bound to be complex, requiring broad consensus and effective political leadership, which are not always to be found, and its effects are visible only in the long term. Accordingly, the fragility of institutions and of land tenure regimes is another factor that still limits agricultural output in the short and medium terms in many countries, and especially in many countries with enormous agricultural potential.

A highly illustrative example of all of the aforesaid is China. Since the beginning of the 1980s, China's GDP per capita has multiplied by twenty from a very low starting point. This immense growth has enabled more than 600 million people to escape from poverty and about 230 million to be considered part of today's middle-class, with the consequent exponential increase in the demand for food. It seems reasonable to assume that this trend will continue in the next twenty years. China's GDP per capita may approach $27,000 and its middle class may exceed 950 million.[10]

The supply-side situation is equally difficult. China has nearly 20% of the world's population, but only 7% of its cultivated land. Rapid urbanisation and serious problems with irrigation have contributed to an 8.7% decline in the available agricultural land since 1985. During the same period, China's population has increased by 24%, leading to a decline in agricultural use per capita from 0.11 hectares

[9] Ferguson, N., Civilization: The West and the Rest (London: Penguin Books, 2012) and The Great Degeneration: How Institutions Decay and Economies Die (London: Penguin Books, 2013).

[10] "10 projections for the global population in 2050", Rakesh Kochhar, 3 February 2014. Pew Research Center: http://www.pewresearch.org/fact-tank/2014/02/03/10-projections-for-the-global-population-in-2050/. This is a 2% increase, which is not much if we compare it with the 34% increase forecast for India, another country with complicated agricultural geopolitics for the coming years. According to the China Statistical Yearbook 2011 and United Nations data, China's population grew from 1,045 million in 1985 to 1,368 million in 2014. United Nations projections are for China to reach 1,453 million in 2030 (a 6% increase on 2014), and 1,385 million in 2050 (down on 2030 and barely 1% up on 2014). United Nations, Department of Economic and Social Affairs, Population Division. *World Population Prospects:* The 2012 Revision (Medium variant).

per person to the current 0.08. China has 110 million hectares available for agriculture, 11% of the total area, for a population of 1.3 billion, equivalent to just 0.08 hectares per head, one of the lowest ratios in the world.[11] China's growing agricultural trade deficit, which is already close to $80 billion, is simply a logical consequence (graph 2).

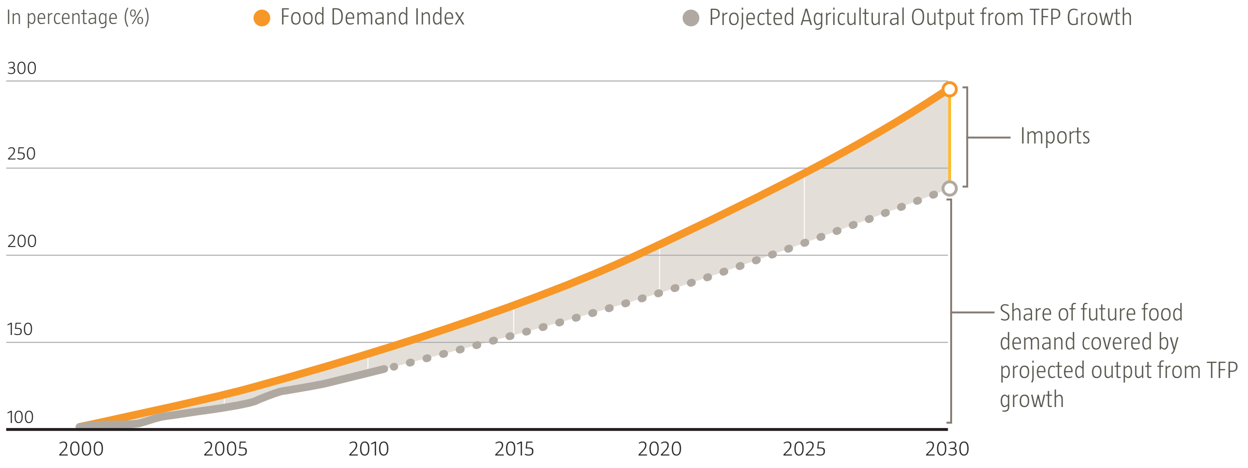
The geopolitics of agriculture: the battle for food security

In graph 2 we saw the evolution of the agricultural balance of trade in certain selected countries, with very different trends. We see the exporting power of the United States, with domestic demand already completely developed, whereas China, which will yet see a sharp rise in internal food demand, is already running a large agricultural and livestock trade deficit. As we pointed out, the case of China is a prime example and serves to illustrate the dynamics that determine the geopolitics of agriculture. A study carried out by the Global Harvest Initiative estimates that in 2030 28% of China's total demand for food will have to be met by importing it from other countries (graph 3).

This phenomenon is not exclusive to China; we also see it in other developed and emerging countries in Asia, in many of the countries of sub-Saharan Africa and in the Gulf States. In all of them there are two factors that coexist: relatively large, growing populations and a relatively small proportion of land for cultivation. All the countries of Asia combined, for example, run a deficit of $159 billion according to the latest data available from the FAO. In the Gulf, countries such as Saudi Arabia and the United Arab Emirates imported a net $27 billion worth of food in 2011. India, another giant with growing global influence, maintains an agricultural trade surplus of $13 billion, although this can be expected to diminish, following a similar pattern to that seen in China. For many countries there is already a battle –now in the process of rebalancing– to ensure access to oil at reasonable prices, and the same thing is happening –albeit with different rules of play– in the agricultural sector. Countries with structural food deficits have to apply a geopolitical strategy conditioned by their food dependence on other producer countries.

Chart 3

Food Demand & Production in China

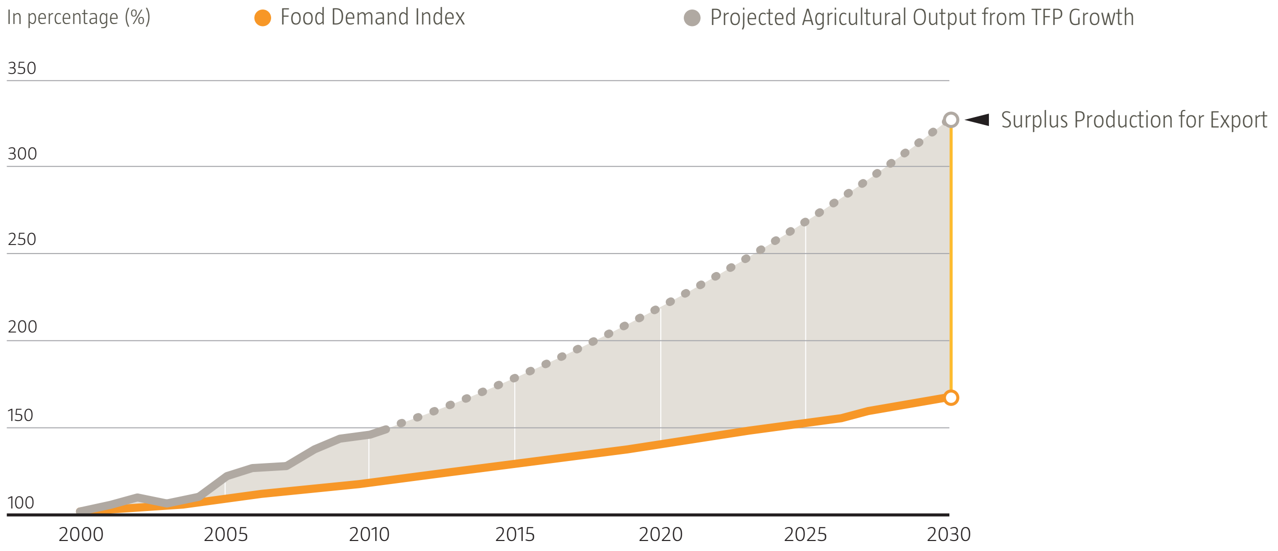


Source: Fuglie (2013).

[11] World Bank, estimates for 2013-2015, in Panda Agricultural & Water Fund. As regards the percentage of total available agricultural area, China has just 11%, which is low compared with other countries such as France (33%), Germany (34%), Brazil (8.3%), India (52.5%), Japan (11.6%) and Spain (24.9%).

[12] 2013 Gap Report. For calculating the growth of agricultural production ('total factor productivity' or TFP) in China, growth in average productivity for the 2001-2010 period has been projected through to 2030. Demand has been calculated on the basis of United Nations population projections and PwC GDP projections; estimates of the elasticity of food demand relative to disposable income –i.e. the proportion of disposable income spent on food at any given time– was extracted from Tweeten, L.G. and Thompson, S.R. (2009), "Long-term Global Agricultural Output Supply-Demand Balance, and Real Farm and Food Prices", Farm Policy Journal, vol. 5, 1-5.

Chart 4
Food Demand & Production in Brazil



Source: Fuglie (2013).

The fact that there are countries that import food obviously means that there are others that export it. One of the main exporters is Brazil. The case of Brazil is the converse of that of China. Brazil has 0.37 arable hectares per capita, similar to France and far more than China with just 0.08. Moreover, this level has remained more or less constant since 1985, despite the increase in its population. Brazil is one of the countries that has invested most in modernising its agricultural sector, and it is now among the most competitive in the world. Additionally, BNDES (Banco Nacional de Desenvolvimento or Brazilian Development Bank), acts as the real sovereign wealth fund of Brazil. Through its investment arm BNDESPar it has carried out major investments in the agricultural sector, providing support to this key industry for the country's economy. Investments in agriculture, more specifically the cattle industry, represent nearly 6% of this fund's total portfolio, far in excess of the average of other similar funds.[13]

All these factors have contributed to rapid and sustained growth in Brazil's agricultural productivity in recent years. According to a study, Brazil's agricultural productivity grew at an annual rate of 4.3% in the 2001-2010 period. This remarkable increase has made Brazil one of the world's biggest food exporters. If we project this same increase in productivity as a base scenario through to 2030 and compare it with the weaker growth in the demand for food, we find that the food surplus available for export will increase substantially in the next few years (graph 2).

It is therefore not surprising to find that Brazil is one of China's biggest trading partners. To give just one example, Brazil's exports of soya to China grew from zero in 1995 to 22.5 million metric tonnes in 2012. Brazil's situation is the converse of China's: it has 5.3% of the world's total arable acreage, but just 2.9% of its population. So what role can sovereign wealth funds play in these dynamics?

[13] According to a study, the agrifood sector has overtaken telecommunications in importance, with 6% of the total investment portfolio. This percentage includes holdings in meat companies JBS, Marfrig and Brazil Foods and dairy producer Vigor. See "BNDESPar concentrates 89% of its investments in five industries": http://direitoeinfraestrutura.blogspot.com.br/2013/03/infrastructure-bndes-concentrates-89-of.html

Agriculture and sovereign wealth funds

Total investment in agriculture worldwide is currently trivial and bears no relation to the importance and economic value of the primary sector in the majority of economies. Worldwide, the number of institutional investors investing in agriculture is still insignificant. This is also true of sovereign wealth funds, although we are starting to see some changes.

Sovereign wealth funds manage assets of more than $6 trillion worldwide and play a significant part in the geopolitics of certain countries, most of them emerging. Since they operate with very long-term time horizons, these funds can undertake investments with much less liquidity, for example investing in infrastructure and public services in emerging countries, which are usually those with the biggest needs of this kind. Until very recently, the most overlooked among these types of investments has been agriculture, although the winds of change are now starting to blow.

At the last World Investment Forum, held by UNCTAD[14] in October 2014, sovereign wealth and pension fund executives meeting in Geneva remarked on the huge long-term investment potential existing in many sectors in the developing countries. The meeting highlighted the financial world's growing interest in sectors crucial to the development of the new emerging economies, with special mention of the energy, water and agriculture sectors.[15] Managers of sovereign wealth funds from China, Saudi Arabia, South Africa and Norway, and Denmark's pension fund, expressed their preference for investments in infrastructure or agriculture since they were good matches for their time horizons.

Although, with few exceptions,sovereign wealth funds tend to be opaque, recent announcements of strategic agrifood investments by some of them reveal a change in trend, particularly in the countries with the greatest needs.

For example, Hassad Food, an exclusively agricultural fund linked to the Qatar Investment Authority and launched in 2008, has expressed its interest in making strategic investments in the agrifood sector in Turkey and Brazil, investing in sugar, animal proteins, grains and rice.[16] One of Hassad Food's strategic objectives is precisely to ensure Qatar's food security. In 2009, it acquired large areas of farmland in Australia, and it recently announced its interest in acquiring agriculture-related assets, mainly in the United States, Canada, Brazil and Eastern European countries. The fund mentions that all these kinds of investments are undertaken over very long terms, in some cases with a horizon of more than 50 years.

Major Middle-Eastern funds such as the Abu Dhabi Investment Authority, with $773 billion of AUM, the Kuwait Investment Authority with $548 billion and Saudi Arabia's massive SAMA Foreign Holdings, with $744 billion, all from countries with very limited agricultural resources, publish very little information, making it impossible to estimate the volume invested in agriculture.[17] We do know, however, that in November 2011 the Saudi government established SALIC (Saudi Agricultural and Livestock Investment Company) with the objective of investing in agriculture. In April 2015 SALIC, together with the Brazilian company Bunge, announced the $201 million purchase of 50.1% of the Canadian Wheat Board, which controls the wheat exports of Canada, the world's second biggest exporter.

Another similar initiative, although not strictly speaking a sovereign wealth fund, is the Al Ain Holding investment group created in 1996 by the Emir of Abu Dhabi. This regionally important group has a subsidiary dedicated exclusively to agricultural investments, Al Dahra Agriculture, which currently has some 81,000 hectares, eight forage and alfalfa dehydration plants (some of them acquired in Lleida and Zaragoza) and various centres for processing rice and wheat. Despite the opaqueness of the information, the agricultural sector is on the radar of the main investment managers in the Gulf.

In Africa, too, a key continent in agricultural geopolitics, we are starting to see movement. The government of Zambia –one of the world's leading producers of copper– has already announced the creation of a new sovereign wealth fund to stimulate investment in sectors other than mining, prominent among which are infrastructure and agriculture.[18] Zambia is taking an important strategic step towards diversifying its exports, which are currently heavily dependent on copper (three quarters of total exports). This initiative follows that of Angola, which announced two years ago the creation of a sovereign wealth fund with the same objective of diversifying exports, in this case dominated by oil and gas. This fund had an initial allocation of $5 billion to invest in infrastructure, agriculture and the mining sector, which are considered strategic for the country.

[14] United Nations Conference on Trade and Development

[15] *World Investment Report 2014. Investing in the SDGs:* An Action Plan, United Nations Conference on Trade and Development, New York, Geneva, 2014.

[16] "Qatar Wealth Looks to Turkish Food Sector", SWFI (1/10/2013), and "Qatar's Hassad Food eyes Brazilian sugar, poultry assets", Reuters (25/02/2015).

[17] In February 2013 Global AgInvesting Middle East 2013 was held: this event serves as a forum for investors to discuss the various opportunities offered by the agricultural sector as regards investment products, returns and risk profile. The annual seminar is organised by several major players in the world finance industry, and several sovereign wealth funds from the Middle East, including those from Saudi Arabia, Qatar and Kuwait, as well as from other parts of the world, played a very active role in it: http://www.globalaginvesting.com/Conferences/Home?eventId=18.

[18] "Zambia Plans Sovereign Wealth Fund to Stimulate Investment", Chris Kay, Bloomberg (08/01/2014).

7. Sovereign wealth funds and the geopolitics of agriculture

In 2012 the Nigeria Sovereign Investment Authority (NSIA), the vehicle charged with managing part of the substantial foreign exchange reserves arising from the country's sales of crude oil, announced an allocation of $1 billion for seed capital investment, with agriculture again featuring explicitly as one of the strategic industries to be developed.[19] Within the fund's structure, 40% of the total was allocated to the Nigeria Infrastructure Fund (NIF), the largest component fund, the purpose of which is to invest in infrastructure in order to improve the country's competitiveness. The strategic sectors in which the fund will invest are: healthcare, agriculture, roads, housing and electricity generation.[20]

Turning to Asia, Singapore, with two sovereign wealth funds, is particularly significant. GIC and Temasek have AUM worth $320 billion and $167 billion, respectively. Despite having a more transparent policy, in its latest annual report GIC does not mention or give any clues as to the breakdown of its portfolio by sector, although Reuters publishes its investment portfolio, at least in part. The agrifood sector apparently represents 2.1% of GIC's investment portfolio, although purely agricultural activities account for only 1.44%.[21]. A significant transaction was its 2012 purchase of a holding worth approximately $571 million in Brazilian agricultural multinational Bunge.

Temasek for its part does provide detailed information on the composition of its portfolio. Of the fund's 46 biggest current investments on which it publishes information, only three are in the agricultural sector. At market prices, the holdings in these three companies amount to $2,686 million, as indicated in the fund's latest annual report. This represents an investment of 1.2% of the total.[22] We should point out that, until recently, Temasek also held shares in agricultural multinational Monsanto, which it sold in November 2013. All told, Temasek sold 1.25 million shares for a value of approximately $140 million. As part of this divestment process, Temasek also reduced its position in Mosaic, an agricultural fertilizer company, by about $9 million.[23] Temasek data, and to a lesser extent those of GIC, give us an indicative figure of around 1.2% to 1.4% for the weight of agricultural investments in the total portfolio.

Another fund that publishes all its positions, and which also exerts a powerful influence on the strategy of other sovereign wealth funds, is Norway's Government Pension Fund Global, the world's biggest sovereign wealth fund, with $896 billion under management. Its strategic importance is such that it currently represents no less than 1.3% of all the world's stock markets. The weight of the agricultural sector in its portfolio is 1.1%, a similar percentage to that of Temasek. If we widen the focus of the analysis to take in food companies, the total weight in the portfolio increases significantly, to 4.9%.

Total assets under management of all the sovereign wealth funds amount to $6 trillion according to data from the ranking prepared by ESADEgeo in 2014. If we consider it reasonable to assume that these funds' investment in agriculture might be around 1%, this would mean, roughly speaking, that all the world's sovereign wealth funds together have investments in purely agricultural assets of not more than $60 billion. We estimate that this figure will increase fourfold in the next ten years.

Returning once more to the qualitative analysis, the case of China is the most illustrative and the most instructive in terms of clues to the near future. One of the key features of the Chinese regime, which is not beyond criticism, is the high degree of expertise and long-term vision of its leaders. In the past few decades China's leaders, with varying degrees of acumen, have faced the huge challenge of integrating China into the global economy, in a process that is still a work in progress. In June 2014, Ding Xuedong, chairman of sovereign wealth fund China Investment Corporation (CIC) made an important announcement to the world. CIC, created in 2007, already manages $652 billion. In short, it is one of the funds charged with managing the huge amounts of foreign exchange reserves pouring into China every year from its exports. Not all the portfolio data are published, but we do know that 40% of the portfolio consists of listed shares and that 28% of the investments are long-term. Most of the investments, 67% of the total, are made outside China.

In June 2014, in an important article published in the Financial Times, Ding Xuedong announced to the world that it was going to start investing in agriculture. He said: *"We are keen to invest more across the entire value chain - in partnership with governments, multilateral organisations and like-minded institutional investors - in areas that will help to unlock the industry's potential, increase the food supply and offer attractive returns".* The article continued: *"We believe the agriculture sector offers stability, a way of hedging against inflation and a device for spreading risk."*[24] The Chinese are fully aware of the challenge posed by having nearly 20% of the world's

[19] "Sovereign Wealth Fund takes off with $1bn grant", Emma Ujah, Vanguard (21/05/2013).

[20] "An Appraisal of the Nigeria Sovereign Investment Authority", Nnamocha P.N. and Osmond N. Okonkwo, Developing Country Studies, Vol.5, No. 2, 2015.

[21] "Singapore sovereign fund GIC buys 5 pct stake in Bunge", Reuters (24/02/2012). From published data we know that the investments in agriculture are: Mahindra & Mahindra (0.44%), Bunge (0.42%), Sime Darby (0.25%), IOI Corp. (0.14%), Kuala Lumpur Kepong (0.10%), Taiwan Fertilizer (0.05%), Tate & Lyle (0.04%), Thomson Reuters Datastream.

[22] Complete list of Temasek's investments as at 31/03/2014: http://www.temasekreview.com.sg/content/dam/temasek/annual-review-2014/documents/en/Temasek_Review_2014_en.pdf.

[23] "Temasek Pares U.S. Stocks with Facebook, Monsanto Exits", Bloomberg (15/11/2013).

[24] "China will profit from feeding the world's appetite", Ding Xuedong, Financial Times (17/06/2014).

population but only 7% of its arable land, placing significant strains on its agricultural sector, which still has a long way to go in terms of capitalisation and improving productivity.

The CEO of CIC explicitly mentioned food security as an essential part of the fund's strategy for the coming years. Ding also mentioned the substantial requirements for investment and capital in the agricultural sector over the next few decades, which he says will have to increase by 50% from the current level.

China has also set other initiatives in motion, with the ultimate aim of intensifying its investments in agriculture. The best example is COFCO. COFCO aims to compete with the four major agricultural multinationals that control world trade in grain (the so-called 'ABCD' - Archer Daniels Midland (ADM), Bunge, Cargill and Louis Dreyfus), serving as the main channel for the import and export of agrifood products between China and the rest of the world. COFCO is a holding company with four subsidiaries listed in Hong Kong. This holding company, which is closely controlled by the government, has its roots in the former Chinese state monopoly, which has gradually reinvented itself and mutated on the basis of the intense process of reforms affecting the agricultural sector over the past fifty years. COFCO is thus becoming a key instrument for the country's global agricultural trade[25]. This role has led it to invest in acquisitions overseas, such as that of the agricultural business of Singapore's trading company Noble Group, along with Chinese venture capital fund Hopu Investment Management, for $1.5 billion, and of 51% of Dutch agricultural trading company Nidera, among other transactions.[26] It is also instructive to note that 23% of all public and private Chinese investment in Europe in 2014 was in the agrifood sector.[27]

Sovereign wealth funds will drive the new mega-trend for the coming decade: agriculture

Sovereign wealth funds could lead the new wave of investments in agricultural assets in the coming decades. In order for these investments to be profitable, governments, especially those of the emerging countries, need to improve the institutional framework so that these, too, converge towards Western standards.

Indeed, institutional improvement is the condition precedent for facilitating a greater volume of investments that will enable emerging countries in Asia, Latin America and Africa to improve their agricultural productivity and thus meet the inexorable growth in demand for food products that the emerging countries as a whole will experience in the coming years. All the same, the data indicate that these increases in agricultural productivity as a result of institutional improvements will not be enough in the short and medium term to meet the growing demand. Asian and Middle Eastern countries with large populations relative to available land will increasingly depend on food imports from the rest of the world. The geopolitics of agriculture will increasingly determine new aspects of global diplomacy.

At present, the majority of funds and investors in the agrifood sector are focused on the distribution, transformation and sales phases, far downstream from the activities that increase the real supply of food. Again, drawing a certain parallel with the energy sector, private investors are investing in filling stations but not in prospecting and exploration for the new sources that are so necessary. Consequently, investments in agriculture have suffered globally from a degree of neglect. In short, the sector is badly under-capitalised at a time when demand for food is growing strongly. This leads us to think that in the next ten years we will inevitably see the sector having to undertake investments that allow it to improve its productivity and boost output.

As we have indicated, our estimate is that current investments of sovereign wealth funds as a whole in the purely agricultural sector are barely 1%, which means a volume of investments of approximately $60 billion worldwide. We estimate that in the next ten years this figure could increase fourfold, to levels of around $240 billion, on the part of the sovereign wealth funds alone.

[25] Update: On 13 May 2015 CIC announced the creation of a joint venture with COFCO, the latter contributing its controlling holdings in Nidera (Netherlands) and Noble Agri (Singapore). The resulting new organisation, COFCO International, will be 80% owned by COFCO and 20% by CIC, and will compete with the four major global traders - ADM, Bunge, Cargill and Louis Dreyfus. China is thus preparing itself to control the current huge volume of agricultural imports and its more than probable future growth.

[26] In 2012 COFCO acquired Australia's Tully Sugar for $140 million.

[27] In 2014 China invested $18 billion in Europe, of which $4.1 billion were earmarked for the agrifood sector, "Chinese investment into Europe hits record high in 2014", Baker & McKenzie (11/02/2015): http://www.bakermckenzie.com/news/Chinese-investment-into-Europe-hits-record-high-in-2014-02-11-2015/.

7. Sovereign wealth funds and the geopolitics of agriculture

According to a study by US fund manager TIAA-CREF, in 2012 institutional investors accounted for less than 1% of all the world's farmland. Within the group of institutional investors, the sovereign wealth funds are more patient and better able than most other major public and private investors to accept and withstand the highly cyclical nature of agricultural prices in the short term.

The mandate of sovereign wealth funds is not limited to profitability with reasonable and controlled volatility. Their objectives often go well beyond that. For the majority of these sovereign wealth funds, food security already forms an explicit part of the mission/vision or basic principles. Additionally, most of the major investments in agriculture to be carried out are in emerging markets. These types of investments, as we have mentioned, are carried out in environments with levels of legal uncertainty that are unacceptable to the private sector, which in most cases does not have the necessary contacts or influence. The fact that the sovereign wealth funds can rely on the direct backing of their countries' governments enables them to leverage the diplomatic networks and may facilitate access to these markets. Lastly, there is the argument of the attractive risk-adjusted profitability that these types of investments can offer. The dynamics on the demand side are very clear, and it is to be hoped that the sector's profitability in the long term will continue to be attractive, as it has been in the past twenty years, with lower volatility than the stock exchange.[28]

The world needs a new major advance in agricultural productivity like the one we saw in the 1960s and 70s. To achieve this, the figure of more than $200 billion that the sovereign wealth funds could invest would not be enough. All the players in the global financial sector will be indispensable: investment funds, public and private pension funds, venture capital funds, hedge funds, insurers and endowments. Sovereign wealth funds could lead it, but this will not be enough. Investing in agriculture will be necessary, and it will have to be profitable, otherwise private investors will once again turn their backs on the sector, and we cannot afford that luxury. Financial sustainability is necessary for continuous reinvestment in the sector.

[28] "La agricultura es la mejor inversión en USA y Gran Bretaña en los últimos 20 años" ("Agriculture has been the best investment in the US and the UK in the past 20 years"), Marc Garrigasait (11/01/2015): http://investorsconundrum.com/2015/01/11/agriculture-la-mejor-inversion-en-usa-y-gran-bretana-en-los-ultimos-20-anos/.

Sovereign Venture Funds

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* This paper was originally elaborated in April 2015 and the author bears full and sole responsibility for any views expressed, errors and omissions.

8. Sovereign Venture Funds

Sovereign wealth funds are betting on innovation and technology. This is a new trend, which is becoming more marked as time goes by. It has become one of the main focuses of sovereign wealth funds. Investments have multiplied, spreading beyond the major start-ups listed on the NASDAQ and other stock markets. We are now seeing significant investment by sovereign wealth funds into start-ups.

Investments are no longer confined to large, listed technology companies, but also include companies such as Uber and Spotify. Some sovereign wealth funds, such as Khazanah and GIC, have decided to open international offices in Palo Alto. It is becoming more and more common to see these funds investing in the famous "unicorns", start-ups that reach valuations in excess of a billion dollars in record time. Bets and wins too are happening at breakneck speed: For example, in less than two years Malaysia's sovereign wealth fund, Khazanah, has obtained around a billion dollars in profit on its $400 million investment in Chinese online giant Alibaba. Other sovereign wealth funds such as China's CIC and Singapore's Temasek also bought shares in the company (i.e., CIC invested more than €2 billion for a 5.6% equity stake in the start-up.)

At the same time, the ascent of the unicorns[1] in China is fuelling the ecosystem, with the founders of these start-ups in turn investing in more technological companies, feeding a virtuous cycle. In mid-2015, Joseph Tsai, vice-chairman and one of the founders of Alibaba, (with a fortune estimated at more than $6.5 billion) decided to set up a family office in Hong Kong[2]. Like Jack Ma, the founder of Alibaba, and Lei Jun, the founder of Xiaomi, another Chinese start-up, they are now facilitating the rise of more start-ups.

As we shall see, we are witnessing an unprecedented trend. The major emerging market state funds have thrown themselves unreservedly into the race for added value. We are seeing an acceleration in the rebalancing of the world. In the past decade this rebalancing of wealth from Western countries to emerging markets was massive. Trade and capital flows were redirected towards the emerging markets, raising their profile as issuers and recipients.

Now this rebalancing is also happening with innovation and technology. Furthermore, this decade is and will be that of the rise of the emerging markets as technological powers. South Korea, a country of some fifty million inhabitants, is already beating Spain in innovation and technology. China already invests more in venture capital than the whole of Europe, and has become the world's second biggest start-up and venture capital hub. Israel has more start-ups listed on the NASDAQ than the whole of Europe.

As if that were not enough, emerging markets' capital is mobilising into high added value investments. From China to Singapore, Qatar and the U.A.E., in the past few years sovereign wealth funds' bets on US and European start-ups have multiplied. They've been keen on Asian start-ups too. The phenomenon is not new: governments have always had a significant presence in technology investments. Silicon Valley and Tel Aviv were born largely with the aid of the visible hand of the US and Israeli governments, respectively, as explained by Josh Lerner of Harvard University in his masterful book[3]. Many of the innovations now familiar to us, such as the Internet, cloud computing or augmented reality, were incubated by government seeding capital or driven by government agencies. And to some extent this continues: in 2014 the U.S. Department of Defense (the Pentagon) joined with the CIA in investing in start-ups relating to cyber-security. Since 1999 the CIA has had a venture capital fund, Q-Tel, which invests heavily in technology companies. This state –and particularly military - connection is also key to understanding the rise of the Israeli start-ups and the famous Yozma programme, that triggered the technological miracle of the 'start-up nation'.

We could even argue that the first modern investor in venture capital was a queen, Isabella I of Castile. Toward the end of the fifteenth century a Genoan presented his venture to her: a new route to the Indies, also warning her of the high degree of risk involved in the enterprise; the queen bet on this entrepreneur. In the end the return on the investment was colossal. As often happens with start-ups, the initial business model (new route to the Indies) was not achieved, but a new one opened up (a new continent, the Americas), with a much higher return on capital than planned.

What we are witnessing is nothing less than the rise of the sovereign venture funds. As we shall see, these funds have a twofold aspect: some invest directly in start-ups, while others also make use of funds of funds to invest in private venture capital funds, which, in turn, invest in start-ups.

1 Companies valued at $1 billion or more by venture-capital firms.

2 The family office will be managed by Oliver Weisberg, one of the managing directors of Citadel, a Chicago-based hedge fund, and Alexander West, founder of Blue Pool Capital, a Hong Kong hedge fund set up by Tsai himself. The business model for the family office will be similar to that of the prestigious Yale University Endowment (Tsai studied at Yale), heavily biased towards alternative investments and venture capital in particular. This is also the model followed by icons of Silicon Valley such as Mark Zuckerberg, who supported the creation of a multi-family office in San Francisco, Iconiq Capital, which manages accounts for him and also for Facebook's chief operating officer, Sheryl Sandberg. Tsai for his part is very familiar with the world of family offices, having worked in Asia for Investor AB, the investment vehicle of Sweden's Wallenberg family, with investments in technology giants such as Ericsson and in start-up holding companies such as Germany's Rocket Internet group.

3 See Josh Lerner, *Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed* – and What to Do About it, Princeton, Princeton University Press, 2009.

Emerging Markets 3.0

While Europe loses its technology icons one by one - the latest to fall was Nokia, now in the process of reinvention with the 2015 acquisition of Alcatel-Lucent– the emerging markets are becoming ever stronger in innovation and technology. Some of their companies are already world leaders in their respective sectors.

This is the real news: the emerging markets are no longer low-cost, low-technological-intensity countries. It is no longer a matter of trade and financial flows, but of countries betting on innovation and technology. And their bets far exceed the usual European perception.

In 2015 the four 'BRICs' alone (Brazil, Russia, India and China) accounted for 43% of the world population, 21% of world GDP and 20% of direct foreign investment (nearly $205 billion). In less than a decade trade among them has increased tenfold to reach more than $200 billion. These four countries are respectively already the seventh, eighth, tenth and second world economic powers. China already has as many companies as the UK (33) in the FT Global 500 which lists the world's 500 largest companies by market capitalisation. The same trend is seen with India and Brazil, which, with ten each, are already ahead of Spain, (with nine companies in the top 500).

Other countries such as Singapore are unseating the major Western financial centres, particularly those of Switzerland. Singapore is indeed the first emerging economy to join the select club of triple-A countries with the top international credit rating. Chile, Turkey and Mexico are already members of the OECD. The greatest concentration of millionaires is in Qatar, ahead of Switzerland (Qatar is in fact the country with the highest GDP per capita in the world). Similarly the world's biggest airlines are now those of emerging markets, with the U.A.E. in the lead. All seek to acquire iconic assets, and above all to acquire knowledge so as to provide services within their respective countries. Thus, in 2015 the Fosun group bought Cirque du Soleil, in order to round out its offering of entertainment for China's middle class, after buying Club Med, also in 2015, and having taken bought a stake in travel agent Thomas Cook.

But above all we are seeing a wave of technological expansion. We are no longer dealing with countries with cheap labour and full of raw materials, but with economies that are downloading the technological 'killer apps' at breakneck speed. In 2015, the world's biggest supplier in the telecommunications industry is no longer an American, French or Swedish company, but a Chinese one (Huawei). The world's biggest producer of PCs is no longer American, but Chinese (Lenovo). One of the world's most R&D-intensive companies is Korean (Samsung), which since 2013 has also been ahead of its Finnish and American competitors as the leading producer of mobile phones and devices. We are witnessing an unprecedented tectonic shift. The spread of technology is accelerating as never before, in space and in time, as Diego Comín points out[4].

A clear case in point is that of South Korea. In the 1960s South Korea was poorer than Spain or any Latin American country[5]. In 2015, it surpasses them all in terms of GDP per capita, to say nothing of its performance in education (equal with Finland in the OECD's PISA reports). In 1963 Korea exported goods at a value equivalent at current prices to little more than $600 million, mainly agricultural and fishery products. In 2015, it exports more than $600 billion worth of goods, mainly electronics, machinery, chemical products and ship technology. The giant Samsung group consists of more than 80 companies and employs over 380,000 people around the world. In 2013 it even surpassed Apple, selling more smartphones and generating more profit than the California company.

Until recently innovation, particularly corporate innovation, was largely a Western story. Multinationals from OECD countries designed, produced and sold innovative products. Gradually another model established itself: innovation was still conceived in the West, but it was produced in emerging markets. This is Apple's model with iPods and iPads, partly produced in Taiwan, Korea or China. Now we are seeing a third model emerge, in which innovation is not just produced and sold from the emerging markets, but increasingly also being conceived in them.

This shift is bringing about an accelerated reordering of world company classifications. The classifications of the most innovative companies produced by Boston Consulting Group or Forbes tell a similar story. BCG's Top 10 is headed by Tencent and also features a Taiwanese company (Mediatek), a Mexican one (América Móvil), another Chinese one (China Mobile), two Indian (Bharti Airtel and Infosys) and one South African company (MTN). In the Forbes list, too, Tencent features in the Top 10 (again ahead of Apple and Google), and other names include Brazil's Natura Cosméticos and India's Bharat Heavy Electricals.

4 See Diego Comín, Mikhail Dmitriev and Esteban Rossi-Hansberg, "The Spatial Diffusion of Technology", Harvard University, Boston College and Princeton University, March 2013 (unpublished). http://www.dartmouth.edu/%7Edcomin/files/SDT.pdf

5 For a comparison between Spain and Korea, see one of the chapters in the book by Javier Santiso, *España 3.0: Necesitamos resetear el país,* Barcelona, Planeta, 2015.

8. Sovereign Venture Funds

The world of the Internet has always been dominated by US multinationals. However, Tencent now has a market capitalisation of $45 billion, ahead of eBay and Yahoo. From Moscow, Yuri Milner is revolutionising the rules of digital venture capital, hitherto dominated by California-based funds. His company, Digital Sky Technologies (DST), owns mail.ru, one of the successful Russian start-ups listed on the London Stock Exchange for a value of more than $8 billion. His venture capital fund is one of the few with holdings in Facebook, Zynga or Groupon. In 2011, Milner launched a second fund, DST Global 2, for an amount of $1 billion, an unheard-of size in Western Europe.

China's Tencent (which holds 10% of DST and bought start-ups such as Riot Games in the US for $400 million) also launched its fund in 2011, Tencent Industry Win-Win Fund, in order to accelerate the purchase of start-ups for a similar amount (some $760 million). For its part, Alibaba Group Holdings, another of the biggest Chinese Internet companies, launched its fund through its subsidiary Taobao for an amount of $46 million. Legend Capital for its part, part owner of Lenovo (over 42%), raised another technology fund of €500 million in 2011. From Singapore, telecommunications operator Singtel also launched its own venture capital fund in 2011, with more than $250 million in order to accelerate the acquisition of technology start-ups. All these initiatives show, as if further proof were needed, the extent of the emerging Asian countries' commitment to carving out an ever bigger space for themselves in the world of start-ups and venture capital.

This phenomenon is not confined to Asia. The case of Naspers, a South African multinational in the digital world, is a prime example: it obtains more than 70% of its revenues from the African continent, but has also made many acquisitions in emerging markets. The 45% stake in Tencent which it bought in 2011 has increased in value by more than 3,100% since then: so the biggest "home-run" in the history of the Internet belongs, not to a fund based in California, but in South Africa. Naspers has also invested $390 million in Russia's mail.ru and holds 91% of Brazilian start-up Buscapé, for which it paid more than $340 million. In Eastern Europe it bought Tradus for more than $1 billion in 2008. Since 2010 it has continued buying in Latin America, acquiring the Argentine start-up DineroMail, the continent's biggest online payments firm, and Olx.com, in 2011, for nearly $145 million. Naspers now has a presence in 129 countries; with annual revenues of approximately $4 billion, it has 12,000 employees and has become one of the main investors in emerging market start-ups.

We still tend to think of Silicon Valley as the all-powerful world centre of innovation and technology. However, since 2013 China has been placed as the world's second biggest venture capital hub. There are more start-ups per inhabitant in Israel than in any other country in the world: here, venture capital per capita reaches a record of more than $140 per inhabitant, double the $70 figure for the US.

Brazil already has a more powerful ecosystem of start-ups and venture capital funds than Spain does: in 2015 Brazil already has several venture capital funds with more than $100 million for investments exclusively in Brazil (Spain has no fund of this size dedicated exclusively to investing in Spain). Brazilian media group RBS launched e.Bricks, a fund of more than $100 million, to invest in Brazilian Internet companies. The major California-based funds have now set sail for this new El Dorado: Redpoint e.ventures closed a $130 million fund to invest in Brazilian start-ups. European funds are on the move too; in 2012, London-based venture capital fund Atomico landed in Brazil.

In 2013 Amadeus, another major European fund, closed a $75 million fund with the South African telecoms company MTN to invest in start-ups in emerging markets, including African markets such as Kenya and South Africa, where there is also considerable movement. Telefónica for its part made a massive commitment to emerging markets, particularly Latin American ones, by means of a network of accelerator funds in eight Latin American countries (Wayra) and venture capital funds in three of them (Amerigo). Mexico's América Móvil also invested in start-ups in 2013. One of them was Shazam, of the UK, in which it acquired an 11% stake for around $40 million, proposing to spread the Shazam app throughout the region.

Spanish groups have not been idle either, particularly BBVA, which set up a $100 million venture capital fund to invest in the US, and also occasionally in Latin America. In 2013 it took part in an investment of more than $20 million in SumUp, a German financial services start-up. Santander did likewise with Sweden's iZettle in 2013. Both banks are supporting these European start-ups in their internationalisation, opening paths to the emerging markets of Latin America.

This leads us to imagine that, in addition to having executives based in Spain to cover the Spanish market, these European start-ups, guided by Spanish banks towards Latin America, could also use Spain as the headquarters for executives responsible for developing new markets, or in any case Latin American markets. (In the case of iZettle they are in London, and in that of SumUp they are in Berlin.) Why not imagine Spain (Madrid and Barcelona) becoming a hub for

European start-ups looking to enter Latin America (and vice-versa, a gateway to Europe for start-ups from Latin American and other emerging markets?

From Copacabana to the NASDAQ: Technology start-ups and 'multilatinas'

Technological change, beyond commercial and financial change, is evident in China, India, Korea and Singapore. But it also encompasses other regions of the world. Specifically, there has been a silent revolution is in certain Latin American economies. In several countries in the region we are seeing an extraordinary flowering of entrepreneurship and an unprecedented boom in multinationals that now extends well beyond the Mexico and Brazil, the two dominant regional powers.

The vibrant Latino start-up ecosystem

For example, in 2010, when it joined the OECD, the Chilean government launched Start-Up Chile, an ambitious and determined programme which has already brought more than 1,000 start-ups to Chile, leading to the emergence of a "Chilecon Valley" in the Southern Cone. In 2013, Brazil launched Start-up Brasil, and Peru followed suit in 2014. Colombia for its part promoted one of continent's most ambitious programmes for digitalizing the economy. Through its ICT ministry, it has launched a powerful digitalization programme. These countries are thus leading the wave of expansion in the region towards innovation; and let's not forget Mexico, which has succeeded in carving out a place for itself in the aerospace industry, with a powerful cluster in Querétaro.

In just a few years results have begun to blossom. Chile has succeeded in putting itself on the world start-up map: in 2010 its acceleration programme received some 100 applications, leading to 22 start-ups being selected; in the latest round nearly 1,600 projects were presented, of which around 100 were selected. A key aspect is that 80% of them came from abroad; one in every four start-ups selected comes from the US, with others coming from India, Spain, Russia and the UK, as well as neighbouring South American countries. However, the most powerful and unexpected effect of this programme has been to arouse the entrepreneurial appetite of Chileans themselves. Of the hundred or so start-ups selected in 2013, nineteen were Chilean - and the figure increased further in 2014 and 2015. In barely five years the programme has launched nearly 1,000 start-ups. Meanwhile Chile's venture capital industry has also grown, with no fewer than six new funds being launched in 2013, which will contribute some €125 million for financing new start-ups.

As in Brazil and Colombia, Chile's public institutions have played a key role in promoting this boom. In Chile, Corfo (*Corporación de Fomento de la Producción de Chile* or 'Chilean Production Development Corporation', a government body) is one of the key instruments. In Brazil, the driving role is shared by the powerful BNDES (Brazilian Development bank) and FINEP (*Financiadora de Estudos e Projetos*, or 'Funding Authority for Studies and Projects', a government organisation for funding science and technology). In Colombia, the Ministry of ICT (through 'Apps.co') together with Bancoldex (*Banco de Comercio Exterior* or 'Bank of Foreign Trade', a state-owned bank that also acts as an entrepreneurial development bank) are the prime movers of these changes. Admittedly, the continent still has a long way to go before it can join the ranks of the world's most innovative: not a single Latin American company appears among the world's 100 most innovative as identified by Thomson Reuters.

The Start-up Brasil programme began in 2013 by offering $100,000 (compared with the Chilean programme's $40,000) for each of the 100 winning start-ups (as well as visas and other facilities that the nine private accelerator funds associated with the programme also provide). In fact, the bulk of the continent's venture capital and private equity activity is concentrated in Brazil. As mentioned, Redpoint e.ventures launched a $130 million fund dedicated entirely to Brazilian start-ups. The big California funds such as Sequoia and Accel, and UK ones such as Atomico, also opened offices in Brazil last year; meanwhile Intel Capital intensified its investments in Brazil, and Microsoft is now considering opening an accelerator (as Telefónica has already done with Wayra in a total of eight countries in the region, not only Brazil).

This craze for investing in start-ups is not just foreign: in 2012 the Brazilian multimedia group RBS launched a $100 million fund, e-Bricks Digital, to invest in 12-15 Brazilian technology firms every year. Is this madness? In Brazil there are already dozens of start-ups turning over more than $30 or $40 million a year: Mobi, Afilio, Lets, Predica, Wine, Vitrinepix, ObaOba, Hagah, etc. In August 2014 the US fund Insight Venture Partners invested $20 million in Hotel Urbano, a Brazilian start-up established in 2011 and now turning over more than $500 million a year. In 2015, the US giant TripAdvisor took as stake in Despegar.com, a Latin American start-up based in Miami.

8. Sovereign Venture Funds

The large companies of Latin America: the Multilatinas

We are also seeing a boom in multilatinas 2.0, focused on innovation and technology[6]. In Brazil, large start-ups such as Totvs are appearing, as they are in neighbouring Argentina, with MercadoLibre. Totvs has set up a corporate fund called Totvs Ventures, and has opened an R&D office in Silicon Valley. MercadoLibre set up a $10 million fund in 2013 to finance entrepreneurship. This start-up, with more than 1,000 employees, has succeeded in attracting a very large number of sophisticated US investors: institutional ones such as Morgan Stanley and T. Rowe Price together with international venture capital funds such as General Atlantic, Tiger Global Management and Benchmark and Latin American ones such as Monashees. The founders of Globant, another Argentine technology company, also created a $10 million fund in 2013 to invest in start-ups, together with the founder of Riverwood Capital, a venture capital fund based in New York.

Some of the region's technology companies already have annual revenues of more than $1 billion - Chile's Sonda for example. More surprising still is the appearance of these technology companies in the rankings of the biggest multilatinas. For example in both 2012 and 2013, Brightstar (acquired by Japanese technology giant Softbank) was among the region's three biggest multinationals in the ranking of the América Economía magazine. This Latin American wave has only just begun: in 2013, in the Financial Times-Telefónica Global Millenials survey carried out in 27 countries, young people in Latin America led the responses of those seeing themselves as technological leaders. In Colombia, 27% of young people surveyed were identified as technological leaders, just ahead of Peru (26%), Chile (22%), Mexico (21%) and Brazil (18%). All these countries surpassed the US (16%), the UK (13%), Germany (12%) Spain and France (6% each). In other words: the youth of Latin America is being pushed along on a wave of technological expansion that is much stronger than what we are seeing in Europe.

Clichés about Latin America abound. We continue to see the region as one big open-cast mine, brimming with raw materials and populist uprisings. And in part, this is indeed still the case. But we would do well to take note of the other Latin America that is emerging: thrusting, innovative and disruptive. We should not be surprised to see before long a Latin American start-up leap from Copacabana to the NASDAQ. In fact, it has already happened: MercadoLibre has leapt from the sea shore of Mar de Plata, and another called Globant, also from Argentina, did so in 2014. Others will soon follow, from Brazil, Chile and Colombia. We should not be surprised by this. Nor should we have any doubts about it. Perhaps in the future the next Google will come from Rio de Janeiro. After all, isn't the creator of Kinect, Microsoft's star product, a Brazilian?

Sovereign Venture Funds: Sovereign wealth funds 3.0

However, Latin America is not the region where the technological and innovating epicentre in the emerging markets is found. Asia stands out head and shoulders above the rest. We have already mentioned the boom in Asian technology companies. The most spectacular case is perhaps that of China's Alibaba which has become the Internet world's biggest IPO, ahead of California's Facebook. This trend will only be accentuated. Rising out of Asia are not just major companies in the digital world but also sovereign wealth funds, powerful investing arms that are now also entering the world of the new technologies.

Having long remained aloof from investments in technology, the sovereign wealth funds have taken up the charge. The most active, as we shall see presently, has been that of Singapore, Temasek, one of the great artificers of the country's main companies, including SingTel, the telecommunications operator. In 2013 it invested approximately $110 million together with Goldman Sachs in Cloudary, a Chinese start-up.

The most active sovereign venture funds – sovereign wealth funds betting heavily on new technologies and innovation, start-ups and venture capital – are in Southeast Asia, specifically Singapore and Malaysia. Khazanah, Malaysia's sovereign wealth fund, opened an international office in Palo Alto in 2014, an unheard-of move until then, clearly aimed at testing the waters and seeking innovation. This precursor is in fact being emulated by others, such as Kazakhstan's sovereign wealth fund, Samruk-Kazyna, which in April 2015 expressed interest in establishing a subsidiary in Silicon Valley (Samruk Innovation) initiating contacts with Stanford and Berkeley for the purpose, as well as with iconic start-ups such as Tesla Motors.

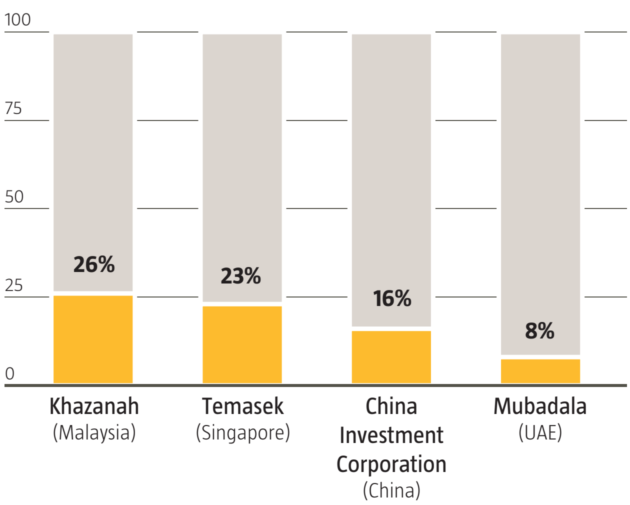
In 2014 alone a total of ten significant-size investments have been made by sovereign wealth funds in start-ups, with a valuation of nearly $1.5 billion. The most active 'sovereign venture funds' have without doubt been those of Singapore. For example at the end of 2014 GIC took part in the round of more than $1 billion of Chinese start-up Xiaomi, now valued at $45 billion. A few months earlier it had taken a stake in Flipkart, an Indian e-commerce start-up. If we add up the investments of Singapore's two sovereign wealth funds, GIC and Temasek, in start-ups over the period 2013 to 2015 we find, by our estimates, one of the world's most active venture capital funds, with 25 investments in technology start-ups, totalling $3.3 billion.

[6] See Javier Santiso. 2013. *The decade of the multilatinas* (Cambridge University Press, 2013)

Chart 1

Sovereign Venture Funds' Investments in Telecommunications and Technology (2015)

Percentage of total investments

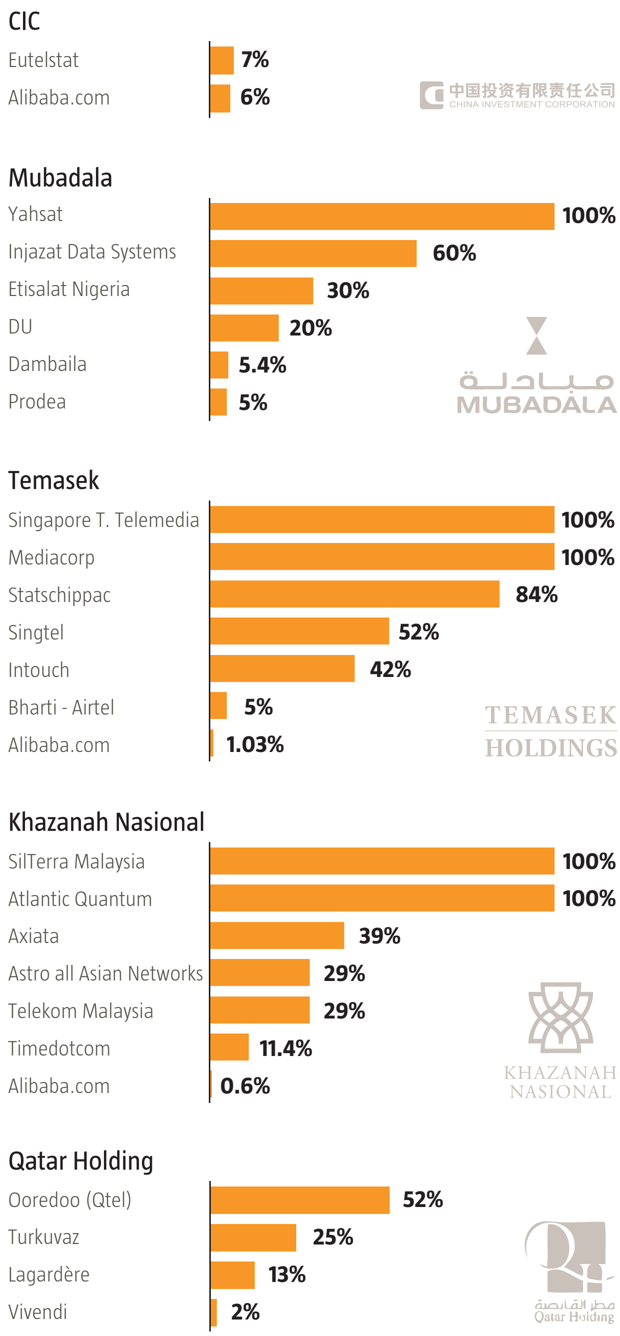


Source: Latest available Annual Reports (2015, except Mubadala, 2012)

Chart 2

Portfolio companies in the ICT sector* (2015)

Stake (%)



* Companies in the technology, telecommunications and media sector.

Source: Corporate information of the Sovereign Wealth Funds (2015)

Temasek's active stance is particularly striking. With a portfolio of $167 billion, Temasek is not just one of the biggest sovereign wealth funds, it is also one of the leaders and market makers. What it does (or refrains from doing) does not go unnoticed by other public investors, which tend to look in detail at the strategic moves of this long-standing and sophisticated Asian fund.

In Infographic 1 we have summarised the main investments carried out by Singapore's 'sovereign venture fund': more than ten, covering a relatively diverse range, from e-learning (the latest investment in 2015 in China's 17zuoye, participating in a $100 million round), to media and online travel to e-commerce (the latest being in Lazada, a company in the German group Rocket Internet, participating in a $250 million round). The countries are also diverse, with investments in US and European but also Chinese and Indian start-ups and even Latin American telecom companies. Temasek led the investment of $700 million in Chinese taxi-hailing app Didi Dache, a round closed in December 2014, together with DST Global, Russian Yuri Milner's fund. Recently (June, 2015) Temasek led a $40M financing found for sense sleep tracker maker Hello. The company valued above $250 million was founded by a 23 years-old British tech prodigy based in San Francisco. It comes at an unusually early stage for an institutional investor like Temasek and confirms the sophistication of sovereign venture funds.

8. Sovereign Venture Funds

Also notable is the strategic dimension of certain investments, for example in start-ups in the financial sector (fintech): Singapore aspires to become one of the major world financial centres - hence its investments in fintech start-ups such as Markit and Funding Circle in London for amounts equivalent to $500 million and $150 million, respectively. In April 2015 Temasek paid $48.1 million to acquire SVB India Finance, an Indian company which provides venture debt to start-ups. This investment follows that closed in December 2014 in another fintech, Adyen, a technology start-up specialising in payment systems. It took part in a $250 million round together with venture capital funds such as General Atlantic, Index Ventures and Felicis Ventures.

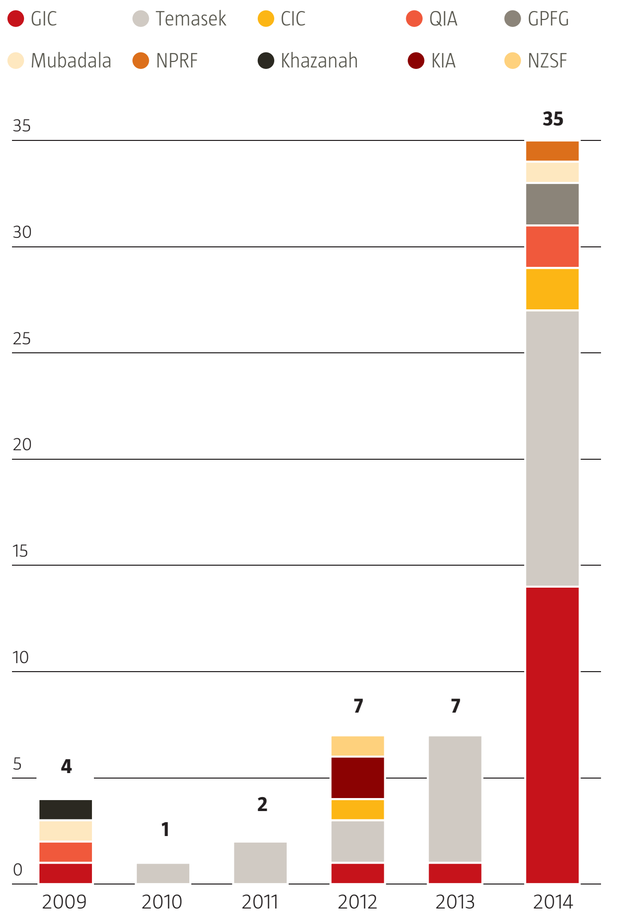
GIC, Singapore's other sovereign wealth fund, has also been active. It took part in a $200 million round in Square, a payment fintech start-up, in 2014. In that same year it invested in iParadigms, a US start-up in the educational sector, participating in a financing round of more than $750 million; also in Lynx, a Brazilian company, Flipkart of India and Chinese internet security company Cheetah Mobile. In all nearly half a dozen investments in a year, which is unheard of, usually being the reserve of the pure venture capital funds.

The Southeast Asian funds are not the only ones to invest in start-ups. In 2011-2012 the telecoms/media sector had become the second biggest destination for sovereign wealth funds' investments. Thus for Khazanah this sector is the first in terms of investments as a percentage of the total (due to the weight of the telecoms operator), the second for Temasek and the third for China's CIC and the U.A.E.'s Mubadala. As shown in Chart 1, the telecoms and technological sectors combined have a weight of 26%, 24%, 16% and 8% respectively in their portfolios. Many of the sovereign wealth funds do indeed have significant holdings in local telecoms operators, such as Etisalat in the case of the U.A.E. Historically, Temasek has been the great driver of Singtel, the Singapore operator, and Khazanah has been that of Axiata, Malaysia's operator. Both have driven their respective pushes to internationalise.

What is more, these same telecoms groups have created their own venture capital funds which in turn invest in more start-ups. Singtel has a venture capital fund of $160 million which has invested in more than 25 start-ups around the world and has offices in Singapore, Shanghai and San Francisco. Moreover Temasek has created a subsidiary specialising in venture capital, called Vertex, which invests directly (it has done so in more than 35 start-ups) and also in other venture capital funds. In 2014 it launched a special $100 million fund to invest in start-ups throughout Asia.

Chart 3
Sovereign Venture Funds' Investments (2009-2014)

By number of investments



Source: Prepared by authors (2015).

On top of this, there is now a craze for investing in all kinds of start-ups. In Abu Dhabi, ADIC announced in 2015 that it had invested in Swedish musical streaming start-up Spotify, which had raised an investment round of more than $400 million, catapulting its valuation to $8.4 billion. In 2014, this same fund invested in the US start-up Coupons, which was listed in March of that same year. For its part Mubadala, another U.A.E. sovereign wealth fund, has holdings in US cyber-security start-up Damballa (5.4%), US semi-conductor multinational AMD (19.4%) and US digital services start-up Prodea Systems (5%).

Table 1

Main investments of the sovereign wealth funds in start-ups

Sovereign Wealth Fund	Company	Country	Year of Investment	Size of Investment	equity, %
Abu Dabi Investment Authority - ADIA (UAE)	Spotify	Sweden	2015	N/A	N/A
Abu Dhabi Investment Corporation - ADIC (UAE)	Coupons	US	2014	N/A	N/A
Alaska Permanent Fund (US)	Juno	US	2013	120 M USD	N/A
China Investment Corporation-CIC (China)	Alibaba	China	2012	2 000 M USD	5,60%
Korean Investment Corporation - KIC (South Korea)	Tesla Motors	US	2013	N/A	N/A
Kuwait Investment Authority - KIA (via subsidiary Impulse) (Kuwait)	Tyba	Spain	2014	3,1 M USD(1)	N/A
Khazanah (Malaysia)	Alibaba	China	2013	400 M USD	0,6%
Government of Singapur Investment Corporation - GIC (Singapore)	Netshoes	Brazil	2014	170 M USD(1)	N/A
Government of Singapur Investment Corporation - GIC (Singapore)	Cheetah Mobile	China	2014	N/A	13%(1)
Government of Singapur Investment Corporation - GIC (Singapore)	iParadigms	US	2014	752 M USD(1)	N/A
Government of Singapur Investment Corporation - GIC (Singapore)	Lynx	Brazil	2014	N/A	N/A
Government of Singapur Investment Corporation - GIC (Singapore)	FlipKart	India	2014	1 000 M USD(1)	N/A
Government of Singapur Investment Corporation - GIC (Singapore)	KKBOx	Taiwan	2014	100 M USD(1)	N/A
Government of Singapur Investment Corporation - GIC (Singapore)	Square	US	2014	200 M USD(1)	N/A
Government of Singapur Investment Corporation - GIC (Singapore)	Xiaomi	China	2014	1 000 M USD(1)	N/A
Mubadalla (UAE)	Prodea Systems	US	2010	N/A	5,0%
Mubadalla (UAE)	Damballa	US	2011	N/A	5,4%
Qatar Holdings (Qatar)	Vente Privée	France	2014	N/A	N/A
Qatar Holdings (Qatar)	Uber	US	2014	1 200 M USD(1)	N/A
Temasek (Singapore)	Alibaba	China	2012	37 M USD	1,03%(2)
Temasek (Singapore)	Evonik	Germany	2013	600 M EUR	4,5%
Temasek (Singapore)	Markit	UK	2013	500 M USD	10%
Temasek (Singapore)	Cloudery	China	2013	110 M USD(1)	N/A
Temasek (Singapore)	Celtrion	South Korea	2013	N/A	10,50%
Temasek (Singapore)	Eros	India	2013	N/A	7,38%
Temasek (Singapore)	Tutor Group	China	2014	100 M USD(1)	N/A
Temasek (Singapore)	Vancl	China	2014	100 M USD(1)	N/A
Temasek (Singapore)	Yatra.com	India	2014	23 M USD(1)	N/A
Temasek (Singapore)	GrabTaxi	Southeast Asia	2014	10 M USD	N/A
Temasek (Singapore)	Virgin Mobile	Latin America	2014	86 M USD(1)	N/A
Temasek (Singapore)	Snapdeal	India	2014	100 M USD(1)	N/A
Temasek (Singapore)	Didi Dache	China	2014	700 M USD(1)	N/A
Temasek (Singapore)	Lazada	Germany	2014	250 M USD(1)	N/A
Temasek (Singapore)	Adyen	The Netherlands	2014	250 M USD(1)	N/A
Temasek (Singapore)	Funding Circle	UK	2015	150 M USD(1)	N/A
Temasek (Singapore)	17zuoye	China	2015	100 M USD(1)	N/A
Temasek (Singapore)	SVB India Finance	India	2015	47 M USD	100%

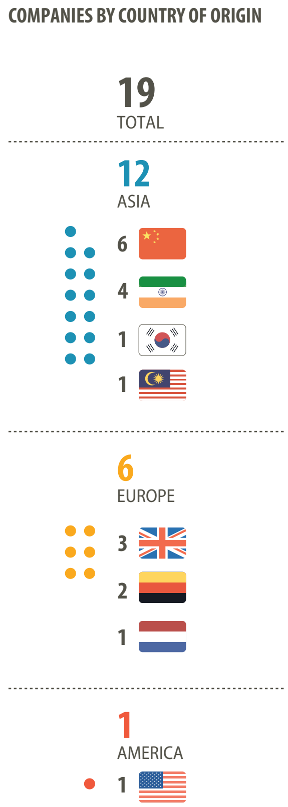
(1) Several participants in the investment round.
(2) Equity in November 2014
N/A: Not available
* $ millions
Source: Annual Reports of the funds, 2015.

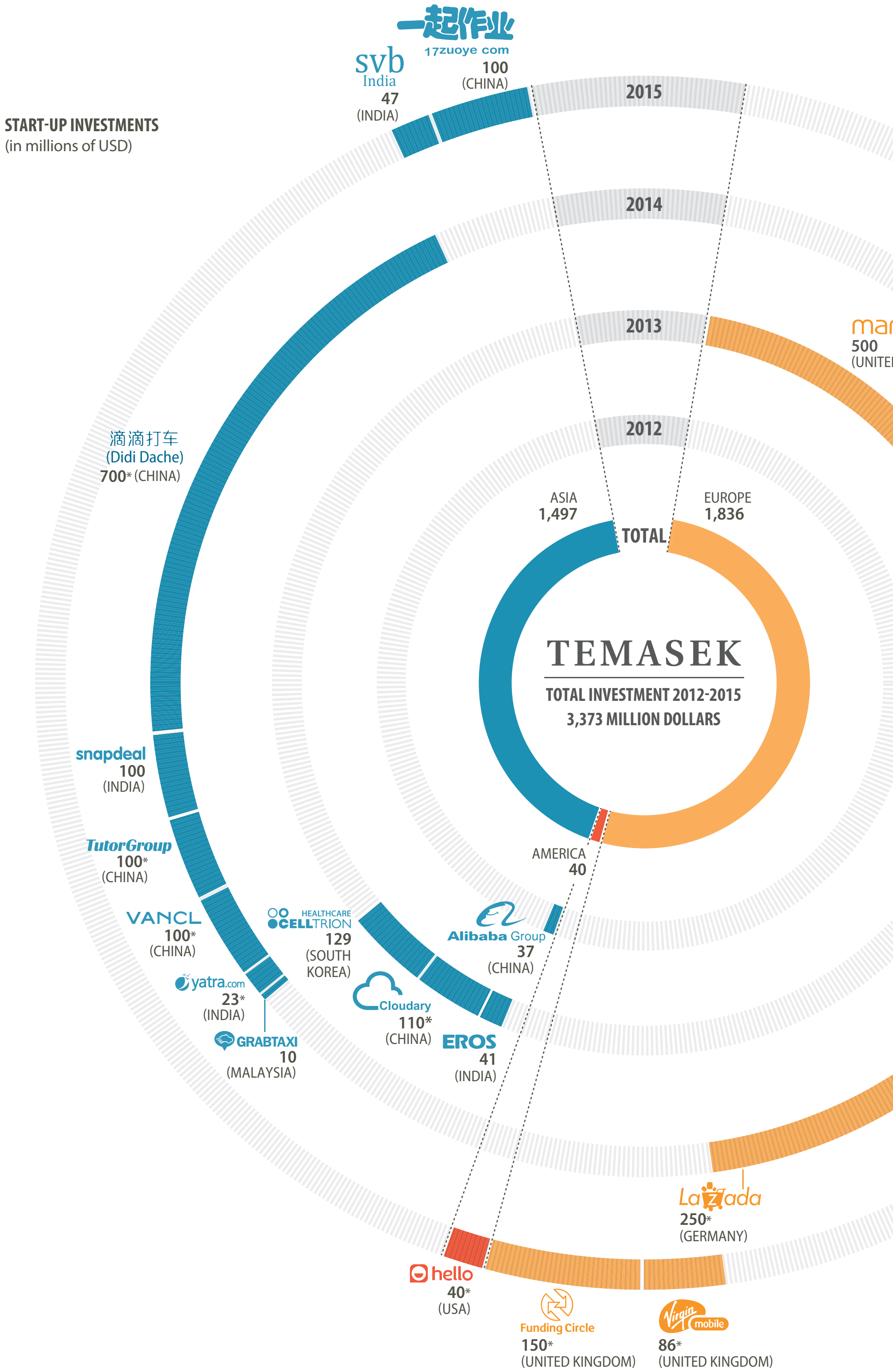
8. Sovereign Venture Funds

Infographic 4

Temasek: Sovereign Venture Fund Market-Maker

COMPANIES BY COUNTRY OF ORIGIN



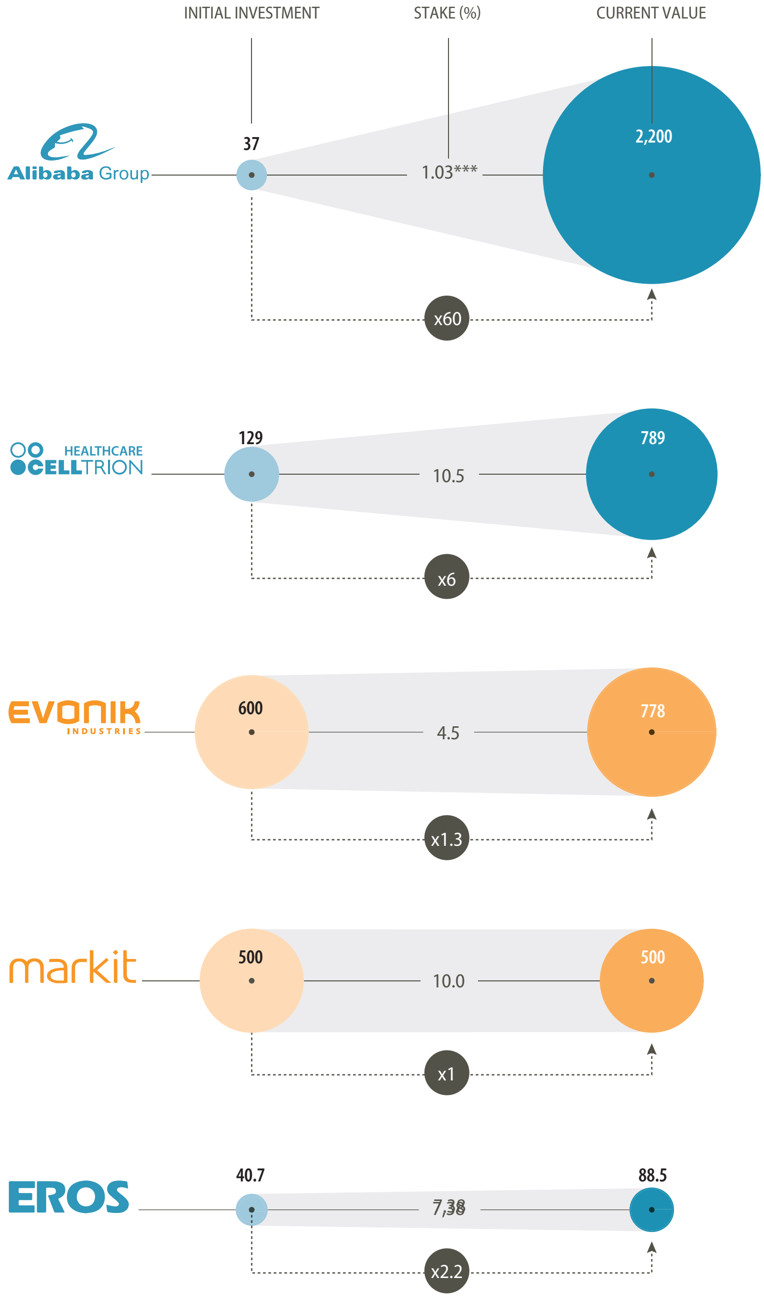


* Other co-investors in the same financing round.

** Valuations based on individual investments, as well as later financing rounds.

Source: Temasek Annual Reports (2015).

BIG RETURNS (SELECTED COMPANIES)
(in millions of USD)



***November, 2014

8. Sovereign Venture Funds

Chart 4
Unicorns: beyond Silicon Valley (2015)

Number of Unicorns: Tech startups valued at >1,000 M USD

Source: Atómico (2015).

Qatar's sovereign wealth fund Qatar Holding has invested in California-based start-up Uber, the mobile sharing economy app for urban transport. Together with the venture capital fund New Enterprise Associates, it took part in a total round of $1.2 billion at the end of 2014, which values Uber at more than $41 billion. This company brings together something like the 'Who's Who' of California's venture capital funds (Kleiner Perkins, Google Ventures and Menlo Ventures) and some of the world giants of asset management (Fidelity Investments, Wellington Management and BlackRock Inc.) Qatar Holding also invested in Blackberry, in November 2013 ($200 million) and in French internet company Vente-privée in December 2014 (for an undisclosed amount).

The following table summarises the main investments of the sovereign venture funds in start-ups (Table 1). As we see, more and more sovereign wealth funds are drawn to these types of companies and they are investing in more and more countries. The trend is being joined by the Koreans (KIC already started, by investing in Tesla Motors in September 2013) and the American sovereign wealth funds (Alaska invested in 2013 in a US biotechnology start-up). The world of innovation and technology will become less and less centred on the US.

Thus we can discern three future trends. The first is a continuation of the investment boom, with more and more sovereign wealth funds active in venture capital and the start-up ecosystems, driving direct investments, investments in venture capital funds and even start-up accelerators. In Chart 3 we have summarised the number of investments made by sovereign wealth funds over the past six years, following the crisis of 2007-2008, in the media, telecommunications and new technologies sectors. As we can see, Singapore's funds stand out, but - and this will be the second observation - there is an ever greater number of sovereign venture funds in different geographical regions. By number of transactions, Temasek and GIC stand out ahead of China (CIC), Qatar (QIA) and Kuwait (KIA).

The second future trend is a direct consequence of the first: the world of start-ups will not remain confined to the United States. The birth of unicorn start-ups in Europe and Asia in particular has become a constant. As shown in Chart 4, the unicorns are coming into being beyond Palo Alto, Boston and New York, and are doing so from London, Stockholm, Helsinki, Berlin and Paris and even Madrid and Barcelona. The unicorns are also emerging from India, China, Russia and Korea, and it will not be long before we see some from Brazil, Indonesia or Korea.

The third trend is that this boom will represent opportunities for the countries that know how to position themselves in this 3.0 world. Perhaps Europe will find its niche here, based on increased interest on the part of the sovereign wealth funds in European start-ups. As we have already seen, this is already happening, with investments by Temasek in UK start-ups, by Abu Dhabi in Sweden's Spotify and Qatar's in the French company Vente-privée.

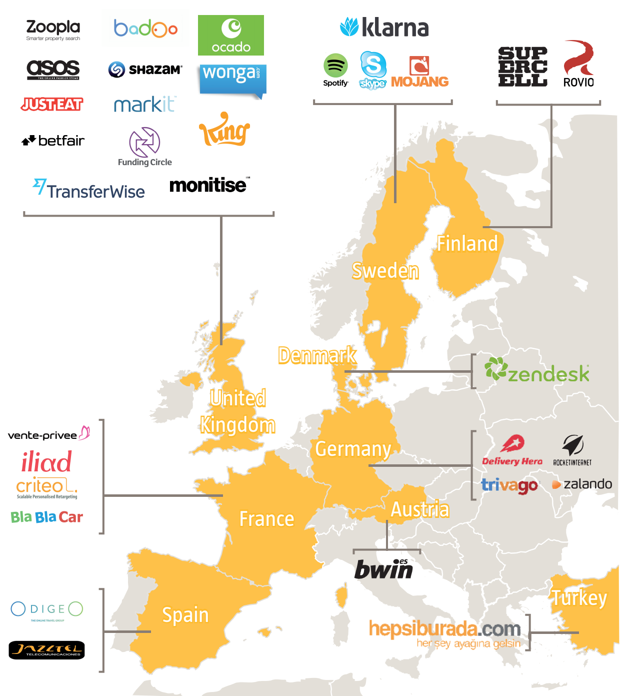
As we can see in Chart 5, Europe already has some thirty or so unicorns. The UK is no doubt the best positioned, with twelve unicorns being created. France, Sweden and Germany also feature. Other countries such as Austria, Denmark, Turkey and even Spain are being added to them. It will not be so surprising if countries such as Estonia, Portugal and Switzerland manage to create companies in this magic world of high-valuation start-ups. Spain has succeeded in creating two unicorns (Jazztel and Odigeo.) It has also succeeded in attracting the attention of sovereign wealth funds: in 2014 a subsidiary of the Kuwait Investment Authority invested in Madrid start-up Tyba. For its part, Mubadala has signed agreements with Indra, Sener and Abengoa, which are also companies with strong innovation and technology components.

We shall also see changes in sovereign venture funds' investment strategies. Until now the funds' strategy has been to invest in many instances jointly with venture capital funds that they themselves have financed. However, we are seeing alliances among sovereign wealth funds to invest in venture capital. In 2013 the Abu Dhabi Investment Authority, Alberta Investment Management and the New Zealand Superannuation Fund created the Innovation Alliance, to provide expansion capital to start-ups presented both by venture capital funds in which they hold stakes and by others.

We will also see more 'insourcing', i.e. more direct investments being made by in-house teams. But we will also see more investment "platforms", a compromise between total insourcing and total outsourcing: combining the investor strength of the sovereign wealth funds with the operational strength of the industrials.[7] We find this kind of investment for example with CEPSA, acquired by IPIC, (International Petroleum Investment Company, Abu Dhabi) which now uses the Spanish operator for rolling out international investments. Recently, in April 2015, the Kuwait Investment Authority invested in Gas Natural, and aims to use a joint venture (Global Power Generation) as a platform for international expansion – it invested a total of approximately $550 million for a 25% stake). Long-term investors are thus re-intermediating, allying themselves with industrial operators who contribute the know-how and capacity to scale up and support the operations.

Chart 5

The boom of technology and startups in Europe



Note: Funding Circle, a UK-based startup focused on crowdsourcing & democratization of money lending, is the most recent European startup to become an unicorn after a 150 M USD investment round in April 2015 (Investors: Temasek, DST Global & Blackrock).

Source: Atómico (2015)

Nor will it be a surprise to see sovereign wealth funds in the future entering initial financing rounds prior to the traditional D, E or F series they have entered so far (the rounds preceding a possible exit: IPO or acquisition by a bigger competitor). Temasek is a good example of this entry to initial investment rounds: in 2014 it invested relatively "small" amounts in China's second biggest e-commerce company, JD.com ($17.2 million) and another $12.8 million in Chinese cyber-security firm Cheetah Mobile. These transactions show the ever more precocious investor appetite of the major sovereign wealth funds, which now compete with the big venture capital funds in seeking returns linked to start-ups.

[7] See the very succinct article on the concept of investment "platforms" by Ashby Monk: http://www.institutionalinvestor.com/blogarticle/3443320/blog/direct-investing-with-a-twist.html#.VTuJ6FZDZEQ

Conclusion

The sovereign wealth funds' investments in start-ups are not confined to the emerging markets. We have stressed how US state agencies invest in new technologies. In Europe, several countries have funds of funds for investing in venture capital.

Spain for example has launched FOND-ICO, driven by ICO (Instituto de Crédito Oficial, a state-owned bank) and Axis (a venture capital firm in the ICO group), a €1.2 billion initiative fed partly by venture capital funds, for new technologies and biotech. Ireland's Strategic Investment Fund is seeking investments in the fintech sector, and particularly in peer-to-peer financing platforms (occupying the intermediating role of the banks). For its part, New Zealand's sovereign wealth fund, with $22 billion, made and incursion into the world of technology with a $60 million investment in renewable energy start-up LanzaTech (in which Khosla Ventures, the California-based fund, Siemens' venture capital investment arm and the Malaysian Life Sciences Capital Fund have also invested). In 2014 the Canadian sovereign wealth funds also created a $300 million venture capital fund (Northleaf Venture Catalyst Fund).

We are also seeing collaborative enterprises at state level for investing in start-ups or venture capital funds. The Irish and Chinese governments have created a $100 million joint sovereign venture capital fund to invest in Irish and Chinese start-ups (two funds managed by private venture capital managers). Switzerland has done likewise, also with China, creating the Sino-Swiss Venture Capital Fund, based in Beijing and driven by the China Development Bank and SECO, the Swiss State Secretariat for Economic Affairs. Canadian public pensions fund Caisse de Dépot et Placement du Québec –which has $225 billion of assets under management - set up a fund to invest in Israeli start-ups[8].

In this regard, it is the emerging markets that continue to lead the initiatives, significantly adding to the number of funds of funds to strengthen the venture capital ecosystem even more. In 2015 the government of Taiwan, through its National Development Fund, launched a new fund for investing in Asia (AppWorks Fund II), with $50 million, together with eight private sector corporations, to invest in start-ups in the fields of big data, mobile applications and the internet of things[9].

The most spectacular initiative in volume is without doubt that of the Chinese government: in 2015 it announced the creation of a $6.5 billion government venture capital fund. There are now 83 venture capital funds operating in China, with a capacity of $6.7 billion, more than the whole of Europe. To this initiative we can add many more. The most disruptive perhaps comes from a country that is just joining the wave: Lebanon. In 2014 the Lebanese Central Bank launched an initiative unparalleled anywhere in the world: a central bank promoting the creation of a venture capital ecosystem. Basically the central bank launched an initiative (known as C-331) which covers local commercial banks for their losses if they invest in venture capital funds that in turn support Lebanese start-ups. In all, more than $400 million have been mobilised in this way. Furthermore, three venture capital funds have been established (with $55, $65 and $75 million respectively). A fourth fund is being formed with a value of between $50 and $100 million.

While China launches a mega fund of venture capital funds, in Europe we are still thinking about it. Where are our daring central bankers? The initiative of the Governor of the Central Bank of Lebanon has no equivalent in Europe. Maybe we need to learn from the emerging markets, in terms of both ambition and vision. In Europe, the European Investment Fund, linked to the European Central Bank, would be the most similar to both initiatives. However, it is hard to imagine a European fund of funds of €6.5 billion to drive a single digital market of high-growth companies that would put us at the cutting edge of the 3.0 world. Perhaps we need to return to the spirit of the continent's first venture capitalists and entrepreneurs, when an Italian adventurer and a Castilian queen joined forces to give life to what was then only a dream: to discover a new route, which turned out to be a new world. Maybe we should (re-)learn from that not-so-distant audacity.

7 The fund is operated by manager Claridge and is apparently led from Tel Aviv by Oded Tal, who worked as chief investment officer for Claridge from 2000 to 2008. From the side of the Caisse, the driver is Andreas Beroutsos, executive vice president private equity and infrastructure. See http://www.asiaasset.com/news/La_CaisseDS1302.aspx

9 The fund is managed by Jamie Lin, founder of the local incubator and investor in AppWorks Ventures.

The kings of the king of sports: Sovereign wealth funds and football

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9. The kings of the king of sports: Sovereign wealth funds and football

Football is the king of sports. It is played by more than 250 million people in over 200 countries. Originating in England in the nineteenth century, it has become the most global of sports. Matches and other events, whether at world level or regional, national or club, arouse the passions of millions of fans worldwide and have turned football into a business of astronomical dimensions: sponsorships, advertising, stadiums, tours, online presence, television, merchandising, signings running into millions, broadcasting rights, etc. Where Messi, Cristiano Ronaldo or Hazard are concerned, or the German, Spanish or Brazilian national teams, then the sky is the limit.

Among the five sporting events most watched on television are the FIFA World Cup, the UEFA Champions League and the FIFA Confederations Cup, ahead of the Tour de France and the Olympic Games. While there are admittedly some spectacular audience peaks, such as for the recent Pacquiao-Mayweather fight, the America's Cup, the spectacular Super Bowl, cricket and baseball finals, Wimbledon and F1, nevertheless football is the global sport *par excellence*.

The teams: *European football* far outweighs *American football*[1]

Football has some of the world's richest teams. In Forbes' ranking of the world's most valuable sports teams, football stands out, headed by Real Madrid, FC Barcelona and Manchester United (Table 1). Bayern Munich and Arsenal are also among the world's twenty most valuable teams[2]. They are all up there with American football (11), baseball (3) and basketball teams (2) which make up the rest of the ranking. Thanks to their global traction, the top football clubs outclass their American rivals, which have a strong domestic market but a limited following abroad. The differentiating note is struck by Ferrari, the only F1 team in the top 20 of Forbes' list, owned by Fiat-Chrysler; Fiat is expected to float 10% of its holding on the stock exchange at the end of 2015.

The trends seem clear: FC Barcelona and Bayern Munich climb 6 and 4 positions respectively in the ranking, while American football teams such as the Washington Redskins lose ground. We note the strong entrance of the Boston Red Sox, crowned champions in their third World Series in 2013, which they had not achieved since 2007, and which boosted their TV revenues by 14%.

As well as the value of the teams, there are other studies which focus on the revenues generated by these giants. Specifically, Deloitte produces its well-known Football Money League (Table 2). For the tenth consecutive year, and coinciding with the tenth European Cup, Real Madrid heads the world football ranking by revenues (€550 million). The TV revenues of the "Merengues" (so called because of their all-white kit) exceeded €200 million last season, setting a new record for a football team.

In second place comes Manchester United, which in 2014 ended the worst season in its history, in seventh place in the Premier League, leaving the "Red Devils" out of the European championship for the first time since 1990. However, new agreements such as that signed with General Motors to carry the Chevrolet brand on the shirts and the new agreement signed with Adidas which will come into effect in 2015/16, catapulted commercial revenues to €226 million. Manchester United's total revenues increased by 22% relative to the previous season. It is interesting to note the strategy pursued by Manchester United, establishing new agreements with emerging countries such as China, South Korea and Nigeria.

Bayern Munich, in third place, shows a notable increase in revenue from merchandising. Last season Bayern Munich sold 1.7 million shirts (more than all the other Bundesliga teams together), renewed the shirt advertising agreement with Deutsche Telekom (four years, at €30 million per season) and strengthened the corporate sponsorships of Samsung and Henkel. The Bavarian team posted an increase of 13% in total revenues.

1 European football is called 'soccer' by Americans; American football is called 'football' by Americans.

2 With data as of May 2015, Forbes has updated the value of the football teams, and Manchester City and Chelsea could enter the top twenty. However, the valuations of the teams in other sports have not been updated, so they are not included in this list dated 2014.

Table 1

The world's most valuable sports teams (Top-20)

2014	2013	Team	Sport	Value*	Owner	Type
1	2	Real Madrid	Football	3.44	N/A	Members
2	8	FC Barcelona	Football	3.20	N/A	Members
3	1	Manchester United	Football	2.81	Glazer	Family
4	3	New York Yankees	Baseball	2.50	Steinbrenner	Family
5	4	Dallas Cowboys	American football	2.30	Jerry Jones	Individual
6	6	Los Angeles Dodgers	Baseball	2.00	Guggenheim Baseball	Company
7	11	Bayern Munich	Football	1.85	N/A	Members
8	7	New England Patriots	American football	1.80	Robert Kraft	Individual
9	5	Washington Redskins	American football	1.70	Daniel Snyder	Individual
10	9	New York Giants	American football	1.55	John Mara & Steven Tisch	Individual
11		Boston Red Sox	Baseball	1.50	John Henry & Thomas Werner	Individual
12	13	Houston Texans	American football	1.45	Robert McNair	Individual
13		New York Knicks	Basketball	1.40	James L. Dolan	Individual
14	12	New York Jets	American football	1.38	Robert Wood Johnson	Individual
15		Los Angeles Lakers	Basketball	1.35	Buss	Family
16	10	Arsenal	Football	1.33	Stan Kroenke	Individual
17	14	Philadelphia Eagles	American football	1.31	Jeffrey Lurie	Individual
18	16	Baltimore Ravens	American football	1.23	Stephen Bisciotti	Individual
19		San Francisco 49ers	American football	1.22	DeBartolo-York	Family
20		Chicago Cubs	Baseball	1.20	Ricketts	Family
--	15	Ferrari	Formula 1	1.20	Fiat Chrysler	Company
--	19	Indianapolis Colts	American football	1.20	Jim Irsay	Individual

Source: In-house with data from Forbes (2014).
*Billions of dollars.
** Through Madison Square Garden Company.

The increases of the Premier League teams (Manchester City, Chelsea, Arsenal and Liverpool) are particularly notable, boosted as they were by substantial new television agreements bringing the revenues of the English teams in the ranking to record levels. The teams posting the biggest increases are Newcastle United, Atlético de Madrid and Napoli, all with increases of more than 40%. Atlético de Madrid (the "Red and Whites"), winners of La Liga and runners-up in the Champions League, saw their TV revenues rise by 84% and reach nearly €50 million from UEFA, nearly ten times the revenue obtained from their participation in the Europa League the season before. Similarly, Napoli, trained by Spain's Rafael ("Rafa") Benítez, obtained new revenues from UEFA and TV after participating in the groups phase of the Champions League and subsequently in the Europa League. In the case of Newcastle United, as mentioned, the new TV agreements in the Premier League led growth of 43% in total revenues. TV rights account for 73% of the club's revenues, which had a very poor season—in sporting terms—.

Table 2

The world's top 20 football teams by revenues

Team	2013/14	2012/13	Change (%)	Match day	TV	Merchandising	Average attendance
Real Madrid	549.5	518.9	5.9%	113.8	204.2	231.5	70,739
Manchester United	518.0	423.8	22.2%	129.3	162.3	226.4	75,203
Bayern Munich	487.5	431.2	13.1%	88.0	107.7	291.8	71,131
FC Barcelona	484.6	482.6	0.4%	116.8	182.1	185.7	71,988
Paris Saint-Germain	474.2	398.8	18.9%	63.1	83.4	327.7	45,420
Manchester City	414.4	316.2	31.1%	56.8	159.3	198.3	47,166
Chelsea	387.9	303.4	27.9%	84.9	167.3	135.7	41,474
Arsenal	359.3	284.3	26.4%	119.8	147.3	92.2	60,014
Liverpool	305.9	240.6	27.1%	61.0	120.8	124.1	44,831
Juventus	279.4	272.4	2.6%	41.0	153.4	85.0	35,564
Borussia Dortmund	261.5	256.2	2.1%	56.1	81.5	123.9	79,856
AC Milan	249.7	263.5	-5.2%	24.9	122.7	102.1	39,317
Tottenham Hotspur	215.8	172.0	25.5%	52.5	113.3	50.0	35,899
Schalke 04	213.9	198.2	7.9%	41.1	68.5	104.3	61,269
Atlético de Madrid	169.9	120.0	41.6%	32.5	96.5	40.9	39,975
Napoli	164.8	116.4	41.6%	20.9	107.1	36.8	38,045
Internazionale	164.0	164.5	-0.3%	18.8	84.8	60.4	45,768
Galatasaray	161.9	157.0	3.1%	47.1	47.7	67.1	35,000
Everton	155.1	111.9	38.6%	31.0	93.5	30.6	50,688
Newcastle United	144.1	100.8	43.0%	23.1	105.8	15.2	37,732

Source: In-house with data from Deloitte Football Money League (2015).
Figures in € millions except "Average attendance" which refers to the average number of spectators at the stadium per match.

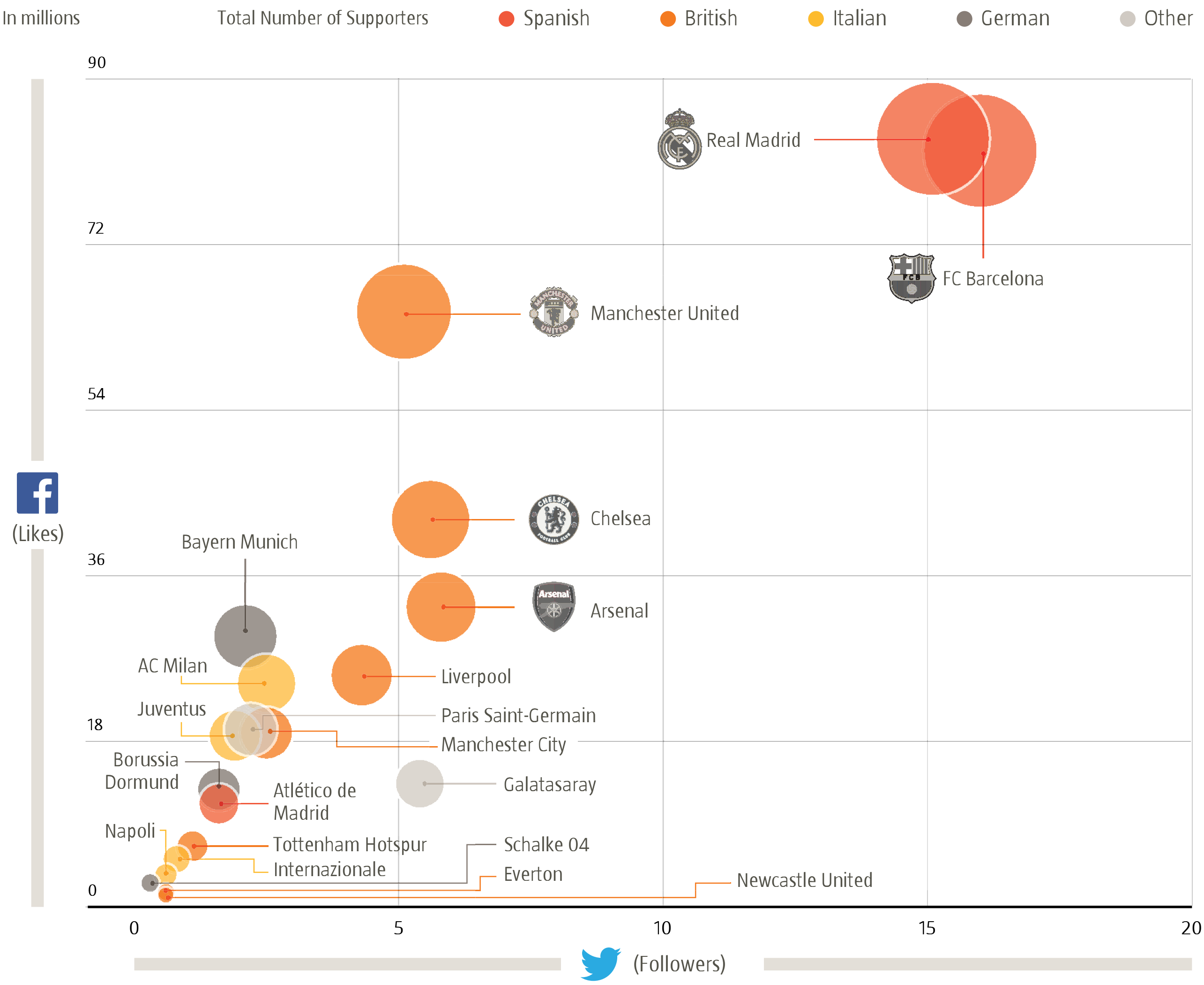
Football 2.0

Building a solid fan base worldwide requires a firm and determined strategy of presence on social networks. This fight to attract more fans worldwide has a very clear purpose: advertising revenues, merchandising and better television contracts. Moreover, by means of a well-aimed strategy, clubs are succeeding in opening up markets in Africa, and especially the Middle East and Asia, where the potential for new strategic agreements and followers is fundamental. Therefore no-one should be surprised by the efforts sometimes made by European football teams to hold "pre-seasons" and "friendly matches" far from their usual training grounds. The virtual relationship has to be turned into physical presence.

Thus the online effort, measured as the number of followers on Facebook or Twitter, has been clear for the majority of football clubs in the past few years. Teams such as Atlético de Madrid, with a 512% increase in the number of Facebook followers, Paris Saint-Germain, Bayern Munich and Schalke 04 have made great efforts to establish a solid presence in the social networks. In any case, this ranking is also dominated authoritatively by La Liga teams FC Barcelona ("Barça") and Real Madrid, which have more than 80 million "likes" on Facebook and over fifteen million followers on Twitter (see Chart 1). They will soon reach the 100 million mark, with markets continuing to open in Asia, the U.S., the Middle East and Latin America. Behind every "follower" and every "like" are shirts, advertising agreements, sponsorships and television rights.

Chart 1

Football's Wealthiest Clubs: Social Media Presence



Source: Author's elaboration with data from Facebook & Twitter (May 2015).

Partnerships: FC Barcelona-Qatar and Real Madrid-United Arab Emirates.

Just as they have done with art (see relevant chapter in this Report) or the real estate market (covered in several previous editions of the Report), the sovereign wealth funds are placing their bets on premium assets. Buildings in Paris, London, New York and Boston; alliances with the Louvre and the Guggenheim... In the case of football, there are two premium leaders, and they are both Spanish; they are direct rivals and they both have close ties with sovereign wealth funds: we refer of course to Real Madrid and FC Barcelona. Two teams that dominate Spanish, European and world football. They have won the Champions League for the past two years and their global impact is indisputable. In this field too there is rivalry: Real Madrid is close to the UAE, while Barça has strong ties with Qatar.

9. The kings of the king of sports: Sovereign wealth funds and football

In October Real Madrid signed a strategic agreement with IPIC. This Abu Dhabi sovereign wealth fund, whose mission is to invest in energy and to develop its own projects such as Austrian oil and gas company OMV and Spain's Cepsa (now wholly-owned by IPIC), is a sophisticated investment arm whose holdings include Energias de Portugal, Borealis (an Austrian polyethylene multinational) and Cosmo Oil, of Japan. As we showed last year, the arrival of a long-term investor has given a major boost to Cepsa's internationalisation, with new territories being entered, new acquisitions developed and new industries in the energy sector being reached.

The agreement signed with IPIC[3] has several dimensions: the first is internationalisation, both for the Real Madrid Foundation's network of more than 350 football schools (already present in 70 countries) and for bringing the Real Madrid Museum to its fans in more cities around the world. The second refers to the refurbishment and sponsorship of the Santiago Bernabéu stadium, which will change its name to Abu Dhabi Bernabéu or Cepsa Bernabéu. The refurbishment, still pending legal approval, includes the construction of an adjacent hotel and is valued at $450 million, although the parties have agreed not to disclose the commercial details of the agreement. Following in the wake of sponsorships in England such as the Etihad Stadium (Manchester City) and the Emirates Stadium (Arsenal), Real Madrid could pocket nearly $25 million for a future change of name.

At the end of 2014, Real Madrid signed an agreement with the National Bank of Abu Dhabi (NBAD), the UAE's leading bank, whereby the bank became the official sponsor of Real Madrid in the UAE. This new alliance could serve to revive one of the most ambitious real estate projects of the club's president (who is also the chairman of a Spanish construction multinational, ACS). We refer to the construction of a “Real Madrid Resort Island”, which would include hotels and a theme park as well as sports schools. So far no progress has been made with this possibility, which would be a good fit for the parties.

We expect Real Madrid to take advantage of this strategic investment power to carry out this international drive. However, for the time being there is no talk of taking an equity stake in Real Madrid which, as in the case of FC Barcelona, belongs to its members (shareholders) and whose shares are not traded on secondary markets. As regards this possibility, there was speculation that part of the value of Real Madrid would be floated on the New York Stock Exchange; the club is currently worth $3.44 billion, making it the world's most valuable sporting institution.

The iconic Paseo de la Castellana, now dominated by the Norman Foster Tower (recently renamed the Cepsa Tower), where Cepsa has its world headquarters, is a good illustration of the emirate's arrival in Spain's capital, from where it can now expand its international presence by combining its brand with that of Real Madrid, going from an energy business to the energy and passion aroused by football, together with the substantial financial benefits they bring.

The rivalry is repeated in the case of FC Barcelona, beyond the sporting aspect. This year FC Barcelona reached the top of Spanish and European football, with the second treble in its history: the Champions League, La Liga and the Copa del Rey. Barça has financial ties with Qatar. Before its Madrid rival, FC Barcelona started talks with the Qatari royal family and found in HH Sheikha Moza bint Nasser a partner with whom to develop sponsorship ties.

Barça, established in 1899, had refused to carry advertising on its shirts for 107 years. In 2006 it signed an agreement with UNICEF, the United Nations Children's Fund, to carry its logo, which brought in €1.5 million per season for the fund. Five years later, in 2011, in a delicate financial situation, FC Barcelona agreed for the first time in its hundred-year history, to shirt advertising. It signed a five-year agreement with the Qatar Foundation: €30 million per season for the cash-strapped club. After some argument, the UNICEF logo was retained, but relegated to a less visible spot under the number on the back of the blue-and-red shirts.

Qatar, which is still fighting to keep the 2022 World Cup in the wake of the recent scandal surrounding FIFA, had made a good choice in its emblem for landing in Europe. Barça is one of the continent's leading clubs, and its acclaimed trainer Josep ("Pep") Guardiola, who had played two seasons in Qatar, would become the ambassador for Qatar in its candidacy for the World Cup in 2010. As an example of the habitually complex network of holding companies used by Middle Eastern funds, Qatar decided in 2013 to replace the Qatar Foundation logo with that of Qatar Airways, which is now displayed on the front of the shirt, on the same financial conditions, held for three years and adding the strategic factor that Spain's tourism market represents for the airline. It would not be surprising to see the terms of this agreement improved for the club in the next few months. Qatar Airways is a state-owned entity fully controlled by Qatar Investment Authority.

[3] More information in the press release: http://www.ipic.ae/media/119780/IPIC-Real-Press-Release_span.pdf

As in the case of Madrid, one of Barcelona's new icons is also in the hands of Arab capital. Qatar acquired the Hotel W, also known as "La Vela", for €200 million on the beachfront of Barcelona, a city that already has other Qatari investments[4], and which serves as a link, bringing together Qatar's ambition to position itself strategically with the solvency of an established brand, also in the sporting dimension.

Who are the main sponsors of European football?

Sporting sponsorships have been increasing in Europe for some ten years now. The market currently represents about $40 billion worldwide. Of this, Europe accounts for some $11 billion, 27% of the total, ahead of Asia Pacific (24%)[5] but still far behind the US market which reaches $21.4 billion.

Table 3 shows some very revealing trends and figures. If we start by analysing the brand of the kit, we see the ferocious battle between Adidas and Nike to clothe the world's best players. However, in this past year, the German multinational unseated its American rival: the shirts of two historic clubs with great commercial traction, Manchester United and Bavaria's favourite team Bayern Munich, will be those of Adidas for the next ten and fifteen years respectively. Adidas has made an unprecedented sales effort: it took the Manchester United shirt from Nike for $1.16 billion and renewed the agreement for the Munich club's shirt for another ten years for $1 billion. More than $2 billion in advertising expenditure on the two teams, both of which fell far short of their best performances in the 2014/15 season. For the German multinational it was a historic moment: both teams in the 2014 World Cup final (Argentina and Germany) wore Adidas kit. Nike's counter-attack may come in 2018 when Adidas has to renew its agreement with Real Madrid and the US giant is expected to go to great lengths to win the sponsorship.

The analysis of Table 3 shows the disbursements made for shirt advertising and the sponsorships aimed at incorporating commercial brands into stadium names. Given the advertising reach and the privileged positioning implied by associating a football club's colours with a brand, it is not surprising to find state-owned enterprises and sovereign wealth funds from the Gulf among the main sponsorship agreements in European football. This is demonstrated by Emirates, Etihad and Qatar Airways, three airlines that connect the world and increasingly Europe with three of the most dynamic cities in the region: Dubai and Abu Dhabi in the UAE and Doha in Qatar; with all due respect to Kuwait City and leaving aside the cities of Saudi Arabia.

Why does a sovereign wealth fund invest in football? Why does it sponsor sporting events and clubs? There are several reasons why these airlines, some of them associated with and others owned by sovereign wealth funds in the region, are developing this aggressive advertising strategy in European football. In the first place, these sponsorships enable them to project the image and identity of the country in new markets, whose citizens (potential customers) may have only a vague or confused, if not indeed completely mistaken idea of it. In the second place, it relates to a commercial interest in establishing new air links (in the majority of cases so far) between the destination country/city and the cities of the Gulf. Furthermore, these links can generate an overflow effect into other sectors of activity in the sponsored team's country. This is linked to a third reason, the relationships that can be established around a football team are of interest: personal relationships that lead to long-term ties being established. This is something to which Arab investors in particular attribute priority value. Thus the managers of these funds, who travel occasionally or regularly to Europe to attend matches, can establish lasting relationships with people from business, politics and society in the cities and countries whose teams they sponsor. Football diplomacy[6].

If we analyse the investment of each of the three countries in the commercial top ten of European football, we find that Dubai, through Emirates, established in 1985 and wholly-owned by sovereign wealth fund Investment Corporation of Dubai, invests $108 million a year in European football, spread among France, the U.K. and Spain (and other countries not included in the top ten, as we shall see presently). For its part, the government of Abu Dhabi, through the younger Etihad Airways, established by royal decree in 2003 and with an indirect but strong link to the emirate's sovereign wealth funds, invests $61 million a year in the U.K., linking its brand to Manchester City; furthermore, IPIC (which does operate as an active sovereign wealth fund), also in Abu Dhabi, has signed an agreement with Real Madrid as a strategic partner and it is anticipated that its investment in the renovation and change of name of the stadium might reach $25 million a year, bringing the total to $86 million a year. In the case of Qatar, the state-owned company Qatar Airways, established in 1993 and fully controlled subsidiary of QIA (as explained earlier), spends $36 million, although there is speculation that its sponsorship of Barça might be revised upwards and that they might enter into negotiations about the rights to the name of the stadium. Thus in total, these companies' advertising expenditure on the top ten, associated with the new capitalism of the Gulf states, represents an annual outlay of $205 million, which could rise to $230 million if the sponsorship of the Bernabéu stadium is confirmed.

4 In January 2014 it bought the Hotel Marriot Renaissance for €80 million. See 2014 Report.

5 See the IEG reports and the analysis available: http://www.sponsorship.com/IEGSR/2015/01/06/New-Year-To-Be-One-Of-Growth-And-Challenges-for-Sp.aspx

6 In the 2012 Report we mentioned this new diplomacy and a possible strategy for Spain as recipient of investment. Since then, the sponsorships and agreements have confirmed the effectiveness of this football diplomacy.

Table 3

The biggest football sponsorship agreements: sovereign wealth funds on the counter-attack

Team	Kit	$/yr.	Shirt advertising	$/yr.	Stadium sponsorship	$/yr.	Total
Manchester United	Adidas	115	Chevrolet-General Motors	80	Aon	24	219
Chelsea	Adidas	44	Yokohama Rubber (a)	68			112
FC Barcelona	Nike	39	Qatar Sports Investments Intel (b)	36	5		80
Arsenal	Puma	34	Emirates (c)	46			80
Manchester City	Nike	18	Etihad Airways (d)	61			79
Bayern Munich	Adidas (e)	28	Deutsche Telekom	34	Allianz	9	71
Real Madrid	Adidas	36	Emirates	34	IPIC (f)	(25)	70 (95)
Liverpool	Warrior	38	Standard Chartered	30			68
Paris Saint-Germain	Nike	22	Emirates	28			50
Tottenham Hotspur	Under Armour	15	AIA	24			39

Source: In-house, with information from the websites of the sponsors and teams. The table is an update of Forbes' information "Soccer's richest sponsorship deals" available at http://www.forbes.com/sites/chrissmith/2015/05/06/soccers-richest-sponsorship-deals/

(a) Yokohama Rubber is a major Japanese tyre manufacturer. It already has experience in sporting sponsorships (Boston Celtics and San Antonio Spurs).
(b) Intel places its logo on the inside of the shirt, not visible to third parties. It is a play on the idea of "Intel Inside" and represents part of the global agreement which Intel has with the Club to make FC Barcelona the world's most technologically advanced football team.
(c) Five-year agreement for shirt advertising and name rights in the stadium.
(d) Ten-year agreement which includes short advertising, the stadium and lesser items.
(e) Bayern Munich has signed an agreement with Adidas for which the latter will pay €90 million ($101 million) per season from 2020 to 2030. This is nearly four times the current $28 million contract.
(f) The Santiago Bernabéu stadium will be renamed Cepsa Bernabéu or IPIC Bernabéu. Still pending approval: we have used approximate information based on the figures of Aon in Manchester United.

The Gulf states are making considerable strategic efforts to show a different national image, close to the population, in such important investment destinations as the U.K., Germany, France and Spain. These strategies are carried out among different public arms in the service of a wider national interest: state-owned enterprises (SOEs), sovereign wealth funds (SWFs) and other public investment vehicles are coordinating to attain a common objective: an international positioning and positive brand recognition for the country. This legitimacy, also achieved with their financial peers (pension funds, asset managers and investment banks) enables governments to reinforce the already existing investments in more strategic sectors such as infrastructure or energy and to facilitate future investments. The extent to which it has become normal to see financing by Arab capital, whether through sponsorships or equity investments, in this number-one sport in Europe shows just how far the sovereign wealth funds and their governments have advanced in assuring their investments with a financial motive (which does not exclude the geopolitical motive mentioned earlier) and allaying the fears that beset European governments in the years before the crisis of 2008.

Nowadays football is just another step in the paradigm shift in which the new state capitalism represented by Gulf states is converging with old-style Western capitalism[7]. A good example of this connection is the shareholding of Heathrow, Europe's leading airport. Heathrow Airport Holdings (formerly BAA) is owned by FGP Topco Ltd., whose shares are spread among Ferrovial S.A. (25%), Qatar Holding LLC (20%), Caisse de Dépôt et Placement du Québec (13%), Government of Singapore Investment Corporation (11%), Alinda Capital Partners (11%), China Investment Corporation (10%) and the Universities Superannuation Scheme (USS) (10%). In other words 41% of Europe's most strategic airport manager is held by sovereign wealth funds. If we add the holding of the public pension fund of Québec, it exceeds 54%. This reality shows clearly how the sovereign wealth funds have overcome the aura of uncertainty and mistrust since the crisis of 2008 to become global investors in key assets of many OECD countries.

[7] For a more detailed analysis of this new state capitalism and sovereign wealth funds, see the article by Aguilera, R.; Capapé, J.; Santiso, J. 2015. Sovereign Wealth Funds: A Strategic Governance View. Academy of Management Perspectives (forthcoming). Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2612813

The case of Qatar shows the advantages of coordinating a number of public instruments in the service of a single objective. Qatar Holding, the investment arm of QIA, is the second biggest shareholder in Heathrow, and this led to British Airways facilitating the entry of Qatar Airways to Oneworld Alliance in 2013. Following the same logic, in January 2015 Qatar Airways became the major shareholder of IAG, the holding company that controls British Airways and Iberia. This investment, valued at $1.7 billion, ensures future connections with Latin America, as well as strengthening its position at Heathrow, where the capacity to accommodate more airlines is very limited. And above all, it positions itself strongly in the increasingly frequent connections between London and Asia, for which the Middle East acts as hub par excellence. It is hardly surprising that the CEO of Qatar Airways, who has a personal relationship with his counterpart in IAG, the Irishman Willie Walsh[8], should have directed the extension of Hamad International Airport in Doha, valued at $15 billion. The logic seems clear: the future lies in Asia, and Europeans pass through the Middle East on their way to the Far East.

Emirates is the king of European football (Dubai)

From Dubai, Emirates sponsors other European football teams with "less substantial" agreements which still run into millions, such as those shown in Table 3. For example it has presence in AC Milan, disbursing $22.5 million per season through to 2020, while at the same time starting direct flights between Dubai and Milan with its Airbus A380[9]. It has sponsorship deals with Germany's Hamburg ($13 million to 2016) and Greece's Olympiacos. In 2015 it added the Portuguese club Benfica ($9 million a year until 2018, the biggest sponsorship in Portuguese football), as well as planning the extension of daily connections between Lisbon and Dubai. Also in 2015, Emirates clinched an agreement for the three-year sponsorship of England's FA Cup, which will now be called the Emirates FA Cup, to the tune of $15 million a year, surpassing Budweiser's offer. In total, Emirates will spend $167 million a year on European football. Football diplomacy in full spate. Strengthened connections with Athens, Lisbon, Milan, etc. make Emirates an aggressive and sophisticated strategist to fight with its competitors in the battle for the hub connecting Europe with Asia.

Emirates is the sheikh of European football, but its sponsorship of sporting events goes beyond football. It uses cricket (sponsoring the main teams in India, where cricket is a national sport) to connect Dubai with as many as ten different Indian cities. Rugby, horse racing, tennis and golf. In 2013 it signed an agreement with Formula One Group to sponsor F1 for five years. Historic racetracks such as Silverstone, Monza and São Paulo have a priority Fly Emirates presence.

European and American "soccer" (Abu Dhabi)

Abu Dhabi, and specifically Etihad, has close ties with Manchester City. HH Sheikh Mansour Bin Zayed al Nahyan—Sheikh Mansour—has been the major shareholder in Manchester City since 2008, when he acquired 90% of the shares for $373 million. Another member of the royal family, HH Sheikh Hamed bin Zayed al Nahyan, chairs Etihad and manages the region's leading sovereign wealth fund and second biggest in the world: Abu Dhabi Investment Authority. Etihad seems to be following a somewhat different strategy, taking advantage of its presence in England's Premier League through Manchester City to make a play on football in the US. Thus since 2014 Etihad has sponsored the US Major League Soccer (MLS)[10]. Moreover, MLS already has New York City FC, in which Manchester City holds a stake along with iconic baseball team the New York Yankees. After paying the $100 million demanded by the MLS for adding a new club to the League, NYC FC became the twentieth team in the MLS. Why the United States? Etihad wants exposure, and in the U.S. football is a sport that is clearly on the rise, with the number of fans and the media presence growing year by year: the World Cup was watched by 17 million people in 2006, 24.3 million in 2010 (an increase of 50%), and 29.2 million viewers (up another 20%) in 2014[11]. Soccer, as Americans call football, is becoming more popular as a result of signings of legendary figures from the European competitions such as Steven Gerrard, Kaka, Raúl, Frank Lampard and David Villa, and before them David Beckham and Thierry Henry. The MLS aims to become one of the top ten football leagues in 2022, and the Gulf states are not going to miss the opportunity of jumping onto this bandwagon. As well as football in the U.S., Etihad sponsors Melbourne City FC, to which city, unsurprisingly, Etihad flies daily from Abu Dhabi and where it has the multi-purpose Etihad Stadium.

8 See http://www.bloomberg.com/news/articles/2015-01-30/british-airways-parent-iag-says-qatar-airways-buys-9-99-stake

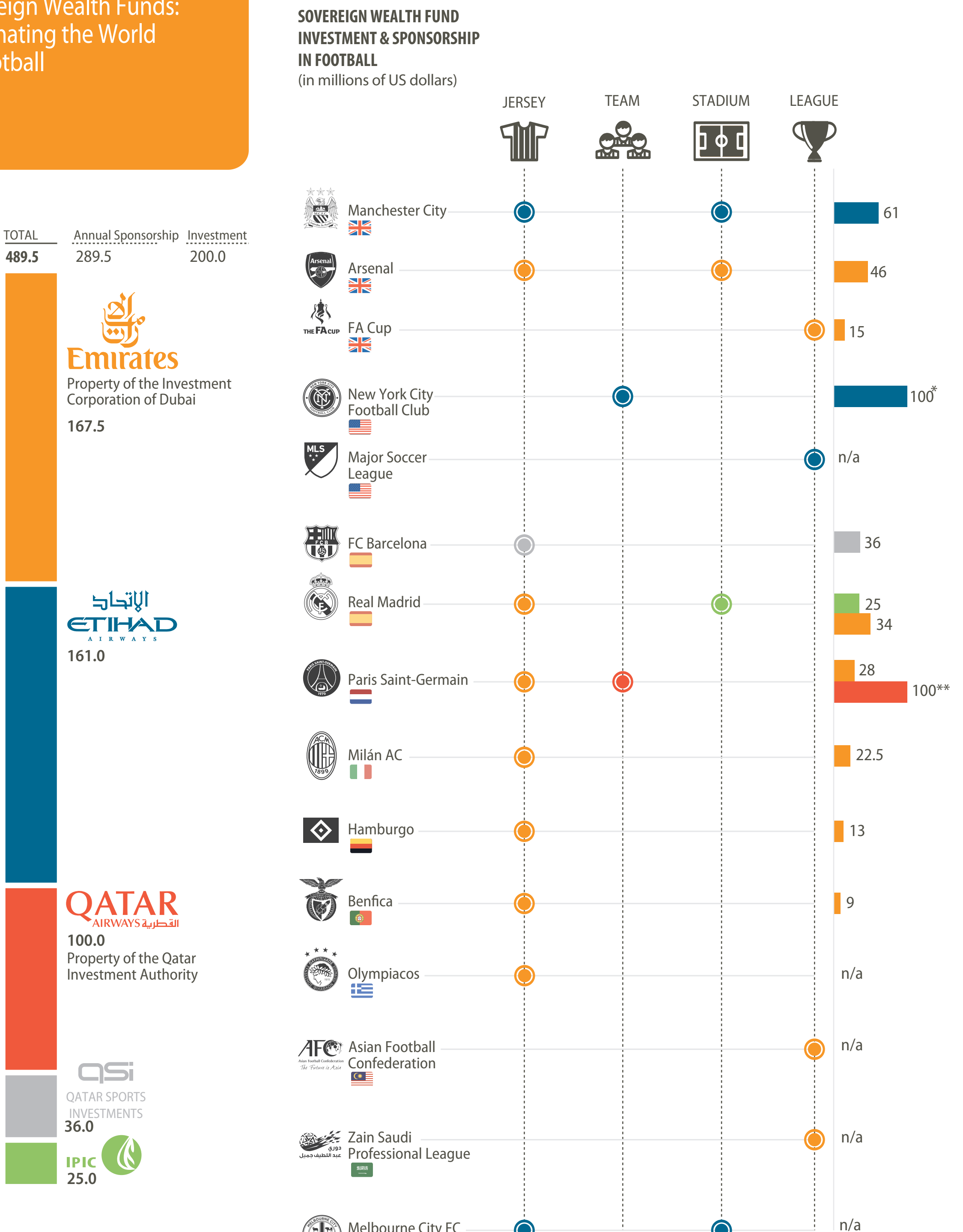
9 More information at http://www.espnfc.com/ac-milan/story/2174912/emirates-airline-renews-ac-milan-shirt-deal

10 Wall Street Journal, 24 March 2014, at http://www.wsj.com/articles/SB10001424052702304679404579459741158159718

11 Data from Nielsen in The National, main publication in U.A.E.: http://www.thenational.ae/business/aviation/why-etihad-airways-is-pumping-money-into-major-league-soccer

Infographic 5

Sovereign Wealth Funds: Dominating the World of Football



* Cost of MLS franchise
** Purchase of 70% of PSG

Source: Elaboration of the author (2015)

As in the case of Emirates, Etihad also invests in other sports. Specifically, cricket is one of the sponsorship areas that Etihad is pushing. For example it is the official airline of the England cricket team. Also, and more strategically, jointly with Jet Airways it sponsors Mumbai Indians, which has a very extensive fan base (more than a million followers on Twitter) and was the winning team in the Pepsi Indian Premier League. This agreement brings together the advertising dimension of the Mumbai Indians with the minority stake (24%) in Jet Airways, based in Mumbai. The alliance with this Indian airline allows it to combine forces and roll out a much more extensive offering of flights between Abu Dhabi and cities in India (currently more than 15 cities have direct connections) and to reduce the gap with Emirates' offering from Dubai. As well as cricket, Etihad also gives its name to the Etihad Airways Abu Dhabi Formula 1 Grand Prix, which includes a Ferrari theme park. It sponsors the Irish hurling league and triathlon events in Washington. The list is endless, but just to finish on a high note, Etihad recently sponsored the Sydney Opera House, Australia's tourist icon par excellence, whose orchestra's official airline is its rival Emirates. The war between the two knows no limits, not even geographical ones.

A strategic bet on football with the World Cup on the horizon (Qatar)

Qatar is not being left out, as we have seen. As well as sponsoring FC Barcelona through Qatar Airways, it has an equity stake in the leading team of France's Ligue 1, Paris Saint-Germain. In 2011, Qatar Sports Investments, a private equity firm linked to the Qatari royal family (Al-Thani), held by Nasser Ghanim Al-Khelaifi, bought 70% of the French club for approximately €70 million. It was not an isolated incident, since around the same time Al-Jazeera (owned by the president of QSI) bought the broadcasting rights to Ligue 1, and UEFA, chaired by Frenchman Michel Platini, started to express support for Qatar's candidacy for the 2022 World Cup[12]. Since the arrival of Qatari capital signings of major stars have not stopped coming to the Paris club: Cavani, David Luiz, Pastore, Thiago Silva, Ibrahimovic, Lavezzi... the French team has spent more than $450 million on signings since 2011. And the results were not long in coming: they were champions of the Ligue 1 on three occasions (following a drought from as far back as 1994), won the French Cup twice and reached the quarter finals of the Champions League, also on two occasions.

Qatar's bet forms part of a well integrated strategy. In addition to the friendship between the royal family and Nicolas Sarkozy, it is not surprising to find the embassy of Qatar in Paris in an absolutely fabulous location, right opposite the Arc de Triomphe on the Champs-Élysées.

Qatar, immersed in the promotion of the 2022 World Cup (now more in question than ever), embarked upon a strategy linked to football which included the arrival of legendary players past their prime, such as Guardiola, Batistuta, Romário, Raúl and more recently Xavi Hernández. It has also thrown itself into other sports, as shown by the last Handball World Championship, held in Doha in 2015, not without controversy due to the naturalization of as many as eight foreign players for the Qatar national team. The team, managed by Spaniard Valero Rivera, reached the final for the first time in its history. Now it is the turn of other sports such as athletics, the World Championships of which are to be held in Qatar in 2019, as well as road cycling in 2016 and gymnastics in 2018. So it is no surprise to find the Olympics Museum among the museums recently opened in Doha, and it will not be long before we see this little state, the world's richest, putting its name forward for this pinnacle of world sport. The repeated accusations regarding the voting on the selection of the hosts for these world events have still not been ruled on judicially, and sit oddly with the creation in Doha of the ICSS (International Centre for Sport Security), members of whose advisory board include the former president of Interpol, the cofounder of Transparency International and the Treasurer of the German Football Association, among others[13].

Epilogue

European football has attracted the world's great fortunes. Russian oligarchs such as Abramovich (in Chelsea since 2003), Rybolovlev (in Monaco since 2011) or the Uzbek-Russian Usmanov (in Arsenal since 2007) have made themselves at home in Western European football. Not to forget the entry of Carlos Slim to Spanish football, coming to the rescue of Real Oviedo (now in the Liga Adelante).

The past year has seen two significant transactions in Spanish football linked to large fortunes, and it would not be surprising to see further new investments. In January 2015 it was announced that Chinese entertainment giant—Dalian Wanda Group— was taking an equity stake in Atlético de Madrid. Specifically, the

[12] Financial Times, 28 March 2014 "Can Paris Saint-Germain become the world's richest sports club?" Available at http://www.ft.com/cms/s/2/ae88a0b2-b53a-11e3-af92-00144feabdc0.html

[13] The complete list is priceless: http://www.theicss.org/profile/advisory-board/

transaction involved the acquisition of 20% of the share capital for €45 million. An improved balance sheet and expansion of the brand in the Asian market are two of the direct results of this transaction, which is also linked to the real estate sector. A few months before, in 2014, Wanda Group had bought Edificio España from Santander for more than €250 million. The other outstanding transaction was the investment by Singapore's Peter Lim in the capital of Valencia CF for €94 million (70%) and the refinancing of the club's €230 million debt to Bankia.

In the past, some investments by magnates in Spanish football had had very limited results. The €36 million paid by Qatar's Sheikh Abdullah Al-Thani for Málaga CF, and the more than €120 million spent on signings since 2011 have not achieved all ambitious goals yet, despite turning Málaga into European Champions League qualifiers, reaching the quarter finals in 2012. Now there is speculation that another Chinese group would be willing to pay nearly $70 million for the club, in which the owner, a member of the Qatari royal family, has supposedly "lost interest". Other ill-fated investments were those of Indian magnate Ahsan Ali Syed in Racing de Santander and the Ukranian-American Dmitry Piterman in both Alavés and Racing.

Other transactions, more discreet but indicative of the interest in Spanish football, include the investment by Belgian Roland Duchâtelet in AD Alcorcón; that of Luxembourg's Gerard López, the son of Galician immigrants and owner of the Lotus F1 team, in CD Lugo; and the rumoured move by India's KSPL on Elche CF[14].

The international connections come thick and fast: fans are no longer surprised to see "Visit Malaysia" on the Sevilla shirts, or "Azerbaijan, Land of Fire" on those of Atlético de Madrid. The agreement signed with Sevilla FC involves revenues of €2 million a year; in the case of Azerbaijan, whose contract ends in 2015, it pays €6 million per season, which will be replaced this year by Plus500, which will pay €11 million to sponsor the Red and Whites. Both Malaysia and Azerbaijan have sovereign wealth funds which could take advantage of their relations to increase their investment presence.

Beyond the controversies, football, with its global reach, is a perfect platform for the sovereign wealth funds and the state owned enterprises linked to the country's strategy of this new state capitalism. It will not be surprising to see more funds, from other regions of the world –Asia, Africa or the Americas— taking positions in European football in the form of sponsorships. Today, sovereign funds and state-owned enterprises from Dubai, Abu Dhabi or Qatar invest close to $300 million yearly in the European football. The lasting relationships established around football can help the sovereign wealth funds to explore new markets, develop new alliances with future co-investors and gain visibility and legitimacy, as well as ensuring an attractive image of the country for millions of fans the world over.

[14] Expansión, 13 June 2015. "Llega la hora de invertir en el fútbol español." ('It's time to invest in Spanish football') Available at http://www.expansion.com/directivos/deporte-negocio/2015/03/13/5502c438e2704edd4e8b457d.html

Financing of the digital ecosystem: The "disruptive" role of sovereign wealth funds... Reconsidered

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10. Financing of the digital ecosystem: The "disruptive" role of sovereign wealth funds... Reconsidered

Xiaomi, Uber, Flipkart, Spotify are all members of the so-called "Billion Dollar Club"[1] and all funded by sovereign wealth funds (SWFs). While such investments offer great fodder for headlines and "clickbait", an analysis of the role SWFs as investors in the digital economy reveals instead a complex path of engagement through a variety of direct and indirect structures that have extended to the "Unicorns". The digital investment patterns of SWFs can best be described as concentrated, opportunistic, scale-sensitive, and, arguably, disruptive. The informed observer of SWFs will see the apparent irony in this use of this term.

The acceleration in the introduction of new technologies globally has been the source of considerable scrutiny, particularly so for their transformational influence. McKinsey, among others, offers a definition of *disruptive*[2] impact as that which systematically transforms the way people live and work, creating new opportunities or shifting surpluses for businesses, that effects rapid rate of change in price/performance, while offering discontinuous capability improvements, and that extends broadly across industries with the potential to massively affect existing revenue streams, profit margins, and capital investments, and, at the level of the state, to accelerate national growth or change the comparative advantage of nations.

More focused still are the impacts of digitalization, which have been advanced by the proliferation of network capacity, expanding bandwidth, even faster processing, and the vast creativity of entrepreneurs and innovators. Perhaps what is most unique about digitalization is that it knows and respects no sector bounds, but rather extends across traditional industries – banking, retail, transportation, healthcare and beyond – with the potential to upend extant strategies, business models, and operating plans. The effects are both immediate and long-term, challenging firms and investors to carefully evaluate the drivers, penetration rates, market linkages, and eventual profit impacts of a digital advance.

From the strategic vantage point of the long-term investor, it is SWFs, whose liability profile, degree of risk aversion, and mandate permit leveraging long horizons (e.g. wealth versus stabilization funds), that are best positioned to seek out the benefits of investing counter-cyclically to minimize aggregate transaction costs and to access structural risk premia (e.g. liquidity premium). However, "digital" as an investment thesis, requires the additional capacity to correctly evaluate secular or broad macro trends, such as long-term growth cycles, demographic shifts, and specifically the resultant – indeed disruptive – impacts of technological change.[3]

Thus, turning from themes that once portrayed SWF investments as disruptive to markets and economies, we examine SWF investment in the disruptive technologies and processes that are destabilizing to traditional industries in the spirit of Schumpeterian change. Our analysis proceeds first with defining the "digital landscape", then dissects SWF investment across the digital ecosystem. Our focus is on the drivers, trends and models that have defined SWF investment in digital assets - both as return-seeking and as a hedge against disruptive impacts to their investments in traditional sectors. The story that unfolds in these few pages should be read as a subplot in the broader narrative of SWF investment today that reflects in part the extent of their growth and maturity. Key markers include alternative asset classes, direct investing, disintermediation of traditional partners, and the building of professional capacity.

Defining "Digital": Scale, Scope, and a Staggering Rate of Change

Whether e-commerce, e-business, internet economy, more broadly e-conomy, or simply digital, the scope of the "sector" that defines the digital ecosystem is open to wide interpretation. A baseline definition might be that offered by the OECD: "the full range of our economic, social and cultural activities supported by the Internet and related information and communications technologies".[4] A coincident framework, useful as a start, conceives of the digital economy as three discrete but inter-connected components: infrastructure, electronic business processes (i.e. the means of commerce), and electronic - online – transactions.[5] Our slightly modified definition takes into consideration the participation of governments and non-profits in this "economy".

For our purposes, infrastructure represents the core of assets used to support electronic business processes and to conduct electronic commerce. It includes variously hardware and software, telecommunication networks – whether fixed line, mobile, or satellite, support services across platforms, as well as human capital used in electronic businesses and e-commerce.[6] We view e-business processes as any business or service delivery function that organizations conduct over electronic networks. Organizations, as

[1] The Billion Dollar Club or, in a separate guise, the Unicorns are startup companies (many in the software industry) valued at $1 billion or more by public or private markets.

[2] "Disruptive Technologies: Advances That Will Transform Life, Business, and the Global Economy", McKinsey Global Institute, May 2103, accessed at http://www.mckinsey.com/insights/business_technology/disruptive_technologies

[3] See "The Future of Long-term Investing", Work Economic Forum, 2011 accessed at http://www3.weforum.org/docs/WEF_FutureLongTermInvesting_Report_2011.pdf

[4] "Measuring the Internet Economy: A Contribution to the Research Agenda", OECD Digital Economy Papers, No. 226, OECD Publishing, p 6 accessible at http://dx.doi.org/10.1787/5k43gjg6r8jf-en

[5] Thomas L. Mesenbourg, ""Measuring the Digital Economy", US Census Bureau, p 2 accessed at https://www.census.gov/econ/estats/papers/umdigital.pdf

[6] Ibid., p 3

noted, include both for-profit and nonprofit entities, including governments, across a broad range of internally and externally facing processes.[7] Finally, the logical completion of such processes - at the base on the digital economy - are billions of transactions for goods or services.

The Boston Consulting Group posits that the digital economy is in the third of three phases of evolution (the first being dot-com era followed by Web 2.0), characterized by the emergence of "hyperscaling".[8] However beyond scale, the scope and rate of change across the global digital ecosystem are staggering. According to BCG and the World Economic Forum[9] there are approximately 2.5 billion connected people today (about one third of the world's population) with the number expected to increase to 4 billion by 2020. Such dramatic projections are informed in part by the volume of mobile Internet traffic, which increased from 8 exabytes[10] to 1,000 EB per year between 2005 and 2015 and supports the even equally startling forecast that the number of connected devices will increase from 5 billion in 2010 to 50 billion by 2020. Within the G-20 alone the number of mobile broadband connections increased from 167 million in 2005 to 2,107 million by 2015, as total Internet-based economic activity in the bloc approaches $4.2 trillion or about 5% of GDP. Digital is growing at over 10% per year, i.e. considerably faster than the economy as a whole. In emerging markets growth is even faster at between 12-25% annually. With annual investment in digital infrastructure by communication service providers alone amounting to about $300 billion, the scope of future investment to sustain expected growth in both developed and emerging economies, though varying by region, will be extensive.

Geographically then where has the digital ecosystem grown most extensive? BCG, Accenture, and Planet eBiz, an initiative of Fletcher School, each have indexed - as static annual snapshots - the digital economy based on a wide variety of variables designed to capture key dimensions of the buildout.[11] The Planet eBiz Digital Evolution Index (DEI), for example, is derived from four broad drivers: supply conditions (such as access, fulfillment and transaction infrastructure); demand conditions (such as consumer behavior and financial, Internet, social media awareness); innovation (including entrepreneurial, technological and financial supporting subsystems and the presence of a startup culture); and institutions (such as government effectiveness and its role in business and legal and regulatory support for digital processes). Across all three indexes a picture of digital readiness emerges consistent with economic development trends. Among the most digitally robust are the economies of the US, UK, Germany, the Netherlands, Sweden, Finland, Denmark, Australia, Japan, South Korea, Singapore, and Hong Kong.

In addition to providing a static ranking, the DEI also maps the five-year rate of change in its annual measure to derive a "momentum" or trend measure (See Chart 1). Here importantly ordinal rankings become inverted reflecting a steady "catch up" across the measures of the index by key countries primarily in developing Asia and Latin America. Among these (by degree of change) are China, Malaysia, Thailand, South Africa, Mexico, Columbia, Vietnam, Chile, the Philippines, India, and Brazil.

SWFs and the Financing of the Digital Ecosystem

At the outset it is useful to establish that SWF investment in "digital" occurs through a variety of platforms: public equities, private equity (PE) funds, private equity separate mandates, joint ventures, wholly-owned private equity subsidiaries, and directly as lead or co-investors. Our scope here excludes the first and so concentrates on SWFs that invest in illiquid, alternative, or real assets either directly or indirectly through limited partnerships or joint ventures. Generally this will exclude SWFs that have a liquidity imperative, such as stabilization funds, and thus comes to rest primarily on development and multigenerational funds. Furthermore, we observe that among this cohort are the largest funds that have the capacity and scale to invest directly – whether as leads or co-investors - subject of course to having a mandate that includes investing in pre-IPO deals. They are estimated to hold over US$ 3 trillion of AUM.[12]

Our analysis will suggest that SWF participation in the digital ecosystem can best be described as dual-tracked. Funds have been investing in technologies that form the infrastructure of the digital economy – the digital backbone – since the early 2000's. However, the period from 2013 to 2014 represents a watershed, as the volume and scale of investment across the digital ecosystem expanded exponentially. Furthermore, even the most superficial of

7 Ibid., p 4

8 See Philip Evans and Patrick Forth, "Borges' Map: Navigating a World of Digital Disruption", The Boston Consulting Group, 2015 accessed at http://www.digitaldisrupt.bcgperspectives.com

9 Regarding the metrics cited in this section, see "Delivering Digital Infrastructure: Advancing the Internet Economy", World Economic Forum in collaboration with the Boston Consulting Group, 2014 accessed at http://www3.weforum.org/docs/WEF_TC_DeliveringDigitalInfrastructure_InternetEconomy_Report_2014.pdf

10 1 exabytes = 10006 bytes

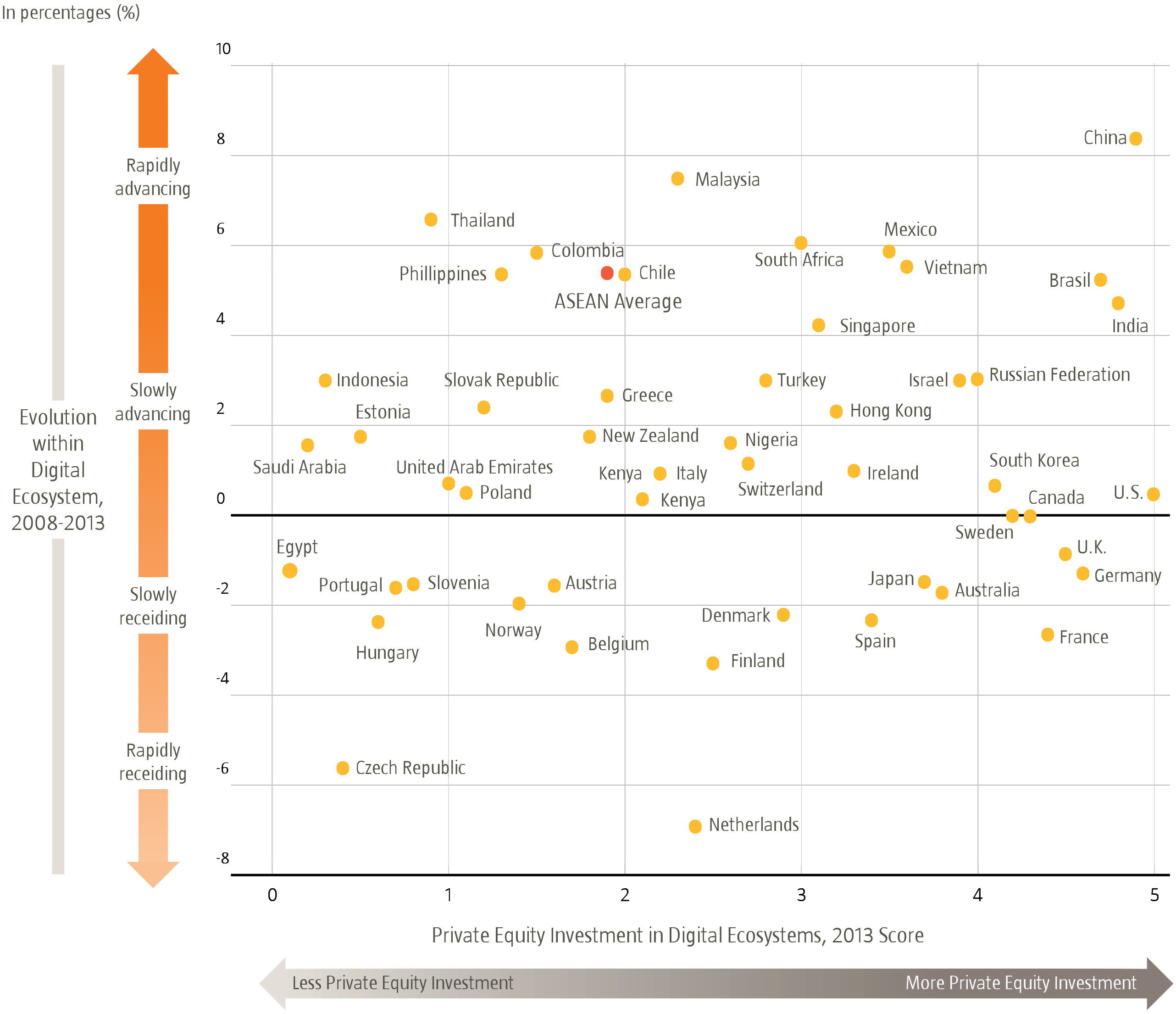
11 The specific indexes – with associated references - include the BCG e-intensity index (https://www.bcgperspectives.com/content/interactive/telecommunications_media_entertainment_bcg_e_intensity_index/), the Accenture Digital Density Index (http://www.accenture.com/us-en/landing-pages/Pages/digital-density-index-ad.aspx?c=str_usbddigdenpsgs&n=Digital_Density_-_US&KW_ID=shq2e4dTV_dc%7Cpcrid%7C67371557125), and the Planet eBiz Digital Evolution Index (http://fletcher.tufts.edu/eBiz/Index).

12 "The Future of Long-term Investing", World Economic Forum, 2011.

10. Financing of the digital ecosystem: The "disruptive" role of sovereign wealth funds... Reconsidered

Chart 1

Digitalization and investments in Digital Ecosystems



Sources: Dow Jones VentureSource and EMPEA

reviews will attribute this dramatic shift to a handful of SWFs with the mandate and capacity to invest directly *in scale.*[13] Among these, the Singaporean SWFs have been the most active direct investors in digital assets. What remains hidden from our clear view is the indirect participation of a wider cohort of funds investing indirectly through private equity limited partnerships.

[13] See for example "Singapore's Investment Funds Blaze eCommerce Trail, Financial Times, 17 August 2014

That SWFs are significant investors in private equity partnerships, particularly the largest globally – Advent, Bain, Blackstone, Carlyle, TPG, etc – has been well-documented elsewhere.[14] In fact, the larger the fund by assets then the higher the probability that it will be invested in private equity as an asset class.[15] Furthermore, and directly relevant to the present discussion, private equity firms have been active investors across the digital landscape. As a benchmark, we estimate that approximately $250 billion in private equity has been invested in the global digital ecosystem between 2009 to 2014, marked by a dramatic acceleration in 2014 when some $94 billion was committed.[16]

Geographically, the US continues to garner the majority of private equity investment in the digital ecosystem, estimated at over $170 billion (or about 70% of the total) between 2009 and 2014. However it is China and India ($22 billion and $9 billion or 9% and 4% respectively) that follow, trailed then by the UK, Canada, Germany, Israel, and Russia. Such trends are quite consistent with those reported by Planet eBiz, which uses private equity flows as an investment proxy for the DEI.[17] Also relevant is that mid- sized and smaller countries - particularly those in Latin America and Southeast Asia - remain relatively underinvested by mainstream private equity, despite rapid evolution and favorable demographics (a point to which we return in our conclusion).

Investor participation across the digital ecosystem has included both General Partners (GP) and asset owners in discrete funding rounds. The former certainly represent the vastly larger cohort. Table 1 ranks the top 10 global private equity investors in digital assets according to the aggregate value of funding rounds in which they participated. Importantly, prominent among the 10, based on scale, are GIC and Temasek (ranked eighth and ninth respectively) with each participating in rounds valued at over $4 billion.

Similarly, among "Billion Dollar Club" of technology startups with current valuations of at least $1 billion like patterns prevail. Based on May 2015 valuations, including several exits, the Club boasts 104 members, representing 11 countries. Investment profiles – whether by investor, size, or geography – are quite consistent with those reported above. The US as expected dominates the ranks with 64 startups (62%), including the likes of Uber, Snapchat, Palantir, and

Table 1

10 Largest private equity investors in the digital economy (2010-2014)

Ranking	Investor	City	Country
1	DST Global	Moscow	Russia
2	Tiger Global Management	New York	US
3	Sequoia Capital	Menlo Park, CA	US
4	Accel Partners	Palo Alto, CA	US
5	T. Rowe Price	Baltimore, MD	US
6	Andreessen Horowitz	Menlo Park, CA	US
7	Kleiner Perkins Caufield & Byers (KPCB)	Menlo Park, CA	US
8	GIC	Singapore	Singapore
9	Temasek Holdings	Singapore	Singapore
10	Intel Capital	Santa Clara, CA	US

Source: In-source based on CrunchBase. Ranked by aggregate value of funding rounds in which they participated.

Dropbox. China and India again follow with 16 and 7 startups (15% and 7% respectively), including JD.com, Xiaomi, Flipkart and Snapdeal. SWFs have invested in 16 such firms (or 19%). Investor rosters, across multiple rounds, include angels, venture capital firms, corporate or strategic investors, large global private equity firms, and sovereign and pension asset owners. Among SWFs Temasek has invested in 11 (13%) with GIC, Abu Dhabi Investment Council, and Qatar Investment Authority following. In most cases such investments represent late round participations, generally at a pre-IPO stage, in collaboration with other large investors and very likely as a co-investments. This we believe reflects a core strategy among many SWFs to effectively gain digital exposures: Leverage the expertise and capacity of experienced GPs, while selectively investing or co-investing in scale in seasoned deals with lower operating and liquidity risk.

With respect to direct SWF investments in the digital economy, we focused on deals between 2006 to 2014 and segmented our sample into two - 2006 to 2009 and 2010 to 2014.[18] These periods seemed also to be co-incident with two distinct investing themes: Digital infrastructure and e-commerce. We identified 78 deals representing participation in rounds totaling nearly $30 billion across a variety of sectors, including digital infrastructure, such as

[14] See Diego Lopez, "The major role of Sovereign Investors in the Global Economy: A European Perspective" in ESADEgeo's "The Global Context: How Politics, Investment, and Institutions Impact European Businesses" May 2015.

[15] See "2015 Preqin Sovereign Wealth Fund Review", Preqin, 2015

[16] As a source for the references in this section we make guarded use of data from the CrunchBase database.

[17] Similar trends for 2014 were report by Bain Capital. See Asia-Pacific Private Equity Report 2015, Bain Capital accessed at http://www.bain.com/Images/REPORT_Bain_and_Company_Asia-Pacific_Private_Equity_Report_2015.pdf

[18] All deal references in this sample are from the Fletcher Sovereign Wealth Fund Transaction Database.

10. Financing of the digital ecosystem: The "disruptive" role of sovereign wealth funds… Reconsidered

Table 2

Sovereign Wealth Funds investments in the digital economy (by sector)

Sub-industry	Deals	Value ($m)	Average deal value ($m)
E-Commerce	26	7,401	284.67
IT	12	1,595	132.93
Telecom	10	3,168	316.81
Media	7	4,453	636.14
Software	7	9,104	1,300.57
Education	4	1,017	254.25
Gaming	3	207	69.00
Finance	3	437	145.73
GPS	2	28	14.10
Mobile	2	1,086	543.00
Mobile App Developer	1	15	15.00
Semiconductor	1	125	125.00
Grand Total	**78**	**28,637**	**367.14**

Source: In-house from CrunchBase (2015) for 2006-2014 (top 10).

Table 3

Sovereign wealth funds investments in digital economy (by destination)

Country	Value	Deals	Average Deal Value
USA	13,952	22	634.20
India	5,025	10	502.50
China	4,031	18	223.96
UK	2,696	3	898.67
Canada	1,000	1	1,000.00

Source: In-house from CrunchBase (2015) for 2006-2014 (top 5).

telecom, mobile, software and broadly IT, and e-commerce, e.g. retail, entertainment, transportation, payment services (see Table 2). By value based on deal size deals were concentrated (93%) in 5 countries – US, India, China, UK, and Canada, with nearly half originating in the US (see Table 3). In contrast, by count, Singapore and Brazil enter the top five. Similarly concentrated were deals by investor with Temasek (or its affiliate Vertex) and GIC invested in 69% of the deals by count – 48% by the Temasek group and 21% by GIC. Both country and SWF variables are consistent with patterns we identified earlier.

By period, between 2006 and 2009, we identify 28 investments by SWF with a total deal value of about $6 billion. Importantly, these deals were primarily (22 by count) in sectors – telecom, software, software, IT, and media – that, we argue, constitute the core of the digital backbone. The financial crisis interrupted these flows as SWF digital investments slowed dramatically between 2008 and 2010. The period beginning especially in 2011 marked a significant shift in sector interest and flows, as well as momentum.

Between 2010 and 2014 we identify some 50 investments by SWFs discretely in the digital ecosystem with a total deal value of over $22 billion. Deal count expanded dramatically from 3 deals in 2010 and 2011 to nine deals in 2013 then reaching 30 deals in 2014. Similarly, Temasek or Vertex and GIC dominated the investment rankings. Across the 50 transactions, 26 were discretely e-commerce, while others were in closely aligned sectors such as education, finance, payment services, and mobile. Many - not all - of investee firms were Billion Dollar Club members representing quite large scale, later stage private equity deals. Thus, there was a clear indication that sovereign investment was primarily following on the private equity lead.

Among a sampling of notable e-commerce deals undertaken by SWFs since 2010 are included the Qatar Investment Authority's investments in Flipkart (also invested by GIC) and Uber, the Kuwait Investment Authority's investment in Madrid-based on-line recruiting firm, Tyba, investments by the China Investment Corporation and Khazanah (and Temasek), in Alibaba, and Mubadala's investment in music publisher EMI. We note too a 2015 Spotify round[19] in which the Abu Dhabi Investment Council is reported to have participated along with Goldman Sachs and a number of private equity partners. The round is estimated at approximately $400 million and is anticipation of both Apple's entry into the market and an eventual Spotify IPO.

[19] See for example "Spotify Could Be Worth $8.4 billion After Fundraising", The Telegraph accessed at http://www.telegraph.co.uk/finance/newsbysector/mediatechnologyandtelecoms/digital-media/11529572/Spotify-to-be-worth-8.4bn-after-fundraising.html

Sovereigns Investing Digitally: Adapting or Disintermediating the PE Model?

Whether through private equity funds, private equity separate mandates, joint ventures, wholly-owned private equity subsidiaries, and directly as lead or co-investors, the investment structures though which SWF invest digitally are varied and to some extent overlapping. Across the broad expanse of capital committed to the sector, the majority of SWFs invest indirectly and – we might argue – agnostically, i.e. primarily through the investment decisions of their general partners. Even direct investments, including co-investments – particularly those in large, later stage rounds of high profile "startups" – do not demonstrate a commitment to a coherently defined digital strategy. Fidelity Investments and Wellington Management, for example, participate in pre-IPO rounds for different strategic reasons than a sector-focused private equity fund. We observe instead that institutional investors with a thematic commitment to invest in the digital ecosystem generally exhibit three core attributes: an extended risk profile beyond simply that of illiquidity, the professional capacity to analyze and understand cross-sector impacts of disruptive technologies, and a strategic objective to exploit long-term secular growth dynamics, fundamental demographic shifts, and digitally induced disruptive business transformations.

Direct investing via a traditional private equity model is well suited to operationalize such a strategy, including model extensions such as joint ventures (JV) and subsidiaries organized and staffed specifically to undertake early stage investments. A useful example of the JV model is that between the CIC and the NPRF announced in early 2014 establishing the China Ireland Technology Growth Capital Fund (discussed elsewhere in this volume). Complementary too are investment structures that are linked to national development goals centered on the build-out of digital capacity. In this regard we note Khazanah's expansion to Silicon Valley, which is expected to further align its investment program with Malaysia's so-called New Economy Model (NEM). As a large shareholder of Telecom Malaysia and with telecom and media assets constituting 25% of its portfolio, Khazanah's leadership in these sectors can have important implications for the digital evolution of the Malaysian economy.[20]

As with mainstream private equity, so too with SWFs, the efficacy of one's strategy and skill is ultimately expressed through performance. High-profile exits have met with mixed results despite the initial success of IPOs such as Alibaba. The challenge, of course, is that competition for deal access, particularly at the pre-IPO stage, drives up valuations and lowers eventual returns. As Fang et al. find, co-investing strategies, rather than mitigating such risk, may in fact accentuate it. Conversely, strategies that involve direct sourcing in which investors exploit proximity and informational advantages exhibit relatively better performance, especially on a fee-adjusted basis.[21] However, such a model competes with – and potentially disintermediates - private equity limited partnerships. To illustrate, we return once again to the Singaporean funds.

Whether by volume, deal count, or reputation, both anecdote and evidence suggests that GIC and Temasek had by 2014 established themselves among the largest institutional investors in the global digital economy and consequently the digital leaders among SWFs. In doing so each maintains broad and deep relationships with general partners, which they continue to leverage for their experience and experience. However, each has diverged, from traditional relationships, to develop competing investment platforms that permit greater flexibility, control, and scale.

The GIC, for example, maintains over 100 active PE relationships, but also holds a similar numbers of direct investments.[22] In 2013, GIC is reported to have adopted changes to its investment model to complement ongoing reorganization and expansion to allow more nimbleness in responding to direct investment opportunities globally. The new model diverges from traditional approaches to strategic asset allocation by using factor exposures to evaluate direct, private investments against low cost tradable alternatives.[23] Complementing this, GIC has tasked its New York unit to lead an "integrated strategies" initiative. The team has benefited from GIC's geographic expansion as it seeks improved access to information and enhanced deal flow, while itself driving a more hands-on approach to deal management. GIC expansion to Mumbai and Sao Paolo, for example, both resulted in an increase in the number and scale of direct solo rounds – including digital rounds - undertaken by GIC in those geographies.[24] This is consistent with GIC's strategic objective to both source and lead deals independently through its own global network.[25]

[20] See http://kperspectives.khazanah.com.my/Get_To_Know_Us-@-Khazanah_Americas_Incorporated.aspx

[21] See for example Lily Fang, Victoria Ivashina, and Josh Lerner, "The Disintermediation of Financial Markets: Direct Investing in Private Equity", September 2014, forthcoming in Journal of Financial Economics

[22] See 2013-14 GIC Annual Report accessed at http://www.gic.com.sg/images/pdf/GIC_Report_2014.pdf

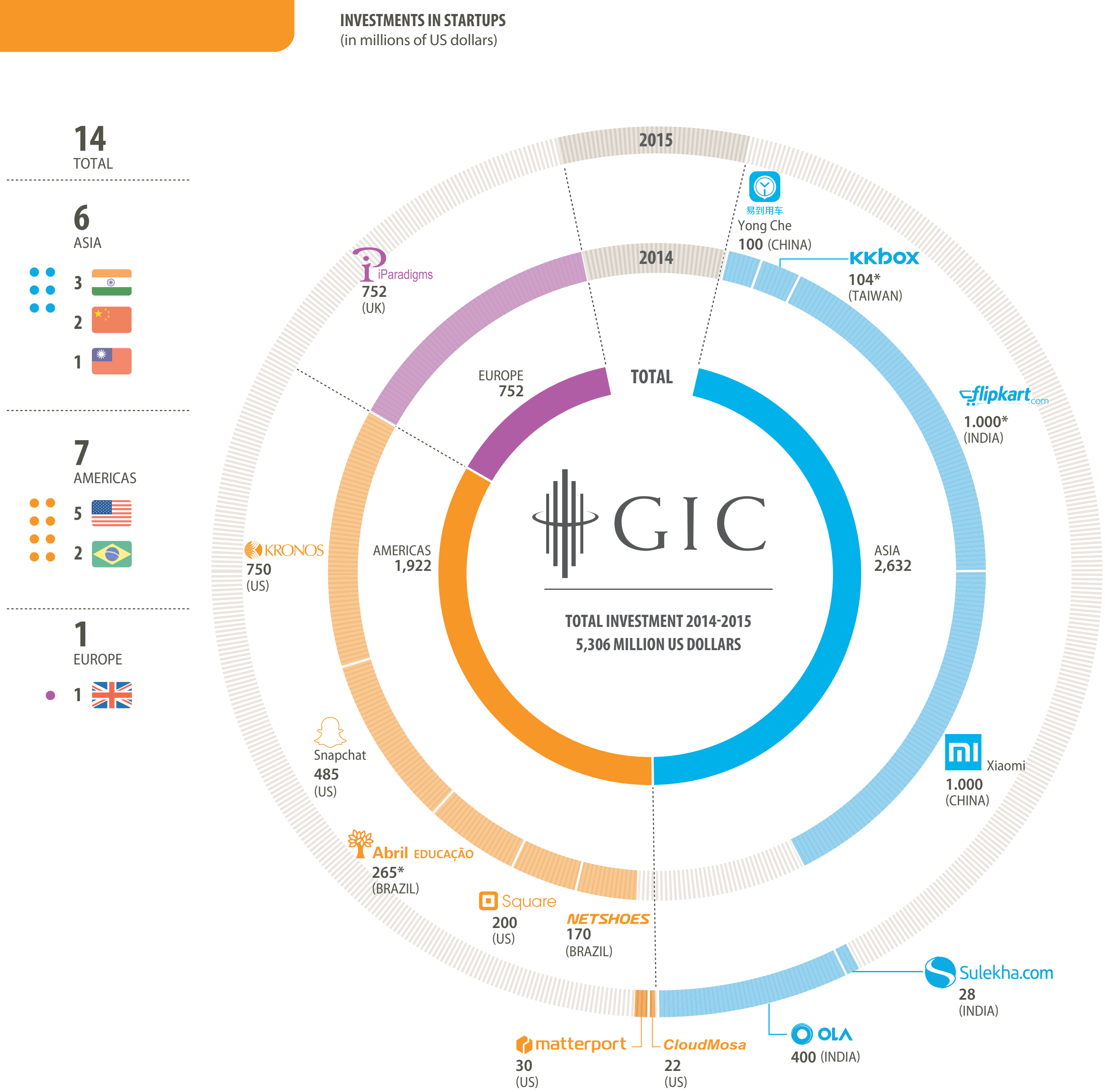
[23] Such an approach has been implemented by Canada Pension Plan Investment Board, members of whose executive ranks have been linked with GIC. See "Sovereign Singapore Fund Bets Big on Trophy Real Estate", Bloomberg, 8 December 2014 accessed at http://www.bloomberg.com/news/articles/2014-12-08/singapore-sovereign-fund-bets-big-on-trophy-real-estate

[24] "Going Direct: GIC Gives Private Equity Firms Run for their Money", Reuters, 4 Septmebr 2014 accessed at http://www.reuters.com/article/2014/09/03/gic-privateequity-idUSL3N0QV1JX20140903

[25] See 2013-14 GIC Annual Report

Infographic 6

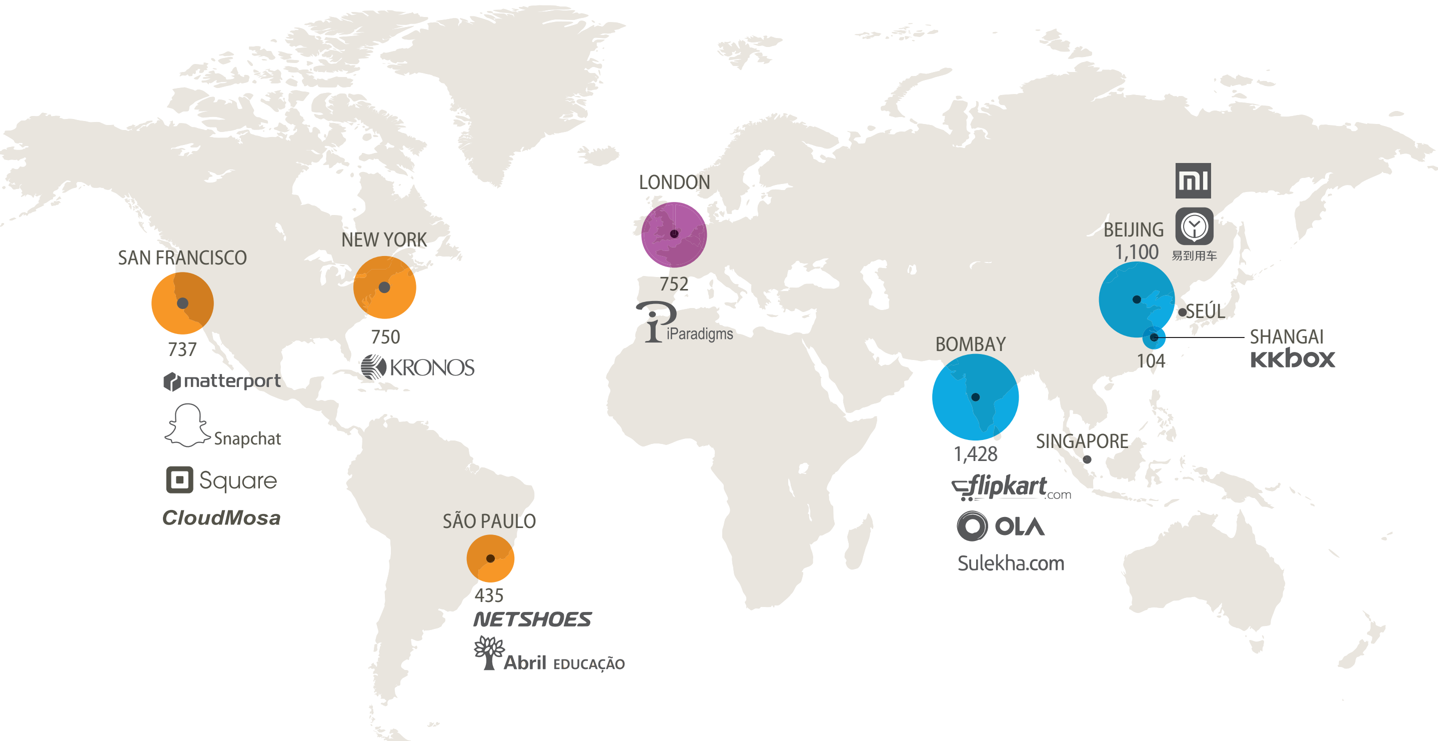
GIC: A global investor stays close to its startups



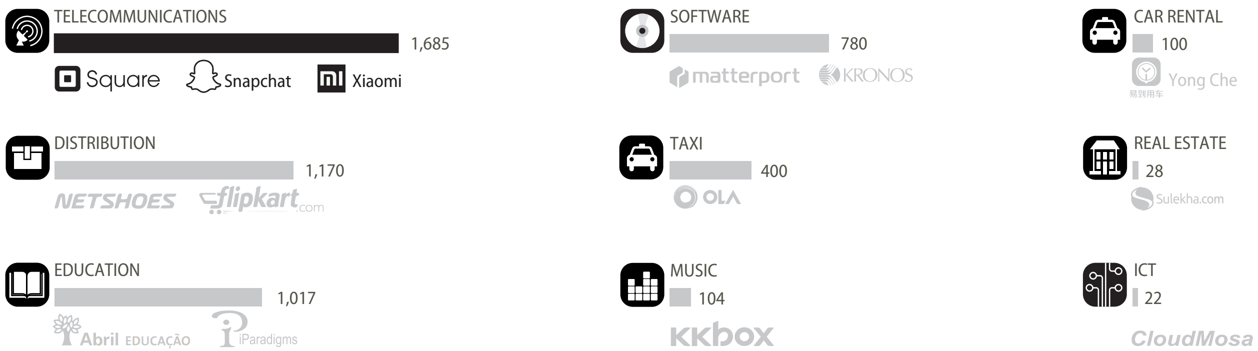
* Investments in which GIC was the sole investor

Source: GIC Annual Reports (2015).

INVESTMENTS BY OFFICE
(in millions of US dollars)



INVESTMENTS BY SECTOR
(in millions of US dollars)



An example that serves to illustrate is GIC's solo $104 million investment in Taiwan streaming music service KKBOX. A direct competitor of Spotify, KKBOX has established its service among Asian listeners particularly in Taiwan, Hong Kong, and in Southeast Asia, including Singapore. The deal was arguably the largest funding of a Taiwanese early stage company in 2014 and is representative of a an investment strategy that combines scale with a higher risk tolerance, but likewise requires both an understanding of and commitment to the growth dynamics of digital penetration in the East and Southeast Asia (See Infographic 6 for more details).

For its part, to similar affect Temasek employs a model that is operationalized through two parallel, but integrated programs: A direct investment program and an early stage or small and medium size (SME) enterprise program. The latter is executed through a subsidiary model centered in its Enterprise Development Group (EDG), established in 2013 with an expressed agenda to identify transformational trends and opportunities and fund and develop innovative businesses.[26] EDG describes itself as "an enabler across all stages of an enterprise, from early stage to disruptive business models".[27]

Temasek's public representation of its direct investing in digital echoes this disruptive theme[28], which it portrays as a horizontal driver that cuts across traditional industries and business models, including for example financial services and transportation, but also energy and industrials. This focus, we believe, derives in part from its legacy as a sovereign development fund and its holdings of key Singaporean assets in technology and telecommunications.[29] With the capacity to invest in scale, Temasek's direct investment experience reflects its preference for relatively large deals, with demonstrated operational performance, which by definition are beyond venture stage and approaching pre-IPO. Accordingly, based on our deals data, in the digital sector Temasek has directly participated in deals or rounds whose average size is approximately $200 million. An example is Temasek's lead of the December 2104 $250 million funding round of Lazada Group, the on-line shopping site targeting Southeast Asia. The investment in Lazada, a Rocket Internet company, rather than its parent, is interesting and perhaps too reflective of Temasek discretely exercising its preference for sector, geography, and presumably relative value.

Owing in part to differences in scale economies between pre-IPO and venture deals, as well as in the capacity and operating skills required in pre-profit stages, global private equity exhibits a high degree of specialization. Temasek's strategy mirrors this approach. Through EDG, it has created specialized platforms - Vertex Venture, Heliconia, and Clifford Capital - through which it invests in SMEs, including those contributing directly to the digital ecosystem.[30]

Vertex was initially established under Singapore Technologies in 1988 and absorbed directly by Temasek in 2008 at which time it also injected $250 million of new capital. Subsequently, Temasek injected an additional US$325 million in 2013 and US$165 million in 2014. It is organized as a wholly-owned subsidiary of Temasek and operates two Asia-focused funds, which invest in early to mid-stage technology companies, as well as two additional funds targeted respectively at Singaporean startups and North American opportunities.[31] Heliconia and Clifford complement Vertex as both invest in SMEs in Singapore, the latter specifically providing project financing.

In contrast to Temasek's direct digital deals, Vertex participates in considerably smaller rounds generally averaging between $20 and $50 million. Vertex's investment in Malaysia personal transportation startup GrabTaxi serves to illustrate. GrabTaxi is reported to have raised over $340 million in 2014 in four separate rounds as it expands across Southeast Asia. Vertex is known to have been a participant in at least the earliest of these 2014 rounds. GrabTaxi facilitates hailing taxis by linking waiting passengers with nearby taxis across all providers. In Singapore this includes not only Temasek portfolio company SMRT, Singapore's public transport operator, but so too its competitors. Could GrabTaxi itself be a metaphor for the disruptiveness of digital's advance for both for Singapore and Temasek? We will leave this for the reader to ponder as we turn to close.

Informing the Future of SWF Investment in the Digital Economy

Our reflections offer a view of investment in the global digital economy that is embraced by the largest SWFs across sectors, through a variety of investment structures, and at an increasingly brisk pace. At its outset, SWF investment in digital assets scaled through PE partnerships then complemented private equity by following its lead through co-investment. Temasek and GIC most

[26] See http://www.temasekreview.com.sg/en/institution/seeding-future-enterprises.html

[27] With respect to indirect investing, an example in technoplogy and software venture capital specifically is Temasek's investment in Andreessen Horowitz. See http://www.temasekreview.com.sg/en/institution/seeding-future-enterprises.html

[28] See for example http://www.temasek.com.sg/mediacentre/speeches?detailid=22089

[29] This point has previously been well-covered in these pages. See Javier Santiso, "Sovereign Wealth Funds and New Technologies", Sovereign Wealth Funds 2013, ESADEgeo accessed at http://www.esadegeo.com/global-economy

[30] Temasek has also established additional entities with investing focus in other industries, including specifically Pavilion Energy.

[31] See http://www.temasekreview.com.sg/en/institution/seeding-future-enterprises.html

prominently have further advanced this investment agenda as each has developed a thematic approach to digital investing and are actively engaged independently in sourcing and leading large digital deals.

As we look forward, drawing on our research into both the drivers of the global digital economy and the various manifestations of investments that further its progress, we have identified several unfolding patterns with potential implication for future SWF investment in the digital economy.

First, the rapidly rising adoption both of smart phones and mobile broadband internet, especially among the demographically dense but resource poor segments of emerging and frontier markets, are creating new consumer classes, and with them, new investment opportunities both to enable infrastructure to reach these consumers and in applications that cater to their needs across various business functions and processes.

Second, the highly scalable nature of digital businesses will hasten their global expansion even further into an emerging and frontier markets, while stimulating indigenous innovative models, technologies, and service delivery platforms. Scale and size drive the flow of investment. We expect that the large and attractive demographics of China and India will continue to draw investments from PE and SWF investors into those digital ecosystems both in the near to medium term. However, the potential for large digital markets to arise out of regional economic blocs such as ASEAN, with favorable socio-economic dynamics and advancing digital maturity (see Chart 1) will drive greater investor interest and flows in the medium term.

Finally, we expect sovereign flows into digital to continue to follow PE's lead. Nonetheless, among SWF's sophisticated lead investors such as Temasek and GIC, through their multi-pronged investment programs, have already seized on new market opportunities particularly in Southeast Asia and Brazil. They remain well poised to exploit the future evolution of digital themes. We anticipate that a more active and direct approach will be emulated by those funds that are able to take advantage of scale economies by building in-house capacity to exploit the disruptive forces that drive returns in the digital economy.

Sovereign wealth funds and heritage assets: An investor's perspective

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11. Sovereign wealth funds and heritage assets: An investor's perspective

In this article, we look at why and how some sovereign wealth funds (SWFs) and certain other long-term institutional investors (LTIs) might want to consider allocating a small portion of their portfolios to so-called 'heritage assets'. While investing in museum-quality art and the broader heritage eco-system is certainly not for everyone, we argue that there is a distinct group of countries and institutions which have a natural advantage and which are therefore uniquely positioned to make such allocations as part of their long-term investment portfolios. First, we discuss the necessary pre-conditions and criteria to determine which countries and institutions qualify. Secondly, we consider suitability of heritage assets in terms of investment horizon, sources of return, and specific role in an investment portfolio. We also address some of the typical objections, explaining why we disagree with the sceptics. We then review the only existing case study of an actual institutional art allocation, undertaken by the British Rail Pension Fund (BRPF) between 1974 and 2000. We conclude by offering some thoughts on the practicalities of designing and implementing an institutional allocation to heritage assets, suggesting some promising areas for future research.

But first, let us define our terms. The concept of 'heritage assets' which we use in this article is loosely based on the framework introduced in the report "Valuing Heritage Assets", prepared in March 2009 by Kingston University on behalf of the Royal Institution of Chartered Surveyors (RICS) and HM Treasury. Specifically, we define them as assets held and maintained principally for their contribution to knowledge and culture, which include portable assets (e.g. collections of objects held by museums and galleries) and real estate assets (e.g. historic properties including archaeological sites). For the most part, we focus on institutional investment in museum-quality art. Therefore, unless stated otherwise, we use the terms 'heritage assets' and 'art investments' interchangeably throughout this article. However, when we refer to the broader heritage eco-system, we also include the following two asset categories:

- Related businesses, such as auction houses, dealerships, galleries, as well as specialist financing, insurance, storage, transportation, valuation, restoration, and art market information firms;

- Infrastructure and properties used for displaying, storing, transporting, and trading in art.

Who should (and shouldn't) invest in heritage assets?

It is easy to see how for certain types of SWFs and pension funds investing in art would be absolutely inappropriate given their liability profiles. For example, sovereign funds established for macroeconomic stabilisation purposes or for more efficient management of foreign exchange reserves would normally be very constrained in their ability to allocate to illiquid and esoteric assets traded in private markets. Similar constraints would logically apply to a pension plan with a rapidly maturing workforce, especially if it also happens to be underfunded. But it is not just about the nature of the funds themselves: the state of the broader economy and the level of development of the country in question are also important.

For example, consider a developing African country blessed with a substantial commodity endowment, yet also afflicted by low levels of per-capita GDP, undiversified local economy, under-developed domestic infrastructure, and only the most basic of social services. To even suggest buying art works in such a situation would be counter-productive, if not downright offensive, as it will alienate and disenfranchise the local population while dramatically increasing the risks of corruption and wasteful spending. Arguably, even in much more developed emerging market economies, especially those with large populations, the marginal utility of spending on education, healthcare, housing and infrastructure will be much higher. Therefore, just like with individuals and families, it is only after reaching a certain level of affluence and well-being that countries with sizable SWFs can afford to consider investing in art and heritage assets. So which countries would be most eligible?

We propose to look at nations meeting the following five criteria:

1. High level of GDP per capita (e.g. top 20 in both nominal and PPP terms);

2. Highly industrialised local economy and developed infrastructure;

3. Very large size of relevant SWF assets (e.g. top 20 AUM size);

4. Robust SWF architecture, track record, and relevant expertise;

5. Publicly stated interest in (or commitment to) heritage assets.

Table 1

GDP per capita, nominal values (US$)

Rank	Country	Amount
1	Monaco	159,400
2	Liechtenstein	139,300
3	Luxembourg	110,700
4	Qatar	104,300
5	Norway	101,400
6	Switzerland	80,800
7	United Arab Emirates	70,900
8	Kuwait	66,500
9	Australia	65,100
10	Denmark	58,300
11	San Marino	57,900
12	Sweden	57,200
13	Singapore	54,700
14	United States	52,800
15	Canada	52,100
16	Finland	49,200
17	Austria	49,100
18	Netherlands	47,600
19	Iceland	46,200
20	Ireland	46,000

Source: CIA World Factbook (2013)

Table 2

GDP per capita, PPP (current international US$)

Rank	Country	Amount
1	Qatar	136,727
2	Luxembourg	91,048
3	Kuwait	83,840
4	Singapore	78,763
5	Brunei	71,777
6	Norway	64,406
7	United Arab Emirates	59,845
8	Switzerland	56,950
9	Saudi Arabia	53,644
10	United States	53,042
11	Netherlands	46,162
12	Ireland	45,684
13	Austria	45,079
14	Oman	45,334
15	Sweden	44,658
16	Germany	43,884
17	Bahrain	43,851
18	Denmark	43,782
19	Australia	43,202
20	Canada	42,753

Source: World Bank (2012-2013)

Note: Shadowed in grey countries in Table 2 managing SWFs which are not included in Table 1.

Based on the first two criteria, we identify the following nine nations with existing SWFs: Norway, Qatar, Australia, Singapore, Canada, Kuwait, United States, Ireland and the United Arab Emirates (UAE). The third criterion eliminates Canada, although this is based on a mere technicality: we are only considering SWFs. While Canada indeed has only one medium-sized SWF located in Alberta, the nation's top 10 public pension funds, which are some of the largest and most sophisticated asset owners in the world, would be more than able to compensate if we were to broaden the scope of our analysis. In the case of the United States, despite owning at least nine SWFs, none of them were included in the top 20 in terms of total assets. The same applies to Ireland, now focused on its newly formed domestic-oriented investment vehicle (Ireland Strategic Investment Fund), which absorbed resources from the "old" NPRF. The fourth criterion effectively eliminates Norway and Australia, but not because we find any issues with their SWF architecture or track record. Norway's fund simply has no experience investing in illiquid (beyond real estate) and esoteric asset classes so far, while Australia's is only allowed by law to invest via third-party funds, which we believe would be inappropriate in the case of heritage assets. After applying the fifth criterion, we have the following three sovereigns left: Abu Dhabi, Qatar and Singapore.

Table 3

Top 20 AUM at SWFs / State Investors by Country

Sovereign Wealth Fund / State Investor (Aggregate Assets)	Country	Asset Size (US$ billions)
CIC + SAFE + NSSF + HKMA + CADF	China	1,759.3
ADIA + ICD + ADIC + IPIC + Mubadala + IPIC + EIA +DIC	Abu Dhabi (UAE)	1,185.6
Government Pension Fund Global	Norway	896.7
Saudi Arabian Monetary Agency (SAMA)	Saudi Arabia	744.1
Kuwait Investment Authority (KIA)	Kuwait	548.0
GIC + Temasek	Singapore	487.4
Qatar Investment Authority (QIA)	Qatar	304.0
Alaska (APF) + Texas (TPSF) +New Mexico + Wyoming + Alabama + North Dakota + Idaho + Louisiana + West Virginia	USA	126.7
Future Fund	Australia	109.2
National Wealth Fund / RDIF	Russia	84.4
Korea Investment Corporation (KIC)	Republic of Korea	72.0
National Oil Fund of Republic of Kazakhstan	Kazakhstan	71.8
Libyan Investment Authority (LIA)	Libya	60.0
Khazanah Nasional Berhad	Malaysia	41.6
State Oil Fund of Azerbaijan (SOFAZ)	Azerbaijan	37.1
Pension Reserve Fund and Economic & Social Stabilisation Fund	Chile	22.5
New Zealand Superannuation Fund (NZSF)	New Zealand	21.8
State General Reserve Fund (SGRF) and Oman Investment Fund (OIF)	Sultanate of Oman	19.0
Petroleum Fund of Timor-Leste	Timor - Leste	16.5

Source: ESADEgeo (2015).

The first two have already made their presence felt in the global art market. Abu Dhabi has embarked on a large-scale cultural tourism and heritage-building project, not least by tying up with the Louvre museum in France and the Guggenheim museum in the United States. Qatar's royal family has been on a multi-year, multi-billion-dollar acquisition spree in the art market, as it feverishly builds world-class museums of their own. As for Singapore, its relevance to this discussion comes not so much from the city-state's ambitions in the art market per se, but from its efforts to build a world-class private banking and asset management centre. Art investment and advisory are increasingly becoming part and parcel of any high-end private bank offering, so developing related centres of excellence and expertise, as well as nurturing a broader local heritage eco-system, would fit Singapore's development plans perfectly.

The other noteworthy and highly relevant similarity between these three sovereigns is that their local SWF scene is highly evolved and multifaceted. Not only do they have very large, broadly diversified, inter-generational portfolio-type sovereign investors like ADIA, QIA and GIC, they also have more domestically anchored, concentrated, private equity-type direct investors (or holding companies) like Mubadala, Qatar Holding and Temasek, respectively. In theory, this should offer the three sovereigns in question additional flexibility to figure out the most optimal way of investing in heritage assets.[1]

What are the pros and cons?

Let us now consider in principle the case for institutional investment in heritage assets: what would be the rationale for a portfolio manager to make an allocation to art as an asset class? We look at it from three different angles: (1) investment horizon; (2) sources of return; and (3) potential role in a long-term institutional portfolio. We then consider some of the more typical objections and present our counter-arguments.

Assembling a large and unique collection of world-class heritage assets is typically an inter-generational endeavour. Collections of major historical and cultural significance (and considerable monetary value) are built over decades, if not centuries. Based on the experience of knowledgeable art market practitioners, today the average cycle of a museum-quality work of art appearing on the market and becoming available for purchase is somewhere between 20 to 40 years[2]. In other words, from the time a work of art is sold, two to four decades will normally pass before interested buyers can get another chance[3]. From an investor's point of view, the implication is clear: only institutions with inter-generational investment horizons – often referred to as 'patient capital' – can afford to seriously consider building a meaningful allocation to world-class heritage assets.

[1] To be absolutely clear, we are not suggesting that SWFs in other countries are incapable of figuring out ways of investing in heritage assets. We are simply pointing out that the three sovereigns on our list – Abu Dhabi, Qatar and Singapore – represent, in our view, the most immediately obvious and compelling cases of investors who are best placed to consider such an investment.

[2] See McAndrew, C. (2010) "An Introduction to Art and Finance," Chapter 1, *Fine Art and High Finance: Expert Advice on the Economics of Ownership*, edited by C. McAndrew, New York: Bloomberg Press. And see Eckstein, J. (2010) "Art Funds as Asset Class," Chapter 6, Fine Art and High Finance: Expert Advice on the Economics of Ownership, edited by C. McAndrew, New York: Bloomberg Press

[2] Of course, with respect to some masterpieces (e.g. Leonardo's Mona Lisa), it would be inconceivable to even theorise that someday they might appear again on the market.

Art investments are illiquid and esoteric. There are few of the formal coordination and price discovery mechanisms, or transparent and regulated institutional structures, that investors are used to in financial markets; the base of buyers and sellers is a very fragmented global mix of mostly non-financial actors; and the investment objects themselves are very heterogeneous. When one considers sources of returns from art, the illiquidity premium is always at the top of the list, but this fits nicely with the latest trend in long-term institutional fund management: an increasing number of SWFs and LTIs are focusing on less liquid assets traded in private markets – private equity, venture capital, bank loans, real estate, infrastructure projects, oil and gas rigs, physical commodities, timberland, etc.

Just like with these 'alternative' asset classes, the illiquidity premium one can earn from investing in art is time-varying, but the nature and source of this variation is unique. In the language of economics, the art market is characterised by a high income elasticity of demand and a zero elasticity of supply. In other words, while the supply of high-quality art is fixed (there are only so many paintings by Rembrandt, Monet and Picasso), the demand for it will fluctuate – mostly driven by changes in the levels of income and wealth, but also by fads and fashion. Long-term institutional investors who can combine an intimate knowledge of the art market with a rigorous investment process and valuation discipline will be best positioned to harvest this time-varying illiquidity premium.

Another important feature of art from an investment standpoint is that it is a 'real' asset with scarcity value, which is expected to rise over time. As we shall see in the BRPF case study, this can be useful to an investor worried about inflation and currency debasement. But in the longer term, it is the secular trends in the worldwide creation, spread and distribution of wealth that underpin the case for investing in art. The process of globalisation has reduced income and wealth inequality across countries, while simultaneously increasing it within countries. Arguably, both phenomena are supportive of long-term appreciation in the value of high-quality heritage assets. As emerging market economies continue to produce a growing number of millionaires and billionaires hungry for status symbols and luxury goods, the increasing concentration of wealth at the top of the pyramid in the developed world will inevitably result in a higher propensity to acquire rare and valuable works of art.

But understanding the fundamental drivers and sources of returns is not enough: one must also consider the actual track record and the historical risk/return profile of art as an asset class. And herein lies one of the biggest hurdles: it turns out that there is no such thing as an 'art market' or 'art as an asset class'. Sure, these are useful short-hands when discussing portfolios from a top-down, asset allocation perspective. But once we drill down to a more granular level, we discover that the task is not quite so simple. There are multiple different categories and sub-categories of the 'art market' which often behave very differently (e.g. Old Masters, Impressionists, Modern Art, Post-War and Contemporary Art). Also, within these categories, there will be meaningful sub-categories in terms of schools and movements, sub-periods, art mediums, etc.[4]– and all these differences are just within the single broad category of 'fine art'.[5] This begs the question: how should investors define heritage assets for purposes of their analysis?[6]

Depending on how we define the asset class, which data we use and what period we consider, the risk/return profile of art and its performance relative to other asset classes will look very differently. Since the mid-1970s, an expanding literature has investigated returns to investing in art, with conclusions ranging from cautiously supportive to strongly sceptical. For purposes of this discussion, we shall draw on the work of two pairs of highly respected and authoritative scholars: (1) Professors Jianping Mei and Michael Moses of the New York University[7], who created the most recognised and widely followed family of art investment indices, and whose analysis is presented primarily from a US perspective; and (2) Elroy Dimson and Christophe Spaenjers, of Cambridge University and HEC Paris[8], respectively, who analyse art investments from a British perspective.

4 For example, within the Modern Art category, Picasso's paintings and drawings will be priced differently, as will be works on the same medium but dating from his different so-called 'periods'.

5 The other broad categories are 'decorative art', 'antiquities' and 'collectibles'.

6 In a way, this challenge is not unique to art and certainly not new to institutional investors active in other alternative asset classes. For example, consider the definition of 'private equity': is it equity participation in early stage unlisted growth companies or is it leveraged buy-outs of mature corporations? What about 'hedge funds'? Is it long/short equity funds focused on bottom-up stock selection? Is it fixed income arbitrage funds focused on relative value analysis across and within different yield curves? Is it global macro and commodity trading advisers (CTAs), focused on top-down trading and trend-following? Both monikers may be useful conceptual short-hands, but for each investor to arrive at the most appropriate analytical definition for their portfolio, they must do a lot of homework slicing and dicing returns of different categories and sub-categories within both 'asset classes'.

7 Check their academic work in Mei, J. and Moses, M. (2002) "Art as an Investment and the Underperformance of Masterpieces," American Economic Review, 92: 1656-1668.

8 For example, Dimson, E. and Spaenjers, C. (2014) "The Investment Performance of Art and Other Collectibles," Chapter 10, *Risk and Uncertainty in the Art World,* edited by A. Dempster, London: Bloomsbury

11. Sovereign wealth funds and heritage assets: An investor's perspective

Over the last fifty years, the Mei Moses World All Art index and the S&P 500 total return stock index have had approximately equal compounded annual returns, whereas over the last 25 years the art index has underperformed the equity index. However, over the last five- and ten-year periods, art has significantly outperformed equities. For many of these time periods, art also had comparable volatility, however it also had much lower liquidity than most other financial assets. But the clincher is the distinctly low correlation between art and other assets, which suggests heritage assets may have an important role to play in portfolio diversification.[9]

Using a different dataset and a longer time period, Dimson and Spaenjers (2014) reach broadly similar conclusions, with one important exception: over the very long term (i.e., between 1899 and 2012), equities spectacularly outperformed art, both in nominal and real terms. However, on a risk-adjusted basis (in nominal terms), art performed broadly in line with equities.[10] Also, during the same period, art materially outperformed government bonds, Treasury bills and gold. And pairwise correlations were also quite compelling: 0.22 with equities; 0.08 with bonds; 0.23 with bills; and 0.06 with gold. The authors were careful to note that due to illiquidity, raw volatility numbers were likely underestimating the true underlying risk of art investments, while the true correlation may be better captured with a lag. But even after making the necessary adjustment, the correlation between art and equities was still a relatively low 0.34, supporting the case for diversification.

Thus, from a purely investment perspective, the role of a meaningful allocation to heritage assets within a long-term institutional portfolio can be threefold: (1) enhance long-term expected returns by systematically harvesting the time-varying illiquidity and scarcity premia unique to the art market; (2) improve portfolio diversification; and (3) help mitigate negative impact from inflation and/or domestic currency depreciation (i.e., preservation of real purchasing power). However, this discussion would be incomplete without a proper consideration of the attendant costs and risks of investing in heritage assets, of which we identify five specific areas.

Higher cost structure

There are two distinct types of costs that need to be analysed and addressed before making a decision to invest in art: transaction costs and maintenance (or carry) costs. It is no secret that buying and selling art, whether through auction houses or private dealers, is an expensive proposition. The former typically charge a 'premium' to the buyer and a 'commission' to the seller, which altogether can amount to 20-25% of the asset's price. The latter, on the other hand, add a very significant mark-up and will often buy back items only at a steep discount.[11] However, the impact of such transaction costs on net annualised returns is inversely related to the holding period. Therefore, a long-term investor who buys carefully selected works of art to hold in their portfolio has a natural advantage over a short-term speculator trading in and out of art. Also, large institutional investors with deep pockets and sizable allocations to art would not only have considerable negotiating power vis-à-vis both auction houses and dealers, they could also afford to assemble teams of experts who would be sufficiently knowledgeable and well-connected in the art world to source deal-flows outside of the more traditional channels.

The other component of the cost structure is unique to art: expenses related to attribution, restoration, transportation, storage, insurance, and overall maintenance of the collection. Unlike transaction costs, some of these are directly proportional to the holding period. However, in addition to the negotiating power that comes with institutional size and scope, there may be further ways of mitigating these on-going costs – for example, by lending some of the artwork to prestigious exhibitions and museums, thus not only earning some income to defray the carry costs, but also potentially increasing the long-term value of the holdings by enhancing their provenance. In fact, this strategy was successfully implemented by the British Rail Pension Fund during their foray into the art market.

Opaque and unregulated market

Sceptics often point out, correctly, that the opaque and unregulated nature of the art market makes it vulnerable to such risks as forgeries, frauds and scams. In addition, there are related risks of price manipulation by insiders, art works of questionable provenance, and money laundering. At the very least, this suggests that one cannot be a 'casual' investor in art: anyone considering this market must either fully commit to doing it right or not do it at

9 The detailed performance data for the Mei Moses family of art indices can be accessed by premium subscribers to the proprietary database managed by Beautiful Asset Advisors LLC, a company established by the creators of the eponymous index (link: http://www.artasanasset.com/main/artinvesting.php)

10 In nominal terms, art produced a geometric mean return of 6.4% with 13.2% volatility vs. 9.4% and 21.6% for equities; in real terms, the respective numbers were 2.4% and 12.4% vs. 5.2% and 19.8%. Risk-adjusted nominal returns for art were 0.48 vs. equity at 0.44.

11 One can think of auction houses as equivalents of organised stock exchanges charging very high commissions, and art dealers as equivalents of equity brokers with very wide bid/offer spreads.

all. While the art market does pose certain unique challenges which can only be addressed by bringing in experts in various art-related specialist fields, the risks mentioned above are actually not that unfamiliar to investors in the more traditional financial markets. Remember the accounting frauds and scams at Enron, WorldCom and Parmalat? How about the Madoff affair? In spite of these scandalous episodes, institutional allocations to equity and hedge funds continue to increase. In fact, one could argue that just like with hedge funds, increased institutional participation and presence in the art market would inevitably lead to improved standards of practice, more transparency and better oversight.

Insufficient and biased performance data

Another wide-spread criticism focuses on publicly available data, which is insufficient, as there are no price records of dealer transactions or private treaty sales at auction houses, and biased, as returns are overestimated due to survivorship bias while risk is underestimated due to return 'smoothing' from illiquidity. These are legitimate concerns, which must be fully acknowledged and accounted for in any quantitative analysis of financial returns from art. However, once again, these issues and challenges are not unique to art and would be familiar to any institutional investor with allocations to private equity and hedge funds. Also, benchmark indices for illiquid assets traded in private markets which are used in broad asset allocation studies are typically not investable, which is a good thing: investing with top-quartile private equity firms is a very different experience from investing in the median private equity fund. Similarly, any institutional investor who chooses to allocate to heritage assets would need to develop sufficient in-house capability to assemble over time a collection of carefully selected works of art which would bear little resemblance, either in composition or financial returns, to art investment indices.

Absence of a fundamental pricing model

An investment in art does not produce an income stream. Whereas stocks produce dividends, bonds pay coupons and properties generate rental payments, in a way art investments are similar to gold, with the added complication of being even less liquid and less homogenous. This presents a challenge in terms of finding an appropriate valuation framework and a fundamental pricing model for art. Identifying bubbles and measuring misvaluation is often difficult even with income-generating asset classes that lend themselves to long-term fundamental modelling. It is an even bigger challenge with heritage assets. This points to the limitations of quantitative analysis when applied to art, and suggests a premium on the qualitative knowledge, expertise and long-term experience of those art specialists who have spent many years focusing on their respective narrow fields. For any institutional investor considering an allocation to art, finding and retaining this expertise is absolutely critical for long-term success.

Limited market size and capacity constraints

Some commentators object to institutional investment in art on the grounds that the market is just too small to absorb institutional-sized allocations. They caution that, while it may be sufficiently large for high-net-worth individuals, family offices and private banks, any meaningful allocation from a fund that manages hundreds of billions of dollars in assets would quickly run into severe capacity constraints. How big of a problem is it? Let us first consider some estimates of the actual size of the art market. According to TEFAF (2015), in terms of the aggregate value of transactions the global art market reached a total of just over € 51 billion (c. US$ 68 billion)[12] in 2014, which is the highest on record, representing a cumulative growth rate of 110% over the previous decade. As mentioned earlier, estimates of the average purchase-to-sale cycle in the art market range from 20 to 40 years. Therefore, on the basis of admittedly some very oversimplifying assumptions, total art market capitalisation can be (very roughly and very tentatively) estimated at somewhere between € 1 trillion and € 2 trillion.[13]

If we were advocating allocations to art by all types of institutional investors across the board, then indeed the above estimate would suggest severe capacity constraints. But as we clearly stated at the beginning of this article, art investment is not for everyone. Therefore, if we were to limit such allocations to the handful of eligible countries and institutions, and if we assumed continuing long-term growth in the size of the art market, then the challenge of market capacity should no longer appear quite so daunting. Moreover, since an institutional art allocation must necessarily be broadly diversified, the capacity in question covers a very wide range of categories and segments of the art market. Finally, a very large institutional investor may choose to broaden the definition and scope of such an allocation to include all types of heritage assets, including adjacent businesses and related areas: for example, shares in publicly traded auction houses; private equity stakes in art dealerships; ownership stakes in art-related properties and infrastructure; intellectual property and publishing rights; etc. Such re-definition has the potential to dramatically increase the capacity for institutional allocations to heritage assets.

[12] Using the average 2014 EUR/USD exchange rate of 1.3291.

[13] Recently, Nouriel Roubini, the US economist, estimated the total size of the art market as approaching US$ 1 trillion (http://www.economonitor.com/nouriel/2015/02/11/why-art-is-an-asset-class/). In light of our back-of-the-envelope calculations, his looks a somewhat conservative estimate.

What can we learn from the BRPF case study?[14]

The British Rail Pension Fund case study is important for our discussion, first and foremost, because it is still the only actual example of a long-term institutional investor making a deliberate and well-reasoned decision to allocate a portion of its portfolio to fine art. But there is an additional dimension to this case which makes it particularly poignant with respect to SWFs and public pension funds. In 1974, when BRPF started investing in art, its sponsor British Railways was a unified, state-controlled entity, responsible for all aspects of running national railway services throughout the United Kingdom. At the time, it was one of the largest pension funds in the country, with a total asset value of almost £ 1 billion (US$ 2.4 billion).[15] The fund's pension liabilities would today be described as defined-benefit, with inflation indexation. Importantly, it was a growing fund, with a net annual income of approximately £ 50 million (US$ 120 million), and a total of investment income and active employee contributions well in excess of pension pay-outs to retired employees. In other words, it was a public sector fund, one of the largest in the country, with net annual cash inflows and a correspondingly long investment horizon.

To understand what prompted BRPF managers to consider art investment, we need to think back to the extremely challenging macroeconomic and financial environment of the mid-1970s. In the wake of the OPEC-led oil crisis of 1973, inflation skyrocketed, bond and stock markets collapsed, commercial property took a hit, and the pound sterling depreciated rapidly. For institutional investors seeking inflation protection and capital preservation, index-linked securities were not yet available, while buying and storing physical commodities was neither allowed nor practical. As BRPF managers searched for assets with reasonable prospects of achieving long-term growth at least equal to inflation, they hit on the novel (and admittedly controversial) idea of allocating to fine art. They believed that its asset profile was a good fit for the fund's liability profile, offering a hedge against domestic inflation and currency realignments.

In order to gain access to expert advice, the trustees and managers of BRPF worked closely with Sotheby's, but were careful to structure this collaboration in a way that helped mitigate potential conflicts of interest. Specifically, to keep the decision-making process at arm's length, an independent intermediary company was set up, which employed its own generalist art expert, who headed a panel of experts drawn from Sotheby's and elsewhere, convened for assessing purchase recommendations and sales strategies. The intermediary company's employees and agents would then make confidential decisions on the basis of the panel's advice, on whether they wanted to make a particular acquisition and at what price. Effectively, the independent intermediary company played the role of a buffer or a 'firewall' between Sotheby's and the fund. Also, purchases were made not only at Sotheby's, but from a wide range of auction houses and dealers, and occasionally privately.

The full cycle of BRPF's experience in the art market covers a quarter of a century: the first investment was made towards the end of 1974, while the final divestment was completed by December 2000. This can be broken down further into three distinct sub-periods: acquisition, collection management, and divestment. The acquisition period lasted from 1974 to 1980, by which time the total amount invested in works of art represented just under 3% of total fund assets. A deliberate effort was made to diversify across a wide spectrum of key collecting areas, but with one exception – Modern Art, which was perceived as potentially too volatile and risky. Also, the fund's managers worked to build well-rounded, representative collections within each collecting category, based on a view that financial synergies could be achieved by carefully assembling works of art into well-balanced collections that would be worth more in aggregate than as discrete works without a cohesive theme. The investment strategy was to purchase the finest quality of works available in the market.

By 1980 the fund had completed its acquisition programme, which had been capped at £ 40 million, and entered the phase of collection management, which lasted until 1987. BRPF owned approximately 2,400 works of art, which were spread across a wide range of categories covering such diverse areas as Old Master paintings, Old Master drawings, Old Master prints, Impressionist art, Chinese art, as well as rare books and manuscripts, antiquities, furniture, silver, and many others. In spite of the managers' best efforts, the resulting art allocation was somewhat haphazard: while some collections were well-rounded and complete, others were still relatively fragmented and piecemeal. A total of seven core collections accounted for just over three quarters of the whole allocation by value, with the remainder spread thinly across a wide range of lesser collections.

Broadly speaking, there were two aspects to collection management during this period. First, even though the active acquisition phase had been completed, the fund's managers occasionally took advantage of opportunities as they presented themselves to 'trade up' and upgrade the collection, by selling some of the lesser works acquired previously and purchasing better quality works instead. Secondly, in order to minimise the ongoing

[14] The BRPF case study is based on Eckstein (2010).

[15] After adjusting for inflation since 1974, in today's pounds sterling this would be equivalent to almost £ 11 billion (or US$ 16.5 billion using May 2015 exchange rate).

Table 4

Financial returns to select collections from BRPF's fine art allocation

Collection	% of fund	Disposal Date	Location	Annual IRR	Real return
Old Master prints	2.0%	June 1987	London	11.0%	2.5%
Books and manuscripts	10.0%	September 1988	London	8.7%	0.9%
Impressionists	10.2%	April 1989	London	21.3%	12.9%
Old Master pictures	29.9%	December 1994	London	12.8%	5.6%
		July 1995	London	6.9%	1.3%
		July 1996	London	5.4%	negative
		January 1997	New York	6.8%	0.5%

Source: Eckstein (2010)

insurance costs and curatorial expenses, they actively lent out art works from their collections to museums in the United Kingdom and overseas. Through the 1980s, between 30% and 40% of the total collection by value was on loan at any given time. This also helped enhance the provenance of the art works, increasing their long-term value. By 1987, the trustees decided to start planning for the disposal of the art portfolio, which was somewhat earlier than had been originally envisaged, but which had been prompted in part by their prescient belief that in the late 1980s the skyrocketing art market prices represented an excellent exit opportunity.[16]

The disposal period lasted from 1987 until 2000, with the bulk of the sales occurring between 1988 and 1990. As market conditions deteriorated in the early 1990s, the selling programme was temporarily suspended. In 1994, when the art market returned to its former strength, selling resumed, by which time the remaining art accounted for less than 1% of the value of the overall portfolio. By December 2000, all of the art sales had been completed, and the total profit amounted to £ 168 million, representing an overall cash IRR of 11.3%, or 4% per annum in real terms. Table 4 below offers a more granular overview of the financial returns upon the sale of a few select collections which constituted the fine art allocation.

So what lessons can we learn from BRPF's experience with investing in fine art? First of all, it is important to acknowledge that the main financial objective of the overall art allocation – to deliver long-term returns in excess of inflation – was successfully achieved. Also on the positive side, the BRPF case offers institutional investors who may be interested in heritage assets some useful templates with respect to:

(1) Accessing art market expertise while managing potential conflicts of interest;

(2) Building well-rounded collections across several different segments of the art market;

(3) Efficiently managing collections through opportunistic upgrades and lending of art works;

(4) Maintaining flexibility on disposal strategy and timing.

On the negative side, Eckstein (2010) acknowledges the somewhat 'over-diversified', skewed and fragmented nature of the overall allocation. The fund could have produced even more impressive financial results by focusing its efforts and financial 'firepower' on building fewer and deeper collections in the core areas (e.g. Old Masters and Impressionists) rather than pushing the envelope and diversifying into the more esoteric and thinly traded areas (e.g. Oceanic and African tribal art). A related criticism has to do with the total number of holdings, which at 2,400 individual pieces was probably too unwieldy. Focusing on a smaller number of higher quality works in the core categories not only helps lower administrative, curatorial and custodial costs, but it also increases the proportion of the collection which can be profitably lent out to prestigious museums and exhibitions, further enhancing the allocation's provenance.

[16] Another reason was the development of a viable inflation-linked gilt market, which could be used for a more precisely targeted inflation hedging.

QATAR AND ABU DHABI, A COMPREHENSIVE ART STRATEGY

Sovereigns, and more precisely, royal families and ruling elites in the Middle East are already establishing themselves as art hot spots and starting to compete with top Western cultural institutions. Qatar and Abu Dhabi are interested in preserving their cultural heritage, and moreover bringing into their territories art works ranging from ancient history to the most disruptive contemporary art expressions.

In the case of Abu Dhabi, the most notable movements are initiated by the Abu Dhabi Tourism & Culture Authority (TCA Abu Dhabi). Through TDIC—an investment company—the Authority develops projects on tourism, cultural and residential destinations. Some of these projects, designed by Pritzker-awarded architects, include the Louvre Abu Dhabi, Zayed National Museum and the Guggenheim Abu Dhabi. The Louvre Abu Dhabi was born from an intergovernmental agreement with France, specifically the Agence France-Museums which advises and helps in the implementation. Scheduled to open in December 2015, the Jean Nouvel-designed museum hosts both proprietary works –including recent acquisitions such as a Washington portrait by Gilbert Stuart for an undisclosed sum[17]- and loans from French museums, as part of the agreement. For its part, the Guggenheim Abu Dhabi will open its doors in 2017, five years later than initially planned in 2007. The museum, designed by Frank Gehry, is the largest of the four Guggenheims in the World and its collection will encompass art from 1960s to the present day. Together with Louvre and the Zayed, all these three centerpiece museums reflect well the strong bet on art made by the Emirate.

Qatar, and specifically the Al-Thani ruling family, is known already as the world's most powerful art buyer. Emir of Qatar's sister, thirty-two years old Sheikha Mayassa Al Thani was one of the 2014 Forbes World's 100 most powerful women. Known as the 'queen of the art world,' she is shaping Qatar's creative future. She chairs Qatar Museums, the government body coordinating and executing an ambitious strategy to position Qatar as an art powerhouse. In 2008 this 'cultural instigator' inaugurated the Museum of Islamic Art (MIA) in Doha hosting paintings, ceramics, manuscripts, glass... spanning 1,400 years of Islamic art from three continents. The MATHAF (Arab Museum of Modern Art) was also established.

Not only art is included in the strategy followed by the Sheika, she founded the Doha Film Institute. And the strategic movement run by Qatar Museums includes a Qatar Olympic and Sports Museum (not coincidentally, Qatar is aiming to host 2022 World Cup and maybe one year Olympic Games).

Back to art, Qatar hosts high-level gatherings with world-class dealers, collectors, and curators who frequently travel to Doha's Corniche, which is becoming a cultural destination in its own right. Among the most famous painting acquisitions made by the Qataris (estimates say they have bought art valued at $1bn over the past 10 years[18]) are $72.8 million for Rothko's "White Center" and $20 million for a Damien Hirst pill cabinet, then a record for a living artist, both in 2007; very far from the $250 million paid for Cézanne's "Card Players" in 2011[19], and rumours about the $300 million paid for Gauguin's "Nafea Faa Ipoipo (When will you marry?)" oil painting in January 2015, the highest known price ever paid for a painting[20].

In sum, art is becoming a new source of competition between Qatar and Abu Dhabi, who are also looking to transform themselves into aerospace, financial and logistics hubs.

Note: This box is authored by Javier Capapé, ESADEgeo.

How might an institutional art allocation be implemented today?

While the BRPF case study is an extremely useful reference point for an institutional investor, fifteen years have passed since the completion of their programme, and a lot of changes have occurred in the meantime, both in the art world and in financial markets. New financial instruments and techniques have been developed, including securitisation and bespoke derivate contracts, while interest in art as an asset class has increased noticeably amongst wealthy individuals and family offices. Banks are routinely lending against fine art collateral, while specialist funds designed specifically to invest in art have appeared on the market, albeit with mixed results and as yet an uncertain future. But in any case, the worlds of art and finance have undoubtedly moved closer together, with multiple new connections and interlinkages. Arguably, an institutional investor considering an allocation to heritage assets today is in a much better position than even fifteen years ago, let alone back in the 1970s.

[17] "The Louvre Abu Dhabi Buys a Washington Portrait by Stuart" Feb 6, 2015. Accesible at http://www.wsj.com/articles/the-louvre-abu-dhabi-buys-a-washington-portrait-by-stuart-1423256538

[18] "Qatar's culture queen" Mar. 3, 2012. The Economist. Accesible at http://www.economist.com/node/21551443

[19] "Qatari Riches Are Buying Art World Influence" Jul. 22, 2013. The New York Times. Accesible at http://www.nytimes.com/2013/07/23/arts/design/qatar-uses-its-riches-to-buy-art-treasures.html?_r=1

[20] "Gauguin Painting Is Said to Fetch $300 Million" Feb. 5, 2015. The New York Times. Accesible http://www.nytimes.com/2015/02/06/arts/design/gauguin-painting-is-said-to-fetch-nearly-300-million.html

As one considers the practicalities of designing and implementing a modern-day institutional art investment programme, there are three broad principles which we believe are imperative for long-term success. First, it is important to assemble a dedicated in-house team to invest directly in art and related heritage assets, with support from select external advisors whose interests have been fully and explicitly aligned with the fund. If we look at the evolution of institutional investment in private equity or hedge funds, there is a pattern: institutions typically start with allocations to commingled funds as 'limited partners', then move on to co-investments in select underlying deals and trades alongside the 'general partners', and then progress towards direct investments by their in-house teams, either entirely on their own or in collaboration with similar institutions. There is no reason why SWFs and LTIs should go through the same cycle with respect to art investment – it would just be too expensive and inefficient. Instead, if and when they decide to invest in heritage assets, they should start from day one by building a strong in-house team, supported by a few select external advisors. This will save costs, align interests, and provide the necessary flexibility with respect to investment vehicles, structures and horizons.

Secondly, institutional investors would do well to consider a collaborative approach from the start, both internally and externally. If they choose to broaden the definition and scope of 'heritage assets' to include adjacent businesses, properties and infrastructure, then the in-house team should collaborate internally with their colleagues in the private equity department (e.g. for any deals involving privately held art dealerships and galleries) and in the real estate / infrastructure department (e.g. for any deals involving art-related properties and servicing businesses). Externally, LTIs generally – and SWFs in Abu Dhabi, Qatar and Singapore in particular – would do well to consider partnering up with sovereign counterparts in some of the heritage-asset-rich, but cash-poor Old World countries. Amongst the latter, three countries stand out in particular: France, Italy and Russia. All three have world-class universal art museums and galleries, with the vast majority of heritage assets locked away in secure vaults and not earning any revenues; all three have severe budgetary constraints and limited fiscal space to support art and culture; and all three have catalyst-type SWFs – Fondo Strategico Italiano, Le Fonds Stratégique d'Investissement, and Russia Direct Investment Fund – designed to attract long-term foreign capital into the domestic economy.

Finally, the main benefits of building a collection of heritage assets in the form of a portfolio allocation come primarily from the discipline of applying a rigorous investment process to guide the buying and selling decisions over time. After all, just like in other investment areas, the secret to long-term success is buying low and selling high. If an institutional investor can have the discipline to keep their powder dry in times of exuberance and ridiculously high valuations, while deploying that cash decisively and aggressively in times of economic stress and dislocation, thus consistently acquiring art works at distressed prices, their ability to earn the time-varying illiquidity and scarcity premia will be dramatically increased. But in this day and age, for a large and sophisticated institutional investor with a strong in-house team and specialist external advisers, there is absolutely no reason why they should limit themselves to the age-old method of buying exclusively through auction houses and art dealers. There is potentially a huge premium to creativity and innovation.

For example, SWFs and LTIs with art investment programmes could work with private banks who have an established art-lending business and who may be interested in transferring some of that risk off their balance sheets to willing buyers. There have been suggestions of using derivative contracts (e.g. art credit default swaps) or securitisation techniques (non-recourse loans backed by art collections), which could open up a whole new source of potential deal-flow and art acquisition routes outside of the more traditional market channels. This would also generate regular income, helping offset some of the ongoing curatorial and maintenance costs. These types of innovative products would also have positive externalities, in that they would improve the liquidity and efficiency of the art market as a whole.

ANNEX.
ESADEgeo Sovereign Wealth Funds Ranking 2015

ANNEX. ESADEgeo Sovereign Wealth Funds Ranking 2015

Table 1

ESADEgeo Sovereign Wealth Funds Ranking 2015*

Ranking	Sovereign Wealth Fund	Assets under Management ($bn)	Country	Established
1	Government Pension Fund Global	896.70	Norway	1990
2	Abu Dhabi Investment Authority	773.00	UAE	1976
3	SAMA - Foreign Holdings	744.10	Saudi Arabia	1952
4	China Investment Corporation	652.70	China	2007
5	Kuwait Investment Authority	548.00	Kuwait	1953
6	State Administration of Foreign Exchange	456.00	China	1997
7	Hong Kong Monetary Authority	414.00	Hong Kong (China)	1993
8	GIC	320.00	Singapore	1981
9	Qatar Investment Authority	304.00	Qatar	2005
10	National Social Security Fund	236.00	China	2000
11	Temasek Holdings	167.40	Singapore	1974
12	Investment Corporation of Dubai ^	160.00	UAE	2006
13	Future Fund	109.20	Australia	2004
14	Abu Dhabi Investment Council	90.00	UAE	1999
15	Samruk-Kazyna ^	88.30	Kazakhstan	2008
16	Korea Investment Corporation	85.00	South Korea	2005
17	Reserve Fund	76.83	Russia	2008
18	National Wealth Fund	74.35	Russia	2008
19	National Oil Fund of Republic of Kazakhstan	71.80	Kazakhstan	2000
20	International Petroleum Investment Company	68.30	UAE	2000
21	Mubadala Development Company	66.30	UAE	2002
22	National Development Fund	64.80	Iran	2011
23	Libyan Investment Authority	60.00	Libya	2006
24	Revenue Regulation Fund ^	55.00	Algeria	2000
25	Alaska Permanent Fund	54.60	USA – Alaska	1976
26	Khazanah Nasional	41.60	Malaysia	1993
27	Silk Road Fund	40.00	China	2014
28	Brunei Investment Agency	39.30	Brunei	1983
29	State Oil Fund of Azerbaijan	37.10	Azerbaijan	1999
30	Texas Permanent School Fund	36.30	USA – Texas	1854
31	New Zealand Superannuation Fund	21.80	New Zealand	2001
32	New Mexico State Investment Council	20.10	USA – New Mexico	1958
33	Alberta Heritage Savings Trust Fund	17.20	Canada	1976
34	Timor-Leste Petroleum Fund	16.50	Timor-Leste	2005
35	1Malaysia Development Fund	15.70	Malaysia	2009
36	Emirates Investment Authority	15.00	UAE	2007
37	Fondo de Estabilidad Económica y Social	14.60	Chile	2007
38	State General Reserve Fund	13.00	Oman	1980
39	Dubai Investment Capital	13.00	UAE	2004
40	Bahrain Mumtalakat Holding Company	10.60	Bahrain	2006
41	Russian Direct Investment Fund	10.00	Russia	2011
42	Fondo de Estabilización Fiscal ^	9.10	Peru	1999
43	Fondo de Reserva de Pensiones	7.90	Chile	2006
44	Strategic Investment Fund	7.80	Ireland	2001

Ranking	Sovereign Wealth Fund	Assets under Management ($bn)	Country	Established
45	Permanent Wyoming Mineral Trust Fund	7.10	USA – Wyoming	1974
46	Quebec's Generations Fund ^	6.90	Canada	2006
47	Oman Investment Fund	6.00	Oman	2006
48	Fundo Soberano do Brasil	5.80	Brazil	2008
49	Fondo Mexicano del Petróleo para la estabilización y el desarrollo ^	5.70	Mexico	2015
50	Pula Fund ^	5.60	Botswana	1994
51	Heritage and Stabilization Fund	5.60	Trinidad and Tobago	2000
52	Arab Petroleum Investments Corporation	5.60	Saudi Arabia	1975
53	Fondo Strategico Italiano ^	5.30	Italy	2011
54	Sanabil Investments	5.30	Saudi Arabia	2009
55	Fundo Soberano de Angola	5.00	Angola	2012
56	State Capital Investment Corporation	3.00	Vietnam	2006
57	Alabama Trust Fund	2.80	USA – Alabama	1985
58	North Dakota Legacy Fund	2.80	USA – North Dakota	2011
59	Gulf Investment Corporation	2.70	Kuwait	1982
60	Idaho Endowment Fund	1.70	USA – Idaho	1969
61	Fonds Marocain de Développement Touristique ^	1.50	Morocco	2011
62	Fondo de Ahorro de Panamá	1.40	Panama	2011
63	Nigerian Sovereign Investment Authority	1.30	Nigeria	2011
64	Louisiana Education Quality Trust Fund	1.30	USA - Louisiana	1986
65	Government Investment Unit ^	1.30	Indonesia	2006
66	Human Development Fund ^	1.30	Mongolia	2008
67	Fonds souverain d'investissement stratégiques ^	1.00	Senegal	2012
68	CDC International Capital invests	1.00	France	2014
69	Palestine Investment Fund	0.77	Palestine	2003
70	Fondo para la Estabilización Macroeconímica^	0.70	Venezuela	1998
71	Western Australia Future Fund	0.60	Australia	2012
72	Revenue Equalization Reserve Fund	0.52	Kiribati	1956
73	Future Generations Fund	0.40	Bahrain	2006
74	Stabilization Fund ^	0.30	Mongolia	2011
75	Ghana Stabilization Fund ^	0.25	Ghana	2011
76	Ghana Heritage Fund ^	0.24	Ghana	2011
77	National Fund for Hydrocarbon Reserves ^	0.08	Mauritania	2006
78	Agaciro Development Fund	0.03	Rwanda	2012
79	West Virginia Future Fund	0.01	USA - West Virginia	2014
80	Permanent Fund for Future Generation	0.01	São Tomé and Príncipe	2004
81	Dubai World	N/A	UAE	2006
82	Fonds de Stabilisation des Recettes Budgétaires ^	N/A	Democratic Republic of the Congo	2005
83	National Investment Corporation	N/A	Kazakhstan	2012
84	China-Africa Development Fund	N/A	China	2007
85	Mauritius Sovereign Wealth Fund	N/A	Mauritius	2010
86	RAK Investment Authority	N/A	UAE	2005
87	Colombia Sovereign Wealth Fund	N/A	Colombia	2011
88	Sovereign Fund of the Gabonese Republic ^	N/A	Gabon	1998
89	Oil Revenue Stabilization Fund	N/A	South Sudan	2008
90	Fund for Future Generations ^	N/A	Equatorial Guinea	2002
91	National Investment Fund ^	N/A	Syria	2012
92	Oman Investment Corporation	N/A	Oman	2005
93	Papua New Guinea SWF	N/A	Papua New Guinea	2011
	Total ($bn)	**7,114**		

Source: ESADEgeo (2015) with information obtained from funds' annual reports and websites. In their absence we relied inter alia on the estimates of SovereigNet (The Fletcher School-Tufts University), Sovereign Wealth Center, Ashby Monk (Institutional Investor) and Preqin.

* This list contains the 93 active sovereign wealth funds as at September 2015.

^ Using a stricter definition (see Capapé and Guerrero, 2013), these sovereign wealth funds would be excluded from the ranking. For example funds dedicated exclusively to stabilisation, with 100% domestic portfolios, or investing only in fixed income.

ANNEX. ESADEgeo Sovereign Wealth Funds Ranking 2015

Table 2

Potential new funds

Ranking	Sovereign Wealth Fund	Assets under Management ($bn)	Country	Established
91	Slovenia	N/A	Slovenia	N/A
92	Northwest Territories	N/A	Canada	N/A
93	Japan	N/A	Japan	N/A
94	India	N/A	India	N/A
95	Israel	N/A	Israel	N/A
96	Philippines	N/A	Philippines	N/A
97	South Africa	N/A	South Africa	N/A
98	Lebanon	N/A	Lebanon	N/A
99	Bolivia	N/A	Bolivia	N/A
100	Georgia	N/A	Georgia	N/A
101	Sierra Leone	N/A	Sierra Leone	N/A
102	Tunisia	N/A	Tunisia	N/A
103	Kenya	N/A	Kenya	N/A
104	Uganda	N/A	Uganda	N/A
105	Zambia	N/A	Zambia	N/A
106	Mozambique	N/A	Mozambique	N/A
107	Namibia	N/A	Namibia	N/A
108	Zimbabue	N/A	Zimbabwe	N/A
109	Tanzania	N/A	Tanzania	N/A
110	Liberia	N/A	Liberia	N/A
111	Guatemala	N/A	Guatemala	N/A
112	Taiwan	N/A	Taiwan	N/A
113	Saskatchewan	N/A	Canada	N/A
114	Bahamas	N/A	Bahamas	N/A
115	Amlak	N/A	Egypt	N/A

Note: These 25 funds were not active when this edition went to press. Their establishment is currently being discussed in the various States.

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Catálogo de publicaciones de la AGE: http://publicacionesoficiales.boe.es

NIPO (paper): 726-15-064-8

NIPO (on line): 726-15-063-2

DL: M-29868-2015