



The Rise of Collaborative Investing

Sovereign Wealth Funds' New Strategies in Private Markets



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The Rise of Collaborative Investing:
Sovereign Wealth Funds' New
Strategies in Private Markets

A Joint SIL-BCG Report



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Executive Summary

Over the last years sovereign investors have made a significant shift away from traditionally liquid asset allocations centered around fixed income and public equities, and towards more illiquid alternative investments (i.e. private equity, venture capital, RE and infrastructure) in search for higher returns. Since 2009, SWFs have invested \$433bn in alternatives, with an average allocation as high as 16% of total assets. This shift clearly plays to SWFs' strengths, effectively leveraging their "patient capital" to generate illiquidity premia over the risk-adjusted returns achieved in public markets.

In this process, several SWFs have quickly realized how, developing successful alternative strategies can be a daunting challenge, with potentially disrupting implications on conventional business models, historically more geared towards investing through third parties. Having tipped their toes into alternatives mostly by committing capital to PE funds through a traditional LP model, SWFs have progressively moved towards a combination of the LP/GP model with new and more collaborative investing options. Furthermore, in an effort to mitigate the risks arising from too large exposure to direct investments and relatively limited capabilities in the asset class, in recent years SWFs have increasingly resorted to approaches that are more cooperative in nature.

In our analysis of SWFs approaches to investing in private markets, we have developed a taxonomy of four different models, along a spectrum of decreasing delegation levels: the LP model, the co-investment model, the investment platforms, and the direct investment model.

Co-investments, defined as deals where the LP invests alongside the GP in a target asset, have attracted SWFs' attention as they reduce risk exposure while allowing for more flexibility in portfolio construction and exposure to risk factors. Furthermore, co-investment arrangements allow SWFs to expose their internal teams to new sectors and investment processes, working alongside experienced partners, and building capabilities to potentially step into full-fledged direct equity investment strategies. Investment platforms on the



other hand, are funds or joint ventures operating with a specific focus or mandate; they resemble LP arrangements in that they still involve a significant amount of delegation and intermediation by GPs, but SWFs have a more active role in platforms compared to the traditional LP model.

Three major trends stand out in our analysis of SWFs' investments in private markets:

1. The loss of importance of LP investments for SWFs in both absolute and relative terms, being replaced by co-investments, platforms and even direct investments sharing collaborative features.
2. The impressive “boom and bust” investment cycle in real estate surging until the record year 2015, when it reached about half of SWFs investments in private markets, and then sharply declining in the last three years.
3. The staggering growth of venture capital investments, with SWFs consistently increasing their allocation to tech companies and embracing innovation as an investment theme.



Our main findings about SWF deal making in private markets can be summarized as follows:

- A major shift occurred in SWF approach to private markets over the last decade. Funds gradually but consistently replaced direct solo investments with direct equity partnerships. Between 2009 and 2018 direct equity partnerships increased from 19 to 61 per cent of total deals, while solo collapsed from 69 to 21 per cent over the same period, revealing a complete change of strategy in the direct equity space
- SWFs limited, albeit slightly, their investments as LPs from 11 to 7 per cent of total deals, while increasing co-investments from virtually zero to 10 per cent between 2009 and 2018. In 2018, co-investments deals were worth \$7.9bn, accounting for 22 per cent of total value
- With \$12bn of total value since 2009, platforms represent an innovative investment model which gained ground especially in the 2012-2014, reaching a 3 per cent average share of deals in the last years
- The co-investment model represents a “soft landing” for SWFs into direct equity, and the numbers suggest that SWFs are testing with this model in earnest, in spite of inherent risks
- Real estate is the second largest asset class by SWF investment within the private markets bucket SWFs, with 342 deals worth in total \$111bn. SWFs have turned away from investing in real estate funds and moved towards direct equity investments in this asset class, especially using the partnership model
- Technology has been the sector of choice for global SWFs in the second part of the last decade. SWFs flocked into this industry in earnest, executing 251 deals worth \$37bn. SWFs’ entry into this space has not followed the conventional route of LP investments in VC funds, but rather new models of collaborative investments, namely direct equity partnerships and co-investments with the obvious exception of SoftBank’s Vision Fund, which needs a separate treatment.
- Investments in infrastructure have been quite limited, with a total of 75 deals in the 2009-2018 period, worth \$27bn, of which almost 60 per cent executed in the last four years. The distribution of deal types in this asset class is completely skewed in favor of direct equity, with an equal split between solo and partnerships
- When investing directly abroad, SWFs tend to evenly split deals between solo investments and equity partnerships. At home, instead they have a much stronger preference for direct solo investments. This different behavior can be explained in terms of better access to information and investment opportunities in the local market

- The majority of SWFs investments in private markets is concentrated in Europe, Asia Pacific, and North America, which together account for three quarters of total activity by deals and dollar value. Europe is particularly relevant in terms of value, reporting one third of the total, while Asia Pacific reports 31 per cent of deals, and North America about 18 per cent of both deals and value.

To conclude, SWFs' journey in private markets is certainly not a linear process of disintermediation. Rather, it is a transition testing different models and adapting and optimizing investment strategies along the way. A visible trend is unfolding though, as the strategies adopted by SWFs are all consistent with getting a more direct exposure to private markets.

In the near term, we expect SWFs to take important decisions concerning their approach to direct private equity investments, and the multiple models identified in this report will still need a few years to prove their impact. This said we believe that, given SWFs significant and increasing value allocation to private markets in search of sustained returns, adopting a broad set of strategies, including the multiple models outlined in this paper, would allow them to diversify and reduce their risk exposure in such a relevant asset class.

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The step into alternative investment, that large pool of assets stretching from private equity and venture capital to real estate and infrastructure, has been one of the most discussed moves made by sovereign wealth funds (henceforth SWFs) in recent years. Lured by higher and – in some segments – safer yields, a wide range of SWFs tilted their asset allocation away from fixed income towards illiquid investments in private markets. The shift has been dramatic. SWFs have poured \$168 billion into alternatives since 2009, reaching a high in 2015 when they allocated \$27 billion. Today the average allocation to alternatives is 16% per cent, equivalent to US\$1.17 trillion of assets under management (Lopez, 2019). If SWFs will maintain their current share of the overall industry (which is about 13% per cent), their exposure to that asset class will approach \$1.8 trillion in 2023, entailing more than \$500 billion of additional investment value over the next five years (Preqin, 2019).

From a sovereign asset management perspective, allocating a sizable part of the risk budget to private markets makes sense. Their long investment horizons enable them to put patient capital into early-stage, high-growth companies and to generate illiquidity premia over the risk-adjusted returns achieved in public markets. Furthermore, SWFs can trigger catalytic investment in projects with strong socio-economic impact crowding in private capital, and boosting economic and social development and revenue diversification.


Developing a successful alternatives strategy is, therefore, key for SWFs' overall performance. However, in practice, the implementation of an ambitious alternatives investing programme is a daunting challenge, with potentially disrupting implications on conventional business models. Indeed, SWFs have been often characterized as large pools of assets managed by third parties or institutions with small staff making big-ticket investments in global public equity markets with a broad diversification mandate. Opportunities in private equity market arise instead by early entry in small firms or projects with high growth potential. Access, capabilities, and timing are fundamental drivers of success in this space.

Developing a successful alternatives strategy is a daunting challenge, with potentially disrupting implications on conventional business models.

Traditionally, SWFs, like most institutional investors, started to build an alternative investment portfolio by committing capital to private-equity-style funds managed externally by general partners (GPs). However, SWFs have recently started questioning high management fees and the heterogeneity of fund performance and thus the validity of this conventional model of investment. As a result, SWFs have developed new ways to tap alternative assets through a combination of direct equity and collaborative investing.

Aim of this report is to provide a comprehensive review of most recent trends in SWF investment in private markets. Based on new, transaction-specific information made available through an *ad hoc* data collection effort, the report first provides a rigorous classification of the main investment models and deal types observed in this market, and then tracks their evolution in the course of the last decade, from the great financial crisis to the end of 2018. The research identifies relevant regional and sector characteristics of SWF operations in alternatives, complementing the analysis with selective case studies of SWFs particularly exposed to these asset classes. The main finding of our research is the recent, momentous rise of collaborative investment, hence the title of this publication. All major, global SWFs have progressively increased the resort to cooperative investment models and partnerships, following strategies broadly consistent with the recently observed trend of disintermediation of financial markets and surge in direct equity investment. We claim that the shift to a more cooperative approach observed in recent times is a functional response to mitigate the increased risk stemming from significant direct equity investment in unlisted, illiquid targets.

While we are observing a general trend across the SWF industry, initial conditions of individual funds obviously matter in the subsequent path towards disintermediation and direct equity investing. Some funds (e.g. Temasek, Mubadala) started with a local company portfolio which made it easier to leverage skills and invest directly. Smaller, emerging funds (e.g. Fondo de Ahorro de Panama, Timor Leste Petroleum Fund) did not have the critical mass to embrace effectively these new investment models and stuck with conventional LP arrangements. Stabilization funds (such as Chile's Economic and Social Stabilization Fund) instead are constrained by their mandate to maintain a risk profile incompatible with a significant allocation to private equity and alternatives. As it will be shown in the descriptive analysis, the evolution that we document in this report regards primarily large, savings funds with a long track record of investments. However, a penchant in favor of collaborative investing is developing amongst strategic investment funds and SWFs with a developmental focus, supporting the broad relevance of our conclusions.



SWF have progressively increased the resort to cooperative investment models following strategies consistent with the recently observed trend of disintermediation of financial markets and surge in direct equity investment.

Delegation and co-operation: towards a taxonomy of investment models

As we mentioned earlier, typically SWFs as most global institutional investors have embraced alternatives using the conventional LP model depicted in Exhibit 1. The SWF commits a given amount of capital to a private equity fund managed by a professional GP, which is paid in as long as investment opportunities arise. The SWF as LP pays management fees and gets its share of profits over the life time of the fund, which is often spans several years.

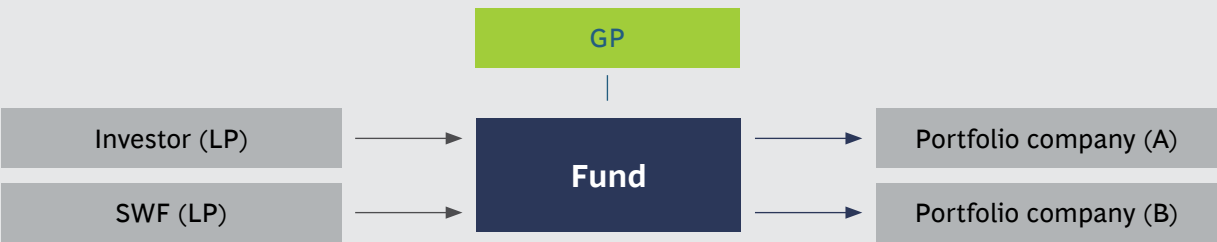
The LP arrangement epitomizes the full delegation model of investment in private markets, with SWF playing the role of pure passive providers of capital.

The LP arrangement epitomizes the full delegation model of investment in private markets, with SWF playing the role of pure passive providers of capital. Direct equity investment, broadly defined as acquisition of stakes in target firms without any layer of external intermediation, lies at the other side of the spectrum, and is increasingly becoming common practice in the institutional investor sphere (Fang et al., 2015).



EXHIBIT 1 | Dealmaking in private markets

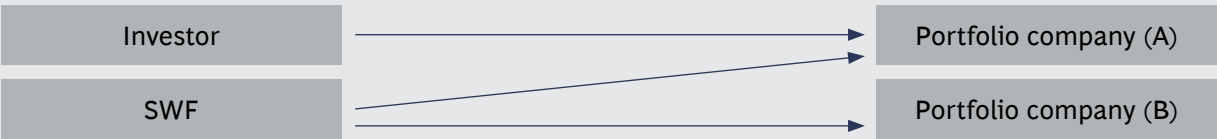
The LP model



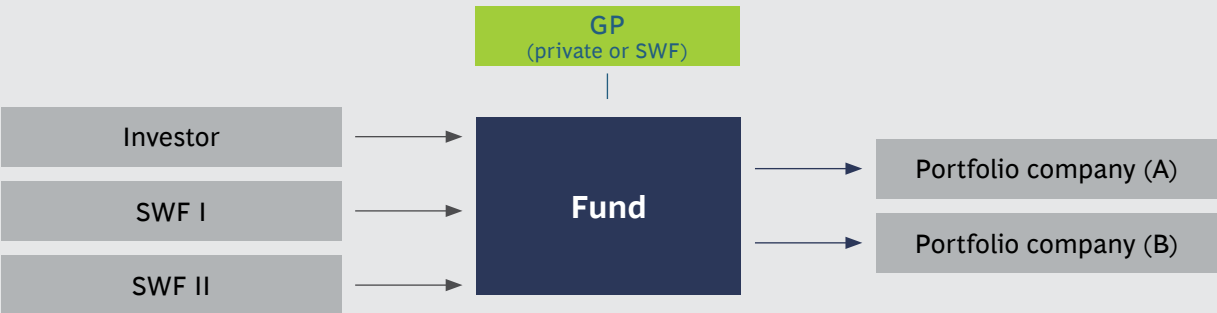
The co-investment model



The direct investment model



Investment platforms



Source: Sovereign Investment Lab, Bocconi University

Direct equity investments come in different forms, with varying degree of direct exposure and delegation to third party managers. Among the many possible models, *co-investments* stick out as the closer to conventional LP, private equity arrangements. In this type of deals, the investor (limited partner or LP) co-invests alongside the GP in a given target, taking on slightly more risk in return for reduced fees. The benefits from co-investments stem from J-curve mitigation (i.e. making returns less negative in the early years before the portfolio of companies matures), more flexibility and control in portfolio construction, better ability to time the market and customize the risk exposures. Co-investments, however, also have downsides. The GP will invite a co-investor into larger deals, which tend to underperform (Lopez de Silanes et al., 2015). More importantly, the GP will often leave only a limited amount of time to undertake due diligence, which exposes the co-investor to a classical adverse selection problem, with the poor performance of low-quality deals offsetting the reduced cost. Finally, SWF still rely almost entirely on the deal partner to drive value creation, limiting skill building and learning.

In spite of these potential risks, many SWFs have embraced co-investment strategies, but they have also sought to improve the model to benefit from additional tactical benefits, such as building stronger relationships with managers, accumulating greater information about investments, and increasing their internal teams' investment experience. From this perspective, co-investments represent an intermediary step into fully fledged direct equity investment, to carry out alone, or more significantly, in collaboration with partners.

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Along this path towards enhanced cooperation, SWFs have recently teamed up with other sovereign investors or strategic partners to form *investment platforms*, namely funds or joint ventures operating with a specific focus or mandate. Platforms resemble LP arrangements in that they still involve a significant amount of delegation and intermediation by GPs. SWFs, however, are not any longer the passive players envisaged in the conventional LP model but the main joint lead/sponsor and anchor investors of the platforms.





This broad definition of investment platform encompasses different fund structures and contractual arrangements. A first type of platform is the *FDI Attraction Fund* in which one or more SWFs commits capital to a closed-end fund investing in a given country, as a way to facilitate foreign direct investment. Notable, recent cases are the joint venture recently announced between the China Investment Corporation (CIC) and French bank-BNP Paribas with France private equity firm Eurazeo as asset manager and the China-US Industrial Cooperation Partnership sponsored by Goldman Sachs with CIC as anchor investor.

A second type is the *G2G Investment Fund*, promoted by two or more SWFs (or government controlled entities) with the aim to promote investments and bilateral commercial links. The many joint initiatives of the Russian Direct Investment Fund, Italian Cdp Equity's joint venture with Qatar Investment Authority and Kuwait Investment Authority, and Ireland Strategic Investment Fund recently launched China-Ireland Technology Growth Fund fall in this category. While the main objective of FDI Attraction Funds is commercial return, the second type being strongly promoted by incumbent governments are also a tool to foster economic diplomacy and bilateral cooperation along with investments.

A third and final type of platform is the *Sectoral Investment Fund*, in which one or more SWFs commit capital to invest in a specific sector often alongside a GP with specialized knowledge and expertise. The Vision Fund, the \$100 billion platform focused on IT investment sponsored by Saudi Arabia's Public Investment Fund (PIF) and managed by Japanese technology investor Softbank, is one of most prominent cases of these new arrangements.

EXHIBIT 2 | Investment models in private markets

		Cooperation		
		Low	Moderate	High
Delegation	Low	Direct Solo Investments		Direct Investment partnerships
	Moderate		Co-investments	
	High	LP model	Investment platforms	

Source: Sovereign Investment Lab, Bocconi University

The last stage in the evolution of SWFs' approach to private markets is full-fledged, direct equity investing. In a *direct solo investment*, the SWF sources and executes the transactions on its own, bypassing the GP and thus pays no fees or carry. In a *direct investment partnership*, the SWF co-invests with a strategic partner (such as a venture fund, or infrastructure or real estate operator) or with other like-minded investors (other SWFs, pension funds or insurance companies), or a combination of both. Direct investment partnerships are thus genuine jointly sponsored deals. GIC and logistics provider GLP partnered together in 2014 to acquire IndCor, one of the largest industrial real estate providers in the US, for \$8.1 billion from Blackstone. Khazakhstan and Temasek created a strategic joint-venture, M+S, to develop two substantial real estate projects in Singapore.

Our taxonomy, shown in Exhibit 2, is thus complete. In a quest to overcome the conventional LP model, SWFs can position themselves along a range of investment strategies in decreasing order of delegation to third-party managers as they move from pure co-investments to investment platforms and partnerships. The transition entails a learning process where SWFs adjust their capabilities and skill sets.

In the old world of private equity, SWFs' main task as an LP was manager selection. In the game of direct equity investing, different competences are needed. An SWF's internal staff must be trained and experienced in transaction related activities, including due diligence, operational and monitoring capabilities that are outside the traditional LP skill set. In sourcing the right team is a serious organizational challenge, entailing additional costs and new risks. That is why, as SWFs move away from full delegation models and embark on direct equity investment, they enhance cooperation to pool capabilities and skills with strategic investment partners. In this evolutionary process involving investment models, collaborative direct equity investing becomes a rational response to disintermediation.



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SWF investments in private markets

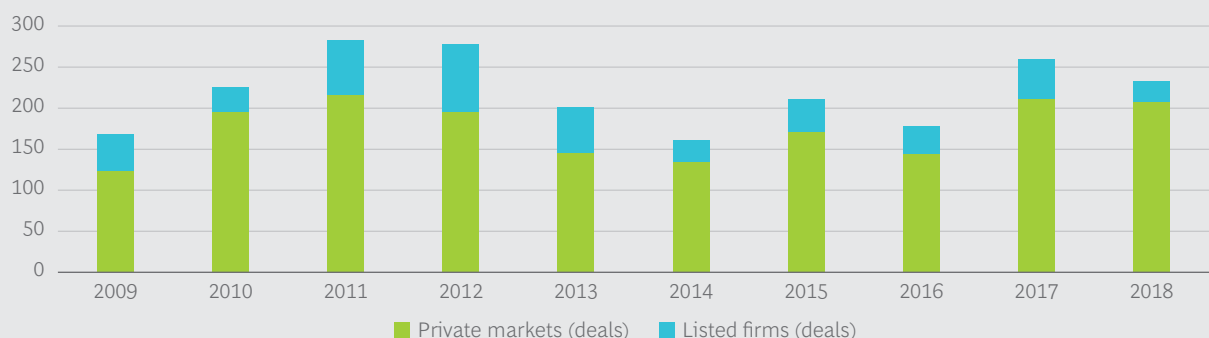
The main source of data published in this report is the SIL's Global SWF Transactions Database, one of the most comprehensive sources of global sovereign equity investment (see Appendix 1 for a detailed description). The database reports 2,895 transactions from 2000 to 2018, representing an aggregated deal value of over US\$883bn. In this analysis, due to limited data availability about less recent deals, we restrict the sample period to 2009-2018.

Since 2009, our data show that SWF poured into equity markets new investments worth \$585bn. In fact, this figure excludes the allocation to equity that is typically carried out by third parties fund managers operating in public markets on behalf of SWF. Our data however are a good starting point to identify total investments in private markets given by the sum of direct equity investments in unlisted firms and "alternatives" as broadly defined in the introduction.

Historically, SWF have been investing heavily in private markets. The number of transactions reported in this category is 1,748 for a total deal value of \$433bn. In the aftermath of the global financial crisis, however, the share of deals in this space has increased, rising from 73 per cent in 2009 to 89 per cent in 2018, reaching a peak in 2017 with 212 deals. Direct equity investments in listed firms in the second part of the decade declined, as a response to deep, structural changes taking place in global financial markets after the crisis.

By flooring interest rates, and purchasing unprecedented quantities of securities in the marketplace, all main central banks outcompeted one another in the implementation of unconventional monetary policies, fueling an abnormal increase in equity prices and creating an ultra-low yields environment. In the last decade, the US S&P 500 stock index quadrupled in value, Japan's Nikkei 225 would triple, followed closely by Hong Kong's Hang Seng index. The subdued economic growth under the new normal combined with US corporate tax cuts induced companies to launch a large share buyback in order to boost returns, contributing to the equity boom. The elevated cost of capital in the financial market contributed to process that cut in half the number of publicly listed companies in the US, with significant decline in major developed markets. In the course of the last decade, public markets have become overtly expensive, less liquid, and more volatile. SWFs flocked with other like-minded financial institution into private markets, in a quest for better returns.

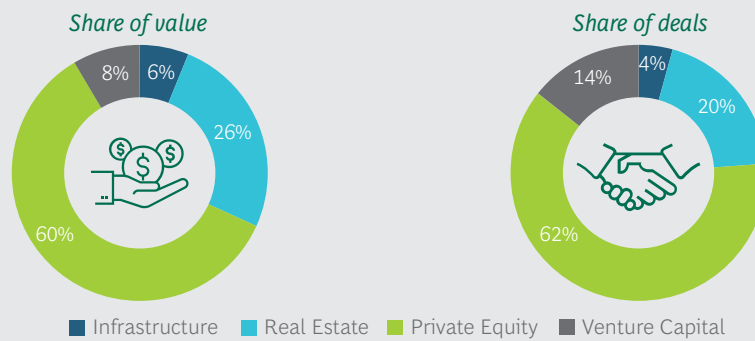
FIGURE 1 | SWF investments in private markets



Source: Sovereign Investment Lab, Bocconi University

The distribution of private markets investments by asset class reveals that private equity (defined as the sum of direct investments in unlisted targets and private equity funds) gets the lion share with about 60 per cent of deals and investment value, followed by real estate in the 20-25 per cent range. Venture capital, broadly grouping investments at various stages in technological companies, ranges in total from 8 to 14 per cent by value and deals, respectively.

FIGURE 2 | SWF investments in private markets by asset class



Source: Sovereign Investment Lab, Bocconi University

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The aggregate data, however, mask some interesting dynamics taking place in the last decade in the individual asset classes. A first noteworthy trend is the impressive surge of investment value in real estate immediately after the crisis and until the record year 2015, when property attracted 50 per cent of total SWF investment in private markets. The real estate binge, however, came quite abruptly to a close as the sector remained almost completely under the radar screen in the last three years.

In the course of the last decade, public markets have become overtly expensive, less liquid, and more volatile.

A second, related, fact is the staggering increase in venture capital investments. Since the mid of the sample period, SWF progressively and consistently increased the private market allocation to technology companies, fully embracing disruptive innovation as one of the main investment

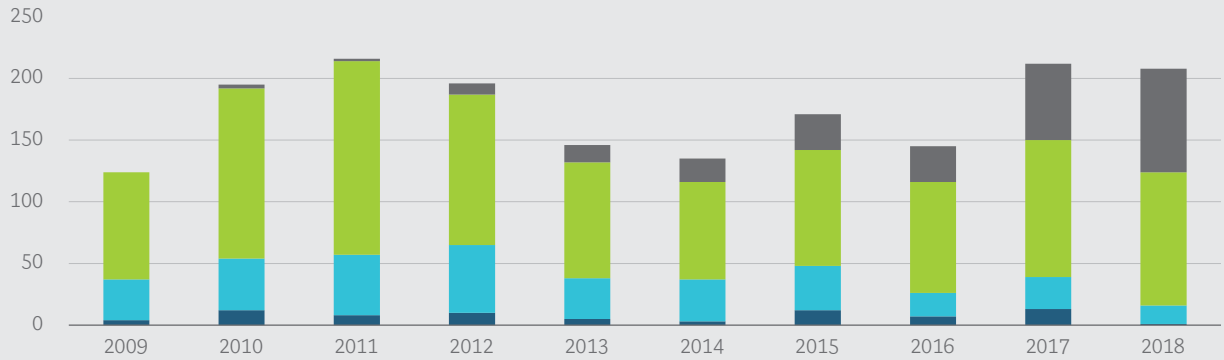


themes. Venture capital investment, barely existing as an asset class SWFs' portfolio at the beginning of the sample period, ended up to account for 40 per cent of total deals.

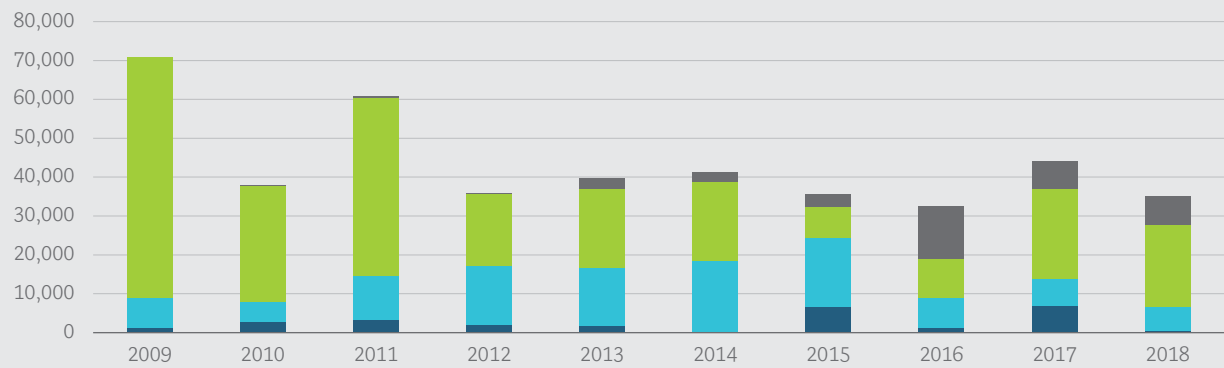
Private equity to some extent retrenched during the real estate boom, but remained a solid pillar of private markets throughout the period. Infrastructure instead was kept underweight in SWF portfolio, even though a significant uptick is observed in the most recent years.

FIGURE 3 | SWF investments in private markets by asset class

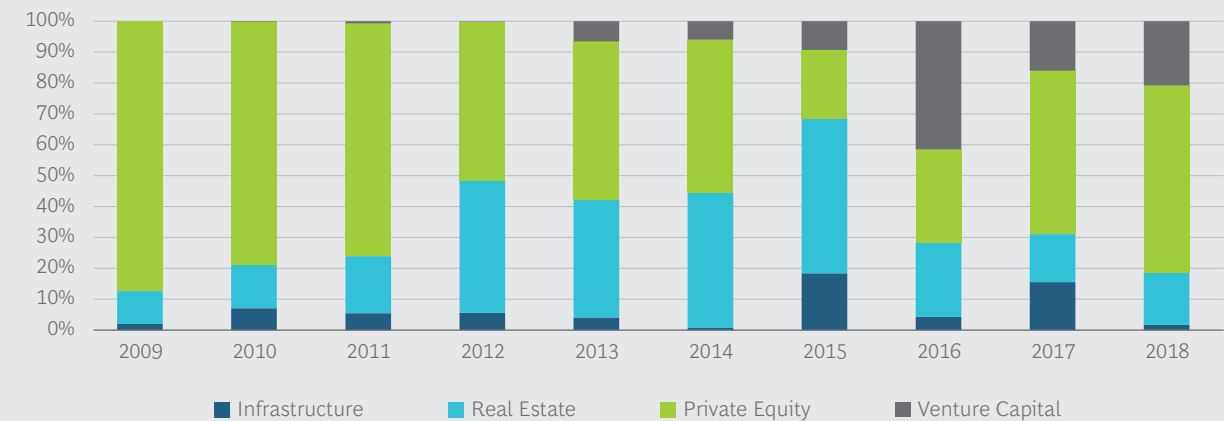
Number of deals



Deal value (\$M)



Share of value



Source: Sovereign Investment Lab, Bocconi University

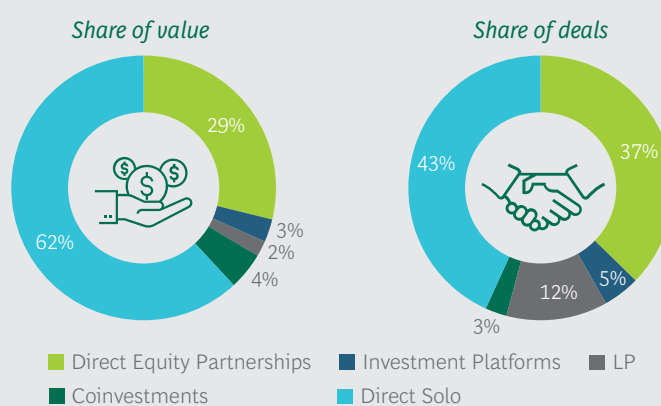
Applying the taxonomy: deal types and trends in investment models

Private markets have thus been gaining ground recently. In order to understand the details of this evolution, and how SWFs have approached this space, we apply the taxonomy of investment models developed in section 2.

At the aggregate level, SWF have typically tapped private markets via solo direct equity investments and direct equity partnerships, accounting for about a 43 and 37 percent of deals, respectively. Conventional LP investments are found in 12 per cent of cases, while co-investments and platforms are marginal, accounting in total for about 7 per cent. The breakdown of dollar values shows a consistent picture, with the two main categories (solo and direct equity partnerships) getting a 91 per cent share of total investment. As to LP investment, however, a caveat is in order. As already mentioned in the data description, our source identifies SWF's investments as LP but in several cases does not report the actual commitment, so as a consequence our analysis of deal value will underestimate the relevance of SWF investment in private equity funds. In what follows, therefore, more emphasis will be placed on activity in term of number of deals.

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FIGURE 4 | SWF investment in private markets by deal types



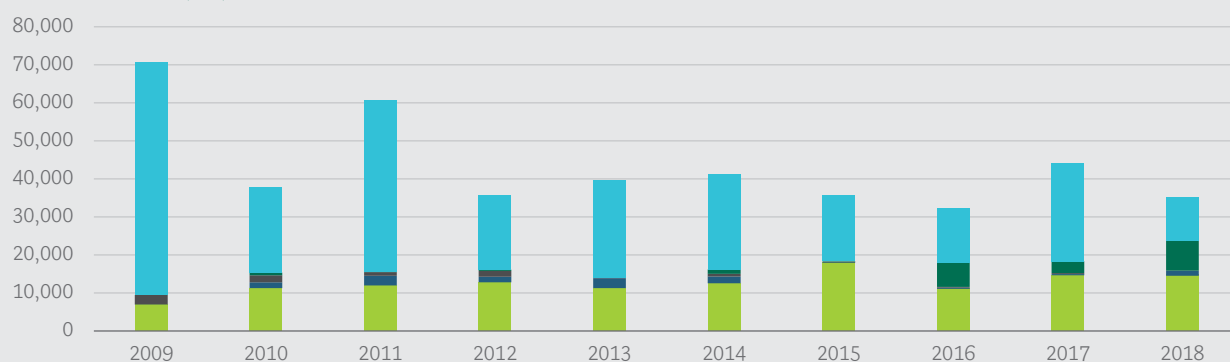
Source: Sovereign Investment Lab, Bocconi University

The evolution over time in the distribution of deal types reveals that funds gradually but consistently replaced direct solo investments with direct equity partnerships.

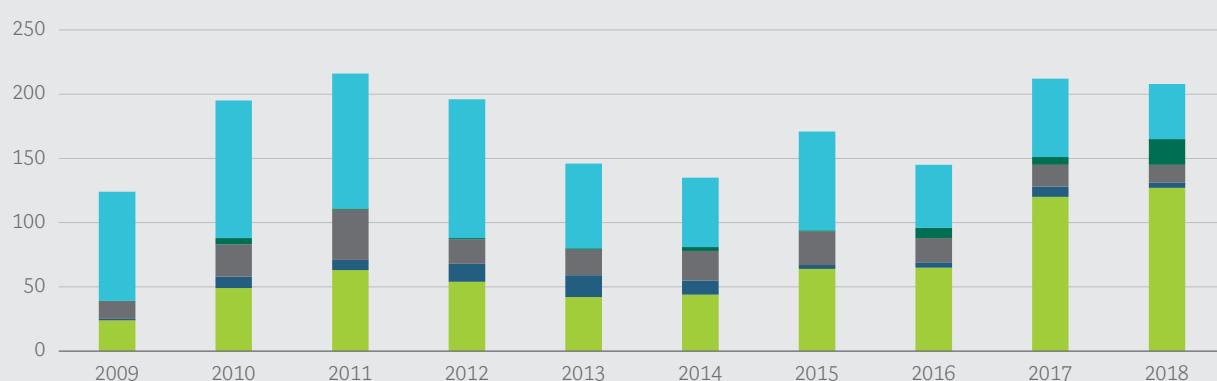
The evolution over time in the distribution of deal types reveals that a major shift occurred in SWF approach to private markets over the last decade. Funds gradually but consistently replaced direct solo investments with direct equity partnerships and the outcome is quite striking. The snapshots taken in 2009 and 2018 show that the shares of these two deal types almost flipped: direct equity partnerships increased from 19 to 61 per cent of total deals, while solo collapsed from 69 to 21 per cent over the same period, revealing a complete change of strategy in the direct equity space.

FIGURE 5 | The evolution of SWF investment in private markets by type

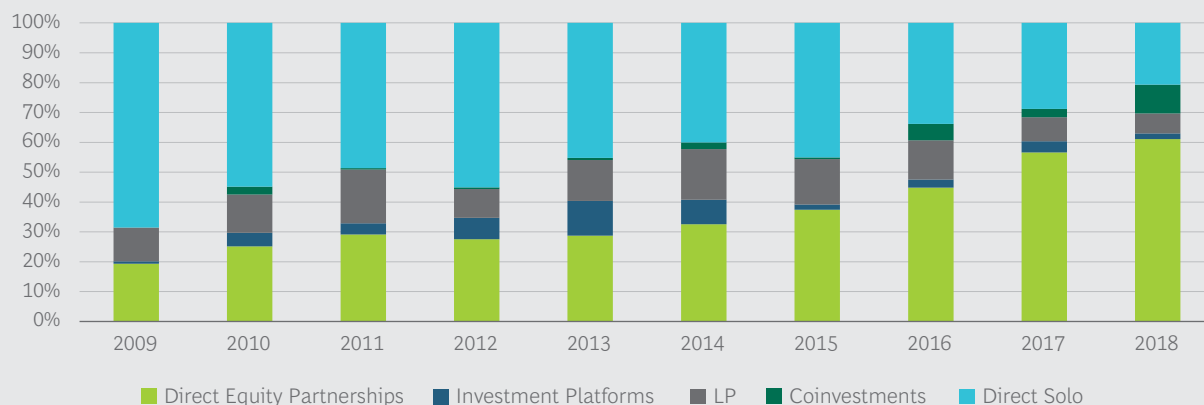
Investment value (\$M)



Number of deals



Share of deals



Source: Sovereign Investment Lab, Bocconi University

The data on LP and co-investments are also interesting. In the sample period, SWFs limited, albeit slightly, their investments as LPs from 11 to 7 per cent of total deals, while increasing co-investments from virtually zero to 10 per cent. Our readers would recall that amongst the collaborative models, co-investments entail a significant delegation to GP in deal origination and execution and as such are the “closer” model to conventional LP investing. Our data therefore suggest that the overall share of deals with private equity funds remained broadly constant overtime, but co-investments gained an increasing market share. With \$12bn of total value since 2009, platforms represent an innovative investment model which gained ground especially in the 2012-2014, reaching a 3 per cent average share of deals in the last years.



The data on investment values are broadly consistent with the number of deals and support a first important conclusion. Collaborative investing, particularly in the form of direct equity partnership, is the new, emerging investment pattern on SWF operations in private markets, accounting in 2018 for a staggering 79 and 68 per cent of total deals and value, respectively.

While we observe a significant resilience of conventional private equity models, the reported investments values suggest that SWF have shown in the last three years a commitment to test the co-investment model as an alternative, maybe less expensive entry into private markets. In 2018, co-investments deals are worth for \$7.9bn, accounting for 22 per cent of total value.

The overall share of deals with private equity funds remained broadly constant overtime, but co-investments gained an increasing market share.

Our analysis of investment models in private market suggests that SWFs increased their exposure to direct equity investment with a twist: sharing risks and benefits with partners. It may be again useful to put this fact into the broader perspective of the post-crisis financial system. Forced by regulation and market pressure, since 2009 the banking industry has embarked in a deep deleveraging process, increasing capital cushions and cleaning up balance sheets. Global systemically important banks have

been thus pulled down from excessive short-term risk taking and pushed into safer grounds. As El Erian (2016) pointed out, this process did not eliminate systemic risk. Rather, it just morphed and migrated out of banks into other sectors of the financial industry. A structural outcome of this mass migration of risk is the shrinking role of conventional, broker-dealer bank sponsored, intermediation and the increasing role of non-bank end users of capital, including pension funds, insurers, and SWFs. The shift towards direct equity that we have observed among is thus part and parcel of a wider, structural change in the global financial system, with far reaching implications for SWFs and institutional investors alike.

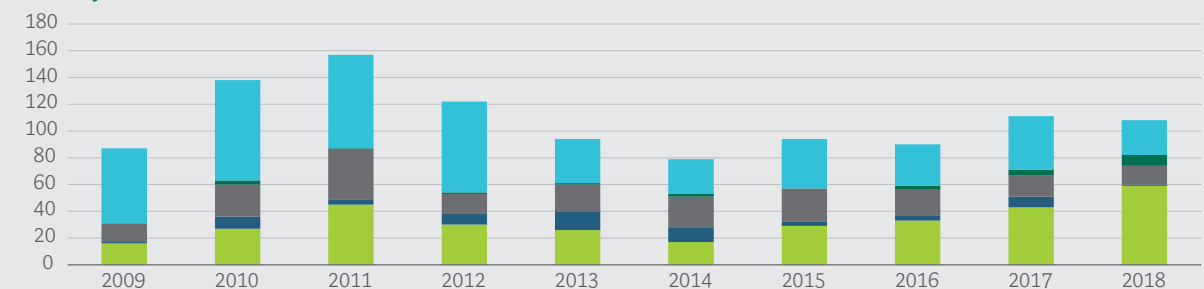
Disentangling private markets: deal types by asset class

With more than a quarter of trillion of investments, private equity is the most significant asset class within alternatives, or private markets portfolio of SWFs. In this bucket, our data on activity based on deals show a remarkable transition in direct equity investment from solo to partnerships. Solo investment accounted for a staggering two thirds of deals in 2009, and progressively reduced to about one fourth in the last year. Conversely, the share of direct equity partnerships tripled in the sample period, reaching a stellar 55 per cent in 2018. Indeed, a total value of \$14bn was poured into these partnerships in 2018, becoming by far the most popular SWF investment model in private equity. The conventional LP model gained relevance in the early years of the sample, but progressively lost market shares since 2014. In 2018, investments in private equity funds accounted only for 13 per cent of total deals.

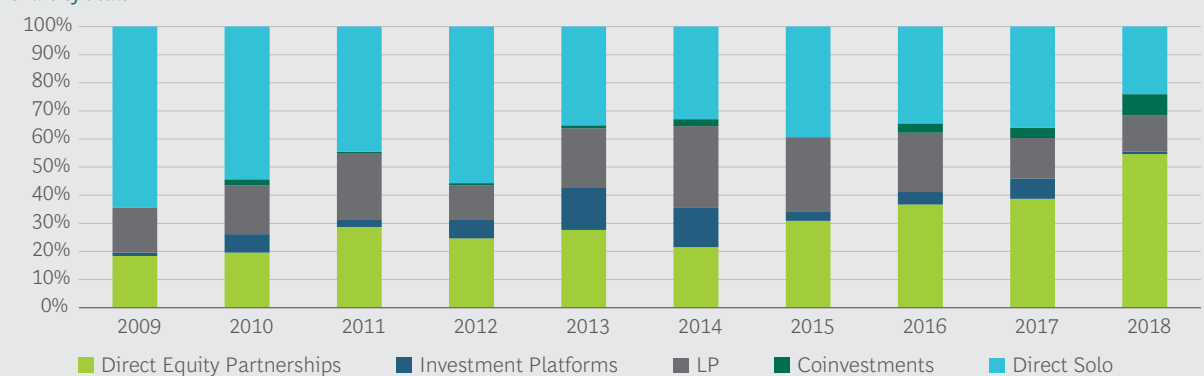
The data shows a clear trend of rising co-investments in private equity. SWFs have progressively embraced this new investment model, which has reached a 7 per center share of total deals over the last years. The dollar values of these deals have to be taken with some grain of salt, but in 2018 co-investments have been reported at a staggering 22 per cent of the total \$7.9bn. As we mentioned already, the co-investment model represents a “soft landing” into direct equity, and the numbers suggest that SWFs are testing with this model in earnest, in spite of its inherent risks. SWFs have also been wary to continue sponsoring investment platforms in the private equity space, after the experiments carried out in 2014 and 2015, when they accounted for 15 per cent of activity by deals.

FIGURE 6 | SWF investment in private equity

Number of deals



Share of deals



Source: Sovereign Investment Lab, Bocconi University

With 342 deals worth in total \$111bn, real estate is the second largest asset class by SWF investment within the private markets bucket. The most interesting trend surfacing in this industry is the complete exit from the conventional LP models. Apparently, SWFs of all stripes have turned away from investing in real estate funds and moved towards direct equity investments in this asset class, especially using the partnership model. While right after the financial crisis property funds were capturing more than 50 per cent of investment value and about 40 per cent of deals, last year investments via real estate asset managers shrunk to only 5 per cent in value. In combination with a significant contraction of investment flows in the sector we are thus observing to a greater extent than in other private markets a full-fledged disintermediation processes, with SWFs dumping LP models in favor of direct equity investments both in terms of solo and, more recently, of partnerships with like-minded investors or specialized property operators. Co-investments do not appear a suitable investment model in this space, and the same holds for platforms that, in spite of a limited surge in activities in 2012-13, never really took off.

FIGURE 7 | SWF investment in real estate

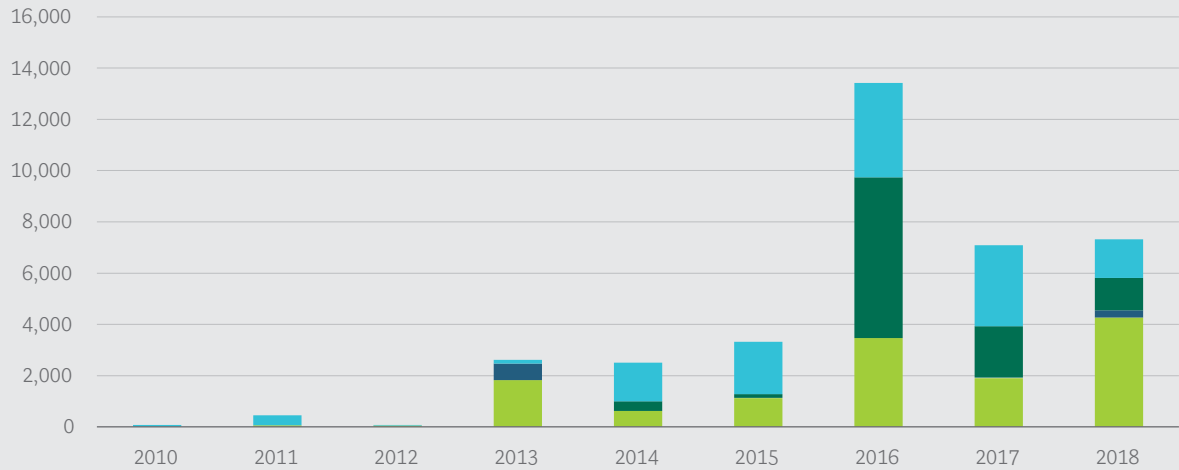


Source: Sovereign Investment Lab, Bocconi University

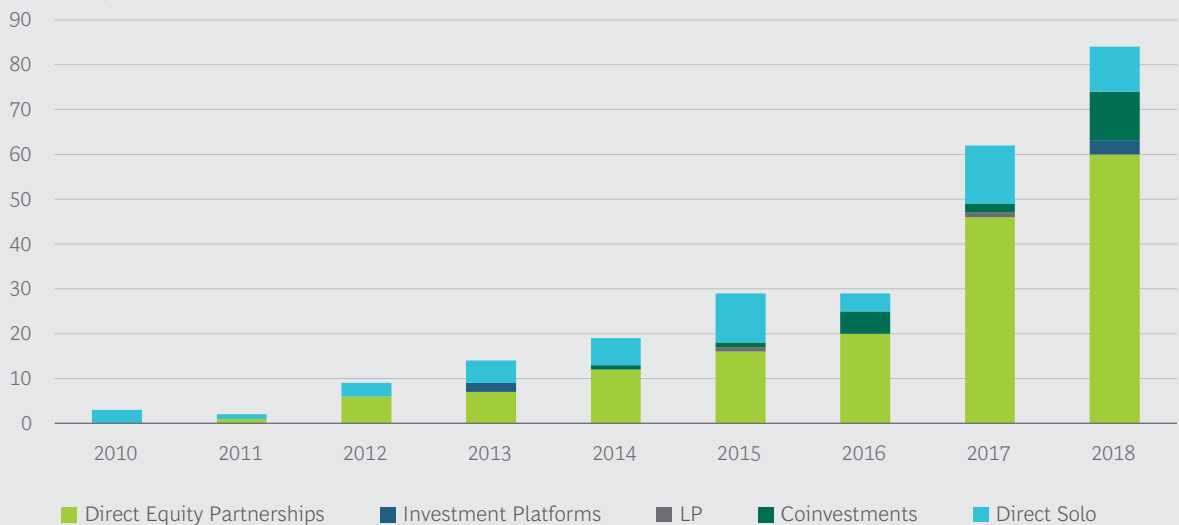
As widely recognized, technology has been the sector of choice for global SWFs in the second part of the last decade. SWFs flocked into this industry in earnest, executing 251 deals worth \$37bn. As figure 6 shows, the pace of acceleration has been impressive, turning sovereign investors into venture capitalist in a span of only a few years. Interestingly, SWFs' entry into this space has not followed the conventional route of LP investments in VC funds, but rather resorting to the new models of collaborative investments, namely direct equity partnerships and co-investments. Indeed, these two deal types account for 66 and 36 per cent of total deals and value in technology respectively, with an increasing share throughout the period. According to our data, venture capital is the asset class within private markets where the co-investment model has been more seriously tested. The average ticket size of co-investments has been well above the \$500ml threshold and in total are worth \$10bn, with a strong concentration in the last three years. As in real estate, investment platforms has not been widely used. However, the picture would be completely different if we included the Vision Fund, the \$100bn investment platform sponsored by Saudi's PIF and managed by Masayoshi Son's Softbank. As explained in the below sidebar, there are good reasons to analyze it separately.

FIGURE 8 | SWF investment in venture capital

Investment value (\$M)



Number of deals



Source: Sovereign Investment Lab, Bocconi University

UNDERSTANDING SOFTBANK'S VISION FUND

The largest VC/tech fund ever raised, Softbank Vision Fund was established by Softbank Group, with a focus on providing large-scale, long-term investments in next-gen innovating companies and platform businesses. Target investments mainly include growth-stage companies in tech, including IoT, AI, robotics, etc., with an investment period limited to five years, and a fund's lifecycle expected to last about 12 years.

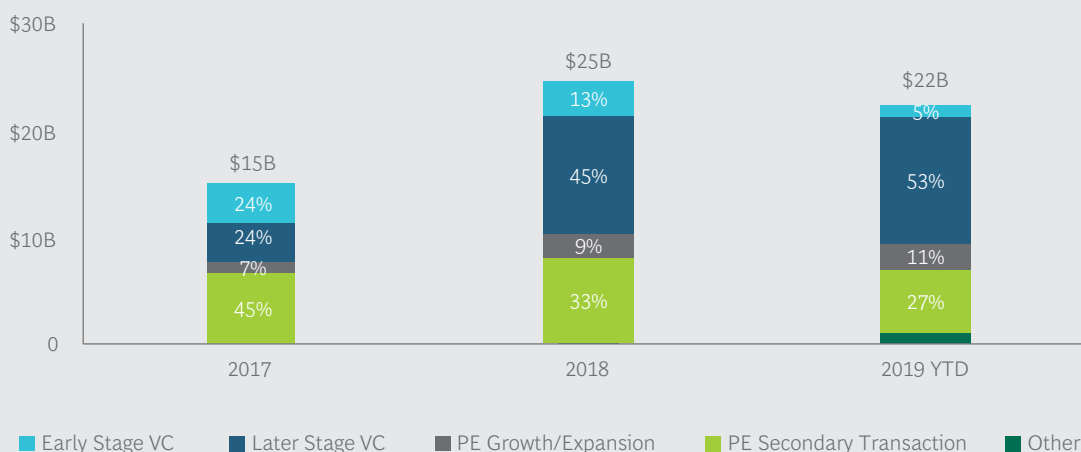
With its \$100bn capital, starting in 2018 the Vision Fund has dramatically changed the global dynamics of investing in technology, giving access to a handful of large global investors to unique large-scale tech deals and opportunities. At the same time, the Fund has given its LPs the opportunity to invest significantly large amounts of capital in a relatively difficult asset class and within a very short timeframe; this is particularly remarkable given the market conditions and the pressure to generate high returns. Main LPs include Public Investment Fund of Saudi Arabia (\$45bn), Softbank Group Corp. (\$28bn), Mubadala (\$15bn), and Apple (\$1bn).

Despite its uniquely large scale and the relatively short time span, the Vision Fund has already deployed around 70% of its capital, actively investing across Asia, Americas and EMEA, with a total of 77

investments in 65 companies completed until today. The majority of investments completed so far have focused on VC financing across different stages of maturity, with 56 VC investments out of the 77 in total completed (the remainder primarily across growth, corporate and secondary).

While providing a unique opportunity to gain exposure to tech investments through the LP/GP relationship, the Fund has also proven to be a strong platform for LPs to co-invest alongside SoftBank, effectively doubling-down on attractive investment opportunities while leveraging SoftBank's sector expertise and access. In fact, 58 out of the 77 deals completed so far by the Vision Fund have multiple investors, mostly with SoftBank in the lead. An interesting example of this is the 2018 investment in ParkJockey, a parking technology solutions provider, that secured funding from the SoftBank Group. Later the same year, ParkJockey and Mubadala have partnered to acquire Atlanta-based Citizens Parking Inc, and have agreed to acquire Imperial Parking Corporation (deal expected to close in the first half of 2019). This approach has given Mubadala the opportunity to further deploy capital, building on SoftBank's pipeline and access, while reducing risk exposure through SoftBank's sector expertise.

Softbank Vision Fund: Investment analysis



Source: Sovereign Investment Lab, Bocconi University

FIGURE 9 | SWF investment in infrastructure



Source: Sovereign Investment Lab, Bocconi University

With high risk-adjusted yields, underlying physical assets, and sizable economic spillovers, infrastructure fits nicely with the investment preferences of SWFs. In practice, however, the total investment in this sector has been quite limited, even it is gaining momentum in the last years. We report in total 75 deals worth \$27bn, of which almost 60 per cent executed in the last four years. The distribution of deal types in this asset class is completely skewed in favor of direct equity, with an equal split between solo and partnerships, which as in many other private markets, have become the prevailing model for SWF to approaching private markets.

The geography of private markets

A first, broad distinction to be made when analyzing the geographical pattern of SWF investments in private markets is between domestic and international deals. Indeed, these two categories of operations are carried out with different objectives, with foreign investment primarily aimed at portfolio diversification and financial returns, while investment at home often focused to support the local economy in bad times or to boost long-term investment and socio-economic development.

In private markets as in other asset class, foreign deals are largely predominant and account for 80 per cent of total transactions and for 79 per cent of reported deal value. The international profile of investments seems however to matter also in terms of the investment model chosen. Indeed, when investing directly abroad, SWFs tend to evenly split deals between solo and equity partnerships. At home, instead they have a much stronger preference to direct solo investments. This different behavior can be explained in terms of better access to information and investment opportunities in the local market, so that SWFs can more easily source and execute deals at home. Direct equity partnership instead are more valuable in distant markets, where the collaboration with an experienced partner can mitigate adverse selection and boost returns.

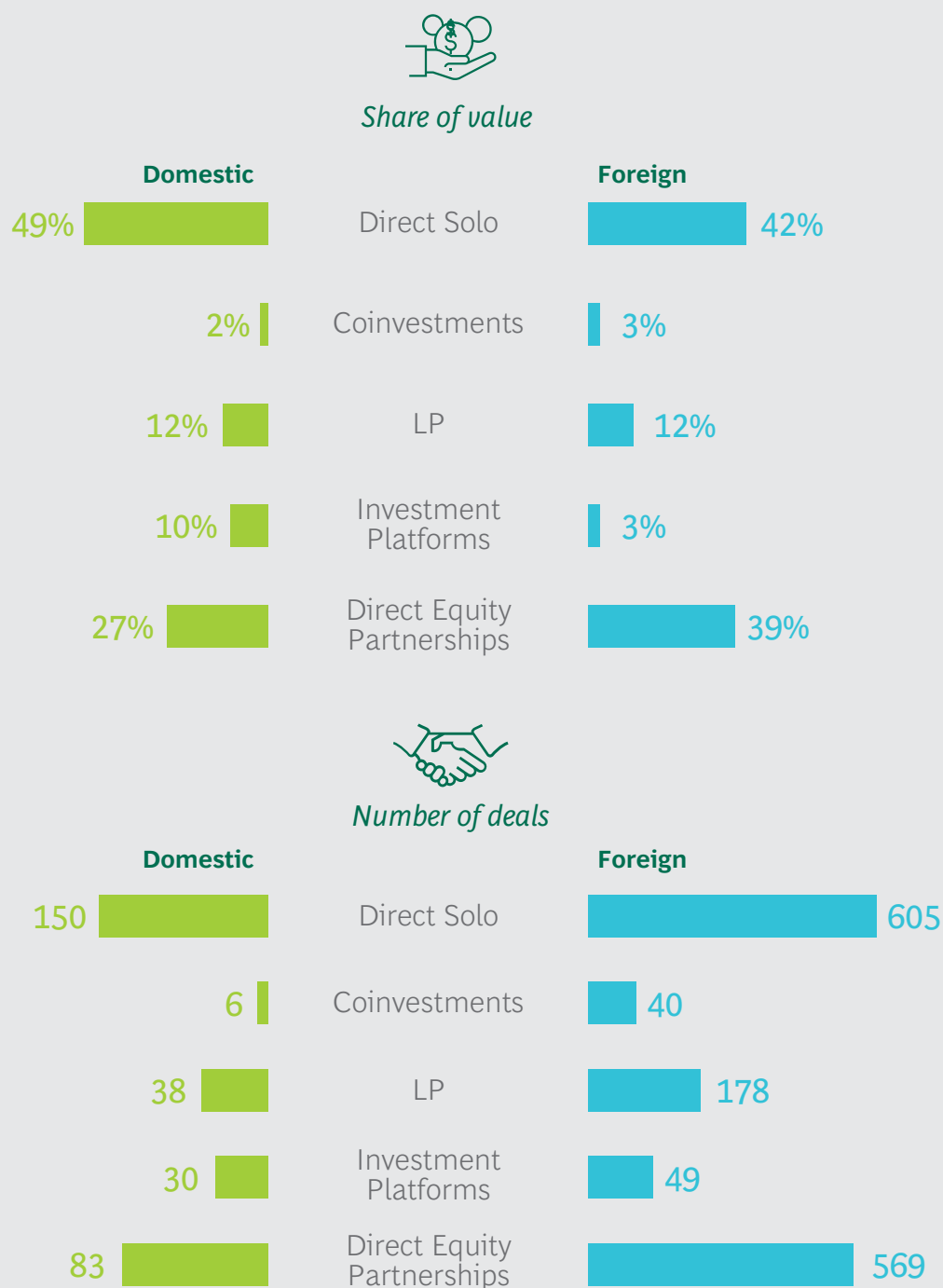
In what follows, we try to look in more detail where SWFs are investing when they seek opportunities in private markets. First, the bulk of investments is concentrated in three main regions, namely Europe, Pacific Asia, and North America, accounting for three quarters of total activity by deals and dollar value. Europe is particularly relevant in terms of value, reporting one third of the total, while Pacific Asia reports 31 per cent of deals. North America attracts around 18 per cent of private market investments by both measures of activity. Private markets in other regions are

under the radar screen of SWFs, with the exception of Non Pacific Asia and MENA, surpassing albeit slightly the 10 per cent share in term of deals and value, respectively. The regional distribution over time looks quite stable, even if we report some recent uptick in favor of Pacific Asia over the last three years. In the same period, Europe has gained ground in terms of investment value, while North America in terms of transactions.

When investing directly abroad, SWFs tend to evenly split deals between solo and equity partnerships. At home, instead they have a much stronger preference to direct solo investments.



FIGURE 10 | Private markets by deal type at home and abroad



Source: Sovereign Investment Lab, Bocconi University

Against this backdrop, the geography of private markets is certainly interesting to put our deal type analysis in perspective. The aggregate data suggest that even when investing in different destinations, SWF typically chose direct equity rather than resorting to financial intermediaries as private equity funds. The regional comparison, however, highlights significant differences in the use of collaborative investment models such as direct equity partnerships. This deal type is much more frequently found in Asia (both Pacific and Non-Pacific) and North America, where it accounts for more than 40 per cent of overall transactions. Latin America and the MENA region instead tend to favor direct equity solo. Quite systematic differences surface when regions are compared according to the relevance of the conventional, intermediated LP model. In this space, the three main destinations by value of SWF investments, namely Europe, Asia Pacific, and North America are in stark contrast

with the rest, displaying a share of LP deals well above 10 per cent, with Europe well above 20 per cent. The data on the regional distribution of investments by value are broadly consistent with this picture, even if they enhanced the economic relevance of co-investments in some regions such as Asia Pacific, Europe and the US.

FIGURE 11 | SWF investment in private markets by regions

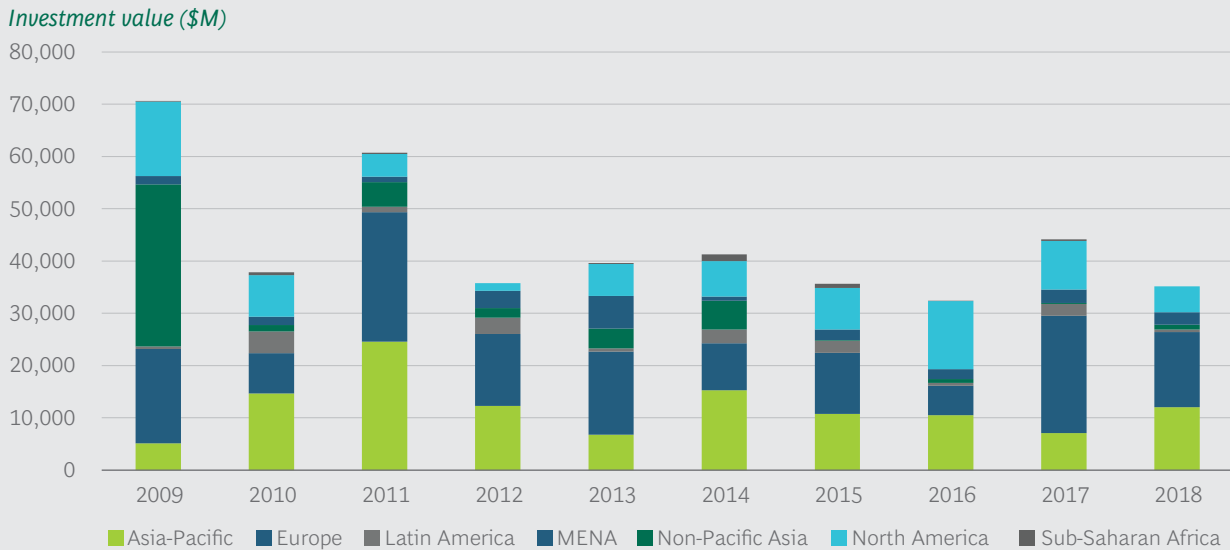


FIGURE 12 | Private markets deal types by regions



Previous sections of this report have clearly shown that dramatic transition are underway in SWF approach to private markets. It is thus interesting to look at the evolution of investment models within the main target regions, possibly identifying commonalities and differences across destinations, starting from Asia Pacific.

In this region, the data show a stark decline of direct equity investment in favor of partnerships, which have become the predominant deal type in the last years. After a robust growth at the beginning of the period, SWFs have instead lost appetite in conventional private equity funds, while testing in earnest the co-investment model. Indeed, this new deal type has progressively increased its market share in the last years, reaching a total of \$4.1bn of investment value in 2017-18.

We now turn to the second largest target region, Europe. Broadly speaking, the reported trends are the same as in Asia, but the rate of change is different. Indeed,

FIGURE 13 | SWF investment in private markets in Asia Pacific



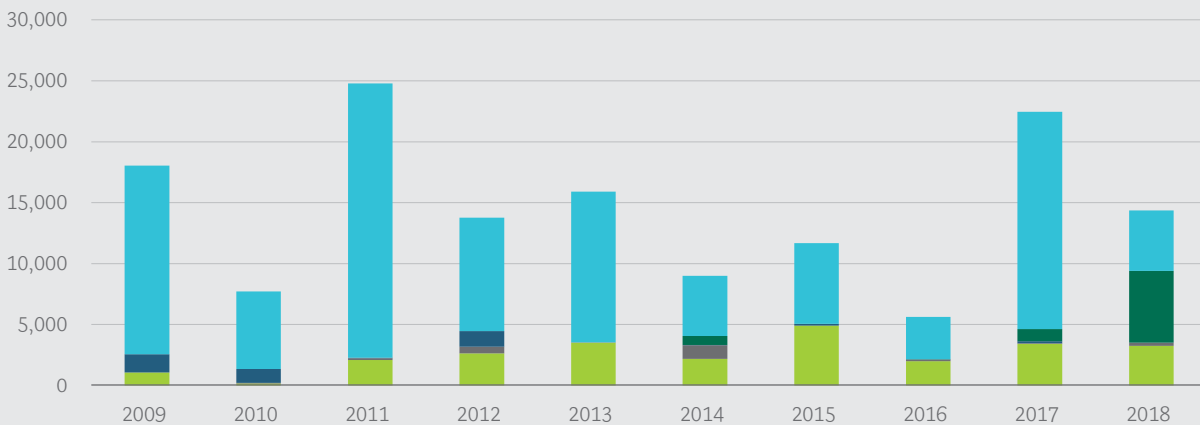
Source: Sovereign Investment Lab, Bocconi University

direct equity has been overcome by the quite impressive growth of partnerships. Yet, the former deal type, especially when measured in dollar terms, has remained a solid pillar in private markets also in the most recent years, while it lost ground in Asia. Similarly, the LP model, which grew spectacularly at the beginning of the decade contracted quite severely in the last years. The same marked increasing trend of co-investments is also observed in Europe, but here their growth has been even more spectacular, accounting for a staggering 40 per cent of total investment value.

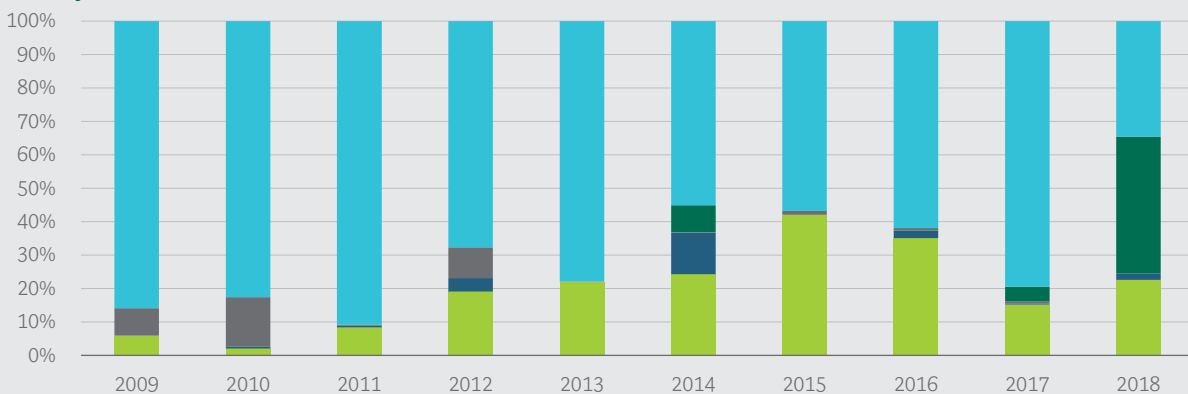
The end points of these different temporal patterns is not dramatically different between Asia and Europe, with one important exception. European private markets have remained accessible via solo direct equity. Successful entry in Asia requires instead either professional managers or knowledgeable strategic partners.

FIGURE 14 | SWF investment in private markets in Europe

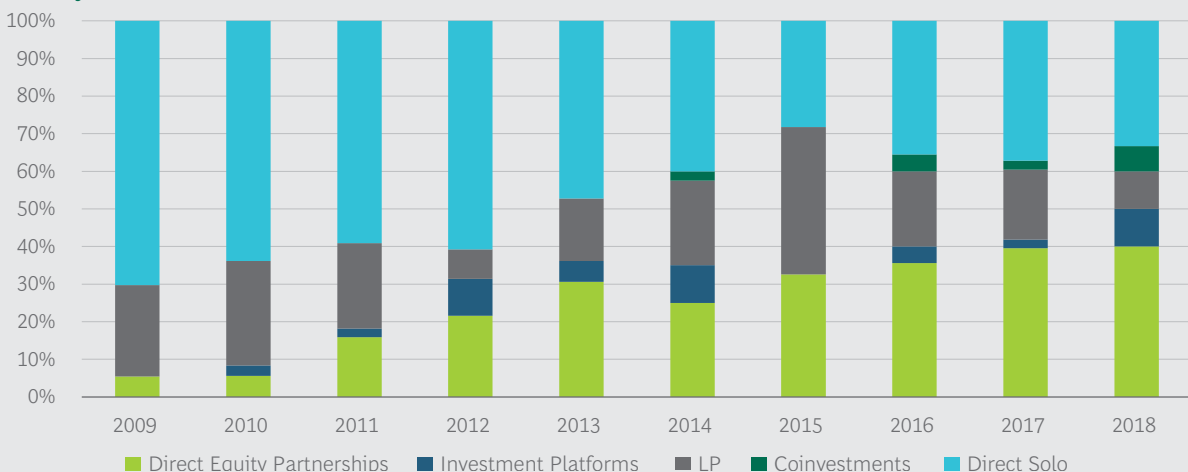
Investment value (\$M)



Share of value



Share of deals

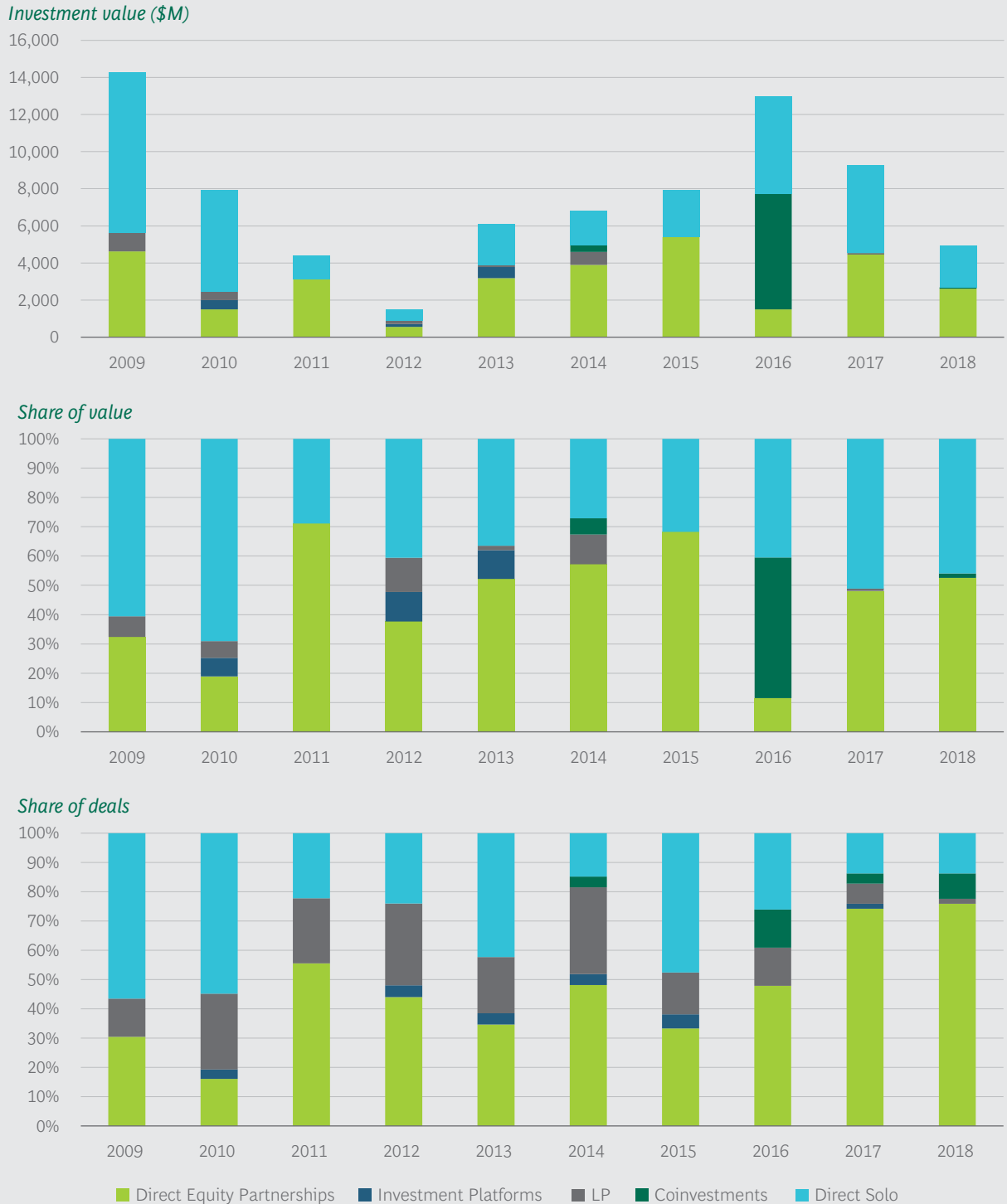


Source: Sovereign Investment Lab, Bocconi University

A regional analysis would not be complete without North America, home of the largest target country of SWF investments, the United States. The evolution of the investment patterns in the region has been to some extent similar to Asia. The rise of direct equity partnership has been staggering across the Pacific as well, while the contraction of LP deals much more pronounced. SWFs investing in this region have been more wary to embrace the co-investment model.

As already noticed, SWF investments in private markets in the other macro-regions have been quite marginal over the last decade. Unreported data shows however that in Non-Pacific Asia the partnership model gained ground as in the other regions,

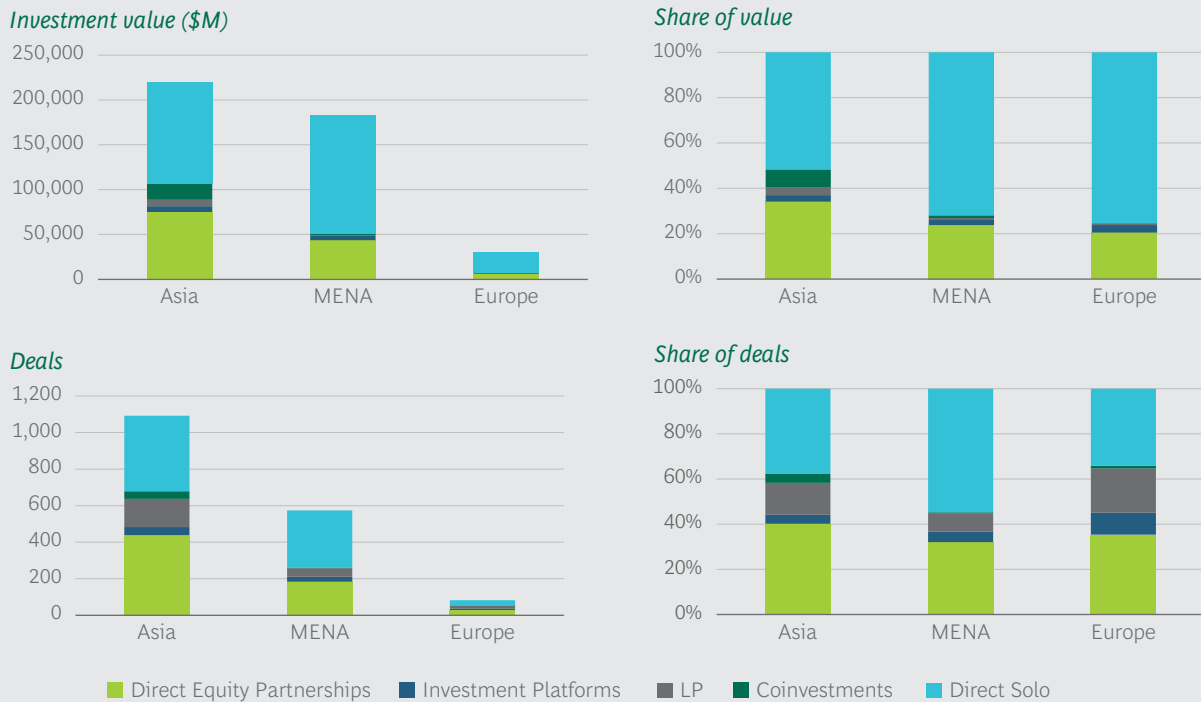
FIGURE 15 | SWF investment in private markets in North America



while in Latin America, MENA and South Saharan Africa solo investments are the default deal type.

Finally, we take the perspective from home countries and try to understand how SWF from specific regions are approaching private markets. As a preliminary analysis, we break SWF investments by region of investing entity to understand their relevance as a source of funds. In terms of deals in private markets, Asia dwarfs all other regions, accounting for 62 per cent, followed by MENA reporting a share of 33 per cent. The third region by deals, Europe, reports only a small 5 per cent. The data on deal value provide a more nuanced picture, with exactly a half of investments originating from Asia, and the MENA share rising significantly to 42 per cent.

FIGURE 16 | SWF investments in private markets by home region



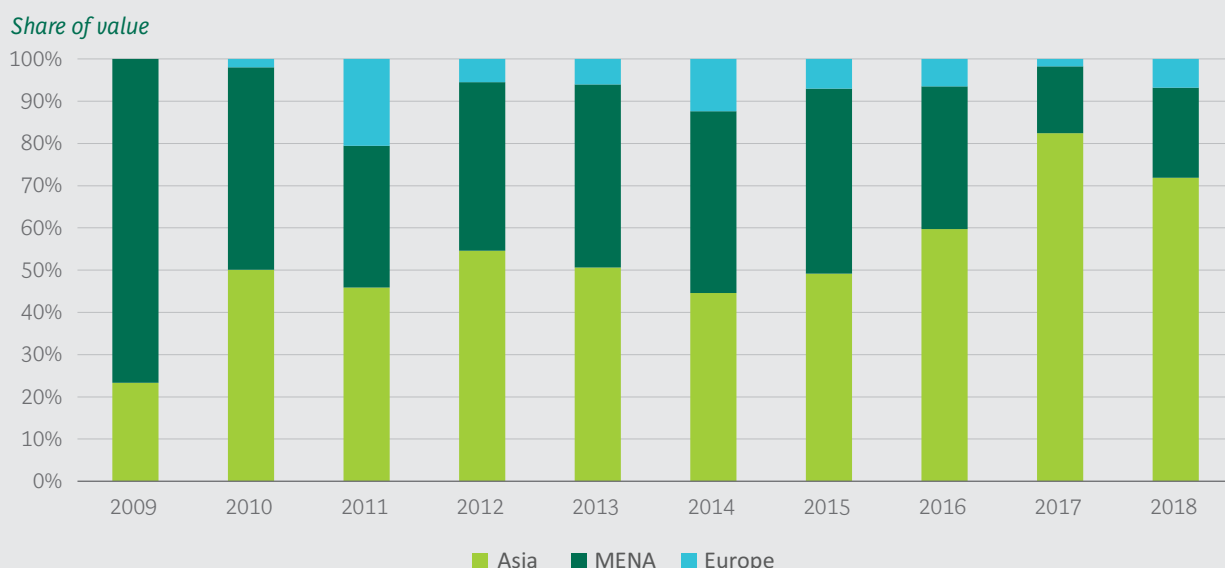
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These data are certainly not surprising and reflect the widely recognized relevance of SWFs established in trade surplus countries such as China and Singapore and in the resource rich nations of the Gulf. More interesting, from our point of view, is the evolution over time of the relative positions of these two economic blocs.

Figure 17 highlights a dramatic change in the share of SWF investment value from Asia, from 22 per cent in 2009 to a staggering 71 per cent in 2019, with percentages for MENA regions flipping over the same period. The new “age of plenty” in commodities market which brought down oil prices since 2013 had redistributive effects between exporting and importing nations, and different implications for commodity as opposed to surplus, non-commodity SWFs. While low prices strain the fiscal position of exporters and their growth prospects, they lower energy costs

for countries that are net importers, strengthening the competitive position. One would expect a boost in exports for large energy consumers especially amongst emerging countries, leading to significant accumulation of reserves, while an opposite trend should be observed in resource rich countries, forced to tap sovereign assets to support their battered economies.

In spite of their diversity in term of volume of activity in private markets, the distribution of deal types among the key regions is remarkably similar.

FIGURE 17 | SWF investments in private markets by home region

Source: Sovereign Investment Lab, Bocconi University

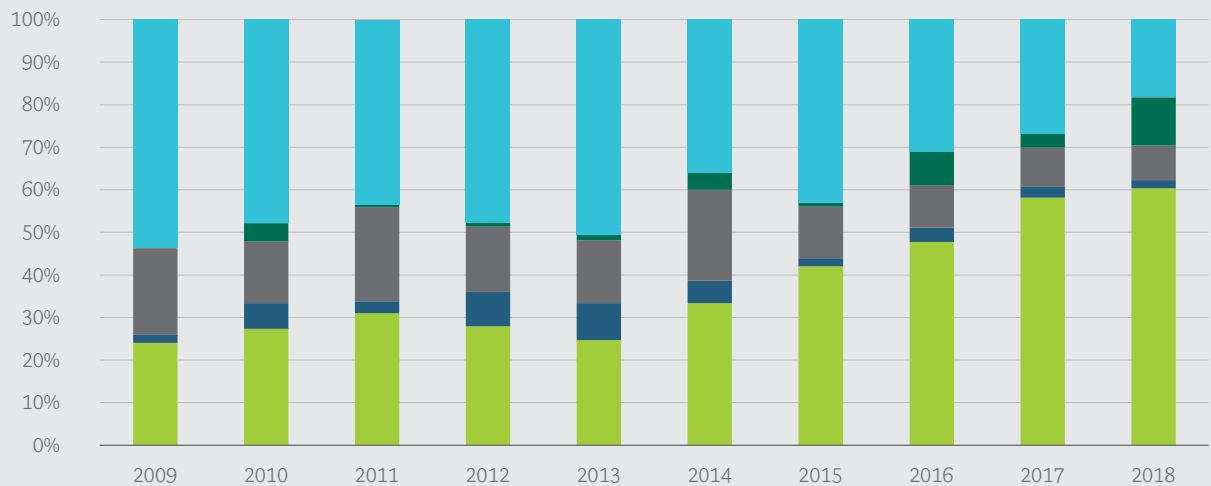
In spite of their diversity in term of volume of activity in private markets, the distribution of deal types among the key regions is remarkably similar. Direct equity partnerships are reported in the range of 40 per cent across all regions, and very similar figures (around 20 per cent) are found in Asia and Europe for the share of conventional LP deals. MENA funds stick out in terms of the preference afforded to direct solo investments, accounting for more than a half of deals. Interestingly, co-investments have been almost entirely developed by Asian funds, and never seriously tested by funds from other geographies. The same holds for platforms, which originated almost exclusively in Asia.

Dollar value data provide a quite consistent picture for Asia, amplifying the economic relevance of the \$17bn co-investments in the region, accounting for 8 per cent of total investments. MENA SWFs' strong penchant towards direct equity is confirmed. The limited investments carried out by European SWFs display a quite different deal type distribution by value, suggesting solo direct equity as the most widely used investment model.

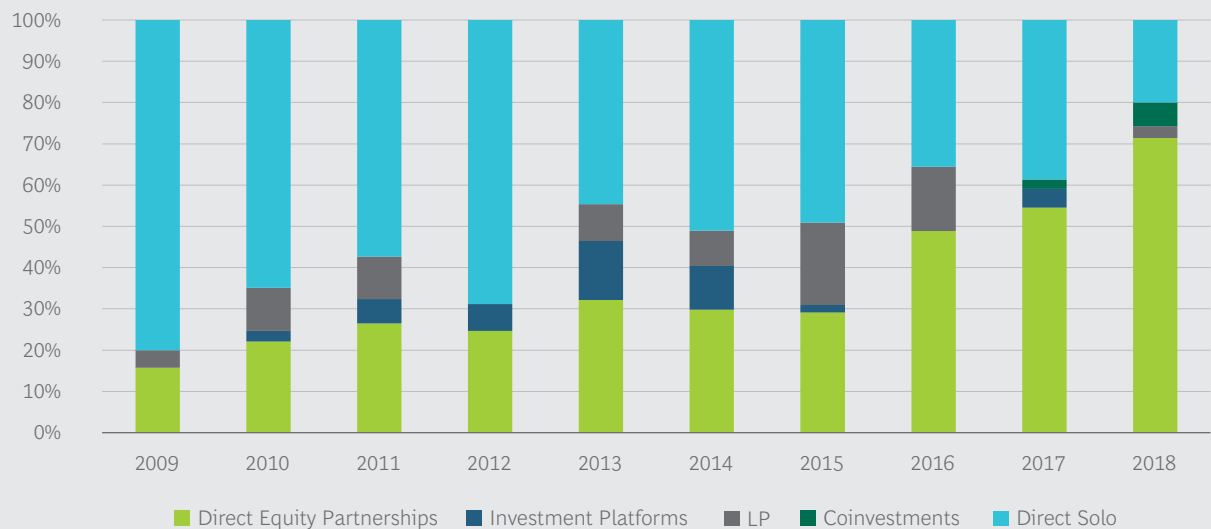
As usual, the data about the evolution over time of deal type preferences reveal interesting facts also within individual regions. Quite strikingly, in spite of two completely diverging trends of overall investment in private markets, with Asia picking up strongly in the last years, and MENA retrenching, the distribution over time among investment models is very similar, suggesting that neither geography, nor macroeconomic outlook matter much in explaining how deal making in private markets evolved in recent times. Structural factors have changed the industry and steadily shifting incentives in favor of collaborative investment models predominantly in the form of direct equity partnerships and against solo and conventional LP models. On a similar vein, co-investments have gained ground recently in the two most important regions for global SWF investment. Any clearly discernible pattern is instead visible in the SWF deals originating from Europe, maybe due to the scant activity also reflected in our data.

FIGURE 18 | Investments in private markets

Asian SWFs



MENA SWFs



Source: Sovereign Investment Lab, Bocconi University

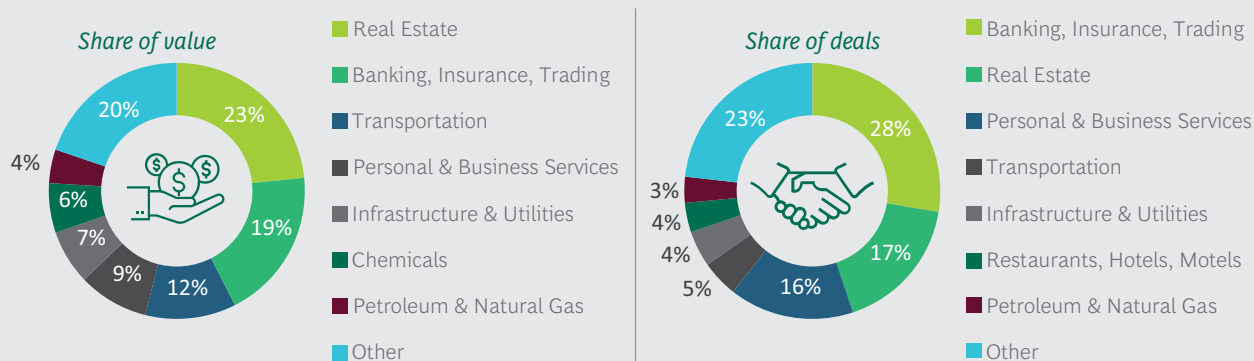


The breakdown by sector reveals some interesting patterns of SWF investment in private markets. Probably one of the most striking fact is the whopping concentration in the financial sector and in real estate, accounting for about a half of overall deal activity. The financial industry gets a share of 27 and 19 per cent of deals and value, respectively, while the property market gains more relevance measured by dollar value of investment, boasting a share of 23 per cent raised in \$101bn worth of deals. Average ticket size consistently show that deals in real estate tend to be much larger than in the financial sector. Banks have been historically a target of choice for SWF. The relevance of financial sector in our data on private markets, however, can also be enhanced by the classification of SWF operations in private equity funds into this bucket, independent of the actual sectoral destination of investments.

The other main target is the transport sector, accounting for 5 per cent of deals and 11 per cent of investment value. One quarter of investment value (slightly less by deal) is evenly split in four sectors, namely personal and business services, infrastructure, chemicals and oil&gas. Out of these main sectors, SWF investment activity looks widely diversified, with all other sectors well below the 2 per cent threshold of investment value.

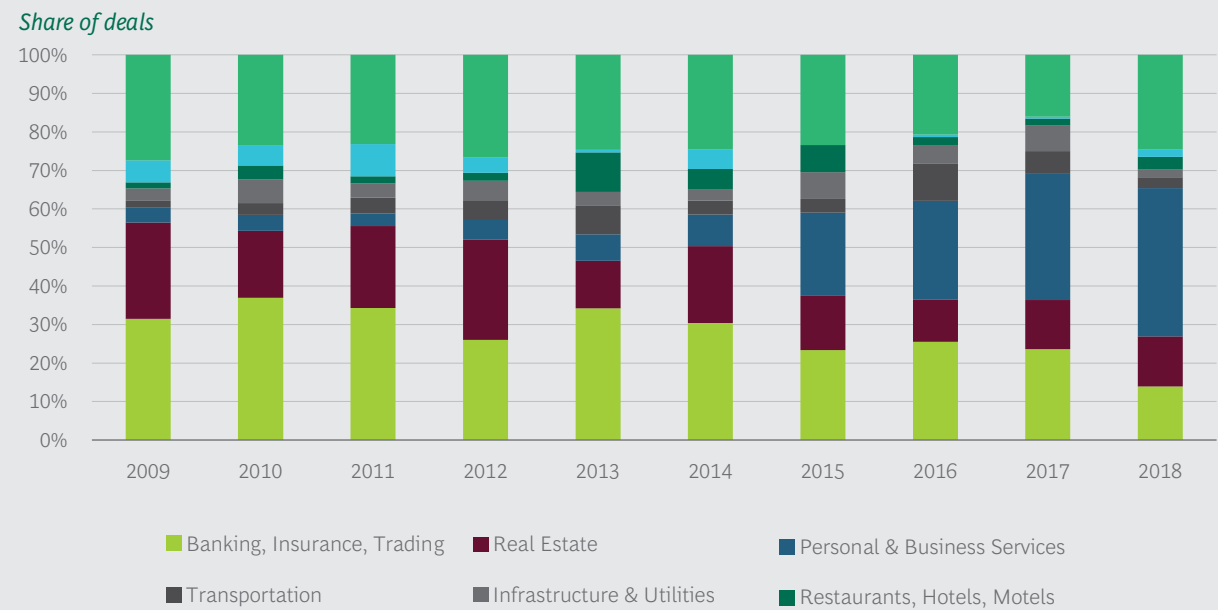
But how did the sectoral allocation in private markets change over the last decade? Again, our yearly data reveal that a seismic change unfolded throughout the period. The overall equity investment activity measured both in deal counts and dollar value highlights the unfolding of three distinct, albeit related, trends: the lost SWFs' appetite for the financial industry, the real estate binge in the first half the decade, and the amazing rise in personal and business services. Taking into account that this label flags the lion share of SWF investments carried out in the technology sector, we can conclude that a major shift has occurred in SWF private markets in favor of disruptive technology, venture capital deals as already documented in our analysis by asset classes. While in the 2009-2018 period the share of investments in banks fell from 32 to 10 per cent, services grew from 4 to 38 per cent, hitting the record of \$17.6bn in 2016. SWF investment in property boomed initially, and then progressively declined, even if in the last year with \$8.4bn it remained the sector of choice.

FIGURE 19 | SWF investments in private markets by target sector



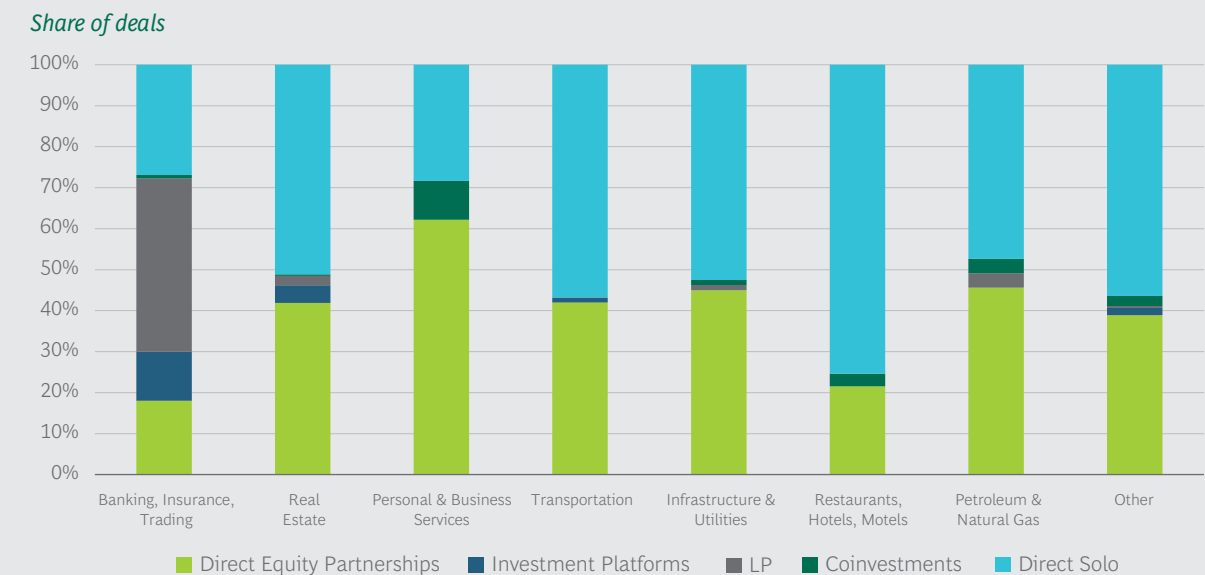
We conclude our sectoral analysis by begging these questions: in which sectors have collaborative investment models been applied more successfully? And more particularly, do we observe any systematic association between deal types and specific industries? Our data allows to draw some rather sharp conclusions. The sector where direct equity partnerships and co-investments have been most successfully executed by SWFs is business services (a.k.a. technology), where they account for 70 per cent of investment activity in the industry. In particular, the \$10.2bn co-investments represent one fourth of total reported value. Real estate and infrastructure also are worth mentioning, with about 50 per cent of investment activity carried out via direct equity partnerships. The sectoral analysis of LP model is not particularly meaningful given the above mentioned classification issue of private equity fund investments. With this proviso, with the exception of a few deals in real estate, infrastructure and oil&gas, the conventional LP model appear quite under the SWFs' radar screens also across sectors.

FIGURE 20 | SWF investments in private markets by target sector



Source: Sovereign Investment Lab, Bocconi University

FIGURE 21 | SWF investment in target sectors by deal type



Source: Sovereign Investment Lab, Bocconi University

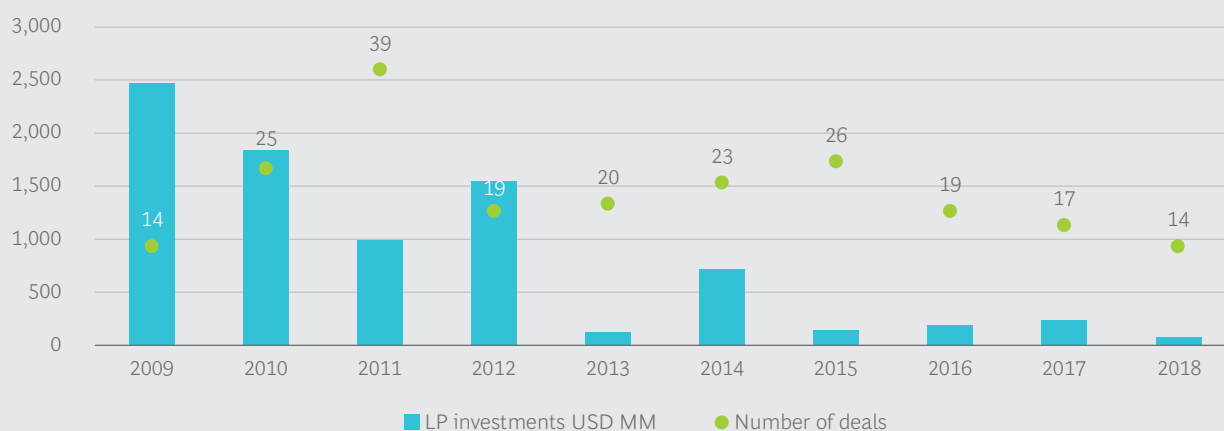
The decline of private equity funds?

Private equity dealmaking has soared to levels unseen since the financial crisis and the buyout boom does not show signs of stopping. According to Preqin, private equity shops have been accumulating dry powder that is estimated above \$2trn. Yet, our data suggest that SWFs did not herd onto the asset class but adopted a more cautious approach. SWFs are realizing that in order to create extra value for their stakeholders, they cannot just rely on passively committing capital to private equity funds. SWFs thus shifted strategies towards insourcing and developing of internal capabilities. This key goals, coupled with the high fees typically charged by fund managers, have induced SWFs to pull the brakes on the conventional LP model. Nonetheless, it must be acknowledged, our data on LP investments are scant and less systematic as deal information is usually not publicly available. As a result, the relative weight of this investment strategy might be underestimated.



With this caveat, our data show that LP investments have lost their importance in both absolute and relative terms. In 2009, SWFs had invested around \$2.5 billion as LPs which represented 4% of total invested value. Ten years later that value dropped to just \$75 million which represents only 0.21% of total invested value.

FIGURE 22 | LP investments



Source: Sovereign Investment Lab, Bocconi University

TABLE 1 | The league table of SWF limited partnerships

Top 10 deals						
SWF	Target	Country	Year	Sector	Value USD MM	Partners
China Investment Corporation (CIC)	Goldman Sachs Distressed Assets Fund	USA	2009	Banking, Insurance, Trading	1,000.00	Goldman Sachs
China Investment Corporation (CIC)	Apax Europe VII	UK	2010	Banking, Insurance, Trading	886.48	Apax Partners
Future Fund	Apax Partners Permanent Capital Vehicle	UK	2009	Banking, Insurance, Trading	490.70	Apax Partners
GIC Pte Ltd	Apax Partners Permanent Capital Vehicle	UK	2009	Banking, Insurance, Trading	490.70	Apax Partners
China Investment Corporation (CIC)	Apax VIII LP	UK	2012	Banking, Insurance, Trading	396.56	Apax Partners
Future Fund	Apax VIII LP	UK	2012	Banking, Insurance, Trading	396.56	Apax Partners
GIC Pte Ltd	Apax VIII LP	UK	2012	Banking, Insurance, Trading	396.56	Apax Partners
China Investment Corporation (CIC)	Carlyle Partners VI	USA	2014	Banking, Insurance, Trading	350.00	Carlyle Partners
China Investment Corporation (CIC)	Apax Partners Permanent Capital Vehicle	UK	2009	Banking, Insurance, Trading	293.15	Apax Partners
New Zealand Superannuation Fund	KKR Australia	USA	2014	Infrastructure & Utilities	250.00	KKR Australia

Limited partnerships and beyond: testing the co-investment model

Co-investments represent a hybrid model combining the traditional LP strategy with direct investing, allowing SWFs to benefit from building a closer relationship with the PE firm which can be leveraged to develop internal capabilities.

In the observed period we record a total of \$19.7 billion of co-investments which represents around 5% of overall private markets investment value. Although this number might seem negligible compared to the \$433 billion invested in private markets, the growth of pure co-investments has been remarkable. In 2018, capital deployed through co-investments was 11 times higher compared to 2010. In the same year, investments through this model represented 22% of total private market investments, whereas their share in 2010 was just 2%. The number of co-investments has also been rising rapidly: on average we record a 118% annual increase in the number of deals classified as co-investments. It must be noted, however, that the same data availability issues affecting LP investments apply also co-investments so that the reported figures represent a conservative estimate of the actual numbers.

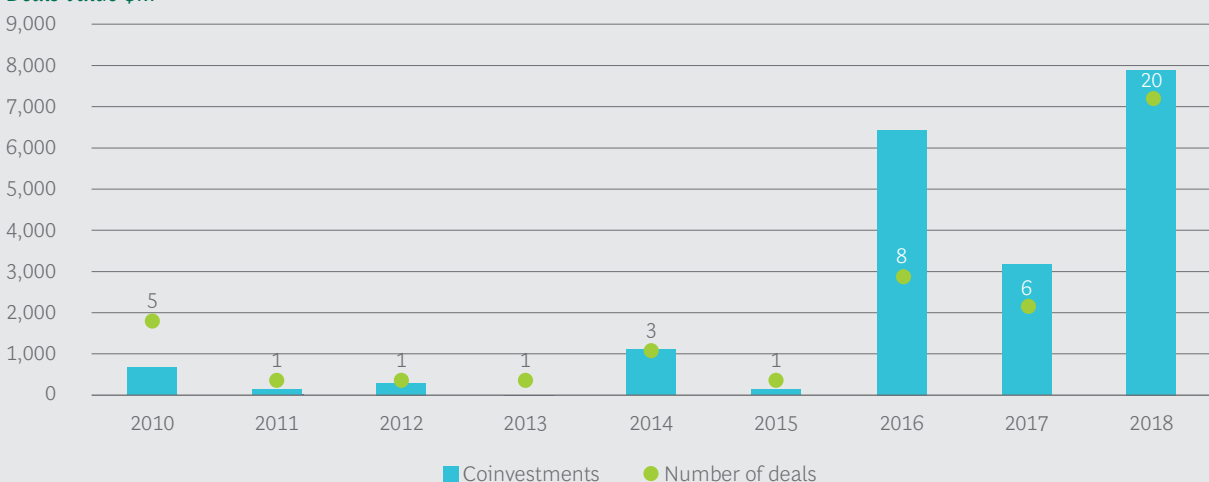
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Co-investments represent a hybrid model combining the traditional LP strategy with direct investing, allowing SWFs to benefit from building a closer relationship with the PE firm which can be leveraged to develop internal capabilities.

Many SWFs have positioned technology investing as a key pillar in their future plan and strategy, however, at least at this point in time, most of them lack the necessary knowledge and experience. In order to bridge this gap, SWFs have extensively utilized co-investments in the technology sector. A remarkable 51% of invested value through co-investments has been placed in high-tech target companies. Some notable examples are: GIC partnering with The Carlyle Group to acquire Veritas Technologies for \$7.4 billion, Mubadala investing in Uber's Chinese challenger Didi and a number of pure venture deals by Temasek.

FIGURE 23 | Coinvestments

Deals value \$M



Source: Sovereign Investment Lab, Bocconi University

TEMASEK'S LONG JOURNEY IN PRIVATE MARKETS

Singapore's Temasek Holdings has pursued a very effective collaborative investment strategy, advancing along a trajectory that has enabled it to significantly advancing internal capabilities and exposure to private markets.

Already before the financial crisis, about 25% of Temasek's private-market portfolio consisted of pure co-investments (i.e. deals where Temasek was not the sole or lead partner in the deal, but which had a lead PE fund partner). In these early stages, Temasek's investments outside Asia accounted for only 20% of their total activity. As the fund's model and risk appetite evolved, Temasek started to become more active in the co-investments and direct investment space (i.e. all private-equity and venture-capital strategies, where Temasek jointly-sponsored or led a deal), using the experience to amplify net returns and drive additional exposure to direct investing. Following this approach, by 2015, Temasek's co-investment share of its private market portfolio had already reached over 40%, with its exposure to global markets having increased to 30% of total.

Interestingly enough, in the last three years, we have observed Temasek's long-term approach to co-investments paying back in terms of access to direct deals. Today Temasek has a strong direct investments programme, with offices in major global financial hubs outside of Asia (New York and London), with direct private-equity and venture-capital investments accounting for 60% of the portfolio.

Temasek has become a successful direct investor through a gradual evolution from being an investor in funds, to partnering in co-investments, and on to direct solo investor, with further levels of sophistication around types of direct investing (mature vs. early or growth stage). Having strong LP-GP

relationships with major private-equity funds is of critical importance for ongoing co-investment volume and knowledge exposure to emerging areas. At the same time, strategies can gradually evolve from being purely focused on domestic regional investments, to include a broader global reach as the fund strengthens its internal capabilities and expands its reach.

Across multiple co-investment examples, we observe that Temasek's model and approach is characterised by a relatively high level of maturity, strong experience and a 'quasi-private-equity fund' appetite for direct investments, and a high level of engagement with their co-investment partners.

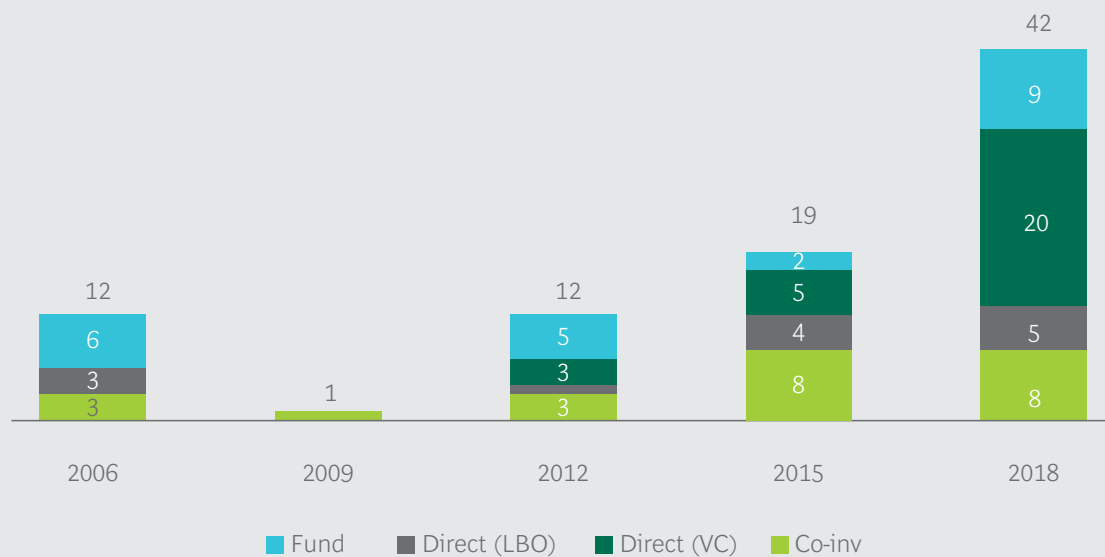
Temasek's success can be attributed to three key elements: a strong and experienced team in line with international standards for private-equity funds, a forward-thinking approach to investing in advanced or complex technology sectors, and a structured process for undertaking direct investments.



An example of Temasek's approach to successful co-investments is its 2017 investment in The Real Pet Food Company, an Australian supplier of chilled pet food, for \$770 million. Despite Temasek not being the leader in the deal, it had an active role throughout the investment assessment

process, developing their independent due diligence on the asset and forming their own opinion on the attractiveness of the investment. Post-acquisition, Temasek is actively engaged with the other partners in the deal to help drive the asset's North American and Chinese market expansion.

Temasek: Private markets capital deployment (Number of deals)

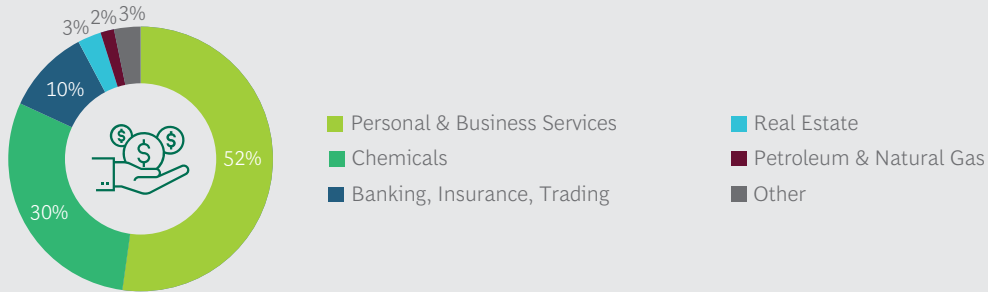


Source: Sovereign Investment Lab, Bocconi University



GIC so far has been leading the pack in co-investments. 81% of total co-investments value can be ascribed to the Singaporean fund. Furthermore, together with its sister fund Temasek, they account for almost 90% of investment value. This demonstrates the trailblazer status of Singaporean funds and their determination to be among the first to reach the next stage of SWF investing.

FIGURE 24 | Coinvestments (\$M)



Source: Sovereign Investment Lab, Bocconi University

FIGURE 25 | Coinvestments (\$M)



Source: Sovereign Investment Lab, Bocconi University



TABLE 2 | The league table of SWF coinvestments

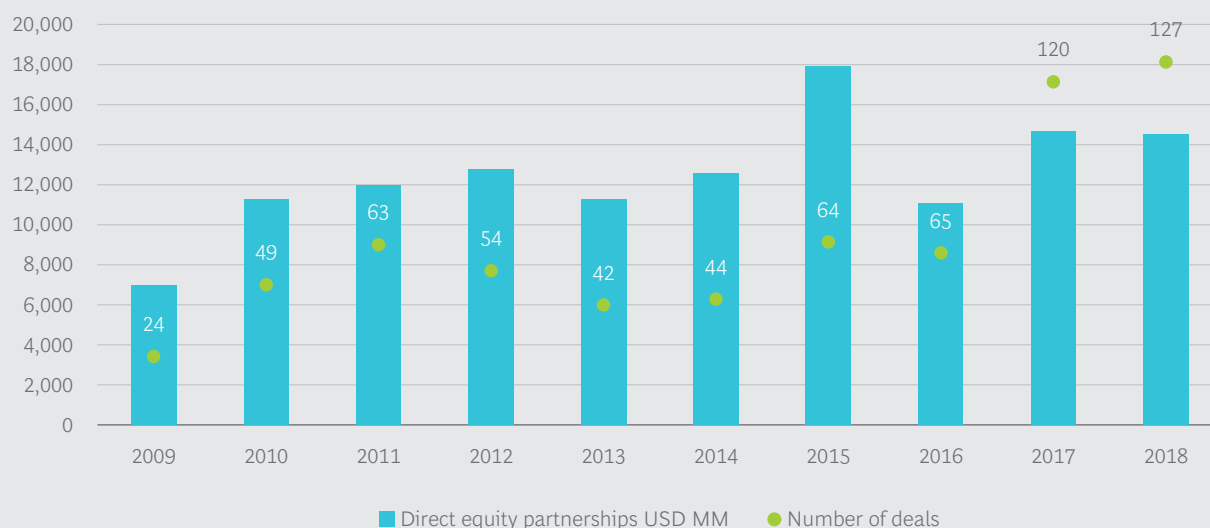
Top 10 deals						
SWF	Target	Country	Year	Sector	Value USD MM	Partners
GIC Pte Ltd	Akzo Nobel's NV Speciality Chemicals Unit	Netherlands	2018	Chemicals	5,850.00	The Carlyle Group
GIC Pte Ltd	Veritas Technologies Corporation	USA	2016	Personal & Business Services	3,700.00	The Carlyle Group
GIC Pte Ltd	Multiplan Inc.	USA	2016	Personal & Business Services	2,500.00	Hellman & Friedman LLC Leonard Green & Partners LP
Mubadala Investment Company PJSC	XIAOJU KUAIZHI INC.	China	2017	Personal & Business Services	2,000.00	Softbank
GIC Pte Ltd	ANT FINANCIAL SERVICES GROUP	China	2018	Personal & Business Services	1,076.92	Khazanah Nasional Berhad, Warburg Pincus, Canada Pension Plan Investment Board, Silver Lake, Temasek, General Atlantic, T. Rowe Price Associates, Inc., The Carlyle Group, Janchor Partners, Discovery Capital Management, Baillie Gifford, and Primavera Capital
GIC Pte Ltd	ALLFUNDS BANK SA	Spain	2017	Banking, Insurance, Trading	994.48	Hellman & Friedman
Temasek Holdings Pte Ltd	NN Group NV	Netherlands	2014	Banking, Insurance, Trading	725.11	RRJ Capital
GIC Pte Ltd	Blocks A and B of Hwaseong Dongtan Logistics Complex	South Korea	2018	Real Estate	570.00	ADF Asset Management
GIC Pte Ltd	Kronos Inc	USA	2014	Personal & Business Services	375.00	Blackstone, Hellman & Friedman and JMI Equity
Temasek Holdings Pte Ltd	Kunlun Energy Co.	China	2012	Petroleum & Natural Gas	300.00	RRJ, CIC



The only game in town: the rise of direct equity partnerships

Boasting an average annual growth rate in invested value of 12.3%, direct equity partnerships have been rapidly gaining ground in the last ten years. In 2009, they represented just a little less than 10% of total SWF investment. In 2018, a whopping 41% of private markets invested value has been deployed through direct equity partnerships. Cumulative values in the observed period show that direct equity partnerships with \$125 billion and 652 deals are SWFs preferred option when they are not investing solo.

FIGURE 26 | The rise of direct equity partnerships

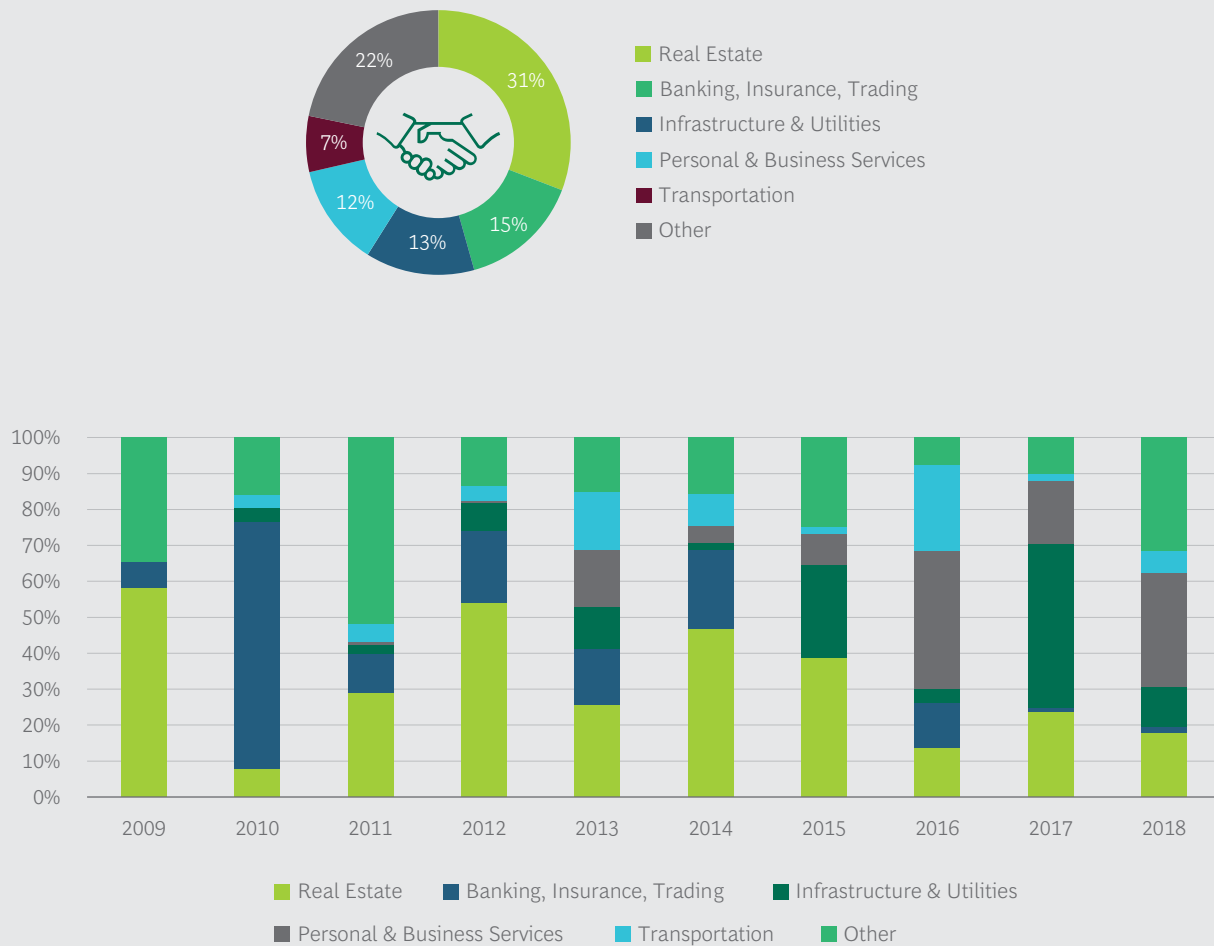


Source: Sovereign Investment Lab, Bocconi University

Direct equity partnerships have proved especially relevant in the real estate sector. The sector has accumulated \$38.5 billion of investments, or 31% of total partnerships, in the decade 2009-2018. Direct equity partnerships in real estate were particularly popular in the aftermath of the financial crises when SWFs were in search for safe assets and higher yields. Real estate, perhaps perceived as a less complex and relatively new investment class for many SWFs at the time, it seemed a natural choice for investment through direct equity partnerships. Financial services are the second most attractive sector for direct equity partnerships. However, a significant portion of the invested value accounts for SWFs investing in the sector during the crisis, whereas the sector has lost its popularity in the following years.

CIC and QIA were among the first SWFs to execute significant deals through the direct equity partnerships model, Singaporean GIC and Temasek quickly caught up and have been dominating this space since the beginning of the decade. The Singaporean funds invested around \$45 billion through direct equity partnerships in the observed period, accounting for 36% of total invested value. In terms of geography, the lion's share of value, nearly 50% of the total, was deployed in Asia.

FIGURE 27 | Direct equity partnerships (\$M)



Source: Sovereign Investment Lab, Bocconi University



MUBADALA LEVERAGING CO-INVESTMENTS TO MATURE INTO A GLOBAL DIRECT FINANCIAL INVESTOR ACROSS SECTORS

Mubadala investment objectives and approach have evolved over the last decade, from a double bottom-line and locally focused investor, into a diversified and financially driven global one. We observe a particularly clear change of pace in global investments after 2011-2012, with the share of deals made outside of the MENA region jumping above 60-70%.

Throughout this journey, Mubadala has established multiple relationships with global investment funds, in a LP capacity, as well as investment platforms and partnerships, that have enabled it to successfully expand its investment reach across new markets and sectors. As the fund's model and risk appetite has evolved, Mubadala has become progressively more active in co-investments and direct investments space, leveraging an increasingly strong bench of internationally-trained sector-focused investment teams, its financial strength, the scale of its portfolio, and its global relationships.

Particularly relevant is Mubadala's foundation of investment partnerships across sectors, which have allowed it to de-risk their investments while getting exposure to new areas. A recent example is the 2019 acquisition of Wefox Group, a German platform for mobile insurance comparison. The deal was done together with CreditEase, a leading Chinese FinTech conglomerate, which would enable deeper understanding of the technology and potential, as well as facilitate faster expansion to the Chinese market.

Building on the expertise developed through some of these partnerships, as well as on its long history of global tech investments (started with the acquisition of an 8.1% stake in AMD in 2007), Mubadala overtime has established itself as a large and reputable investor in the technology space. This led in 2017 to the establishment of Mubadala's own VC arm, which today is comprised of: Mubadala Ventures Fund I, a \$400 million early growth venture capital fund setup jointly by Mubadala and SoftBank, a \$200 million ventures fund of funds, a \$15Bn commitment in SoftBank's Vision Fund and, more recently, a \$400M European tech fund. Following the experience of other Sovereign investors (e.g. Temasek) Mubadala VC arm has two global offices, one in San Francisco and now one in London, to enable direct market and pipeline access.

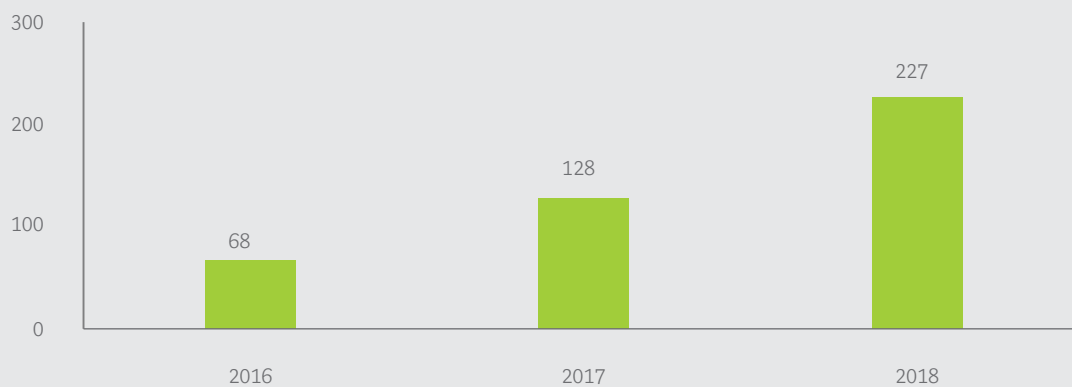
Overtime, Mubadala has also been able to leverage the UAE diplomatic relationships and reach in order to establish significant government to government investment platforms, which have allowed it access to a unique pipeline of deals in other markets. In this regard, the relationship with CDC International Capital and Bpifrance established in 2017 is probably the best example. The objective is to target primarily tech direct investments in the French economy with a funding capacity of up to \$1Bn. Also in this case, Mubadala's global credibility as a tech investor, as well as its ability to build a strong team of investment experts with global networks and

relationships has been instrumental. Similar to other SWF, Mubadala has been able to increasingly leverage its strong network of LP relationships as well as partnerships to

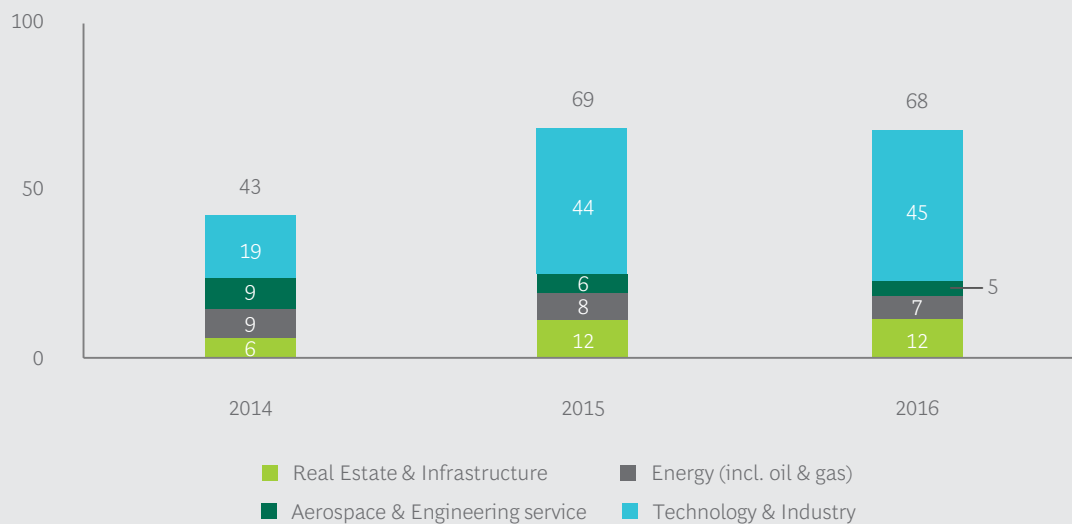
propel its ability to invest directly, potentially alone depending on their access and risk appetite, across sectors and markets.

Mubadala: Private markets overview

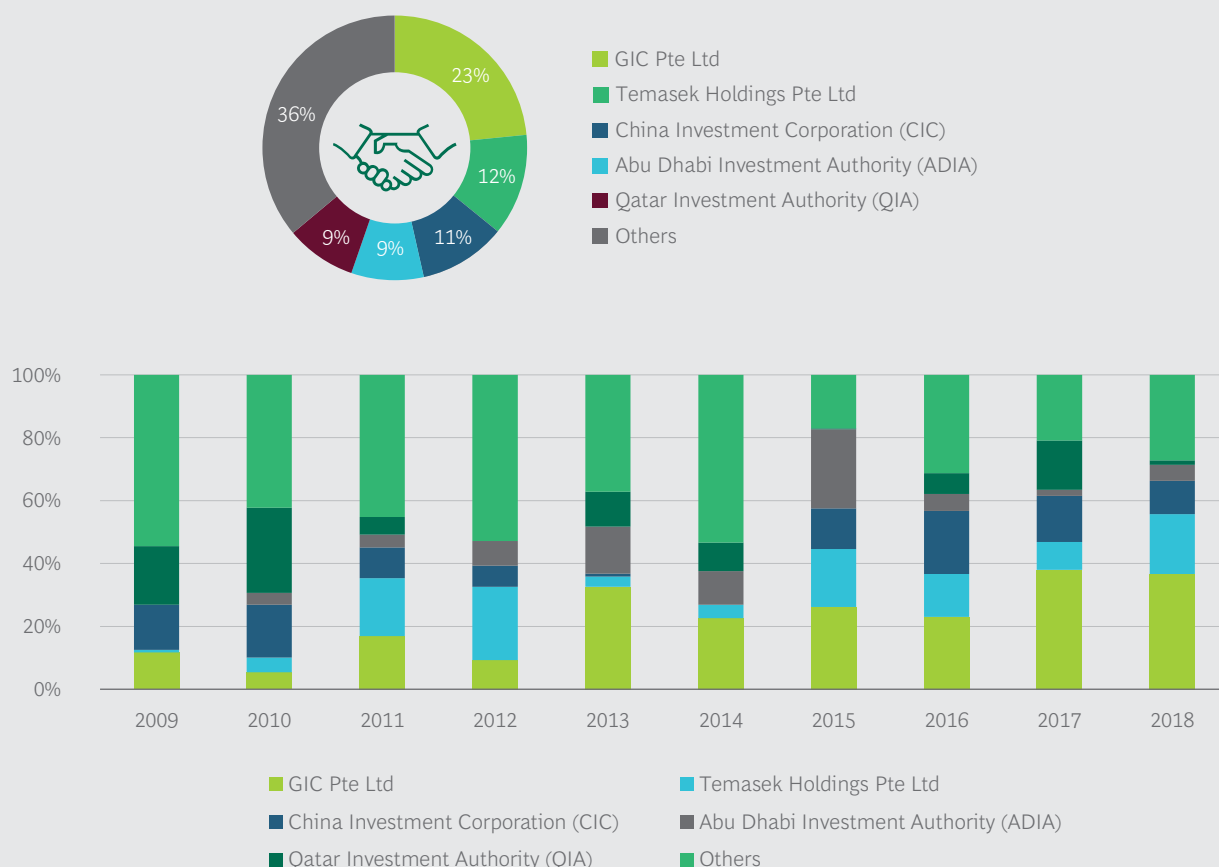
AUM (\$B)



Share of Net AUM (%)



Source: Sovereign Investment Lab, Bocconi University

FIGURE 28 | Direct equity partnerships (\$M)


Source: Sovereign Investment Lab, Bocconi University

TABLE 3 | Direct equity partnerships top 10

Top 10 deals						
SWF	Target	Country	Year	Sector	Value USD MM	Partners
GIC Pte Ltd	IndCor Properties Inc	USA	2015	Real Estate	3,645.00	Global Logistic Properties
Qatar Investment Authority (QIA)	Agricultural Bank of China	China	2010	Banking, Insurance, Trading	2,800.00	Kuwait, National Social Security Fund, Temasek
Khazanah Nasional Bhd	M+S Pte Ltd	Singapore	2012	Real Estate	2,786.65	Temasek
National Social Security Fund	CITIC Pacific	China	2014	Banking, Insurance, Trading	2,200.00	QIA, Temasek
National Social Security Fund	Agricultural Bank of China	China	2010	Banking, Insurance, Trading	2,195.07	Kuwait, QIA, Temasek
Mubadala Development Company PJSC	The Foundry Company	USA	2009	Communications	2,100.00	ATIC
Mubadala Development Company PJSC	Aluminium Smelter in Sarawak	Malaysia	2011	Construction & Construction Materials	2,100.00	1Malaysia Development Berhad
Temasek Holdings Pte Ltd	M+S Pte Ltd	Singapore	2012	Real Estate	1,857.77	Khazanah Nasional Bhd
GIC Pte Ltd	BMC Software Inc	USA	2013	Personal & Business Services	1,677.53	Bain Capital and Golden Gate Capital
Temasek Holdings Pte Ltd	HOMEPLUS CO., LTD	South Korea	2015	Retail	1,600.00	Canada Pension Plan Investment Board, Korea's Public Sector Pension Investment Board

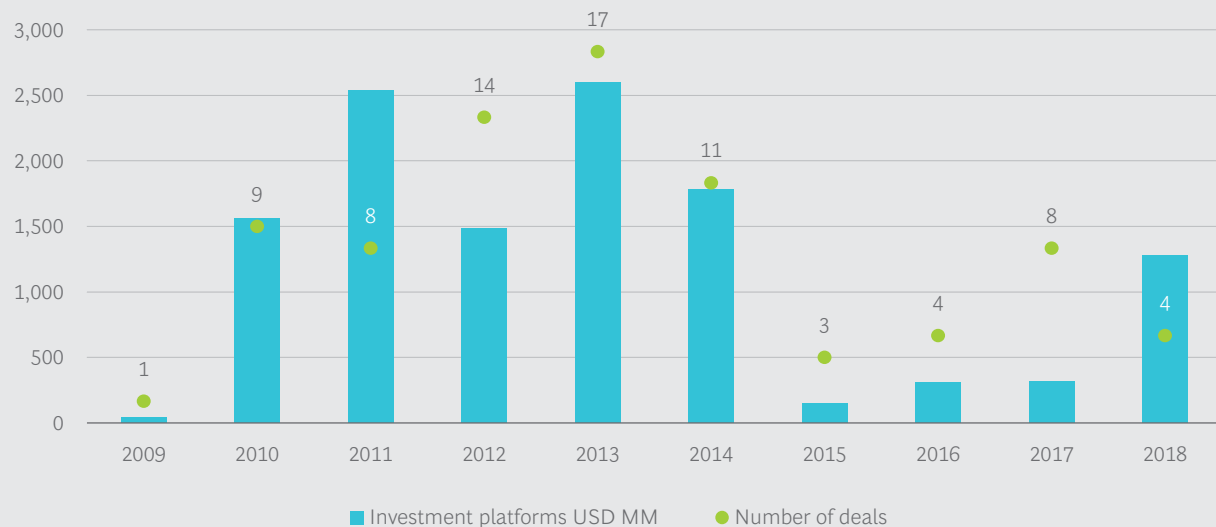
Teaming up: platforms and investment alliances

Investment platforms are a more complex form of co-investment model than direct equity partnerships. Vehicles created by a SWF and a partner focusing on specific industries or geographies seeking to make multiple investments are considered as platforms. The longer life span of the vehicle and the opportunity to leverage on the partners' knowledge and familiarity with the industry or region provide ample learning potential for the SWF, especially if the fund decides to assume a more active role in the investment process.

Platforms as a co-investment model for SWFs are recent: as a result, the absolute value, \$12bn, of capital deployed through this model is quite low compared to the rest. In terms of number of investments, platforms have been growing on average 95% every year. However, the lion's share comes from the time period 2011-2014, where SWFs executed around 70% of deals recorded in this category. In the past year we witnessed a surge in popularity of platforms, but it is still too early to assess whether SWFs will continue embracing this investment approach.

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FIGURE 29 | Investment platforms



Source: Sovereign Investment Lab, Bocconi University

The financial sector, with \$6.5 billion or 54% of investment value in platforms is the most popular sector, followed by real estate with \$3.8 billion and transportation with \$1 billion. PE houses were among the first players in the investment world to recognize the potential of SWFs and were quick to react by inviting SWFs as cornerstone investors in their funds, and later as co-investors, reflected by the large portion of platforms in the financial sector. It may be only a matter of time when sophisticated players from other industries realize this potential and start proactively seeking out sovereign capital.

Asian funds lead the pack in platform investments. National Social Security Fund, GIC and CIC have deployed around \$5.1 billion through platforms, that is 42% of total investment value through this strategy. Accordingly, almost 50% of the invested value targeted the Asian region.

KHAZANAH NASIONAL INVESTMENT PARTNERSHIPS TO GAIN ACCESS AND EXPOSURE

Since its incorporation in 1993, Khazanah Nasional has focused mainly on developing the Malaysian economy; 80% of Khazanah's investments are in Malaysian companies, highlighting the fund's primary strategic focus on "core and or catalytic investments" which generate value within the national borders. While investments within Malaysia are done mostly by Khazana alone, without support from partners or platforms, when venturing into regional or global deals, Khazana has leveraged both partnerships and platform approaches to gain access to deals, supplement their understanding of the markets, as well as to minimize its risk exposure.

In particular, investment partnerships appear to be the model of choice for Khazana, covering an average of about 50% of deals made in each year from 2010 until today. Two relevant and recent examples of partnerships would be:

- M+S is 60:40 joint venture established in 2011 between Khazanah and Temasek to develop two mixed-use Real Estate developments in Singapore. Both projects finished by end of 2017 with a value of about \$8B, and Khazanah is in talks to sell its stake to Temasek to monetize its investment.
- A consortium of investors led by Khazanah, and including Warburg Pincus and Golsman Sachs acquired 21% of China Huarong Asset Management for \$2.35B in 2014, one year before exiting via an IPO

Khazana has also tested the investment platform model; in 2012 in fact it established an infrastructure development platform together with Infrastructure

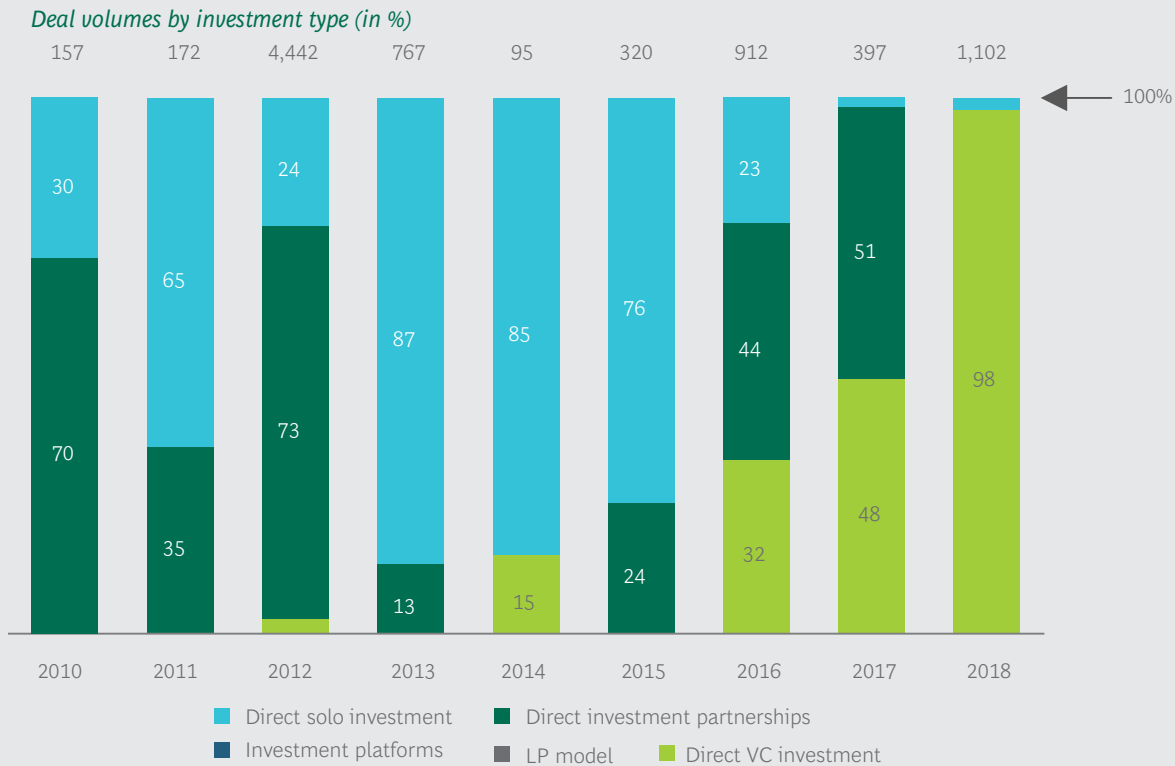
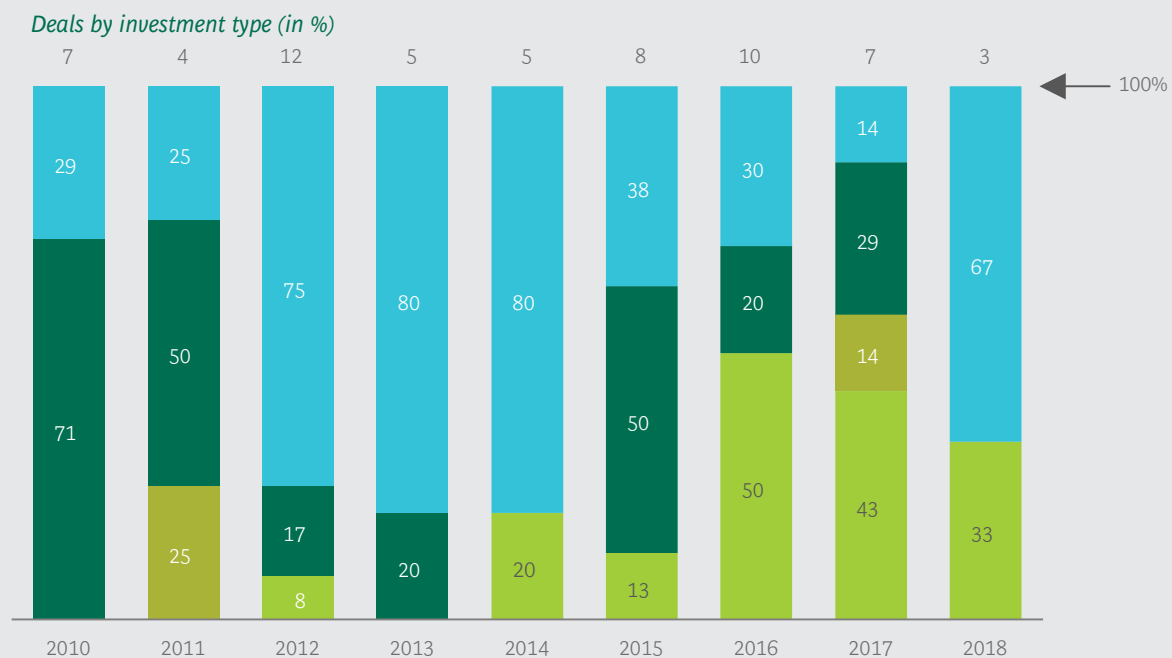
Development Finance Company Limited (IDFC), focusing on investments in Indian roads, and it holds 80.1% of the equity. Nonetheless, this model has not been replicated further since 2012, with the focus progressively shifting towards more technology-focused investments, both direct as well as through funds.

Khazana's progression towards direct investments in tech has been characterized by participation in co-investment deals with a larger number of investors (average number of investors per deal from 1.9 in 2010 to 7.4 in 2018), showcasing the fund's approach to minimizing risk and accessing larger deals (average deal size in 2017 of about \$600m, 10x from 2010). Recent VC investments are mainly focused with the TMT space (from 20% in 2014 to 40% in 2018), as well as clean-tech, potentially indicating an effort to enhance sector expertise before making direct solo investments.

In 2010, Khazanah entered the clean-tech sector through a \$30m JV with Camco, a UK-based clean-tech fund. Investing with an expert player in a new market, Khazanah was able to commercially develop the sector, gain institutional knowledge and establish a business platform.

Relatively smaller in terms of exposure are Khazana's investments in tech through funds, amounting to only 14% of the deals made in 2017. Relevant examples are Khazana's undisclosed LP investments in Ancora Capital Management's fund II (Indonesia-focused growth fund), as well as in Atomico's fund (early stage investments focused on Europe's largest technology hubs).

Khazanah's investment strategy over time



Source: Sovereign Investment Lab, Bocconi University

RDIF'S INVESTMENT PLATFORM TO ATTRACT FDI'S

The Russian Direct Investment Fund is a good example of highly effective and focused investment platform. Established in 2011 by the Russian government as a private equity fund with \$10Bn in capital, RDIF serves as the main partner or “gateway” for foreign investors to access deals in Russia, with the fund’s participation in deals as an anchor or co-investor significantly reducing risks for foreign partners. By design, RDIF can participate in investments with up to 50% of the total transaction size, with the attraction of foreign capital being a key condition for investments approval; target of 9 to 1 FDI to RDIF investment ratio.

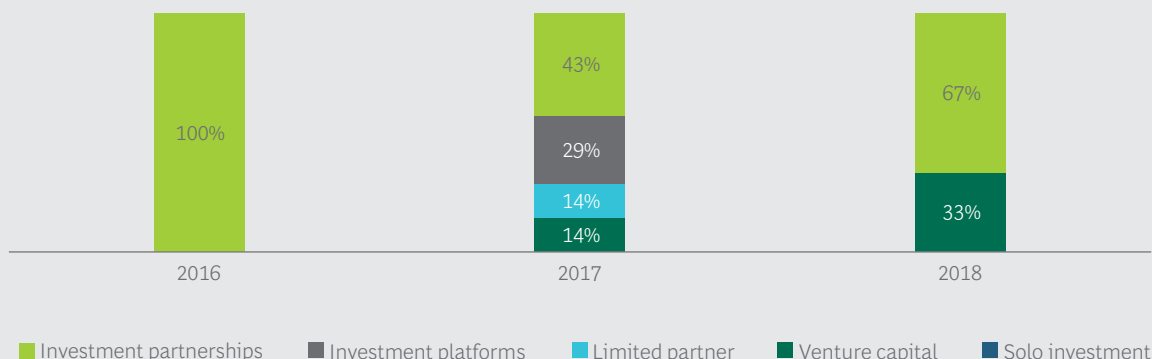
With this approach, RDIF has been able to play an important role in developing investment cooperation between Russia and the rest of the world. Since 2012, RDIF has in fact developed cooperation agreements across different sectors with partner investors from over than 15 countries (primarily Middle East and Asia), attracting so far over \$ 40Bn in joint investment funds. Notable examples are the partnership with Mubadala (\$2Bn committed capital,

launched in 2013), the Russia-China Investment Fund (RCIF, \$2Bn committed capital, launched in 2012), Russia-Japan Investment Fund (RJIF, \$1Bn committed capital, launched in 2017), as well as the \$500M commitment to automatic investments made by the Kuwait Investment Authority in 2012, later increase to \$1Bn.

Based on publicly available information, it appears that the majority of investments are executed by RDIF either with participation of existing platform partners only, or through a mixed model which includes platform investors (firstly those committed to automatic co-investments) as well as new, deal-specific co-investment partners.

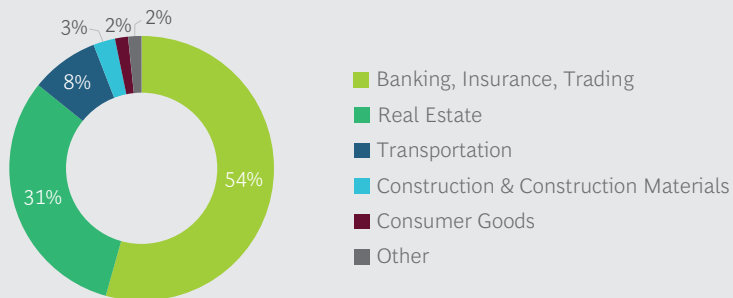
More recently RDIF, along with several other government entities, has been participating also in the “Investment Lift” program, which supports promising Russian small and medium size companies through equity financing, as well as through strategic and operational support. The first project within this program was financed in 2018 and demonstrates RDIF’s efforts to diversify its investment strategy while continuing to have an impact on the Russian economy.

Deals according to co-investment model (%)



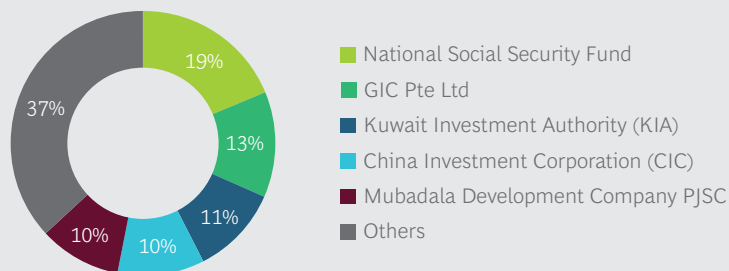
Source: Sovereign Investment Lab, Bocconi University

FIGURE 30 | Investment platforms (\$M)



Source: Sovereign Investment Lab, Bocconi University

FIGURE 31 | Investment platforms (\$M)



Source: Sovereign Investment Lab, Bocconi University

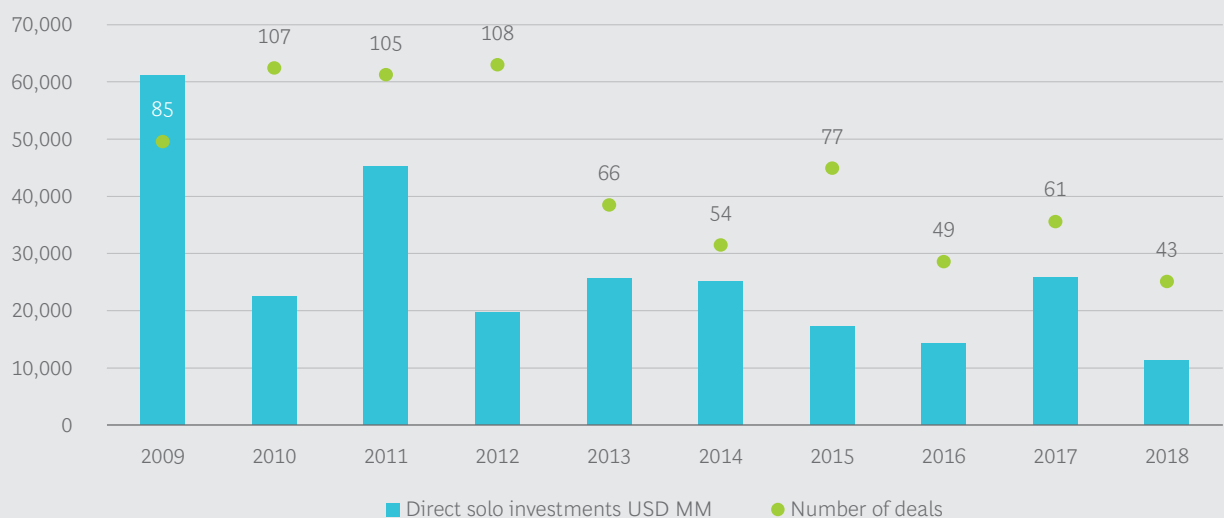
TABLE 4 | The league table of SWF investment platforms

Top 10 deals						
SWF	Target	Country	Year	Sector	Value USD MM	Partners
China Investment Corporation (CIC)	CIC-JC Flowers Financial Assets	USA	2008	Banking, Insurance, Trading	3,200.00	CIC-JC Flowers Financial Assets
Mubadala Development Company PJSC	RDIF-Mubadala Co-Investment Fund	Russia	2013	Banking, Insurance, Trading	1,000.00	RDIF
GIC Pte Ltd	GLP/GIC Logistics fund	China	2018	Transportation	1,000.00	GLP
Temasek Holdings Pte Ltd	Hopu USD Master Fund I	China	2008	Banking, Insurance, Trading	1,000.00	Hopu USD Master Fund I
Kuwait Investment Authority (KIA)	FSI INVESTIMENTI SPA	Italy	2014	Banking, Insurance, Trading	684.55	FSI INVESTIMENTI SPA
National Social Security Fund	Shanghai SDIC Xieli Development Fund	China	2014	Banking, Insurance, Trading	660.44	Shanghai SDIC Xieli Development Fund
National Social Security Fund	China Electronics Innovation Fund	China	2013	Banking, Insurance, Trading	643.20	China Electronics Innovation Fund
Qatar Investment Authority (QIA)	Wessal Capital	Morocco	2010	Real Estate	625.00	International Petroleum Investment Company (IPIC), KIA
Kuwait Investment Authority (KIA)	Wessal Capital	Morocco	2010	Real Estate	625.00	International Petroleum Investment Company (IPIC), QIA
International Petroleum Investment Company (IPIC)	Wessal Capital	Morocco	2010	Real Estate	625.00	KIA, QIA

The demise of solo investments

Direct solo investing is SWFs end-goal in their journey with in private equity markets. In view of this, it might seem surprising that the share of this investment strategy is rapidly decreasing, instead of gradually taking up a larger slice of the pie. However, as we have previously mentioned, we expect SWFs to face many challenges along the way and to eventually reimagine their investment strategy through a process of trial-and-error. One can argue that SWFs rushed their way into solo investing at the beginning of the decade only to realize later they weren't sufficiently prepared, and that at this point, they might benefit more from the learning opportunities of other investment strategies until they ultimately revert back to direct solo investments. Indeed, SWFs' direct investments did not seem to have added much value over the long term. Bortolotti et al. have shown that the performance of SWF direct equity investments in publicly traded firms is lower than the one of comparable private investments. The persistence of this "SWF discount" and this might have induced funds to change strategies in the direct equity space in favor of collaborative investment models (Sudarskis, 2011).

FIGURE 32 | Direct solo investments



Source: Sovereign Investment Lab, Bocconi University

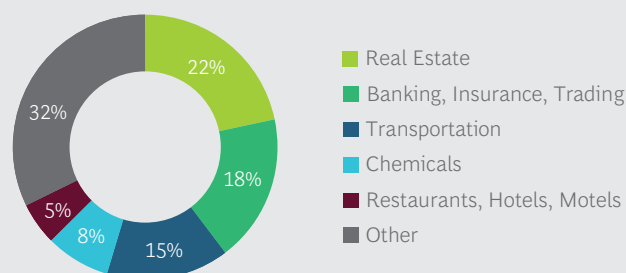


Direct solo investments have shrunk in both invested value and number of deals. In 2009, SWFs deployed around 87% of their capital in private markets through direct solo investments. Furthermore, 69% of all deals in private markets were solo investments. Going to 2018, SWFs used this model in only 21% of their investments which account for 32% of invested value.

“SWFs’ direct investments did not seem to have added much value over the long term and this might have induced funds to change strategies in the direct equity space in favor of collaborative investment models.”

Similar to direct equity partnerships, the lion’s share of direct solo investments has targeted the real estate sector. Perhaps the lower perceived complexity of the industry along with a certain appetite for trophy assets have attracted \$58 billion worth of SWFs investment value, almost a quarter of total invested value through direct solo investments. Right behind real estate, with \$48 billion of invested value there is the financial industry. However, it is important to note that almost half of that value was invested in domestic markets as a way to support the sponsoring country’s financial system in times of need.

Qatar Investment Authority with \$62 billion invested value and China Investment Corporation with \$49 billion are the most active funds in direct solo investments. Together they make up a little over 40% of overall investment value in this category. An interesting detail is that both funds have significant amounts of domestic investments. QIA has invested a third of the \$62 billion at home, while CIC directed a quarter of their \$49 billion at domestic companies.

FIGURE 33 | Direct solo investments \$M 2009-2018

Source: Sovereign Investment Lab, Bocconi University

FIGURE 34 | Direct solo investments \$M 2009-2018

Source: Sovereign Investment Lab, Bocconi University

TABLE 5 | The league table of direct solo investments

Top 10 deals					
SWF	Target	Country	Year	Sector	Value USD MM
China Investment Corporation (CIC)	LOGICOR EUROPE LTD	UK	2017	Transportation	14,418.37
Qatar Investment Authority (QIA)	Qatar Railways Development Company	Qatar	2009	Transportation	13,260.00
Abu Dhabi Investment Council (ADIC)	Abu Dhabi National Chemicals Company (ChemaWEyaat)	UAE	2009	Chemicals	8,000.00
National Pension Reserve Fund	Allied Irish Banks PLC	Ireland	2011	Banking, Insurance, Trading	7,264.00
Temasek Holdings Pte Ltd	AS Watson Holdings Ltd	China	2014	Retail	5,671.73
Public Investment Fund (PIF)	Uber Technologies Inc.	USA	2016	Personal & Business Services	3,500.00
China Investment Corporation (CIC)	GDF Suez Exploration & Production SA	France	2011	Petroleum & Natural Gas	3,258.71
China Investment Corporation (CIC)	China Export & Credit Insurance Corp.	China	2012	Banking, Insurance, Trading	3,210.00
China Investment Corporation (CIC)	China Export and Credit Insurance Corporation (Sinosure)	China	2011	Banking, Insurance, Trading	3,150.00
Qatar Investment Authority (QIA)	Doha Global Investment	Qatar	2013	Banking, Insurance, Trading	3,000.00



SWFs' journey in private markets is certainly not a linear process of disintermediation. Rather, it is a transition mostly driven by testing different models and adapting and optimizing investment strategies along the way. We are not claiming that collaborative direct equity investments are the ultimate, one-size-fits-all investment model for all SWFs. In all likelihood, funds will diversify their investment strategies, maintaining sizable allocations to more conventional limited partnerships with private equity funds. We claim, however, that a visible trend is unfolding, and that the emerging strategies adopted by SWFs including insourcing, learning, branching abroad, and teaming up are all broadly consistent with the objective of getting a better understanding of investments in private markets.

In the bumpy road towards direct equity investing, SWFs will face common challenges with other institutional investors. Overstretched valuations in most segments of the market and intense competition for assets driven by the recent trend of mega fundraising will make it difficult to thrive in this compelling environment. SWFs, however, will be tested also on a different ground, namely governance.

Indeed, financial intermediaries such as private-equity funds are costly, but also a reassuring presence for both targets and recipient countries, as they can provide a shield from political interference. Commercial objectives and financial returns are in the DNA of private equity firms, and SWFs role as LPs signaled a credible commitment to passivity. As SWFs shift to direct equity, politically motivated investments become an issue abroad and at home. Indeed, SWF as large, direct shareholders in firms will be called to take a more active stance than they have displayed in the past, and this may raise political concerns. The presence of highly



skilled private investment partners mitigate the risk, but still SWFs will have to adapt their upstream governance systems vis-à-vis their sponsoring governments to ensure managerial independence while keeping accountability.

SWF as large, direct shareholders in firms will be called to take a more active stance than they have displayed in the past, and this may raise political concerns.

In this respect, an interesting development is taking place in Norway, where the government is considering an expert committee proposal to take the \$1 trillion Government Pension Fund Global out of the central bank and into its own independent organization. A reserve fund would naturally be housed in the central bank and focus

on public assets, while an endowment could have greater independence and delve more into infrastructure and property, as well as other private and less liquid assets. In a recent Financial Times interview, Yngve Slyngstad, the CEO of Norges Bank Investment Management, which manages the fund, claimed that “the central bank has been clear that this is a question of investment strategy and not a question of organisation. It is a question of how we want to think about the fund in a bigger context. That is why this decision is the most important for the last 20 years for the fund.”

SWFs – small and large - are bound to take important decisions with regards to their approach to direct private equity investments, and the multiple models identified in this report will still need a few years to prove their effective returns. This said, we believe that, given SWFs significant and increasing value allocation to private markets in search of sustained returns, adopting a broad set of strategies, including the multiple models outlined in this paper, would allow them to diversify and reduce their risk exposure in this asset class. Such approach would also allow SWFs sufficient time to ramp up their internal capabilities, given the strong need for transactional and sectorial expertise, together with access to a pipeline of deals, to perform well in direct private markets investments.



References

Bortolotti, B., Massi, M. Coming of Age: The Evolution of Global SWF Equity Investment, in IFSWF Annual Review, 2018.

Bortolotti, B., Fotak, V., Megginson, W.L., The Sovereign Wealth Fund Discount: Evidence from Public Equity Investments, The Review of Financial Studies, 28 (11), 2993–3035, 2015.

El Erian, M., The Only Game in Town: Central Banks, Instability, and Avoiding the Next Collapse, Yale University Press, 2017.

Fang, Lily H. and Ivashina, Victoria and Lerner, Josh, The Disintermediation of Financial Markets: Direct Investing in Private Equity, Journal of Financial Economics, 116 (1), 160-178, 2015.

Lopez, Diego, SWFs as Grown Up Investors, SWF 2018, IE Foundation, 2019

Lopez-de-Silanes, F., Phalippou, L., & Gottschalg, O., Giants at the Gate: Investment Returns and Diseconomies of Scale in Private Equity Journal of Financial and Quantitative Analysis, 50(3), 377-411, 2015

Preqin, Global Alternatives Reports, 2019.

Sudarskis, G. Direct Investments by Sovereign Wealth Funds: A practitioner's view, in Follow the Money, SIL SWF Annual Report, Bocconi University, 2011.

Appendix: Data description and methodological note

The main source of this report is the SWF Global Transaction Database of the Sovereign Investment Lab (“SIL Database” from now onwards), at Bocconi University in Milan. The database tracks investment activity from 2000 to 2018 of 37 SWFs (see Table A. 1 below) for a total of 2,895 transactions representing an aggregated deal value of over 887 Bn USD. Data collected for each transaction originate from a mix of centralized sources (for example, Thomson One) and non-centralized sources (for example, sovereign wealth funds’ annual financial statements). Each transaction is characterised by a set of 99 variables, mapping several deal characteristics dimensions of the investing or the investee entity or the sector of activity of target companies of SWFs’ investments (“target company” or “target” from now onwards). For this study, we integrated the SIL Database with data on SWF investments as limited partners in private equity funds originating from Preqin. With respect to these additional data, it was not possible to identify the exact date of the SWF investment and, as a result, the fund vintage year was used as a proxy for the investment date.

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Given the objects of the study, a subset of the SIL Database was employed for the analysis and it was selected with these criteria:

- Transactions completed during the 10-year window 2009-2018 are considered. Deals announced or rumoured are excluded from the analysis
- Transactions in private markets and investment partnership strategies are the focus of this analysis. Listed target firms are only considered in order to highlight the magnitude of investments in private markets but are not the object of this study. Private markets are defined as
- Only investments in the equity of companies (referred as “Direct equity”), investment platforms (defined below) and investments in private equity funds (referred as “PE funds”) and real estate funds are taken into consideration. Other investment schemes are not considered for the analysis

The resulting sample comprises 1,748 SWF transactions in private markets from 2009 to 2018 for a total deal value of 433 Bn USD.

In order to map and draw inference from SWFs’ investment activities as solo or along with other partners, the following classification of different types of investment partnership was developed, based on the level of intermediation, from full to low intermediation.

PARTNERSHIP CLASSIFICATION	DESCRIPTION	SUB-CLASSIFICATION
LP Investment	The SWF invests in a private equity fund and it is thus a limited partner (LP). This represents the maximum level of intermediation because the SWF has little or no influence on investment decisions	-
Co-investment	<p>The SWF invests in a private equity fund and it is thus a limited partner (LP) but it also invests directly in a portfolio company of the private equity fund.</p> <p>As certain private equity houses manage many PE funds across the globe, when identifying co-investments, we consider as GP the parent company of the private equity fund, not the actual GP of the PE fund specific to the transaction.</p>	-
Investment platform	One or more SWFs commit funds into an investment vehicle which is managed by a GP, or create a joint-venture with pre-identified investment themes, target regions or sectors. Platforms differ from LP investors being the SWF the main anchor/lead investor of the platform. The capital share to trigger the platform status is 20%.	<ul style="list-style-type: none"> • <i>FDI Attraction Funds</i>: the platform focuses its investment activities in a specific country or region • <i>G2G Investment Funds</i>: a SWF commits capital in a platform establishes a JV with other SWFs or government-controlled entities and investments are carried out in the home country of the sponsoring funds • <i>Sectoral Investment Fund</i>: the platform invests in pre-identified industries and targets within or across countries
Direct equity partnership	The SWF invests in the equity of a target company with a PE fund, an industry operator or another partner. This category includes consortia established to jointly bid for a specific target.	-
Solo investment	The SWF invests alone in the equity of a target company, without investment partners.	-

TABLE A.1 | List of SWFs of tracked SWFs and their assets under management (AUM)

Country	Fund name	Inception year	Source of funds	AUM 2018 (USD BN)
Norway	Government Pension Fund – Global ^ε	1990	Commodity (Oil & Gas)	1,053.60
China	China Investment Corporation [§]	2007	Trade Surplus	941.42
UAE-Abu Dhabi	Abu Dhabi Investment Authority [†]	1976	Commodity (Oil & Gas)	683
Kuwait	Kuwait Investment Authority [†]	1953	Commodity (Oil & Gas)	592
Singapore	Government of Singapore Investment Corporation [†]	1981	Trade Surplus	390
Saudi Arabia	Public Investment Fund [†]	1971	Commodity (Oil & Gas)	360
Qatar	Qatar Investment Authority [†]	2005	Commodity (Oil & Gas)	320
China	National Social Security Fund [†]	2000	Trade Surplus	295
Singapore	Temasek Holdings ^μ	1974	Trade Surplus	235.11
UAE - Dubai	Investment Corporation of Dubai [§]	2006	Commodity (Oil & Gas)	230.05
UAE-Abu Dhabi	Mubadala Investment Company PJSC [§]	2017	Commodity (Oil & Gas)	226
Republic of Korea	Korea Investment Corporation ^{**}	2005	Government-Linked Firms	134.1
Australia	Australian Future Fund ^ε	2006	Non-Commodity	107.21
Russia	National Wealth Fund and Reserve Fund ⁶⁶	2008	Commodity (Oil & Gas)	77.1
Libya	Libyan Investment Authority [†]	2006	Commodity (Oil & Gas)	66
Kazakhstan	Kazakhstan National Fund [†]	2000	Commodity (Oil & Gas)	60.9
Brunei	Brunei Investment Agency [†]	1983	Commodity (Oil & Gas)	60
Turkey	Turkey Wealth Fund [†]	2016	Non-Commodity	40
Malaysia	Khazanah Nasional Berhad [§]	1993	Government-Linked Firms	38.85
Azerbaijan	State Oil Fund of Azerbaijan ^{***}	1999	Commodity (Oil & Gas)	35.81
UAE	Emirates Investment Authority [†]	2007	Commodity (Oil & Gas)	34
New Zealand	New Zealand Superannuation Fund ^ν	2001	Non-Commodity	27.2
Ireland	Ireland Strategic Investment Fund ⁶	2001	Non-Commodity	22.48
East Timor	Timor-Leste Petroleum Fund [†]	2005	Commodity (Oil & Gas)	16.6
Bahrain	Mumtalakat Holding Company [§]	2006	Government-Linked Firms	15.3
Russia	Russian Direct Investment Fund [†]	2011	Non-Commodity	13
UAE - Dubai	Istithmar World [*]	2003	Government-Linked Firms	11.5
Oman	State General Reserve Fund [*]	1980	Commodity (Oil & Gas)	9.15
Oman	Oman Investment Fund [†]	2006	Commodity (Oil & Gas)	6

Country	Fund name	Inception year	Source of funds	AUM 2018 (USD BN)
Angola	Fundo Soberano de Angola [†]	2012	Commodity (Oil & Gas)	4.6
Nigeria	Future Generations Fund ^{**}	2012	Commodity (Oil & Gas)	1.38
Panama	Fondo de Ahorro de Panama ⁶	2012	Non-Commodity	1.37
Palestine	Palestine Investment Fund ⁶	2003	Non-Commodity	0.99
Kiribati	Revenue Equalization Reserve Fund [*]	1956	Commodity (Phosphates)	0.65
Vietnam	State Capital Investment Corporatiod [†]	2005	Government-Linked Firms	0.5
Kingdom of Morocco	Fonds Marocain de Développement Touristique ⁶	2011	Government-Linked Firms	0.2
São Tomé & Príncipe	National Oil Account [*]	2004	Commodity (Oil & Gas)	<0.01
Total AUM				6,111.08

£ AUM as of 30th June 2018

† Estimate by SWF Institute as of August 2018

** AUM as of 11st June 2018

¥ AUM as of 30st September 2018

μ AUM as of 31 March 2018. For Temasek, the net portfolio value is reported.

ß AUM as of 30th June 2017

* Sovereign Investment Laboratory estimate of assets under management (AUM) as of December 2016

66As of 1st July 2018. The Russian Reserve Fund is as of 1st January 2018 exhausted

***As of 1st April 2018

ß AUM as of 31.12.2017

§ AUM as of 31st December 2016

SWFs of Morocco and Palestine have been added to the SIL list in 2015. Public Investment Fund has been added to the SIL list in 2016. Turkey Wealth Fund and Fondo de Ahorro de Panama have been added in 2018. Abu Dhabi Investment Council joined Mubadala as of March 2018

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