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2018 PREQIN GLOBAL PRIVATE EQUITY & VENTURE CAPITAL REPORT

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DATA PACK FOR 2018 PREQIN GLOBAL PRIVATE EQUITY & VENTURE CAPITAL REPORT

The data behind all of the charts and infographics featured in this report is available to purchase in Excel format. Ready-made charts and graphs are also available, and can be used for marketing materials, presentations or company reports.

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KEYNOTE ADDRESS: FINDING OPPORTUNITY IN THE CURRENT MARKET - Johannes Huth, KKR

Christopher Elvin: Let's start with the market environment. What are your views?

Johannes Huth: In almost every meeting we have with investors today, we are asked where we think we are in the market cycle. How can we put money to work in an expensive environment, are we concerned by the overhang of dry powder in the industry, and so on.

In part, the high valuation environment is a reflection of the economic resurgence that has occurred, largely uninterrupted in the developed economies, since the Global Financial Crisis of 2008-2009. The question of high valuations with respect to private equity is perhaps particularly pertinent given the continued outperformance of the asset class relative to public equity, and this strong relative performance is driving more investors to increase their allocations to the asset class. At the same time, a highly favourable exit environment has been generating sizeable distributions, much of which we believe will be channelled back into successor funds. All told, the volume of unused commitments in the private equity industry has been estimated at ~$1tn today, 76% of which is held in 2015-2017 vintage funds.[1]

In addition to these increasing amounts of private equity capital available, loose monetary policy and an environment of "easy money" mean that we see increased engagement from strategic investors in Europe, including foreign buyers that often have a significantly lower cost of capital than our own. As a result, we find that the average purchase price multiple for deals in Europe has increased to an average of 10.6x EV/EBITDA in 2017, higher than the 9.7x recorded in 2008.[2]

The reality is there have been concerns over high purchase prices for at least the last three years, but to have held back from the market during this timeframe would undoubtedly have been a mistake - there have been some excellent deals executed during this period that have already demonstrated impressive results. The European private equity market is large, and is less well penetrated than it is in the US. To put this in context, European private equity investments in recent years have accounted for between 0.2% and 0.3% of total European GDP, as compared to over 1.0% in the US.[3] We are not, therefore, deterred by the volume of dry powder, and regard buyers prepared to pay higher multiples as an opportunity, rather than a threat. Provided we can continue to find businesses where we can help optimize performance, we think we can deliver strong investment returns to our investors, regardless of the point in the market cycle.

CE: How do you view political risk in today's investment environment, in particular the potential impact of Brexit?

JH: I think that in reality Europe is politically more stable now than at any point over the last decade. The one exception I would make to this observation is the UK's decision to leave the European Union. The result of the Brexit referendum unleashed considerable volatility in the sterling exchange rate, and it is clear that the full consequences of this event are yet to play out. Consistent with this, our team of macro specialists are following the economic indicators of the UK very closely. Of particular note is the UK's substantial current account deficit, which leaves it vulnerable to shocks, and is in contrast to the eurozone which has a substantial current account surplus. Additionally, the UK consumer appears to be in especially shaky territory: UK unsecured consumer credit has grown by an extraordinary 50% in the last five years, a rate which we believe is untenable over the longer or even medium term. While an outright recession in the UK is not our base case for now, it is worth remembering the extent to which periods of economic contraction in the UK have been both deep and prolonged, with GDP declining on average between 2% and 4% from peak to trough. Our assessment of the UK does not mean to say that we are not investing there, however we remain cautious. We favour UK companies with a large proportion of their revenue base coming from overseas, and where the investment thesis is about expansion globally. We seek to avoid domestically oriented businesses with significant exposure to the UK consumer. Our ultimate goal is to build diversified, pan-European portfolio, which will include exposure to the UK.

Outside the UK, the picture looks more robust, politically as well as economically. Looking back on the elections we have seen in 2017, radical political forces were marginalized in both the Netherlands and in France, and it is our view that Germany will continue to provide stability within the eurozone. We think that the economy is currently well positioned, and our macro team are forecasting GDP growth in the eurozone of 2.0% for 2018. Although ECB tapering is top of mind for many investors, we do not believe that this will derail Europe's recovery. Indeed, even with the proposed tapering, we expect the ECB to add over a third of a trillion euros to its balance sheet in 2018. Together with other tailwinds, such as lower unemployment and a relatively weak euro supporting exports, we feel optimistic about the European economic outlook.

CE: You have spoken about market cycles – what did you learn from 2008/2009?

JH: We made a number of changes to our investment approach following the last market downturn. Firstly, the majority of deals we are doing in Europe today are different from the deals we were pursuing in the 2006-2007 period – these typically targeted higher levels of leverage and were often executed in consortia with other

[1]Preqin
[2]LCD News; Q3 2017 Review
[3]Invest Europe, "2016 European Private Equity Activity", 2016.

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financial sponsors. This sometimes comes as a surprise to people, but in contrast to our reputation for "mega-buyout" deals, our average equity cheque since 2009 has been €200m. Over the same period, our average entry leverage has been relatively conservative, at 3.3x net debt/EBITDA. That said, we can leverage our balance sheet and established co-investment program to enable us to review a very broad spectrum of opportunities, and will still consider large deals – like the recent carve-out of the spreads business from Unilever. However, our most typical deal today is in what we term the "upper mid-market", or roughly between €500m and €2bn in enterprise value. We think this is an attractive area of the market given the wealth of deal flow we see, and because this size of business is often best positioned to benefit from the resources that we can bring as a partner.

Secondly, we deepened our local footprint in our core European markets and established local investment and portfolio management committees. We still have global representation on these committees in the form of KKR's co-founders, Henry Kravis and George Roberts, and co-president, Joe Bae; however, the majority of both committees are members of our European teams. I believe this helps to ensure deeper accountability from the investment team, and means that our local expertise is genuinely shaping our investment decisions.

Beyond these enhancements to our investment approach and process, we have proactively developed significant resources that can help support our investment businesses. I have mentioned our macro team already, who bring a very important dimension to our understanding of each opportunity we consider. They provide a top-down perspective that helps identify investment themes and secular trends, and they assist with portfolio construction, where their work can help us avoid unintended overexposure to key macro risks. Additional capabilities include the incorporation of ESG criteria into our investment screening and management practices, an area in which we believe we have become thought leaders for the industry.

CE: How is KKR positioning itself for investment opportunities in Europe today?

JH: Our starting point is always asking: what can we bring to an investment beyond being simply providers of capital? We have an experienced private equity team in Europe, but KKR also has a wealth of resources globally that we believe make us better investors and more attractive partners to the businesses we invest in. For example, we have one of the largest private equity businesses in the US and Asia; we have a group of operating experts, KKR Capstone, with over 50 people worldwide; and we have a network of over 100 portfolio companies globally, with approximately $100bn in annual revenues, which can help our European companies gain access to new markets.

We think that the power of our firm-wide resources makes us an attractive partner to businesses, and we see this thesis being proved out in our deal track record. Over two-thirds of the portfolio companies we have invested in since 2009 have been partnership transactions, where a family owner, founding entrepreneur or corporate shareholder has rolled a significant portion of their stake in a business into a new partnership with us. We work together with our partners to implement value creation initiatives that impact top-line growth as well as EBITDA margin expansion, support accretive M&A, and utilize our global footprint to help internationalize local European businesses. Often, we find that we are selected as the partner of choice by the owners of a company on the basis of the toolkit that we can bring, even in instances where we are not offering the highest price.

CE: What do you believe the main challenges are for LPs looking to invest in 2018?

JH: Investors drafting their asset allocation plans for 2018 face difficult choices about where to find the best risk-adjusted returns for their capital. As a practitioner of private equity, I think that the continued outperformance of private equity relative to public equity makes as strong a case as any for allocations to the asset class. I think another important point is that consistent and disciplined deployment to funds across vintages is critical, given how notoriously difficult it is to time markets. One of the advantages of illiquid funds is that they are structured to invest across market cycles, in our case over investment periods of six years, so by committing to a given vintage investors should get some comfort from the fact that not all their capital is being put at risk on day one.

In my view, one of the greater potential challenges to investors in 2018 will actually be getting access to the right managers. We have seen record volumes of capital distributed to investors, the demand for re-ups has been high and target allocations are growing. Many limited partners are placing pressure on managers not to drastically increase the size of their funds, but at the same time we have also had the experience, in KKR's most recent series of private equity fundraises globally, of having to cut back on investor allocations. As such, I believe that some growth of fund size – within reason – is appropriate, as this is a reflection of the continued (and in our view sustainable) growth of the private equity industry as it continues to perform and evolve.

KKR

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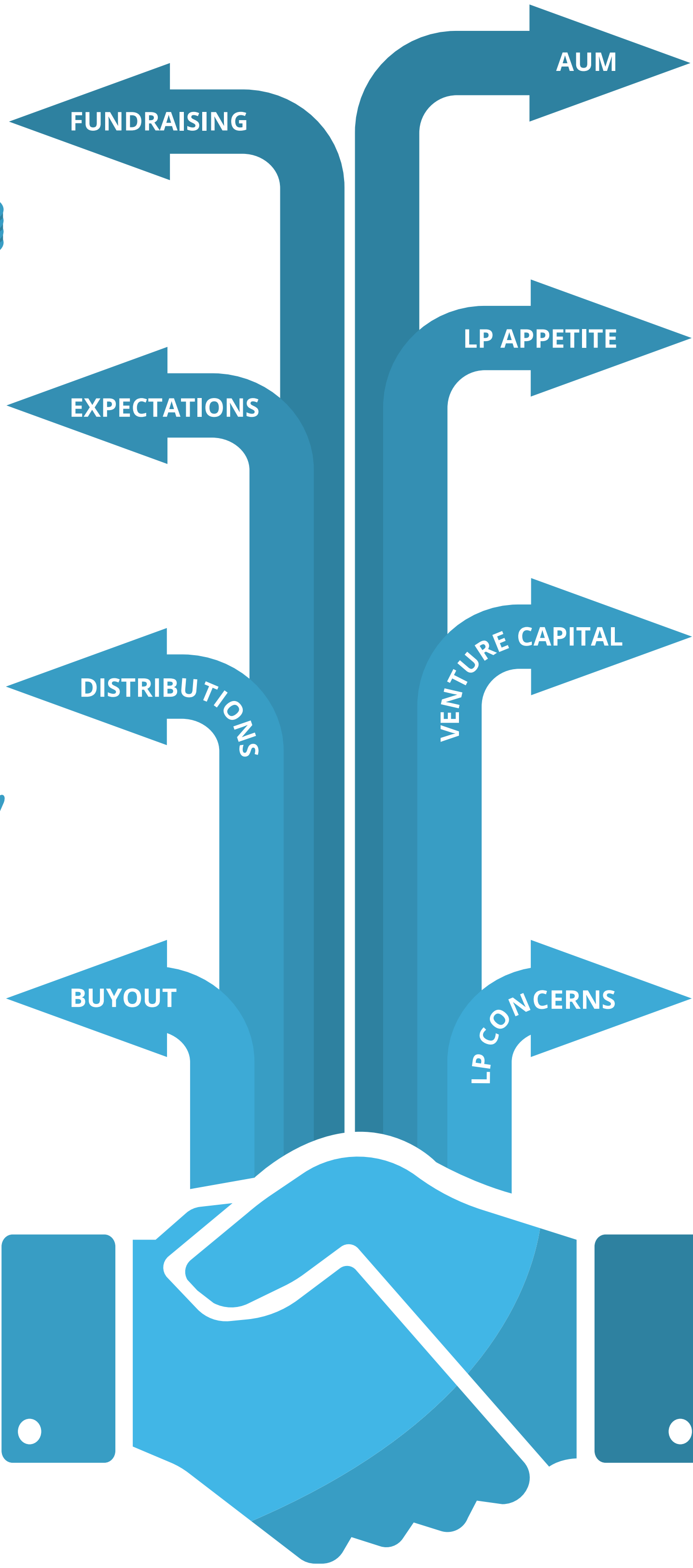
PRIVATE EQUITY: 2017 IN NUMBERS

$453bn
Aggregate capital raised by 921 private equity funds closed in 2017.

95%
of investors felt their private equity investments met or exceeded their expectations in 2017.

$233bn
Total capital distributed in H1 2017, following the record $520bn distributed in 2016.

4,191
Number of private equity-backed buyout deals completed in 2017, for an aggregate $347bn.



$2.83tn
Private equity assets under management as at June 2017, an all-time high.

53%
of investors plan to increase their allocation to private equity over the longer term, a record proportion.

$182bn
Aggregate value of 11,145 venture capital deals completed in 2017, an all-time high.

88%
of investors consider valuations to be the greatest challenge facing the private equity industry in the year ahead.

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PRIVATE EQUITY IN 2018

- Christopher Elvin, **Preqin**

In my introduction to last year's report I wrote "private equity is well positioned for another strong year in 2017," and that "fundraising has rarely looked so appealing". Hindsight is a wonderful thing; however, it is fair to say that 2017 surpassed my expectations, particularly in terms of fundraising and the continued growth of the industry. Total AUM for the asset class now stands at $2.83tn as at June 2017 (the latest data available), an increase of $248bn since the end of 2016.

UNPRECEDENTED PERIOD FOR FUNDRAISING

While many in the industry anticipated 2017 would be another strong year for private equity fundraising, I suspect few would have predicted that 2017 would witness the largest amount of capital ($453bn) raised in any year. Not only was a record amount of capital raised but the speed and success with which fund managers raised their capital was unparalleled: of the funds to reach a final close, 30% spent less than six months in market and 79% of funds met or exceeded their fundraising target. 2017 marked the fifth consecutive year in which private equity fundraising has surpassed $300bn; even in the build-up to the GFC, only three consecutive years (2006-2008) saw fundraising surpass $300bn, which illustrates the unprecedented period of private equity fundraising that we are in.

Despite the success that many fund managers are having, one of the clear, persisting trends within the industry is the growing concentration of capital among fewer funds. Although a record amount of capital was raised in 2017, 322 fewer funds reached a final close than in 2016, resulting in the average fund size increasing to $535mn from $384mn. In short, the gap between the haves and have nots is widening – first-time funds accounted for just 6% of capital secured by funds in 2017.

CONCERNS PERSIST OVER HIGH PRICES

Preqin's survey results show that entry prices for assets have been at the forefront of investors' and fund managers' minds for the past three years. This concern has reached new highs though as we move into 2018, with the latest survey results showing that 88% of LPs and 62% of GPs perceive pricing, and the impact it may have on future returns, to be the biggest challenge facing the private equity industry in 2018.

Despite these concerns, strong fundraising and the resulting rise in dry powder levels meant that the number of private equity-backed buyout deals completed in 2017 remained on par with the past four years, with over 4,000 deals completed. Aggregate deal value increased slightly on 2016 to $347bn; however, this still represents a 19% fall from 2015 and less than half of the value seen back in 2007. Venture capital, however, saw fewer transactions completed in 2017 (11,145), but the value of transactions increased by 28% compared to 2016 to reach an all-time high of $182bn.

While high pricing is common to most asset classes today, many GPs remain confident in their ability to innovate and find value. LPs, however, appear to be more pessimistic: 34% of LPs expect current valuations to result in lower returns in the longer term.

ONGOING MARKET EVOLUTION

Given the illiquid and long-term nature of private equity, change within the asset class can sometimes appear somewhat slow paced; however, we are probably in a period when there has never been so much change.

We have seen GPs expand their offerings to include multi-product strategies, long-life funds and, more recently, using the secondary market to extend ownership of assets. Meanwhile, ESG and responsible investment practices have come to the fore and there is a real focus among fund managers to provide excellent returns to their investors by building best-practice businesses. LPs too are innovating and becoming increasingly sensitive around anything that impacts net performance, and are set to increase their use of alternative structures to access the asset class.

2017 witnessed further fines from the SEC to private equity firms for inaccurate disclosure of fees as well as new reporting guidelines from ILPA over the use of subscription credit lines by GPs. Demand for even greater transparency, particularly surrounding fees paid by LPs, is only going to continue. We are also in a period of extraordinary technological advancement which is having a significant impact on private equity firms, both in terms of the underlying portfolio companies that they are looking to invest in but also from an internal operations and reporting standpoint.

OUTLOOK FOR 2018

With dry powder levels now exceeding $1tn, bull market conditions and increased competition from direct investors, high entry prices for assets look set to continue for the foreseeable future.

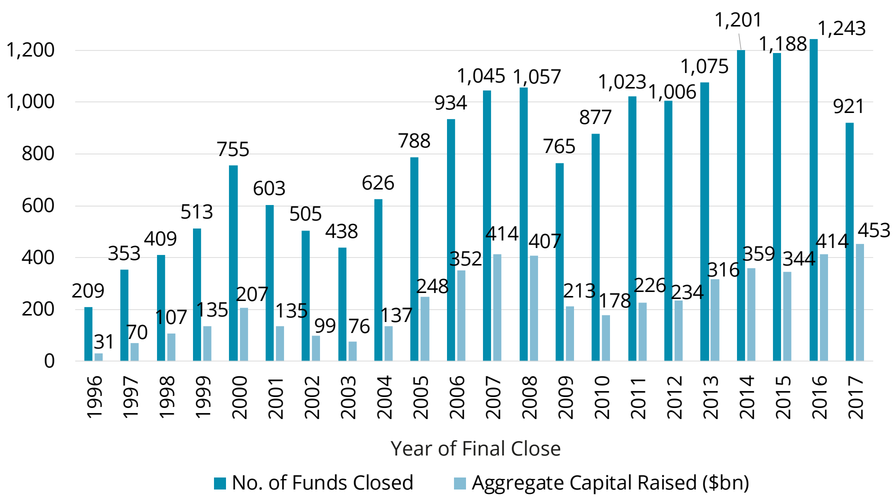
The reality is that fund managers will have to continue to put capital to work irrespective of market conditions, and while exit activity has declined for three consecutive years, more than a third of fund managers expect exit activity to increase in the next 12 months; a further 50% expect exit activity to remain at the same level.

Despite concerns over the impact of high pricing on future returns, Preqin's investor survey results show LPs remain satisfied with the returns their private equity portfolios are delivering and continue to have an avid appetite for the asset class. While H1 2017 data shows that net distributions are not at the levels seen between 2014 and 2016, they continue to exceed capital calls and increase LP liquidity. As a result, 2018 is likely to be another very strong fundraising year – a given if SoftBank Vision Fund reaches a final close!

2017 FUNDRAISING MARKET

In 2017, 921 private equity funds reached a final close, securing just over $453bn, the largest amount of capital ever raised in any year. This marks the second consecutive year in which annual fundraising has surpassed $400bn, a landmark that has only been achieved once previously in 2007/2008 (Fig. 4.1). Although 26% fewer funds closed in comparison to 2016, $39bn more capital was raised by private equity funds closed in 2017 and this figure will increase as more data becomes available. The private equity asset class accounted for 60% of all private capital raised in 2017, an increase from 57% of capital raised in 2016.

Fig. 4.1: Annual Global Private Equity Fundraising, 1996 - 2017



Source: Preqin Private Equity Online

The positive net distributions that LPs have received since 2011 have driven the stellar fundraising activity seen in recent years (see page 24). The latest data shows that, while positive net distributions continue, momentum does appear to be slowing: LPs received $66bn in net distributions in H1 2017, compared to $149bn over the whole of 2016. Nonetheless, the results of Preqin's interviews with investors in December 2017 show that 63% of LPs have a positive perception of private equity, and 53% plan to increase their allocation to private equity in the longer term (see pages 76-78). As a result, LP capital is likely to continue to flow back into the asset class as LPs strive to maintain their allocations.

QUARTERLY FUNDRAISING

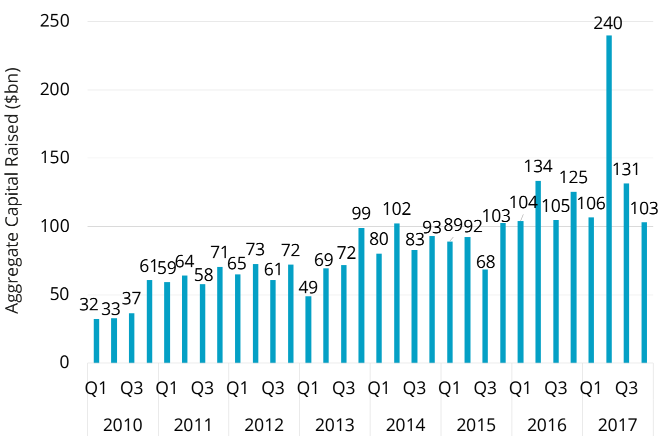
The capital flow into private equity funds via interim and final closes each quarter can be seen in Fig. 4.2. To calculate this, the capital raised for each close that took place in each quarter is examined; only fresh capital is considered, which therefore excludes capital that has been raised via previous closes held in an earlier quarter.

There was a large influx of capital in Q2 2017, 39% of which can be attributed to the $93bn initial closing of SoftBank Vision Fund, a global hybrid investment vehicle. Excluding this fund, over $147bn was raised in Q2 2017, making it the strongest fundraising quarter of all time.

CAPITAL CONCENTRATION

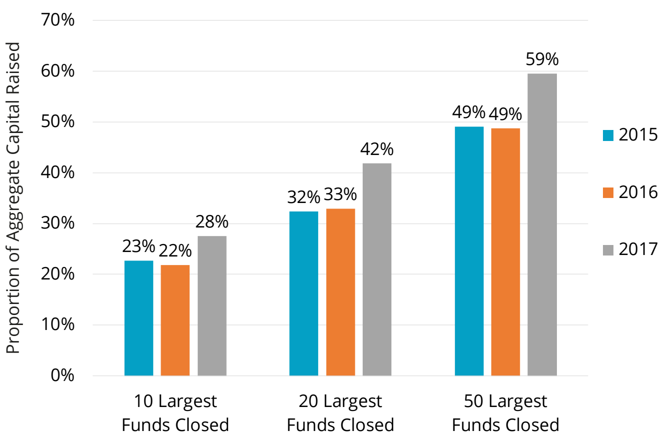
There were a number of high-profile mega fund (funds greater than $4.5bn) final closures in 2017, including Apollo Investment Fund IX on $24.7bn, the largest

Fig. 4.2: Quarterly Aggregate Capital Raised by Private Equity Funds Closed, 2010 - 2017*



Source: Preqin Private Equity Online

Fig. 4.3: Proportion of Aggregate Capital Raised by the Largest Private Equity Funds Closed, 2015 - 2017



Source: Preqin Private Equity Online

*SoftBank Vision Fund held its first close on $93bn in Q2 2017.

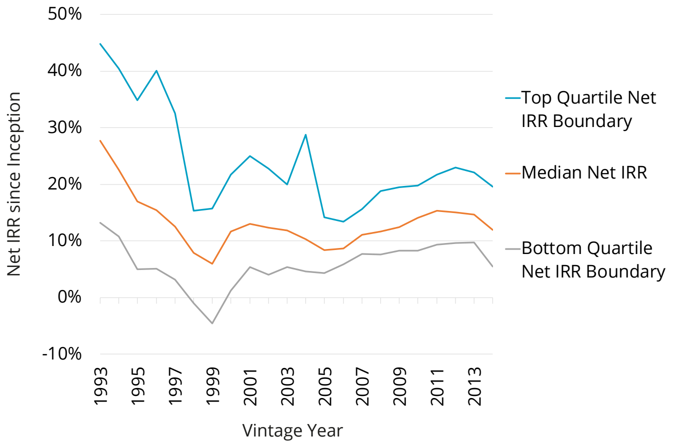
PRIVATE EQUITY PERFORMANCE BENCHMARKS

FUND STRATEGY: All Private Equity   GEOGRAPHIC FOCUS: All Regions   AS AT: 30 June 2017

Vintage	No. of Funds	Median Fund Called (%)	Median Fund Dist (%) DPI	Median Fund Value (%) RVPI	Net Multiple Quartiles (X) Q1	Net Multiple Quartiles (X) Median	Net Multiple Quartiles (X) Q3	Net IRR Quartiles (%) Q1	Net IRR Quartiles (%) Median	Net IRR Quartiles (%) Q3	Net IRR Max/Min (%) Max	Net IRR Max/Min (%) Min
2017	33	10.0	0.0	94.8	1.00	0.95	0.88	n/m	n/m	n/m	n/m	n/m
2016	141	23.0	0.0	96.5	1.07	0.98	0.86	n/m	n/m	n/m	n/m	n/m
2015	138	40.9	0.0	105.0	1.27	1.10	0.98	n/m	n/m	n/m	n/m	n/m
2014	129	64.5	3.9	107.8	1.32	1.18	1.06	19.6	12.0	5.5	80.0	-30.2
2013	126	80.0	15.5	112.4	1.45	1.30	1.18	22.1	14.7	9.7	93.4	-21.8
2012	110	86.0	25.2	104.7	1.75	1.40	1.24	23.0	15.0	9.6	284.9	-14.5
2011	99	93.2	46.0	99.7	1.91	1.47	1.32	21.7	15.3	9.3	87.7	-13.6
2010	72	96.9	67.6	85.7	1.90	1.55	1.30	19.8	14.1	8.3	80.3	-27.1
2009	70	96.1	77.6	65.0	1.92	1.65	1.35	19.5	12.4	8.3	40.6	-11.9
2008	129	97.2	94.9	61.0	1.93	1.64	1.34	18.8	11.7	7.6	60.5	-32.6
2007	158	98.3	113.3	43.0	1.93	1.61	1.37	15.6	11.1	7.7	53.7	-66.7
2006	163	98.0	114.7	30.3	1.87	1.57	1.26	13.4	8.7	5.9	79.0	-25.1
2005	147	99.5	130.6	10.4	1.76	1.50	1.23	14.2	8.4	4.3	105.5	-38.2
2004	86	99.1	151.6	1.4	2.25	1.63	1.21	28.8	10.3	4.6	89.2	-79.2
2003	84	100.0	153.4	0.0	2.19	1.63	1.24	20.0	11.9	5.4	239.8	-49.9
2002	85	97.8	152.6	0.0	2.04	1.55	1.21	22.8	12.3	4.0	93.0	-47.2
2001	122	100.0	158.3	0.0	2.16	1.61	1.13	25.0	13.0	5.4	64.4	-26.0
2000	193	99.0	149.0	0.0	2.10	1.50	0.94	21.7	11.7	1.2	52.9	-40.0
1999	154	100.0	124.2	0.0	1.84	1.28	0.66	15.7	6.0	-4.6	154.7	-43.4
1998	166	100.0	136.2	0.0	1.84	1.37	0.88	15.3	7.9	-1.0	514.3	-100.0
1997	154	100.0	149.9	0.0	2.34	1.50	1.12	32.5	12.5	3.2	267.8	-30.0
1996	90	100.0	181.3	0.0	2.51	1.81	1.14	40.1	15.4	5.1	188.4	-33.3
1995	88	100.0	190.1	0.0	2.72	1.90	1.21	34.8	17.0	5.0	447.4	-22.0
1994	95	100.0	198.0	0.0	3.09	1.98	1.46	40.4	22.6	10.8	318.0	-22.6
1993	77	100.0	247.5	0.0	3.52	2.48	1.59	44.8	27.7	13.2	105.7	-29.1

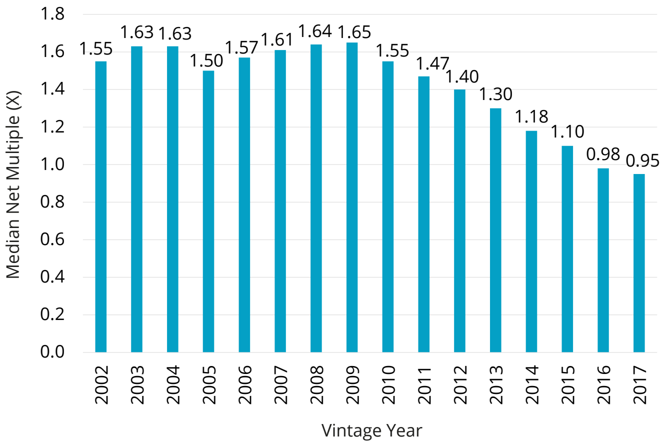
Source: Preqin Private Equity Online

Fig. 7.15: All Private Equity: Median Net IRRs and Quartile Boundaries by Vintage Year (As at June 2017)



Source: Preqin Private Equity Online

Fig. 7.16: All Private Equity: Median Net Multiples by Vintage Year (As at June 2017)



Source: Preqin Private Equity Online

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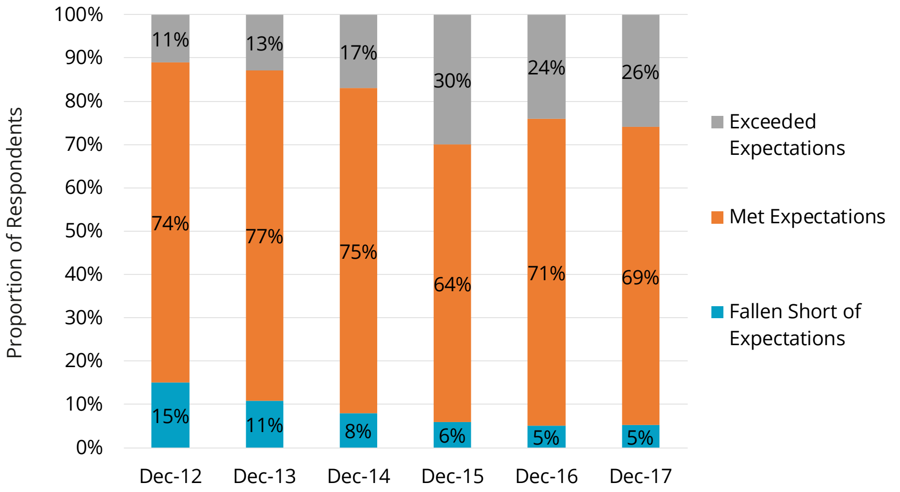
INVESTOR APPETITE FOR PRIVATE EQUITY IN 2018

Preqin surveyed over 250 institutional investors in private equity in December 2017 to determine their satisfaction with the asset class, their key concerns and their plans for the year ahead. Although the majority (63%) of investors have a positive perception of private equity at present, this is a 21-percentage-point decrease from the results of December 2016's survey (84%). This is perhaps unsurprising given that the survey results also showed that 37% of LPs feel portfolio companies are currently overpriced and a market correction is imminent or likely in the next 12 months.

INVESTOR EXPECTATIONS

Despite this, the same proportion (95%) of LPs feel that their private equity investments have met or exceeded their expectations in 2017 as in 2016, with a two-percentage-point rise in the proportion with surpassed expectations (Fig. 8.10). Strong performance resulting in high distributions back to LPs has helped to sustain positive investor sentiment – when asked about the performance of their private equity investments over the past three years, over a third (38%) of investors stated that their expectations had been exceeded, and a further 57% reported that their expectations had been met.

Fig. 8.10: Extent to Which Investors Feel Their Private Equity Fund Investments Have Lived up to Expectations over the Past 12 Months, 2012 - 2017



Source: Preqin Investor Interviews, December 2012 - 2017

Investor sentiment with respect to venture capital is less optimistic: the proportion of LPs with a positive perception of the strategy has decreased from 41% in 2016's survey to 34% in 2017, and the proportion of LPs with a negative perception has increased to 23% from 10% the previous year.

Furthermore, venture capital investments have fallen short of expectations according to 29% of those surveyed, although this is perhaps unsurprising given the higher risk profile of venture capital investments.

INVESTORS' PERCEPTION OF PRIVATE EQUITY PERFORMANCE IN THE PAST THREE YEARS

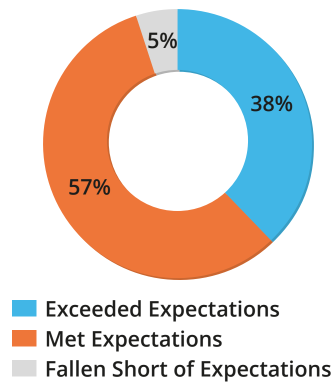
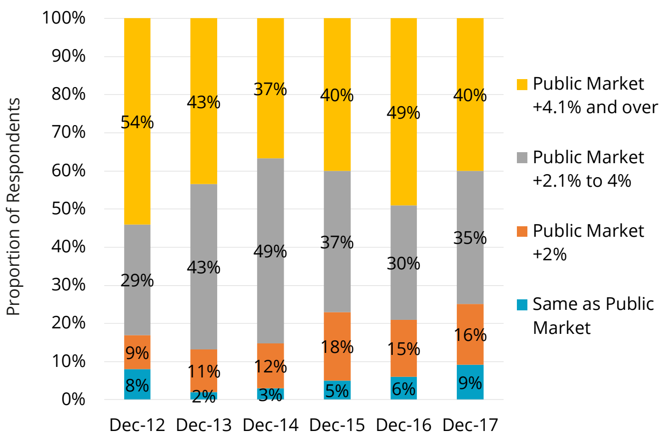
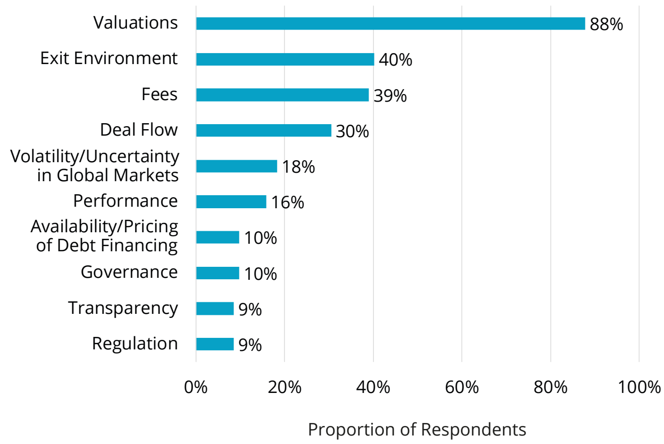


Fig. 8.11: Investors' Return Expectations for Their Private Equity Portfolios, 2012 - 2017



Source: Preqin Investor Interviews, December 2012 - 2017

Fig. 8.12: Investor Views on the Key Issues for Private Equity in 2018



Source: Preqin Investor Interviews, December 2017

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LARGEST BUYOUT DEALS AND EXITS

Fig. 11.38: Largest Private Equity-Backed Buyout Deals in 2017

Portfolio Company	Investment Type	Deal Date	Deal Size (mn)	Deal Status	Investor(s)	Bought from/Exiting Company	Location	Industry
Toshiba Memory Corporation	Buyout	Sep-17	2,000,000 JPY	Announced	Apple Inc., Bain Capital*, Dell Inc., Hoya Corporation, Kingston Technology Company, Inc., Seagate Technology Holdings, SK Hynix, Toshiba Corporation	Toshiba Corporation	Japan	Electronics
Calpine Corporation	Public-to-Private	Aug-17	17,000 USD	Announced	Access Industries, CPP Investment Board, Energy Capital Partners*	-	US	Power
Global Logistic Properties Limited	Public-to-Private	Jul-17	16,000 SGD	Announced	Bank of China Group Investment, China Vanke Co. Ltd., Hillhouse Capital Management, Hopu Investment Management, Schwartz-Mei Group Limited	-	Singapore	Logistics
Unilever's margarine and spreads business	Buyout	Dec-17	6,825 EUR	Announced	KKR	Unilever	UK	Food
Staples, Inc.	Public-to-Private	Jun-17	6,900 USD	Completed	Sycamore Partners	-	US	Retail
Belle International Holdings Limited	Public-to-Private	Apr-17	53,100 HKD	Completed	CDH Investments, Hillhouse Capital Management	-	China	Retail
Stada Arzneimittel AG	PIPE	Aug-17	5,240 EUR	Completed	Bain Capital*, Cinven*, Partners Group	-	Germany	Pharmaceuticals
Nets Holding A/S	Public-to-Private	Sep-17	33,100 DKK	Announced	Advent International, Bain Capital, GIC, Hellman & Friedman*	-	Denmark	Financial Services
West Corporation	Public-to-Private	May-17	5,100 USD	Completed	Apollo Global Management	Quadrangle Group, Thomas H Lee Partners	US	IT
PAREXEL International Corporation	Public-to-Private	Jun-17	5,000 USD	Completed	Pamplona Capital Management	-	US	Pharmaceuticals

Source: Preqin Private Equity Online

Fig. 11.39: Largest Private Equity-Backed Buyout Exits in 2017

Portfolio Company	Investment Type	Deal Date	Deal Size (mn)	Investor(s)	Exit Date	Exit Type	Exit Value (mn)	Acquiror (Exit)	Location	Industry
Lightower Fiber Networks, LLC.	Merger	Dec-12	2,000 USD	ABRY Partners, Berkshire Partners, Lightower Fiber Networks, LLC.*, Pamlico Capital, Sidera Networks*	Jul-17	Trade Sale	7,100 USD	Crown Castle International Corporation	US	Telecoms
Ista International GmbH	Buyout	Apr-13	3,100 EUR	CPP Investment Board, CVC Capital Partners	Jul-17	Trade Sale	4,500 EUR	Cheung Kong Property Holdings Limited, CK Infrastructure Holdings	Germany	Energy
West Corporation	Public-to-Private	May-06	4,100 USD	Quadrangle Group*, Thomas H Lee Partners*	May-17	Sale to GP	5,100 USD	Apollo Global Management	US	IT
VWR International	Buyout	May-07	3,500 USD	Avista Capital Partners, Madison Dearborn Partners*	May-17	Trade Sale	4,380 USD	Avantor Performance Materials, Inc.	US	Medical Instruments
USI Holdings Corporation	Buyout	Nov-12	2,300 USD	Onex Corporation	Mar-17	Sale to GP	4,300 USD	CDPQ, KKR	US	Insurance

Source: Preqin Private Equity Online

**Indicates lead investor(s)/acquiror(s).*

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VENTURE CAPITAL DEALS

In 2017, 11,145 venture capital deals were completed globally for an aggregate value of $182bn, representing both a four-year low in the number of deals completed and a record high for aggregate annual deal value (Fig. 12.15).

2017 IN CONTEXT

2017 saw 7% fewer deals than in 2016, which followed an 8% decline in the number of venture capital deal financings between 2015 and 2016. However, in 2017 aggregate deal value was 28% higher than in 2016, reaching the highest level on record. The rise in value was driven by a high number of $1bn+ transactions, as well as larger late-stage funding rounds. Higher valuations have seen the average deal size grow 120% in the past decade ($10mn in 2007 vs. $22mn in 2017).

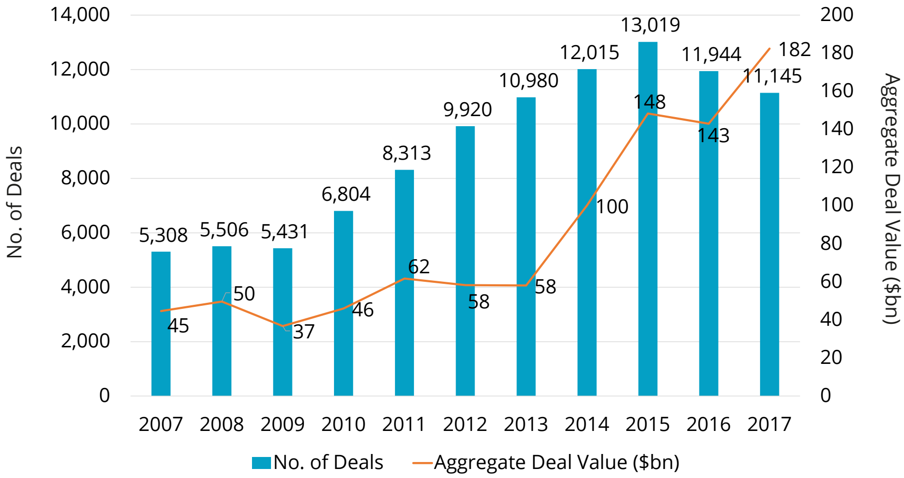
Prior to 2016, deal activity had been on the rise for six consecutive years; 2015 was a record year for deals, with 13,019 venture capital financings completed. The trend of fewer but higher valued deals that started in 2016 continued in 2017.

REGIONAL SHIFTS

Regionally, venture capital deal flow has remained generally consistent from 2016. As shown in Figs. 12.16-12.19, there is continued movement away from North American markets, shifting towards European markets and emerging opportunities in Greater China:

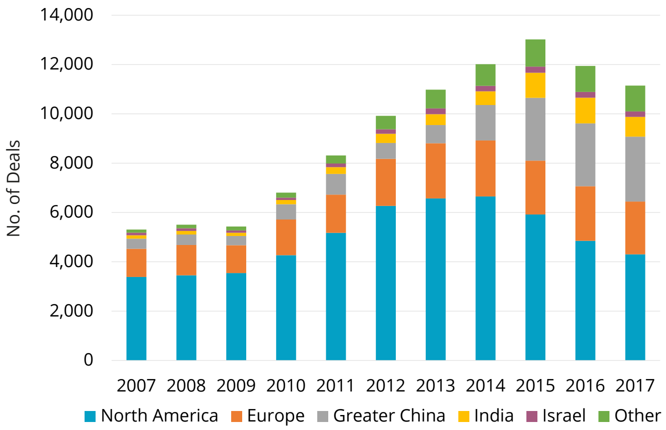
- With 4,303 financings, deal flow in **North America** reached its lowest level since 2010, and the region's 2017 market share (39%) was substantially lower than its 58% historical average (2007-2016).
- **Greater China** saw an increase in the number of deals in 2017 (2,633 vs. 2,547 in 2016), and its share of the market has also increased for the fifth consecutive year to 24%, well above the 11% average in 2007-2016.
- **European** deal activity in 2017 was at its lowest level since 2012, although its 19% share of the market is only one percentage point short of its historical average in 2007-2016.
- **India** saw the most variation in deal activity in 2017 of all regions: there were 23% fewer venture capital financings, but aggregate deal value has more than doubled versus the previous year ($10.4bn vs. $4.5bn).

Fig. 12.15: Venture Capital Deals* Completed Globally, 2007 - 2017



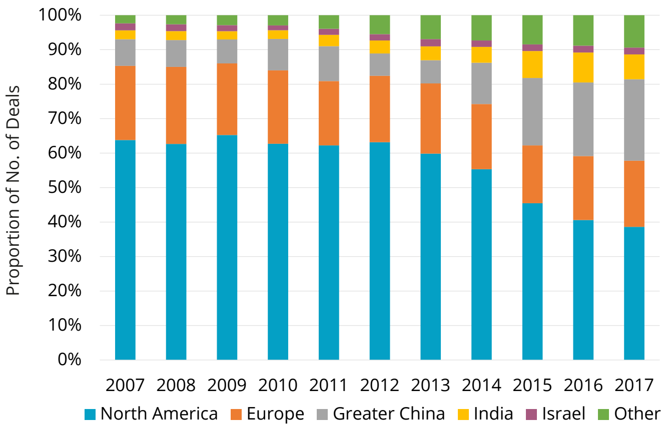
Source: Preqin Private Equity Online

Fig. 12.16: Number of Venture Capital Deals* Completed by Region, 2007 - 2017



Source: Preqin Private Equity Online

Fig. 12.17: Proportion of Number of Venture Capital Deals* Completed by Region, 2007 - 2017



Source: Preqin Private Equity Online

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CEO's FOREWORD
- Mark O'Hare

They say that a week is a long time in politics; well, a year is certainly a long time in hedge funds. My foreword to Preqin's 2017 Global Report reflected on the extended period of disappointing returns that had started in 2015, leading to investor dissatisfaction and net redemptions for the industry in 2016.

Fast-forward to early 2018, and the outlook for the industry has improved significantly:

- Hedge funds achieved a 'perfect 12' in 2017: 12 months of positive performance – the first time this has been achieved since 2003 – and the 2017 return was 11.41%, also the best on record since 2013.
- Supported by this positive performance, investor sentiment has turned around: the proportions of investors satisfied versus disappointed with returns have taken a turn for the better (see page 41), as has the pattern of investors intending to increase versus decrease their allocations.
- As a consequence of this, and following five consecutive quarters of net outflows starting in Q4 2015, the tide turned, and the industry saw net inflows of just under $50bn in 2017. Early days, and investors will need to see continued solid performance in order to fully regain their confidence in and enthusiasm for the industry, but certainly a welcome start.
- Supported by these net inflows and (especially) the positive performance, industry assets under management reached a new record high of $3.55tn in November 2017.

Moving beyond the statistics, there are also many signs of new dynamism in the industry. New strategies are emerging, and this year's Global Report covers alternative risk premia, cryptocurrency/blockchain and AI for the first time. These emerging strategies still account for relatively modest dollar allocations at this stage, but it is interesting to see the encouragingly large proportion of investors that are expressing interest in or investing in these strategies to some extent. Managers are also offering a wider-than-ever range of structures/vehicles to meet the varying requirements of different investors. New managers continue to enter the industry, although for the first time on record fund closures have exceeded fund launches, so that the total number of active managers has declined. Net inflows have gone to the better-performing funds, while losses have been concentrated among the weaker performers (see page 19), signs of an inevitable – and perhaps welcome – consolidation in the industry.

Many investors believe that the market could be hitting the top of the equity cycle, and are positioning themselves more defensively as a result, to the benefit of hedge funds. The range and diversity of investors allocating to hedge funds is huge (see pages 60-64), and understanding the various pools of capital, together with their requirements and expectations, is vital for success in asset gathering.

Notwithstanding the more positive performance and outlook in 2018, many challenges remain for hedge funds. Fees are a perennial issue, with a large proportion of investors feeling that fees and terms are not adequately aligned between investors and fund managers (see page 52), and the all-important investment consultants continue to exert pressure on the industry (see pages 46-49). Regulatory change continues apace, with MIFID II, reforms from the Trump administration and the potential effects of Brexit all playing a role.

One constant factor in the industry's development is the need for the best possible information to help investors and fund managers alike decide and execute their strategies. Preqin is committed to continuing to invest in and develop our services in the industry, and we thank all our customers and wider participants across the industry for their support.

Thank you,

Mark O'Hare

REGULATORY IMPACTS ON THE SECURITIES FINANCE INDUSTRY

- Glenn Horner, **State Street**

In response to the Global Financial Crisis of 2007-2008, Basel III and Financial Stability Board regulations were implemented, prescribing more stringent capital requirements and new liquidity rules. Additionally, global regulators designated the most systemically important banks as Globally Systemically Important Banks (G-SIBs). The G-SIB designation requires these entities to meet heightened standards in terms of capital, liquidity and interconnectedness. Though the new standards have not been fully implemented, the securities financing industry throughout the globe has already been impacted, and new entrants are emerging in the market to help clients navigate the evolving regulatory landscape.

For securities finance transactions, the standardized approach of Basel III results in risk-weighted assets (RWA) that are many multiples higher than under the advanced approach, due to little or no recognition of netting, correlation of loans and collateral or diversification. The current proposal aims to address the shortcomings of the standardized approach for securities finance transactions and will incorporate the aforementioned considerations. Banks have been impacted by Basel III's higher capital requirements, impacting capital allocated to banks' prime brokerage businesses as well as the availability of supply from bank-based agent lenders. Additionally, Basel III prescribes a 3% leverage ratio, or even higher standards, as in the case of G-SIBs. In the US, a 5% ratio at the parent-company level and a 6% ratio at the depository level is required for G-SIBs. For many banks, the leverage ratio has superseded the risk-based capital ratios as a binding constraint, and as a result, many banks have engaged in a re-sizing of their balance sheets – eliminating or reducing the amount of low spread transactions undertaken, often including prime brokerage balances.

The Liquidity Coverage Ratio (LCR) requires that internationally active banks maintain sufficient unencumbered High Quality Liquid Assets (HQLA) to meet funding requirements for a significant stress event lasting up to 30 days. Unencumbered HQLA must be 100% of total net cash outflows over a 30-day period based on significant funding market stresses similar to those experienced during the financial crisis. As a result of the LCR, banks' abilities to provide term financing over 30 days to prime broker clients have been reduced.

Another impact the financial crisis has had on the regulatory environment is the implementation of the Net Stable Funding Ratio (NSFR). NSFR, which has yet to be finalized in some jurisdictions, aims to reduce the reliance on short-term wholesale funding by banks. Banks have traditionally utilized their balance sheets to provide maturity transformation to the market, but such maturity transformation can create systemic instability. Banks will be required to maintain 100% available stable funding (ASF) compared to required stable funding (RSF). This measure assigns ASF weights to a bank's capital and liabilities that mature in less than six months and between six months and one year. As a direct result, the cost of funding for certain prime brokerage transactions has increased, making certain transactions uneconomical.

The final piece of Basel III that has directly impacted securities financing is the proposed Large Exposure Limits. Large internationally active banks will be limited to exposures of 25% of their tier one common equity to any single counterparty. Further limitations of 15% will apply to G-SIB to G-SIB exposures. Exposures will be measured based on the standardized approach in securities finance transactions. This may change in the event that the newly proposed standardized method for RWA calculations is adopted. Agent lenders and prime brokers that lend securities to clients may be limited in the size and scope of transactions. This could lead to a decline in supply available to the alternative asset management sector, and has already created a marketplace that welcomes new entrants.

As existing providers consider their response, there has been a proliferation of new entrants performing new roles. At State Street, businesses like Enhanced Custody and Alternative Financing Solutions have been created to address the evolving liquidity landscape. In the traditional Agency Lending businesses, innovative trade structures have become a necessity. As the LCR is phased in and Large Exposure Limits are adopted we will likely see further innovations within securities finance.

STATE STREET

State Street Bank and Trust Company is among the most financially strong and trusted counterparties in the industry. Our strong credit position, stable funding capabilities and global network give us the resources, expertise and infrastructure to help clients manage regulatory change, mitigate risks and meet competitive challenges.

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ASSETS FLOWS IN 2017

	MACRO STRATEGIES	EQUITY STRATEGIES	MULTI-STRATEGY	RELATIVE VALUE STRATEGIES
Industry Assets by Strategy	$1,054bn	$894bn	$485bn	$354bn
Change over 2017	▲ 8%	▲ 9%	▲ 14%	▲ 4%

INDUSTRY GROWTH AS INFLOWS RETURN

Having suffered a year of net outflows (-$109.8bn) in 2016, hedge funds reversed this trend in 2017 with net investor inflows amounting to $49.5bn (as at November 2017), with positive net flows recorded in all four quarters of the year (Fig. 3.1). However, almost as many hedge funds saw outflows (43%) as inflows (44%) over the course of 2017, highlighting the continued difficulties faced by many managers.

Driven by this influx of investor capital, as well as strong hedge fund returns in 2017 (+11.41%), the industry's assets continued to grow throughout 2017, reaching $3.55tn as at November 2017, representing an increase of 9% since the end of 2016. The US remains the largest market, holding just under three-quarters (74%) of industry assets.

INFLOWS BY STRATEGY

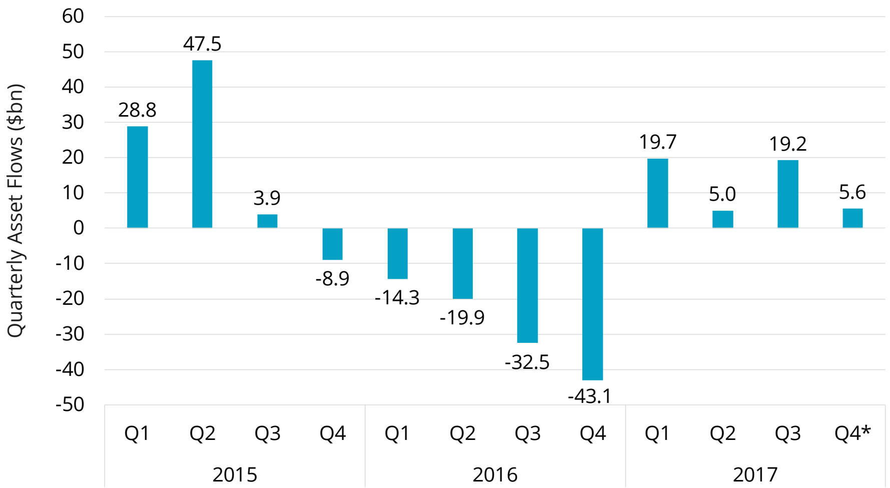
Multi-strategy funds recorded the greatest net inflows (+$24.2bn) of any top-level strategy (Fig. 3.2), and with strong annual returns of 10.09% in 2017, the strategy's aggregate industry assets grew 14% in the 11 months to November 2017 to stand at $485bn. In comparison, equity strategies recorded net outflows over the course of 2017. However, despite this, the annual performance of equity strategies in 2017 (+15.01%) drove aggregate strategy assets up by 8.6% since the end of 2016 to November 2017.

Only 32% of CTAs saw net inflows in 2017 (Fig. 3.3); however, with net inflows totalling $22.6bn in 2017 (as at November) it seems the significant amounts of capital flowing into these strategies are going into the hands of only a small number of managed futures managers.

TOP PERFORMERS ATTRACTING INFLOWS

Past performance remains a key factor in determining a fund manager's ability to attract new capital. As shown in Fig.

Fig. 3.1: Quarterly Hedge Fund Asset Flows, Q1 2015 - Q4 2017*



Source: Preqin Hedge Fund Online

Fig. 3.2: Hedge Fund Asset Flows by Core Strategy

Strategy	2015 ($bn)	2016 ($bn)	Q1 2017 ($bn)	Q2 2017 ($bn)	Q3 2017 ($bn)	Q4 2017 ($bn)*	2017 ($bn)	Industry Assets ($bn)	% Change from Dec-16
Multi-Strategy	27.5	-22.5	-2.3	7.0	13.3	6.2	24.2	485	14.0%
CTA	24.6	25.5	7.2	10.4	-4.0	9.0	22.6	279	11.3%
Macro Strategies	-25.8	-5.9	11.1	2.4	-8.5	12.1	17.2	1,054	7.6%
Event Driven Strategies	-1.8	-2.9	8.9	0.2	2.7	2.8	14.6	206	16.6%
Niche Strategies	1.3	-0.8	1.1	2.7	2.6	1.8	8.1	24	63.8%
Relative Value Strategies	-18.8	-24.7	0.6	7.2	-2.1	-7.1	-1.4	354	4.0%
Credit Strategies	4.2	-28.2	3.1	-12.6	13.9	-7.7	-3.3	251	5.9%
Equity Strategies	60.3	-50.3	-10.0	-12.4	1.3	-11.4	-32.6	894	8.6%
Total Industry	**71.4**	**-109.8**	**19.7**	**5.0**	**19.2**	**5.6**	**49.5**	**3,547**	**9.2%**

Source: Preqin Hedge Fund Online

**Q4 2017 asset flows estimated to 30 November 2017.*

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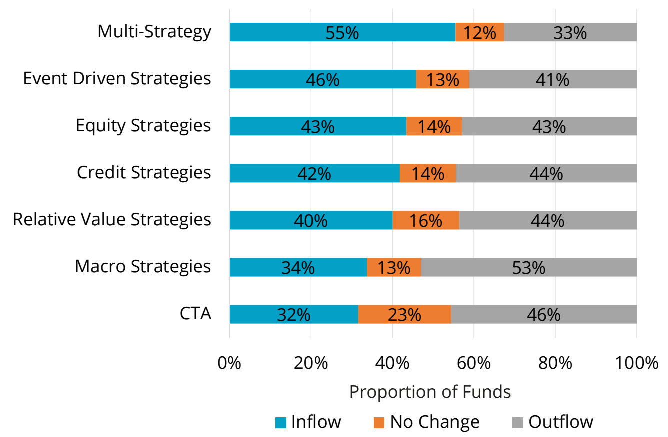
	CTAs	CREDIT STRATEGIES	EVENT DRIVEN STRATEGIES	NICHE STRATEGIES
Industry Assets by Strategy	$279bn	$251bn	$206bn	$24bn
Change over 2017	▲ 11%	▲ 6%	▲ 17%	▲ 64%

3.6, the majority (51%) of funds that generated returns of 5% or more in 2016 experienced net inflows; by contrast, two-thirds of funds that generated a loss of 5% or greater in 2016 saw outflows in 2017. Therefore, although past performance may not be indicative of future performance, it is a clear signifier of future asset flows.

OUTLOOK

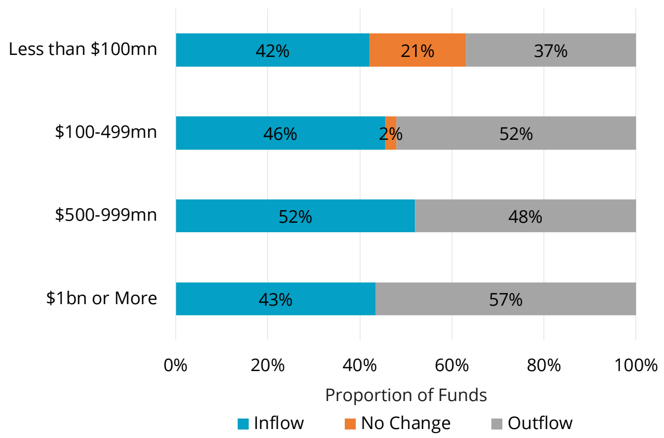
2017 will help bring renewed optimism to many industry participants, as investors looked to allocate fresh capital to the asset class. However, the success in fundraising varies significantly from manager to manager based on strategy, region, size and performance. This emphasizes the need for fund managers and allocators alike to have access to comprehensive fund-level data to have the greatest insight into the direction of capital flows in 2018 and beyond.

Fig. 3.3: Hedge Fund Asset Flows over 2017 by Core Strategy



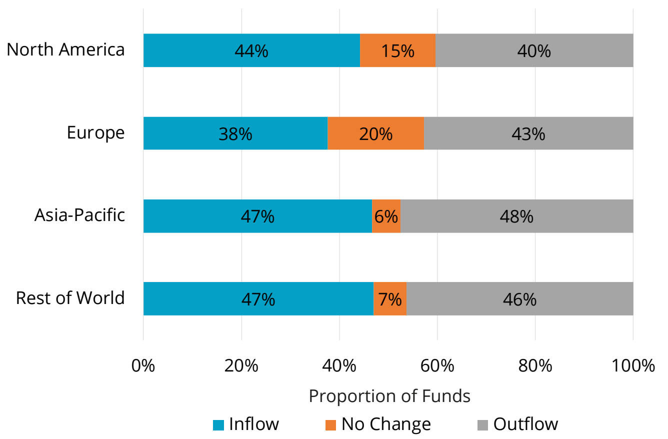
Source: Preqin Hedge Fund Online

Fig. 3.4: Hedge Fund Asset Flows over 2017 by Fund Size



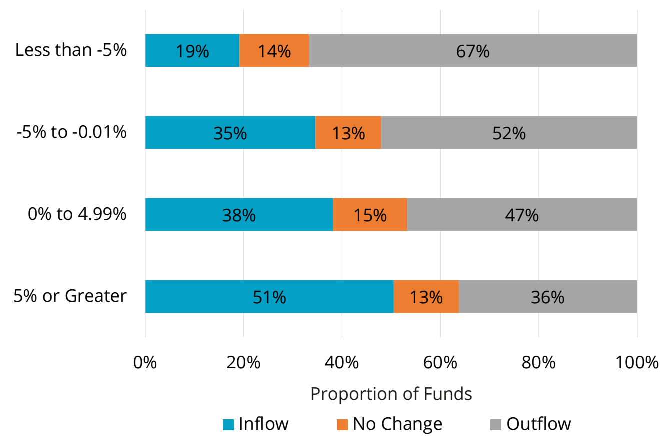
Source: Preqin Hedge Fund Online

Fig. 3.5: Hedge Fund Asset Flows over 2017 by Fund Manager Headquarters



Source: Preqin Hedge Fund Online

Fig. 3.6: Hedge Fund Asset Flows over 2017 by 2016 Performance



Source: Preqin Hedge Fund Online

PERFORMANCE BENCHMARKS

Fig. 4.1: Summary of Performance Benchmarks, As at December 2017 (Net Returns, %)*

		2017	2016	2015	3-Year Annualized	5-Year Annualized	3-Year Volatility	5-Year Volatility
	Hedge Funds	**11.41**	**7.67**	**2.17**	**7.02**	**7.76**	**3.97**	**3.71**
	CTAs	**3.24**	**0.87**	**0.80**	**1.63**	**3.63**	**4.67**	**4.37**
	Alternative Mutual Funds	**7.03**	**3.34**	**-1.68**	**2.83**	**4.20**	**3.38**	**3.60**
	UCITS	**6.68**	**1.27**	**1.46**	**3.10**	**3.71**	**3.59**	**3.31**
	Funds of Hedge Funds	**6.59**	**-0.01**	**1.35**	**2.60**	**4.12**	**3.00**	**2.92**
Equity Strategies	**Equity Strategies**	**15.01**	**7.40**	**1.22**	**7.73**	**8.92**	**5.80**	**5.34**
	Long/Short Equity	12.31	5.66	2.67	6.81	8.24	4.98	4.68
	Long Bias	22.44	11.87	-3.37	9.80	10.11	8.95	8.07
	Value-Oriented	20.16	11.84	-2.84	9.30	12.95	8.28	7.48
	Sector-Focused	24.19	8.29	2.30	11.22	12.92	8.21	7.22
	Alternative Mutual Funds	10.26	2.93	0.42	4.46	6.73	4.78	4.89
	UCITS	11.62	0.22	2.53	4.68	5.94	5.27	5.01
	Funds of Hedge Funds	11.12	-0.39	2.11	4.16	5.85	4.79	4.46
Macro Strategies	**Macro Strategies**	**5.57**	**7.59**	**4.35**	**5.83**	**5.43**	**2.35**	**2.37**
	Macro	6.19	7.89	6.57	6.88	6.95	2.34	2.49
	Commodities	6.58	15.71	-8.81	3.99	-0.51	6.60	6.40
	Foreign Exchange	1.22	6.21	1.77	3.04	1.21	2.99	3.25
	Alternative Mutual Funds	4.68	2.21	-8.37	-0.66	-0.08	3.37	3.52
	UCITS	2.97	3.21	-0.98	1.71	1.63	3.17	3.03
	Funds of Hedge Funds	0.37	1.63	0.04	0.68	1.28	2.29	2.44
Event Driven Strategies	**Event Driven Strategies**	**11.71**	**12.82**	**-0.67**	**7.77**	**8.52**	**4.75**	**4.45**
	Event Driven	13.37	12.14	-0.22	8.25	9.44	5.11	4.82
	Distressed	6.89	15.16	-4.97	5.37	6.14	5.24	4.89
	Special Situations	11.10	21.13	-2.76	9.38	8.22	7.14	6.64
	Risk/Merger Arbitrage	6.81	8.78	6.15	7.24	6.17	2.63	2.36
	UCITS	4.64	-0.48	1.05	1.71	2.21	2.96	2.76
	Funds of Hedge Funds	5.65	4.09	-1.96	2.54	3.27	3.31	3.62
Credit Strategies	**Credit Strategies**	**7.61**	**8.92**	**2.36**	**6.26**	**6.81**	**2.23**	**2.13**
	Long/Short Credit	7.17	8.96	-0.44	5.15	5.49	2.62	2.53
	Fixed Income	8.18	9.36	2.50	6.64	6.17	2.26	2.14
	Mortgage-Backed Strategies	8.54	7.33	4.16	6.66	8.78	2.17	2.36
	Asset-Backed Lending	6.90	7.75	7.58	7.41	8.87	0.85	1.16
	Alternative Mutual Funds	4.32	4.62	-1.96	2.28	2.26	2.20	2.30
	UCITS	3.08	3.27	0.21	2.18	2.33	2.88	2.54
	Funds of Hedge Funds	3.41	2.27	0.94	2.20	5.57	1.71	2.46
Relative Value Strategies	**Relative Value Strategies**	**4.31**	**3.45**	**5.53**	**4.43**	**5.39**	**1.72**	**1.59**
	Equity Market Neutral	2.92	1.48	6.69	3.67	4.91	2.05	1.91
	Fixed Income Arbitrage	5.81	5.31	3.17	4.76	4.88	1.90	1.89
	Relative Value Arbitrage	5.11	7.12	6.08	6.10	7.62	2.43	2.23
	Statistical Arbitrage	3.43	1.79	7.17	4.10	5.27	1.89	2.32
	Convertible Arbitrage	7.33	5.49	2.58	5.12	5.79	2.49	2.32
	UCITS	1.81	0.14	2.05	1.33	1.69	1.79	1.51
	Funds of Hedge Funds	3.96	0.25	2.22	2.13	2.84	1.80	1.80
Multi-Strategy	**Multi-Strategy**	**10.09**	**6.16**	**3.52**	**6.56**	**6.82**	**2.58**	**2.52**
	Alternative Mutual Funds	6.15	4.87	-2.58	2.74	3.90	3.85	4.55
	UCITS	3.29	1.71	1.04	2.01	2.86	2.67	2.71
	Funds of Hedge Funds	5.54	-0.41	1.26	2.10	3.73	2.74	2.70
Niche	**Niche Strategies**	**14.77**	**6.61**	**8.22**	**9.81**	**7.49**	**4.74**	**4.08**
	Insurance-Linked Strategies	4.45	3.54	4.97	4.32	5.69	2.65	2.18
	Niche	11.51	12.23	13.06	12.27	7.90	4.21	4.63
Trading Styles	Activist	13.87	12.07	0.92	8.80	10.03	5.97	5.50
	Volatility	9.67	8.77	5.33	7.91	7.55	2.80	2.69
	Discretionary	12.41	8.31	1.83	7.43	8.95	4.50	4.25
	Systematic	7.58	4.89	4.60	5.68	6.49	2.55	2.55

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		2017	2016	2015	3-Year Annualized	5-Year Annualized	3-Year Volatility	5-Year Volatility
North America	**North America**	**9.27**	**10.85**	**-0.22**	**6.52**	**8.68**	**4.86**	**4.55**
	CTAs	5.10	5.11	4.60	4.94	5.46	3.07	3.40
	Alternative Mutual Funds	8.38	4.80	-4.09	2.90	5.27	4.94	4.88
	Funds of Hedge Funds	6.50	1.21	-0.15	2.48	4.84	3.74	3.52
Europe	**Europe**	**8.75**	**3.63**	**6.72**	**6.34**	**7.01**	**3.89**	**3.72**
	UCITS	5.05	-0.67	5.65	3.30	4.70	3.82	3.57
	Funds of Hedge Funds	3.33	-1.67	4.11	1.89	3.65	2.79	2.79
Asia-Pacific	**Asia-Pacific**	**18.66**	**2.37**	**6.67**	**9.02**	**10.11**	**6.42**	**5.65**
	UCITS	18.23	-0.88	3.40	6.61	6.27	7.95	6.87
	Funds of Hedge Funds	15.69	-2.21	5.87	6.20	7.14	5.68	4.99
Emerging Markets	**Emerging Markets**	**15.86**	**10.08**	**2.87**	**9.47**	**8.25**	**5.15**	**4.87**
	Asia	28.67	3.37	3.93	11.40	12.71	9.73	8.95
	Latin America	15.58	21.42	1.95	12.68	8.45	5.94	5.51
	Africa	7.54	0.13	8.08	5.18	8.46	3.93	4.02
	Russia & Eastern Europe	12.44	16.63	-0.42	9.30	0.43	8.30	10.13
	UCITS Hedge Funds	20.52	4.65	-4.49	6.40	4.84	8.63	7.77
	Funds of Hedge Funds	12.43	2.19	5.81	6.73	7.17	4.34	4.14
Developed Markets	**Developed Markets**	**8.27**	**7.21**	**3.68**	**6.37**	**7.81**	**2.83**	**2.76**
	CTAs	-8.58	-1.17	-2.25	-4.05	-1.10	6.34	6.02
	UCITS	3.11	1.37	0.95	1.80	2.43	2.90	2.55
CTAs	**CTAs**	**3.24**	**0.87**	**0.80**	**1.63**	**3.63**	**4.67**	**4.37**
	Trend Following	3.46	-0.35	-0.71	0.78	3.64	6.58	6.16
	Macro	0.25	-2.01	0.57	-0.40	2.16	4.67	4.33
	Counter Trend	4.41	0.09	0.44	1.63	2.68	5.07	4.61
	Pattern Recognition	0.23	2.15	2.07	1.48	3.56	4.77	4.45
	Arbitrage	2.88	-0.51	1.36	1.23	3.21	3.31	3.13
	Option Writing	9.64	5.38	7.55	7.51	4.79	4.21	5.43
	Discretionary	-0.06	5.37	2.08	2.44	2.89	2.77	3.16
	Systematic	3.37	-0.39	-0.92	0.67	3.23	6.08	5.63
	Funds of CTAs	0.59	-3.31	-5.59	-2.80	0.77	10.14	9.57
Size	Emerging (Less than $100mn)	10.90	8.23	1.87	6.93	7.19	4.05	3.82
	Small ($100-499mn)	11.38	6.82	2.79	6.94	7.70	3.97	3.70
	Medium ($500-999mn)	10.13	6.49	2.26	6.24	6.94	3.63	3.45
	Large ($1bn or More)	9.47	4.55	2.22	5.37	6.99	3.22	3.21
Currency	USD	12.11	7.34	0.67	6.60	7.48	4.29	4.04
	EUR	5.19	2.28	3.23	3.56	4.16	3.24	3.03
	GBP	6.05	3.24	1.80	3.68	2.79	2.26	2.38
	CHF	3.33	-0.82	2.55	1.67	3.40	3.28	3.39
	JPY	10.43	2.74	6.82	6.62	11.07	4.36	5.35
	BRL	14.92	21.28	7.79	14.53	10.87	4.52	4.24
	AUD	14.52	4.07	8.85	9.06	10.13	5.05	4.50
	USD - CTAs	3.50	1.05	0.52	1.68	3.69	4.75	4.49
	EUR - CTAs	5.52	-3.85	2.83	1.42	2.96	7.60	6.77
	USD - UCITS	11.22	0.89	-0.35	3.79	3.93	4.25	4.04
	EUR - UCITS	4.84	0.66	2.12	2.53	3.35	3.46	3.14
	GBP - UCITS	6.13	2.45	1.40	3.31	4.10	2.98	3.13
	CHF - UCITS	3.56	-1.67	0.72	0.85	1.54	2.96	2.87
	USD - Funds of Hedge Funds	7.30	0.28	0.49	2.64	4.05	3.15	3.11
	EUR - Funds of Hedge Funds	3.86	-2.31	0.96	0.81	2.36	3.05	3.05

Source: Preqin Hedge Fund Online

Please note, all performance information includes preliminary data for December 2017 based on net returns reported to Preqin in early January 2018. Although stated trends and comparisons are not expected to alter significantly, final benchmark values are subject to change.

VIEW FROM THE INSIDE

Over the course of 2017, the hedge fund industry saw improved hedge fund performance, growth in industry AUM, changes to fee structures and a rise in the number of new strategies entering the market. Using the results of Preqin's surveys of over 410 fund managers and 200 investors active in hedge funds, conducted in November and December 2017 respectively, we provide a more individual view of how industry participants see these trends from the ground.

PRESSURE ON FEES REMAINS:

Investor fee pressure and demand for transparency is still there

- $5bn Asia-Pacific-Based Hedge Fund Manager

Fees still need to come down

- US-Based Hedge Fund Investor

...AND SOME SEE THE RESTRUCTURING OF FEES AS KEY TO THE INDUSTRY'S FUTURE:

The investor demands of hurdles and other fee adjustments are partially due to funds charging performance fees when they shouldn't and we think more funds will adjust the way they approach fees in 2018

- Sub-$50mn Hedge Fund Manager

RECOGNIZED BRANDS CONTINUE TO ATTRACT ASSETS:

Seems to be harder for managers to get over the $100mn and $250mn thresholds as most allocable assets seem destined for the $1bn firms

- $100mn US-Based Hedge Fund Manager

All of the investments in 2016 and 2017 seem to be going to the larger players, many of whom have far worse performance than us, some even negative. This has been particularly frustrating

- Switzerland-Based Hedge Fund Manager

...WITH SOME SEEING POTENTIAL CONSEQUENCES:

Large funds [are] becoming too large. [It is] easier to negotiate good terms with smaller funds

- US-Based Hedge Fund Investor

There are too many assets in the industry and a decrease would be healthy. The biggest managers have too many assets to generate strong risk-adjusted returns

- $60mn US-Based Hedge Fund Manager

2017 HAS SEEN AN INCREASE IN THE NUMBER OF RISK PREMIA, CRYPTOCURRENCY AND ARTIFICIAL INTELLIGENCE/MACHINE LEARNING FUNDS. SOME VIEWS ARE POSITIVE:

There are some positives from each, but some of those positives have been overshadowed by the attention and rush to join the crowd

- Sub-$50mn US-Based Hedge Fund Manager

Investor demand for these strategies has increased

- $260mn Asia-Pacific-Based Hedge Fund Manager

...BUT SOME ARE LESS SO:

Let's put it this way: yesterday was ETFs, today is risk premia/cryptocurrency funds, tomorrow will be something else, the following day another flavour, and so on, and so on...

- US-Based Hedge Fund Manager

Hype greatly exceeds reality

- $75mn US-Based Hedge Fund Manager

AFTER A MORE POSITIVE YEAR, SENTIMENT WITHIN THE INDUSTRY SEEMS GENERALLY POSITIVE:

Been a tough few years, hoping it gets less tough from here on out

- $360mn US Hedge Fund Manager

There is always demand, and funds will come and go according to their returns

- Sub-$50mn Asia-Pacific-Based Hedge Fund Manager

When people are getting out, it is time to get in – behaviour is too sticky and people follow the crowd too much

- $4bn US-Based Hedge Fund Investor

...HOWEVER, CAUTION REMAINS:

When the market corrects, it'll be an interesting time to see where people's performance plays out

- $340mn US-Based Hedge Fund Manager

2018 will be challenging due to performance concerns vis a vis the overall equities markets

- Sub-$50mn Europe-Based Hedge Fund Manager

I continue to firmly believe that markets are entering increasingly dangerous territory; our fund must remain cautious and contrarian in its approach regardless of short-term results

- US-Based Hedge Fund Manager

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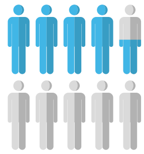
KNOW YOUR INVESTOR

5,288
Number of investors tracked by Preqin.

$2.06tn
Amount of capital invested in hedge funds by institutional investors.

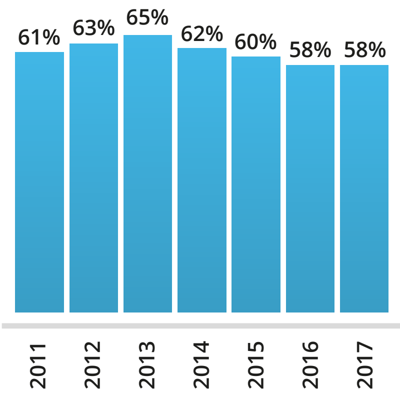


45%
of institutional investors allocate to hedge funds.

Preqin estimates that institutional investors allocate $2.06tn to hedge funds, approximately 58% of all capital invested in the industry today. In capital terms this is the highest level Preqin has recorded; however, the level has fallen proportionally from highs in 2013 as institutional inflows have slowed in a period of growing appetite from private sources of wealth and retail clients. Nevertheless, gaining interest from institutional investors, with their long-term investment horizons and "sticky" capital, can be vital to the long-term development of a hedge fund business. However, under the umbrella of "institutional investor" fall many different types of institutions with different sets of challenges and portfolio needs that hedge funds help to solve. Therefore, gaining insight into the differences between types of investors – both on a macro level and an individual basis – is an important step towards securing capital from these investors.

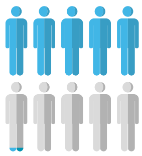
In this section we examine these allocators in more detail, based on data taken from Preqin's online platform, to help you understand the needs of institutions in 2018 and really "Know Your Investor".

PROPORTION OF HEDGE FUND INDUSTRY CAPITAL COMING FROM INSTITUTIONAL INVESTORS



PUBLIC PENSION FUNDS

474
public pension funds invest in hedge funds globally.



51%
of public pension funds actively invest in hedge funds.

$21.6bn
Largest allocation to hedge funds of any public pension fund investor by ABP (managed by APG – All Pensions Group).

Public pension funds have become prominent investors in hedge funds over the past decade and their actions and activity in the asset class have helped shaped the industry we see today. There has been much focus on these investors in recent years following the cuts made to hedge fund investments by CalPERS and a handful of other high-profile pension funds. However, the "will they – won't they?" debate around the wider mass exit of public retirement funds from investment in hedge funds is landing firmly on the side of public pension funds remaining committed to hedge fund investment long term. Today we see more public pension funds investing in hedge funds than ever before, collectively investing their largest sum of capital on record. Much of the increase in capital coming from public pension funds continues to be driven by new schemes making their first investments in the asset class, particularly as new regions open up to the possibility of hedge fund investment. Recent relaxation of regulations in South Korea, for instance, has led to investors such as National Pension Service making their first investments; others including Yellow Umbrella Mutual Aid Fund have begun to consider investment for the first time. Although the average allocation to hedge funds by public pension funds has remained stable since 2016 (at 7.9%, Fig. 7.5), we have noted broader changes to their investment portfolios. Public pension funds continue to move away from a complete fund of hedge funds approach

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IN FOCUS: ALTERNATIVE RISK PREMIA

9%

of fund managers offer a dedicated alternative risk premia product, while

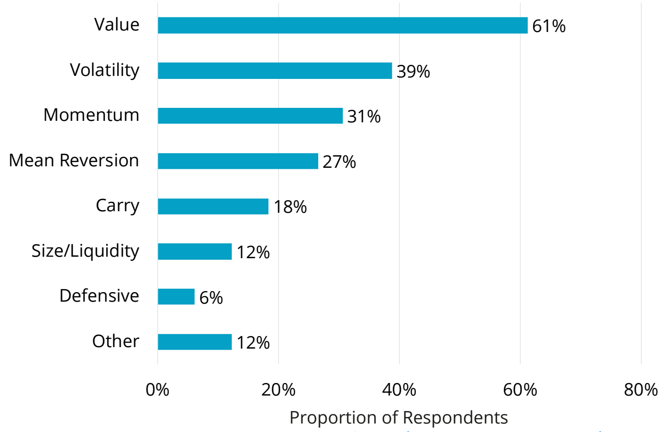
14%

operate a product with an alternative risk premia overlay.

2018 **4%** of managers are planning to launch an alternative risk premia product in 2018.

? **2%** plan to launch an alternative risk premia product, but are unsure of when.

Fig. 8.1: Alternative Risk Premia Strategies Offered



Source: Preqin Fund Manager Survey, December 2017

42%

of fund managers have seen increased appetite from institutional investors for alternative risk premia products over 2017.

11%

of all investors actively invest in alternative risk premia, while a further

12%

are considering investing in 2018.

31%

of all investors active in alternative risk premia plan to increase their allocation to the strategy in 2018.

Fig. 8.2: Sample Alternative Risk Premia Funds Launched in 2017

Fund	Manager	About
Man Alternative Style Risk Premia	Man Group	Man Alternative Style Risk Premia aims to achieve medium-term absolute returns in all market conditions across liquid asset classes. The fund employs a multi-strategy, multi-asset alternative risk premia investment approach implemented through a quantitative and systematic process. The fund utilizes four trading styles in its investments: carry, value, defensive and momentum.
PIMCO Multi-Asset Alternative Risk Premia Strategy Fund	PIMCO	PIMCO Multi-Asset Alternative Risk Premia Strategy Fund (MAARS) is a systematic strategy that aims to isolate exposures to alternative risk premia including value, carry, momentum and volatility across major asset classes.
Systematica Alternative Risk Premia	Systematica Investments	Systematica Alternative Risk Premia Master Fund is a Cayman Islands-domiciled hedge fund with one offshore feeder fund, Systematica Alternative Risk Premia. The strategy deploys momentum, defensive, carry and value trading styles in its systematic portfolio across equity, fixed income, foreign exchange and commodity markets.

Source: Preqin Hedge Fund Online

The hedge fund industry still holds mixed views on the alternative risk premia sector:

> ***Risk premia strategies are not created equal. There will be definite winners and losers in this space***
>
> *- US-Based Alternative Risk Premia Hedge Fund Manager*

Concerns generally centre around crowding in the sector and interest rate rises:

> ***Considerations around crowding in the alternative risk premia space – too many players in the same names?***
>
> *- US-Based Investor*

And while some see it as complementary to a portfolio:

> ***Useful as an overlay***
>
> *- US-Based Investor*

> ***A well-established strategy***
>
> *- $100mn UK-Based Hedge Fund Manager*

...doubts remain over the strategy's long-term potential:

> ***Risk premia is the graveyard for systematic strategies; once it has entered this world, long-term returns and fees will erode value for investors***
>
> *- UK-Based Hedge Fund Manager*

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CREDIT STRATEGIES

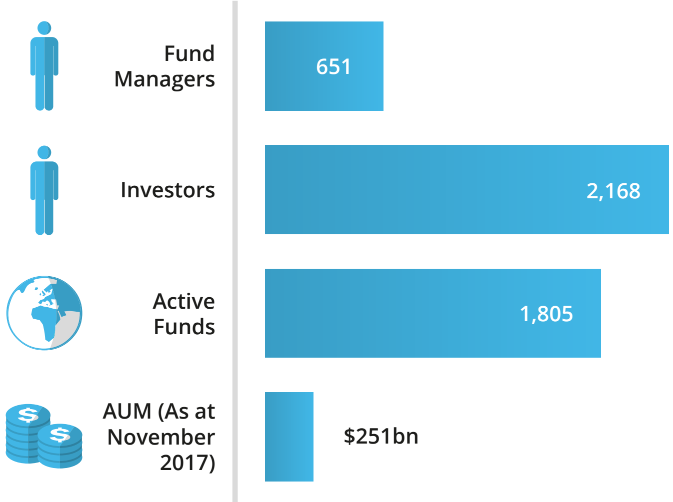
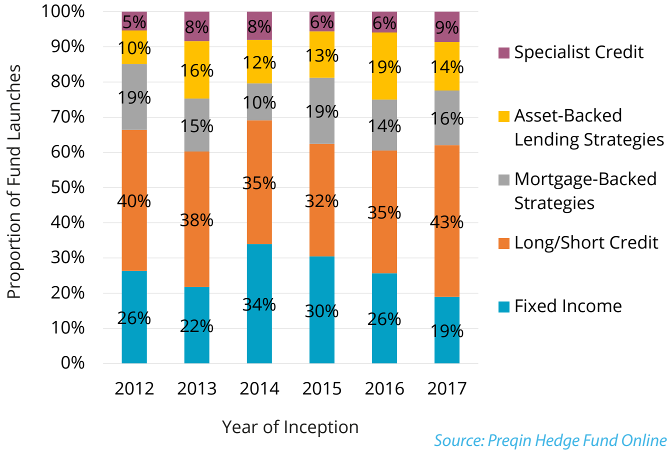
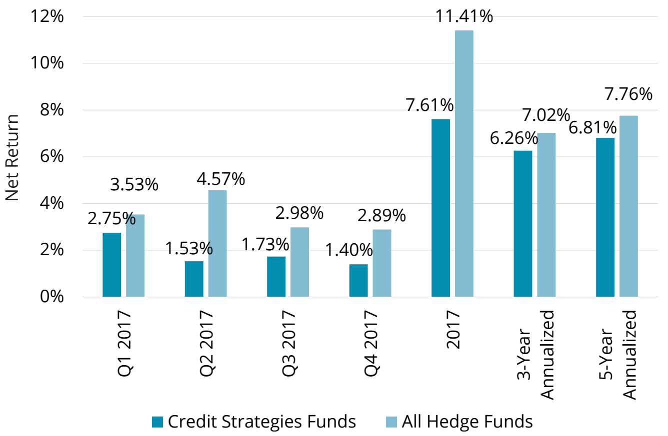


Fig. 8.17: Credit Strategies Fund Launches by Core Strategy and Year of Inception, 2012 - 2017



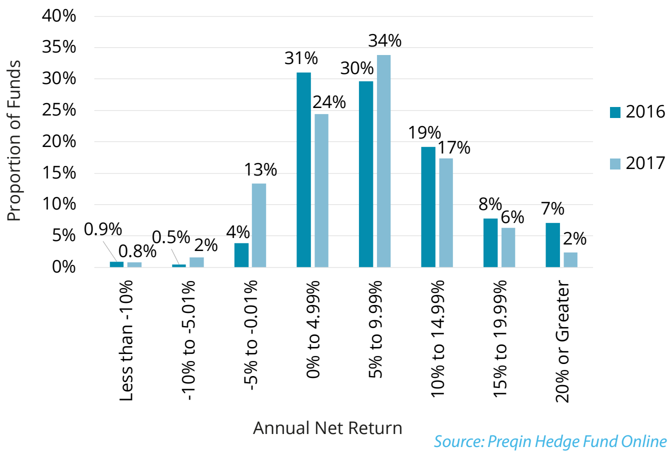
Source: Preqin Hedge Fund Online

Fig. 8.18: Performance of Credit Strategies Funds (As at December 2017)*



Source: Preqin Hedge Fund Online

Fig. 8.19: Distribution of Credit Strategies Fund Returns, 2016 vs. 2017*



Source: Preqin Hedge Fund Online

Fig. 8.20: Performance of Credit Strategies Funds by Sub-Strategy (As at December 2017)*

Q1 2017	Q2 2017	Q3 2017	Q4 2017	2017	3-Year Annualized	3-Year Volatility
Specialist Credit 4.07%	Mortgage-Backed Securities 2.64%	Fixed Income 2.13%	Specialist Credit 1.84%	Specialist Credit 9.46%	Specialist Credit 7.85%	Asset-Backed Lending Strategies 0.85%
Fixed Income 2.77%	Asset-Backed Lending Strategies 1.92%	Long/Short Credit 1.66%	Fixed Income 1.59%	Mortgage-Backed Securities 8.54%	Asset-Backed Lending Strategies 7.41%	Mortgage-Backed Securities 2.17%
Mortgage-Backed Securities 2.69%	Specialist Credit 1.75%	Asset-Backed Lending Strategies 1.55%	Long/Short Credit 1.58%	Fixed Income 8.18%	Mortgage-Backed Securities 6.66%	Fixed Income 2.26%
Long/Short Credit 2.63%	Fixed Income 1.45%	Specialist Credit 1.50%	Mortgage-Backed Securities 1.51%	Long/Short Credit 7.17%	Fixed Income 6.64%	Long/Short Credit 2.62%
Asset-Backed Lending Strategies 2.26%	Long/Short Credit 1.12%	Mortgage-Backed Securities 1.45%	Asset-Backed Lending Strategies 1.00%	Asset-Backed Lending Strategies 6.90%	Long/Short Credit 5.15%	Specialist Credit 3.92%

Source: Preqin Hedge Fund Online

**Please note, all performance information includes preliminary data for December 2017 based on net returns reported to Preqin in early January 2018. Although stated trends and comparisons are not expected to alter significantly, final benchmark values are subject to change.*

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OVERVIEW OF CTAs

Volatility and fluctuations in commodity and currency markets continued to drive trends in the managed futures/ CTA industry in 2017. A number of high-profile elections in Europe saw the euro fluctuate as markets responded to the election victories of Mark Rutte, Emmanuel Macron and Angela Merkel; the Brazilian real weakened in May amid corruption allegations against President Temer, and strong growth in US GDP over the course of Q3 2017 saw the dollar strengthen. In July, the price of copper hit a two-year high following reports China could move to ban imports of scrap metal, and while the price of gold fluctuated over the course of the year, the safe-haven asset has gained since the lows seen in January 2017.

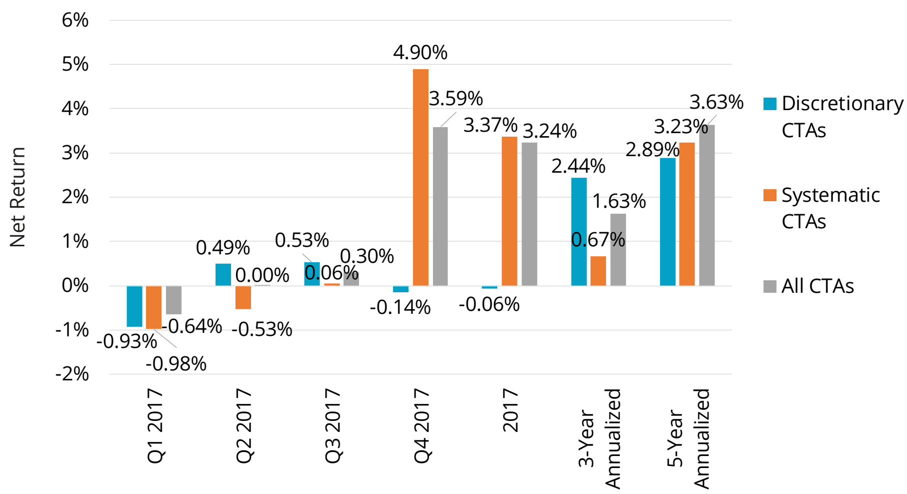
Oil saw a sharp trend reversal in the middle of 2017 as Saudi Arabia and Nigeria announced plans to cut production, while US output showed signs of a slowdown; these events drove the price of crude oil to its biggest daily and weekly gains of 2017, kickstarting a trend by which the price of crude oil continued to rise over 2017, hitting over $60/barrel at the end of the year.

PERFORMANCE OF CTAs IN 2017

The trend reversals and volatile conditions in currency and commodity markets are reflected in the 2017 return of the Preqin All-Strategies CTA benchmark: below water for five months and above for seven months of the year, the benchmark returned 3.24% in 2017, in contrast to the 12 positive months and 11.41% return of the Preqin All-Strategies Hedge Fund benchmark over the same period (Fig. 10.1). With CTAs providing potential diversification from equity markets, they have struggled in a year which has seen major stock markets around the world continuously reach record highs.

Q1: -0.64%. The first quarter of 2017 saw price swings across various commodity markets create challenging conditions for

Fig. 10.1: Performance of CTAs (As at December 2017)*



Source: Preqin Hedge Fund Online

Fig. 10.2: CTA Performance by Strategy (As at December 2017)*

Q1 2017	Q2 2017	Q3 2017	Q4 2017	2017	3-Year Annualized	3-Year Volatility
Option Writing 3.48%	Option Writing 3.04%	Option Writing 2.32%	Trend Following 4.88%	Option Writing 9.64%	Option Writing 7.51%	Arbitrage 3.31%
Arbitrage 0.63%	Counter Trend -0.38%	Arbitrage 0.75%	Counter Trend 4.59%	Counter Trend 4.41%	Counter Trend 1.63%	Option Writing 4.21%
Counter Trend -0.21%	Arbitrage -0.45%	Counter Trend 0.42%	Macro 2.48%	Trend Following 3.46%	Pattern Recognition 1.48%	Macro 4.67%
Pattern Recognition -0.63%	Trend Following -0.51%	Macro 0.35%	Pattern Recognition 2.47%	Arbitrage 2.88%	Arbitrage 1.23%	Pattern Recognition 4.77%
Trend Following -1.17%	Macro -1.25%	Trend Following 0.33%	Arbitrage 1.93%	Macro 0.25%	Trend Following 0.78%	Counter Trend 5.07%
Macro -1.28%	Pattern Recognition -1.48%	Pattern Recognition -0.09%	Option Writing 0.49%	Pattern Recognition 0.23%	Macro -0.40%	Trend Following 6.58%

Source: Preqin Hedge Fund Online

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LEADING FUND MANAGERS

Fig. 14.13: Largest Hedge Fund Managers in North America

Rank	Change from 2017	Manager	Location	Year Established	Assets under Management
1	-	Bridgewater Associates	US	1975	$160.4bn as at 30 September 2017
2	-	AQR Capital Management	US	1998	$106.2bn as at 30 June 2017
3	▲1	Renaissance Technologies	US	1982	$50.9bn as at 30 September 2017
4	*	JP Morgan Asset Management	US	1974	$43.1bn as at 30 September 2017
5	▲5	Two Sigma Investments	US	2002	$35.4bn as at 30 June 2017
6	▼1	Millennium Management	US	1989	$35.3bn as at 1 November 2017
7	-	Elliott Management	US	1977	$32.8bn as at 30 June 2017
8	▼5	Och-Ziff Capital Management	US	1994	$31.8bn as at 1 October 2017
9	▼1	Baupost Group	US	1982	$31.1bn as at 30 June 2017
10	▲4	Davidson Kempner Capital Management	US	1990	$29.7bn as at 30 September 2017

Source: Preqin Hedge Fund Online

Fig. 14.14: Largest Hedge Fund Managers in Europe

Rank	Change from 2017	Manager	Location	Year Established	Assets under Management
1	-	Man Group	UK	1983	$64.6bn as at 30 September 2017
2	-	Standard Life Investments (Part of Aberdeen Standard Investments)	UK	1998	$32.3bn as at 30 September 2017
3	▲1	Marshall Wace	UK	1997	$30.0bn as at 1 October 2017
4	▼1	Winton Capital Management	UK	1997	$28.4bn as at 30 September 2017
5	-	GAM	UK	1983	$20.7bn as at 30 June 2017
6	▲4	The Children's Investment Fund Management	UK	2003	$16.7bn as at 30 September 2017
7	▲1	Capula Investment Management	UK	2005	$16.3bn as at 30 September 2017
=	▲2	Cevian Capital	Sweden	2002	$16.3bn as at 30 September 2017
9	▼2	Brummer & Partners	Sweden	1995	$14.6bn as at 30 September 2017
10	▲1	AlphaGen Capital**	UK	1999	$13.6bn as at 30 September 2017

Source: Preqin Hedge Fund Online

Fig. 14.15: Largest Hedge Fund Managers in Asia-Pacific

Rank	Change from 2017	Manager	Location	Year Established	Assets under Management
1	-	Platinum Asset Management	Australia	1994	$19.4bn as at 30 September 2017
2	▼1	Hillhouse Capital Management	China	2005	$17.6bn as at 30 November 2017
3	-	Value Partners	Hong Kong	1993	$16.5bn as at 30 September2017
4	*	Springs Capital	China	2007	$8.0bn as at 30 September 2017
5	▼1	PAG Absolute Returns	Hong Kong	2002	$7.2bn as at 30 September 2017
6	▼1	Dymon Asia Capital	Singapore	2008	$5.4bn as at 30 September 2017
7	▼1	Graticule Asset Management Asia	Singapore	2014	$5.3bn as at 30 September 2017
8	▼1	Tybourne Capital Management	Hong Kong	2010	$5.0bn as at 31 October 2017
9	*	Lakefront Asset Management (BJ)	China	2011	$4.1bn as at 30 September 2017
=	▼2	Myriad Asset Management	Hong Kong	2011	$4.1bn as at 1 June 2017

Source: Preqin Hedge Fund Online

Fig. 14.16: Largest Hedge Fund Managers in Rest of World

Rank	Change from 2017	Manager	Location	Year Established	Assets under Management
1	-	Verde Asset Management	Brazil	2015	$10.0bn as at 30 September 2017
2	-	SPX Capital	Brazil	2010	$7.2bn as at 30 September 2017
3	▲2	Gávea Investimentos	Brazil	2003	$2.3bn as at 30 September 2017
4	▼1	JGP Global Gestão de Recursos	Brazil	1998	$2.2bn as at 30 September 2017
5	▼1	Tarpon Investment Group	Brazil	2002	$1.9bn as at 30 September 2017
6	-	Claritas Investments	Brazil	1999	$1.7bn as at 17 September 2017
7	*	Apex Capital	Brazil	2011	$1.4bn as at 29 September 17
8	▲4	Sphera Funds Management	Israel	2004	$1.3bn as at 1 October 2017
9	-	Canvas Capital	Brazil	2012	$1.2bn as at 30 September 2017
10	*	Ibiuna Investimentos	Brazil	2010	$1.1bn as at 30 September 2017

Source: Preqin Hedge Fund Online

▲X: Higher ranking in league table, up X places from 2017 Preqin Global Hedge Fund Report.
▼X: Lower ranking in league table, down X places from 2017 Preqin Global Hedge Fund Report.
- : No change in ranking from 2017 Preqin Global Hedge Fund Report.
**Change in position unavailable as 2016 year-end data was not accessible at time of publishing the 2017 Preqin Global Hedge Fund Report.*
***In May 2017, Janus Capital Group Inc. and Henderson Group plc merged to form Janus Henderson Group plc. AlphaGen Capital manages the Group's hedge fund investments.*

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2018 PREQIN GLOBAL REAL ESTATE REPORT

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Preqin's real estate data has helped thousands of real estate professionals raise capital, identify investment opportunities, develop new business and form new partnerships. Constantly updated by a team of dedicated analysts, this comprehensive resource provides the most up-to-date information on all areas of private real estate.

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DATA PACK FOR 2018 PREQIN GLOBAL REAL ESTATE REPORT

The data behind all of the charts and infographics featured in this report is available to purchase in Excel format. Ready-made charts and graphs are also available, and can be used for marketing materials, presentations or company reports.

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CYCLICAL EVOLUTION AND STRUCTURAL REVOLUTION

- Michael Gately & Paul Stewart, **Barings Real Estate**

It is often said that the only constant is change, a sentiment that seems more relevant than ever as the maturing and extended cycle intersects with increasingly disruptive forces. Recent technological advances have taken hold fast and have had far-reaching consequences, altering entire industries as they proliferate and creating new ones along the way. Technology changes and slower-moving but powerful secular shifts in demographics and human behaviour are driving the growth of "new economy" sectors, altering the way people live, work and shop, and directly transforming the demand for real estate.

Disruption and change create opportunity for real estate investors, which can recognize and capitalize on both cyclical turning points and structural trends that are expected to persist through cycles. An active and creative approach to asset and portfolio management can further enhance opportunities to maximize risk-adjusted returns.

Heading into 2018, investors appear more cautious and selective in acquisitions and more focused on portfolio positioning as cyclical and geopolitical concerns draw attention to downside risk. The extended expansion continues to support improvement in real estate fundamentals and present investors with an evolving set of opportunities, driven by shifting growth dynamics within countries and within cities. Success at this stage of the cycle requires thinking beyond the impact of shorter-term cyclical factors to secular and structural trends that will drive long-term performance.

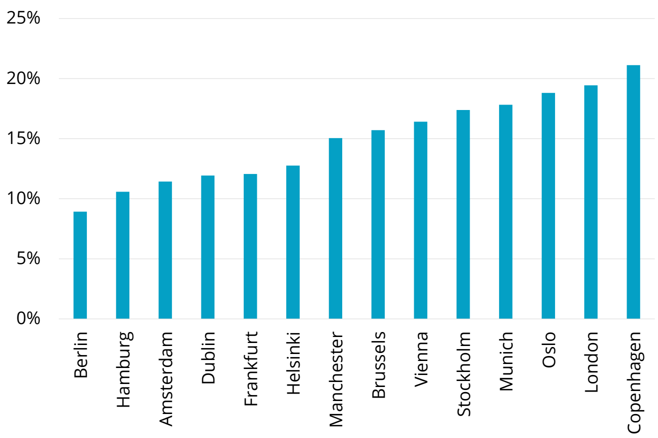
THE RESURGING ROLE OF CITIES AND CHANGING GROWTH DYNAMICS

Technology accelerations and demographic shifts have changed the power dynamic between cities globally. In the US and many industrialized Western economies, populism and political gridlock at the national level have highlighted the growing importance of cities as the engines of growth, competing to attract knowledge-based industries. In the most recent high-profile example, Amazon's very public proposal for its second US headquarters sparked a race among 238 applicants (mostly cities) to "beautify" themselves and stand out from the crowd.

To capitalize on these dynamics, real estate investors must stay attuned to the changing behaviours and preferences of an educated and discerning workforce. For instance, the fast-evolving "asset light" or "sharing" economy magnifies the importance of efficient public transportation accessible to attractively located, amenitized and affordable multi-family housing within urban environments. To succeed, cities need to facilitate the clustering of creative, innovative talent, which in turn attracts and rewards real estate investors aware of these trends and opportunities.

The increased importance of cities suggests national demand drivers are becoming less meaningful for local investment decisions. For example, population trends, which may suggest a dire picture for "old economy" regions like the US rust belt and some European countries, actually mask underlying local dynamism in many cities that are adapting to the new economy. Fig. 1 illustrates this dynamic in Europe, showing strong projected population growth over the next 15 years in a range of cities, despite an expected decline in overall population. In the US, Chicago is an interesting example, in that relatively weak top-line trends mask a diverse array of favourable urban core submarkets and assets.

Fig. 1: Population Growth: Cities Matter More than Nations (Projected Growth Rate, 2017-2032)



Source: Barings, Oxford Economics (October 2017)

Fig. 2: City Innovation Rankings: A Global Perspective

Global Rank	Metro/City
1	London
2	New York
3-5	Tokyo; San Francisco - San Jose; Boston
6	Los Angeles
7-9	Singapore; Toronto; Paris
10-15	Vienna; Seoul; Amsterdam; Barcelona; Sydney; Munich
16,17	Dallas-Fort Worth; Berlin
18-21	Atlanta; Montreal; Chicago; Seattle
22-27	Houston; Madrid; Vancouver; Melbourne; Miami; Washington DC
28-34	Milan; Beijing; Stockholm; Shanghai; Copenhagen; Philadelphia

Source: 2thinknow Innovation Cities™ Index 2016-2017 www.innovation-cities.com

Cities shown in groups on a single line all received the same innovation index score. Top 50 global cities also include Hong Kong, San Diego, Stuttgart, Oslo, Hamburg, Frankfurt, Denver, Lyon (France), Manchester (UK), Helsinki, Austin, Portland and Dublin (Ireland).

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Global Gateway cities such as Tokyo, London and New York have historically provided productive benefits through both size (economies of scale) and density/proximity (agglomeration economies derived from both industry-specific and broader labour market dynamics). These three cities have demonstrated resilience and reinvention over time and through many economic periods. As illustrated in Fig. 2, London and New York top the 2016-2017 Innovation Cities Index global rankings. Tokyo is on par with Silicon Valley and Boston, two knowledge-based economies where industry, university and government support have fostered venture capital funding of technology, life science and clean-energy innovations that have in turn attracted highly educated workforces.

While global investors are often focused on the relatively small subset of Global Gateway cities, there is an expanding list of "non-Gateway" cities. These cities rank well innovation-wise and are also increasingly attractive to millennials, professional couples and growing families for both access to jobs and "lifestyle" considerations. Gateway metros have become increasingly expensive, pushing people and firms to alternative locations. The desire for creative talent to "densify" in urban locations is driving vibrant real estate markets in many cities, resulting in a broad spectrum of new developments and adaptive re-use/refurbishment initiatives.

Cities in this category well positioned to succeed in the new economy include Dallas, Austin, Atlanta, Charlotte, Raleigh, Denver, Seattle and Portland in the US and Munich, Berlin (the European tech hub rival to a much more expensive London), Manchester, Amsterdam, Barcelona, Copenhagen and Stockholm in Europe. Having a strong regional government, public-private partnership and a long-term view are essential to success for cities in this category. Denver in the US and Manchester in the UK are two examples. Denver's success in developing an integrated regional transit system that connects the airport and an expanding array of suburbs to the urban core is reshaping the downtown and the suburbs around train stations. In Manchester, the mayor sets local policy but also serves as an ambassador and figurehead for the city.

HOW CAN INVESTORS CAPITALIZE ON THESE EVOLVING TRENDS?

The structural shifts underway in cities across the globe are not taking place in a vacuum. The economic cycle continues to mature and investors must navigate how structural and cyclical trends may intersect in the years ahead. With the ability to increase value by taking advantage of broad-based macro drivers more limited going forward, return generation requires a shift toward more micro, locational and property-level considerations that can benefit from these structural tailwinds over the long term.

There are three areas where forward-thinking real estate managers can add value for investors:

1. **Asset selection:** value creation in a maturing expansion places increased focus on transaction selection by investment theme, submarket and asset. On the thematic side, assets supported by technological and demographic shifts are most likely to perform well even in the face of cyclical pressures. But uncovering the right submarkets and assets within them relies upon a deep understanding of local market dynamics.
2. **Thinking beyond the traditional definition of real estate:** increasingly, managers will need to look beyond the traditional four real estate sectors (office, retail, industrial, apartments). The lines are blurring between infrastructure and real estate, offering potentially attractive opportunities that may have previously been outside the scope of traditional real estate. Similarly, real estate investments are expanding beyond properties to include related operating companies in areas like self-storage and senior living.
3. **Taking a creative, active approach to portfolio construction and asset management:** optimizing the real estate portfolio for success in the current environment places increased emphasis on asset-level execution and portfolio construction. While this can be done in a number of traditional ways, the key to success today, in our view, is a solid understanding of, and ability to serve, the evolving needs of tenants as they relate to locational, space configuration and lease structure decisions.

THE TAKEAWAY

As investors consider their approach to real estate markets in 2018 and beyond, the massive structural changes taking place in technology and demographics cannot be ignored. While cyclical tailwinds may turn to headwinds in the years ahead, investing in assets and submarkets that benefit from these underlying structural trends will likely pay dividends going forward.

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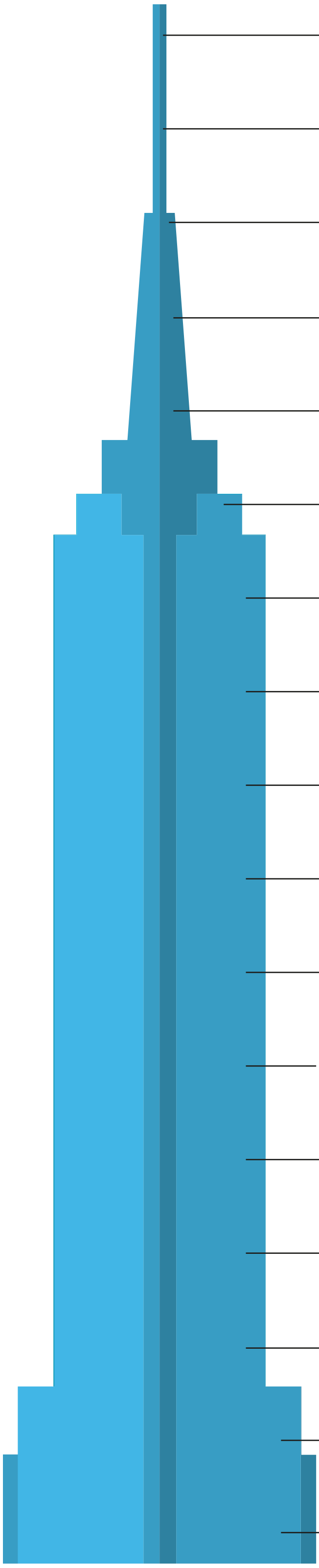
REAL ESTATE: 2017 IN NUMBERS



5,191 Number of completed PERE transactions in 2017, worth an aggregate $287bn.

$811bn Private real estate assets under management reached a new record in June 2017.

573 Record number of closed-end private real estate funds in market as at January 2018, collectively targeting $191bn.

$278bn Record amount of capital distributed from closed-end private real estate funds in 2016.

265 Number of private real estate funds closed in 2017, raising an aggregate $111bn.

$249bn Dry powder as at December 2017.

$237bn Aggregate value of the 3,245 PERE exits in 2017.

84% of surveyed investors will commit more or the same amount of capital in 2018 as they did in 2017.

66% of surveyed investors cited valuations as the key issue for the real estate market in 2018.

64% of surveyed fund managers will deploy more capital in 2018 than they did in 2017.

62% of surveyed fund managers believe valuations are the key issue for the real estate market in 2018.

CNY 55.1bn Size of the largest completed PERE deal in 2017, Vanke's acquisition of a land development portfolio in Guangzhou, China.

48% of surveyed fund managers believe we have reached the peak of the market.

29% of total capital raised in 2017 was secured by the 10 largest funds closed.

30 Number of consecutive quarters of growth in NAV of closed-end private real estate funds.

€7.8bn Capital raised by the largest fund closed in 2017, Blackstone Real Estate Partners Europe V.

5% of surveyed investors have a negative view of the asset class.

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TIMING IS EVERYTHING
- Oliver Senchal, **Preqin**

These are challenging times to be operating a real estate portfolio. Interest rates are starting to rise. Fundraising is intensely competitive. Property valuations have been increasing. Return expectations are falling. However, the findings of the **2018 Preqin Global Real Estate Report** help to contextualize these issues within the broader climate, a climate where the asset class has flourished since the Global Financial Crisis (GFC) and delivered for the vast majority of investors that have sought greater diversification of returns within alternative assets.

TIMING THE MARKET

Many participants feel we have reached the peak of the real estate cycle, and helping to fuel this notion is the recent slowing rate of growth in the number of deals in comparison with levels seen annually from 2012. In 2017, 5,191 deals were completed for an aggregate $287bn, a record level of investment volume.

Despite this, the pressure to deploy capital has not relented. Dry powder remains high, with a quarter of a trillion dollars held by real estate firms and available for investment as at December 2017. This capital cannot sit around indefinitely, although timing entry to the market will never be more important with valuations as they currently are. Fund managers and institutional investors both cite high pricing as the key issue facing the asset class, as evidenced by the 30 consecutive quarters of NAV growth in closed-end funds.

However, real estate markets are deep and firms remain optimistic that the expansion of the industry we have seen over recent years will continue. There remains a significant proportion of both fund managers and investors that are either unsure of where we are or believe there is still room to grow. As at June 2017, AUM of the closed-end private real estate industry stood at a record $811bn, and the majority of surveyed firms believe it will continue to grow over 2018.

CAUTIOUS OPTIMISM

Interest rates remain at historic lows, making the spread between fixed income and real estate yields still attractive and helping to drive more investors to the asset class. Furthermore, the ability of closed-end funds to deliver for investors is made even more apparent by the scale of distributions: nearly $900bn has been released back to institutions from fund investments since 2013, including a record $278bn distributed over the whole of 2016.

The effects of this are twofold: firstly, the vast majority of investors surveyed found that the asset class has met their expectations over both the one- and three-year periods. Secondly, investors – now flush with capital – have to work hard to reach their target allocations, and as such will be continuing to invest capital in 2018 – at the very least, at the same pace as 2017 – and will also look to increase allocations over the longer term.

Fund managers are attempting to capitalize on this sentiment. There are a record 573 closed-end private real estate funds in market, targeting $191bn in capital commitments, which means that active institutions will not be devoid of options in which to deploy capital.

CHANGING FUNDRAISING LANDSCAPE

Even with so many funds in market, we are not seeing the same year-on-year growth in fundraising experienced post-crisis. In 2017, 265 funds reached a final close securing an aggregate $111bn in capital commitments, similar to 2016 totals. As with previous years, the capabilities of the largest firms in securing large volumes of commitments has not diminished: the 20 largest funds closed in 2017 dominate the marketplace, capturing 42% of capital raised and compounding the difficulties faced by smaller players in securing commitments from investors.

However, investors are looking at alternative ways to deploy their capital. Real estate debt funds – after only really gaining a foothold in the market when traditional bank lending dried up post-crisis – have truly emerged as an alternative to the traditional equity strategies that have dominated the fundraising market as investors seek downside risk protection for their portfolios. Debt funds have captured a quarter of the fundraising total in 2017 – a new record – and will continue to blur the lines between fixed income and real estate in investors' allocation plans. Furthermore, the rise of alternative structures to the commingled fund model will continue to play a part in allocation decisions in 2018.

OUTLOOK FOR 2018

The need for fund managers to differentiate their offering from the competition has never been greater. Fundraising is a lengthy process – pushing a year and a half for many – and it is obvious from the discrepancy between the numbers of funds closed and those being marketed that not all will achieve their goals. We are already seeing firms adapting their offerings in response to market conditions, either by taking on more risk, by expanding their strategy to different markets or – for 61% of firms surveyed that are bringing a fund to market – by reducing the targeted returns of these vehicles.

What remains – even in this environment – is strong investor appetite, backed up by a fund manager base that has generally delivered for them in recent years. Distributions have been high, target allocations need to be met and in a low interest rate environment real estate continues to satisfy the desire for diversification, reliable income streams and attractive absolute returns. Those fund managers that can express a unique value proposition and can mitigate investors' pricing concerns will likely be the recipients of capital commitments in 2018.

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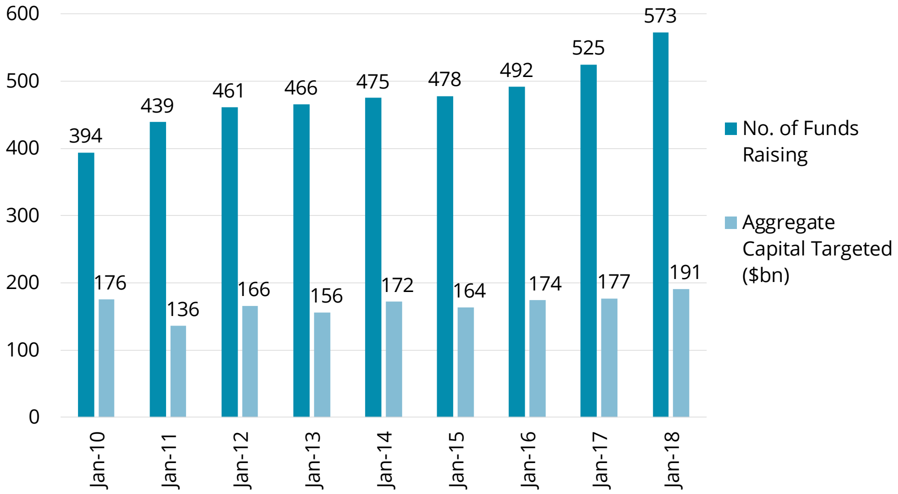
FUNDS IN MARKET

The private real estate fundraising market remains intensely competitive, with an all-time high of 573 funds in market as at January 2018, collectively targeting $191bn in investor capital (Fig. 4.7). Fund managers will continue to find it challenging to stand out from their peers in such a crowded market, despite strong institutional appetite for real estate exposure.

Fig. 4.8 compares the amount of capital sought by private real estate funds in market in January each year with the additional amount of capital that was targeted during the rest of the year (funds newly launched from February to December). The multiples displayed at the top of the chart highlight the disparity between the total capital targeted and the capital secured by interim and final closes. The multiple has increased in recent years from 1.9x in 2015 to 2.7x in January 2017, further illustrating the increasingly competitive marketplace.

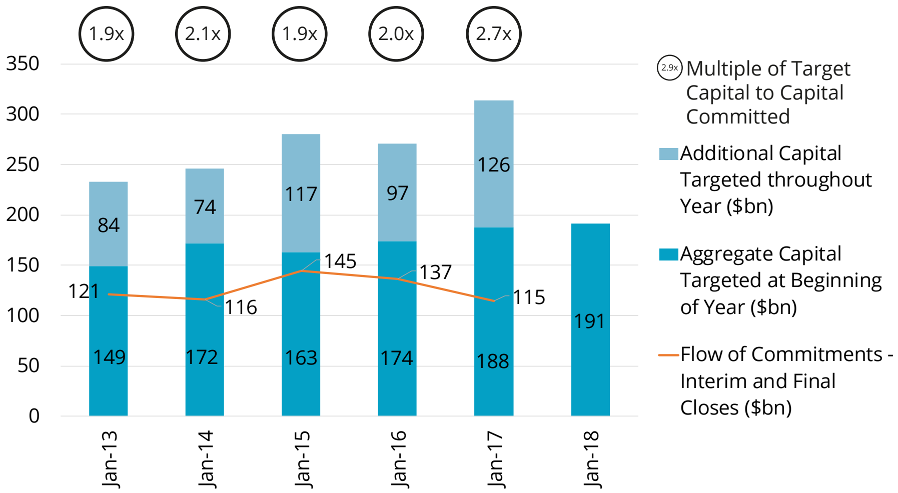
> ***There are a record 573 funds in market as at January 2018, collectively targeting $191bn in investor capital***

Fig. 4.7: Closed-End Private Real Estate Funds in Market over Time, 2010 - 2018



Source: Preqin Real Estate Online

Fig. 4.8: Closed-End Private Real Estate Funds in Market: Aggregate Capital Targeted vs. Aggregate Capital Committed, 2013 - 2018



Source: Preqin Real Estate Online

GEOGRAPHIC FOCUS

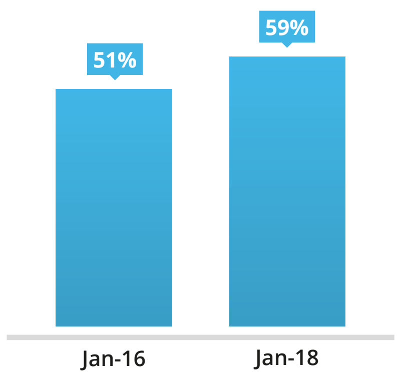
Fig. 4.9 looks at funds in market (as at January 2018) by primary geographic focus:

- **North America:** 344 funds are in market, targeting $114bn; it remains the most prominent region for private real estate investment.
- **Europe:** 125 funds are in market, targeting a total of $44bn (€38bn); this represents an increase from the number of funds in market in January 2017 (116) but a slight decrease in the amount of capital being sought $48bn (€46bn), perhaps reflecting the political uncertainty in the eurozone.
- **Asia:** 66 funds are in market, seeking a collective $25bn, including the third largest fund in market: Blackstone Real Estate Partners Asia II contributes $5.0bn to the aggregate capital targeted by Asia-focused funds.
- **Rest of World:** 38 funds are in market, targeting an aggregate $8.7bn.

STRATEGIES TARGETED

As shown in Fig. 4.10, the majority (58%) of funds in market are targeting

PROPORTION FUNDS IN MARKET THAT HAVE HELD AN INTERIM CLOSE



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FUND MANAGER OUTLOOK FOR 2018

In November 2017, Preqin conducted an in-depth study of 215 real estate fund managers to gain insight into the issues affecting their business and the wider industry, as well as to ascertain their plans for further investment and their outlook for the asset class in 2018.

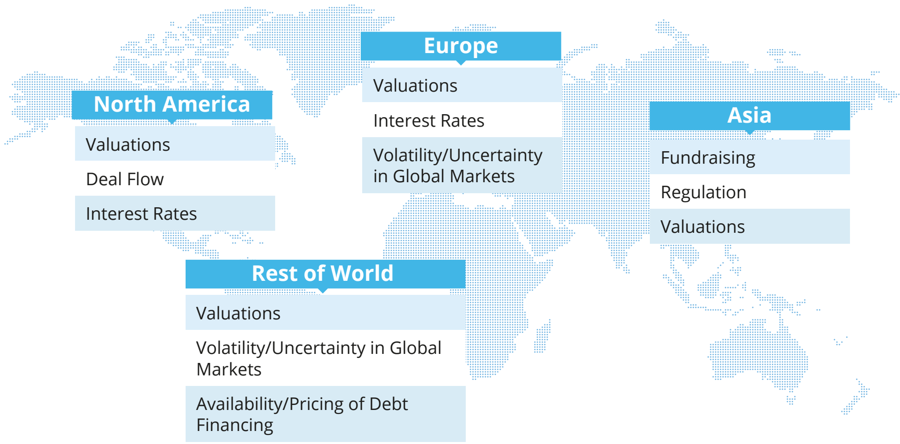
PRICING THE DOMINANT THEME

For the second year running, the pricing of assets has remained the key concern of private real estate firms globally, cited by 62% of respondents (Fig. 5.1). This proportion is 25 percentage points higher than the next biggest challenge for 2018, deal flow, which is intrinsically linked with valuations.

> ***71% of surveyed firms think transactions are more expensive compared to a year ago***

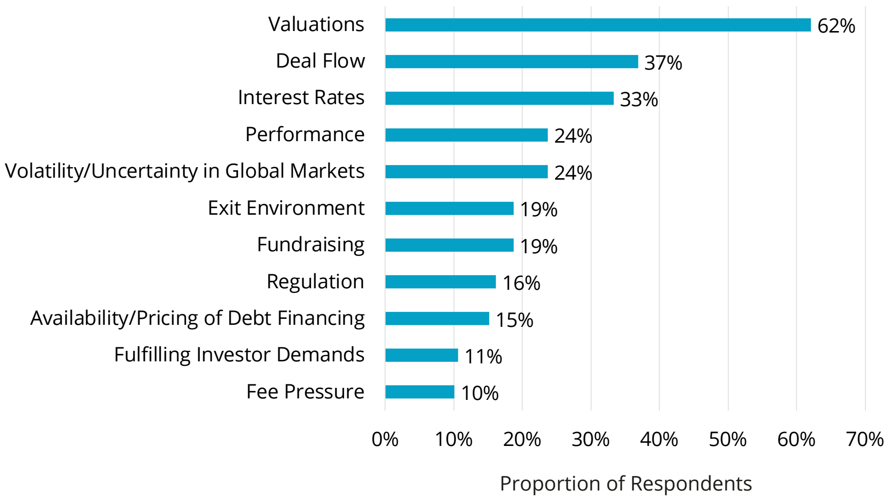
However, as various real estate markets are at different stages of development, thus presenting distinct opportunities to investors, the issues faced by firms differ vastly across each region. Fund managers operating from the developed real estate markets of North America and Europe share concerns over valuations and

Fund Managers' Top Three Issues for the Real Estate Market by Fund Manager Location



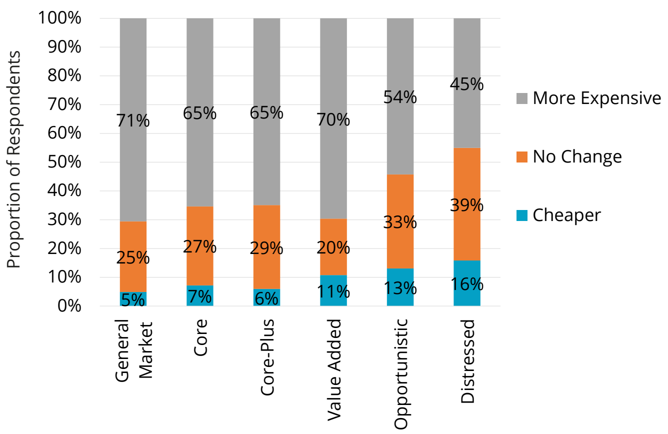
Source: Preqin Fund Manager Survey, November 2017

Fig. 5.1: Key Challenges Facing Private Real Estate Fund Managers in 2018



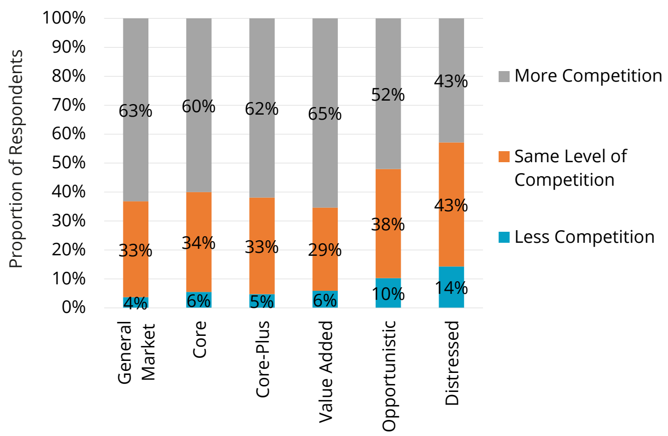
Source: Preqin Fund Manager Survey, November 2017

Fig. 5.2: Fund Manager Views on the Pricing for Real Estate Assets Compared to 12 Months Ago by Strategy



Source: Preqin Fund Manager Survey, November 2017

Fig. 5.3: Fund Manager Views on the Level of Competition for Assets Compared to 12 Months Ago by Strategy



Source: Preqin Fund Manager Survey, November 2017

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CONSISTENT PERFORMING FUND MANAGERS

METHODOLOGY
Preqin assigns each closed-end fund a quartile ranking based on its performance against other funds of the same geographic focus and vintage year. A top-quartile fund will be ascribed a score of one, a second-quartile fund a score of two and so on. Funds with vintages of 2015 or later are not considered. The tables have been restricted to fund managers that have raised at least three funds, and only include active fund managers, with managers that have not launched a new fund since 2011 excluded. The league tables do not endorse these fund managers, but rather seek to illustrate those that have performed the most consistently in the past.

Fig. 7.17: Most Consistent Performing Closed-End Private Real Estate Fund Managers

Firm	Headquarters	Overall No. of Funds with Quartile Ranking	No. of Funds in Top Quartile	No. of Funds in Second Quartile	Average Quartile Rank
NREP	Copenhagen, Denmark	5	5	0	1.00
Arden Group	Philadelphia, US	4	4	0	1.00
FPA Multifamily	San Francisco, US	4	4	0	1.00
Aeriance Investments	Senningerberg, Luxembourg	4	3	1	1.25
ASK Property Investment Advisors	Mumbai, India	4	3	1	1.25
Auratum Real Estate	Turku, Finland	4	3	1	1.25
Columbia Pacific Advisors	Seattle, US	4	3	1	1.25
DivcoWest	San Francisco, US	4	3	1	1.25
Embarcadero Capital Partners	Belmont, US	4	3	1	1.25
Profi Förvaltning	Stockholm, Sweden	4	3	1	1.25
Almanac Realty Investors	New York, US	3	2	1	1.33
ARA Asset Management	Singapore	3	2	1	1.33
Argosy Real Estate Partners	Wayne, US	3	2	1	1.33
Brunswick Real Estate	Stockholm, Sweden	3	2	1	1.33
Carroll Organization	Atlanta, US	3	2	1	1.33
Pennybacker Capital	Austin, US	3	2	1	1.33
Virtú Investments	Larkspur, US	3	2	1	1.33
Bell Partners	Greensboro, US	5	4	0	1.40
Essex Property Trust	San Mateo, US	5	3	2	1.40
TH Real Estate	London, UK	5	3	2	1.40
Waterton	Chicago, US	10	7	2	1.50
Exeter Property Group	Conshohocken, US	4	2	2	1.50
NRP Asset Management	Oslo, Norway	4	2	2	1.50
Redwood-Kairos Real Estate Partners	Rancho Santa Margarita, US	4	2	2	1.50
Carmel Partners	San Francisco, US	5	4	0	1.60
Gaw Capital Partners	Hong Kong	5	3	1	1.60
Centennial Holding Company	Atlanta, US	5	2	3	1.60
HG Capital	Menlo Park, US	8	6	0	1.63
Milestone Capital Advisors	Mumbai, India	6	3	2	1.67
25 Capital	Charlotte, US	3	2	0	1.67
Altis Property Partners	Sydney, Australia	3	2	0	1.67
Fir Tree Partners	New York, US	3	2	0	1.67
Forge Capital Partners	Tampa, US	3	2	0	1.67
Green Courte Partners	Chicago, US	3	1	2	1.67
Greystar Real Estate Partners	Charleston, US	3	1	2	1.67
Thackeray Partners	Dallas, US	3	1	2	1.67

Based on 183 firms and 1,035 funds fulfilling the selection criteria.

Source: Preqin Real Estate Online

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HOW INVESTORS SOURCE AND SELECT FUNDS

In our December 2017 interviews with 244 institutional investors in real estate, 49% of respondents revealed that they found it more difficult to identify attractive real estate fund opportunities in 2017 than in 2016. With this in mind, using investors' responses and data from Preqin's platform, we examine in more detail the typical process that investors employ to source and screen real estate funds.

KEY STATS: AVERAGE SCREENING PROCESS FOR REAL ESTATE FUNDS

METHODS USED BY INVESTORS TO SOURCE FUNDS:

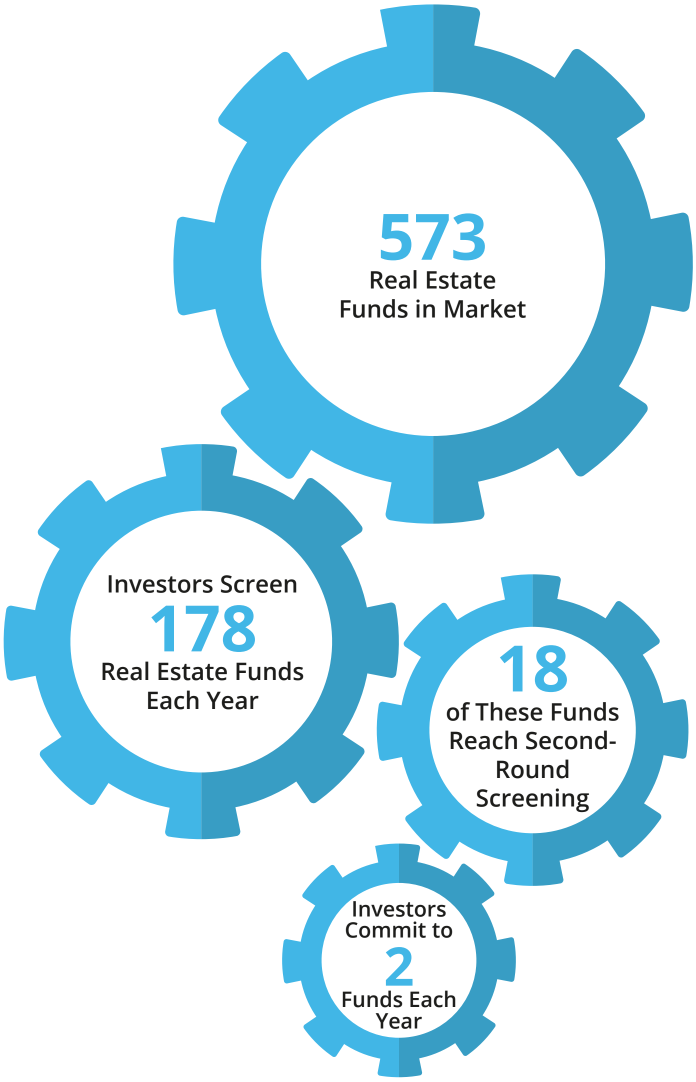
- Mix of internal sourcing and direct external approaches (76%)
- Only internal sourcing (18%)
- Only direct external approaches (6%)

LEADING FACTORS THAT RESULT IN INVESTORS REMOVING A FUND FROM THEIR SCREENING LIST:

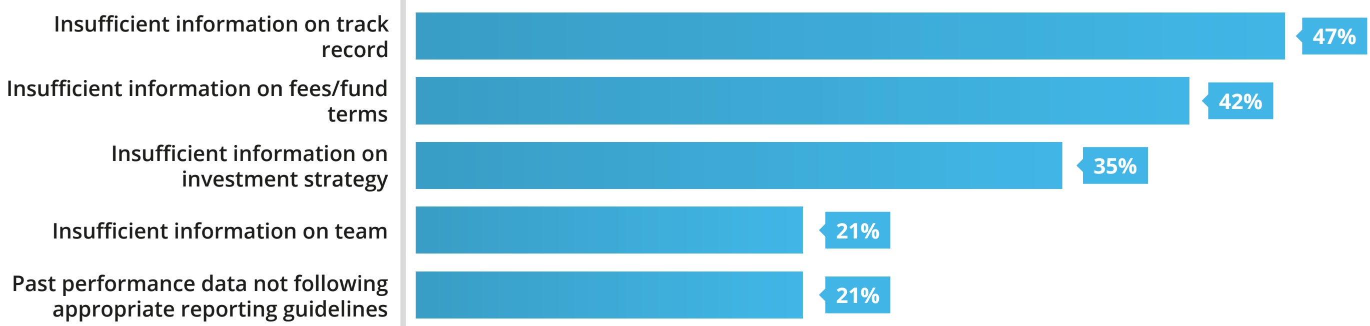
- ✘ Lack of team track record (56%)
- ✘ Unfavourable fund terms (47%)
- ✘ Below-average team track record (47%)

MOST IMPORTANT FACTORS INVESTORS ASSESS WHEN SELECTING NEW FUNDS:

- ✓ Experienced team (74%)
- ✓ Successful team track record (69%)
- ✓ Successful firm track record (60%)



MARKETING MATERIALS FAIL TO MEET THE NEEDS OF 38% OF INVESTORS – WHY?



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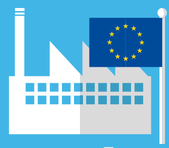
DEAL FLOW

$3bn

Greystar Real Estate Partners acquired Monogram Residential Trust (NYSE:MORE), an owner of a US luxury multi-family apartment portfolio.



$2.8bn

Global Logistic Properties acquired Gazeley from IDI Logistics in December 2017.

There were 5,191 transactions conducted by private equity real estate (PERE) firms in 2017, worth a combined $287bn. At present, the number of deals completed in 2017 is on par with 2016 (and should increase as more data becomes available), while the 9% increase in aggregate deal value represents a new record in investment volume.

2017 QUARTERLY DEAL FLOW

The 1,131 deals in Q1 represent a drop from the equivalent 2016 figure of 1,319. However, the Q3 and Q4 aggregate values ($71bn and $87bn) are the highest totals in the period examined in Fig. 11.1. The number of deals increased throughout 2017 to reach 1,420 in Q3, the largest total on record; despite a 7% increase in the number of deals, aggregate deal value declined 5% in the period. Q4 2017 saw fewer PERE transactions than the previous year (1,310 in Q4 2017 vs. 1,345 in Q4 2016), but still represented the second highest Q4 total on record.

Following year-on-year growth in the number and aggregate value of completed deals from 2012 to 2016, factors such as rising competition for deals, increasing valuations and uncertainty surrounding a potential market correction may have deterred some private equity real estate firms from activity over the course of the year.

2017 IN CONTEXT

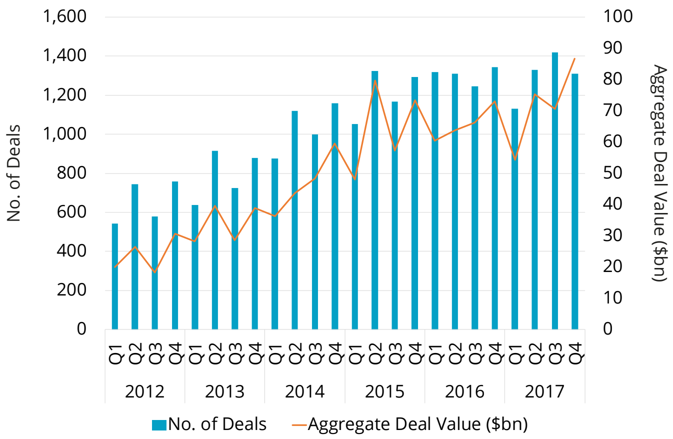
Growth in PERE transactional activity and value has been pronounced since 2012, rising from 2,626 completed deals to a record 5,221 in 2016, while the aggregate value increased from $95bn to $263bn over the same period. Despite fewer deals than the previous year, 2017 represents the second consecutive year of surpassing 5,000 transactions. The $287bn in aggregate value in 2017 is the highest annual total on record.

REGIONAL ANALYSIS

The lower investment volume is mainly due to fewer transactions in North America (Fig. 11.2). North America also recorded the only decline in aggregate value, which was $16bn lower than in 2016 (Fig. 11.3). Asia's increase in aggregate value was bolstered by the largest transaction of 2017 occurring in Guangzhou, China, where Vanke acquired a portfolio of 16 land development sites from Guangdong International Trust and Investment for $8.1bn (CNY 55.1bn).

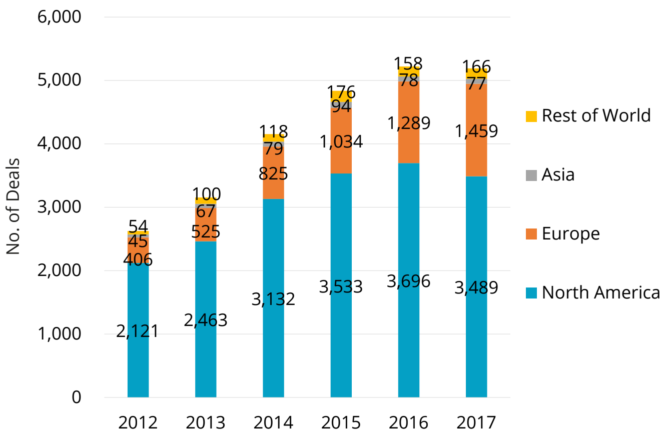
North America continues to account for the majority of PERE deals, with the 3,489 deals worth $155bn representing two-thirds of transactions and 54% of aggregate deal value in 2017. While still the largest market in the world, its proportion

Fig. 11.1: Quarterly PERE Deals Completed Globally, 2012 - 2017



Source: Preqin Real Estate Online

Fig. 11.2: PERE Deal Flow by Region, 2012 - 2017



Source: Preqin Real Estate Online

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INFRASTRUCTURE: 2017 IN NUMBERS

INFRASTRUCTURE HIGHLIGHTS

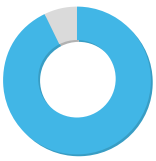
$916bn
Estimated aggregate value of the 2,378 infrastructure deals completed globally in 2017.

$418bn
Unlisted infrastructure assets under management reached a record $418bn as at June 2017.

69
unlisted infrastructure funds reached a final close in 2017, securing an aggregate $65bn.

$18.8bn
Size of the largest deal completed in 2017: Sempra Energy's acquisition of an 80% stake in Oncor from Energy Future Holdings.

INVESTOR SATISFACTION



93%
of surveyed investors feel their infrastructure investments have met or exceeded their expectations over the past year.

53%
of surveyed investors have a positive perception of infrastructure; only 9% have a negative perception.

CAPITAL CONCENTRATION

42%
of total capital raised in 2017 was secured by the five largest funds closed.

$992mn
Average size of unlisted infrastructure funds closed in 2017.

COMPETITION FOR ASSETS

$150bn
Amount of dry powder held by infrastructure firms as at June 2017.

59%
of surveyed fund managers believe that asset pricing will be their biggest challenge in 2018.

DEAL FLOW

$378mn
Average size of infrastructure deals completed in 2017, the highest amount since 2008.

51%
of infrastructure deals completed in 2017 were in the renewable energy industry, a nine-percentage-point rise since 2008.

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RECORD ASSETS CREATING A COMPETITIVE DEAL ENVIRONMENT

- Tom Carr, **Preqin**

2017 was a year of significant positives for the infrastructure asset class. Assets under management continued to grow over the year – 2017 represents another record high – and strong investor demand drove fundraising activity. However, the sustained levels of growth presented challenges: managers struggled to put record levels of capital to work, with deal activity falling behind levels seen in 2016. This is an indication that while demand for infrastructure assets remains strong, sourcing attractive investment opportunities at prices that will deliver strong risk-adjusted returns is proving challenging in this competitive environment. Another key trend has emerged among the firms responsible for raising the capital: the industry is becoming even more concentrated, with a small number of managers securing increasingly large proportions of capital, while smaller managers are left to compete for the remaining capital.

A STRONG YEAR FOR FUNDRAISING

Over $65bn was raised by funds reaching a final close in 2017, almost matching the record $66bn secured in 2016. Global Infrastructure Partners III alone secured $15.8bn in January 2017, making it the largest unlisted infrastructure fund ever closed. There has been a general decline in the number of funds reaching a final close each year, with 2017 recording the lowest number (69) since 2011. Reflective of the importance of a proven track record and investment strategy expertise to investors, the largest firms continue to have greater fundraising success, with 42% of capital secured in 2017 represented by the five largest funds closed. The launch of Blackstone Infrastructure I in May 2017, an open-ended vehicle targeting $40bn for global infrastructure investments, demonstrates the long-term trend for larger proportions of capital being raised by a small band of managers.

In the past decade, core and core-plus funds have dominated unlisted infrastructure fundraising, representing 54% of the total number of funds closed and 57% of aggregate capital raised. Demand for such assets has contributed to both the elevated levels of competition among fund managers and the significant increase in costs for financing infrastructure projects.

While the number (166) of funds in market remains at similar levels to previous years, these vehicles are targeting a record $122bn in institutional capital. With competition among GPs higher than ever, firms have been spending more time on the road to set themselves apart from their competitors and raise the necessary institutional capital to meet their targets.

A SLOWDOWN IN TRANSACTIONS

The annual number of infrastructure deals completed fell in 2017 for the first time in a decade: 2,378 transactions were completed for an estimated aggregate $916bn, representing a 6% drop in number but an 8% increase in estimated aggregate value from 2016. With record levels of capital chasing infrastructure assets, pricing has risen, which has meant managers have struggled to find attractive infrastructure assets at prices that will meet their investors' return expectations. GPs are also seeing more competition from large direct investors, many of which are willing to pay a premium for infrastructure assets in the current market.

While the proportion of infrastructure deals completed outside developed markets has steadily increased since 2008, North America and Europe remain the key destinations. However, the increasingly competitive environment may result in GPs targeting more affordable assets outside established markets in search of relative value.

INVESTOR APPETITE REMAINS STRONG

High levels of capital distributions over the past two years, coupled with strong risk-adjusted returns, have left investors more than satisfied with the asset class. Ninety-three percent of respondents to Preqin's latest survey of institutional investors stated that the performance of their infrastructure investments had met or exceeded their expectations in the past 12 months, compared to 89% and 77% of survey respondents in 2016 and 2015 respectively. With significant capital left to re-invest, it is unsurprising that 39% of respondents expect to invest more capital in infrastructure over the next 12 months than in the previous year. However, it is vital that fund managers remain aware of, and find ways to address, investors' key concerns, such as rising asset valuations.

OUTLOOK FOR 2018

Infrastructure remains an important component in the portfolios of the growing number of investors attracted by the strong risk-adjusted returns and inflation-hedging characteristics on offer. While surveyed investors have announced their intention to commit more capital to the asset class in 2018, fundraising will remain a challenge for most fund managers in a market where the largest firms dominate.

Despite infrastructure funds producing strong returns in recent years, both fund managers and investors share concerns over the increasing competition for assets and the resulting effect of rising asset prices, which is likely to eat into eventual net returns. These concerns may explain the drop in the number of deals completed in 2017, following a year-on-year rise since 2008. With dry powder levels reaching a record $150bn, and showing no signs of slowing down, fund managers will have to find ways of overcoming the competitive environment in order to put investors' capital to work. This may involve moving up the risk/return spectrum, and looking more to emerging markets in search of affordable assets, with 40% of investors surveyed expecting to increase their allocation to the region over the long term.

IN FOCUS: FUNDRAISING BY PRIMARY STRATEGY

Fig. 4.44: Unlisted Infrastructure Fundraising in 2017 by Primary Strategy

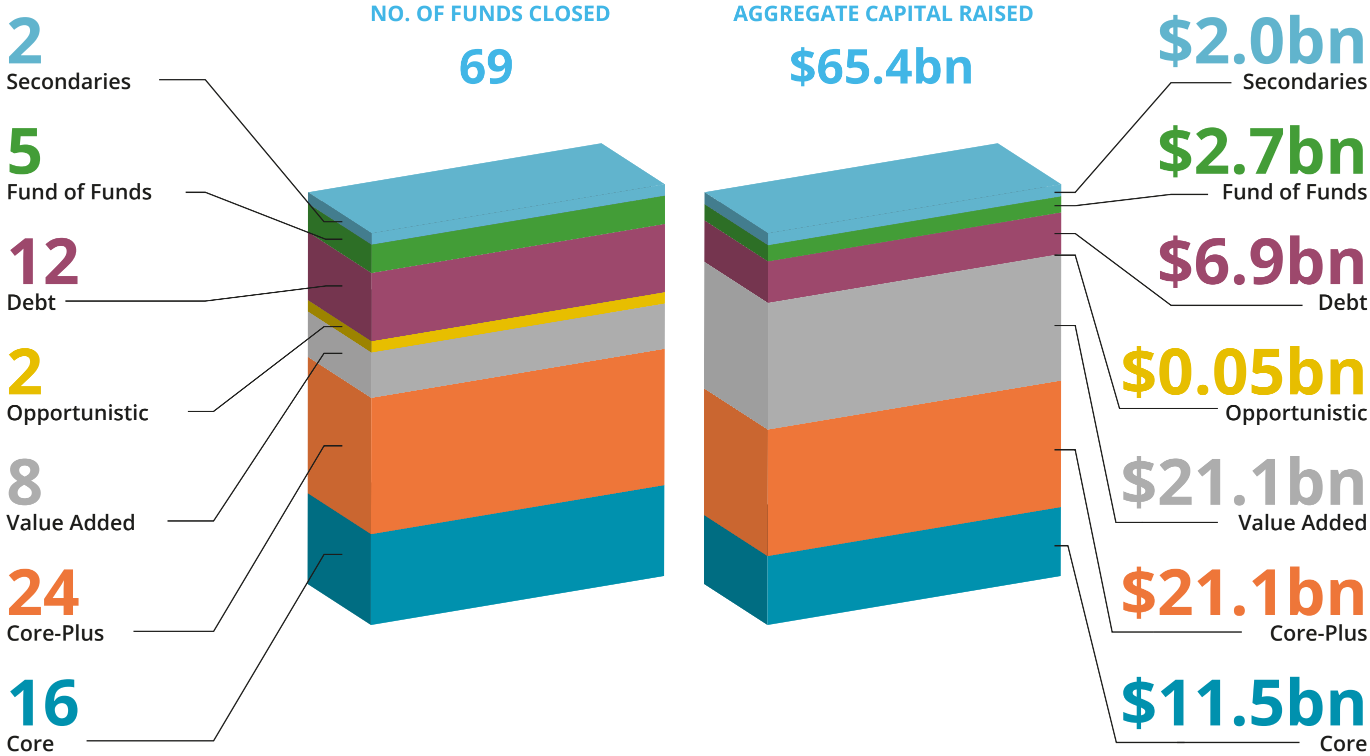
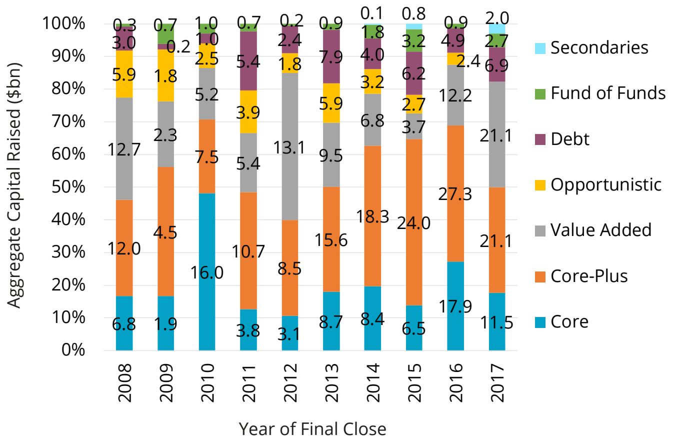
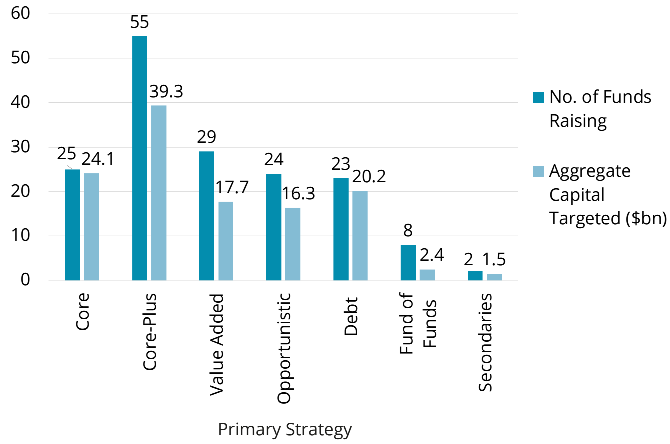


Fig. 4.45: Aggregate Capital Raised by Unlisted Infrastructure Funds by Primary Strategy, 2008 - 2017



Source: Preqin Infrastructure Online

Fig. 4.46: Unlisted Infrastructure Funds in Market by Primary Strategy (As at January 2018)



Source: Preqin Infrastructure Online

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OPPORTUNITIES IN ENERGY INFRASTRUCTURE
- Himanshu Saxena, **Starwood Energy Group**

Tom Carr: What is Starwood Energy's strategy in the infrastructure space?
Himanshu Saxena: Starwood has been actively investing in the energy infrastructure space since 2004. We have raised two funds in this period and are now managing about $3bn of equity capital. We are a value-add manager that is looking for opportunistic investments that can benefit from our team's extensive technical, commercial and financial expertise.

We are investing in opportunities to buy or build energy infrastructure assets. On the build side, on a very disciplined basis, we are supporting developers move their projects through development, construction and operations. We have built gas-fired assets; renewable assets including wind, solar and biomass; transmission assets and most recently battery storage assets. On the buy side, we have acquired existing gas-fired assets on a very selective basis.

TC: You have just taken on the CEO role at Starwood Energy. What does it mean for the strategy of the firm going forward?
HS: I have been at Starwood Energy for ~10 years and I am proud of the team we have built and the support that our investors have shown in us. As CEO, I will continue the value-add strategy that has consistently delivered for our investors. It is a rapidly changing marketplace and our ability to switch between buying or building assets and to switch from one technology to another will enable us to continue finding attractive investment opportunities.

TC: What makes greenfield attractive at this time?
HS: Starwood will selectively build new assets if it can identify long-term customers for energy and/or capacity from such assets. We have built assets for customers and have signed contracts as long as 50 years with these customers. Our customers range from utilities, municipalities, intermediaries such as banks, ISOs such as CAISO and corporate customers such as Target and General Motors.

We are continuing to see very strong customer interest for a wide variety of infrastructure projects including transmission and renewables. That is translating into Starwood continuing to build new infrastructure assets.

TC: Why are corporate customers interested in renewables?
HS: Many Fortune 500 companies have voluntarily established sustainability targets. Additionally, these corporate customers see the opportunity to directly procure renewable energy from projects as a means to hedge their energy costs at very attractive prices. Customers such as Facebook, Microsoft, Amazon, Google, General Motors and Target have been some of the most active buyers of renewable energy in 2017 and 2016. We expect this trend to continue in the future.

The cost of building renewables continues to fall given the declining prices of solar panels and wind turbines. This translates into very attractive deals for the corporate customers, and therefore we continue to see new corporate customers procuring renewable energy.

Recently, we signed a long-term power purchase agreement with General Motors (GM) for a wind farm we are building in Ohio. GM has a sizeable manufacturing footprint in Ohio and this agreement will allow it to procure cost effective sustainable energy for the long-term. On the other hand, this agreement allows us to finance this project and to create low-risk cash flow streams.

TC: What are your thoughts on battery storage?
HS: As renewable penetration grows, the need for batteries becomes more significant. In California, for example, the goal is to move towards 50% renewables. At that high level, it becomes imperative to have a mechanism that can absorb and distribute excess generation created by renewable resources. Batteries are ideal solutions to that problem. We believe batteries will become a key part of the power supply chain and over time, will become as commonplace as solar is now. The cost of batteries is falling rapidly and that should continue to result in rapid penetration of batteries in this space.

TC: What do you see as the most important changes within the US energy sector right now?
HS: Although gas prices have started to firm up recently, we are still in a historically low gas price environment. The US is awash in shale gas which is upending the way this country produces and uses energy. Low gas prices result in low wholesale power prices which then result in old coal and nuclear plants becoming economically obsolete. As the coal and nuclear plants retire, they have to be replaced by newer technologies such as gas-fired and renewable assets. The industry is going through a significant transformation and a natural de-carbonizing of the economy is underway. This creates a window of opportunity for investors like us.

TC: How does your approach differ from that of other players operating in the industry today?
HS: What we do takes a lot of patience and expertise. Some of our projects take months, and some take years to develop. We are not deploying a multibillion-dollar fund. The amount of capital we are investing is perfectly sized to deploy in $50-150mn chunks, and we can be patient in nurturing the projects and crafting the deals piece by piece to create value. That amount of time and expertise is something that a number of our competitors do not have, or are not able or willing to develop.

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TC: What are the key things you look for in the projects you invest in, both the greenfield developments and the opportunistic acquisitions you mentioned?
HS: When we speak about greenfield, we are speaking about a very specific type of project. We will only commit meaningful capital to a new greenfield project when we have a long-term committed revenue contract from an investment-grade counterparty. We will only commit significant capital when we have all the operating permits in place, and when we have a fixed price and full wrap – which mean a full guarantee – engineering, procurement and construction contract. So when we talk about a disciplined approach, that is what we mean.

For operating projects, we look for assets that need more than just capital. We are looking for opportunities where we can bring in our operational expertise – whether increasing the capacity or increasing the efficiency – or where we can do something on the financial side of the business.

TC: With the amount of money that has been raised for US infrastructure and US energy increasing, do you see more competition in the market? Is that making it harder to find opportunities, or do you see more opportunities right now?
HS: For development opportunities, we see limited competition. That is simply because many of these new sources of capital – whether pension funds or life insurance companies or sovereign wealth funds – are not looking to compete in that space. There is a lot of capital in the market chasing assets, but that capital is chasing larger assets with very low risk and very reliable cash flows. We tend to build those assets and then sell them to such investors.

TC: So it is creating an exit opportunity for you more than anything else?
HS: Yes, we have seen more competition among potential buyers of our assets than we have competitors for the acquisitions of assets we go after.

TC: Are there any key challenges in the market at the moment that you are facing, and what do you do to mitigate those?
HS: There is no shortage of assets to buy. On any given day, there are tens of thousands of megawatts of capacity available for sale, both operating projects and development projects.

Many of our projects are originally developed by independent developers, and we will get involved when that developer needs a capital partner as well as a technical partner that can fix things, put together the key contracts and get a project done.

TC: What about moving forward; how do you expect your sector to evolve in the coming few years?
HS: One of the big questions is how quickly more distributed power generation technologies will take hold. Right now, there is no single distributed technology that is an alternative to the centralized grid systems in North America and Europe, but there is some progress being made. We are keeping a very close eye on that area and considering how we might participate. On the way to becoming more distributed in the next decade, we will first see the current carbon-heavy power sources give way to less carbon-intensive centralized sources.

TC: Do you see more demand for energy exposure from investors and are they interested in the sort of development stage projects you focus on?
HS: As a value-add manager active in greenfield, we see increasing interest on the part of institutional investors in having that exposure. We have seen some move forward with direct investing and many have done it very well, but we have also seen recognition that greenfield energy infrastructure development takes a long time and a lot of expertise. So some institutional investors have backed off on direct investing in this area. The whole market is becoming more educated and more sophisticated, with differentiation of strategies and investment approaches by managers like us, as well as larger institutional infrastructure investors.

STARWOOD ENERGY GROUP

Starwood Energy™ actively pursues attractive, risk-adjusted returns from both opportunistic acquisitions and development of energy infrastructure assets. Starwood Energy™ targets investments in hard assets with a promise of strong cash flows. Starwood Energy™ believes that this approach reduces downside potential, provides financial flexibility and broadens exit alternatives. Starwood Energy™ also targets greenfield and brownfield development opportunities where it can add value through its development expertise. Starwood Energy™ is actively pursuing solar, wind and other renewable energy projects in response to the rapidly rising need for green energy in North America.

Starwood Energy™ specializes in energy infrastructure investments, with a focus on power generation, transmission, storage, and related projects. Through Starwood Energy Infrastructure Fund, including successor funds and affiliated investment vehicles, Starwood Energy™ has raised approximately $3bn of equity capital and has executed transactions totalling more than $6bn in enterprise value. The Starwood Energy™ team brings extensive development, construction, operations, acquisition and financing expertise to its investments.

Additional information about Starwood Energy Group as well as Starwood Capital Group can be found at:

www.starwoodenergygroup.com

FUND MANAGER OUTLOOK FOR 2018

Increasing demand for infrastructure assets from institutional investors in recent years is a key driver in the growth of the industry, with institutions attracted to the stable cash flows and strong risk-adjusted returns that infrastructure funds can provide over the long term. This has resulted in a rising number of active fund managers in the asset class: there are currently 534 active infrastructure fund managers worldwide, up from 519 at the end of 2016, with approximately $418bn in aggregate AUM. In November 2017, Preqin surveyed over 60 infrastructure fund managers to gain an insight into the key issues affecting their businesses, deal flow and financing, as well as their outlook for the coming year.

> ***"Valuations have emerged as the key challenge facing GPs in 2018***

KEY CHALLENGES

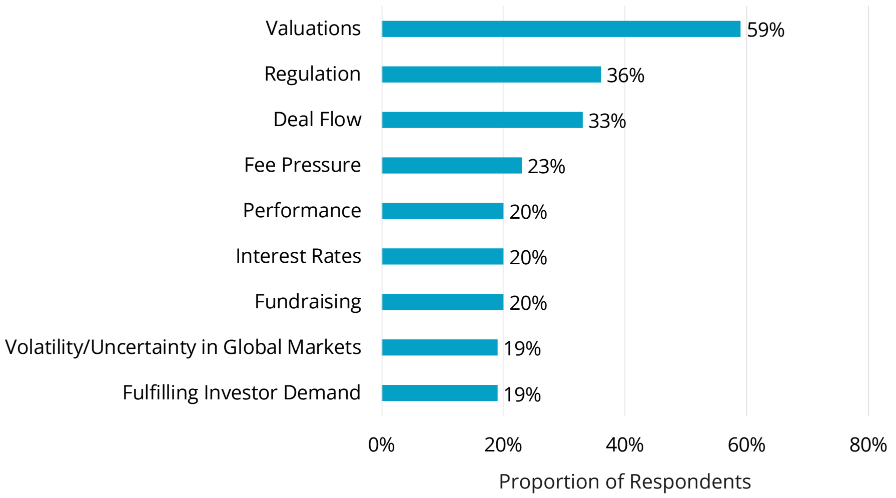
In recent years, the infrastructure industry has seen increased participation among groups other than GPs, including corporate buyers and institutions that have the resources to invest directly in the asset class, such as large sovereign wealth funds. High levels of industry participation have pushed dry powder held in unlisted infrastructure funds to a record $150bn as at June 2017 – it is therefore no surprise that valuations and deal flow have emerged among the three biggest challenges facing GPs in 2018 (Fig. 5.1). However, 46% of fund managers surveyed are finding it more difficult to source attractive opportunities compared to 12 months ago, which is down from 54% surveyed at the end of 2016 (Fig. 5.2).

Regulation is viewed as the second biggest issue facing GPs in the infrastructure market in 2018, as cited by 36% of respondents. This is likely a reflection of issues such as Brexit and its potential ramifications for the legal and regulatory environment in Europe and uncertainty around areas such as subsidies in the renewables industry. These challenges are closely linked to other concerns cited by fund managers, such as uncertainty in global markets and the potential impact of this on the fundraising environment and the performance of infrastructure funds.

Key observations on infrastructure assets by primary strategy include:

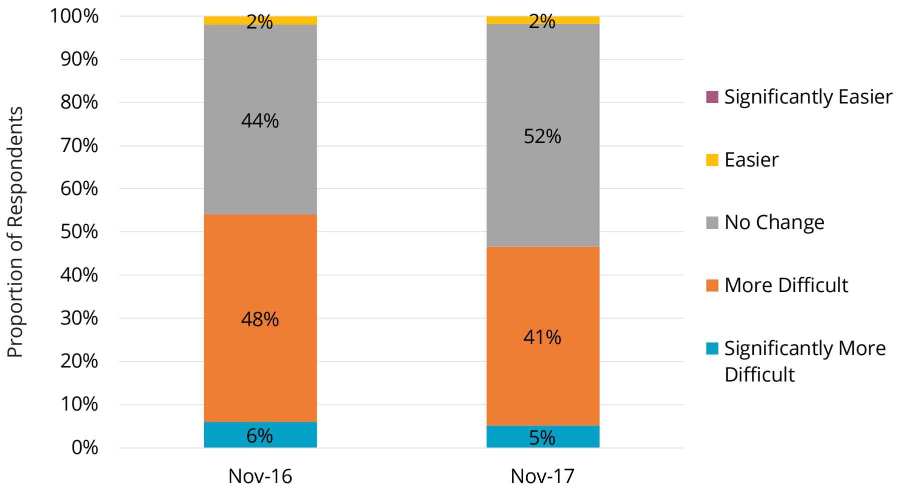
- A majority of respondents believe there is more competition for **core** and **core-plus** assets compared to 12 months ago (Fig. 5.3), driven by investor demand for established and yielding infrastructure assets that can deliver steady cash streams.
- Over two-thirds (70%) of firms have also seen more competition for **debt** strategies, with the infrastructure debt industry becoming increasingly prominent due to regulatory

Fig. 5.1: Key Challenges Facing Unlisted Infrastructure Fund Managers in 2018



Source: Preqin Fund Manager Survey, November 2017

Fig. 5.2: Fund Manager Views on the Difficulty of Finding Attractive Investment Opportunities Compared to 12 Months Ago, 2016 vs. 2017



Source: Preqin Fund Manager Survey, November 2016 - 2017

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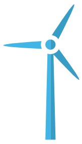
SECONDARY STAGE DEALS

$18.8bn

Value of the largest secondary stage deal in 2017, Sempra Energy's acquisition of an 80% stake in Oncor from Energy Future Holdings.

42%

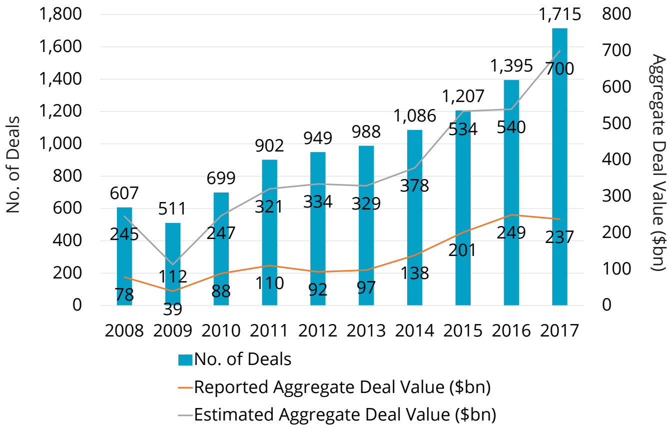
of secondary stage transactions completed in 2017 took place in Europe.



20%

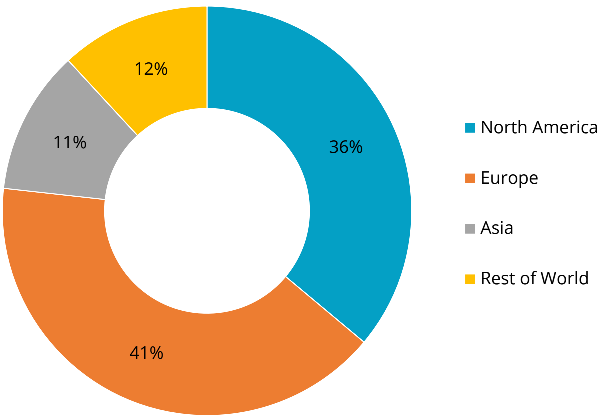
of secondary stage deals completed in 2017 involved wind power assets.

Fig. 11.43: Secondary Stage Infrastructure Deals Completed Globally, 2008 - 2017



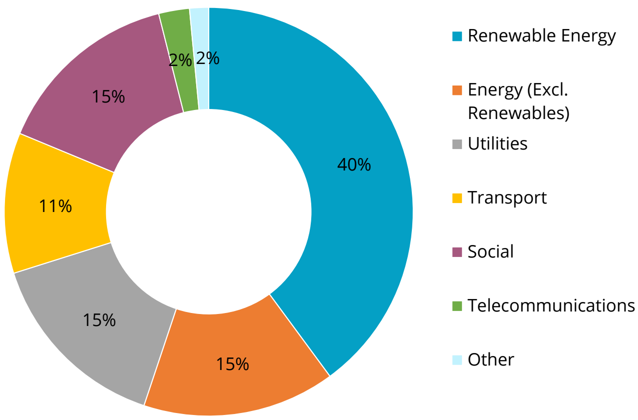
Source: Preqin Infrastructure Online

Fig. 11.44: Secondary Stage Infrastructure Deals Completed by Region, 2008 - 2017



Source: Preqin Infrastructure Online

Fig. 11.45: Secondary Stage Infrastructure Deals Completed by Industry, 2008 - 2017



Source: Preqin Infrastructure Online

Fig. 11.46: Notable Secondary Stage Infrastructure Deals Completed in 2017

Asset	Location	Industry	Investor(s)	Deal Size (mn)	Stake (%)	Date
Oncor	US	Power Distribution	Sempra Energy	18,800 USD	80	Aug-17
Essar Oil	India	Natural Resources	Rosneft, Trafigura, United Capital Partners	12,900 USD	98	Feb-17
Rosneft	Russia	Energy	CEFC China Energy Company	9,100 USD	14	Sep-17
Maersk Oil	Denmark	Natural Resources	Total SA	7,450 USD	100	Aug-17
Veresen	Canada	Natural Resources Pipelines	Pembina Pipeline Corporation	9,700 CAD	100	May-17

Source: Preqin Infrastructure Online

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REPORT

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DATA PACK FOR 2018 PREQIN GLOBAL PRIVATE DEBT REPORT

The data behind all of the charts and infographics featured in this report is available to purchase in Excel format. Ready-made charts and graphs are also available, and can be used for marketing materials, presentations or company reports.

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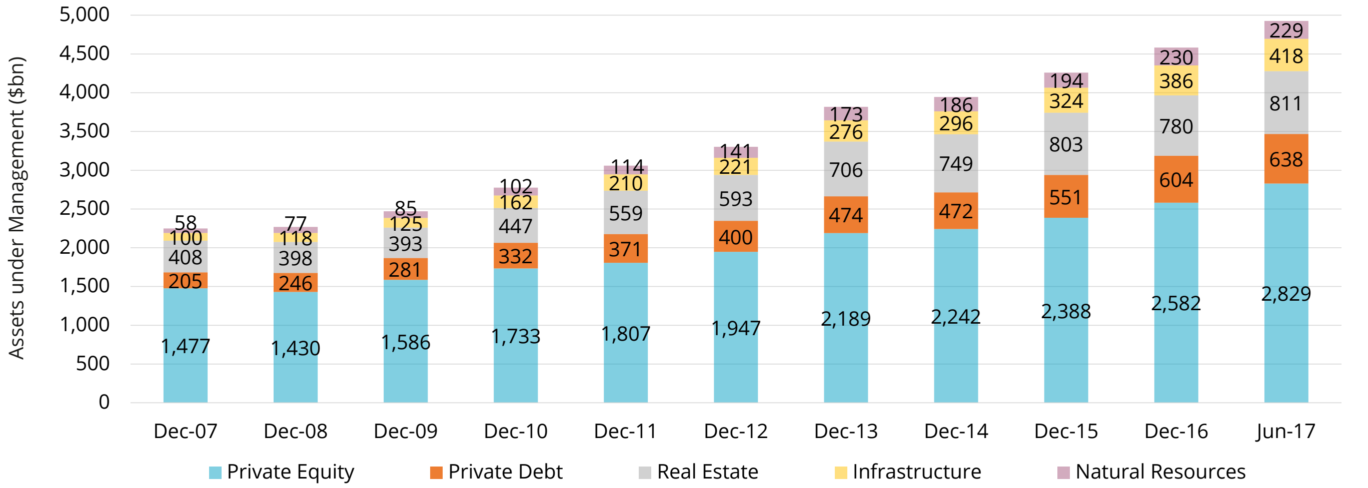
PRIVATE DEBT IN CONTEXT

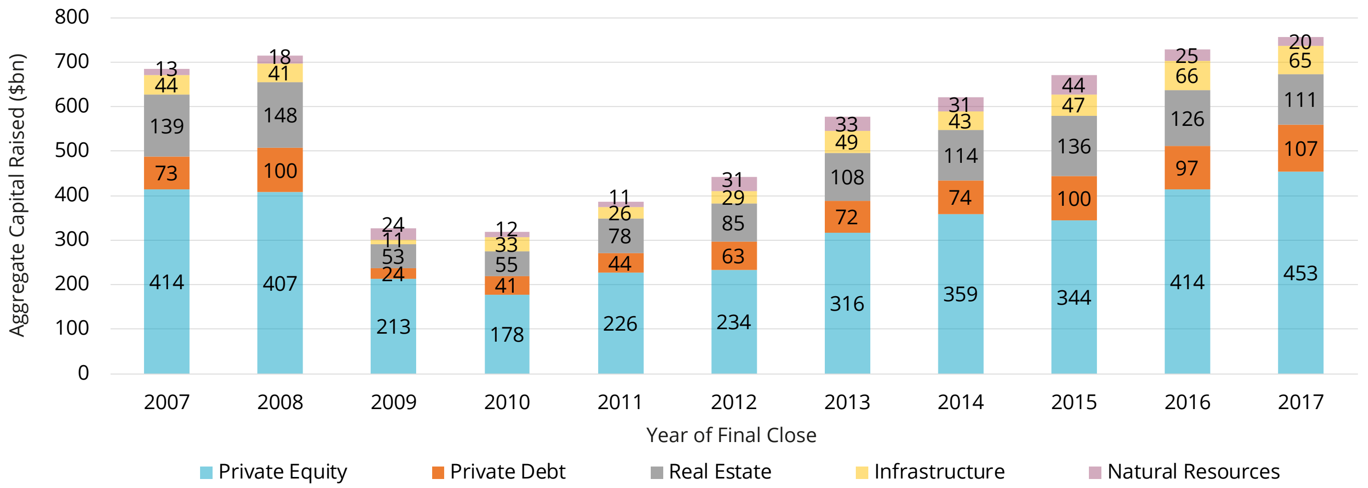
Preqin refers to 'private capital' as the broader spectrum of private closed-end funds, including private equity, private debt, private real estate, infrastructure and natural resources. Here, we put the private debt asset class into context within the wider private capital industry.

Fig. 2.1: Private Capital Assets under Management by Asset Class, 2007 - 2017



Source: Preqin Online Products

Fig. 2.2: Annual Aggregate Private Capital Raised by Asset Class, 2007 - 2017



Source: Preqin Online Products

Fig. 2.3: Top Three Challenges Facing Private Capital Fund Managers in 2018 by Asset Class

Private Equity	Private Debt	Real Estate	Infrastructure	Natural Resources
Valuations	**Valuations**	Valuations	Valuations	Commodity Prices
Performance	**Deal Flow**	Deal Flow	Regulation	Ongoing Volatility/ Uncertainty in Global Markets
Exit Environment	**Performance**	Interest Rates	Deal Flow	Public Perception of Industry

Source: Preqin Fund Manager Surveys, November 2017

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PRIVATE DEBT: 2017 IN NUMBERS

SIZE OF THE INDUSTRY

$638bn
Private debt assets under management as at June 2017.

$236bn
Dry powder held by private debt funds as at December 2017.

FUNDRAISING SUCCESS

$107bn
Aggregate capital raised by the 136 private debt funds closed in 2017.

107%
Average proportion of target size achieved by private debt funds closed in 2017.

CAPITAL CONCENTRATION

$869mn
Average size of private debt funds closed in 2017.

32%
of aggregate capital was secured by the 10 largest funds closed in 2017.

KEY ISSUES

40%
of investors consider valuations as a key issue facing private debt in 2018.

45%
of fund managers believe it is now more difficult to find attractive opportunities than 12 months ago.

PERFORMANCE

80%
of investors believe that their private debt portfolios will perform about the same or better in the next 12 months than in the last 12 months.

$71bn
Total capital distributions by private debt funds in H1 2017.

INVESTOR SENTIMENT

51%
of investors have a positive perception of private debt.

42%
plan to commit more capital to private debt funds in the next 12 months than in the past 12 months.

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PRIVATE DEBT BREAKS $100bn IN 2017

- Ryan Flanders, **Preqin**

Private debt fundraising surpassed $100bn in aggregate capital raised by funds closed in 2017, doing so for the first time after close calls in 2008, 2015 and 2016. Direct lending funds alone closed the year with more than $50bn in committed capital across 61 funds, double the total for 2016 ($24bn). The average fund size also more than doubled for direct lending funds closed in 2017 to $1bn compared to $478mn in 2016.

North America-focused funds once again enjoyed the highest fundraising totals, reaching $67bn. The region accounted for 63% of aggregate capital raised by funds closed during the year, and continues to host the most active private debt market. After being surpassed by Europe-focused direct lending funds in 2016, North America-focused direct lending regained the top spot, raising $32bn versus $22bn for direct lending funds focused on Europe. The overall European private debt market continues to thrive, with 40 funds having seen closures securing an aggregate $33bn in 2017, building on a strong 2016 when $26bn was raised.

Driven by strong and consistent fundraising cycles, private debt industry AUM reached a new high of $638bn as at June 2017. Dry powder as at December 2017 is also at an all-time high, with $236bn of capital available for investment. Once again we see the bulk of this capital concentrated in North America and Europe, representing 94% of dry powder held by managers, but with $16bn in Asia- and Rest of World-focused funds, it is clear that key markets outside the two main hubs of private debt are expanding. As at January 2018, 11% of private debt investors tracked by Preqin are based in Asia, up from only 6% at the start of 2016, signalling a substantial increase in activity from investors based in the region, coinciding with the more robust fundraising figures coming out in 2017.

Europe-based investors account for 24% of those active in private debt, while North America is home to 57% of institutional investors. The proliferation of interest in private debt fund exposure has clearly extended beyond just Europe and North America, with increasing numbers of investors based in countries such as India, China, Japan, Brazil and many more, which account for 19% of the 3,154 private debt investors globally.

As at January 2018, there are 335 private debt funds in market seeking $149bn across all private credit strategies, including one $10bn vehicle from Goldman Sachs. At the other end of the spectrum, regional and strategic specialization at the smaller end of the fundraising scale has led to targeted fundraises from managers with local expertise in a given region or target industry.

While the level of competition for institutional capital remains as high as it has ever been, private credit managers are enjoying unprecedented levels of positive sentiment and increasing allocations toward their offerings from a continuously expanding investor base. Investors are setting dedicated private debt targets for what has now become a key, income-producing portfolio slice for large pension funds and family offices alike, as well as other investor types in between. If managers can match the attractive performance targets originally set out, there is no reason why investors will not continue to support new vehicles, from both experienced and new managers coming in to compete for capital.

With comprehensive coverage of institutions active in private debt, vehicles on the road, firms active in the space, deals and performance data, Preqin's platform is the ultimate tool to help both investors, fund managers and service providers identify ideal partnerships into 2018.

PREQIN'S PRIVATE DEBT DATA

Preqin's award-winning private debt data covers all aspects of the asset class, including fund managers, fund performance, fundraising and institutional investors.

This comprehensive platform is ideal for fund marketers and investor relations professionals focused on private debt and credit funds.

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IN FOCUS: FUNDRAISING BY PRIMARY STRATEGY

Fig. 4.21: Private Debt Fundraising in 2017 by Type

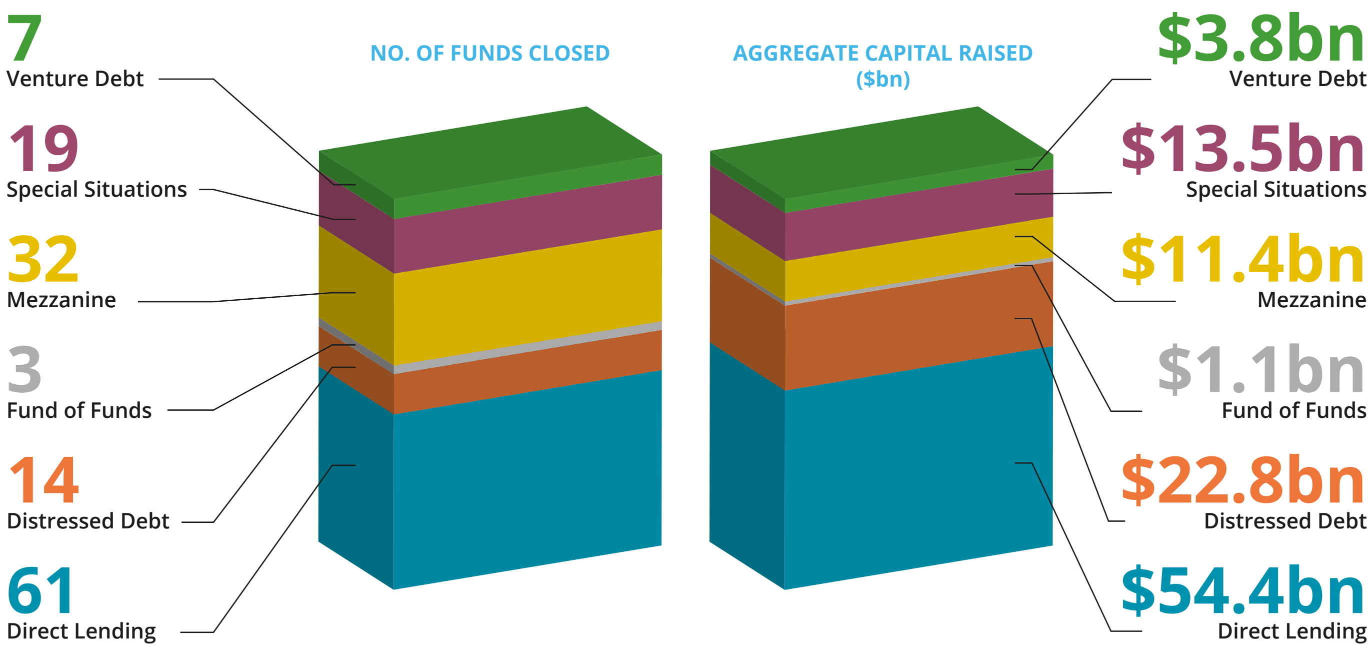
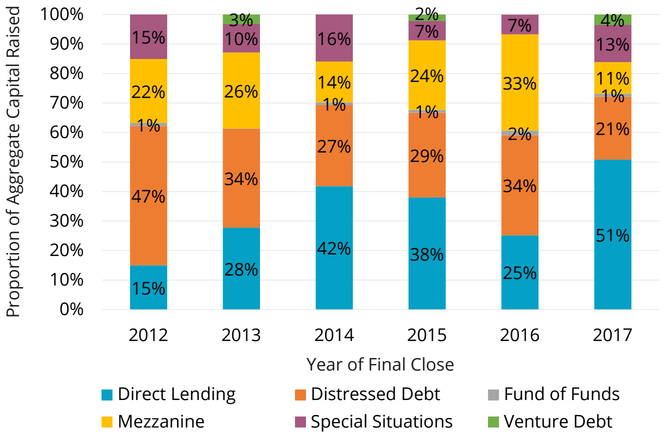
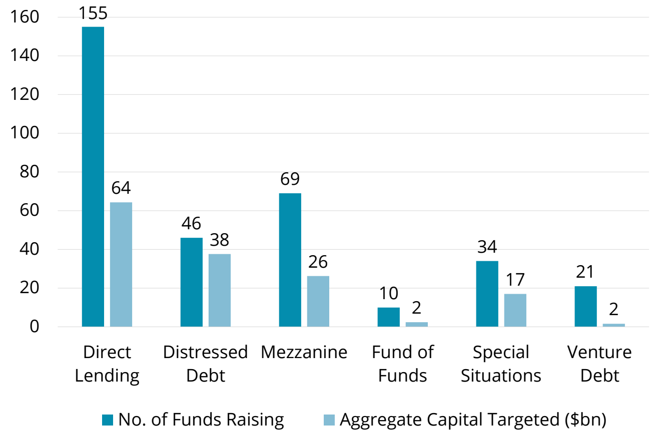


Fig. 4.22: Proportion of Aggregate Capital Raised by Private Debt Funds by Type, 2012 - 2017



Source: Preqin Private Debt Online

Fig. 4.23: Private Debt Funds in Market by Type (As at January 2018)

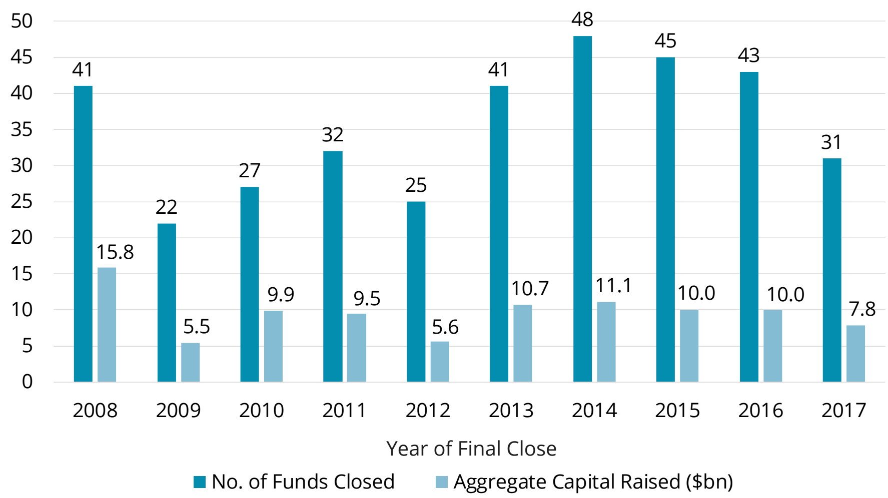


Source: Preqin Private Debt Online

FIRST-TIME FUND MANAGERS

Despite record private debt fundraising in 2017, first-time managers secured the lowest amount of capital since 2012, with 31 first-time funds reaching a final close, securing an aggregate $7.8bn (Fig. 5.11). First-time private debt fund managers have closed over 40 funds in each of the previous four years, raising an average of $10.5bn per year. With a growing selection of private debt funds in market for investors to choose from, an increasing number of managers are launching successor funds and are able to advantageously demonstrate a favourable track record. In addition, increased competition for deals may prompt investors to favour experienced debt managers.

Fig. 5.11: Annual First-Time Private Debt Fundraising, 2008 - 2017



Source: Preqin Private Debt Online

Of the first-time funds closed in 2017, 13 direct lenders secured $3.9bn in total commitments, followed by five special situations funds which raised an aggregate $1.2bn. There were eight mezzanine funds closed, two funds of funds and two distressed debt funds from first-time managers.

FUNDRAISING SUCCESS

Nearly two-thirds (63%) of first-time funds closed in 2017 secured at least 100% of their initial target, a slight improvement compared with those closed in 2016 (60%, Fig. 5.12). For experienced managers, 72% of funds closed in 2017 and 78% of funds closed in 2016 met or exceeded targets.

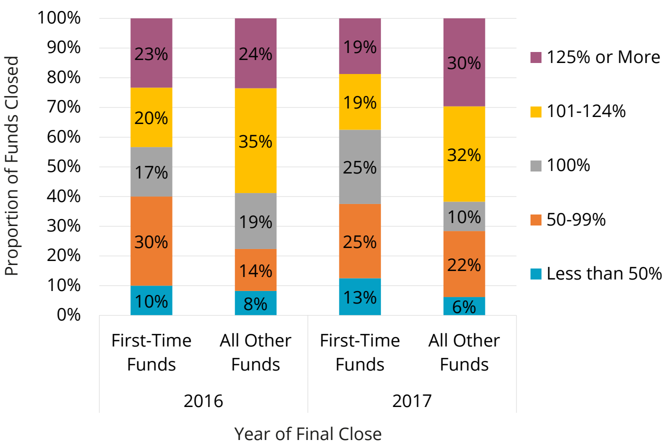
PERFORMANCE

While there are certainly substantial and varied risks that come with committing capital to new managers, there also exists the potential for outsized returns. First-time fund managers often have the ability to access niche or innovative opportunities in many sectors or regions that have not yet been reached by their more experienced peers.

First-time fund managers have outperformed experienced managers in terms of median net IRR for fund vintages 2008-2014 (Fig. 5.13); vintage 2011 and 2012 first-time funds have outperformed by the widest margin, returning 15.7% and 16.6% respectively, compared with 9.8% and 10.5% for funds led by experienced managers of the same vintages.

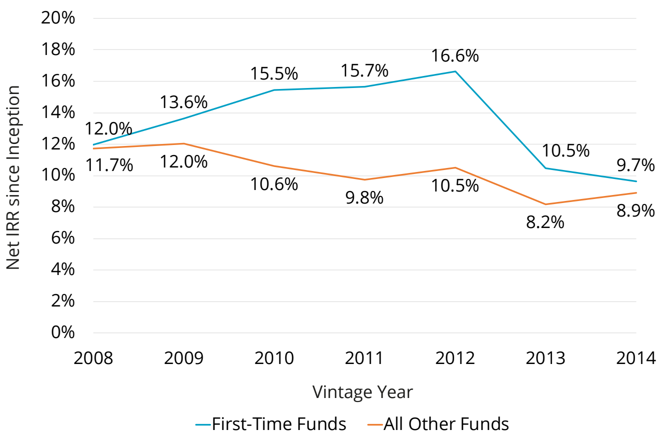
The vintage 2008 Monarch Capital Partners distressed debt fund ($330mn) achieved a net multiple of 2.4x, ranking highest among top performing first-time private debt funds of vintages 2004-2014 (Fig.

Fig. 5.12: Private Debt Funds Closed by Proportion of Target Size Achieved: First-Time vs. All Other Funds, 2016 vs. 2017



Source: Preqin Private Debt Online

Fig. 5.13: Private Debt Median Net IRRs by Vintage Year: First-Time vs. All Other Funds



Source: Preqin Private Debt Online

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SEEKING RELATIVE VALUE IN GLOBAL PRIVATE DEBT

- Terry Harris, **Barings**

As institutional investors continue to turn toward private debt for potentially attractive risk-adjusted returns in a low-yielding environment, they may benefit from taking a global approach to the asset class.

Private debt continues to gain favour as yield-hungry investors look for solutions to help meet their portfolio return targets. Institutional investors in particular are often drawn to private loans for the potential to earn incremental yield relative to broadly syndicated markets. As private debt has become a more common element of institutional portfolios, investors may benefit from allocating to managers that cast a wider net when looking at investment opportunities.

The direct lending market offers investors a range of attractive potential benefits, including:

- Potential return premium versus broadly syndicated markets
- Conservative structures and loan documents with strong investor protection
- Investment diversification
- Access to a broad universe of investment opportunities
- Limited correlation to public markets

There are some key potential advantages to taking a global approach to private debt. For one, investing globally significantly increases the opportunity set of potential private loan investments, which can allow managers to invest more selectively. This is an important point because the relative value of private debt investments in each region shifts from time to time depending on market dynamics, such as the demand for debt capital by private equity funds and the supply of debt capital from both banks and unregulated institutional lenders.

SEEKING RELATIVE VALUE ACROSS GEOGRAPHIES

North America

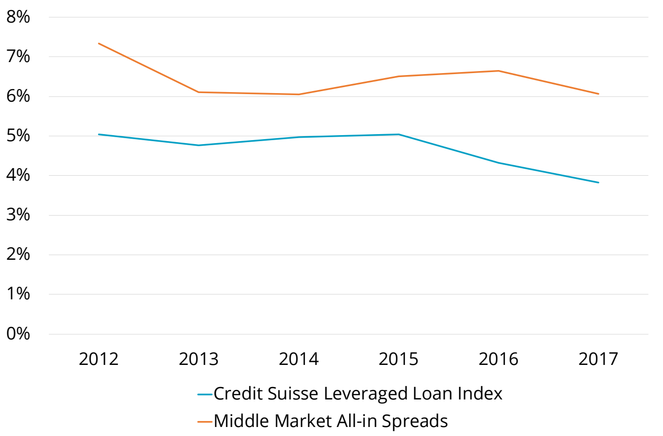
North America is the largest and most developed private debt market from both an investor and borrower standpoint. In fact, the volume of private debt issued in the US and Canada is roughly 4-5x the volume of private debt issued in Europe. The breadth and depth of the North American market lends itself to building a diversified portfolio of private loans to middle-market companies that operate across a wide range of sectors. In North America, companies that issue private loans tend to be mid-sized, with EBITDA between $10mn and $50mn – companies not quite large enough to access the broadly syndicated loan and bond markets. These companies are typically unrated but have a credit profile generally equivalent to S&P B.

In North America, private debt spreads were relatively tight during the first half of 2014, while the pricing of risk was much more attractive in Europe. Spreads in the US then widened in the latter part of 2014 through 2016, but began to tighten modestly in 2017 as US base rates increased. However, given the more pronounced tightening of spreads for broadly syndicated loans, the "originate-to-hold" spread premium for private debt remains attractive, in our view. Generally, private loans to US issuers that are structured with more conservative leverage and loan-to-value than broadly syndicated loans currently yield a premium of roughly 125 to 150 basis points, although it can be substantially higher[1].

Europe

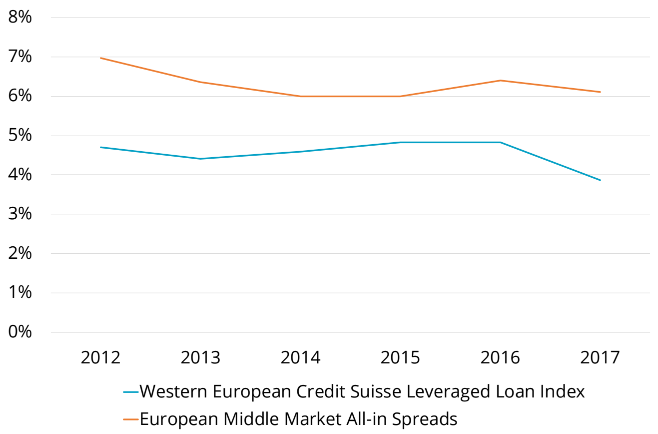
In Europe, banks still provide the lion's share of financing for middle-market companies. That said, there is an increasing opportunity for non-bank providers of private debt capital that may be able to operate with more flexibility than banks, which have been under

Fig. 1: US All-in Spreads (DM-3): Middle Market vs. Broadly Syndicated Loans



Source: S&P Margin Data (U.S.). As of October 31, 2017.

Fig. 2: European All-in Spreads (DM-3): Middle Market vs. Broadly Syndicated Loans



Source: S&P Margin Data (Europe). As of October 31, 2017.

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increasing regulatory pressure. While new private debt managers have emerged to capitalize on this opportunity, more established private debt managers with longstanding deal referral relationships retain an advantage, and the low level of non-bank penetration relative to the US suggests private finance has room to continue taking market share from banks. The credit profile of private debt issuers in Europe is similar to that of issuers in North America.

While substantial capital has been raised to invest in direct lending, pricing in Europe has tightened only marginally, suggesting that there is sufficient room for the capital and that the capital is in the process of being deployed. Private loans to European issuers continue to benefit from high upfront fees, stable spreads and, in some cases, base rate floors that exceed prevailing Euribor. As a result, the current premium for private debt as compared to broadly syndicated debt is particularly attractive in Europe, in our opinion. In Europe, private loans structured more conservatively than broadly syndicated loans tend to generate illiquidity premiums of 175 to 200 basis points or more[2].

Australia, New Zealand and Developed Asia

There are also opportunities in Australia, New Zealand and developed Asia. These markets are still mainly bank dominated, but there is an emerging opportunity for non-bank lenders and there are very few established players in the region. The companies in these markets may be mid-sized but in many cases are larger, sometimes with EBITDA from $50mn to $100mn. While these are not necessarily very large companies by global standards, due to the smaller size of the market, private loan issuers in Australia and New Zealand in particular often have dominant market positions, enhancing their credit profile. These companies are typically unrated but have a credit profile roughly equivalent to S&P BB.

In the Australia, New Zealand and developed Asia markets, spreads are currently tighter compared to the US and Europe, but issuers are typically larger and have more conservative credit structures. In Australia, competition has intensified over the past year as banks have sought to grow their loan books. However, due to the lack of depth of capital markets in the region, select opportunities exist to achieve a potentially attractive illiquidity premium while investing in issuers, which if located in the US or Europe, would be large enough to issue broadly syndicated loans.

MEZZANINE DEBT

In addition to the global opportunity in senior debt, investors can find potentially attractive opportunities in private mezzanine debt, a subordinated part of the capital structure that can offer attractive absolute and relative returns. Notably, due to the "originate-to-hold" nature of private mezzanine debt, these investments tend to have lower volatility relative to liquid traded assets. Whether secured by a second lien or unsecured, private mezzanine debt is structured more conservatively than high-yield bonds, and loan agreements typically provide stronger creditor protections. Additionally, given the lack of liquidity in the asset class, investors may be compensated with significant illiquidity premiums relative to the high-yield bond market[3].

Given the currently high purchase prices paid by private equity managers to acquire portfolio companies, the returns for some current vintage private equity funds may not significantly exceed returns from investing in private mezzanine debt, which tends to exhibit much lower volatility.

A COMPELLING OPPORTUNITY

A global strategy can be an efficient way for private debt investors to access opportunities as they are sourced across different regions and markets. Because countries differ in terms of where they are in their respective economic, interest rate and business cycles, the relative attractiveness of their private lending markets can change over time. Diversifying across North America, Europe, Australia and developed Asia, therefore, may better position investors to seek relative value as private debt yields tighten or widen from time to time in each region.

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*As of September 30, 2017

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[1]*Based on Barings market observations. As of December 2017.*
[2]*Based on Barings market observations. As of December 2017.*
[3]*Based on Barings market observations. As of December 2017.*

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17-338259

INVESTOR APPETITE FOR PRIVATE DEBT IN 2018

More than half (51%) of investors surveyed in December 2017 have a positive perception of the asset class, compared with just 12% that hold a negative view (Fig. 7.6).

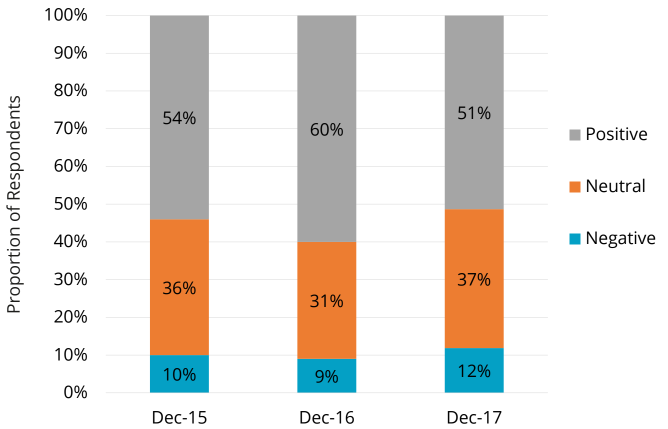
Forty-eight percent of investors plan to commit the same amount of capital to the asset class in 2018 as they did in 2017, while 42% will commit more capital (Fig. 7.7).

Although the outlook for the asset class in both the near and long term is generally positive, investors remain wary of key issues within the market in 2018. The proportion of investors that see valuations of private debt assets as a key issue has remained steady between 2017 and 2018 at 40% (Fig. 7.8). However, investors appear less concerned by other areas such as deal flow (29%), performance (17%) and regulation (16%) in comparison to one year ago.

INVESTOR ALLOCATIONS TO PRIVATE DEBT

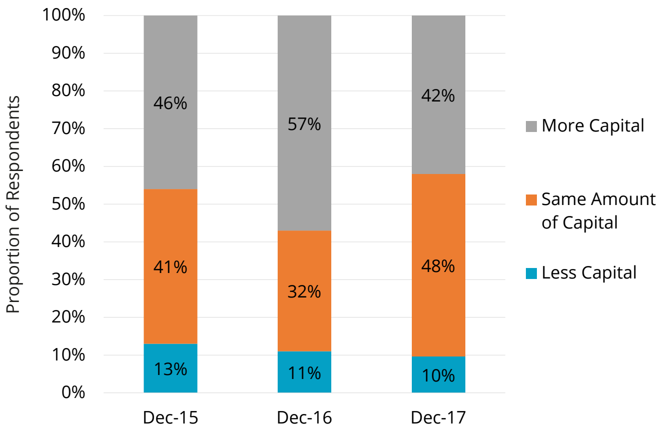
As a growing number of investors put capital into the private debt asset class over the next 12 months, average allocations are also expected to increase over the longer term: 54% of respondents plan to increase their allocations to private debt and just 2% plan to decrease their allocations, compared to 8% of those interviewed at the end of 2016 (Fig. 7.9). In addition, 48% of investors expect to increase the number of debt fund managers in their portfolios over the next two years as they increase their investments in the asset class (Fig. 7.10). Together, these suggest that institutional investor appetite for the asset class is high. Expansion of the capital pool is certainly a great sign for fund marketers, which may now see greater access to investor types

Fig. 7.6: Investors' General Perception of the Private Debt Asset Class, 2015 - 2017



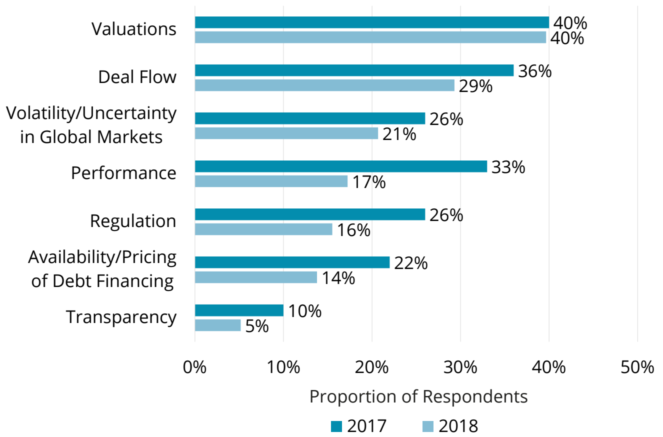
Source: Preqin Investor Interviews, December 2015 - 2017

Fig. 7.7: Investors' Expected Capital Commitments to Private Debt Funds in the Next 12 Months Compared to the Previous 12 Months, 2015 - 2017



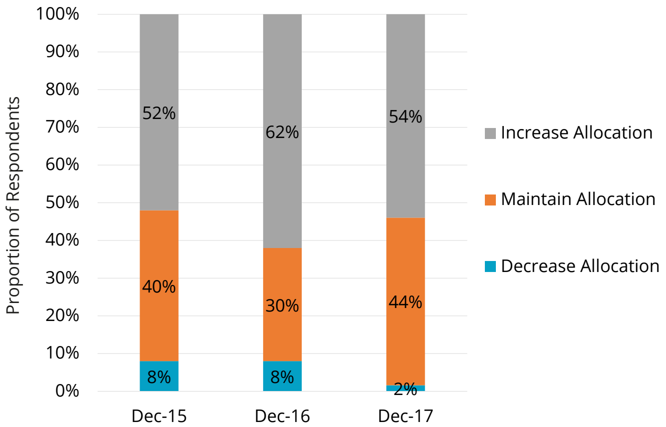
Source: Preqin Investor Interviews, December 2015 - 2017

Fig. 7.8: Investor Views on the Key Issues Facing Private Debt in 2017 vs. 2018



Source: Preqin Investor Interviews, December 2016 - 2017

Fig. 7.9: Investors' Intentions for Their Private Debt Allocations over the Long Term, 2015 - 2017



Source: Preqin Investor Interviews, December 2015 - 2017

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NATURAL RESOURCES: 2017 IN NUMBERS

SIZE OF THE INDUSTRY

$533bn
Natural resources assets under management as at June 2017.

$181bn
Dry powder held by natural resources funds as at June 2017.

FUNDRAISING SUCCESS

$70bn
Aggregate capital raised by the 85 unlisted natural resources funds closed in 2017.

19 Months
Average time spent in market by unlisted natural resources funds closed in 2017.

CAPITAL CONCENTRATION

$870mn
Average size of unlisted natural resources funds closed in 2017.

61%
of capital raised in 2017 was secured by the 10 largest funds closed.

KEY ISSUES

27%
of investors surveyed consider each of performance and commodity pricing as the key issues for 2018.

40%
of fund managers surveyed consider each of volatility in global markets and commodity pricing as the key issues for 2018.

PERFORMANCE

129.8
Index points of the PrEQIn Natural Resources Index (as at June 2017, rebased to 100 as at December 2007).

11.7%
Median net IRR of vintage 2014 funds, the highest among vintage years 2010-2014.

INVESTOR SENTIMENT

81%
of investors plan to commit the same amount of capital or more to natural resources in 2018 than in 2017.

22%
of investors surveyed have a positive perception of the asset class.

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IMPROVING SENTIMENT AND CAPITAL BEING PUT TO WORK

- Tom Carr, **Preqin**

Going into 2018 the natural resources asset class finds itself at a point of inflection: AUM has continued to break records and fundraising in 2017 is the third highest annual total on record. However, for the first time in a number of years managers have successfully put significant amounts of capital to work, with dry powder falling in H1 2017 for the first time since December 2009.

In light of generally improving macroeconomic conditions, including commodity price stabilization, attitudes towards the asset class are looking up, with investors expecting performance to improve.

However, despite the positives there are areas of concern around the industry; while fundraising in 2017 was strong, the number of funds reaching a final close was the lowest since 2010. Those managers with positive track records experienced fundraising success, whereas newer or more niche managers found fundraising much more challenging. With new managers potentially able to bring diversity and innovation to the space, the development of this trend in 2018 will be important for the evolution of the asset class. Furthermore, the industry continues to be dominated by energy, with growth in other natural resources assets struggling to see much movement in terms of capital raised or AUM.

FUNDRAISING – "THE HAVES AND HAVE NOTS"

The 85 funds that held a final close in 2017 secured an aggregate $70bn, the third highest amount of capital raised annually but the lowest number of funds to hold a final close since 2010. This shows a continuation of a trend towards capital being increasingly being concentrated among a small band of large managers at the top of the market, with investors continuing to place their faith in the deal sourcing abilities of experienced managers with a proven track record in the space.

For the continued growth of the asset class, growth in the industry outside of North American energy is vital. In 2017, funds focused on Europe secured record levels of capital, and Europe's share of total capital raised globally rose significantly from 10% in 2016 to 23% in 2017, as investors looked to diversify their geographic exposure. In terms of strategy, energy continues to dominate, accounting for 88% of capital raised in 2017. Looking to 2018, however, we may potentially see something of a change, with investors increasingly bullish on strategies such as agriculture/farmland, which a quarter of investors told us is currently presenting the best opportunities for investment.

The fundraising environment in 2018 looks challenging, with 241 funds looking to secure an aggregate $124bn in capital. While this represents a drop from the 273 funds in market in January 2017, 49% of those currently in market are looking to raise their first fund in a market where experience and a track record are something investors are increasingly gravitating towards.

CAPITAL IN THE MARKET

Natural resources AUM has been rising year on year, and as at June 2017 stands at a record $533bn. However, the real story for the asset class is dry powder falling in H1 2017 for the first time in the best part of a decade. Considering fundraising remained strong through H1, this illustrates that after several years of managers struggling to find attractive deals in a volatile macro environment, they have managed to deploy significant amounts of capital in H1 2017. Digging further into this we can discern that the mega funds that have dominated fundraising over recent years are the ones that have successfully put this capital to work – the natural resources space is certainly moving at the top of the market.

IMPROVING SENTIMENT

After a few years of concerns over natural resources performance affecting investor sentiment and therefore capital commitments, 2018 was a year of considerable progress. While 21% of investors interviewed at the end of 2017 told Preqin that their investments in natural resources had fallen short of expectations over the past year, this is a significant improvement from 54% of those questioned at the end of 2016. Furthermore, 18% said their investments had exceeded expectations in 2017.

Despite improving sentiment with respect to the asset class as a whole, investors continue to express concerns that managers looking to secure capital in 2018 need to be aware of and allay if they are to have a successful fundraise. Twenty-seven percent and 25% of investors respectively told us that key issues in the natural resources space are commodity pricing and volatility in global markets – two very much linked concerns. Investors are looking for fund managers to generate alpha, while at the same time mitigating as much as possible the potential downside of commodity price movements driven by a geopolitical environment that is mostly both uncontrollable and unpredictable.

OUTLOOK FOR 2018

Despite a number of years of struggling performance driven by commodity price falls, natural resources remains an important part of investors' alternative assets portfolios as they continue to seek diversifying assets that can deliver yield in a continued low interest rate environment.

For the asset class to continue to grow it is vital that managers are able to demonstrate that they can successfully deploy capital, as we started to see in H1 2017. That, coupled with a considerable number of funds on the road in 2018 and improving investor sentiment, indicates that 2018 will likely be another strong year for the natural resources asset class.

UNDERSTANDING AND DE-RISKING FARMLAND INVESTMENT

- Detlef Schoen, **Insight Investment**

Farmland is gradually becoming a mainstream allocation option for many institutional investors due to its potential for cash generation and real long-term growth, with low correlations to mainstream assets and exposure to attractive supply/demand dynamics. Farmland projects also lend themselves, by their very nature, to the pursuit of sustainable development goals.

Market dynamics and the challenges presented by investing in a nascent asset class have affected how some investors perceive investments in farmland. This article aims to explain the different ways in which investors typically access exposure to farmland, and ways to address the – real or perceived – challenges of farmland investment.

FARMLAND – AT AN INFLECTION POINT?

The long-term secular case for farmland investment is robust, and it is important to remember that historical data has demonstrated the benefits of holding farmland in a wider investment portfolio: correlations with equity and bond markets have been low historically, while correlations with inflation have been high.

Less widely acknowledged are farms' potential for cash generation in light of inelastic demand for food, and the broad undercapitalization of farming. Firstly, a fall in food prices below the cost of production is unlikely to be sustainable beyond a short period. Secondly, farming is chronically and increasingly undercapitalized, with an equity gap in key supply geographies moving into the trillions of dollars. It is possible for investors to generate attractive returns by simply doing what 'needs doing' but which farmers currently lack funds to do themselves, even without resorting to elaborate development programs.

Today, farmland investments are potentially at a double inflection point, in terms of both return potential and significance for investors. The asset class appears to be moving from a niche option into the mainstream, and commodity prices are near a historical low relative to equities.

ACCESSING FARMLAND INVESTMENT IN PRACTICE

Compared to investments in equities or bonds, investment in farmland is less familiar and requires specialist expertise that very few asset managers are able to offer.

An investor may be overwhelmed by the options available: investment vehicles range from venture capital and private equity funds, through to funding for holding companies for farms or family farms, to investments directly in agricultural projects. Exposure may be to businesses involved in supplying or supporting farms, through to farms themselves, or even to companies that make use of agricultural products.

As a starting point we propose a focus on farmland itself. The most common business models for doing so are corporate farming, focused either on a 'core' investment strategy or agricultural 'project development'; buy and lease; or co-investment alongside a farming family.

Corporate farming – 'core':

- **Summary:** An 'owner-operator' model typically focuses on mature assets with regular cash flows, but limited development potential.
- **Benefits:** This approach can offer a one-stop shop for exposure diversified across geographies and farm types, and the potential for economies of scale to boost returns and compensate for the costs introduced by a corporate overlay.
- **Issues:** The shortage of investment managers with the relevant experience, and the need to balance scale and diversity within a portfolio.

Corporate farming – 'project development':

- **Summary:** An 'owner-operator' model typically focusing on 'undiscovered' assets with significant development potential.
- **Benefits:** This approach can offer the potential for material 'private-equity-like' returns.
- **Issues:** There is a shortage of investment managers that have successfully executed such an approach in otherwise safe environments.

Farmland buy and lease:

- **Summary:** An investor vehicle owns farm assets and leases them to tenant farmer operators, typically focusing on mature assets with regular cash flows, but limited development potential.
- **Benefits:** Buy-and-lease investments offer the potential for cost efficiency and scalability.
- **Issues:** They are typically limited to more mature regions with stable climates (such as the US and Canada). Recently, food supply has swung back in line with demand, which is why the gap between income from farmland and the cost of leasing land has narrowed – meaning that buy-and-lease strategies will typically leave the investor landlord with relatively low risk-adjusted returns.

Family farm co-investments:

- **Summary:** An investor vehicle owns shares in family farms but does not take an active role in their management or operations.
- **Benefits:** Possibility to combine family farm values with institutional governance – and a clear alignment of interest between farmers and investors.
- **Issues:** A successful investment will typically depend on selecting best-in-class farmers who need private capital – meaning deal flow is limited and

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Fig. 1: The Characteristics of the Different Models for Farmland Investment

	Typical Term	Typical Liquidity Terms	Typical Notional Cash Returns	Typical Notional IRR	Potential for Pursuit of Sustainable Development Goals	Typical Allocation Category
Corporate farming – 'core'	10 years - evergreen	Lock-up/initial lock-up with regular withdrawal windows	4%	8%	Strong	Real estate, natural resources, alternatives, ESG
Corporate farming – 'project development'	5-8 years	Lock-up	<2%	>10%	Medium	Private equity, infrastructure
Farmland buy-and-lease	10-15 years	Lock-up	2%	6%	Weak	Real estate, natural resources, alternatives
Family farm co-investments	10-15 years	Lock-up	5%	9%	Medium	Private equity

Source: Insight Investment. For illustrative purposes only

investors may need to lock in capital for a long time. An element of project development may be necessary to compensate for the locking in of capital, potentially increasing the complexity and risks inherent within the investment.

Selecting the most appropriate vehicle and approach for a farmland investment is crucial to ensure they are aligned to an investor's specific objectives and requirements (see Fig. 1).

FARMLAND: ADDRESSING THE CHALLENGES

Some investors have misgivings about an asset class that is viewed as complex, illiquid and at the mercy of unpredictable short-term disruptions such as weather events. These issues can be material, but it is possible to address them by identifying opportunities that:

- offer the potential for development;
- benefit from sustainably low production costs; and
- are based in a region that is politically stable and open to foreign investment.

Through the combination of top-down analysis and the involvement of an extensive network of local practitioners, it is possible to identify investments that exhibit all these characteristics – and above all, capable farmers.

Farmland investment requires geographical and product diversification but farmland expertise is local – thus, while identifying superior local practitioners is a prerequisite, it is not sufficient given that they tend to be good at what they do and not necessarily at what the investor needs. We therefore favour a strategy that combines a local bottom-up approach with a global top-down strategy diversified across different regions, climatic zones, production systems and products, recalibrating counter-cyclically, balancing return profiles and relying on a global network of local operators to be brought in as appropriate.

Farmland investments require a long time horizon – biological processes initiated to improve resilience and return potential of specific farming assets, and projects focused on safeguarding and improving sustainability, can take a long time to bear fruit. From a risk management perspective, in a diversified portfolio, fluctuations of both currencies and commodities can temporarily distort the performance of underlying assets – and this can require patience to allow time for such distortions to wash out. These factors support arguments in favour of 'evergreen' investment structures without specified maturity dates but regular liquidity windows.

Farmland investments do not always offer an illiquidity premium – it is necessary therefore to distinguish between the liquidity of farmland investment vehicles and the liquidity of underlying farms. It is typically possible to sell individual farms if necessary or desirable – which means that it is possible to structure an evergreen farmland investment, with regular withdrawal periods, after an initial lock-up period.

SUCCESSFULLY CAPTURING FARMLAND RETURN OPPORTUNITIES

We believe the most effective approach to investing in farmland is to aim for a portfolio diversified by geographies and products, focusing on identifying opportunities that capture the benefits of scale and exhibit demonstrable competitive advantages.

We also believe that a focus on alignment with the UN Sustainable Development Goals can ensure that assets are managed in a way that adds value both to the portfolio and wider society. Detailed reports and metrics demonstrating progress over time will give investors confidence that their investment is fulfilling their environmental, social and governance (ESG) objectives.

To make the most of an allocation to farmland and facilitate the pursuit of sustainability targets, we clearly favour an evergreen structure, without a specified maturity date but with the potential for withdrawals after an initial lock-in period.

INSIGHT INVESTMENT
Over many years Insight Farmland has built corporate farming expertise and strong institutional bridgeheads in key global agricultural geographies, with tried and tested people, processes and structures. As part of Insight Investment, a leading global asset manager, Insight Farmland benefits from the group's superior infrastructure and systems, and with a team of seasoned veterans offers long-term investment solutions to clients seeking inflation protection, diversification away from the mainstream, a broad mix of assets with robust return expectations and the possibility of adding value through an appropriate ESG framework.

www.insightinvestment.com

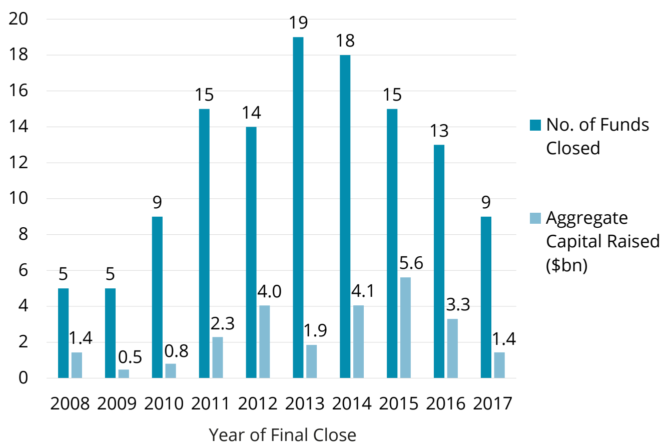
AGRICULTURE/FARMLAND FUNDRAISING

2%
of unlisted natural resources capital raised in 2017 was secured by agriculture/farmland funds.

$11bn
Amount targeted by the 41 unlisted agriculture/farmland funds in market as at January 2018.

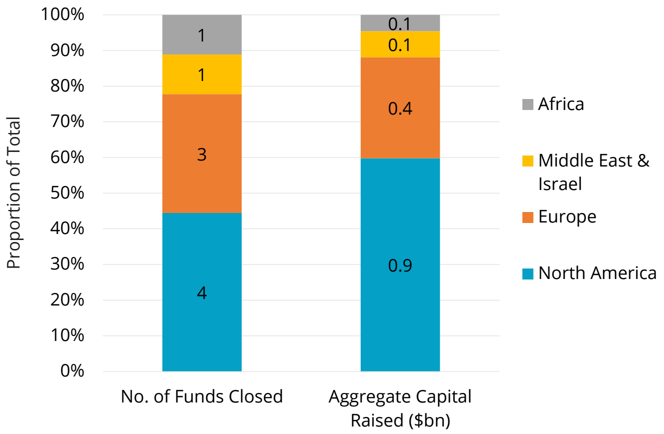
248
agriculture/farmland fund managers are located worldwide.

Fig. 4.30: Annual Unlisted Agriculture/Farmland Fundraising, 2008 - 2017



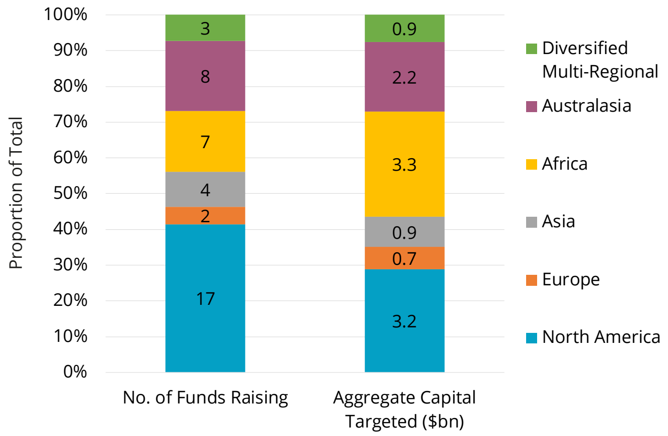
Source: Preqin Natural Resources Online

Fig. 4.31: Unlisted Agriculture/Farmland Fundraising in 2017 by Primary Geographic Focus



Source: Preqin Natural Resources Online

Fig. 4.32: Unlisted Agriculture/Farmland Funds in Market by Primary Geographic Focus (As at January 2018)



Source: Preqin Natural Resources Online

Fig. 4.33: Largest Unlisted Agriculture/Farmland Funds Closed in 2017

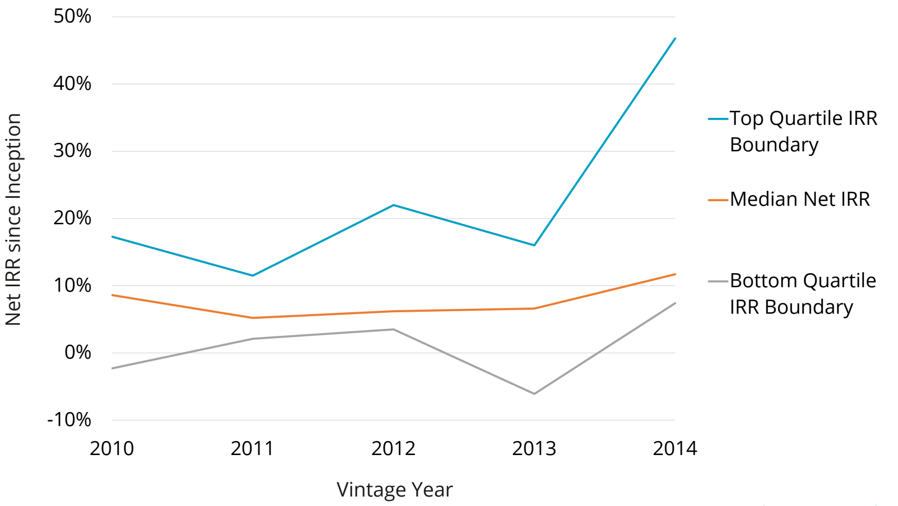
Fund	Firm	Headquarters	Fund Size (mn)	Geographic Focus	Final Close Date
ACM Permanent Crops Fund II	Agriculture Capital Management	Portland, US	543 USD	US	Sep-17
Cerea Capital II	Cerea Partenaire	Paris, France	225 EUR	Europe	Jan-17
Cordillera Investment Fund I	Cordillera Investment Partners	Menlo Park, US	197 USD	US	Mar-17
CapAgro Innovation	CapAgro	Paris, France	124 EUR	Europe	Oct-17
Pontifax Global Food and Agriculture Technology Fund	Pontifax AgTech	Santa Monica, US	105 USD	Israel, US	Sep-17

Source: Preqin Natural Resources Online

PERFORMANCE OVERVIEW

Although the natural resources industry has faced numerous challenges over recent years, it appears poised for future growth, with AUM (the combination of dry powder and unrealized value) standing at a record $533bn as at June 2017. Given the growth of the asset class in recent years, and the strong performance of top-quartile funds (Fig. 7.1), it is becoming increasingly important for investors to have access to comprehensive, up-to-date data to conduct extensive due diligence. For fund managers, fund-level performance data and benchmarking capabilities are important to understand the competition and assess industry trends. Preqin holds net-to-LP performance data for more than 540 named unlisted natural resources funds.

Fig. 7.1: Unlisted Natural Resources - Median Net IRRs and Quartile Boundaries by Vintage Year (As at June 2017)



Source: Preqin Natural Resources Online

NET IRRs

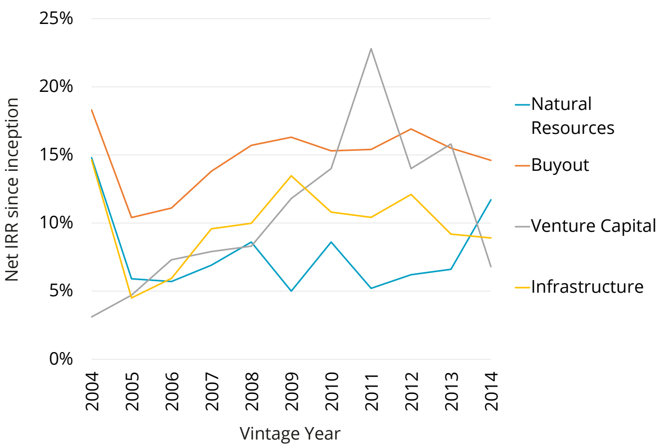
Fig. 7.2 shows the median net IRRs for natural resources funds compared to buyout, venture capital and infrastructure funds for vintage years 2004-2014. Natural resources funds have largely underperformed other strategies across the vintage range shown, with only three vintage years (2004, 2005 and 2008) in which the asset class is not the weakest performing of the strategies examined. The effects of the Global Financial Crisis-induced drop in commodity prices during 2009 are apparent, with the largest deficit in comparison to the other private capital strategies occurring for vintage 2009, 2011 and 2012 funds.

Following the decrease in commodities pricing in 2009, returns have been increasingly varied (Fig. 7.3), suggesting the current natural resources landscape contains fewer low-risk opportunities. Except for 2013 and 2014 vintage funds, which are still very early on in their fund lifecycles, the standard deviation of 2009 vintage fund net IRRs is the greatest. This measure of risk remains relatively high for the vintage years that followed, showing the potential for outsized returns when selecting the right funds, but also indicating that there have been poor performing funds.

PrEQIn INDEX

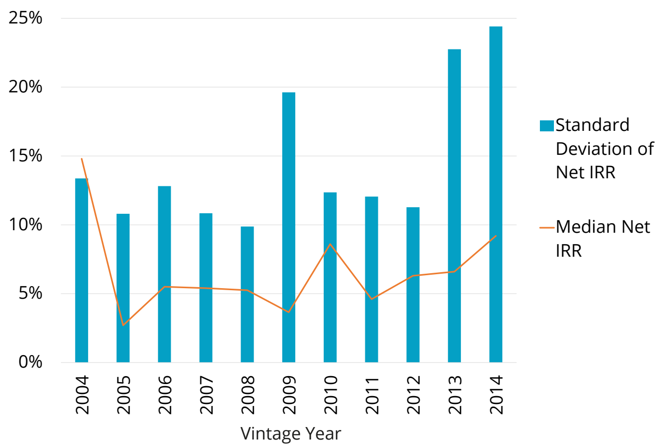
The PrEQIn Natural Resources Index captures the average returns earned by investors in their natural resources portfolios, based on the actual amount of money invested in natural resources partnerships (i.e. weighted by the size of each fund, and reflecting the timing of

Fig. 7.2: Median Net IRRs by Vintage Year: Natural Resources vs. Other Private Capital Strategies (As at June 2017)



Source: Preqin Natural Resources Online

Fig. 7.3: Unlisted Natural Resources - Risk/Return by Vintage Year



Source: Preqin Natural Resources Online

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INVESTOR APPETITE FOR NATURAL RESOURCES IN 2018

With the natural resources industry facing continued challenges going into 2018, it is important to gauge investor sentiment in order for fund managers to respond to both demand and concerns. Preqin surveyed over 80 institutional investors in December 2017 about their level of satisfaction with the asset class, their key concerns and their plans for the coming year.

INVESTORS' GENERAL PERCEPTION OF NATURAL RESOURCES

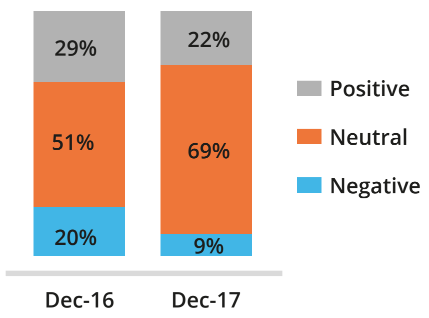
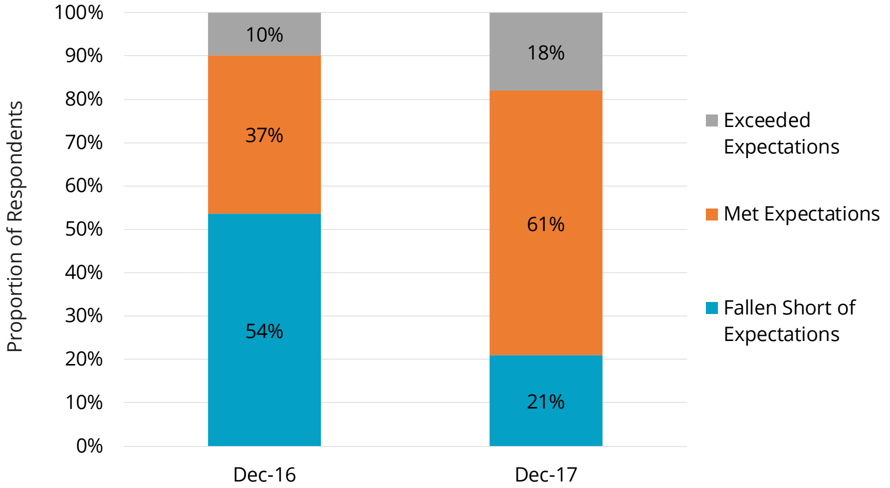


Fig. 8.9: Extent to Which Investors Feel Their Natural Resources Investments Have Lived up to Expectations over the Past 12 Months, 2016 vs. 2017



Source: Preqin Investor Interviews, December 2016 - 2017

SATISFACTION WITH RETURNS AND CONFIDENCE IN THE ASSET CLASS

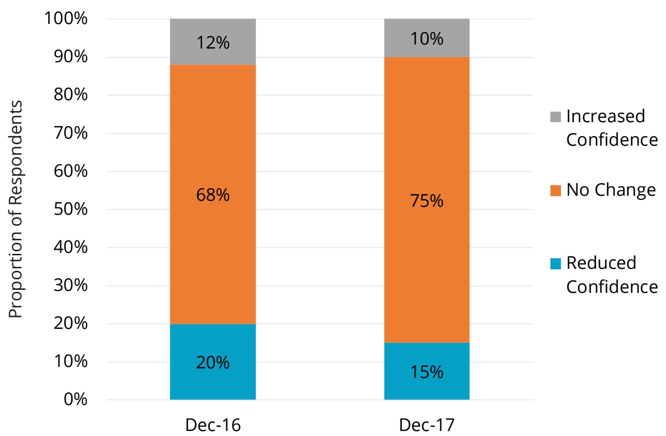
Investors in natural resources continue to have mixed perceptions of the asset class, with 69% of investors surveyed holding a neutral view of the industry. However, just 9% have a negative perception of the asset class, an 11-percentage-point improvement from the corresponding proportion of investors surveyed at the end of 2016. Twenty-two percent of investors expressed positive sentiment with regards to natural resources in 2017.

PERFORMANCE EXPECTATIONS

As shown in Fig. 8.9, 79% of investors felt that the performance of their natural resources investments met or exceeded their expectations over the past 12 months, an increase from just 47% of those surveyed in December 2016. In line with the improving perception of the asset class, just 21% of investors felt that their natural resources investments had fallen short of expectations, down significantly from 54% in 2016.

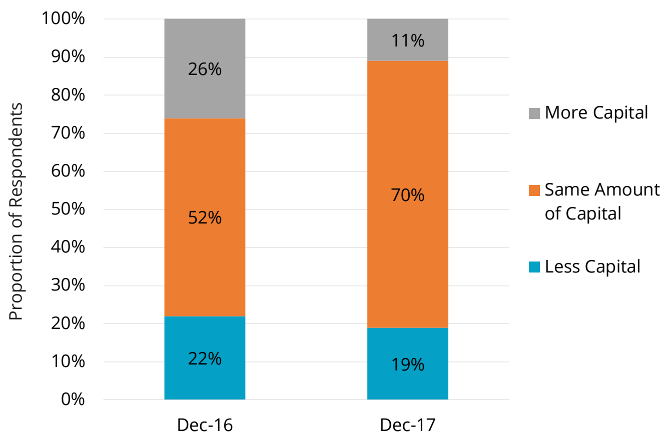
Still, 39% of surveyed investors felt that the performance of their natural

Fig. 8.10: Investors' Change in Confidence in the Ability of Natural Resources to Achieve Portfolio Objectives over the Past 12 Months, 2016 vs. 2017



Source: Preqin Investor Interviews, December 2016 - 2017

Fig. 8.11: Investors' Expected Capital Commitments to Natural Resources Funds in the Next 12 Months Compared to the Previous 12 Months, 2016 vs. 2017



Source: Preqin Investor Interviews, December 2016 - 2017

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HOW INVESTORS SOURCE AND SELECT FUNDS

In our December 2017 interviews with over 80 institutional investors, 18% revealed that they found it more difficult to identify attractive natural resources fund opportunities in 2017 than in 2016, and 76% saw no change. With this in mind, we examine in more detail the processes that investors use to source and screen funds.

KEY STATS: AVERAGE SCREENING PROCESS FOR NATURAL RESOURCES FUNDS

METHODS USED BY INVESTORS TO SOURCE FUNDS:

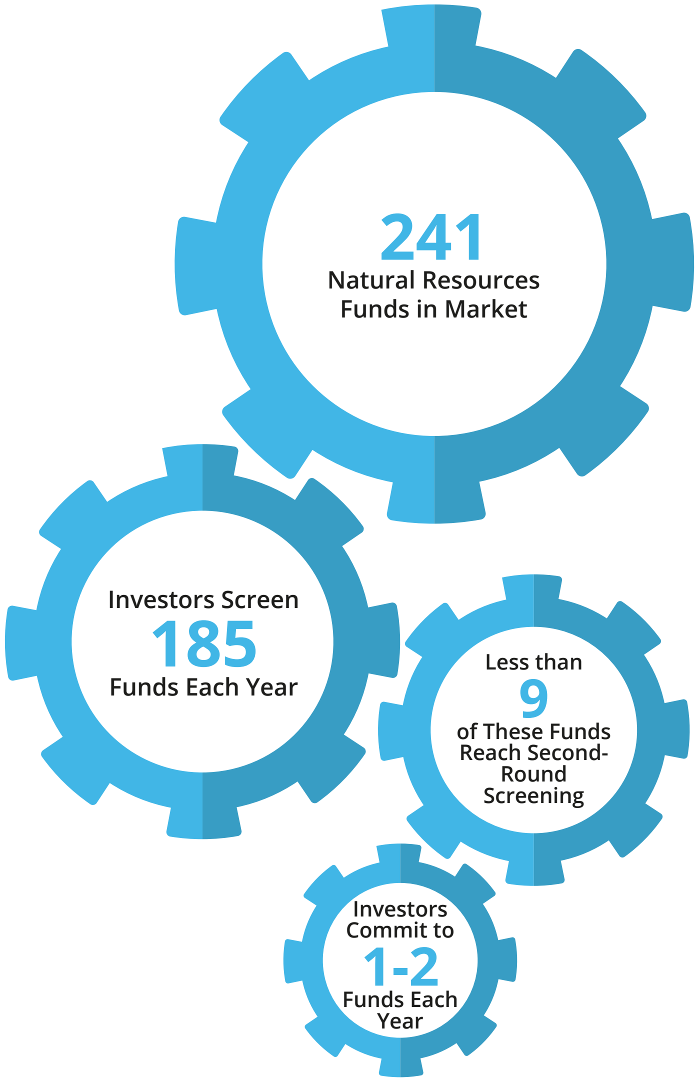
- Only internal sourcing (29%)
- Mainly internal or consultant recommendations, with some external approaches (18%)
- Mix of internal and external recommendations (45%)

KEY REASONS FOR REJECTING A GP:

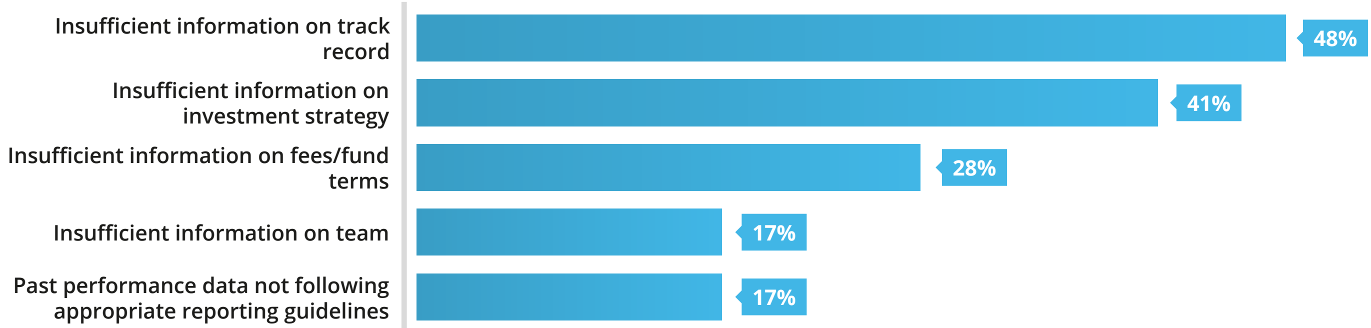
- ✗ Lack of team track record (55%)
- ✗ Lack of firm track record (45%)
- ✗ Unfavourable fees/fund terms (45%)

MOST IMPORTANT FACTORS INVESTORS ASSESS WHEN SELECTING NEW FUNDS:

- ✓ Team track record (61%)
- ✓ Team strategy experience (58%)
- ✓ Firm track record (55%)



MARKETING MATERIALS FAIL TO MEET THE NEEDS OF **36%** OF INVESTORS – WHY?



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