Private Equity Insights

SEVENTEENTH EDITION | Q3 2019

CURRENT QUARTER PERFORMANCE SUMMARY

The State Street® Private Equity Index (SSPEI) posted a mostly flat return of 0.82 percent in the third quarter of 2019, a decrease from the 3.55 percent return in Q2 2019. Venture Capital funds ended its leading streak of six quarters of outperformance with a -0.05 percent decline, lagging behind the 1.13 percent return from Buyout funds and 0.63 percent return from Private Debt funds (See Exhibit 1).

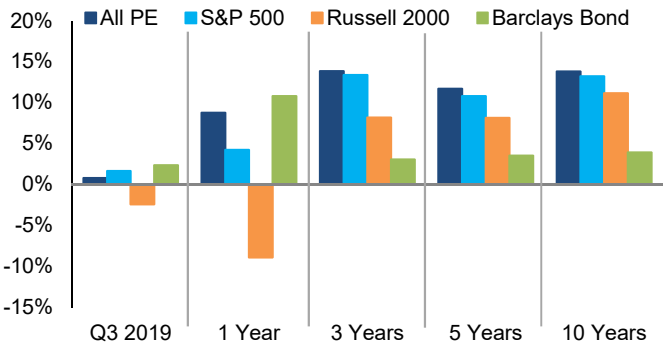
Exhibit 1. Private Equity Performance by Strategy

Column1	All PE	Buyout	VC	Private Debt
2019 Q3	0.82%	1.13%	-0.05%	0.63%
2019 Q2	3.55%	3.18%	5.86%	1.41%
2019 Q1	4.48%	4.03%	6.43%	3.57%
YTD	9.29%	8.67%	13.18%	5.84%

Source: State Street®, as of Q3 2019.

As shown in Exhibit 2, SSPEI outperformed the US public equity market (proxied by S&P 500) and small-cap stocks (proxied by Russell 2000) over mid and long term horizons (1 year – 10 years), but underperformed over quarterly return. SSPEI outperformed US debt market (proxied by Barclays US Aggregate Bound Index) over mid to long term horizons (3 years – 10 years), but underperformed in shorter horizons.

Exhibit 2. Investment Horizon Returns



Source: State Street®, DataStream, Bloomberg Barclays US Aggregate Bond Index (total returns as of Q3 2019).

Continued on page 5.

ASSET OWNERS AS DIRECT INVESTORS

Insights from Harvard University and the Private Capital Research Institute

By Leslie Jeng and Josh Lerner

On October 11, 2019, a group of limited partners ("LPs"), academics, and general partners ("GPs") met at the Harvard Business School at a Private Capital Research Institute-sponsored event to share perspectives on the rise of the asset owner-investor in private markets. The past decade has seen an extraordinary surge of interest in the part of asset owners—including pensions, sovereign wealth funds, and family offices—in direct private market investments. Having started with traditional funds to build their initial exposure to the asset class, they are now eager to expand their own capabilities to co-invest alongside their private equity managers, or even lead deals themselves.

The motivations driving asset owners to seek more control in their private equity investing activities are multiple, but include a desire to avoid the fees charged by traditional partnerships, the belief that their long-run time horizons will facilitate the identification of attractive investment opportunities, and the quest to manage the assets in their portfolios better. At the same time, these investment strategies can be difficult for asset owners to execute. In particular, these organizations must build up their underwriting capabilities and deal flow over time. Recruiting and retaining experienced staff can be a challenge for non-profit and governmental organizations. In addition, evaluating these investments in an effective and objective manner is challenging. This workshop—drawing together leading asset owners, general partners, and academics—explored this important and fascinating territory.

Continued on page 2.

In one part of the workshop, the academic evidence around these investments was discussed. Much of the academic work has focused on the assessment of the returns generated by private equity main funds, in large part because that was where data were more readily available. What really should be assessed, however, is the entire economic relationship between GPs and LPs, which includes co-investments and solo investments of LPs. Since we are in the early stages of getting these data, researchers have had to go outside of traditional information sources.

Victoria Ivashina from the Harvard Business School began by summarizing her research[1] (conducted with Lily Fang and Josh Lerner) on the performance of co-investments and solo investments as compared to main funds. Using data spanning 20 years from seven large LPs, Ivashina shared her finding that realized returns (after fees) on private equity main funds was 8% better than the performance of co-investments and solo investments undertaken by LPs. As a caveat, Ivashina mentioned that this study focused on investments made largely before the Global Financial Crisis, when co-investment was a more narrowly focused LP strategy.

Ivashina also put the rise of co-investment transactions into context, highlighting the upsizing of allocations into alternative investments (which includes private equity, private debt, real estate, hedge funds, infrastructure, and natural resources) by public and private pension funds[2]. Using data collected from 2,000 pension funds from around the world over a 10-year period ending in 2017, Ivashina and Lerner confirmed the aggressive shift to alternative investments by pension asset owners. These results are consistent across both developed and emerging markets, funds of all sizes, and both public and private funds. Ivashina explained that this result could be partially explained by the low interest-rate environment. To illustrate, Exhibit 3 shows that from 2008 to 2017, over 2,000 pension funds from around the world substantially increased their allocation to alternative asset classes, increasing their allocations as a percentage of AUM by nearly five percentage points on average.

Exhibit 3. Alts Allocation by Fund Size, 2008 and 2017

Size percentile	Mean 2008 AUM ($ billion)	Alts holdings (% of AUM) 2008		2017		Diff. (2017-2008)	
1	0.049	2.76		9.27		6.50	***
2	0.153	3.04		11.95		8.91	***
3	0.328	5.57		9.93		4.36	***
4	0.576	7.10		10.92		3.81	***
5	0.913	5.16		11.77		6.61	***
6	1.400	7.49		12.28		4.79	***
7	2.136	8.21		12.58		4.37	***
8	3.613	6.41		12.97		6.56	***
9	7.463	7.21		13.11		5.90	***
10	56.365	9.57		13.16		3.59	***
Diff.	(10) - (1)	6.81	***	3.90	***		

Source: Ivashina presentation October 11, 2019 at The Rise of the Asset Owner-Investor in Private Markets Workshop at the Harvard Business School.

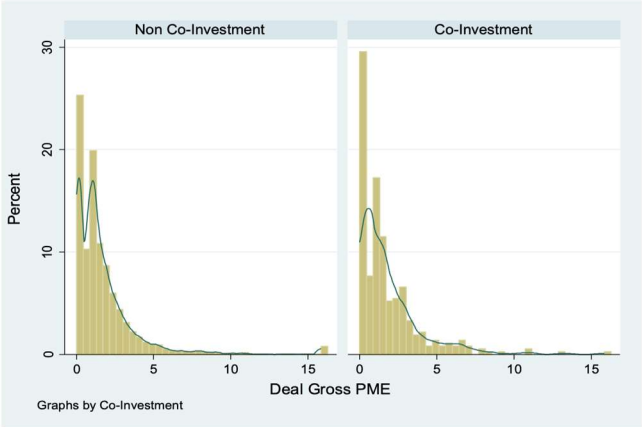
Next, Tim Jenkinson of the Saïd Business School, Oxford University shared his research[3] on the performance of co-investments in private equity. In his study, with co-authors from Technical University Munich, Jenkinson examined returns at the deal-level for about 20,000 buyout and venture capital transactions, of which just over 1,000 were offered for co-investment. By examining the distribution of returns within a fund, Jenkinson found that most buyout funds are characterized by a few really successful deals (a public market equivalent, or PME, of about six, where one represents a case where the private return and the public benchmark are equivalent), resulting in a highly skewed distribution. Only 35% of deals within a fund outperform the corresponding overall fund return. Furthermore, Jenkinson shared that this skewed distribution of gross return is similar for both deals where there are and are not co-investments (see Exhibit 4.)

[1] Fang, Lily, Victoria Ivashina, and Josh Lerner, "The Disintermediation of Financial Markets: Direct Investing in Private Equity," *Journal of Financial Economics*, 2015.

[2] Ivashina, Victoria and Josh Lerner, *Patient Capital: The Challenges & Promises of Long-Term Investing,* Princeton University Press, 2019.

[3] Braun, Reiner, Tim Jenkinson, and Christoph Schemmerl, "Adverse Selection and the Performance of Private Equity Co-investments," *Journal of Financial Economics*, forthcoming.

Exhibit 4. Distribution of Returns of Individual Investments within a Fund Gross Returns



Source: Jenkinson presentation October 11, 2019 at The Rise of the Asset Owner-Investor in Private Markets Workshop at the Harvard Business School.

As investors ultimately care about net returns, Jenkinson provided facts in Exhibit 5 about net returns based on three kinds of hypothetical fee structures: no fees, 1/10 and 0/20. Not surprisingly, since gross returns are similar for co-investments and funds, by investing at lower fees, co-investments have better net returns. With the no fee structure, the difference in returns between funds and co-investments is statistically significant: about 0.30 - 0.40 greater PMEs (translating to about 30-40% higher returns). The difference in returns is only somewhat statistically significantly different when using the 1/10 and 0/20 fee structures.

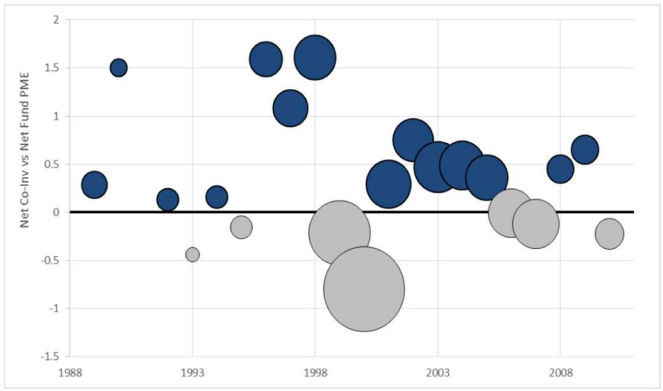
Exhibit 5. Net Performance of Co-investments

	PME					
	1. Buyout			2. Venture Capital		
SCENARIOS:	Obs.	Net	Net-Net	Obs.	Net	Net-Net
A. Funds:	246	1.36	1.35	218	1.29	1.28
B. Co-Investments:						
No Fees	365	1.76 ***	1.71 ***	651	1.55 ***	1.51 ***
1/10	365	1.59 ***	1.54 ***	651	1.38	1.33
0/20	365	1.56 ***	1.51 **	651	1.34	1.30
C. Co-Investment minus Fund:						
No Fees	365	0.34 ***	0.29 ***	651	0.43 ***	0.39 ***
1/10	365	0.18 **	0.13 **	651	0.26 ***	0.23 ***
0/20	365	0.15 **	0.10 *	651	0.23 ***	0.19 ***

Source: Jenkinson presentation October 11, 2019 at The Rise of the Asset Owner-Investor in Private Markets Workshop at the Harvard Business School. Net-net returns refer to returns after the estimated annual cost of managing the investment program.

Exhibit 6 provides further evidence of the superior return performance of co-investments. In this exhibit, the bubble size represents the numbers of co-investments in those years. It is obvious that the majority of the bubbles are above the zero level, which means in those years co-investment returns beat fund returns. For those years with inferior performance by co-investments, Jenkinson stated that the reason could be the large amount of money invested in some poor performing deals. Given these results and the skewed distribution of the co-investment returns, Jenkinson concluded that a good strategy might be co-investing in scale, leading to an increase in the number of winners and thus increased returns.

Exhibit 6. Co-investments vs. Fund Returns by Vintage

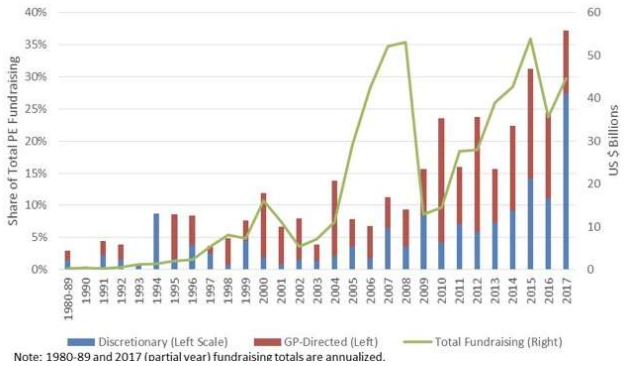


Source: Jenkinson presentation October 11, 2019 at The Rise of the Asset Owner-Investor in Private Markets workshop at the Harvard Business School.

In the final presentation, Josh Lerner shared his research conducted with Jason Mao (State Street), Antoinette Schoar (MIT), and Nan Zhang (State Street) on alternative investment vehicles ("AIVs") in private equity investments, including co-investments, special purpose vehicles and other non-traditional structures. In this very recent study, Lerner and his colleagues examine the use of AIVs in private equity over four decades. In Exhibit 7, Lerner pointed out that from the 1980s to 2017, the share of AIVs increased from about 2% in the 1980s to nearly 40% in 2017[4].

[4] Lerner, Josh, Jason Mao, Antoinette Schoar, and Nan R. Zhang, "Investing Outside the Box: Evidence from Alternative Vehicles in Private Equity," Harvard Business School Entrepreneurial Management Working Paper No. 19-012, 2019.

Exhibit 7. Alternative Vehicles in Private Equity Fundraising



Source: Lerner presentation October 11, 2019 at The Rise of the Asset Owner-Investor in Private Markets Workshop at the Harvard Business School.

Next, Lerner shared results on the relative performance of AIVs and the associated main funds as measured by PME, net of fees. When looking at the entire period from 1980-2017, the weighted average PME of AIVs was much lower than the associated main fund, by about 13.8% (see Exhibit 8). This finding is consistent with his and Ivashina's previous result. However, Lerner explained that a few large negative investments drove much of this pattern. Furthermore, when just focusing on more modern deals from the post-crisis period from 2009-2014, Lerner showed that AIVs actually outperform the associated main fund by almost 7%–a result more consistent with Jenkinson's findings. Having reconciled the contradictory results, Lerner explained that this seems to illustrate that there may be a secular change over time–not just more money in AIVs, but perhaps performance improvement as well.

Exhibit 8. Alternative Vehicles Relative Performance Relative to Main funds

Vehicle type	N	Weighted average	p-value	Median
1990-2017	1433	-13.8%	0.001	-0.2%
2009-2014	791	+6.98%	0.011	1.3%

Source: Lerner presentation October 11, 2019 at The Rise of the Asset Owner-Investor in Private Markets Workshop at the Harvard Business School.

Lastly, Lerner explained that the best relative performance in AIVs was concentrated in endowments and foundations, mid-sized asset owners, Europe-based organizations, and in LPs with historically high performance in terms of their fund. The poorest performance of AIVs were concentrated in the LPs with the poorest performance in the main fund. Lerner concluded by saying these results highlight the fact that there is a lot of heterogeneity across deals and LPs and that this carries over to AIVs as well. Thus, Lerner cautioned against viewing co-investments and related investments as a "one size fits all" solution.

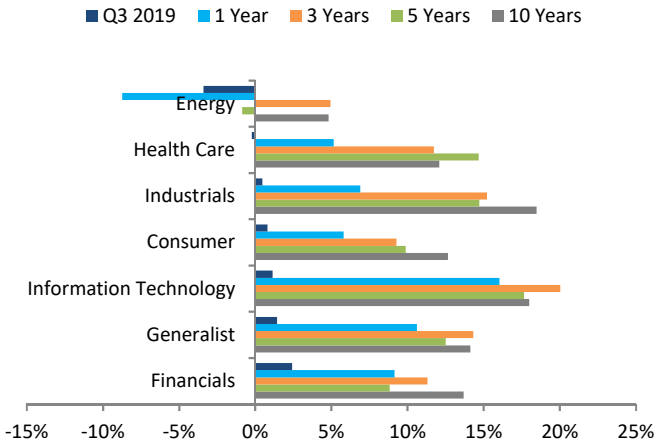
Josh Lerner is Director of the Private Capital Research Institute and Jacob H. Schiff Professor of Investment Banking and Head of the Entrepreneurial Management Unit at Harvard Business School. **Leslie Jeng** is Director of Research of the Private Capital Research Institute.

The Private Capital Research Institute is a not-for-profit 501(c)(3) corporation formed to further the understanding of private capital and its global economic impact through a commitment to the ongoing development of a comprehensive database of private capital fund and transaction-level activity supplied by industry participants. The PCRI, which grew out of a multi-year research initiative with the World Economic Forum, also sponsors policy forums.

CURRENT QUARTER PERFORMANCE SUMMARY – CONTINUED FROM PAGE 1

Among sectors, Information Technology funds ended a six-quarter streak of outperforming the sectors, recording a 1.14% quarterly return, down from 5.45% in Q2. Financials outperformed other sectors in Q3 with a 2.42% quarterly return, down from 2.96% in Q2. Energy funds and Health Care funds – the only two sectors experiencing negative returns in Q3 – saw returns fall to -3.39% and -0.21% respectively (Exhibit 9).

Exhibit 9. Returns of Sector Focused Private Equity Funds



Source: State Street®, as of Q3 2019.

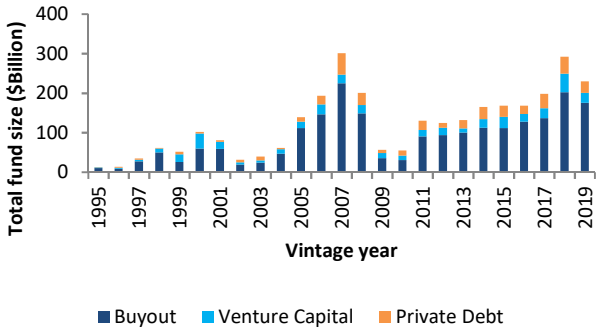
Fund Raising

In the first three quarters of 2019, fund raising activities were mixed among the three private equity strategies. Buyout funds continued following a steady pace in fund raising activities with more than $175 billion raised, nearly 87% of the funds raised in 2018. However, Venture Capital and Debt Related funds were slowing down in fund raising, and are less likely to surpass the fund raising record in 2018. Venture Capital raised $25 billion and Debt Related raised $29 billion as of the third quarter, which represented 54% and 68% relative to their fundraising throughout last year (see Exhibit 10(A)). Across regions, US funds collected $141 billion, which was 77% of last year's total. European and the Rest of World raised $ 38 billion and $51 billion respectively, counting for 83% and 80% relative to last year (see Exhibit 10(B)).

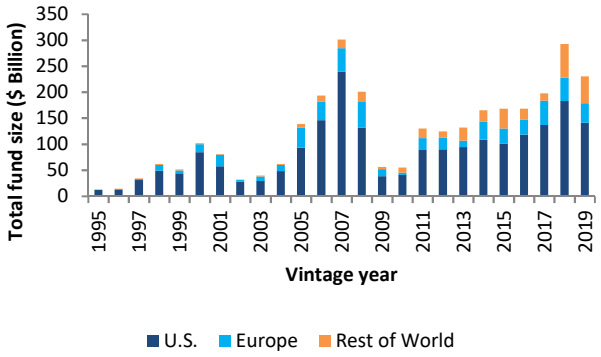
The average fund size continued to rise for Buyout and Private Debt funds. As of the third quarter of 2019, the average size of Buyout and Private Debt funds recorded all-time highs with $2.88 billion and $2.45 billion respectively. However, average fund size of Venture Capital was $0.61 billion, marginally lower than $0.67 billion in 2018 (see Exhibit 11).

Exhibit 10. Total Fund Size (USD Billion)

(A) By Strategy

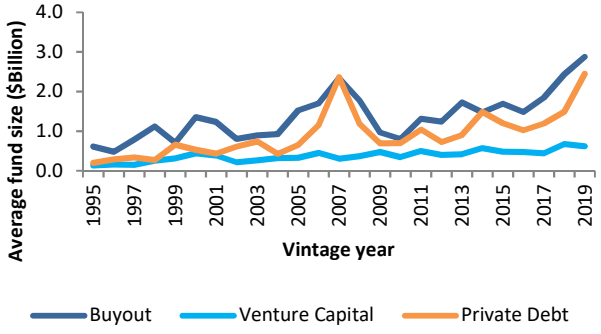


(B) By Region



Source: State Street ®, as of Q3 2019.

Exhibit 11. Average Fund Size (USD Billion)

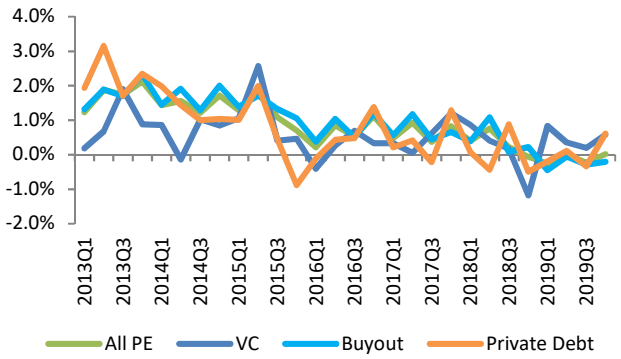


Source: State Street®, as of Q3 2019.

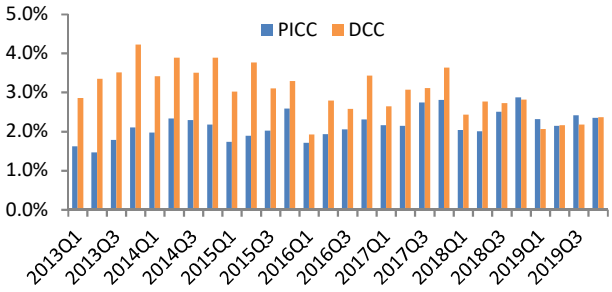
Cash Flow Activity

Exhibit 12(A) shows a general trend of diminishing net cash flow since Q1 2013. The overall net cash flow was floating around zero for more than a year, driven by low points of around 2% quarterly normalized by commitment. (see Exhibit 12(B)). Net cash flow of Private Debt turned positive in Q4 2019 at 0.6%, while net cash flow of Buyout funds remained marginally below zero.

Exhibit 12. Quarterly Cash Flow Ratios Normalized by Commitment (2013Q1 – 2019Q4)
(A) Net Cash Flow



(B) Contribution and Distribution of All PE

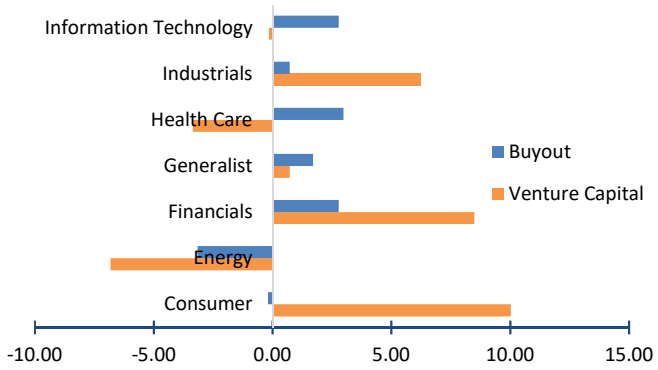


Source: State Street ®, as of Q3 2019.

Valuations

In Q3 2019, Venture Capital funds ended a six-quarter streak of outperforming the three main private equity strategies (Venture Capital, Buyout and Private Debt), lagging behind Buyout funds. This under-performance coming from several sectors, specially from Information Technology and Health Care sectors, where Venture Capital funds performed worse than Buyout funds (see Exhibit 13).

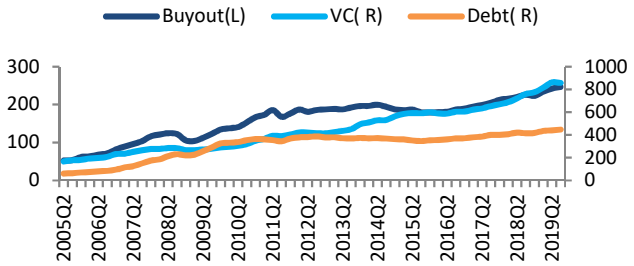
Exhibit 13. Quarterly IRR for Buyout and Venture Capital



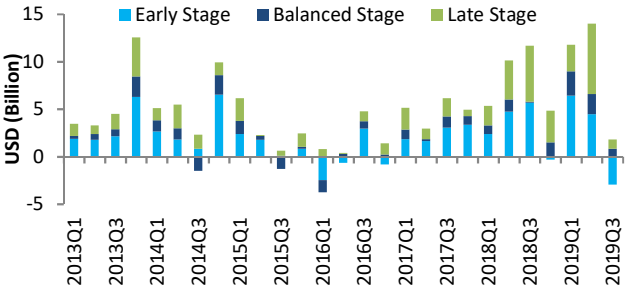
Source: State Street®, as of Q3 2019.

As shown in Exhibit 14(A), the remaining value (NAV) of Buyout and Private Debt funds steadily moved upward, while NAV of Venture Capital funds decreased to $257 billion in Q3 2019, down from $259 billion in previous quarter. This decrease in NAV is driven by Early Stage funds recording -$3 billion delta NAV, and NAV growth slowing down in both Balanced Stage and Late Stage funds in Q3 2019 (See Exhibit 14(B)).

Exhibit 14. Net Asset Value
(A) NAV by Strategy (2005Q2 – 2019Q3)



(B) Delta NAV of Venture Capital Categories



Source: State Street ®, as of Q3 2019.

ABOUT THE GX PRIVATE EQUITY INDEX

Participants in private capital markets need a reliable source of information for performance and analytics. Given the non-public nature of the private equity industry, collecting comprehensive and unbiased data for investment analysis can be difficult. The GX Private Equity Index ("GXPEI") helps address the critical need for accurate and representative insight into private equity performance.

Derived from actual cash flow data of our Limited Partner clients who make commitments to private equity funds, GXPEI is based on one of the most detailed and accurate private equity data sets in the industry today. These cash flows, received as part of our custodial and administrative service offerings, are aggregated to produce quarterly Index results. Because the GXPEI does not depend on voluntary reporting of information, it is less exposed to biases common among other industry indexes. The end result is an index that reflects reliable and consistent client data, and a product that provides analytical insight into an otherwise opaque asset class.

- Currently comprises more than 3,000 funds representing over $3 trillion in capital commitments as of Q3 2019.
- Global daily cash-flow data back to 1980.
- The Index has generated quarterly results since Q3 2004.
- Published approximately 100 days after quarter-end.

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