# Private Equity Insights

ELEVENTH EDITION | Q1 2018

## CURRENT QUARTER PERFORMANCE SUMMARY

The State Street Global Exchange® Private Equity Index (GXPEI) posted a mediocre return of 2.44% in the first quarter of 2018. All strategies saw a decrease in quarterly returns comparing to Q4 2017. The Buyout Funds category ended its eight quarter streak of outperformance with a 2.09% gain, lagging behind the 3.78% return from Venture Capital funds (down from 4.21% in Q4) and 2.46% from Private Debt funds (down from 3.15% in Q4). (See Exhibit 1).

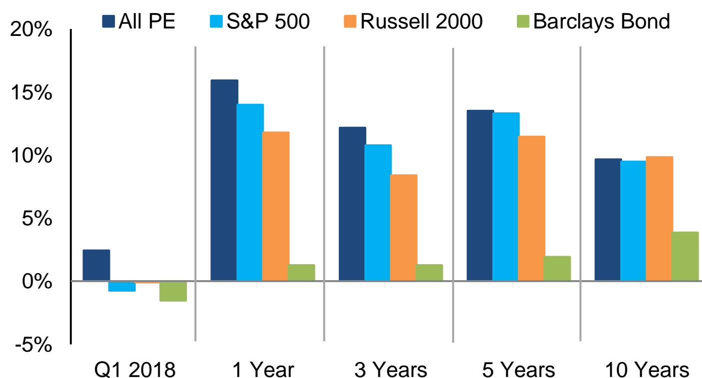
**Exhibit 1: Private Equity Performance by Strategy**

| | All PE | Buyout | VC | Private Debt |
|---|---|---|---|---|
| 2018 Q1 | 2.44% | 2.09% | 3.78% | 2.46% |
| 2017 Q4 | 4.78% | 5.23% | 4.21% | 3.15% |
| 2017 | 17.98% | 19.75% | 14.99% | 13.05% |

**Source: State Street Global Exchange®, as of Q1 2018.**

Though private equity returns slowed in Q1 2018, the GXPEI still outperformed the U.S. debt market (proxied by the Barclays Bond Index) and the U.S. equity market (proxied by S&P 500 and Russell 2000) for the quarter. Over longer term horizons, GXPEI also outperformed (see Exhibit 2).

**Exhibit 2: Investment Horizon Returns**




**Source: State Street Global Exchange®, DataStream, Bloomberg Barclays US Aggregate Bond Index (total returns as of Q1 2018).**

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## NEW RESEARCH FROM STATE STREET

### Investing Outside the Box: Evidence from Alternative Vehicles in Private Equity

Asset owners investing in private markets have long expressed concerns about the high levels of fund manager compensation. Public discussions of this issue (and of the need for more favorable fund economics) date back at least as far as a controversial study that a number of large United States public pensions commissioned in the mid-1990s. Despite these concerns, there has been relatively limited competition across private capital managers in the pricing of their main funds, unlike in public markets, where low-cost indexing has become commonplace.

This lack of competition may reflect the widespread belief that in private equity, differently from public markets, that manager skill differs sharply and allows some funds to persistently outperform. Similarly, some asset owners are seen as highly desirable limited partners (LPs). The differences across fund managers and asset owners may lead to a matching process, where more powerful and attractive limited partners match with better General Partners (GPs).

Indeed, a key response by private capital groups to LP pressures over the past fifteen years has been to offer selected investors opportunities to access their investments in non-traditional ways. These alternative vehicles often have different fee structures or contain different assets. Many fund managers have become increasingly creative in terms of offering selected investors products "outside the box."

Despite the intense real-world interest in investment strategies using alternative vehicles, assessing the extent and success of these approaches has been challenging. The performance of alternative vehicles is rarely reported in official disclosures by fund managers. Even the services that

*Continued on page 2.*

track these markets, such as Burgiss, Cambridge Associates, and Preqin, focus on documenting the performance of main funds rather than alternative vehicles.

The only exceptions are a handful of earlier studies which focus on select samples of co-investments by limited partners:

In “Investing Outside the Box: Evidence from Alternative Vehicles in Private Capital,” a team of researchers—including Jason Mao and Nan Zhang from State Street, Josh Lerner from Harvard, and Antoinette Schoar from MIT--explore a much more comprehensive data set, covering investments into entities organized by private capital funds for 112 asset owners. The paper uses the records of State Street, whose data captures all cash flows between limited partners and the private capital fund managers in their portfolios. In total, the data set includes over one half-trillion dollars of commitments in twenty thousand distinct investments by individual LPs between 1980 and mid-2017. The paper focuses on the main funds of a general partnership, discretionary vehicles such as co-investment transactions, and GP-directed vehicles.

A few key facts emerge from the analysis:

- *Capital Allocation:* The allocation of capital to alternative vehicles has been growing over time. In the 1980s, 91% of the vehicles raised and 93% of the capital commitments were to main funds. In the 2010s, these shares fell to 64% and 76% respectively. Of the 108 asset owners investing in private capital in the sample (four made no such investments), 87 invested in GP-directed and 69 in discretionary vehicles.
- *Performance*: Overall, the average performance of alternative vehicles was very similar to the average main fund. The one exception was the ratio of total value to paid-in capital (TVPI), where main funds performed substantially better. When comparing the performance of alternative vehicles to those of the main funds raised by the same private capital group about the same time, on average the alternative vehicles *underperform* their associated main funds. Using weighted average public market equivalent (PME) performance, discretionary vehicles underperform, by 0.02 and GP-directed funds underperform by 0.10, with the latter being statistically significant.
- *Composition:* Alternative vehicles were far more likely to be offered by buyout funds than venture capital ones, comprising 38% of all vehicles and 18% of all capital raised by buyout-focused groups; but only 20% of vehicles and 10% of capital raised by venture-focused ones. The largest third of GPs raised 18% of their capital through alternative vehicles, as opposed to 2% by the smallest funds.

Alternative vehicles can be seen as the result of a bargaining process between GPs and LPs in the private equity market. Partnerships with higher past PMEs were able to raise more capital in both their main funds and side vehicles relative to GPs with lower PMEs. The average performance of alternative vehicles offered by high-PME partnerships outperformed the average fund in the market. But when looking at the performance of alternative vehicles relative to the GP’s main fund, GP-directed vehicles significantly underperformed their main fund, especially for top performing GPs, while discretionary vehicles outperform even the main fund.

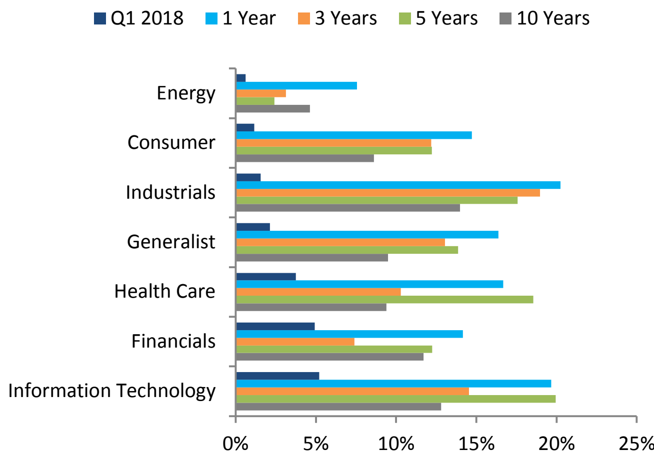
LPs with better past performance invested in alternative vehicles that had above average market performance: indeed, these side vehicles even outperformed the main fund of the GP sponsoring these alternative vehicles. In addition, the categories of LPs that have the highest performance in their alternative vehicle investment were those that are typically seen as high-prestige LPs, such as endowments and foundations, private pension funds, and insurance companies. The poorest performance in alternative vehicles was seen for fund-of-funds.

Finally, there was an interaction between the past performance of the LPs and GPs. The paper classifies GPs and LPs by the average performance of their past investments. Alternative vehicles have the highest performance on average if the LPs and GPs involved in the vehicle were both above-median performers. Alternative vehicles where both LP and GP are below-median performers had the worst performance. These results support the idea that GPs tailor the alternative vehicles they offer their LPs to the attractiveness (and other options) of their LPs. Together, these results paint a richer picture of where alternative vehicles are used, and what their impact is.

## CURRENT QUARTER PERFORMANCE SUMMARY – CONTINUED FROM PAGE 1

Among sectors, Information Technology funds led with a 5.20% quarterly return, down slightly from 5.91% in Q4. They were followed by the Financials focused funds – the only sector to see an increase in returns from the previous quarter – rising to 4.93% from 2.66% in Q4. Industrials, the leader for the previous two quarters, saw returns decrease to 1.56% from 6.68% in Q4 (see Exhibit 6).

### Exhibit 6: Returns of Sector Focused Private Equity Funds



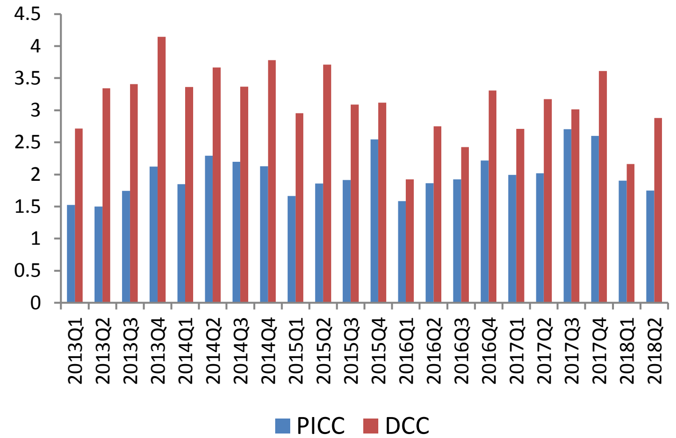

Source: State Street Global Exchange®, as of Q1 2018.

### Cash Flow Activity

In the first quarter of 2018, volatility spiked across asset markets as a result of geopolitical uncertainties, risks of trade wars, and rising interest rates. Managers appear to have been more cautious as their quarterly contribution rate dropped to a two year low and their exit activities declined as well. This contraction in activity happened in all three strategies, but only lasted one quarter as the distribution rate saw a comeback in Q2 of 2018 while the contribution rate was still lagging (see Exhibit 7).

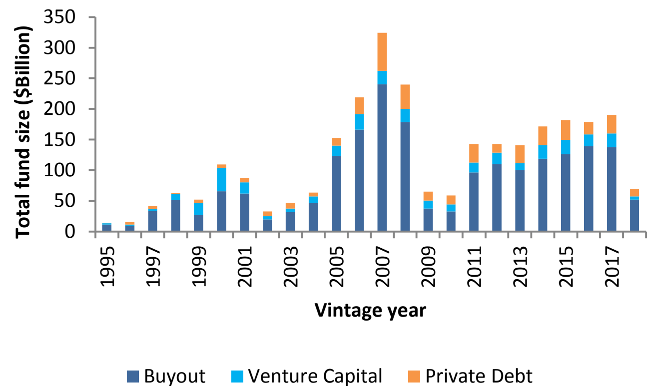
Fund raising activity in 2018 is picking up speed, which is another sign that private equity investors did not lose confidence as they faced the temporary correction in the public markets. In fact, the 2018 vintage funds started in the first quarter equal close to 40 percent of total commitments to all 2017 vintage year funds (see Exhibit 8). The average size of these new funds also rose to the level of the historical peak observed before 2008.

### Exhibit 7: Quarterly Average Cash Flow Ratios




Source: State Street Global Exchange®, as of Q1 2018.

### Exhibit 8: Total Fund Size (USD Billion)




Source: State Street Global Exchange®, as of Q1 2018.

### Valuations

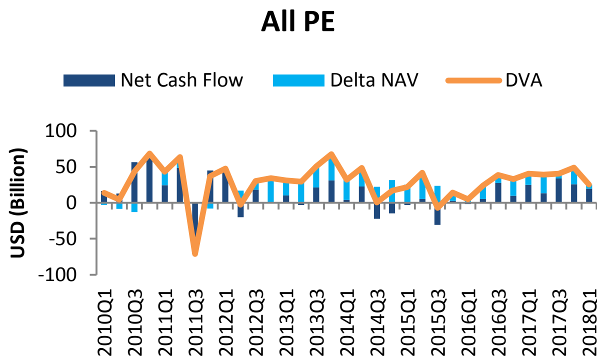
The Dollar Value Added (DVA) is the sum of NAV changes and net cash flows. It measures the realized and unrealized gain and loss in dollar amounts.

*DVA = Ending NAV – Beginning NAV + Distribution - Contribution*

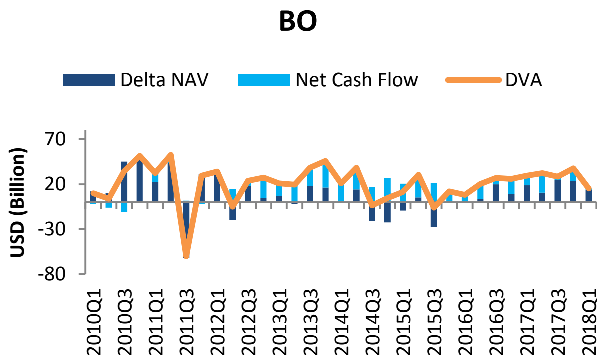
The DVA of private equity was 26 billion in Q1 of 2018 compared to 49 billion in Q4 of 2017, the first slowdown in almost 2 years. As a result of the lack of cash activities mentioned earlier, the Net Cash Flow component of DVA shrank across all strategies. Especially in Buyout only 2 billion USD was distributed back to investors compared to 14 billion in Q4 of 2017. The component of Delta NAV is also smaller for Buyout funds which means asset appreciation slowed down. But this is not true for Venture Capital and Debt related funds which saw a larger NAV increase than last quarter (see Exhibit 9).

### Exhibit 9: Dollar Value Added (2010Q1 – 2018Q1)

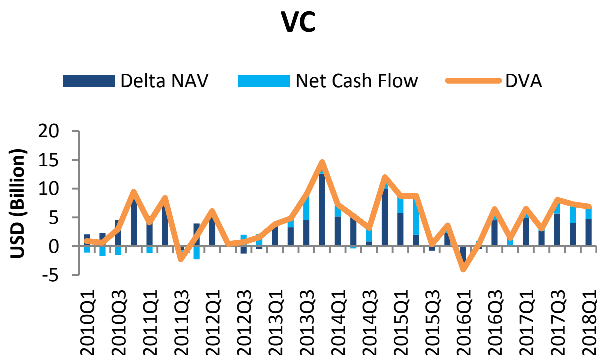
#### (A) All PE



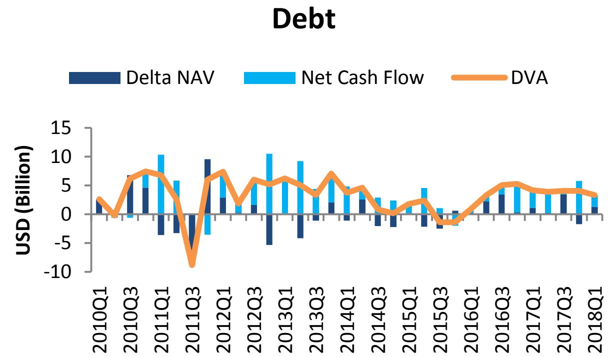

#### (B) Buyout




#### (C) Venture Capital




#### (D) Private Debt




**Source: State Street Global Exchange®, as of Q1 2018.**

## DISCUSSION – VALUATION SENSITIVITY SCORE

Both cash flow and valuation can impact the IRR calculation. The same IRR value may not mean the same realized return. Oftentimes investors want to isolate the impact of valuation. In order to do that, we define Valuation Sensitivity Score (VSS) that measures the change in IRR due to a small change in valuation, keeping other conditions the same. The VSS is calculated as below

$$VSS = NAV\frac{\partial IRR}{\partial NAV} = -\frac{NAV}{\sum_{t=0}^{T}(T-t)(1+IRR)^{T-t-1}CF_t}$$

### Exhibit 10: An Example of Different VSS for Funds with Same IRR

| | Baseline | | Scenario | |
|---|---|---|---|---|
| Year | Fund A | Fund B | Fund A | Fund B |
| 0 | -50.00 | -50.00 | -50.00 | -50.00 |
| 1 | | 10.00 | | 10.00 |
| 2 | | 20.00 | | 20.00 |
| 3 | | 30.00 | | 30.00 |
| 4 | 100.00 | 19.21 | 90.00 | 17.29 |
| $\Delta NAV$ | | | -10% | -10% |
| $IRR$ | 18.92% | 18.92% | 15.83% | 18.01% |
| $\Delta IRR$ | | | -3.09% | -0.90% |
| $VSS$ | 0.30 | 0.09 | 0.30 | 0.09 |
| $VSS * \Delta NAV$ | | | -2.97% | -0.89% |

In the example in Exhibit 10, Fund A and Fund B have different cash flows but the same IRR. However, Fund A is 3 times more sensitive to valuation shocks than Fund B, as

measured by VSS. When valuations drop 10% ($\text{i.e.}\,\Delta\text{NAV} = -10\%$) , the IRR of Fund A is expected to decline 2.97% (vs. -3.09% actual decline) while the IRR of Fund B is expected to decline only 0.89% (vs. -0.90% actual decline). Because VSS is a linear approximation, estimation error exists but is negligible when the shock is small.

VSS can be used in scenario analysis. For example, with VSS, it is easy to estimate the impact on USD denominated IRR due to a hypothetical future EUR/USD fluctuation that would change the USD denominated NAV of European funds.

Exhibit 11 shows the VSS across regions and strategies of the most recent 10 vintage year funds in GXPEI. Rest of World has the highest sensitivity to valuation changes among the three regions and Buyout has the highest sensitivity to valuation changes among the three strategies.

**Exhibit 11: Valuation Sensitivity Score (2009-2018 Vintage Year)**

**(a) By Region**

| Region | Valuation Sensitivity Score |
|---|---|
| All PE | 0.26 |
| U.S. | 0.25 |
| Europe | 0.27 |
| Rest of World | 0.32 |

**(b) By Strategy**

| Strategy | Valuation Sensitivity Score |
|---|---|
| All PE | 0.26 |
| Venture Capital | 0.24 |
| Buyout | 0.29 |
| Private Debt | 0.20 |

**Source: State Street Global Exchange®, as of Q1 2018.**

## 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 2,800 funds representing more than $2.8 trillion in capital commitments as of Q1 2018.
- 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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