Global Exchange

Private Equity Insights

SIXTH EDITION | Q4 2016

CURRENT QUARTER PERFORMANCE SUMMARY

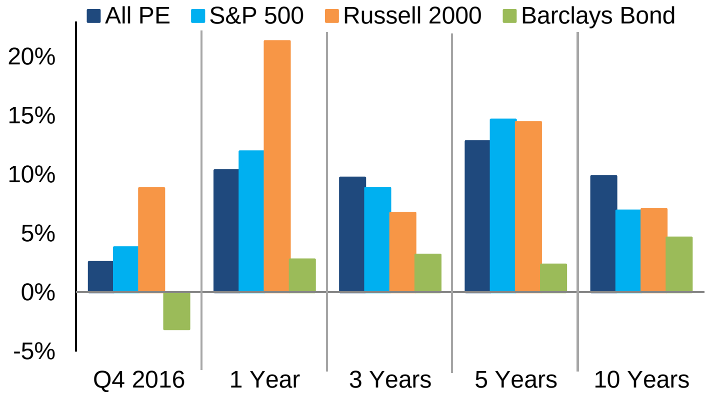
The State Street Private Equity Index (GXPEI) posted an overall return of 2.58% in the fourth quarter of 2016 and 10.36% for 2016. Buyout recorded the highest annual return of 12.52% as of Q4 2016 across strategies, followed by Private Debt with a 10.39% gain and Venture Capital with only 2.84% (see Exhibit 1). Compared to 2015, private equity overall return increased significantly in 2016, driven by stronger Buyout and Private Debt performances, Venture Capital, however, weakened considerably (see Exhibit 1).

Exhibit 1: Private Equity Performance by Strategy

	All PE	Buyout	VC	Private Debt
2016 Q4	2.58%	3.07%	0.47%	3.04%
2016	10.36%	12.52%	2.84%	10.39%
2015	6.55%	6.05%	12.13%	1.69%

Source: State Street Global Exchange[SM], as of Q4 2016.

Exhibit 2: Investment Horizon Returns



Source: State Street Global Exchange[SM], DataStream, Bloomberg Barclays US Aggregate Bond Index (total returns as of Q4 2016).

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THE DIRECT INVESTMENT DILEMMA

Insights from Harvard University And the Private Capital Research Institute

PCRI The Private Capital Research Institute

By Leslie Jeng and Josh Lerner

There has been an explosion of interest in direct investing in recent years. Rather than investing in funds, pensions, sovereign wealth funds, and family offices are increasingly choosing to either make co-investments alongside private equity funds, or to strike off by themselves in "solo" investments. Exhibit 3 illustrates the different forms of private equity investing.

While exact numbers are hard to come by, Triago estimates the amount of "shadow capital" - which includes co-investments, solo investments, and also separate accounts - to have grown by 155% percent between 2009 and 2015, as opposed to 57% growth for traditional fund investments.[1] The growth of direct investment is also evident in the reports of individual investors, such as the Canadian Pension Plan Investment Board, whose portfolio has climbed from under one half-billion Canadian dollars in 2006 to C$35 billion in 2016.[2]

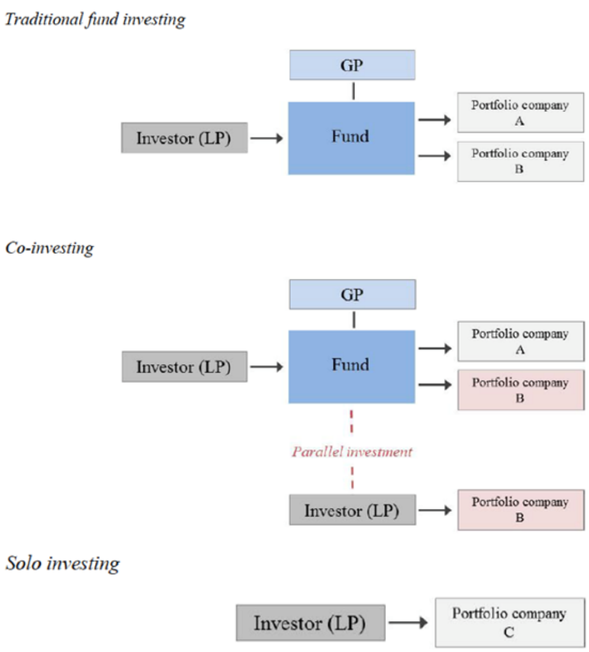
The increased interest in direct investing is understandable. Returns from private equity investing relative to the public markets in recent years have been disappointing.[3] Much of the lack of outperformance appears to stem, not from poor

Continued on page 2.

[1] "Market Snapshot Analysis: Record Amounts Pour into Private Equity", *The Triago Quarterly*, November 2015, *http://www.triago.com/wp-content/uploads/2015/11/Triago-Quarterly_Nov_2015.pdf.*
[2] Canadian Pension Plan Investment Board, *Annual Reports*, Toronto, various years, and Josh Lerner, Matthew Rhodes-Kropf, and Nathaniel Burbank, "Canada Pension Plan Investment Board: October 2012," Case No. 813-103, Boston, Harvard Business School Publishing, 2013.
[3] Harris, Robert, Tim Jenkinson, and Steven N. Kaplan, "How Do Private Equity Investments Perform Compared to Public Equity?," *Journal of Investment Management,* Volume 14, No. 3, pp 1-24, Third Quarter 2016.

gross returns, but from the substantial wedge that fees and carried interest by fund managers introduce between gross and net returns.[4] In theory, direct investments provide all the benefits of private equity, with a much reduced "fee drag".

Exhibit 3: Different Forms of Private Equity Investing



Source: Fang, Ivashina, and Lerner (2015) [5]

But the successful implementation of these efforts can be challenging. The capabilities of limited partners to assess and execute on direct transactions is quite uneven. While some institutions, such as the major Canadian pension funds, have invested in developing teams of professionals to assess transactions, in many other cases, the capabilities are much more limited. This is true both of deal-doers (the staff who evaluates and structures transactions) and those who provide the ongoing oversight and intervene if the investments encounter issues. The task facing limited partners is particularly daunting because the co-investment decision must often be made in a few weeks, as opposed to the many months (or even years) that a general partner often has to assess a potential deal.

A major challenge has been the ability of institutional investors to offer the level of compensation akin to that seen in private equity groups. Limited partners are in many cases non-profit, public, or regulated entities, and their ability to offer high-powered compensation with substantial upsides is frequently limited. As a result, it is frequently difficult to recruit and (even more challengingly) retain investment professionals with the experience to lead and oversee transactions.

The increasing investor expectations around co-investments are posing a major challenge to general partners. When only a handful of limited partners had direct investment programs, demand for these investors could be managed relatively easily. Now that not just large pensions and sovereign wealth funds, but many smaller investors (such as family offices), are undertaking such investment initiatives, the task the general partners face is far more daunting. Adding to the pressure is the increased scrutiny of the allocation of co-investments by the U.S. Securities and Exchange Commission. Another challenge is the continued limited supply of multi-billion dollar mega-deals, which have represented a large fraction of historical co-investments.

Our research suggests that the performance of co-investments has been relatively disappointing.[5] See Exhibit 4 for a summary of results using a Public Market Equivalent (PME) performance measure, which compares an investment in a PE fund to an equivalently-timed investment in a relevant public market index (e.g., SP500). We compiled a proprietary dataset of direct investments from seven large institutional investors. For these investors, we had complete coverage of their direct investment programs, including solo investments (those deals originated and completed by the limited partners (LPs) on their own) and co-investments (deals where LPs invest alongside general partners (GPs)), between 1991 and 2011. These investments (particularly co-investments into buyout deals) did relatively well in the 1990s. But as more limited partners have initiated co-investment programs in the past decade, performance of these deals seems to have deteriorated (both relative to the performance of private equity funds as whole and to solo investments by limited partners that are not undertaken alongside a general partner). Venture capital co-investments did poorly throughout.

The relatively poor performance of co-investments over the past decade can be attributed to two factors. First, there has

[4] Metrick, Andrew and Ayako Yasuda, "The Economics of Private Equity Funds," *Review of Financial Studies*, Volume 23, No. 6, pp 2303–2341, June 2010.

[5] Fang, Lily, Victoria Ivashina, and Josh Lerner, "The Disintermediation of Financial Markets: Direct Investing in Private Equity," *Journal of Financial Economics*, Volume 116, Issue 1, pp 160–178, April 2015.

been an over-concentration of such capital deployed at market peaks: the periods that, with the benefit of hindsight, are exactly the wrong times to invest in private equity of any kind. Second, co-investments have often been concentrated in the largest transactions of a typical fund, which historically have on average done more poorly than the typical-sized deals.

Exhibit 4: Direct Investment Performance, 1991-2009

	Direct Investments	Fund Benchmark	Difference
Mean VC PME	0.98	1.45	-0.47***
Mean Buyout PME	1.40	1.29	0.11[a]

Source: Fang, Ivashina, and Lerner (2015)[5]
***** Statistically significant from PME fund benchmark at 1% level; a. Not statistically different from PME fund benchmark**

A more optimistic view is from the recent study of Braun, et al (2017).[6] Using data on co-investments contained in Capital IQ, these researchers compare return distributions for both co-investments and deals that remain completely invested within the fund (traditional fund investing). They find that the distributions of gross return between these two are similar. Please see Exhibit 5 for a summary of performance results. For buyout co-investments, the average gross PME is 1.76, compared to a corresponding PME of 1.70 for buyout fund investments. For VC, they find an average PME of 1.25 for co-investments versus 1.37 for the remaining deals. These differences are not statistically significant. This more optimistic view is challenged, however, by the observations from a number of LPs that these were incomplete depictions of their activity, which were taken from summaries of their co-investment success that they circulated to bankers and PE groups in a bid to attract further transactions. Needless to say, in these cases, they tended to omit their "stinkers." While some high-profile co-investment failures—e.g., TXU—found their way into Capital IQ anyway, many lower-profile unsuccessful co-investment transactions did not.

Exhibit 5: Private Equity Performance

	Traditional PE investments	Co-Investments	All
Mean VC PME	1.37	1.25[a]	1.36
Mean Buyout PME	1.70	1.76[a]	1.70

Source: Braun, Jenkinson and Schemmerl (2017)[6] 1981-2010; a. Not statistically different from PME of Traditional PE Investments

While there is still much to learn about co-investments, the facts we know so far suggest some lessons for limited partners:

- Co-invest steadily, avoiding concentrating investments at market peaks, no matter how tempting it is to do so. The use of analytic tools to gauge the market "temperature" may be helpful here.
- Avoid the transactions where private equity groups seem to "punching above their weight," or investing in significantly larger transactions than normal.
- Knowing well the markets and geographies in which one is investing seems to be associated with better performance for all direct investments by limited partners.
- Consider, as well, other ways to reduce the amount of fees being paid to general partners, such as separate accounts.

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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.

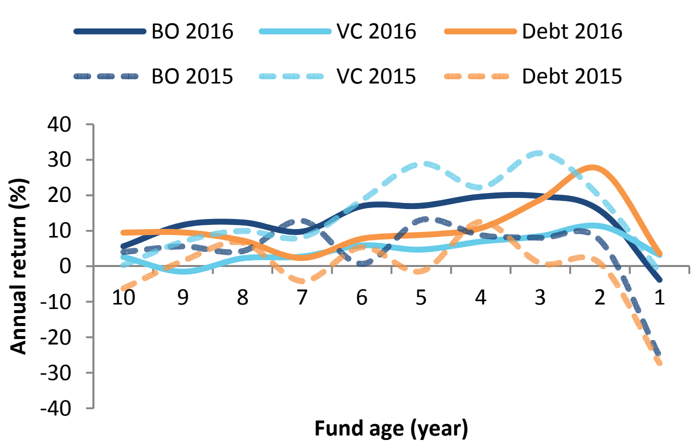
[6] Braun, Reiner, Tim Jenkinson, and Christoph Schemmerl, "Adverse Selection and the Performance of Private Equity Co-Investments," Working Paper, April 2017.

CURRENT QUARTER PERFORMANCE SUMMARY – CONTINUED FROM PAGE 1

Compared to major public market indices, GXPEI outperformed the Barclays Bond Index over all horizons and the US equity market over the ten-year horizon. At shorter horizons, GXPEI performance was roughly in-line with S&P500 but much less volatile than small cap stocks. (See Exhibit 2)

Outperformance (underperformance) of buyout and private debt (venture capital) is widely spread across funds in different investment stages as shown in Exhibit 6. The annual returns of buyout and private debt funds from age one year to ten years in 2016 (e.g. a fund of vintage year 2015 is one year old in 2015 and two years old in 2016) are almost all higher than the annual returns of same strategy/age groups in 2015. On the other hand, venture capital funds of almost all ages performed worse in 2016 than 2015 (see Exhibit 6).

Exhibit 6: Private equity annual returns by strategy and fund age (2016 vs. 2015 calendar year)



Source: State Street Global Exchange[SM], as of Q4 2016. BO 2016 represents annual returns of buyout funds from age 1 to 10 years in 2016. 2015 results are based on historical dataset as of Q4 2015.

Similarly, we saw outperformance (underperformance) of buyout and private debt (venture capital) across different regions, as shown in Exhibit 7. Buyout and private debt outperformed venture capital in all regions in 2016; these two strategies also made significant improvements across all regions compared to 2015, while venture capital slowed in 2016 relative to 2015 in all regions.

Exhibit 7: Private equity annual returns by strategy and region (2016 vs. 2015 calendar year)

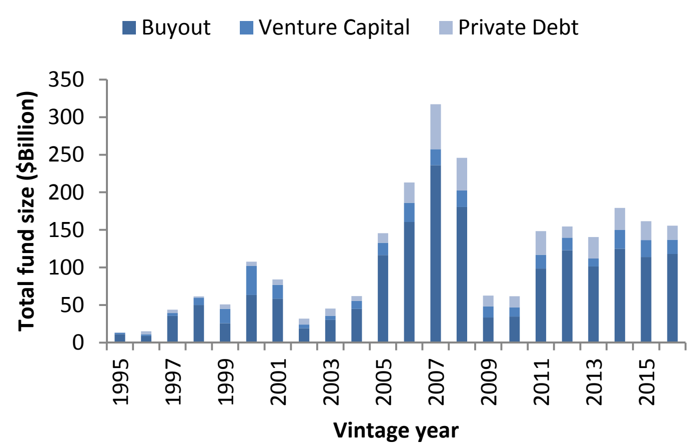
	U.S.	Europe	Rest of World
Buyout			
2015	6.49	7.04	1.44
2016	13.17	12.16	8.91
2016-2015	*6.68*	*5.12*	*7.47*
Private Debt			
2015	1.78	5.52	-2.81
2016	10.81	8.07	11.59
2016-2015	*9.03*	*2.55*	*14.4*
Venture Capital			
2015	10.21	14.81	18.27
2016	2.13	-2.59	5.98
2016-2015	*-8.08*	*-17.4*	*-12.29*

Source: State Street Global Exchange[SM], as of Q4 2016. 2015 results are based on historical dataset as of Q4 2015. Returns are USD denominated.

Cash Flow Activity

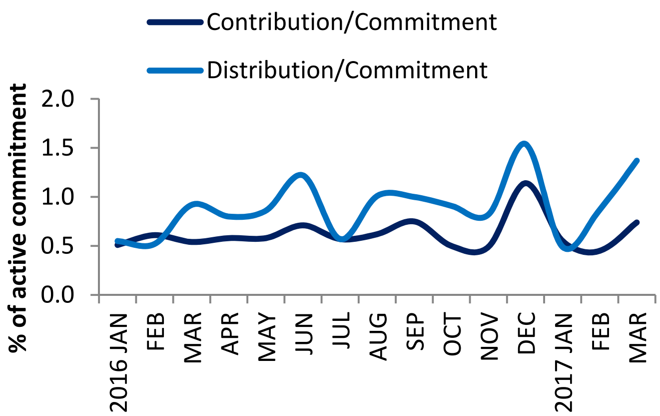
Fund raising activity in 2016 was in line with recent years (see Exhibit 8). However, the monthly contribution ratio (PICC) remained very low throughout the year despite a small rebound in December (see Exhibit 9). The capital deployment rate of newly closed funds continued to slow down in 2016, lower than the historical pooled levels as shown in Exhibit 10.

Exhibit 8: Total fund size (USD Billion)



Source: State Street Global Exchange[SM], as of Q4 2016.

Exhibit 9: Monthly cash flow activity (2016 January – 2017 March)



Source: State Street Global Exchange[SM], as of March 2017.

Exhibit 10: Paid-in-capital over commitment of recent vintage years vs. historical levels.

Age (year)	Vintage years			
	2014	2015	2016	1980-2016
1	24%	20%	17%	26%
2	22%	11%		20%
3	12%			17%

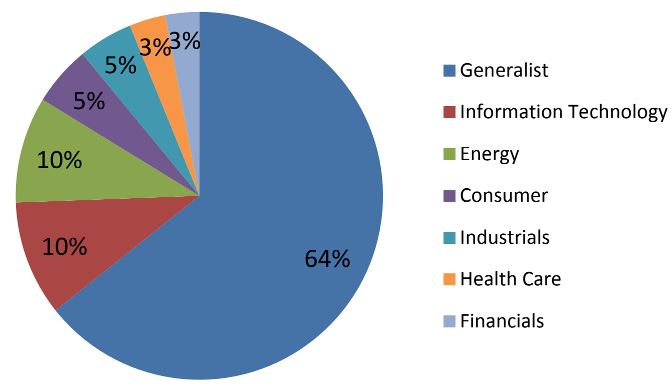
Source: State Street Global Exchange[SM], as of Q4 2016.

Sector focus

Evidence shows that private equity fund managers generate alpha by leveraging their expertise in economic sectors.[7] Based on State Street's proprietary private equity dataset, we assigned 2698 PE funds in our index (as of 2016 Q4) to six sector focuses (based on the majority of a fund's invested capital), plus a generalist group (see Exhibit 11).

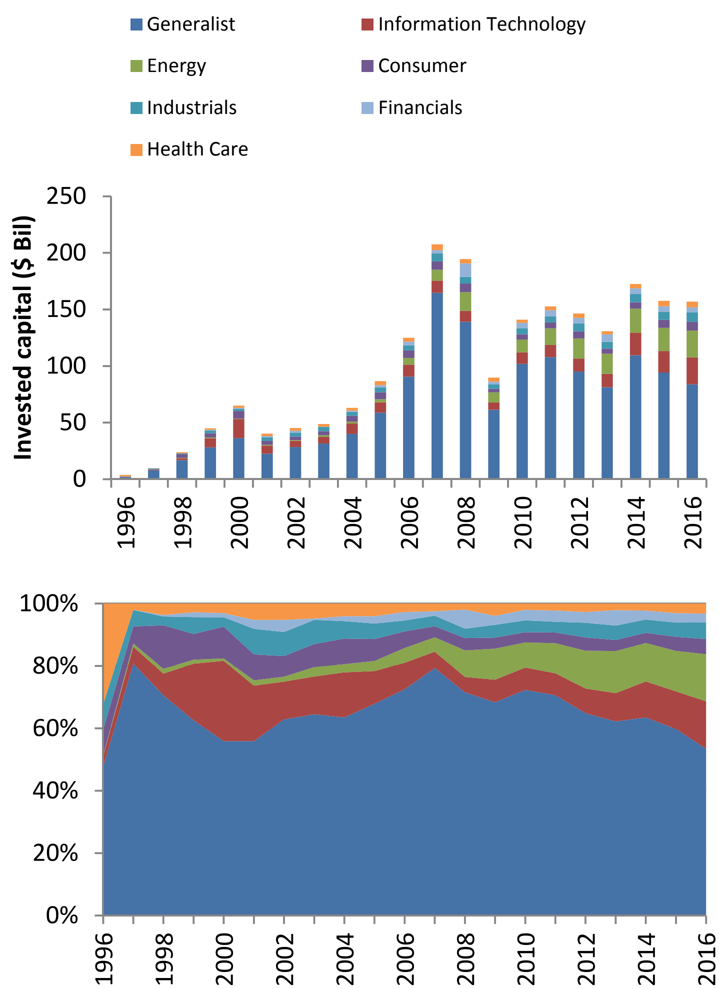
The top three fund sectors by raised capital in the past two decades are Information Technology and Energy, followed by Consumers (see Exhibit 11). The shares of invested capital by non-generalist funds increased to highest level since the early 2000s in 2016(see Exhibit 12). In the past 8 years, higher shares of invested capital have flown into information technology and energy (see Exhibit 12).

Exhibit 11: Capital raised by fund sector focus (vintage year 1996-2016)



Source: State Street Global Exchange[SM], as Q4 2016.

Exhibit 12: Invested capital by fund sector focus and calendar year (vintage year 1996-2016)



Source: State Street Global Exchange[SM], as Q4 2016.

7 William Kinlaw, Mark Kritzman, Jason Mao "The components of private equity performance: Implications for portfolio Choice" The Journal of Alternative Investments, Fall 2015, Vol. 18, No. 2: pp. 25-38

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, consistent and unbiased client data, and a product that provides analytical insight into an otherwise opaque asset class.

- Currently comprises more than 2,600 funds representing more than $2.5 trillion in capital commitments as of Q4 2016.
- Global daily cash-flow data back to 1980.
- The Index has generated quarterly results since Q3 2004.
- Published approximately 100 days after quarter-end.

Important Legal Information