Global PE & VC Fund Performance Report

Data through 3Q 2017

PitchBook

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Key takeaways from the analysts

Across the trailing one-year horizon, PE has outperformed all other private capital asset classes every quarter since 1Q 2016, most recently posting a 17.5% one-year return through 3Q 2017. Aggregate distributions to limited partners (LPs) remain at historically elevated levels, but much of the recent performance is due to mark-to-market gains.

Despite the rampant rise in startup valuations in recent years, VC funds returned just 7.6% over the one-year horizon to 3Q 2017—the lowest of any private capital asset class. Many VC professionals have expressed concerns that paper gains, rather than successful exits, are driving recent performance. But the data shows that strong distributions, especially from older vintages, have largely driven recent performance improvements.

Performance persistence is observable in both PE and VC funds, with the highest level of persistence occurring at the ends of the return distribution. Funds that deliver top-quartile performance are followed by a top-quartile successor fund 39% and 34% of the time for PE and VC, respectively.

17.5%
PE one-year horizon IRR

7.6%
VC one-year horizon IRR

39% & 34%
persistence in top-quartile performance for PE and VC funds, respectively

IRR by fund type

PE continues to outperform

Across the trailing one-year horizon, PE has outperformed all other private capital asset classes every quarter since 1Q 2016, most recently posting a 17.5% one-year return through 3Q 2017. This is a result of relatively strong distributions to LPs, combined with the mark-to-market increases of most portfolio companies that have been enabled by the bull market in public equities.

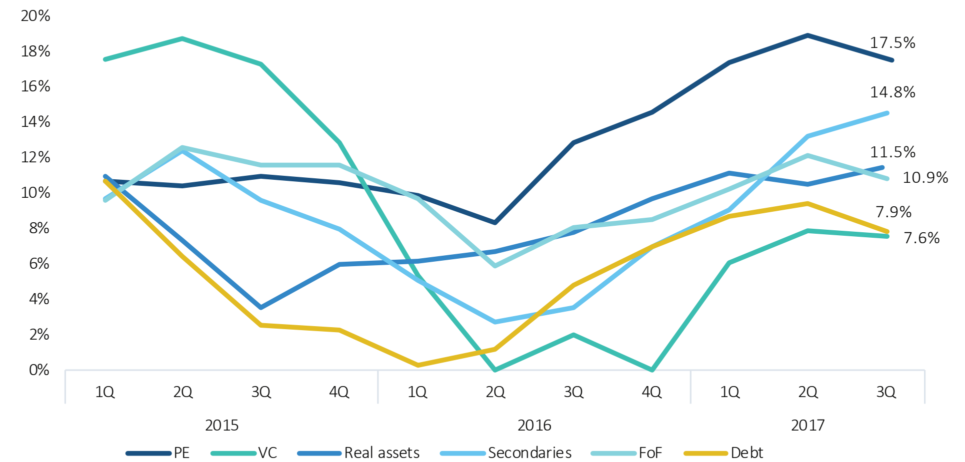
Secondaries funds, many of which hold stakes in the PE funds, posted the second highest return of 14.8% in the most recent period. Though recent and historical returns for the strategy have been strong, performance headwinds may be on the horizon due to the growing popularity of the strategy and resultant increase in acquisition prices compared to net asset value (NAV). Per Greenhill & Co., the average secondary sale occurred at 93% of NAV in 2017, a 400bps increase from the prior year.

Despite the rampant rise in startup valuations in recent years, VC funds returned just 7.6% over the one-year horizon to 3Q 2017—the lowest of any private capital asset class. However, this is a part of an ongoing improvement from the near-zero gains posted during the last three quarters of 2016. Looking at the underlying VC investments, valuations have grown most substantially for late-stage deals, but the exit environment has remained rather tepid, spawning concerns around the ability to exit at such high valuations. The median US VC exit in both 2016 and 2017 occurred at a valuation of just 1.5x the previous round valuation, the lowest figure since 2009.

The real assets category, which is heavily populated with oil & gas funds, has seen performance hampered by the crashes in crude oil prices in both 2008 and 2014. However, we expect performance to trend upward in the coming quarters, reflecting the recent rebound in commodity prices, as the NAV of these funds should be marked up in tandem. While we see a high level of dispersion between asset classes over the one-year horizon, returns tend to show less deviation across longer horizons. To that end, we measure a 4.4% difference between the highest- and lowest-performing asset classes (PE and real assets, respectively) over a 10-year horizon, compared to a 9.9% difference (in this case, between PE and VC) over a one-year horizon.

VC funds rebound while PE continues to outperform

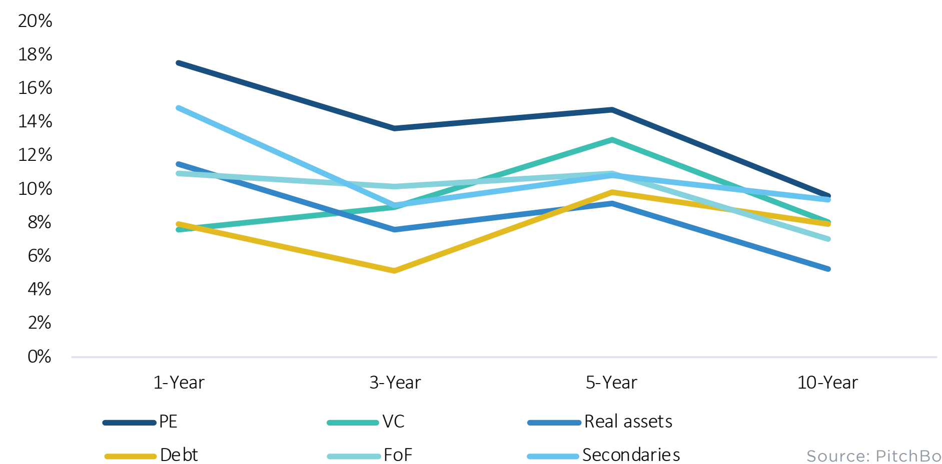
Rolling one-year horizon IRR by fund type



Source: PitchBook

Debt and VC funds have lagged in recent periods

Horizon IRR by fund type



Source: PitchBook
*As of September 30, 2017

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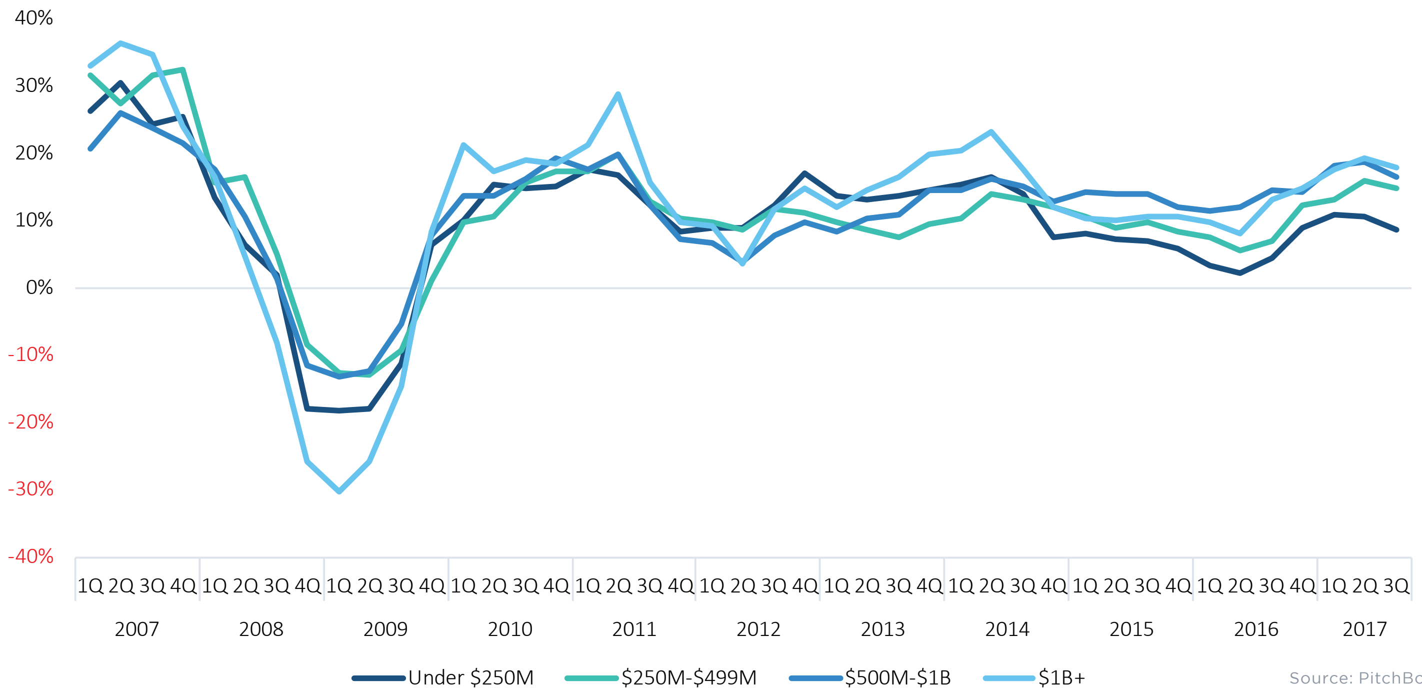
PE fund performance

The bigger, the better

Larger funds have produced superior returns in recent reporting periods

PE rolling one-year horizon IRR by fund size



Rolling one-year horizon internal rates of return (IRRs) for PE took a tick downward in 3Q 2017 after increasing for four consecutive quarters; however, the 17.5% return still represents the strongest performance across private capital asset classes, continuing PE's outperformance in recent years. In fact, since 2010, PE one-year horizon IRRs have come in between 10% and 20% in 23 of 31 quarters. Aggregate distributions to LPs remain at historically elevated levels, but much of the recent performance is due to mark-to-market gains fueled by strong public equity markets and heightened competition for buyout deals that has driven up private company valuation comps.

Larger funds have shown strong performance relative to smaller funds on a one-year rolling horizon. To that end, since 2010, $1 billion+ funds have outperformed the other three fund size buckets in 15 of 31 quarters. While academic research shows that smaller funds tend to outperform their larger counterparts of the same vintage, the analysis presented here is a shorter-term, rolling return not representative of the life of the fund. One explanation for larger funds' recent outperformance is that that their portfolio companies are more similar in size to public companies, allowing GPs to more aggressively mark up their holdings in tandem with the rise in public equities. Furthermore, many of the largest PE funds have a substantial allocation to publicly traded securities; in fact, Apollo disclosed in its last earnings report that public securities represented 28% of the firm's PE investments.

After consistently underperforming for most of the current bull market, European PE returns are showing signs of recovering. Strong global capital markets and relatively cheaper valuations have helped to propel European PE gains to match US PE in recent years. Europe's double-dip recession caused weak performance in 2012, even leading to one quarter of negative returns. Recent stable fund performance stands in contrast

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Fund performance in Europe has trended positively after lagging for several quarters

PE rolling one-year horizon IRR by region

Source: PitchBook

to prior periods when European PE exhibited higher volatility than comparable US funds, swinging from significant outperformance in 2006-2007 to significant underperformance in 2008-2009. While European PE returns between 2006 and 2011 had a standard deviation 10.9 percentage points higher than US PE, European PE returns between 2012 and Q3 2017 had a standard deviation only 3.2 percentage points higher than US PE. Both geographies experienced marked decreases in return standard deviation, though much of this is owed to the current steady economic recovery. As the PE industry continues to mature, we expect the reduction in return volatility to persist across all geographies.

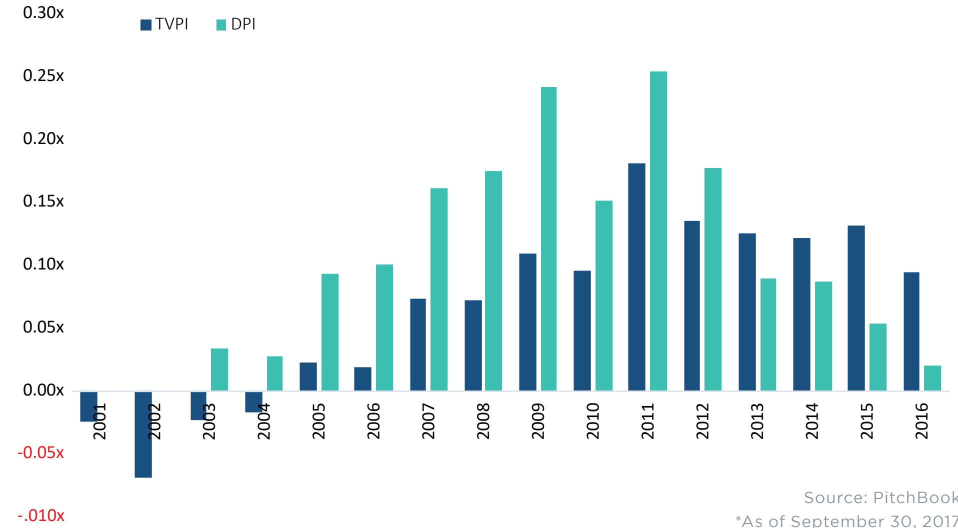
Net cashflows to LPs remained positive through the first three quarters of 2017 but continued the downward trend that began after 2015. The strong distributions and net cashflows observed from 2014 to 2016 were fueled by significant liquidity events from funds raised prior to the global financial crisis, as GPs held positions longer than average to allow for adequate value creation. High levels of dry powder and continued strength in fundraising should keep contributions relatively high, with GPs remaining concentrated on exits and returning capital to LPs while valuations remain attractive. From 3Q 2016 to 3Q 2017, PE distributions were the strongest for 2009 and 2011 vintage funds, which saw distributions to paid-in (DPI) increases of 0.24x and 0.25x, respectively. These vehicles are at an age when funds typically return the most cash to investors, but 2010 vintage funds have been a laggard, realizing a much lower total DPI than neighboring 2009 or 2011 funds. A full breakdown of vintage year performance is available through PitchBook Benchmarks.

Recent vintages are still attributing most of their changes in TVPI to markups in the residual value to paid-in (RVPI) side of the ledger, rather than investment appreciation being realized at the time of exit. Interestingly, vintages back to 2007 and 2008 continue to show meaningful increases in both TVPI and DPI, underscoring the extended hold times that have become relatively commonplace for these vintages. As these PE funds extend their hold times, it is important to view performance through various metrics

to ascertain if the extra value creation warrants the longer lockup of capital. The sheer magnitude of cashflows being transferred between LPs and GPs exemplifies the growth seen in PE. Through three quarters, 2017's $211 billion in contributions already makes it the fifth highest annual total. Overall, the distributions from funds forged in the depths of a recession display a cogent argument for the industry's ability to compound capital regardless of the current market backdrop.

Older funds continue to distribute cash, while newer funds post big markups

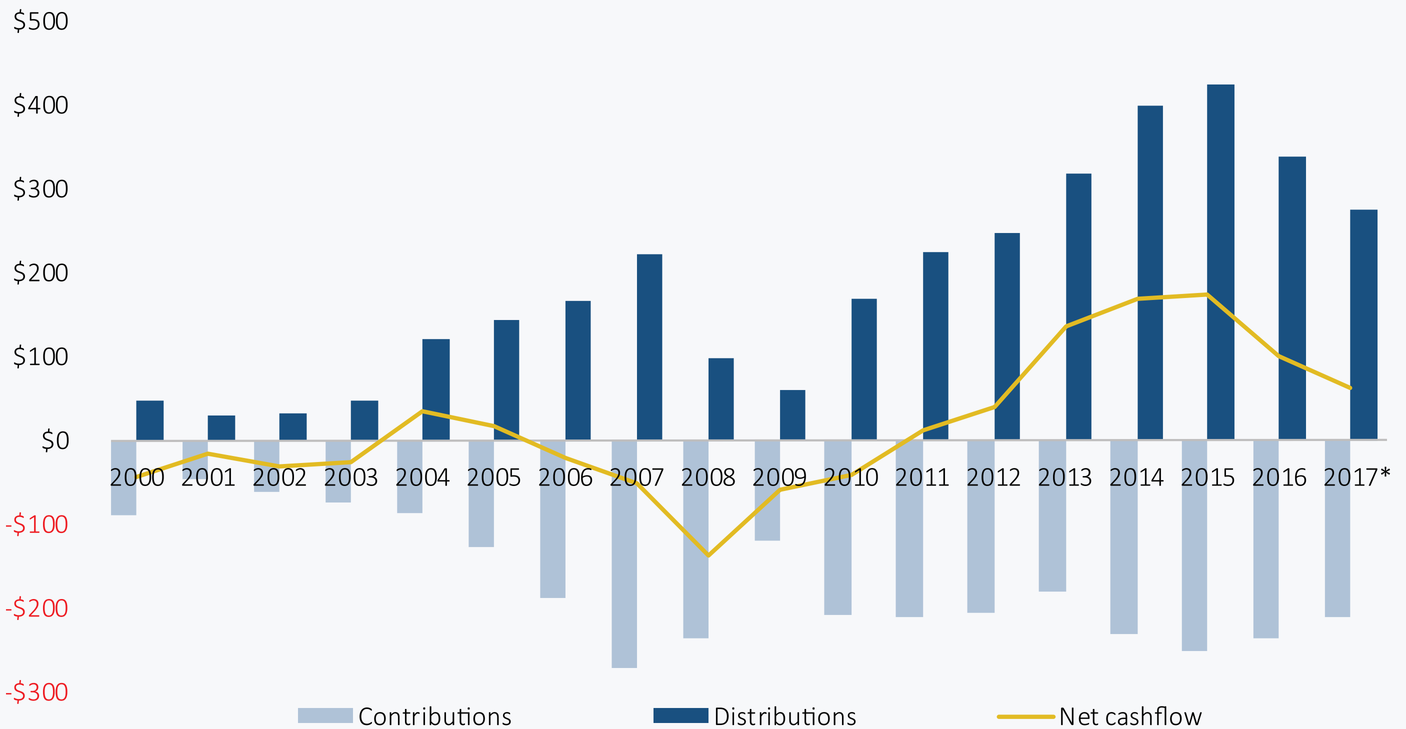
PE one-year horizon change in pooled cash multiples by vintage



Source: PitchBook
*As of September 30, 2017

Net cashflows remain positive, but are primed to fall in 2017

PE fund cashflows ($B)



Source: PitchBook
*As of September 30, 2017

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VC fund performance

Returns continue to rebound after recent downturn

Non-US funds have posted strong relative performance in recent quarters

VC rolling one-year horizon IRRs by region

Source: PitchBook

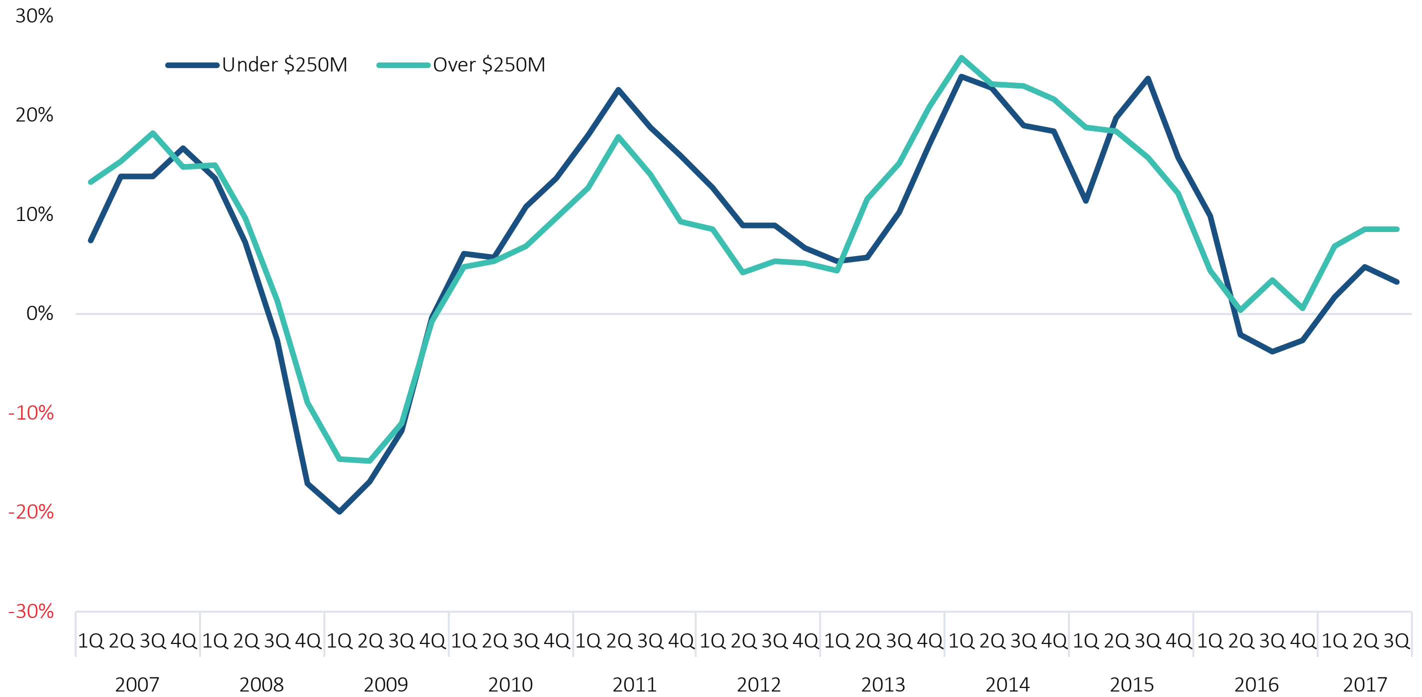
The one-year rolling IRR for VC funds was little changed in the most recent reporting period, coming in at 7.6%. While the one-year horizon IRR is up significantly after slumping in 2016, recent returns still lag the 10-year average, due in part to the fairly pedestrian exit totals in recent quarters. This isn't to say that overall performance has been lackluster. In fact, an examination of VC performance by fund size reveals a bit of a dichotomy.

At a cut-off of $250 million, we see a distinct outperformance by the larger funds over the last year and a half, with the one-year horizon IRR sitting at 8.5% compared to 3.2% for those funds under $250 million. This outperformance by larger funds hasn't always been the case, but recent strong returns coming from unicorns have lifted the performance of outsized funds as investors have been able to recognize quick valuation gains due to increased demand for these companies.

Many VC professionals have expressed concerns that paper gains, rather than successful exits, are driving recent performance. But the data shows that strong distributions have largely driven performance improvements, especially from older vintages as they begin to reach the harvesting period in their lifecycle. Specifically, 2007, 2009, 2010 and 2012 vintages all increased DPI by more than 0.15x over the preceding 12 months. Large exits have likely played

Big valuation markups have boosted returns for large funds

VC rolling one-year horizon IRRs by fund size

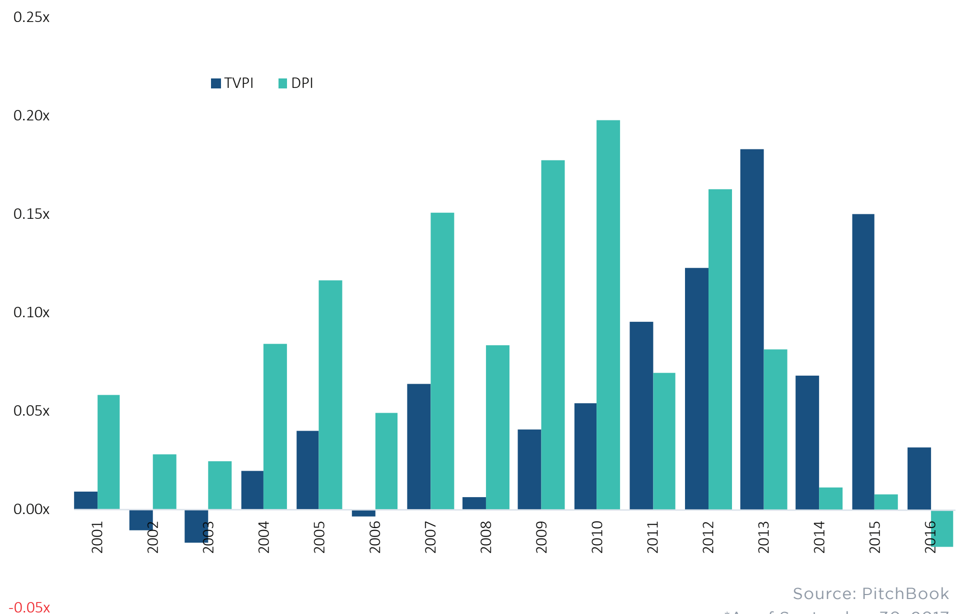


Source: PitchBook

a part in this material increase in DPI; for example, pre-2012 funds from Lightspeed, Greylock Partners and Kleiner, Perkins, Caufield & Byers got a big boost from Cisco's multibillion dollar acquisition of AppDynamics in January 2017. However, it is clear that the newer vintages, specifically 2013 and 2015, are still growing TVPI mainly through mark-to-market increases on portfolio companies. This is the result of seemingly incessant jumps in late-stage valuations, where median Series D+ valuations grew 63% year-over-year (YoY) in 2017 and then climbed to $280

Newer vintages relying heavily on paper gains

VC one-year horizon change in pooled cash multiples by vintage



Source: PitchBook
*As of September 30, 2017

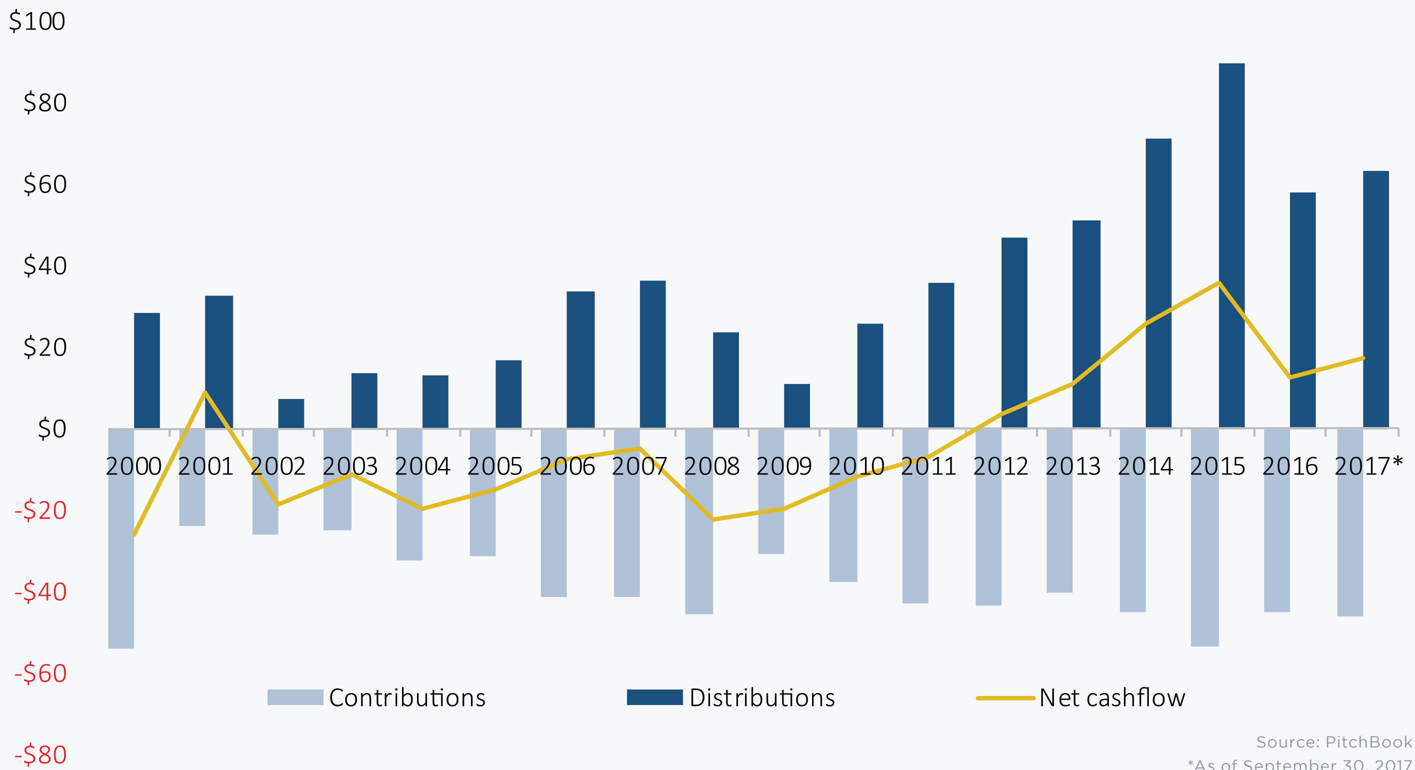
million through June 12, 2018, a nearly 4x increase from just a decade ago. With this trend persisting into 2018, we will likely see further jumps in RVPI, especially in the more recent vintages, as we collect returns data.

After initial 2017 data pointed toward negative net cashflows for LPs, strong distributions during 3Q have turned the trend upward. This uptick has come despite the continued rise of contribution values, which extended to $46 billion globally through 3Q 2017, already topping full-year totals for every year outside of 2000 and 2015. With the exceptionally robust dealmaking environment throughout 2017, a run-up in contributions is logical and makes the levels of distribution all the more impressive. The deal and exit environment in the two most recent quarters outpaced 3Q 2017, setting the stage for further outsized absolute values on both capital call-downs and capital returns.

Strong distributions have largely driven recent performance improvements, especially from older vintages as they begin to reach the harvesting period in their lifecycle.

Through three quarters, 2017 cashflows have already surpassed 2016 totals

VC fund cashflows ($B)



Source: PitchBook
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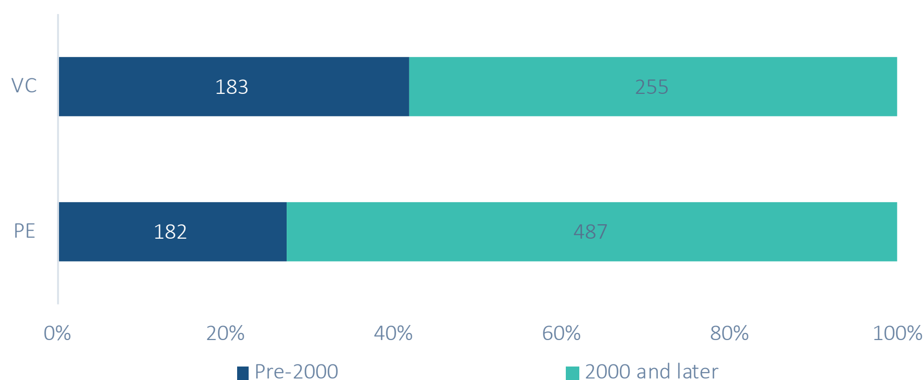
Case study: Performance persistence

This case study originally appeared in PitchBook Benchmarks, which provide the most comprehensive, transparent and accurate way to assess the performance of private market investment strategies.

- Performance persistence is observable in both PE and VC funds, with the highest level of persistence occurring at the ends of the return distribution. Funds that deliver top-quartile performance are followed by a top-quartile successor fund 39% and 34% of the time for PE and VC, respectively.
- In addition to observing broad-based performance persistence, we found that the level of persistence rises as a firm raises additional funds for a particular strategy. When examining performance trends from the second to third funds in a Fund Family, we find that 43% of top-quartile PE funds are followed up by another top-quartile fund. That figure jumps to 55% for VC funds.
- While we observed a considerable amount of persistence in the quartile performance from one fund to the next—particularly on the ends of the distribution—regressions of net IRRs among subsequent funds in a Fund Family did not show a strong correlation in returns.

Funds pairings (#) by vintage year of first fund



Source: PitchBook
*As of September 30, 2017

Is the past prologue?

The phrase "past performance does not guarantee future results" has become so ubiquitous in investment memoranda that few investors are likely to notice it in the footnotes. And while most investors have that maxim embedded somewhere in their mental investment framework, when it comes to investing in active managers, past performance is virtually always one of the first things considered. But should it be? One of the timeless questions for private capital funds is whether performance persistence exists. The answer has major implications for capital allocators.

Academics have come to mixed conclusions. The most prominent paper, *Has Persistence Persisted in Private Equity?*,[1] found persistence for pre-2000 PE and VC funds, but the story changed when they examined more recent funds. After 2000, the researchers "find little evidence of persistence for buyout funds, except at the lower end of the performance distribution" but that "performance in venture capital funds remains as persistent as pre-2000." Using PitchBook's fund performance data, we investigated these conclusions and explored other areas that could provide insight into how a general partner's (GP's) performance changes over time.

All in the family

For this analysis, we have bucketed funds into "Fund Families" to account for the different investment strategies managed by a single GP. For example, if a manager has both buyout funds and private debt funds, performance persistence is measured separately for the two strategies. The same goes for differences in geography and various sub-strategies of PE (e.g. energy, secondaries, growth). A total of 1,107 fund relationships (669 PE and 438 VC) are included in this analysis. Our PE and VC peer groups have a similar number of fund relationships in which the initial fund is pre-2000, but the number of new PE fund relationships (487) is significantly higher than in VC (255).

If performance from one fund to the next were random, 25% of top-quartile funds would produce a top-quartile successor. In fact, that figure comes out to 39% for PE, suggesting a high degree of persistence in top performers. We find that the inverse is true as well, with 34% of bottom-quartile funds being followed by another bottom-quartile fund. Furthermore, 67% of top-quartile funds led to a subsequent fund with above-median returns.

1: "Has Persistence Persisted in Private Equity? Evidence from Buyout and Venture Capital Funds," Darden Business School Working Paper, Robert S. Harris, Tim Jenkinson, Steven N. Kaplan & Rüdiger Stucke, February 28, 2014

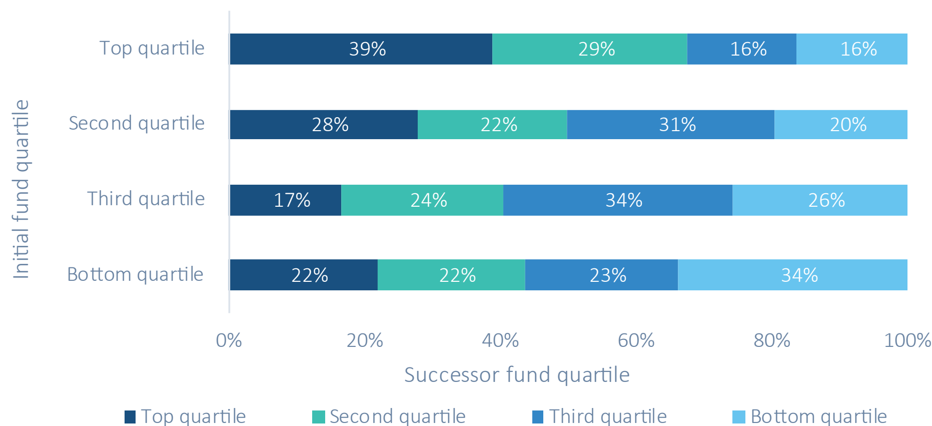
The story is similar for VC, with top-quartile funds spawning a successor fund in the top quartile 34% of the time. Persistence is even more pervasive in the bottom end of the return distribution, with 49% of bottom-quartile funds being followed by another bottom-quartile vehicle.

In addition to observing broad-based performance persistence, we found that the level of persistence rises as a firm raises additional funds. When examining performance trends from the second to third funds in a Fund Family, we find that 43% of top-quartile PE funds are followed up by another top-quartile fund. That figure jumps to 55% for VC funds. For comparison, the top-quartile persistence from the first to second funds is 38% and 26% for PE and VC, respectively. We attribute this finding to the built-in survivorship bias inherent in this data; if a GP can raise at least three funds for a given strategy, it's a strong sign that limited partners have observed traits (including strong prior performance) that led them to believe the GP can continue to generate strong returns into the future. We believe this feedback loop is likely to be particularly strong in VC, where performance is more dependent on accessing strong performance outliers, because a dealmaker's reputation leads directly to high-quality, in-bound investment opportunities.

Interestingly, we find that persistent underperformance also exists, suggesting that LPs are providing subpar GPs more leeway than may be warranted. Indeed, when the second fund in a Fund Family falls into the bottom quartile, the GPs' third fund will also be bottom quartile 34% of the time for PE and 44% of the time for VC.

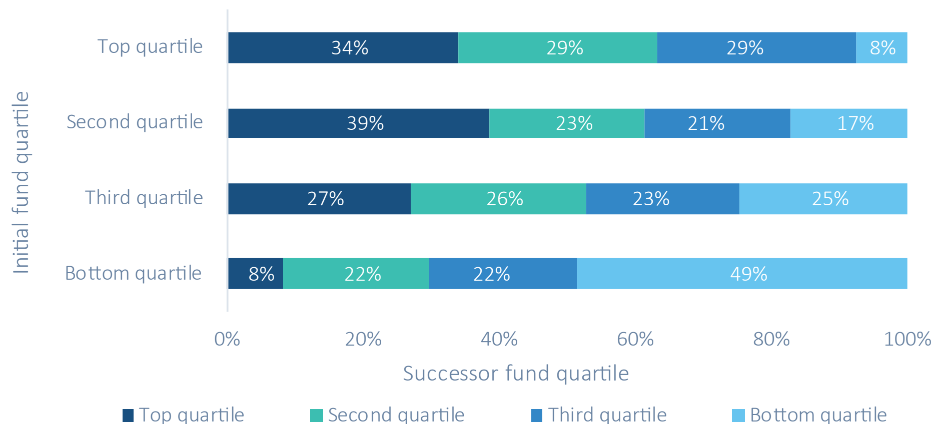
While we observed a considerable amount of persistence in the quartile performance from one fund to the next—particularly on the ends of the distribution—regressions of net IRRs between subsequent funds in a Fund Family did not show a strong correlation in returns. We expected to find some correlation in this regard, but this finding is not entirely surprising considering that PE fund performance metrics vary greatly depending on the vintage. A 2006 buyout fund with IRR of 11.3% would be in the top quartile, for instance, while that same level of performance for a 2001 fund would put it on the cusp of the bottom quartile.

PE fund IRR quartile persistence



Source: PitchBook
*As of September 30, 2017

VC fund IRR quartile persistence



Source: PitchBook
*As of September 30, 2017

Set it and forget it?

Even though persistence is not absolute, this data seems to suggest that LPs would be well-served to scrutinize past performance in their consideration of future fund commitments; however, there are several caveats to consider.

First, a certain number of managers will inevitably encounter challenges from one fund to the next. So, even when recommitting to a manager, LPs must conduct thorough due diligence to ensure that the GP has taken the necessary measures to insulate themselves from performance pitfalls, including complacency, style drift and strategy obsolescence. This includes assessing the GP's culture and ability to retain talent.

Second, a propensity to reallocate to existing managers may come at the detriment of considering new and upcoming GPs. First-time funds have exhibited strong historical performance relative to follow-on funds, and top-performing first-time funds are likely to be the persistent performers of the future. If investors overlook nascent managers, they may not have the ability to find capacity in the manager's subsequent fundraises.

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