PitchBook

PitchBook Benchmarks

PRIVATE MARKETS

DATA THROUGH 4Q 2017

Contents

Introduction

PitchBook Benchmarks aim to help both limited partners (LPs) and general partners (GPs) better understand private market fund performance relative to broader asset classes and other PE and VC strategies. Performance is presented through several lenses—including IRRs and cash multiples—to provide a holistic view for assessing performance within and between strategies, as well as across vintage years. Furthermore, the alpha of private market funds is measured relative to easily accessible public market substitutes using a public market equivalent (PME) metric.

Each edition of our Benchmarks will include a section that highlights a specific aspect of fund performance. In this version, we use PMEs to assess the historical performance of PE and VC funds relative to public equities. Our analysis shows that PE managers have struggled to keep pace with the bull market in public equities. For each vintage from 2006 to 2015, the median PE fund has failed to produce a KS-PME higher than 1.00x, indicating underperformance relative to the S&P 500. Performance has been even more challenging for VC funds, with only five vintages from 1997 to 2015 producing a median PME above 1.00x.

We strive to maintain consistency in each edition of PitchBook Benchmarks, but fund classifications will change occasionally and new funds will be incorporated into the dataset as we gather additional information.

Below you'll find detailed benchmark statistics across PE, VC, debt, real assets, funds-of-funds and secondaries strategies. To easily access all of the data points found in this PDF, along with benchmark statistics for a host of other sub-strategies and geographies, be sure to download the accompanying Excel data packs (PE, VC, Debt & Real Assets and Alternative Access Strategies). Through these data packs, subscribers to the PitchBook Platform can also gain direct access to all the underlying funds and performance metrics used to calculate our Benchmarks.

Our goal is to provide the most transparent, comprehensive and useful fund performance data for private market professionals. We hope that our Benchmarks prove useful in your practice, and we welcome any and all feedback that may arise as you make your way through our various benchmark groupings. Should there be any additional benchmark categories or data points you would like to see included in the future, please contact us directly at benchmarks@pitchbook.com.

Methodology

Data composition

PitchBook's fund returns data is primarily composed of individual LP reports, serving as the baseline for our estimates of activity across an entire fund. For any given fund, return profiles will vary for LPs due to a range of factors, including fee discounts, timing of commitments and inclusion of co-investments. This granularity of LP-reported returns—all available on the PitchBook Platform—provides helpful insight to industry practitioners but results in discrepancies that must be addressed when calculating fund-level returns.

To be included in pooled calculations, a fund must have: (i) at least one LP report within two years of the fund's vintage, and (ii) LP reports in at least 45% of applicable reporting periods. To mitigate discrepancies among multiple LPs reporting, the PitchBook Benchmarks (iii) determine returns for each fund based on data from the most frequently reporting LP. If (iv) that LP's reports are not available for a particular quarter, data from the next-most consistent reporter is used. Employing this methodology, data from the most consistent reporting LP is used more than 90% of the time. For periods that lack an LP report, (v) a straight-line interpolation calculation is used to populate the missing data; interpolated data is used for approximately 10% of reporting periods. All returns data in this report is net of fees.

Definitions

Vintage year:

The vintage year is based on the year of first investment. If year of first investment is unknown, the year of the final close is used as the vintage year. However, if a firm publicly declares via press release or a notice on their website a fund to be of a particular vintage different than either of the first conditions, the firm's classification takes precedence.

Internal rate of return (IRR):

IRR represents the rate at which a series of cash flows are discounted so that the net present value of cash flows equals zero. For fund-level IRRs, any remaining value in the fund is treated as a distribution in the most recent reporting period. This explains why some vintages show high IRRs but low DPI values.

Distributions to paid-in (DPI):

A measurement of the capital that has been distributed back to LPs as a proportion of the total paid-in, or contributed, capital. DPI is also known as the cash-on-cash multiple or the realization multiple.

Remaining value to paid-in (RVPI):
A measurement of the unrealized return of a fund as a proportion of the total paid-in, or contributed, capital.

Total value to paid-in (TVPI):
A measurement of both the realized and unrealized value of a fund as a proportion of the total paid-in, or contributed, capital. Also known as the investment multiple, TVPI can be found by adding together the DPI and RVPI of a fund.

Fund count:
Some funds in our dataset have cash flow data but no reported IRR figure. We do not calculate individual fund IRRs using quarterly cash flows, which means the sample sizes may differ for pooled calculations and median calculations.

Methodology

Median calculations:
Shows the middle data point for a sample group.

Pooled calculations:
All cash flows and NAVs for the sample group are aggregated in the calculation. For vintage-specific calculations, we begin the calculation in 1Q of the vintage year. In cases where the sample has unrealized value, the ending NAV is treated as a cash outflow in the last reporting period.

Equal-weighted pooled calculations:
Each fund's cash flows and ending NAV are expressed as a ratio of fund size. Each fund's ratios are then used to compute pooled calculations for IRR and cash multiples using the methodology outlined above. Regardless of fund size, each fund in these calculations has an equal impact on the output.

Horizon IRR:
Horizon IRR is a capital-weighted pooled calculation that shows the IRR from a certain point in time. For example, the one-year horizon IRR figures in this report show the IRR performance for the one-year period beginning in 1Q 2017 through the end of 4Q 2017, while the three-year horizon IRR is for the period beginning in 1Q 2015 through the end of 4Q 2017.

Standard deviation:

Calculated using the sample-based standard deviation methodology.

Public market index returns:
Instances where the return of a public market index is cited, we have calculated the annualized return for the given period. All public indices are total return and denominated in US dollars.

Public market equivalent (PME) calculations:

PME metrics benchmark the performance of a fund (or group of funds) against an index. A white paper detailing the calculations and methodology behind the PME benchmarks can be found at pitchbook.com. PitchBook News & Analysis also contains several articles with PME benchmarks and analysis. These can be read here. All PME figures are calculated using the Kaplan-Schoar PME method:

$$PME_{KS-TVPI,\,T} = \frac{\frac{NAV_T}{I_T} + \sum_{t=0}^{T}\left(\frac{distribution_t}{I_t}\right)}{\sum_{t=0}^{T}\left(\frac{contribution_t}{I_t}\right)}$$

When using a KS-PME, a value greater than 1.0 implies outperformance of the public index (net of all fees).

Fund classifications

Private equity

- Buyout
- Growth/expansion
- Mezzanine
- Restructuring/turnaround
- Diversified PE

Debt

- Direct lending
- Bridge financing
- Distressed debt
- Credit special situations
- Infrastructure debt
- Venture debt
- Real estate debt

Real assets

- Real estate core
- Real estate core plus
- Real estate distressed
- Real estate opportunistic
- Real estate value added
- Energy
- Infrastructure
- Timber
- Mining

Venture capital

Secondaries

Fund-of-funds

Case study: Chasing the bull

- **PE managers have struggled to keep pace with the bull market in public equities.** For each vintage from 2006 to 2015, the median PE fund has failed to produce a KS-PME higher than 1.00x, indicating underperformance relative to the S&P 500.
- **The level of outperformance for top PE funds is in decline.** While the top-decile PME level crested 2.00x for multiple vintages in late 1990s and early 2000s, it has averaged 1.34x for 2006 to 2015 vintages and hasn't been above 1.50x since 2005.
- **Even top-quartile VC funds rarely beat the market.** In addition to the median PME being above 1.00x for only five vintages from 1997 to 2015, the top-quartile hurdle rate is below 1.00x for six of the 19 vintages.

***Note for consistency, the S&P 500 Total Return Index was used to calculate all KS-PME values in this case study.*

Private market funds are illiquid, charge relatively high fees and require more oversight and effort than many other investments. Therefore, the expectation is straightforward when investors—whether they're a massive sovereign wealth fund, a modest college endowment or a tightly held family office—commit capital to a private capital fund: to generate returns superior to less costly investment options, namely public equity strategies. But determining whether an investor would be better off investing in a private capital fund or something else is not as straightforward as it may seem.

The primary challenges in measuring private capital performance are the illiquidity and the unpredictable timing of cash flows. IRR has long been the industry's standard, but it is seldom used to assess other asset classes—making comparisons difficult—not to mention its laundry list of flaws that have been thoroughly documented by academics and industry professionals. Cash multiples (i.e. DPI, RVPI and TVPI) are helpful and easy to understand but also prove insufficient for cross-asset comparisons, as they fail to adequately account for the inherently sporadic timing of cash flows for private market strategies.

While lesser known outside private capital markets, public market equivalents (PMEs) have become the preferred method for most academics and many leading industry professionals to assess performance. At PitchBook, we typically use pooled PMEs to assess the aggregate performance of private capital strategies relative to other strategies, but this methodology masks the wide degree of dispersion among managers. Indeed, an ongoing question for allocators of capital is what role manager selection plays in the overall performance of a private markets strategy. For this case study, we've calculated individual PMEs for each fund included in PitchBook Benchmarks to provide a more comprehensive picture of how private capital's performance relative to public equities has evolved.

Private equity: Are the good times gone?

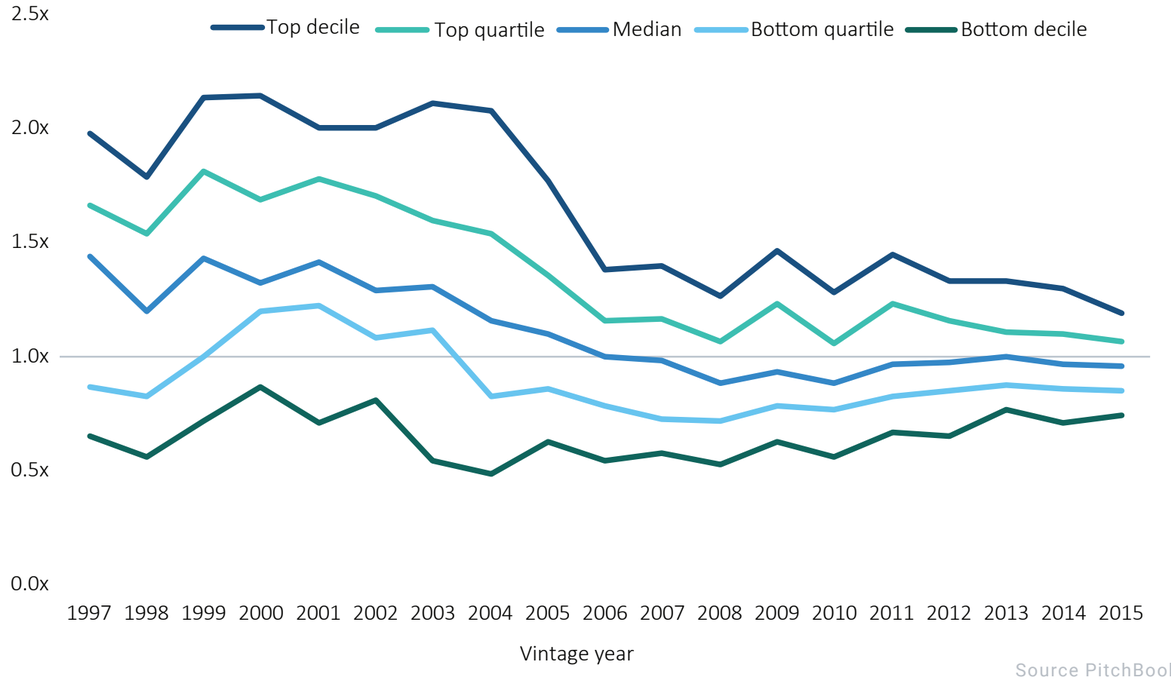
Starting with PE, we find that for vintages in the late 1990s and early 2000s, 60%-85% of funds produced a PME of 1.00x or greater, which indicates outperformance. Even the bottom-quartile PME exceeded 1.00x in certain years, underscoring the widespread ability of managers to beat the market. But performance has been less rosy for more recent vintages, which have struggled to keep pace with the incessant rise in public equities.

Whereas an investor in PE two decades ago could essentially pick a GP at random and have a better than 75% chance of "beating the market," for vintages since 2006 those odds are worse than a coinflip. As the average return for PE funds has moved lower, so too has the potential for outsized returns. Indeed, while the top-decile PME level crested 2.00x for multiple vintages in late 1990s and early 2000s, it has averaged 1.34x for 2006 to 2015 vintages and hasn't been above 1.50x since 2005. So not only are fewer managers beating the market, but their level of outperformance has shrunk too.

This systematic downturn in PME values is being driven by developments on both sides of the equation. On one side is the decade-long bull run in equity markets. The S&P 500 has posted gains each year since 2009, including three years with returns in excess of 20%, which has made it difficult for PE to keep pace. Another factor is that the average returns on an absolute basis for PE funds have fallen due to a confluence of factors, with the most important being heightened competition that has elevated purchase-price multiples.

Relative PE performance has fallen for more recent vintages

PE KS-PME percentiles



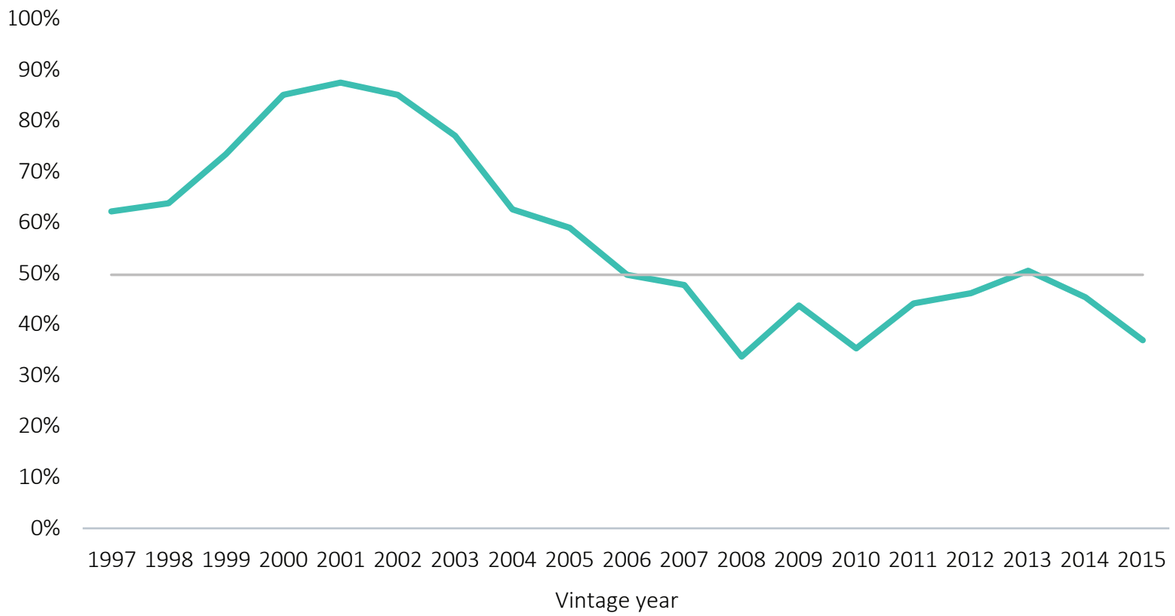
Source PitchBook

*As of December 31, 2017

The question is whether this sea change will prove cyclical or structural as markets turn. For public equities, while the length of the recovery is not unprecedented, it is unlikely they will continue to perform as strongly in the future. Over the next decade, Morningstar predicts US stocks will post nominal returns of just 1.8% while Vanguard has a slightly

In recent vintages, the average PE manager has failed to beat the market

Percentage of PE funds with a KS-PME > 1

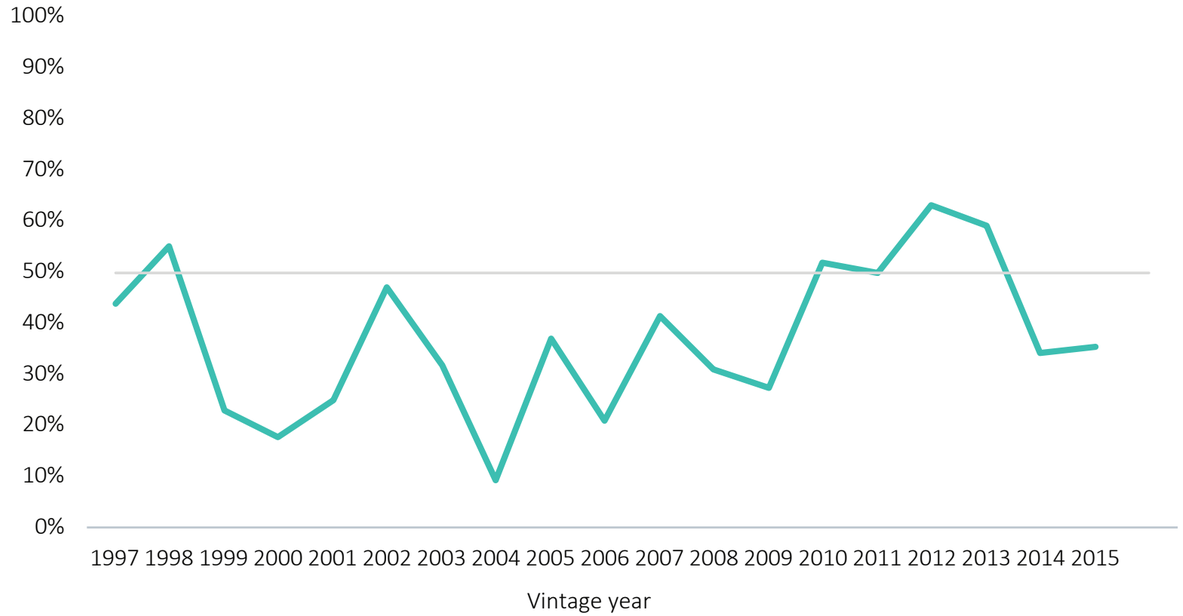


Source PitchBook

*As of December 31, 2017

VC funds historically have struggled to beat the market

Percentage of VC funds with a KS-PME > 1



Source PitchBook

*As of December 31, 2017

more optimistic target of 3%-5%.[1] And while PE returns seem unlikely to revert to the levels seen in the early days of the industry, certain managers have exhibited the ability to consistently outperform both the public equity markets and their peers.

Venture capital: Swinging for the fences

VC investors often use baseball metaphors when discussing performance. Deals are often categorized as strikeouts and homeruns, with VCs expecting outsized successes to carry the performance of the fund. The data suggests that this metaphor holds for limited

1: "Experts Forecast Long-Term Stock and Bond Returns: 2018 Edition," Morningstar, Christine Benz, January 8, 2018

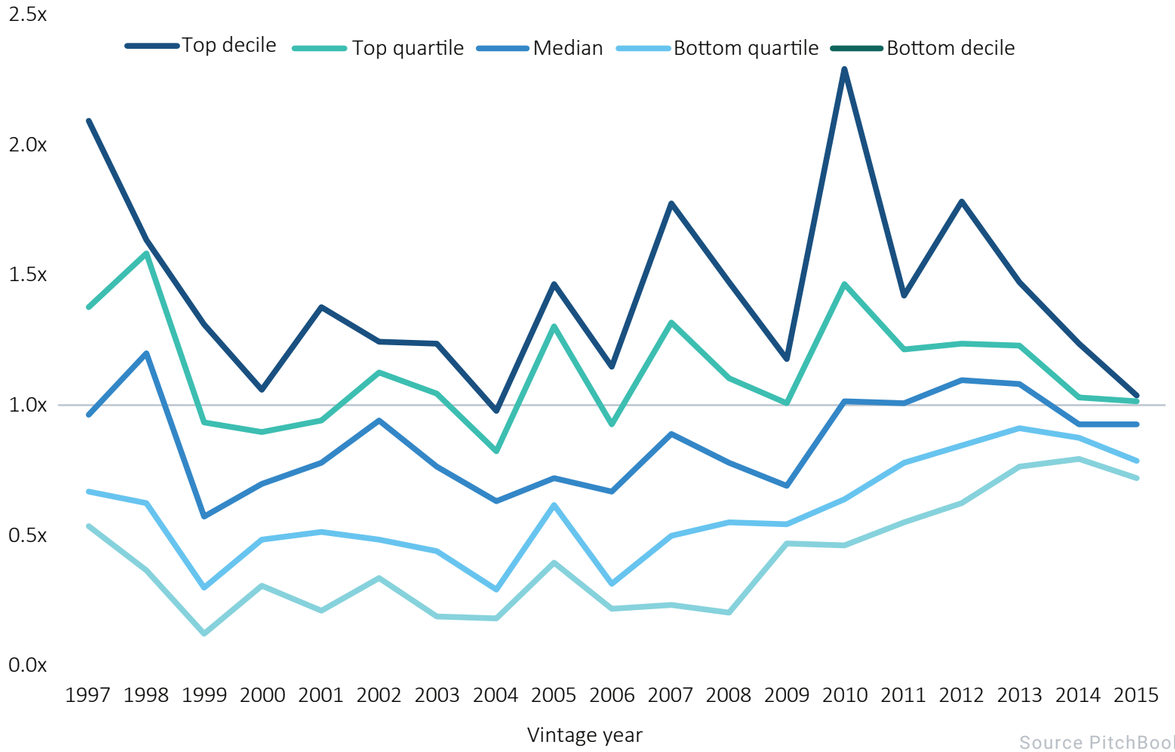
partners (LPs) committing to VC funds too. The median PME is above 1.00x for only five vintages from 1997 to 2015, four of which occur post-2010 (i.e. vintages with mostly paper gains). This indicates that when LPs are selecting VC funds, it takes a fair amount of skill (and maybe some luck) just to keep pace with public equity markets.

But even choosing a top-quartile fund may not prove a compelling enough proposition to warrant the requisite time and resources associated with VC investing; the top-quartile hurdle rate is below 1.00x for six of the 19 vintages in our sample. The bottom-quartile hurdle rates underscore the significant risk of substantial underperformance. In the PE data, the lowest bottom-quartile PME hurdle rate was 0.72x, while it dipped as low as 0.28x for VC funds. Performance has been better for more recent vintages, but it is important to remember that many of their holdings have yet to be exited and, therefore, we will not know the true performance of these vehicles for many years.

For LPs committing to VC funds, it is important to understand that any particular fund will likely underperform a plain vanilla allocation to public equity markets. But simply beating the market generally isn't the modus operandi for VC investments, and LPs should be seeking out not just the top-decile managers, but those at the very top of the distribution that can and have generated PMEs of 3x, 4x, and, in rare cases, even double-digits. Just as VCs aspire to find the next Google or Facebook, LPs should commit capital with the intent of identifying the next Accel V or Union Square Ventures 2004.

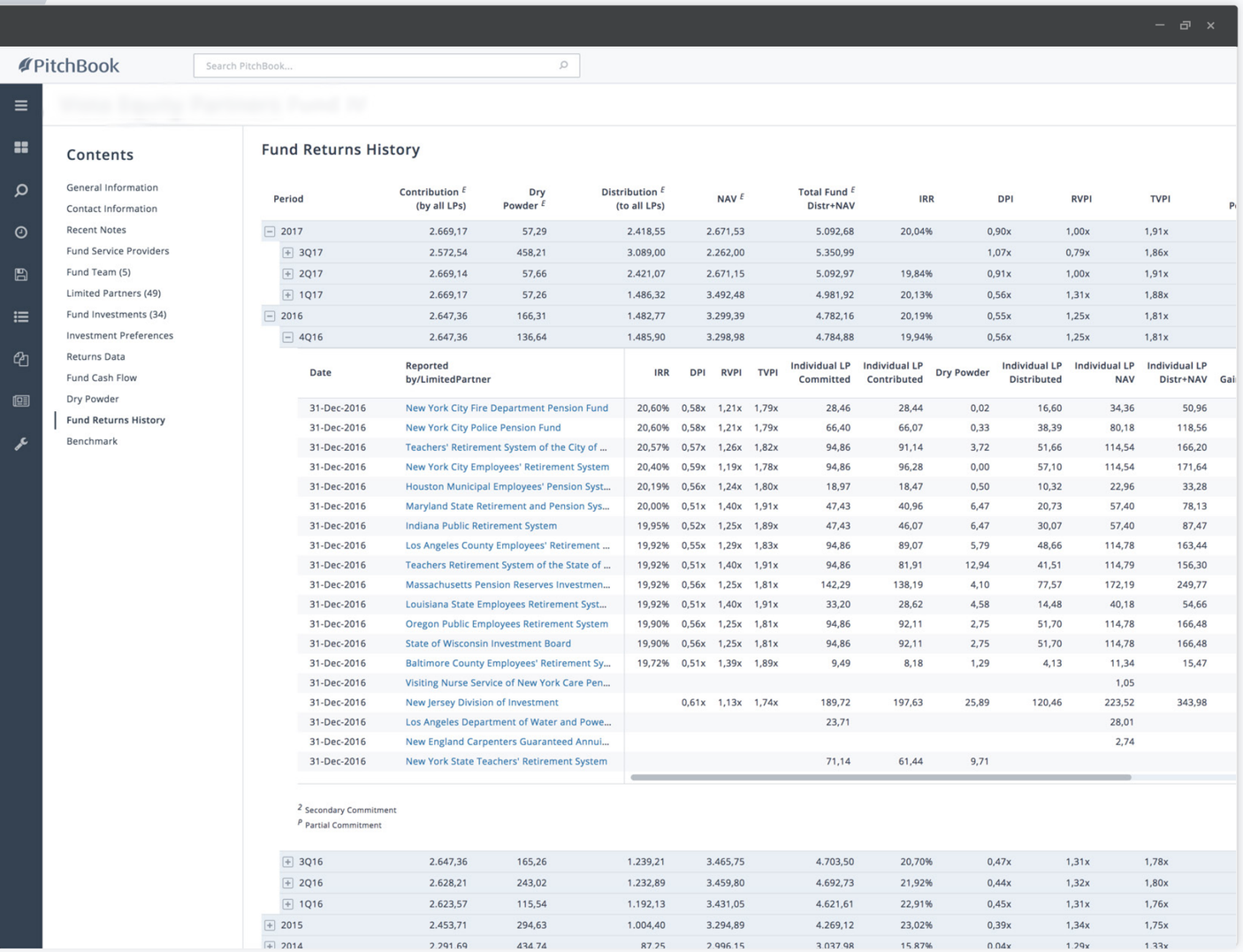
Only the top VC funds tend to outperform

VC KS-PME percentiles



Source PitchBook

*As of December 31, 2017



Period	Contribution E (by all LPs)	Dry Powder E	Distribution E (to all LPs)	NAV E	Total Fund E Distr+NAV	IRR	DPI	RVPI	TVPI
2017	2.669,17	57,29	2.418,55	2.671,53	5.092,68	20,04%	0,90x	1,00x	1,91x
3Q17	2.572,54	458,21	3.089,00	2.262,00	5.350,99		1,07x	0,79x	1,86x
2Q17	2.669,14	57,66	2.421,07	2.671,15	5.092,97	19,84%	0,91x	1,00x	1,91x
1Q17	2.669,17	57,26	1.486,32	3.492,48	4.981,92	20,13%	0,56x	1,31x	1,88x
2016	2.647,36	166,31	1.482,77	3.299,39	4.782,16	20,19%	0,55x	1,25x	1,81x
4Q16	2.647,36	136,64	1.485,90	3.298,98	4.784,88	19,94%	0,56x	1,25x	1,81x

Date	Reported by/LimitedPartner	IRR	DPI	RVPI	TVPI	Individual LP Committed	Individual LP Contributed	Dry Powder	Individual LP Distributed	Individual LP NAV	Individual LP Distr+NAV
31-Dec-2016	New York City Fire Department Pension Fund	20,60%	0,58x	1,21x	1,79x	28,46	28,44	0,02	16,60	34,36	50,96
31-Dec-2016	New York City Police Pension Fund	20,60%	0,58x	1,21x	1,79x	66,40	66,07	0,33	38,39	80,18	118,56
31-Dec-2016	Teachers' Retirement System of the City of ...	20,57%	0,57x	1,26x	1,82x	94,86	91,14	3,72	51,66	114,54	166,20
31-Dec-2016	New York City Employees' Retirement System	20,40%	0,59x	1,19x	1,78x	94,86	96,28	0,00	57,10	114,54	171,64
31-Dec-2016	Houston Municipal Employees' Pension Syst...	20,19%	0,56x	1,24x	1,80x	18,97	18,47	0,50	10,32	22,96	33,28
31-Dec-2016	Maryland State Retirement and Pension Sys...	20,00%	0,51x	1,40x	1,91x	47,43	40,96	6,47	20,73	57,40	78,13
31-Dec-2016	Indiana Public Retirement System	19,95%	0,52x	1,25x	1,89x	47,43	46,07	6,47	30,07	57,40	87,47
31-Dec-2016	Los Angeles County Employees' Retirement ...	19,92%	0,55x	1,29x	1,83x	94,86	89,07	5,79	48,66	114,78	163,44
31-Dec-2016	Teachers Retirement System of the State of ...	19,92%	0,51x	1,40x	1,91x	94,86	81,91	12,94	41,51	114,79	156,30
31-Dec-2016	Massachusetts Pension Reserves Investmen...	19,92%	0,56x	1,25x	1,81x	142,29	138,19	4,10	77,57	172,19	249,77
31-Dec-2016	Louisiana State Employees Retirement Syst...	19,92%	0,51x	1,40x	1,91x	33,20	28,62	4,58	14,48	40,18	54,66
31-Dec-2016	Oregon Public Employees Retirement System	19,90%	0,56x	1,25x	1,81x	94,86	92,11	2,75	51,70	114,78	166,48
31-Dec-2016	State of Wisconsin Investment Board	19,90%	0,56x	1,25x	1,81x	94,86	92,11	2,75	51,70	114,78	166,48
31-Dec-2016	Baltimore County Employees' Retirement Sy...	19,72%	0,51x	1,39x	1,89x	9,49	8,18	1,29	4,13	11,34	15,47
31-Dec-2016	Visiting Nurse Service of New York Care Pen...									1,05	
31-Dec-2016	New Jersey Division of Investment		0,61x	1,13x	1,74x	189,72	197,63	25,89	120,46	223,52	343,98
31-Dec-2016	Los Angeles Department of Water and Powe...					23,71				28,01	
31-Dec-2016	New England Carpenters Guaranteed Annui...									2,74	
31-Dec-2016	New York State Teachers' Retirement System					71,14	61,44	9,71			

2 Secondary Commitment
P Partial Commitment

3Q16	2.647,36	165,26	1.239,21	3.465,75	4.703,50	20,70%	0,47x	1,31x	1,78x
2Q16	2.628,21	243,02	1.232,89	3.459,80	4.692,73	21,92%	0,44x	1,32x	1,80x
1Q16	2.623,57	115,54	1.192,13	3.431,05	4.621,61	22,91%	0,45x	1,31x	1,76x
2015	2.453,71	294,63	1.004,40	3.294,89	4.269,12	23,02%	0,39x	1,34x	1,75x
2014	2.291,69	434,74	87,25	2.996,15	3.037,98	15,87%	0,04x	1,29x	1,33x

PitchBook clients get greater insight into underlying fund data

Get aggregate fund-level performance at a glance.

Get access to individual LP reports and the underlying fund performance data that is used to construct our benchmarks.

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Private capital

PRIVATE CAPITAL

Horizon IRRs

Strategy	1-year	3-year	5-year	10-year	15-year	18-year
Private capital	15.95%	11.94%	12.85%	8.44%	10.99%	9.73%
Private equity	20.47%	14.98%	15.20%	9.77%	13.37%	11.45%
Venture capital	11.72%	8.17%	13.51%	8.03%	7.79%	5.44%
Real assets	11.35%	9.23%	9.45%	5.56%	7.12%	7.19%
Debt	7.75%	5.74%	9.17%	7.96%	10.16%	10.16%
Fund-of-funds	13.59%	11.16%	11.46%	7.05%	8.65%	7.23%
Secondaries	18.73%	10.79%	11.50%	9.65%	11.44%	11.24%
S&P 500	13.60%	10.15%	13.69%	9.06%	9.85%	5.42%
Russell 2000 Growth	15.61%	8.56%	12.86%	10.18%	11.62%	4.53%
Russell 3000	13.25%	9.79%	13.44%	9.19%	10.19%	5.74%
Morningstar US Real Assets*	1.90%	0.36%	0.75%	3.31%	6.47%	7.29%
Bloomberg Barclays US Corporate High Yield	5.26%	5.73%	5.35%	8.27%	8.68%	7.25%

*Index only dates back 17 years
Source: PitchBook
Data as of December 31, 2017

PRIVATE CAPITAL

Equal-weighted horizon IRRs

Strategy	1-year	3-year	5-year	10-year	15-year	18-year
Private capital	13.06%	10.80%	11.84%	8.31%	9.97%	8.33%
Private equity	17.85%	13.24%	12.87%	9.36%	12.90%	10.59%
Venture capital	9.87%	7.25%	11.96%	7.48%	6.80%	4.60%
Real assets	9.85%	10.03%	9.94%	6.28%	7.80%	7.78%
Debt	8.00%	6.93%	9.81%	7.96%	10.21%	10.07%
Fund-of-funds	13.03%	11.66%	12.19%	8.95%	9.60%	8.37%
Secondaries	13.30%	10.03%	10.63%	8.81%	11.04%	10.58%
S&P 500	13.60%	10.15%	13.69%	9.06%	9.85%	5.42%
Russell 2000 Growth	15.61%	8.56%	12.86%	10.18%	11.62%	4.53%
Russell 3000	13.25%	9.79%	13.44%	9.19%	10.19%	5.74%
Morningstar US Real Assets*	1.90%	0.36%	0.75%	3.31%	6.47%	7.29%
Bloomberg Barclays US Corporate High Yield	5.26%	5.73%	5.35%	8.27%	8.68%	7.25%

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Source: PitchBook
Data as of December 31, 2017

Private equity

PRIVATE EQUITY

IRRs by vintage

	POOLED IRRS			IRR HURDLE RATES						
Vintage year	Pooled IRR	Equal-weighted pooled IRR	Number of funds	Top decile	Top quartile	Median IRR	Bottom quartile	Bottom decile	Standard deviation	Number of funds
Pre-2001	11.22%	9.66%	172	22.90%	15.70%	9.85%	2.73%	-6.20%	12.38%	170
2001	23.01%	18.90%	29	37.34%	24.66%	16.10%	10.83%	5.24%	19.94%	29
2002	17.57%	16.17%	33	34.50%	26.10%	16.98%	7.80%	2.71%	17.50%	33
2003	22.67%	15.90%	22	37.66%	24.47%	12.70%	8.25%	-2.20%	27.26%	22
2004	11.64%	10.67%	50	28.52%	16.75%	10.57%	4.10%	-7.38%	17.41%	49
2005	10.27%	9.94%	75	20.73%	13.10%	8.93%	3.80%	0.27%	10.59%	72
2006	7.52%	7.19%	106	14.40%	11.33%	8.00%	4.23%	-2.80%	9.73%	101
2007	9.53%	9.44%	108	19.40%	14.78%	9.73%	5.00%	-0.94%	9.50%	104
2008	12.81%	10.54%	110	22.48%	16.30%	11.20%	5.60%	-1.04%	9.82%	105
2009	13.99%	14.27%	48	26.86%	21.27%	11.98%	8.84%	5.21%	9.93%	44
2010	11.21%	11.47%	62	21.87%	14.41%	10.03%	6.08%	1.07%	11.44%	52
2011	15.98%	15.11%	71	33.02%	19.95%	13.12%	9.71%	3.14%	21.02%	63
2012	16.56%	15.14%	110	28.09%	20.20%	14.45%	8.20%	3.58%	15.29%	95
2013	16.43%	12.85%	94	31.75%	19.80%	13.50%	7.50%	2.87%	12.93%	77
2014	15.17%	14.60%	90	29.09%	19.70%	12.50%	6.04%	-3.94%	21.61%	73
2015	18.53%	16.00%	122	35.42%	20.60%	10.90%	3.00%	-6.40%	16.94%	81

Source: PitchBook. Data as of December 31, 2017

PRIVATE EQUITY

Multiples by vintage

	POOLED MULTIPLES			EQUAL-WEIGHTED POOLED MULTIPLES			
Vintage year	TVPI	DPI	RVPI	TVPI	DPI	RVPI	Number of funds
Pre-2001	1.63x	1.61x	0.01x	1.54x	1.52x	0.02x	172
2001	2.12x	2.08x	0.03x	1.97x	1.95x	0.02x	29
2002	1.83x	1.78x	0.05x	1.77x	1.72x	0.05x	33
2003	1.99x	1.91x	0.07x	1.76x	1.69x	0.07x	22
2004	1.68x	1.58x	0.10x	1.59x	1.47x	0.12x	50
2005	1.66x	1.55x	0.11x	1.62x	1.48x	0.14x	75
2006	1.49x	1.28x	0.21x	1.44x	1.19x	0.25x	106
2007	1.54x	1.21x	0.33x	1.52x	1.18x	0.34x	108
2008	1.63x	1.22x	0.41x	1.52x	1.12x	0.40x	110
2009	1.65x	1.22x	0.43x	1.67x	1.19x	0.48x	48
2010	1.46x	0.78x	0.68x	1.48x	0.81x	0.66x	62
2011	1.62x	0.70x	0.92x	1.59x	0.68x	0.91x	71
2012	1.48x	0.53x	0.95x	1.46x	0.51x	0.94x	110
2013	1.35x	0.33x	1.02x	1.31x	0.33x	0.98x	94
2014	1.27x	0.23x	1.03x	1.27x	0.28x	0.99x	90
2015	1.22x	0.15x	1.07x	1.22x	0.18x	1.04x	122

Source: PitchBook. Data as of December 31, 2017

PRIVATE EQUITY

Multiples by vintage

	TVPI					DPI					
Vintage year	Top decile	Top quartile	Median TVPI	Bottom quartile	Bottom decile	Top decile	Top quartile	Median DPI	Bottom quartile	Bottom decile	Number of funds
Pre-2001	2.26x	1.93x	1.54x	1.17x	0.69x	2.26x	1.92x	1.53x	1.12x	0.69x	172
2001	2.88x	2.34x	1.88x	1.57x	1.18x	2.84x	2.34x	1.88x	1.57x	1.11x	29
2002	2.63x	2.13x	1.74x	1.35x	1.21x	2.46x	2.12x	1.60x	1.32x	1.20x	33
2003	2.92x	1.93x	1.70x	1.42x	0.85x	2.73x	1.92x	1.63x	1.36x	0.79x	22
2004	2.56x	1.93x	1.58x	1.20x	0.73x	2.56x	1.87x	1.50x	1.05x	0.58x	50
2005	2.37x	1.94x	1.55x	1.23x	1.00x	2.25x	1.80x	1.40x	1.10x	0.69x	75
2006	2.03x	1.71x	1.43x	1.19x	0.83x	1.72x	1.53x	1.28x	0.97x	0.48x	106
2007	2.09x	1.85x	1.49x	1.21x	0.94x	1.91x	1.55x	1.14x	0.86x	0.54x	108
2008	2.07x	1.84x	1.53x	1.20x	0.91x	1.71x	1.46x	1.09x	0.75x	0.46x	110
2009	2.53x	1.94x	1.59x	1.28x	0.94x	2.04x	1.43x	1.11x	0.80x	0.63x	48
2010	2.05x	1.74x	1.41x	1.23x	0.89x	1.40x	1.07x	0.77x	0.50x	0.26x	62
2011	2.23x	1.88x	1.50x	1.28x	1.08x	1.32x	1.01x	0.56x	0.34x	0.15x	71
2012	1.85x	1.67x	1.36x	1.22x	0.94x	0.97x	0.74x	0.45x	0.22x	0.12x	110
2013	1.72x	1.46x	1.31x	1.15x	0.97x	0.82x	0.46x	0.22x	0.07x	0.00x	94
2014	1.60x	1.37x	1.21x	1.05x	0.88x	0.68x	0.38x	0.14x	0.02x	0.00x	90
2015	1.45x	1.29x	1.15x	1.03x	0.90x	0.30x	0.17x	0.04x	0.00x	0.00x	122

Source: PitchBook. Data as of December 31, 2017

For RVPI data, please download the supplemental Excel pack

PRIVATE EQUITY

PMEs by vintage

	S&P 500 INDEX			RUSSELL 3000 INDEX			
Vintage year	PitchBook Benchmark return (%)	Index return (%)	KS-PME	PitchBook Benchmark return (%)	Index return (%)	KS-PME	Number of funds
2001	23.01%	6.36%	1.66	23.01%	6.74%	1.62	29
2002	17.57%	7.47%	1.44	17.57%	7.81%	1.41	33
2003	22.67%	9.85%	1.56	22.67%	10.19%	1.54	22
2004	11.64%	8.31%	1.31	11.64%	8.50%	1.30	50
2005	10.27%	8.40%	1.22	10.27%	8.57%	1.20	75
2006	7.52%	8.29%	1.01	7.52%	8.31%	1.00	106
2007	9.53%	7.87%	0.97	9.53%	7.89%	0.96	108
2008	12.81%	9.06%	0.98	12.81%	9.19%	0.98	110
2009	13.99%	16.27%	0.97	13.99%	16.44%	0.97	48
2010	11.21%	13.36%	0.91	11.21%	13.33%	0.92	62
2011	15.98%	12.68%	1.06	15.98%	12.43%	1.06	71
2012	16.56%	13.87%	1.07	16.56%	13.70%	1.07	110
2013	16.43%	13.69%	1.06	16.43%	13.44%	1.07	94
2014	15.17%	11.30%	1.03	15.17%	10.75%	1.03	90
2015	18.53%	10.15%	1.02	18.53%	9.79%	1.03	122

Source: PitchBook. Data as of December 31, 2017

Venture capital

VENTURE CAPITAL

IRRs by vintage

	POOLED IRRS			IRR HURDLE RATES					
Vintage year	Pooled IRR	Equal-weighted pooled IRR	Number of funds	Top decile	Top quartile	Median IRR	Bottom quartile	Bottom decile	Standard deviation	Number of funds
Pre-2001	1.64%	4.95%	137	19.14%	6.44%	0.00%	-8.60%	-15.66%	31.08%	135
2001	4.31%	2.52%	36	11.75%	5.83%	2.56%	-3.78%	-15.15%	11.37%	36
2002	3.13%	2.78%	17	10.95%	9.13%	3.50%	-6.78%	-11.36%	10.20%	16
2003	5.68%	1.80%	20	11.03%	6.45%	2.60%	-4.43%	-18.94%	15.97%	20
2004	0.19%	-0.27%	21	7.01%	4.60%	1.49%	-9.65%	-13.81%	9.60%	20
2005	9.30%	10.86%	35	16.24%	12.10%	4.30%	0.20%	-3.94%	14.04%	33
2006	4.83%	2.84%	38	12.09%	9.50%	2.00%	-6.60%	-11.89%	13.15%	37
2007	14.02%	12.15%	46	30.50%	16.45%	9.49%	-0.90%	-10.53%	16.64%	44
2008	9.91%	9.35%	55	25.61%	16.78%	7.85%	0.13%	-17.70%	18.50%	50
2009	10.42%	8.62%	22	19.72%	14.76%	7.20%	4.49%	-3.88%	9.94%	19
2010	18.96%	18.22%	25	42.13%	28.31%	12.30%	4.60%	-0.01%	19.33%	23
2011	14.82%	13.91%	20	24.60%	22.94%	17.15%	6.26%	-2.62%	11.30%	20
2012	18.16%	17.41%	19	34.84%	24.00%	16.06%	11.39%	4.84%	15.05%	15
2013	23.82%	17.47%	22	38.22%	21.91%	16.33%	10.51%	5.66%	18.52%	18
2014	14.68%	14.86%	35	23.75%	13.91%	9.66%	5.18%	1.70%	76.83%	31
2015	12.91%	13.53%	31	19.46%	16.00%	8.01%	-4.87%	-12.32%	18.05%	27

Source: PitchBook. Data as of December 31, 2017

VENTURE CAPITAL

Multiples by vintage

	POOLED MULTIPLES			EQUAL-WEIGHTED POOLED MULTIPLES			
Vintage year	TVPI	DPI	RVPI	TVPI	DPI	RVPI	Number of funds
Pre-2001	1.10x	1.01x	0.08x	1.21x	1.15x	0.06x	137
2001	1.31x	1.20x	0.12x	1.18x	1.06x	0.12x	36
2002	1.19x	1.14x	0.05x	1.18x	1.07x	0.11x	17
2003	1.41x	1.17x	0.24x	1.12x	0.92x	0.19x	20
2004	1.01x	0.72x	0.29x	0.98x	0.63x	0.35x	21
2005	1.68x	1.27x	0.41x	1.84x	1.36x	0.48x	35
2006	1.33x	0.79x	0.54x	1.19x	0.69x	0.50x	38
2007	1.96x	1.29x	0.67x	1.86x	1.16x	0.69x	46
2008	1.52x	0.90x	0.62x	1.54x	0.81x	0.73x	55
2009	1.63x	0.69x	0.94x	1.50x	0.63x	0.86x	22
2010	2.02x	0.96x	1.06x	2.01x	1.03x	0.99x	25
2011	1.68x	0.33x	1.34x	1.62x	0.36x	1.26x	20
2012	1.77x	0.31x	1.45x	1.70x	0.27x	1.43x	19
2013	1.62x	0.29x	1.33x	1.44x	0.21x	1.23x	22
2014	1.27x	0.12x	1.15x	1.24x	0.15x	1.09x	35
2015	1.17x	0.04x	1.13x	1.18x	0.06x	1.12x	31

Source: PitchBook. Data as of December 31, 2017

VENTURE CAPITAL

Multiples by vintage

	TVPI					DPI					
Vintage year	Top decile	Top quartile	Median TVPI	Bottom quartile	Bottom decile	Top decile	Top quartile	Median DPI	Bottom quartile	Bottom decile	Number of funds
Pre-2001	1.80x	1.38x	1.01x	0.63x	0.27x	1.73x	1.32x	0.88x	0.51x	0.23x	137
2001	1.82x	1.52x	1.23x	0.77x	0.29x	1.80x	1.37x	0.98x	0.63x	0.26x	36
2002	1.80x	1.64x	1.16x	0.68x	0.49x	1.74x	1.61x	1.09x	0.57x	0.33x	17
2003	1.68x	1.43x	1.15x	0.79x	0.41x	1.46x	1.30x	0.99x	0.50x	0.25x	20
2004	1.68x	1.33x	1.10x	0.58x	0.39x	1.28x	1.00x	0.61x	0.16x	0.09x	21
2005	2.33x	1.76x	1.28x	1.00x	0.74x	1.96x	1.53x	0.90x	0.52x	0.29x	35
2006	2.14x	1.60x	1.14x	0.65x	0.41x	1.29x	1.05x	0.53x	0.28x	0.09x	38
2007	2.86x	2.35x	1.62x	0.96x	0.49x	2.10x	1.46x	1.12x	0.38x	0.11x	46
2008	2.66x	1.93x	1.44x	0.98x	0.40x	1.69x	1.15x	0.62x	0.27x	0.09x	55
2009	2.22x	1.80x	1.49x	1.16x	0.87x	1.11x	0.96x	0.53x	0.20x	0.11x	22
2010	3.50x	2.32x	1.63x	1.09x	0.84x	2.17x	1.11x	0.90x	0.41x	0.14x	25
2011	2.33x	2.01x	1.56x	1.28x	0.90x	0.68x	0.63x	0.26x	0.10x	0.05x	20
2012	2.73x	1.87x	1.61x	1.19x	0.96x	0.75x	0.34x	0.13x	0.01x	0.00x	19
2013	1.87x	1.66x	1.38x	1.23x	1.04x	0.47x	0.30x	0.13x	0.01x	0.00x	22
2014	1.48x	1.31x	1.15x	1.08x	0.99x	0.27x	0.14x	0.07x	0.00x	0.00x	35
2015	1.27x	1.23x	1.14x	0.97x	0.88x	0.18x	0.02x	0.00x	0.00x	0.00x	31

Source: PitchBook. Data as of December 31, 2017

For RVPI data, please download the supplemental Excel pack

VENTURE CAPITAL

PMEs by vintage

	S&P 500 INDEX			RUSSELL 2000 GROWTH INDEX			
Vintage year	PitchBook Benchmark return (%)	Index return (%)	KS-PME	PitchBook Benchmark return (%)	Index return (%)	KS-PME	Number of funds
2001	4.31%	6.36%	0.89	4.31%	7.30%	0.81	36
2002	3.13%	7.47%	0.86	3.13%	8.49%	0.80	17
2003	5.68%	9.85%	0.94	5.68%	11.62%	0.87	20
2004	0.19%	8.31%	0.63	0.19%	8.76%	0.59	21
2005	9.30%	8.40%	1.07	9.30%	9.15%	1.00	35
2006	4.83%	8.29%	0.76	4.83%	8.39%	0.72	38
2007	14.02%	7.87%	1.10	14.02%	8.60%	1.06	46
2008	9.91%	9.06%	0.87	9.91%	10.18%	0.86	55
2009	10.42%	16.27%	0.83	10.42%	17.39%	0.84	22
2010	18.96%	13.36%	1.18	18.96%	13.68%	1.21	25
2011	14.82%	12.68%	1.03	14.82%	11.44%	1.07	20
2012	18.16%	13.87%	1.16	18.16%	12.87%	1.20	19
2013	23.82%	13.69%	1.24	23.82%	12.86%	1.28	22
2014	14.68%	11.30%	1.02	14.68%	8.22%	1.03	35
2015	12.91%	10.15%	0.97	12.91%	8.56%	0.97	31

Source: PitchBook. Data as of December 31, 2017

Real assets

REAL ASSETS

IRRs by vintage

	POOLED IRRS			IRR HURDLE RATES						
Vintage year	Pooled IRR	Equal-weighted pooled IRR	Number of funds	Top decile	Top quartile	Median IRR	Bottom quartile	Bottom decile	Standard deviation	Number of funds
Pre-2001	8.70%	10.85%	30	23.28%	16.85%	8.86%	4.91%	1.67%	8.41%	30
2001	35.28%	33.79%	4		36.02%	31.52%	27.23%		12.47%	4
2002	23.46%	25.43%	5		36.05%	25.00%	16.60%		21.10%	5
2003	18.85%	19.30%	6		30.05%	22.01%	10.80%		11.71%	6
2004	10.78%	9.12%	10	24.72%	16.21%	10.93%	2.85%	-2.68%	24.02%	10
2005	2.74%	2.80%	32	16.81%	6.67%	0.83%	-3.10%	-7.94%	12.43%	32
2006	-0.60%	-1.08%	41	8.71%	3.49%	-3.26%	-9.49%	-16.43%	10.80%	37
2007	3.62%	3.25%	66	13.00%	10.26%	4.61%	-1.18%	-11.06%	9.54%	62
2008	4.20%	5.18%	61	15.69%	11.05%	5.08%	0.28%	-5.32%	8.80%	58
2009	8.86%	7.73%	32	20.32%	15.22%	10.08%	2.60%	-12.63%	13.12%	29
2010	11.42%	9.95%	35	17.85%	12.56%	9.60%	6.42%	-3.57%	8.95%	31
2011	13.67%	12.00%	53	21.47%	17.97%	12.69%	4.68%	-1.45%	16.37%	48
2012	12.10%	12.26%	72	23.92%	16.73%	12.36%	10.00%	5.46%	16.14%	66
2013	14.22%	12.80%	69	18.42%	15.20%	11.65%	6.56%	-0.61%	8.94%	55
2014	13.47%	12.42%	77	28.65%	16.23%	12.35%	8.53%	0.50%	15.21%	61
2015	15.94%	15.40%	100	25.76%	19.83%	11.80%	7.26%	1.87%	13.31%	73

Source: PitchBook. Data as of December 31, 2017

REAL ASSETS

Multiples by vintage

	POOLED MULTIPLES			EQUAL-WEIGHTED POOLED MULTIPLES			
Vintage year	TVPI	DPI	RVPI	TVPI	DPI	RVPI	Number of funds
Pre-2001	1.86x	1.12x	0.73x	1.65x	1.53x	0.12x	30
2001	2.22x	2.17x	0.05x	2.29x	2.17x	0.11x	4
2002	1.54x	1.53x	0.01x	1.58x	1.57x	0.01x	5
2003	1.65x	1.62x	0.03x	1.80x	1.70x	0.10x	6
2004	1.71x	1.42x	0.29x	1.53x	1.37x	0.17x	10
2005	1.17x	0.98x	0.19x	1.17x	0.98x	0.19x	32
2006	0.97x	0.80x	0.17x	0.94x	0.74x	0.19x	41
2007	1.20x	0.99x	0.21x	1.18x	0.98x	0.20x	66
2008	1.19x	0.88x	0.31x	1.26x	0.94x	0.32x	61
2009	1.37x	1.01x	0.36x	1.34x	1.01x	0.33x	32
2010	1.42x	0.96x	0.46x	1.43x	0.84x	0.59x	35
2011	1.51x	0.80x	0.71x	1.45x	0.86x	0.59x	53
2012	1.36x	0.57x	0.79x	1.38x	0.63x	0.75x	72
2013	1.36x	0.51x	0.84x	1.32x	0.43x	0.88x	69
2014	1.24x	0.26x	0.99x	1.25x	0.27x	0.98x	77
2015	1.20x	0.28x	0.92x	1.22x	0.24x	0.98x	100

Source: PitchBook. Data as of December 31, 2017

REAL ASSETS

Multiples by vintage

	TVPI					DPI					
Vintage year	Top decile	Top quartile	Median TVPI	Bottom quartile	Bottom decile	Top decile	Top quartile	Median DPI	Bottom quartile	Bottom decile	Number of funds
Pre-2001	2.44x	2.04x	1.48x	1.28x	1.07x	2.23x	1.83x	1.44x	1.22x	0.91x	30
2001		2.86x	2.42x	1.87x			2.48x	2.17x	1.86x		4
2002		1.81x	1.71x	1.31x			1.81x	1.71x	1.27x		5
2003		1.84x	1.66x	1.36x			1.84x	1.66x	1.36x		6
2004	2.16x	1.84x	1.51x	1.07x	0.82x	1.89x	1.63x	1.50x	1.07x	0.82x	10
2005	1.95x	1.33x	1.01x	0.79x	0.58x	1.70x	1.29x	0.97x	0.52x	0.24x	32
2006	1.52x	1.23x	0.96x	0.60x	0.38x	1.26x	1.01x	0.70x	0.45x	0.17x	41
2007	1.78x	1.44x	1.22x	0.93x	0.52x	1.51x	1.33x	1.07x	0.59x	0.27x	66
2008	1.76x	1.55x	1.24x	1.02x	0.72x	1.53x	1.23x	0.89x	0.63x	0.35x	61
2009	1.95x	1.56x	1.42x	1.18x	0.68x	1.63x	1.35x	1.12x	0.58x	0.28x	32
2010	1.77x	1.62x	1.51x	1.23x	0.95x	1.42x	1.21x	0.77x	0.60x	0.22x	35
2011	1.90x	1.74x	1.46x	1.22x	0.95x	1.62x	1.22x	0.95x	0.50x	0.20x	53
2012	1.71x	1.49x	1.37x	1.27x	1.12x	1.28x	0.86x	0.57x	0.24x	0.09x	72
2013	1.60x	1.46x	1.28x	1.15x	0.98x	1.03x	0.71x	0.27x	0.15x	0.04x	69
2014	1.54x	1.34x	1.22x	1.11x	1.02x	0.64x	0.38x	0.16x	0.06x	0.00x	77
2015	1.36x	1.27x	1.16x	1.09x	0.96x	0.51x	0.31x	0.14x	0.04x	0.00x	100

Source: PitchBook. Data as of December 31, 2017

For RVPI data, please download the supplemental Excel pack

REAL ASSETS

PMEs by vintage

	S&P 500 INDEX			MORNINGSTAR US REAL ASSETS INDEX			
Vintage year	PitchBook Benchmark return (%)	Index return (%)	KS-PME	PitchBook Benchmark return (%)	Index return (%)	KS-PME	Number of funds
2001	35.28%	6.36%	1.78	35.28%	6.85%	1.63	4
2002	23.46%	7.47%	1.23	23.46%	6.81%	1.20	5
2003	18.85%	9.85%	1.36	18.85%	6.47%	1.27	6
2004	10.78%	8.31%	1.22	10.78%	5.62%	1.23	10
2005	2.74%	8.40%	0.79	2.74%	5.03%	0.87	32
2006	-0.60%	8.29%	0.66	-0.60%	4.60%	0.73	41
2007	3.62%	7.87%	0.72	3.62%	4.31%	0.94	66
2008	4.20%	9.06%	0.69	4.20%	3.31%	1.00	61
2009	8.86%	16.27%	0.82	8.86%	5.39%	1.21	32
2010	11.42%	13.36%	0.91	11.42%	3.60%	1.30	35
2011	13.67%	12.68%	0.99	13.67%	1.82%	1.45	53
2012	12.10%	13.87%	0.97	12.10%	0.99%	1.32	72
2013	14.22%	13.69%	1.03	14.22%	0.75%	1.32	69
2014	13.47%	11.30%	1.00	13.47%	1.18%	1.22	77
2015	15.94%	10.15%	1.00	15.94%	0.36%	1.17	100

Source: PitchBook. Data as of December 31, 2017

Debt

DEBT

IRRs by vintage

	POOLED IRRS			IRR HURDLE RATES						
Vintage year	Pooled IRR	Equal-weighted pooled IRR	Number of funds	Top decile	Top quartile	Median IRR	Bottom quartile	Bottom decile	Standard deviation	Number of funds
Pre-2001	13.64%	11.79%	13	26.32%	15.10%	8.78%	5.33%	-0.14%	12.95%	12
2001	26.95%	27.52%	2			27.37%			0.94%	2
2002	29.39%	34.06%	3			30.17%			32.40%	3
2003	11.66%	10.18%	4		16.77%	11.13%	7.64%		11.18%	4
2004	15.25%	14.29%	3			14.04%			2.67%	3
2005	2.31%	4.46%	8		8.71%	4.90%	2.34%		6.29%	8
2006	5.85%	3.81%	14	8.34%	5.95%	3.90%	1.65%	-2.01%	5.40%	14
2007	6.18%	6.52%	22	12.93%	9.40%	6.55%	2.68%	-0.79%	8.52%	22
2008	12.86%	13.68%	15	16.62%	14.58%	13.30%	9.15%	7.60%	4.02%	15
2009	8.33%	8.87%	11	15.60%	12.45%	9.00%	6.32%	4.60%	4.45%	11
2010	18.65%	13.41%	17	20.78%	16.10%	11.67%	9.32%	7.52%	9.58%	17
2011	10.09%	11.00%	18	16.90%	12.47%	10.59%	9.06%	4.60%	5.09%	17
2012	10.24%	10.27%	25	15.10%	12.43%	10.40%	6.50%	2.92%	5.25%	21
2013	7.60%	8.68%	34	13.91%	10.39%	8.82%	6.82%	5.91%	3.62%	28
2014	8.29%	7.84%	39	13.98%	10.92%	8.01%	6.70%	-3.38%	12.72%	28
2015	11.12%	10.13%	41	19.37%	14.25%	11.01%	8.86%	6.38%	5.82%	34

Source: PitchBook. Data as of December 31, 2017

DEBT

Multiples by vintage

	POOLED MULTIPLES			EQUAL-WEIGHTED POOLED MULTIPLES			
Vintage year	TVPI	DPI	RVPI	TVPI	DPI	RVPI	Number of funds
Pre-2001	1.66x	1.60x	0.06x	1.64x	1.50x	0.15x	13
2001	2.08x	2.08x	0.00x	2.28x	2.28x	0.00x	2
2002	2.19x	2.19x	0.00x	2.04x	2.04x	0.00x	3
2003	1.62x	1.60x	0.02x	1.51x	1.50x	0.01x	4
2004	1.86x	1.83x	0.03x	1.80x	1.77x	0.03x	3
2005	1.12x	1.05x	0.06x	1.22x	1.16x	0.06x	8
2006	1.41x	1.23x	0.18x	1.23x	1.12x	0.11x	14
2007	1.31x	1.16x	0.15x	1.34x	1.18x	0.16x	22
2008	1.60x	1.49x	0.11x	1.62x	1.55x	0.07x	15
2009	1.35x	1.18x	0.17x	1.36x	1.13x	0.23x	11
2010	1.58x	1.41x	0.16x	1.46x	1.24x	0.22x	17
2011	1.43x	0.88x	0.55x	1.42x	0.99x	0.44x	18
2012	1.35x	0.73x	0.62x	1.35x	0.78x	0.57x	25
2013	1.18x	0.50x	0.68x	1.23x	0.51x	0.72x	34
2014	1.15x	0.36x	0.79x	1.13x	0.34x	0.80x	39
2015	1.14x	0.21x	0.94x	1.14x	0.25x	0.89x	41

Source: PitchBook. Data as of December 31, 2017

DEBT

Multiples by vintage

	TVPI					DPI					
Vintage year	Top decile	Top quartile	Median TVPI	Bottom quartile	Bottom decile	Top decile	Top quartile	Median DPI	Bottom quartile	Bottom decile	Number of funds
Pre-2001	2.17x	1.54x	1.49x	1.43x	0.95x	1.95x	1.51x	1.41x	1.24x	0.95x	13
2001			2.36x					2.36x			2
2002			2.33x					2.33x			3
2003		1.67x	1.54x	1.40x			1.66x	1.54x	1.40x		4
2004			1.65x					1.63x			3
2005		1.36x	1.28x	1.15x		1.47x	1.36x	1.24x	0.99x	0.75x	8
2006	1.60x	1.40x	1.21x	1.08x	0.96x	1.45x	1.18x	1.11x	1.04x	0.90x	14
2007	1.73x	1.56x	1.32x	1.14x	0.97x	1.62x	1.38x	1.25x	1.05x	0.79x	22
2008	2.03x	1.76x	1.48x	1.38x	1.24x	1.95x	1.66x	1.41x	1.27x	1.19x	15
2009	1.59x	1.47x	1.32x	1.23x	1.20x	1.59x	1.34x	1.13x	1.00x	0.92x	11
2010	1.79x	1.62x	1.43x	1.21x	1.18x	1.73x	1.52x	1.28x	1.17x	0.65x	17
2011	1.80x	1.55x	1.39x	1.24x	1.15x	1.35x	1.25x	1.01x	0.69x	0.58x	18
2012	1.62x	1.46x	1.35x	1.19x	1.11x	1.19x	1.10x	0.83x	0.57x	0.32x	25
2013	1.39x	1.29x	1.23x	1.16x	1.03x	0.86x	0.74x	0.52x	0.29x	0.12x	34
2014	1.33x	1.20x	1.14x	1.09x	0.89x	0.55x	0.47x	0.21x	0.09x	0.00x	39
2015	1.28x	1.22x	1.15x	1.08x	1.02x	0.50x	0.34x	0.16x	0.07x	0.00x	41

Source: PitchBook. Data as of December 31, 2017

For RVPI data, please download the supplemental Excel pack

DEBT

PMEs by vintage

	S&P 500 INDEX			BLOOMBERG BARCLAYS US CORPORATE HIGH YIELD INDEX			
Vintage year	PitchBook Benchmark return (%)	Index return (%)	KS-PME	PitchBook Benchmark return (%)	Index return (%)	KS-PME	Number of funds
2001	26.95%	6.36%	1.56	26.95%	7.69%	1.39	2
2002	29.39%	7.47%	1.63	29.39%	8.24%	1.56	3
2003	11.66%	9.85%	1.24	11.66%	8.68%	1.14	4
2004	15.25%	8.31%	1.56	15.25%	7.51%	1.38	3
2005	2.31%	8.40%	0.93	2.31%	7.37%	0.77	8
2006	5.85%	8.29%	0.89	5.85%	7.63%	0.80	14
2007	6.18%	7.87%	0.96	6.18%	7.26%	0.83	22
2008	12.86%	9.06%	1.05	12.86%	8.27%	0.94	15
2009	8.33%	16.27%	0.82	8.33%	12.12%	0.95	11
2010	18.65%	13.36%	1.06	18.65%	7.70%	1.28	17
2011	10.09%	12.68%	0.86	10.09%	6.58%	1.11	18
2012	10.24%	13.87%	0.90	10.24%	6.67%	1.12	25
2013	7.60%	13.69%	0.91	7.60%	5.35%	1.03	34
2014	8.29%	11.30%	0.92	8.29%	4.86%	1.01	39
2015	11.12%	10.15%	0.95	11.12%	5.73%	1.03	41

Source: PitchBook. Data as of December 31, 2017

Fund-of-funds

FUND-OF-FUNDS

IRRs by vintage

	POOLED IRRS			IRR HURDLE RATES						
Vintage year	Pooled IRR	Equal-weighted pooled IRR	Number of funds	Top decile	Top quartile	Median IRR	Bottom quartile	Bottom decile	Standard deviation	Number of funds
Pre-2001	5.21%	3.71%	21	11.66%	9.00%	4.00%	1.01%	-4.19%	7.93%	21
2001	12.02%	8.10%	7		12.54%	10.24%	6.53%		3.76%	6
2002	8.35%	6.67%	4		8.69%	7.57%	5.79%		2.58%	4
2003	7.75%	5.94%	6		7.68%	6.74%	4.24%		3.60%	6
2004	7.18%	7.42%	11	10.17%	9.41%	8.09%	7.10%	6.37%	1.73%	11
2005	6.95%	7.37%	18	10.33%	7.90%	6.99%	5.12%	3.94%	3.40%	16
2006	8.46%	7.83%	28	12.16%	10.39%	8.27%	6.58%	3.56%	4.04%	27
2007	9.59%	8.45%	29	14.43%	12.00%	9.20%	7.01%	3.15%	4.46%	26
2008	1.93%	11.44%	34	17.84%	14.57%	11.38%	8.16%	4.81%	4.62%	24
2009	12.26%	12.73%	20	16.52%	13.98%	13.27%	11.42%	10.75%	2.81%	18
2010	11.27%	11.58%	32	14.63%	13.35%	11.24%	9.24%	7.60%	3.34%	28
2011	12.68%	12.51%	37	17.88%	16.38%	13.09%	10.02%	7.12%	12.33%	33
2012	10.96%	11.50%	34	18.98%	13.36%	11.40%	6.75%	2.59%	5.91%	27
2013	11.53%	10.24%	45	18.89%	15.15%	11.65%	8.34%	6.71%	6.17%	32
2014	13.45%	12.20%	31	18.90%	16.52%	10.20%	7.00%	6.49%	5.63%	21
2015	13.50%	13.53%	33	34.11%	27.30%	11.76%	5.41%	-0.77%	17.70%	23

Source: PitchBook. Data as of December 31, 2017

FUND-OF-FUNDS

Multiples by vintage

	POOLED MULTIPLES			EQUAL-WEIGHTED POOLED MULTIPLES			
Vintage year	TVPI	DPI	RVPI	TVPI	DPI	RVPI	Number of funds
Pre-2001	1.32x	1.28x	0.05x	1.24x	1.20x	0.04x	21
2001	1.70x	1.61x	0.09x	1.52x	1.38x	0.14x	7
2002	1.49x	1.36x	0.13x	1.37x	1.24x	0.13x	4
2003	1.60x	1.38x	0.22x	1.42x	1.23x	0.19x	6
2004	1.50x	1.24x	0.26x	1.53x	1.22x	0.32x	11
2005	1.50x	1.18x	0.32x	1.50x	1.16x	0.34x	18
2006	1.56x	1.08x	0.48x	1.54x	1.06x	0.48x	28
2007	1.59x	1.04x	0.55x	1.52x	1.03x	0.50x	29
2008	1.09x	0.53x	0.56x	1.61x	0.72x	0.88x	34
2009	1.57x	0.69x	0.88x	1.59x	0.75x	0.84x	20
2010	1.52x	0.62x	0.89x	1.52x	0.55x	0.96x	32
2011	1.43x	0.46x	0.97x	1.45x	0.43x	1.02x	37
2012	1.32x	0.23x	1.09x	1.35x	0.24x	1.11x	34
2013	1.23x	0.19x	1.04x	1.22x	0.14x	1.08x	45
2014	1.24x	0.17x	1.07x	1.22x	0.17x	1.05x	31
2015	1.16x	0.08x	1.09x	1.19x	0.09x	1.10x	33

Source: PitchBook. Data as of December 31, 2017

FUND-OF-FUNDS

Multiples by vintage

	TVPI					DPI					
Vintage year	Top decile	Top quartile	Median TVPI	Bottom quartile	Bottom decile	Top decile	Top quartile	Median DPI	Bottom quartile	Bottom decile	Number of funds
Pre-2001	1.73x	1.57x	1.24x	1.03x	0.74x	1.70x	1.57x	1.21x	0.93x	0.73x	21
2001		1.72x	1.58x	1.43x			1.64x	1.47x	1.29x		7
2002		1.51x	1.43x	1.30x			1.38x	1.36x	1.23x		4
2003		1.60x	1.53x	1.33x			1.35x	1.32x	1.15x		6
2004	1.65x	1.55x	1.50x	1.46x	1.43x	1.49x	1.35x	1.22x	1.10x	0.94x	11
2005	1.78x	1.66x	1.51x	1.40x	1.24x	1.44x	1.30x	1.14x	1.08x	0.92x	18
2006	1.86x	1.76x	1.54x	1.42x	1.18x	1.21x	1.19x	1.06x	1.00x	0.89x	28
2007	1.91x	1.67x	1.52x	1.37x	1.18x	1.31x	1.12x	1.04x	0.88x	0.77x	29
2008	2.08x	1.79x	1.57x	1.42x	1.13x	1.06x	0.91x	0.75x	0.50x	0.39x	34
2009	1.93x	1.63x	1.53x	1.48x	1.41x	1.06x	0.95x	0.65x	0.60x	0.51x	20
2010	1.77x	1.65x	1.50x	1.36x	1.26x	0.84x	0.71x	0.54x	0.40x	0.20x	32
2011	1.69x	1.58x	1.44x	1.28x	1.17x	0.82x	0.51x	0.40x	0.26x	0.11x	37
2012	1.79x	1.46x	1.30x	1.17x	1.06x	0.40x	0.29x	0.18x	0.11x	0.04x	34
2013	1.41x	1.35x	1.24x	1.14x	1.05x	0.35x	0.20x	0.11x	0.04x	0.01x	45
2014	1.47x	1.31x	1.19x	1.11x	1.03x	0.37x	0.21x	0.09x	0.02x	0.00x	31
2015	1.40x	1.24x	1.10x	1.05x	0.96x	0.22x	0.15x	0.05x	0.00x	0.00x	33

Source: PitchBook. Data as of December 31, 2017

For RVPI data, please download the supplemental Excel pack

FUND-OF-FUNDS

PMEs by vintage

	S&P 500 INDEX			RUSSELL 3000 INDEX			
Vintage year	PitchBook Benchmark return (%)	Index return (%)	KS-PME	PitchBook Benchmark return (%)	Index return (%)	KS-PME	Number of funds
2001	12.02%	6.36%	1.26	12.02%	6.74%	1.23	7
2002	8.35%	7.47%	1.07	8.35%	7.81%	1.06	4
2003	7.75%	9.85%	1.04	7.75%	10.19%	1.02	6
2004	7.18%	8.31%	1.01	7.18%	8.50%	1.00	11
2005	6.95%	8.40%	0.94	6.95%	8.57%	0.93	18
2006	8.46%	8.29%	0.90	8.46%	8.31%	0.90	28
2007	9.59%	7.87%	0.90	9.59%	7.89%	0.89	29
2008	1.93%	9.06%	0.58	1.93%	9.19%	0.58	34
2009	12.26%	16.27%	0.92	12.26%	16.44%	0.92	20
2010	11.27%	13.36%	0.91	11.27%	13.33%	0.91	32
2011	12.68%	12.68%	0.96	12.68%	12.43%	0.96	37
2012	10.96%	13.87%	0.95	10.96%	13.70%	0.95	34
2013	11.53%	13.69%	0.97	11.53%	13.44%	0.97	45
2014	13.45%	11.30%	1.00	13.45%	10.75%	1.00	31
2015	13.50%	10.15%	0.98	13.50%	9.79%	0.98	33

Source: PitchBook. Data as of December 31, 2017

Secondaries

SECONDARIES

IRRs by vintage

	POOLED IRRS			IRR HURDLE RATES						
Vintage year	Pooled IRR	Equal-weighted pooled IRR	Number of funds	Top decile	Top quartile	Median IRR	Bottom quartile	Bottom decile	Standard deviation	Number of funds
Pre-2001	12.21%	12.25%	11	22.39%	17.32%	13.16%	6.45%	4.10%	8.18%	11
2001	13.65%	14.59%	2			15.95%			5.08%	2
2002	15.60%	17.36%	3			18.30%			4.43%	3
2003	37.58%	37.58%	1			35.07%				1
2004	14.52%	14.17%	5		23.05%	17.05%	10.21%		8.99%	4
2005	6.14%	5.04%	8		6.66%	6.36%	4.87%		5.20%	8
2006	6.12%	7.27%	9		5.46%	5.17%	3.96%		2.06%	6
2007	6.74%	7.04%	9		9.16%	8.50%	6.75%		4.52%	8
2008	10.96%	11.08%	13	15.02%	13.62%	11.10%	9.31%	5.87%	7.83%	11
2009	11.70%	12.68%	8		15.91%	14.37%	12.24%		7.99%	8
2010	12.77%	12.70%	7		14.10%	10.92%	9.80%		4.85%	7
2011	15.97%	14.56%	10	20.73%	18.95%	14.79%	12.40%	8.30%	4.94%	10
2012	15.84%	16.58%	10		24.06%	18.56%	15.17%		8.33%	8
2013	10.21%	9.24%	12	19.50%	17.75%	16.00%	10.81%	8.98%	16.18%	11
2014	23.46%	19.54%	12		22.09%	21.27%	19.44%		5.50%	9
2015	26.76%	28.89%	10		40.78%	24.50%	19.59%		15.14%	9

Source: PitchBook. Data as of December 31, 2017

SECONDARIES

Multiples by vintage

	POOLED MULTIPLES			EQUAL-WEIGHTED POOLED MULTIPLES			
Vintage year	TVPI	DPI	RVPI	TVPI	DPI	RVPI	Number of funds
Pre-2001	1.48x	1.48x	0.00x	1.43x	1.43x	0.00x	11
2001	1.47x	1.43x	0.04x	1.49x	1.45x	0.04x	2
2002	1.52x	1.49x	0.03x	1.53x	1.50x	0.04x	3
2003	1.83x	1.82x	0.01x	1.83x	1.82x	0.01x	1
2004	1.54x	1.43x	0.11x	1.52x	1.42x	0.11x	5
2005	1.33x	1.19x	0.14x	1.25x	1.10x	0.15x	8
2006	1.35x	1.15x	0.20x	1.44x	1.21x	0.23x	9
2007	1.32x	1.12x	0.20x	1.37x	1.14x	0.23x	9
2008	1.52x	1.20x	0.31x	1.55x	1.17x	0.38x	13
2009	1.54x	1.18x	0.35x	1.57x	1.16x	0.42x	8
2010	1.53x	1.19x	0.34x	1.49x	1.05x	0.44x	7
2011	1.51x	1.06x	0.46x	1.50x	0.76x	0.74x	10
2012	1.42x	0.79x	0.63x	1.41x	0.73x	0.68x	10
2013	1.28x	0.35x	0.93x	1.24x	0.36x	0.88x	12
2014	1.37x	0.45x	0.92x	1.34x	0.29x	1.05x	12
2015	1.28x	0.28x	1.00x	1.33x	0.47x	0.86x	10

Source: PitchBook. Data as of December 31, 2017

SECONDARIES

Multiples by vintage

	TVPI					DPI					
Vintage year	Top decile	Top quartile	Median TVPI	Bottom quartile	Bottom decile	Top decile	Top quartile	Median DPI	Bottom quartile	Bottom decile	Number of funds
Pre-2001	1.65x	1.45x	1.30x	1.26x	1.20x	1.65x	1.45x	1.29x	1.26x	1.20x	11
2001			1.52x					1.49x			2
2002			1.53x					1.47x			3
2003			1.83x					1.82x			1
2004		1.58x	1.57x	1.50x			1.47x	1.45x	1.39x		5
2005		1.36x	1.34x	1.28x			1.25x	1.17x	1.11x		8
2006		1.45x	1.28x	1.24x			1.28x	1.11x	1.07x		9
2007		1.45x	1.42x	1.15x			1.25x	1.18x	1.03x		9
2008	1.73x	1.61x	1.50x	1.31x	1.15x	1.52x	1.37x	1.28x	0.94x	0.67x	13
2009		1.66x	1.54x	1.43x			1.35x	1.22x	1.08x		8
2010		1.63x	1.57x	1.43x			1.32x	1.07x	0.89x		7
2011	1.73x	1.65x	1.51x	1.30x	1.28x	1.14x	1.06x	0.73x	0.53x	0.30x	10
2012	1.55x	1.51x	1.41x	1.30x	1.22x	0.99x	0.86x	0.72x	0.66x	0.52x	10
2013	1.45x	1.33x	1.28x	1.12x	1.10x	0.51x	0.49x	0.36x	0.29x	0.14x	12
2014	1.56x	1.47x	1.42x	1.29x	1.20x	0.62x	0.43x	0.25x	0.16x	0.01x	12
2015	1.47x	1.33x	1.27x	1.24x	1.23x	0.64x	0.39x	0.27x	0.09x	0.02x	10

Source: PitchBook. Data as of December 31, 2017

For RVPI data, please download the supplemental Excel pack

SECONDARIES

PMEs by vintage

	S&P 500 INDEX			RUSSELL 3000 INDEX			
Vintage year	PitchBook Benchmark return (%)	Index return (%)	KS-PME	PitchBook Benchmark return (%)	Index return (%)	KS-PME	Number of funds
2001	13.65%	6.36%	1.16	13.65%	6.74%	1.13	2
2002	15.60%	7.47%	1.23	15.60%	7.81%	1.21	3
2003	37.58%	9.85%	1.55	37.58%	10.19%	1.53	1
2004	14.52%	8.31%	1.22	14.52%	8.50%	1.21	5
2005	6.14%	8.40%	0.95	6.14%	8.57%	0.94	8
2006	6.12%	8.29%	0.91	6.12%	8.31%	0.90	9
2007	6.74%	7.87%	0.84	6.74%	7.89%	0.84	9
2008	10.96%	9.06%	0.90	10.96%	9.19%	0.90	13
2009	11.70%	16.27%	0.90	11.70%	16.44%	0.89	8
2010	12.77%	13.36%	0.94	12.77%	13.33%	0.94	7
2011	15.97%	12.68%	1.03	15.97%	12.43%	1.03	10
2012	15.84%	13.87%	1.05	15.84%	13.70%	1.05	10
2013	10.21%	13.69%	0.95	10.21%	13.44%	0.96	12
2014	23.46%	11.30%	1.14	23.46%	10.75%	1.14	12
2015	26.76%	10.15%	1.11	26.76%	9.79%	1.11	10

Source: PitchBook. Data as of December 31, 2017