



# PitchBook Benchmarks

PRIVATE EQUITY & VENTURE CAPITAL  
DATA THROUGH 2Q 2017



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# Introduction

PitchBook Benchmarks aim to help both LPs and 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 examine how cashflow profiles of PE and VC funds have been evolving in recent years. As the amount of capital tied up in private capital funds has swelled to unprecedented levels, GPs have adapted and honed their strategies to meet the new realities of the market—reconsidering everything from deal sourcing and structuring, to operational plans and exit strategies. Many of the variations in approach are qualitative in nature, but other changes are detectable in the fund data.

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. Since last quarter, we have added more than 150 private capital funds to our Benchmarks data set. In this edition, we made a more notable change by relocating Energy funds from the PE

category to Real Assets. This modification was made for several reasons, including: (i) investment in the space is largely contingent on commodity prices; (ii) while Energy funds execute traditional PE-type deals, including buyouts and growth, most of the transactions are for upstream companies; and (iii) energy represents a major component of many public market Real Assets indices (including the Morningstar US Real Assets Index, which is used in our PME calculations).

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](mailto: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 cashflows are discounted so that the net present value of cashflows 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 cashflow data but no reported IRR figure. We do not calculate individual fund IRRs using quarterly cashflows, 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 cashflows 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 cashflows 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 3Q 2016 through the end of 2Q 2017, while the three-year horizon IRR is for the period beginning in 3Q 2014 through the end of 2Q 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](https://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**



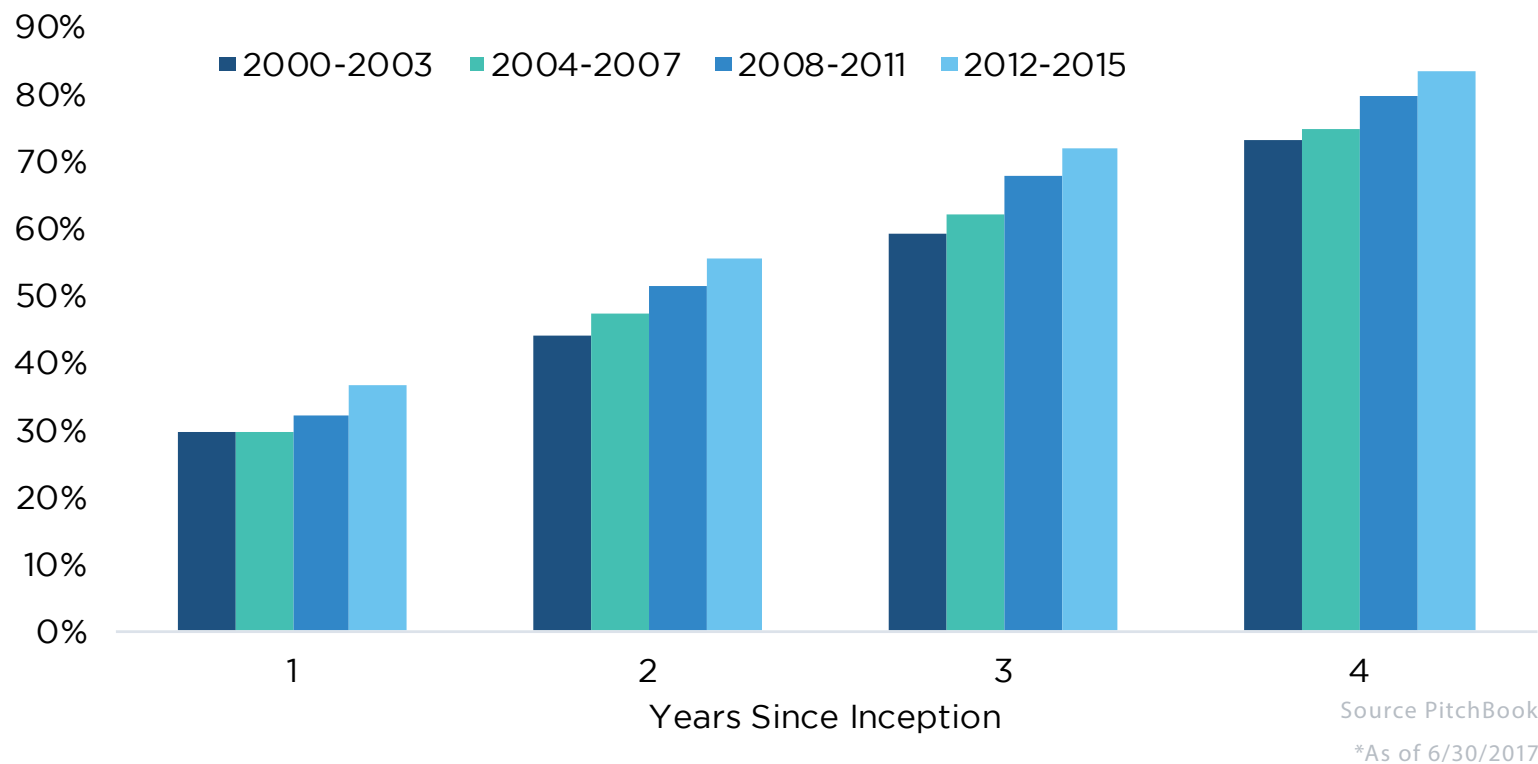
# Case Study—Going with the Flows

As the amount of capital tied up in private capital funds has swelled to unprecedented levels, valuations have been pushed up at all stages of the investment cycle. Purchase-price multiples for acquisitions have risen to pre-crisis levels; startup valuations haven’t been this high since the dotcom bubble; even LP stakes in buyout funds are selling at nearly full NAVs on the secondary market. GPs have adapted and honed their strategies to meet the new realities of the market—reconsidering everything from deal sourcing and structuring, to operational plans and exit strategies. Many of the variations in approach are qualitative in nature, but other changes are detectable in the data. Fund cashflows are one example where historical trends have deviated in recent years.

## Seek and Deploy

The rate at which a fund calls down capital has ripple effects for the vehicle’s long-term performance. In VC, round sizes have risen in tandem with valuations, meaning that VCs now must write larger check to get into the same deals they have in the past. To meet this new reality, successful VCs have aggressively upped the target size of their funds; however, even with larger pools of capital, they are still investing faster they have in the past (although still much slower than PE funds, as VCs are keen to keep capital available to participate in follow-on financings). The average VC fund raised in the early 2000s called down less than 60% of capital commitments by its third year, but that has steadily increased to roughly

VC called down % over time by vintage bucket



70% for more recent vintages. Drawdown rates for PE funds are trending in the other direction, with managers taking longer to invest funds than they have in the past. Part of this can be attributed to mean reversion, as 2004-2007 vintage funds invested at a record-breaking pace in the runup to the financial crisis. For more recent funds, capital deployment has been steadily decelerating; PE funds historically have called down more than 80% of commitments by the end of their fourth year, but that has slipped to just 77% for 2012-2015 vintage funds.



Anecdotally, managers say that high prices recently have hampered their ability to make deals even while LPs continue to commit large sums to new funds; however, the data show that the pace of investment has largely kept up with the robust fundraising market. As such, we believe that the slower drawdowns of more recent PE funds can primarily be attributed to two factors.

**Waiting for the Call**

First is that GPs are finding new sources of capital to tap. The biggest single factor is the prevalence of co-investment capital, which has allowed GPs to stretch their fund commitments farther. And while overall debt levels have been at elevated levels for several years, the use of subscription credit lines—already standard practice for many firms—is becoming more commonplace; even Apollo, which has never had one before, is setting up a capital-call facility for its newest vehicle. Prudent use of credit lines should not be a concern, but many in the industry believe that they are now being used as a strategic tool, rather than a means of managing fund administration. To that end, lenders in the space say that it is now common to see facilities with repayment periods of two years or more. Given their increasing prevalence and evolving structure, we think that subscription credit lines may be retarding the pace of capital calls, which may serve to artificially boost IRRs but will not impact cash multiples.

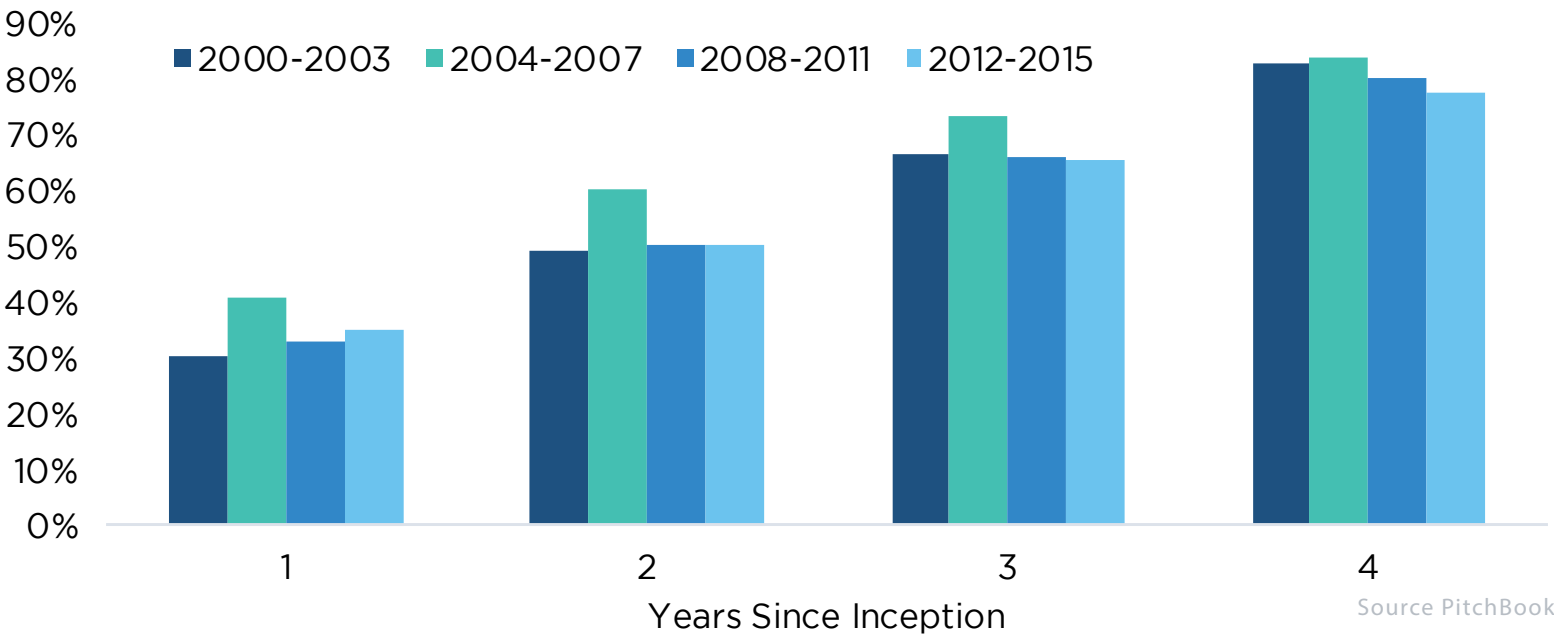
Another factor likely at play is PE firms keeping more capital on hand to support add-on deals executed by their platform companies. Similar to how VCs keep dry powder available to fund follow-on financings, PE managers now must consider how to fund potential add-on acquisitions down the road. Indeed, roughly two-thirds of US buyouts

are add-ons, and these transactions are increasingly being executed later in the investment lifecycle.

**Paper Gain Tigers?**

While LPs must grapple with how to allocate uncalled capital, changes to the pace of capital deployment are most important to the extent that they impact the time-weighted return of capital. To that end, the IRR performance of recent VC funds looks strong on a historical basis; however, our previous analyses have pointed out that the vast majority of gains in these funds are yet to be realized. The median IRR for 2013 vintage VC fund is 15.3%, while the median DPI is just 0.09x. But concerns about sluggish distributions and VCs’ inability to return capital may be overblown.

**PE called down % over time by vintage bucket**



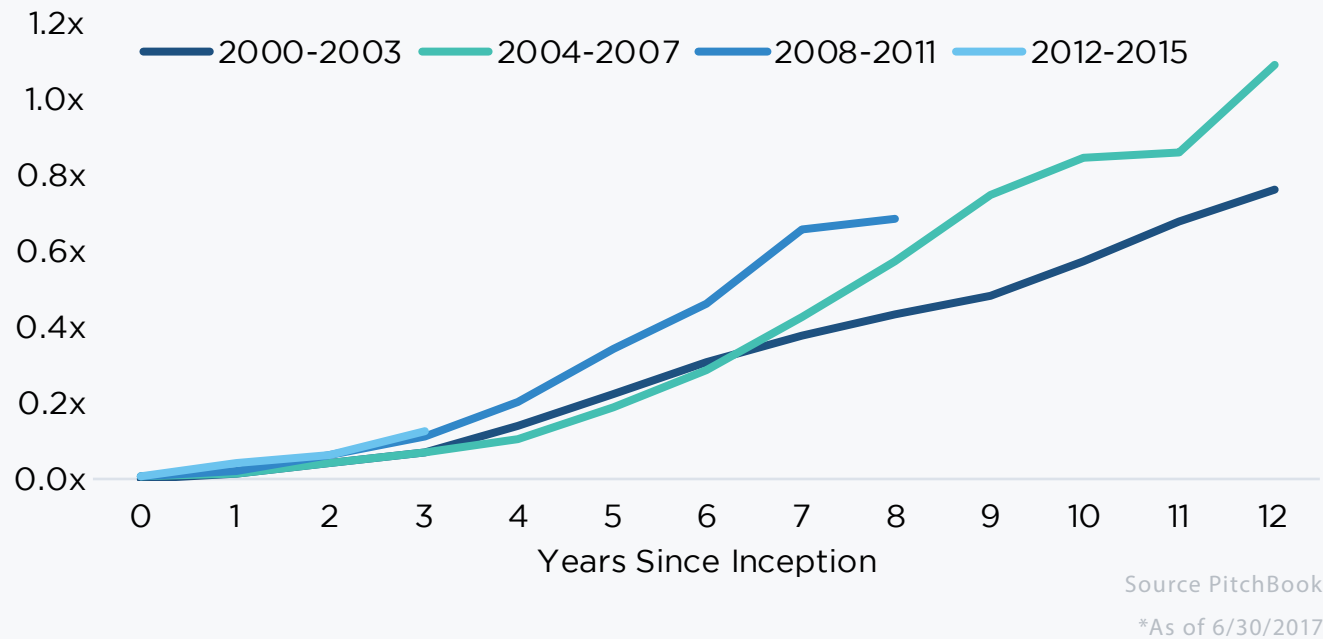




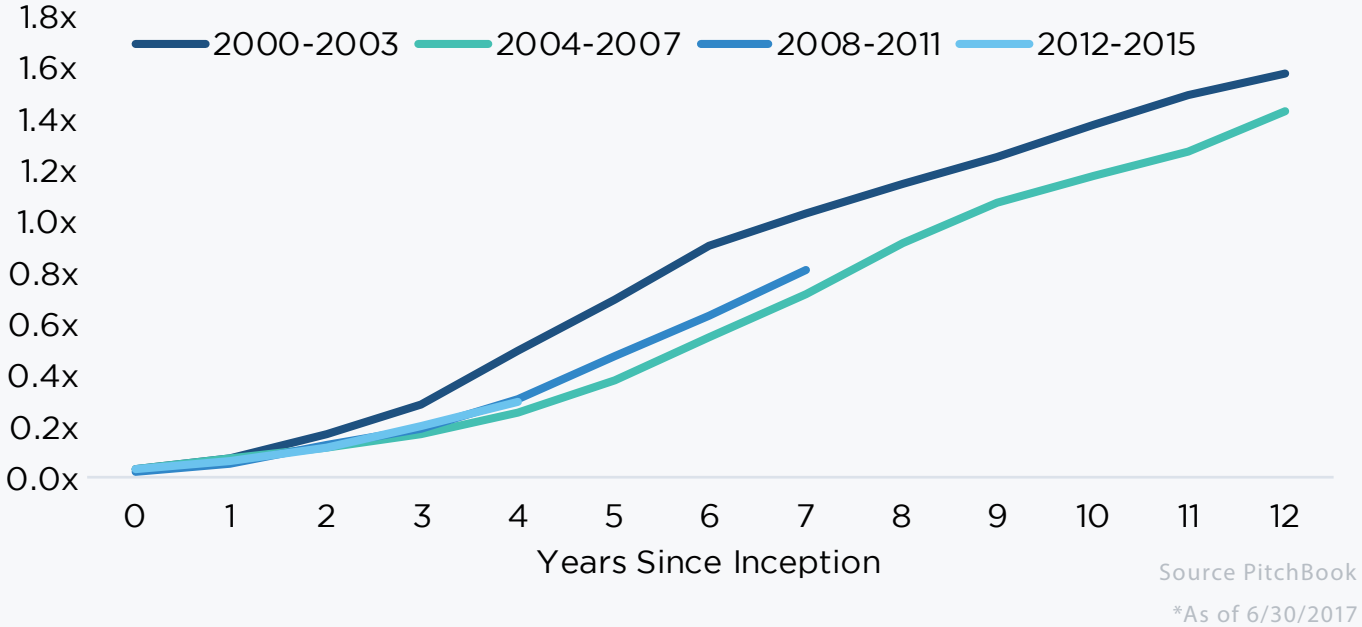
For VC funds, distribution rates for the 2000–2003 and 2004–2007 vintage buckets largely mirror one another through the first seven years of a fund’s life, after which the 2004–2007 group begins to outperform. Considering the age of these funds, this uptick in performance began to occur in the late 2000s, in the post-crisis period characterized by an improving macro backdrop, and has carried over into 2008–2011 vintage funds. At the seven-year mark, the average 2008–2011 vintage fund has produced a DPI of 0.65x, compared to just 0.38x and 0.42x for the 2000–2003 and 2004–2007 vintage buckets, respectively. So, while substantial unrealized value continues to linger in many recent VC funds, these vehicles at their initial stages have proven relatively adept at returning capital compared to earlier eras.

Over the last two decades, the opposite trend has taken hold in the PE space. Not only are funds taking longer to return capital, but the absolute level of returns also seems to be on the downswing. The average PE fund raised in the early 2000s generated a DPI of 1.0x before its seventh year, but those halcyon days all but disappeared in the run-up to the financial crisis. Indeed, 2004–2007 vintage PE funds took until their ninth year to make investors whole, and that timeline has only continued to extend for more recent vintages as PE firms have placed greater emphasis on operational improvements, which take time to bear fruit. This reality will not come as a surprise to industry professionals, and many GPs have already taken the proactive step of incorporating longer fund lives and investment periods in more recent LPAs to ensure they’re prepared and setting LP expectations accordingly. While LPs generally have seemed amenable to reasonable timeline extensions, an outstanding question is whether they’ll be accommodating if cash-on-cash returns fall short over the full life of the funds.

VC DPI over time by vintage bucket



PE DPI over time by vintage bucket



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# Private Capital



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# Horizon IRRs

Strategy	1-Year	3-Year	5-Year	10-Year	15-Year	18-Year
Private Capital	14.74%	10.30%	12.34%	8.19%	10.33%	9.65%
Private Equity	19.13%	12.15%	14.64%	9.59%	12.78%	11.44%
Venture Capital	7.51%	8.63%	12.02%	8.03%	6.84%	6.04%
Real Assets	10.94%	8.60%	9.44%	5.07%	6.60%	6.76%
Debt	9.26%	5.70%	10.25%	8.19%	10.38%	10.49%
Fund-of-funds	11.96%	9.96%	10.32%	7.41%	8.44%	7.54%
Secondaries	15.70%	15.67%	14.72%	15.24%	16.22%	14.60%
S&P 500	20.47%	10.90%	13.99%	7.50%	7.20%	5.58%
Russell 2000 Growth	25.87%	6.64%	12.52%	8.12%	8.17%	6.61%
Russell 3000	21.33%	10.24%	13.81%	7.53%	7.56%	6.07%
Morningstar US Real Assets	3.96%	0.67%	0.64%	4.38%	6.98%	7.46%*
Bloomberg Barclays US Corporate High Yield	17.85%	5.08%	7.08%	7.51%	8.46%	7.08%

\*Index only dates back 17 years  
Source: PitchBook  
Data as of 6/30/2017



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# Equal-weighted Horizon IRRs

Strategy	1-Year	3-Year	5-Year	10-Year	15-Year	18-Year
Private Capital	8.61%	10.68%	11.14%	8.41%	8.76%	8.87%
Private Equity	12.63%	10.68%	11.92%	9.99%	11.67%	10.46%
Venture Capital	-1.31%	10.33%	10.67%	7.79%	5.10%	6.62%
Real Assets	11.03%	10.51%	10.04%	5.62%	7.45%	7.49%
Debt	6.56%	8.19%	10.35%	7.92%	10.22%	10.12%
Fund-of-funds	7.90%	11.49%	10.96%	8.31%	8.68%	8.08%
Secondaries	7.38%	9.85%	10.07%	9.65%	10.05%	10.87%
S&P 500	20.47%	10.90%	13.99%	7.50%	7.20%	5.58%
Russell 2000 Growth	25.87%	6.64%	12.52%	8.12%	8.17%	6.61%
Russell 3000	21.33%	10.24%	13.81%	7.53%	7.56%	6.07%
Morningstar US Real Assets	3.96%	0.67%	0.64%	4.38%	6.98%	7.46%
Bloomberg Barclays US Corporate High Yield	17.85%	5.08%	7.08%	7.51%	8.46%	7.08%*

\*Index only dates back 17 years  
Source: PitchBook  
Data as of 6/30/2017



# Private Equity



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# 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	10.80%	6.75%	170	22.90%	15.71%	9.66%	1.90%	-6.81%	12.89%	170
2001	22.23%	19.07%	29	38.72%	23.11%	16.10%	11.16%	5.24%	19.73%	29
2002	17.33%	16.38%	30	33.39%	25.78%	16.44%	7.68%	1.90%	18.25%	30
2003	23.27%	16.48%	19	38.16%	30.30%	12.00%	7.95%	-2.91%	30.69%	19
2004	12.27%	11.00%	48	28.68%	16.41%	9.55%	4.05%	-5.11%	17.20%	48
2005	10.92%	10.50%	66	21.70%	13.78%	9.24%	4.34%	0.99%	10.83%	64
2006	6.78%	6.72%	96	14.36%	11.30%	8.00%	2.90%	-5.42%	10.03%	93
2007	9.68%	9.52%	103	19.33%	15.00%	8.85%	4.73%	-1.60%	9.76%	101
2008	11.60%	10.22%	106	21.86%	15.56%	10.40%	4.30%	-0.34%	9.99%	103
2009	13.51%	13.40%	51	25.78%	20.13%	11.77%	7.09%	-2.24%	10.87%	48
2010	11.71%	12.00%	61	21.72%	13.68%	9.60%	6.78%	-2.90%	12.60%	52
2011	16.84%	16.48%	71	25.60%	19.20%	12.07%	8.46%	-1.30%	22.38%	61
2012	14.56%	12.85%	111	22.71%	17.76%	12.51%	6.77%	-1.82%	18.40%	96
2013	14.84%	12.62%	93	31.16%	20.21%	11.55%	6.85%	-1.41%	14.37%	74
2014	15.20%	14.95%	92	30.76%	18.07%	10.55%	3.88%	-8.14%	24.70%	68
2015	13.30%	11.67%	120	31.99%	15.55%	8.57%	-5.94%	-24.26%	22.11%	72

Source: PitchBook. Data as of 6/30/2017



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# Multiples by Vintage

POOLED MULTIPLES

EQUAL-WEIGHTED POOLED MULTIPLES

Vintage Year	TVPI	DPI	RVPI	TVPI	DPI	RVPI	Number of Funds
Pre-2001	1.65x	1.63x	0.02x	1.54x	1.52x	0.02x	170
2001	2.20x	2.16x	0.03x	1.99x	1.97x	0.02x	29
2002	1.78x	1.73x	0.06x	1.74x	1.67x	0.07x	30
2003	2.02x	1.94x	0.08x	1.81x	1.72x	0.08x	19
2004	1.71x	1.63x	0.08x	1.59x	1.48x	0.11x	48
2005	1.69x	1.55x	0.15x	1.65x	1.47x	0.18x	66
2006	1.43x	1.23x	0.20x	1.40x	1.13x	0.27x	96
2007	1.53x	1.16x	0.38x	1.52x	1.11x	0.41x	103
2008	1.55x	1.08x	0.47x	1.49x	1.02x	0.47x	106
2009	1.62x	1.10x	0.52x	1.59x	1.06x	0.52x	51
2010	1.40x	0.63x	0.78x	1.43x	0.68x	0.75x	61
2011	1.55x	0.55x	1.01x	1.53x	0.54x	0.99x	71
2012	1.36x	0.43x	0.93x	1.32x	0.41x	0.91x	111
2013	1.29x	0.25x	1.04x	1.27x	0.26x	1.01x	93
2014	1.23x	0.15x	1.08x	1.22x	0.18x	1.04x	92
2015	1.12x	0.09x	1.03x	1.12x	0.13x	0.99x	120

Source: PitchBook. Data as of 6/30/2017



PRIVATE EQUITY

# Multiples by Vintage

Vintage Year	TVPI					DPI					Number of Funds
	Top Decile	Top Quartile	Median TVPI	Bottom Quartile	Bottom Decile	Top Decile	Top Quartile	Median DPI	Bottom Quartile	Bottom Decile	
Pre-2001	2.27x	1.93x	1.54x	1.14x	0.70x	2.26x	1.91x	1.53x	1.11x	0.69x	170
2001	2.96x	2.59x	1.86x	1.51x	1.20x	2.95x	2.59x	1.86x	1.48x	1.11x	29
2002	2.47x	2.12x	1.71x	1.31x	1.18x	2.41x	2.08x	1.62x	1.23x	1.00x	30
2003	2.96x	2.13x	1.73x	1.43x	0.81x	2.76x	2.08x	1.69x	1.43x	0.63x	19
2004	2.59x	1.95x	1.54x	1.22x	0.86x	2.57x	1.85x	1.42x	1.08x	0.66x	48
2005	2.37x	1.92x	1.56x	1.24x	0.99x	2.26x	1.80x	1.34x	1.08x	0.67x	66
2006	1.99x	1.67x	1.40x	1.14x	0.79x	1.66x	1.46x	1.26x	0.82x	0.34x	96
2007	2.11x	1.88x	1.50x	1.20x	0.95x	1.86x	1.48x	1.09x	0.77x	0.40x	103
2008	2.01x	1.75x	1.50x	1.18x	0.95x	1.63x	1.31x	1.00x	0.64x	0.42x	106
2009	2.42x	1.90x	1.54x	1.26x	0.93x	2.00x	1.39x	0.93x	0.72x	0.39x	51
2010	1.95x	1.65x	1.40x	1.27x	0.96x	1.26x	0.91x	0.66x	0.46x	0.19x	61
2011	2.13x	1.73x	1.43x	1.20x	1.04x	1.27x	0.76x	0.43x	0.26x	0.10x	71
2012	1.69x	1.51x	1.30x	1.17x	0.92x	0.79x	0.55x	0.35x	0.16x	0.10x	111
2013	1.59x	1.39x	1.25x	1.12x	0.95x	0.65x	0.35x	0.15x	0.03x	0.00x	93
2014	1.53x	1.33x	1.16x	1.04x	0.85x	0.42x	0.25x	0.08x	0.00x	0.00x	92
2015	1.37x	1.20x	1.09x	0.92x	0.83x	0.26x	0.16x	0.03x	0.00x	0.00x	120

Source: PitchBook. Data as of 6/30/2017



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	22.23%	6.06%	1.68	22.23%	6.46%	1.64	29
2002	17.33%	7.20%	1.39	17.33%	7.56%	1.36	30
2003	23.27%	9.69%	1.58	23.27%	10.05%	1.56	19
2004	12.27%	8.04%	1.35	12.27%	8.25%	1.34	48
2005	10.92%	8.12%	1.26	10.92%	8.31%	1.24	66
2006	6.78%	7.98%	0.98	6.78%	8.01%	0.97	96
2007	9.68%	7.50%	0.98	9.68%	7.53%	0.97	103
2008	11.60%	8.74%	0.94	11.60%	8.89%	0.94	106
2009	13.51%	16.56%	0.96	13.51%	16.76%	0.96	51
2010	11.71%	13.40%	0.94	11.71%	13.37%	0.95	61
2011	16.84%	12.64%	1.09	16.84%	12.37%	1.10	71
2012	14.56%	13.99%	1.04	14.56%	13.81%	1.04	111
2013	14.84%	13.80%	1.06	14.84%	13.52%	1.06	93
2014	15.20%	10.90%	1.05	15.20%	10.24%	1.06	92
2015	13.30%	9.21%	0.99	13.30%	8.76%	0.99	120

Source: PitchBook. Data as of 6/30/2017



# 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	1.30%	2.74%	136	17.94%	5.84%	-0.01%	-8.59%	-15.42%	30.96%	136
2001	4.24%	2.31%	36	11.70%	5.62%	2.49%	-4.33%	-15.70%	13.79%	36
2002	3.05%	2.76%	17	10.95%	9.19%	3.65%	-6.78%	-10.81%	10.12%	16
2003	5.54%	1.44%	18	11.56%	5.86%	1.12%	-4.70%	-20.23%	13.40%	18
2004	-0.12%	-0.15%	22	7.29%	5.37%	1.49%	-9.97%	-12.58%	9.60%	22
2005	10.56%	12.06%	34	18.35%	13.78%	4.87%	-0.18%	-4.28%	14.00%	34
2006	4.39%	2.27%	40	11.34%	8.60%	2.90%	-7.63%	-13.50%	11.26%	39
2007	13.68%	11.70%	48	28.69%	15.79%	7.47%	-1.05%	-10.28%	16.42%	47
2008	9.94%	9.45%	53	26.83%	16.93%	8.15%	0.63%	-13.18%	16.83%	50
2009	11.32%	8.88%	22	20.32%	16.27%	7.50%	3.23%	-3.92%	10.29%	19
2010	18.27%	18.52%	24	43.39%	28.73%	13.10%	6.63%	0.32%	18.55%	23
2011	14.79%	13.86%	23	26.02%	20.60%	15.66%	3.81%	-11.79%	18.98%	23
2012	19.55%	16.81%	19	31.78%	25.98%	17.35%	11.45%	3.90%	17.04%	14
2013	22.87%	16.69%	20	38.44%	20.20%	12.88%	8.17%	-0.37%	17.03%	17
2014	13.91%	15.48%	35	19.20%	12.35%	8.65%	0.95%	-2.76%	81.65%	30
2015	11.80%	8.76%	33	25.44%	14.26%	3.59%	-6.68%	-15.50%	23.50%	24

Source: PitchBook. Data as of 6/30/2017



# Multiples by Vintage

POOLED MULTIPLES

EQUAL-WEIGHTED POOLED MULTIPLES

Vintage Year	TVPI	DPI	RVPI	TVPI	DPI	RVPI	Number of Funds
Pre-2001	1.09x	1.01x	0.09x	1.21x	1.15x	0.06x	136
2001	1.30x	1.16x	0.14x	1.16x	1.02x	0.14x	36
2002	1.19x	1.11x	0.08x	1.18x	1.06x	0.12x	17
2003	1.39x	1.12x	0.27x	1.09x	0.87x	0.22x	18
2004	0.99x	0.72x	0.27x	0.99x	0.63x	0.36x	22
2005	1.79x	1.31x	0.48x	1.95x	1.39x	0.56x	34
2006	1.28x	0.75x	0.53x	1.15x	0.64x	0.50x	40
2007	1.88x	1.17x	0.71x	1.78x	1.04x	0.73x	48
2008	1.50x	0.83x	0.67x	1.52x	0.75x	0.77x	53
2009	1.65x	0.62x	1.04x	1.48x	0.58x	0.90x	22
2010	1.86x	0.74x	1.12x	1.91x	0.89x	1.02x	24
2011	1.58x	0.24x	1.35x	1.53x	0.28x	1.25x	23
2012	1.69x	0.18x	1.52x	1.56x	0.12x	1.44x	19
2013	1.48x	0.22x	1.26x	1.35x	0.18x	1.17x	20
2014	1.22x	0.10x	1.12x	1.22x	0.17x	1.05x	35
2015	1.12x	0.04x	1.08x	1.09x	0.04x	1.05x	33

Source: PitchBook. Data as of 6/30/2017



VENTURE CAPITAL

# Multiples by Vintage

TVPI						DPI					Number of Funds
Vintage Year	Top Decile	Top Quartile	Median TVPI	Bottom Quartile	Bottom Decile	Top Decile	Top Quartile	Median DPI	Bottom Quartile	Bottom Decile	
Pre-2001	1.80x	1.37x	1.01x	0.62x	0.27x	1.74x	1.29x	0.90x	0.51x	0.23x	136
2001	1.77x	1.51x	1.20x	0.77x	0.29x	1.75x	1.34x	0.95x	0.62x	0.26x	36
2002	1.80x	1.57x	1.18x	0.69x	0.50x	1.74x	1.52x	1.09x	0.56x	0.33x	17
2003	1.65x	1.37x	1.08x	0.72x	0.38x	1.46x	1.18x	0.88x	0.45x	0.19x	18
2004	1.66x	1.31x	1.10x	0.47x	0.39x	1.37x	1.01x	0.51x	0.19x	0.09x	22
2005	2.46x	1.93x	1.34x	1.02x	0.79x	2.02x	1.51x	0.93x	0.52x	0.38x	34
2006	1.86x	1.57x	1.17x	0.64x	0.48x	1.18x	0.98x	0.50x	0.26x	0.07x	40
2007	2.76x	2.37x	1.48x	0.94x	0.49x	2.05x	1.38x	0.84x	0.28x	0.05x	48
2008	2.72x	2.08x	1.42x	1.01x	0.46x	1.71x	1.10x	0.55x	0.22x	0.08x	53
2009	2.19x	1.77x	1.42x	1.13x	0.86x	1.02x	0.83x	0.51x	0.19x	0.11x	22
2010	3.19x	2.25x	1.57x	1.26x	1.00x	1.92x	0.96x	0.63x	0.37x	0.14x	24
2011	1.90x	1.79x	1.56x	1.25x	0.85x	0.69x	0.43x	0.12x	0.08x	0.01x	23
2012	2.37x	1.78x	1.48x	1.07x	0.91x	0.23x	0.18x	0.06x	0.00x	0.00x	19
2013	1.81x	1.47x	1.26x	1.18x	1.08x	0.44x	0.32x	0.12x	0.00x	0.00x	20
2014	1.47x	1.28x	1.14x	1.02x	0.96x	0.30x	0.14x	0.02x	0.00x	0.00x	35
2015	1.27x	1.18x	1.04x	0.93x	0.84x	0.17x	0.00x	0.00x	0.00x	0.00x	33

Source: PitchBook. Data as of 6/30/2017



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	4.24%	6.06%	0.89	4.24%	6.94%	0.81	36
2002	3.05%	7.20%	0.86	3.05%	8.17%	0.80	17
2003	5.54%	9.69%	0.93	5.54%	11.42%	0.87	18
2004	-0.12%	8.04%	0.64	-0.12%	8.40%	0.60	22
2005	10.56%	8.12%	1.16	10.56%	8.78%	1.09	34
2006	4.39%	7.98%	0.76	4.39%	7.94%	0.72	40
2007	13.68%	7.50%	1.09	13.68%	8.12%	1.06	48
2008	9.94%	8.74%	0.88	9.94%	9.77%	0.87	53
2009	11.32%	16.56%	0.88	11.32%	17.58%	0.90	22
2010	18.27%	13.40%	1.15	18.27%	13.51%	1.20	24
2011	14.79%	12.64%	1.05	14.79%	10.98%	1.11	23
2012	19.55%	13.99%	1.21	19.55%	12.52%	1.27	19
2013	22.87%	13.80%	1.22	22.87%	12.43%	1.27	20
2014	13.91%	10.90%	1.03	13.91%	6.64%	1.06	35
2015	11.80%	9.21%	0.98	11.80%	6.39%	1.00	33

Source: PitchBook. Data as of 6/30/2017



# 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	9.02%	12.80%	28	20.96%	17.01%	12.09%	5.97%	2.00%	7.81%	28
2001	35.25%	33.40%	3			30.74%				3
2002	23.50%	25.46%	5		36.05%	25.00%	16.70%			5
2003	18.91%	19.49%	6		30.05%	22.06%	10.29%			6
2004	8.29%	7.97%	10	24.71%	16.21%	10.93%	1.88%	-2.70%	24.19%	10
2005	2.32%	1.91%	29	12.16%	4.47%	0.00%	-2.84%	-8.13%	12.75%	29
2006	-0.68%	-0.80%	41	8.66%	2.60%	-1.87%	-9.62%	-15.53%	10.41%	40
2007	3.56%	3.42%	65	12.95%	10.50%	4.30%	-1.25%	-11.42%	9.69%	63
2008	4.27%	5.75%	59	15.89%	10.53%	4.20%	-0.29%	-7.38%	9.62%	58
2009	9.52%	8.29%	30	18.96%	15.13%	10.18%	2.22%	-13.26%	11.91%	28
2010	11.62%	10.16%	33	18.31%	12.12%	9.50%	6.34%	0.51%	7.49%	29
2011	11.23%	11.97%	51	21.93%	16.97%	12.79%	2.52%	-12.41%	22.52%	48
2012	12.31%	12.98%	68	24.84%	16.98%	12.30%	10.03%	4.66%	21.79%	62
2013	14.01%	12.04%	67	19.27%	16.35%	11.33%	6.08%	-5.63%	13.16%	58
2014	12.63%	15.00%	81	27.47%	16.03%	11.75%	8.15%	-2.62%	22.39%	60
2015	16.48%	18.17%	96	25.49%	17.65%	10.60%	6.33%	-0.95%	15.66%	68



REAL ASSETS

# Multiples by Vintage

POOLED MULTIPLES

EQUAL-WEIGHTED POOLED MULTIPLES

Vintage Year	TVPI	DPI	RVPI	TVPI	DPI	RVPI	Number of Funds
Pre-2001	1.90x	1.12x	0.77x	1.90x	1.12x	0.77x	28
2001	2.16x	2.15x	0.01x	2.16x	2.15x	0.01x	3
2002	1.55x	1.53x	0.02x	1.55x	1.53x	0.02x	5
2003	1.65x	1.61x	0.04x	1.65x	1.61x	0.04x	6
2004	1.43x	1.42x	0.01x	1.43x	1.42x	0.01x	10
2005	1.14x	0.92x	0.22x	1.14x	0.92x	0.22x	29
2006	0.96x	0.76x	0.19x	0.96x	0.76x	0.19x	41
2007	1.20x	0.95x	0.25x	1.20x	0.95x	0.25x	65
2008	1.20x	0.85x	0.34x	1.20x	0.85x	0.34x	59
2009	1.36x	0.99x	0.37x	1.36x	0.99x	0.37x	30
2010	1.42x	0.87x	0.55x	1.42x	0.87x	0.55x	33
2011	1.36x	0.67x	0.68x	1.36x	0.67x	0.68x	51
2012	1.33x	0.54x	0.80x	1.33x	0.54x	0.80x	68
2013	1.31x	0.43x	0.88x	1.31x	0.43x	0.88x	67
2014	1.19x	0.23x	0.96x	1.19x	0.23x	0.96x	81
2015	1.16x	0.18x	0.98x	1.16x	0.18x	0.98x	96

Source: PitchBook. Data as of 6/30/2017



REAL ASSETS

# Multiples by Vintage

Vintage Year	TVPI					DPI					Number of Funds
	Top Decile	Top Quartile	Median TVPI	Bottom Quartile	Bottom Decile	Top Decile	Top Quartile	Median DPI	Bottom Quartile	Bottom Decile	
Pre-2001	2.51x	2.16x	1.50x	1.33x	1.10x	2.43x	2.03x	1.48x	1.30x	1.02x	28
2001			1.99x					1.98x			3
2002		1.81x	1.71x	1.32x			1.81x	1.71x	1.27x		5
2003		1.86x	1.66x	1.37x			1.84x	1.66x	1.36x		6
2004	1.94x	1.82x	1.51x	1.07x	0.82x	1.89x	1.63x	1.50x	1.07x	0.82x	10
2005	1.86x	1.31x	0.99x	0.80x	0.54x	1.64x	1.20x	0.81x	0.50x	0.23x	29
2006	1.54x	1.17x	0.96x	0.62x	0.39x	1.26x	0.92x	0.60x	0.39x	0.13x	41
2007	1.79x	1.46x	1.26x	0.94x	0.53x	1.53x	1.34x	1.00x	0.58x	0.23x	65
2008	1.69x	1.54x	1.24x	1.03x	0.75x	1.50x	1.15x	0.89x	0.51x	0.30x	59
2009	1.86x	1.65x	1.42x	1.19x	0.67x	1.50x	1.36x	1.16x	0.58x	0.24x	30
2010	1.70x	1.60x	1.49x	1.22x	1.08x	1.32x	1.04x	0.71x	0.47x	0.14x	33
2011	1.86x	1.73x	1.43x	1.20x	0.94x	1.62x	1.15x	0.74x	0.46x	0.15x	51
2012	1.68x	1.48x	1.37x	1.24x	1.08x	1.24x	0.75x	0.44x	0.19x	0.04x	68
2013	1.48x	1.37x	1.25x	1.10x	0.97x	0.88x	0.57x	0.22x	0.10x	0.04x	67
2014	1.51x	1.28x	1.20x	1.08x	0.96x	0.53x	0.27x	0.13x	0.03x	0.00x	81
2015	1.34x	1.23x	1.14x	1.08x	0.99x	0.32x	0.17x	0.07x	0.01x	0.00x	96

Source: PitchBook. Data as of 6/30/2017



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	35.25%	6.06%	1.76	35.25%	7.02%	1.60	3
2002	23.50%	7.20%	1.24	23.50%	6.98%	1.20	5
2003	18.91%	9.69%	1.37	18.91%	6.63%	1.28	6
2004	8.29%	8.04%	1.12	8.29%	5.75%	1.07	10
2005	2.32%	8.12%	0.77	2.32%	5.13%	0.85	29
2006	-0.68%	7.98%	0.65	-0.68%	4.68%	0.72	41
2007	3.56%	7.50%	0.73	3.56%	4.38%	0.94	65
2008	4.27%	8.74%	0.69	4.27%	3.30%	1.00	59
2009	9.52%	16.56%	0.83	9.52%	5.57%	1.23	30
2010	11.62%	13.40%	0.93	11.62%	3.62%	1.30	33
2011	11.23%	12.64%	0.94	11.23%	1.63%	1.33	51
2012	12.31%	13.99%	0.99	12.31%	0.64%	1.31	68
2013	14.01%	13.80%	1.04	14.01%	0.28%	1.30	67
2014	12.63%	10.90%	1.01	12.63%	0.67%	1.19	81
2015	16.48%	9.21%	1.02	16.48%	-0.63%	1.15	96

Source: PitchBook. Data as of 6/30/2017



# 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	14.13%	12.52%	13	25.60%	11.95%	8.46%	5.10%	0.30%	12.48%	13
2001	26.95%	27.52%	2			27.37%				2
2002	28.29%	28.32%	4		42.31%	24.34%	17.80%			4
2003	16.41%	10.63%	4		16.71%	11.11%	7.67%			4
2004	15.22%	14.26%	3			14.02%				3
2005	2.67%	4.59%	8		8.65%	4.95%	2.57%			8
2006	5.77%	4.00%	13	8.52%	6.00%	4.00%	2.79%	-2.50%	5.61%	13
2007	6.43%	6.68%	20	12.62%	10.15%	6.79%	2.21%	-1.81%	9.04%	20
2008	12.95%	13.75%	14	18.63%	16.02%	12.63%	8.84%	7.61%	7.61%	14
2009	10.96%	10.92%	11	15.60%	12.62%	8.50%	7.16%	4.70%	4.35%	11
2010	18.49%	13.91%	17	20.82%	16.40%	12.00%	9.27%	6.91%	9.76%	17
2011	11.21%	11.82%	18	17.18%	12.43%	10.18%	8.77%	4.53%	4.99%	18
2012	11.36%	11.15%	23	15.91%	12.55%	10.24%	5.00%	1.96%	6.00%	20
2013	6.99%	7.66%	29	14.51%	10.46%	8.96%	5.90%	4.08%	4.33%	24
2014	9.91%	7.01%	33	15.10%	10.66%	8.05%	3.39%	-5.38%	15.35%	26
2015	13.00%	8.14%	37	21.60%	12.62%	9.40%	7.27%	1.71%	7.51%	32

Source: PitchBook. Data as of 6/30/2017



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	1.61x	0.04x	1.66x	1.61x	0.04x	13
2001	2.08x	2.08x	0.00x	2.08x	2.08x	0.00x	2
2002	2.14x	2.13x	0.01x	2.14x	2.13x	0.01x	4
2003	1.69x	1.66x	0.03x	1.69x	1.66x	0.03x	4
2004	1.85x	1.82x	0.04x	1.85x	1.82x	0.04x	3
2005	1.14x	1.05x	0.09x	1.14x	1.05x	0.09x	8
2006	1.39x	1.18x	0.22x	1.39x	1.18x	0.22x	13
2007	1.32x	1.21x	0.11x	1.32x	1.21x	0.11x	20
2008	1.60x	1.48x	0.12x	1.60x	1.48x	0.12x	14
2009	1.38x	1.15x	0.23x	1.38x	1.15x	0.23x	11
2010	1.59x	1.36x	0.22x	1.59x	1.36x	0.22x	17
2011	1.39x	0.79x	0.60x	1.39x	0.79x	0.60x	18
2012	1.35x	0.68x	0.67x	1.35x	0.68x	0.67x	23
2013	1.14x	0.34x	0.80x	1.14x	0.34x	0.80x	29
2014	1.15x	0.31x	0.84x	1.15x	0.31x	0.84x	33
2015	1.13x	0.18x	0.95x	1.13x	0.18x	0.95x	37

Source: PitchBook. Data as of 6/30/2017



DEBT

# Multiples by Vintage

Vintage Year	TVPI					DPI					Number of Funds
	Top Decile	Top Quartile	Median TVPI	Bottom Quartile	Bottom Decile	Top Decile	Top Quartile	Median DPI	Bottom Quartile	Bottom Decile	
Pre-2001	1.97x	1.54x	1.49x	1.41x	0.95x	1.96x	1.54x	1.41x	1.24x	0.95x	13
2001			2.36x					2.36x			2
2002		2.34x	2.00x	1.61x			2.33x	1.99x	1.61x		4
2003		1.73x	1.54x	1.41x			1.71x	1.54x	1.40x		4
2004			1.65x					1.63x			3
2005		1.36x	1.28x	1.16x			1.35x	1.23x	0.99x		8
2006	1.68x	1.45x	1.28x	1.12x	0.77x	1.40x	1.20x	1.10x	0.96x	0.69x	13
2007	1.76x	1.59x	1.36x	1.12x	0.92x	1.64x	1.36x	1.27x	1.05x	0.83x	20
2008	2.03x	1.67x	1.46x	1.39x	1.22x	1.91x	1.58x	1.36x	1.24x	1.17x	14
2009	1.44x	1.40x	1.34x	1.27x	1.22x	1.34x	1.24x	1.13x	0.99x	0.93x	11
2010	1.77x	1.62x	1.41x	1.22x	1.17x	1.71x	1.47x	1.17x	1.04x	0.76x	17
2011	1.72x	1.46x	1.39x	1.23x	1.15x	1.26x	1.17x	0.98x	0.61x	0.54x	18
2012	1.61x	1.46x	1.35x	1.20x	1.06x	1.10x	0.95x	0.72x	0.55x	0.31x	23
2013	1.36x	1.26x	1.21x	1.14x	0.80x	0.73x	0.53x	0.30x	0.18x	0.03x	29
2014	1.27x	1.17x	1.13x	1.05x	0.80x	0.53x	0.36x	0.17x	0.11x	0.00x	33
2015	1.23x	1.16x	1.12x	1.04x	0.93x	0.47x	0.26x	0.11x	0.02x	0.00x	37

Source: PitchBook. Data as of 6/30/2017



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%	6.06%	1.56	26.95%	7.87%	1.39	2
2002	28.29%	7.20%	1.59	28.29%	8.46%	1.52	4
2003	16.41%	9.69%	1.27	16.41%	8.94%	1.17	4
2004	15.22%	8.04%	1.56	15.22%	7.72%	1.37	3
2005	2.67%	8.12%	0.94	2.67%	7.58%	0.77	8
2006	5.77%	7.98%	0.89	5.77%	7.88%	0.80	13
2007	6.43%	7.50%	0.99	6.43%	7.51%	0.83	20
2008	12.95%	8.74%	1.04	12.95%	8.63%	0.93	14
2009	10.96%	16.56%	0.87	10.96%	12.90%	1.00	11
2010	18.49%	13.40%	1.06	18.49%	8.11%	1.29	17
2011	11.21%	12.64%	0.92	11.21%	6.91%	1.15	18
2012	11.36%	13.99%	0.95	11.36%	7.08%	1.15	23
2013	6.99%	13.80%	0.93	6.99%	5.61%	1.01	29
2014	9.91%	10.90%	0.98	9.91%	5.08%	1.04	33
2015	13.00%	9.21%	0.76	13.00%	6.34%	0.78	37

Source: PitchBook. Data as of 6/30/2017

# 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	6.42%	3.66%	20	11.70%	9.50%	4.02%	0.73%	-5.09%	8.10%	20
2001	14.68%	8.71%	6		12.58%	10.23%	6.44%			6
2002	8.35%	6.67%	4		8.65%	7.57%	5.80%			4
2003	8.16%	4.17%	3			3.53%				3
2004	7.84%	7.12%	15	10.55%	8.82%	7.50%	6.71%	4.95%	2.42%	15
2005	6.52%	6.97%	14	10.65%	7.70%	5.75%	5.10%	3.65%	3.88%	13
2006	7.63%	7.46%	25	12.34%	9.44%	8.10%	6.59%	3.31%	4.25%	24
2007	9.19%	8.41%	34	13.83%	11.39%	9.24%	7.19%	3.10%	4.13%	31
2008	0.36%	11.97%	30	17.65%	14.14%	10.20%	7.12%	4.54%	7.53%	25
2009	12.81%	12.78%	22	17.69%	13.50%	12.20%	9.80%	8.10%	10.30%	21
2010	11.48%	11.93%	32	15.09%	13.31%	10.15%	7.91%	1.98%	6.35%	28
2011	12.23%	12.13%	37	17.30%	15.76%	11.80%	8.02%	2.99%	10.99%	35
2012	9.38%	9.52%	35	17.06%	13.09%	8.72%	5.61%	1.23%	6.59%	30
2013	9.99%	9.60%	40	26.12%	12.90%	10.29%	7.20%	4.73%	18.21%	33
2014	13.57%	10.12%	30	17.99%	12.55%	9.00%	5.45%	0.87%	6.49%	19
2015	12.45%	11.45%	31	34.50%	20.00%	8.18%	-5.14%	-7.88%	22.71%	21





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	1.41x	1.35x	0.06x	1.41x	1.35x	0.06x	20
2001	1.71x	1.63x	0.08x	1.71x	1.63x	0.08x	6
2002	1.48x	1.32x	0.16x	1.48x	1.32x	0.16x	4
2003	1.50x	1.20x	0.30x	1.50x	1.20x	0.30x	3
2004	1.51x	1.16x	0.35x	1.51x	1.16x	0.35x	15
2005	1.46x	1.08x	0.37x	1.46x	1.08x	0.37x	14
2006	1.50x	0.97x	0.52x	1.50x	0.97x	0.52x	25
2007	1.56x	0.98x	0.58x	1.56x	0.98x	0.58x	34
2008	1.02x	0.49x	0.52x	1.02x	0.49x	0.52x	30
2009	1.53x	0.57x	0.96x	1.53x	0.57x	0.96x	22
2010	1.49x	0.51x	0.98x	1.49x	0.51x	0.98x	32
2011	1.39x	0.36x	1.02x	1.39x	0.36x	1.02x	37
2012	1.23x	0.16x	1.07x	1.23x	0.16x	1.07x	35
2013	1.18x	0.12x	1.06x	1.18x	0.12x	1.06x	40
2014	1.20x	0.17x	1.03x	1.20x	0.17x	1.03x	30
2015	1.11x	0.07x	1.05x	1.11x	0.07x	1.05x	31

Source: PitchBook. Data as of 6/30/2017



FUND-OF-FUNDS

# Multiples by Vintage

TVPI						DPI					Number of Funds
Vintage Year	Top Decile	Top Quartile	Median TVPI	Bottom Quartile	Bottom Decile	Top Decile	Top Quartile	Median DPI	Bottom Quartile	Bottom Decile	
Pre-2001	1.73x	1.58x	1.23x	1.03x	0.71x	1.69x	1.57x	1.20x	0.89x	0.70x	20
2001		1.73x	1.65x	1.39x			1.64x	1.50x	1.35x		6
2002		1.50x	1.42x	1.30x			1.37x	1.35x	1.20x		4
2003			1.30x					1.10x			3
2004	1.64x	1.59x	1.51x	1.44x	1.31x	1.39x	1.28x	1.16x	1.06x	0.83x	15
2005	1.74x	1.50x	1.44x	1.36x	1.22x	1.49x	1.26x	1.05x	0.89x	0.76x	14
2006	1.81x	1.71x	1.54x	1.44x	1.18x	1.16x	1.11x	0.98x	0.92x	0.68x	25
2007	1.83x	1.66x	1.50x	1.37x	1.13x	1.23x	1.09x	0.98x	0.84x	0.62x	34
2008	2.05x	1.76x	1.55x	1.39x	1.23x	0.96x	0.84x	0.69x	0.52x	0.39x	30
2009	1.77x	1.58x	1.51x	1.41x	1.35x	0.94x	0.84x	0.55x	0.49x	0.42x	22
2010	1.78x	1.61x	1.48x	1.32x	1.20x	0.78x	0.63x	0.45x	0.27x	0.09x	32
2011	1.61x	1.52x	1.38x	1.27x	1.13x	0.75x	0.40x	0.30x	0.12x	0.08x	37
2012	1.51x	1.37x	1.20x	1.14x	1.04x	0.35x	0.22x	0.12x	0.05x	0.01x	35
2013	1.38x	1.28x	1.18x	1.10x	1.05x	0.30x	0.15x	0.09x	0.03x	0.00x	40
2014	1.40x	1.20x	1.13x	1.05x	0.88x	0.37x	0.21x	0.06x	0.01x	0.00x	30
2015	1.33x	1.15x	1.06x	0.96x	0.91x	0.20x	0.11x	0.02x	0.00x	0.00x	31

Source: PitchBook. Data as of 6/30/2017



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	14.68%	6.06%	1.24	14.68%	6.46%	1.22	6
2002	8.35%	7.20%	1.07	8.35%	7.56%	1.06	4
2003	8.16%	9.69%	1.00	8.16%	10.05%	0.99	3
2004	7.84%	8.04%	0.99	7.84%	8.25%	0.98	15
2005	6.52%	8.12%	0.96	6.52%	8.31%	0.95	14
2006	7.63%	7.98%	0.88	7.63%	8.01%	0.88	25
2007	9.19%	7.50%	0.91	9.19%	7.53%	0.91	34
2008	0.36%	8.74%	0.55	0.36%	8.89%	0.55	30
2009	12.81%	16.56%	0.96	12.81%	16.76%	0.96	22
2010	11.48%	13.40%	0.93	11.48%	13.37%	0.94	32
2011	12.23%	12.64%	0.96	12.23%	12.37%	0.97	37
2012	9.38%	13.99%	0.94	9.38%	13.81%	0.95	35
2013	9.99%	13.80%	0.97	9.99%	13.52%	0.98	40
2014	13.57%	10.90%	1.03	13.57%	10.24%	1.03	30
2015	12.45%	9.21%	0.99	12.45%	8.76%	0.99	31

Source: PitchBook. Data as of 6/30/2017

# 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	12.16%	12.21%	11	22.39%	17.32%	13.17%	6.44%	4.10%	8.18%	11
2001	13.66%	14.59%	2			15.95%				2
2002	15.61%	17.38%	3			18.29%				3
2003	37.59%	37.57%	1			35.07%				1
2004	14.07%	13.97%	5		23.06%	16.99%	10.08%			4
2005	5.84%	4.77%	8		6.62%	6.39%	4.82%			8
2006	6.13%	7.31%	9		5.46%	5.02%	3.97%			6
2007	8.15%	8.75%	8		9.55%	8.55%	6.86%			8
2008	10.73%	10.92%	13	15.35%	13.48%	11.10%	9.36%	5.60%	7.91%	11
2009	10.88%	12.24%	8		15.97%	13.92%	12.29%			8
2010	12.92%	13.24%	7		16.55%	10.80%	9.60%			7
2011	15.44%	14.25%	8		16.71%	11.80%	10.20%			8
2012	8.04%	11.62%	9		17.75%	16.52%	15.30%			8
2013	11.07%	13.25%	12	28.04%	17.75%	15.85%	12.00%	6.44%	19.95%	10
2014	24.86%	17.34%	10		27.24%	22.72%	21.50%			7
2015	21.58%	30.22%	9		36.38%	26.21%	20.54%			8



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	1.48x	1.48x	0.00x	11
2001	1.47x	1.43x	0.04x	1.47x	1.43x	0.04x	2
2002	1.51x	1.49x	0.03x	1.51x	1.49x	0.03x	3
2003	1.83x	1.82x	0.01x	1.83x	1.82x	0.01x	1
2004	1.48x	1.36x	0.12x	1.48x	1.36x	0.12x	5
2005	1.30x	1.11x	0.19x	1.30x	1.11x	0.19x	8
2006	1.35x	1.11x	0.23x	1.35x	1.11x	0.23x	9
2007	1.34x	1.09x	0.25x	1.34x	1.09x	0.25x	8
2008	1.49x	1.11x	0.38x	1.49x	1.11x	0.38x	13
2009	1.50x	1.11x	0.39x	1.50x	1.11x	0.39x	8
2010	1.51x	0.97x	0.54x	1.51x	0.97x	0.54x	7
2011	1.53x	1.03x	0.50x	1.53x	1.03x	0.50x	8
2012	1.24x	0.51x	0.72x	1.24x	0.51x	0.72x	9
2013	1.27x	0.34x	0.93x	1.27x	0.34x	0.93x	12
2014	1.35x	0.37x	0.97x	1.35x	0.37x	0.97x	10
2015	1.33x	0.31x	1.02x	1.33x	0.31x	1.02x	9

Source: PitchBook. Data as of 6/30/2017



SECONDARIES

# Multiples by Vintage

Vintage Year	TVPI					DPI					Number of Funds
	Top Decile	Top Quartile	Median TVPI	Bottom Quartile	Bottom Decile	Top Decile	Top Quartile	Median DPI	Bottom Quartile	Bottom Decile	
Pre-2001	1.65x	1.45x	1.30x	1.26x	1.20x	1.64x	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		1.59x	1.50x	1.40x			1.45x	1.35x	1.29x		5
2005		1.33x	1.30x	1.26x			1.16x	1.10x	1.06x		8
2006		1.48x	1.29x	1.25x			1.28x	1.07x	0.98x		9
2007		1.50x	1.42x	1.27x			1.20x	1.14x	1.07x		8
2008	1.73x	1.59x	1.45x	1.32x	1.10x	1.47x	1.33x	1.17x	0.77x	0.61x	13
2009		1.60x	1.49x	1.44x			1.33x	1.15x	0.93x		8
2010		1.62x	1.53x	1.42x			1.13x	0.99x	0.77x		7
2011		1.62x	1.44x	1.32x			1.04x	0.69x	0.21x		8
2012		1.44x	1.40x	1.32x			0.60x	0.55x	0.53x		9
2013	1.53x	1.38x	1.24x	1.10x	1.05x	0.49x	0.47x	0.38x	0.24x	0.21x	12
2014	1.53x	1.45x	1.35x	1.23x	0.91x	0.42x	0.33x	0.26x	0.07x	0.00x	10
2015		1.34x	1.29x	1.25x			0.41x	0.33x	0.01x		9

Source: PitchBook. Data as of 6/30/2017





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	13.66%	6.06%	1.16	13.66%	6.46%	1.13	2
2002	15.61%	7.20%	1.23	15.61%	7.56%	1.21	3
2003	37.59%	9.69%	1.55	37.59%	10.05%	1.53	1
2004	14.07%	8.04%	1.21	14.07%	8.25%	1.20	5
2005	5.84%	8.12%	0.94	5.84%	8.31%	0.93	8
2006	6.13%	7.98%	0.92	6.13%	8.01%	0.91	9
2007	8.15%	7.50%	0.87	8.15%	7.53%	0.86	8
2008	10.73%	8.74%	0.90	10.73%	8.89%	0.89	13
2009	10.88%	16.56%	0.85	10.88%	16.76%	0.85	8
2010	12.92%	13.40%	0.95	12.92%	13.37%	0.95	7
2011	15.44%	12.64%	1.05	15.44%	12.37%	1.05	8
2012	8.04%	13.99%	0.85	8.04%	13.81%	0.85	9
2013	11.07%	13.80%	0.99	11.07%	13.52%	1.00	12
2014	24.86%	10.90%	1.16	24.86%	10.24%	1.17	10
2015	21.58%	9.21%	1.10	21.58%	8.76%	1.11	9

Source: PitchBook. Data as of 6/30/2017

