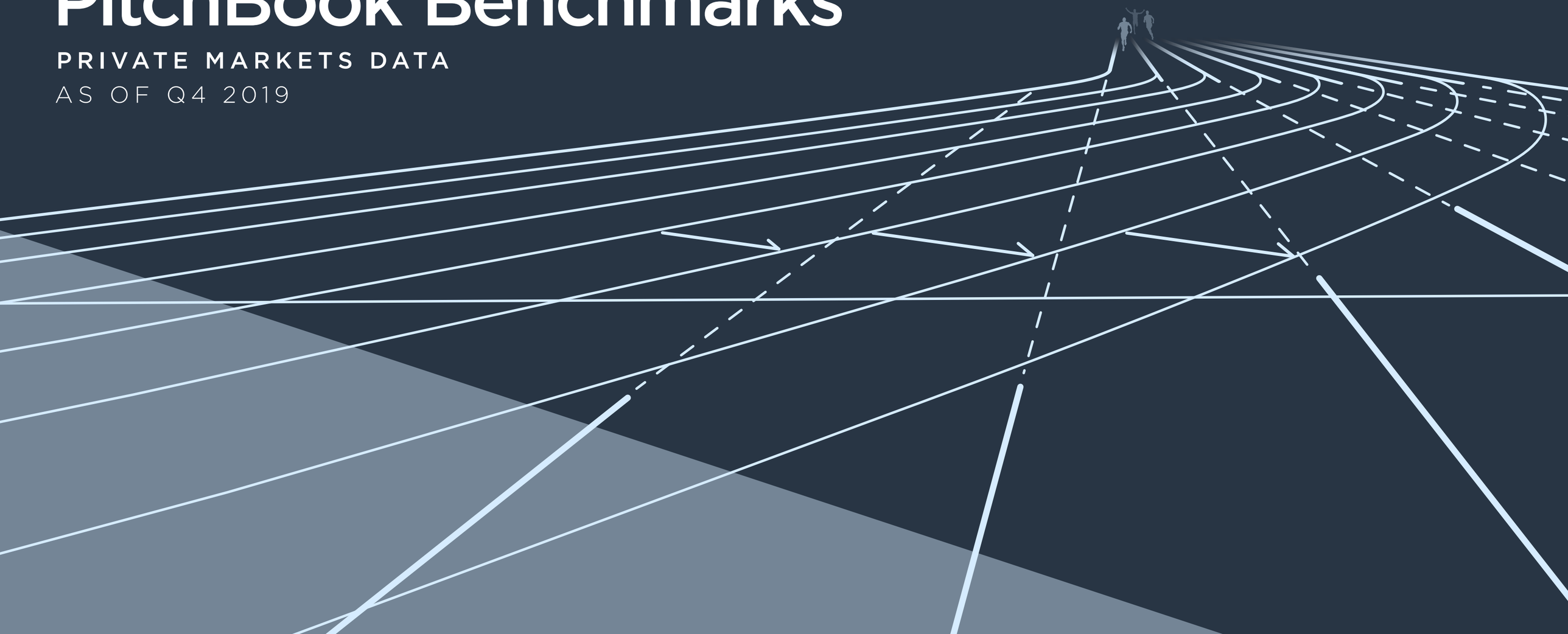
PitchBook

# PitchBook Benchmarks

## PRIVATE MARKETS DATA

AS OF Q4 2019



# Contents

# Introduction

PitchBook Benchmarks aim to help both LPs and GPs better understand fund performance relative to broader asset classes and other private market strategies. We present performance through several lenses—including internal rates of return (IRRs) and cash multiples—to provide a holistic view for assessing performance within and between strategies, as well as across vintage years. Furthermore, the returns of private market funds are measured relative to easily accessible public market substitutes using a public market equivalent (PME) metric. Each edition of our Benchmarks also includes a section that highlights a specific aspect of fund performance. In the conclusion to our series on cash flow management, we bring together pieces from prior analyses to introduce new commitment pacing and cash flow models.

In this report, you'll find detailed benchmark statistics across PE, VC, debt, real assets, funds of funds and secondaries strategies. To easily access the supporting data in this PDF, along with benchmark statistics for a host of other sub-strategies and geographies, be sure to download the four accompanying Excel data packs (**PE**, **VC**, **Debt & Real Assets** and **Alternative Access Strategies**). As transparency is fundamental to our benchmarking efforts, subscribers to the PitchBook Platform can utilize the data packs to 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

## Fund classifications

**Private equity**
Buyout
Growth/expansion
Mezzanine
Restructuring/turnaround
Diversified PE

**Venture capital**

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

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

**Fund of funds**

**Secondaries**

## Data composition

PitchBook's fund returns data is primarily sourced from 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 all LP reports in a given period. For periods that lack an LP report, (iv) a straight-line interpolation calculation is used to populate the missing data; interpolated data is used for approximately 10% of reporting periods, a figure that has been steadily declining.

Beginning with the PitchBook Benchmarks with data as of Q4 2019, we expanded our dataset to include funds with a reported IRR, even if the fund's cash flow data does not meet the pooled calculation criteria.

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

All returns data in this report is net of fees and carry.

# Methodology

## Definitions and calculation methodologies

**Fund count:** Represents how many funds are included in a given sample. Note that some funds in our dataset have a reported IRR but lack sufficient cash flow information to be included in pooled calculations.

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

**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.

**Standard deviation:** Calculated using the sample-based standard deviation methodology.

**Vintage year:** The vintage year is based on the year that a fund makes its first capital call. If the year of the initial call 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.

**Quarterly return:** The percentage change in aggregate NAV is calculated for each group of funds in a sample, considering contributions and distributions during the quarter. This makes the calculation tantamount to a quarterly compounded growth rate.

**Internal rate of return (IRR):** IRR represents the rate at which an historical series of cash flows are discounted so that the net present value of the cash flows equals zero. For pooled calculations, any remaining unrealized 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.

**Horizon IRR:** Horizon IRR is a capital-weighted pooled calculation that shows the IRR for a certain range in time. For example, the one-year horizon IRR figures in the report may show the IRR performance for the one-year period beginning in Q1 2019 through the end of Q4 2019, while the three-year horizon IRR is for the period beginning in Q1 2017 through the end of Q4 2019.

**Distributions to paid-in (DPI) multiple:** 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) multiple:** 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) multiple:** 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.

**Pooled calculations:** Pooled calculations combine cashflow data from a group of funds to create a capital-weighted IRR value. All cash flows and NAVs for each fund in the sample group (e.g. all private capital funds, 2004 vintage VC funds, etc.) are aggregated in the calculation. For vintage-specific calculations, we begin the calculation in Q1 of the vintage year, regardless of which quarter a fund first called capital. 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:** Using the same methodology as the pooled calculations, the equal-weighted version expresses each fund's cash flows and ending NAV as a ratio of fund size. The result is that each fund in these calculations has an equal impact on the output, regardless of the fund size.

**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. All PME figures are calculated using the Kaplan-Schoar PME method:

$$\mathrm{PME}_{\mathrm{KS—TVPI,\ T}} = \frac{\frac{\mathrm{NAV}_T}{I_T} + \sum_{t=0}^{T}\left(\frac{\mathrm{distribution}_t}{I_t}\right)}{\sum_{t=0}^{T}\left(\frac{\mathrm{contribution}_t}{I_t}\right)}$$

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

# Basics of cash flow management: Commitment pacing and cash flow models

All the models introduced in this series are available for customization by PitchBook clients. We welcome any questions, comments, or inquiries at benchmarks@pitchbook.com.

## Introduction

Throughout the Basics of Cash Flow Management series, we have leveraged historical data to develop several models to help limited partners (LPs) better navigate private markets. Building on prior installments, this final chapter will illustrate all the steps required in designing, planning, implementing, and maintaining a private market allocation. Because private market investing is a unique endeavor for each LP due to a range of factors, including variations in risk appetite, return requirements, liquidity needs, and investment horizon, we built these models to be dynamic and allow users to tailor the inputs to their specific portfolio and profile.

To illustrate how LPs can utilize our models throughout the private market investment process, we have developed a hypothetical LP profile, as detailed in the accompanying table. Please note that users can adjust all the assumptions seen throughout this analysis based on an LP's specific allocations and assumptions. To make this highly complex task more straightforward for illustrative purposes, the examples throughout this analysis will ignore any inflows or outflows to the corpus of the portfolio. We also assume a single growth rate for public equities, fixed income, and cash, while excluding certain asset classes and strategies that are peripheral to the topic of private market cash flow modeling.

**Figure 1. Target allocation for hypothetical LP**

| Public equities | Fixed income | Cash | Private markets | PE | VC | Real assets | Private debt | FoF | Secondaries | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 30% | 7% | 3% | 60% | 20% | 12% | 12% | 8% | | 8% | 100% |

Source: PitchBook

## Planning initial commitments

Building a private market portfolio from scratch is a challenging, complex, and iterative process. The drawdown nature of private market funds poses one of the biggest difficulties because once an initial commitment has been made, it takes years for general partners (GPs) to call capital and for LPs to effectively build an allocation. Commitment pacing requires LPs to balance the desire to quickly reach the target allocation with the risk of overshooting it, while also maintaining diversification across vintage years and GPs. Threading this needle is not impossible, however. In our prior research, we found that LPs can prudently incorporate an initial "ramp period" of slightly larger commitments than in the subsequent "maintenance period," which decreases the time to reach full allocation while minimizing the risk of overshooting target allocations.

The first step in determining the initial commitment pacing is to establish baseline estimates for how the broader portfolio will grow (or shrink) in the future. This step is necessary because private market allocations tend to be set as a proportion of the total portfolio, rather than a fixed dollar amount. In practice, this involves modeling out any expected inflows or outflows from the corpus of the portfolio, as well as anticipated performance impacts. For our hypothetical LP, we set a target timeframe of eight years to achieve the private market allocation and assumed that the LP's total portfolio would equal $100.0 million at that time. We use this portfolio size to establish our target allocations to the respective private market strategies.

**Figure 2. Estimated portfolio for hypothetical LP in 8 years**

| Total portfolio size | Private markets | PE | VC | Real assets | Private debt | FoF | Secondaries |
|---|---|---|---|---|---|---|---|
| $100.0M | $60.0M | $20.0M | $12.0M | $12.0M | $8.0M | $0.0M | $8.0M |

Source: PitchBook

*All charts are for illustrative purposes.*

The question for LPs is how much to commit to a private market strategy each year to obtain the target allocation. To inform this commitment pacing process, we developed a model that utilizes historical data from thousands of private market funds to produce a commitment schedule based on an LP's target allocation size and timeframe. The model accounts for the disparate nature of cash flow profiles between private market strategies, as detailed in our prior research, and can be tailored to specific characteristics, such as fund size and location.[1] We also allow users to adjust the model based on their macroeconomic outlook, as our research shows that private market cash flows exhibit a high degree of cyclicality. For our hypothetical LP to reach their target allocation in eight years, the model suggests the commitment pacing schedule seen in the accompanying table.

As can be seen, we included an initial "ramp period" in this scenario for each strategy to curtail the period of underallocation early in the process. The length of this ramp period is about three years for most strategies, with a slightly longer ramp required for secondaries funds because they produce distributions earlier than other strategies, necessitating a quicker reinvestment plan. For the different strategies, the size of the commitments as a proportion of the target allocation also vary slightly due the different rates at which strategies draw down and return capital. Prior installments of this series provide additional analysis on how and why cash flow profiles differ between strategies.

## Maintaining (ongoing commitment pacing)

The maintenance period from the initial commitment pacing schedule is designed to hit and maintain the allocation at a specific point in time—Year 8. For this analysis, we prescribed a quarterly commitment pacing schedule to be followed for several years. In practice, however, private market investing is never this clean and straightforward. LPs will not have the luxury to commit precise amounts on a set schedule; they are engaged in a Sisyphean exercise of continually committing to new funds each year to preserve vintage year diversification and maintain the target allocation, all while accounting for developments in other areas of their portfolio. This requires continual recalibration of the models.

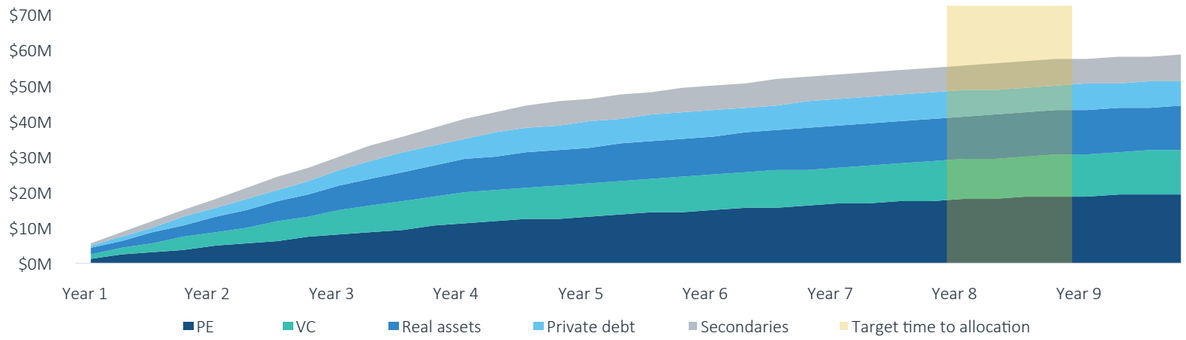
Building off the example schedule, we now assume that our hypothetical LP perfectly achieved their modeled portfolio in Year 8. To estimate how this mature portfolio is likely to evolve over time, we employ our various PitchBook models for the private market portfolio and use Morningstar Market Assumptions as the basis for traditional asset class returns.[2] For example, the public equity allocation is $30.0 million (or 30% of the portfolio) and is set to grow at 8.68% annually (i.e. the US Mid/Small Cap return from the Morningstar Market Assumptions). This exercise is repeated for the fixed income and cash allocations, while our previously discussed models maintain the original commitment pacing schedule and develop the return profile for the existing private market fund exposure.

**Figure 3. Commitment pacing schedule for hypothetical LP**

| | | Ramp period | | Maintenance period |
|---|---|---|---|---|
| | Target allocation at eight years | Duration | Quarterly commitment size (% of target allocation) | Quarterly commitment size (% of target allocation) |
| PE | $20 million | 3.5 years | $850,000 (4.25%) | $500,000 (2.5%) |
| VC | $12 million | 3 years | $600,000 (5%) | $240,000 (2%) |
| Real assets | $12 million | 3.5 years | $600,000 (5%) | $300,000 (2.5%) |
| Private debt | $8 million | 4 years | $360,000 (4.5%) | $200,000 (2.5%) |
| Secondaries | $8 million | 4 years | $360,000 (4.5%) | $140,000 (1.75%) |

Source: PitchBook

**Figure 4. Modeled private market portfolio for hypothetical LP**



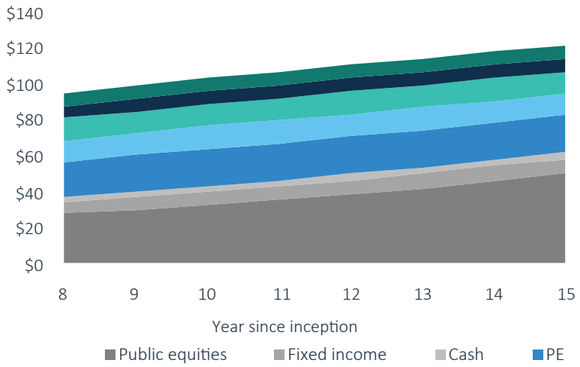

Source: PitchBook

1: For more information about the model, please contact benchmarks@pitchbook.com.
2: Morningstar Market Assumptions

*All charts are for illustrative purposes.*

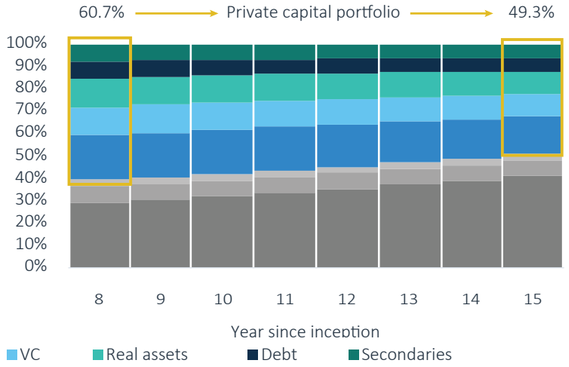
**Figure 5. Modeled portfolio for hypothetical LP under original commitment pacing schedule**

*Figure 5.1*




Source: PitchBook. Data as of December 31, 2019.

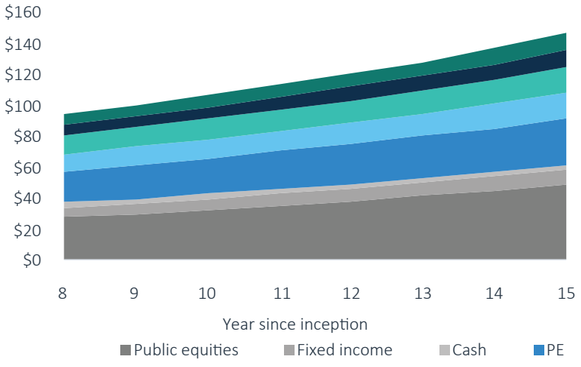
*Figure 5.2*




Source: PitchBook. Data as of December 31, 2019.

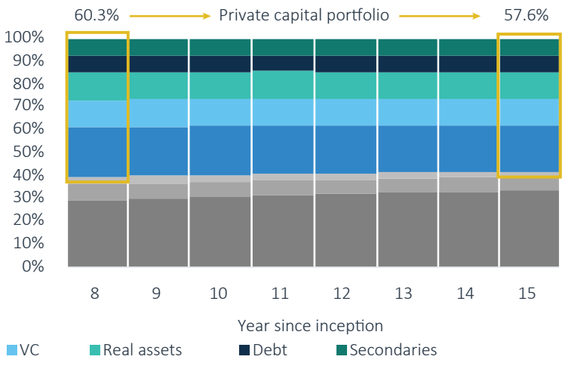
**Figure 6. Modeled portfolio for hypothetical LP under updated commitment pacing schedule**

*Figure 6.1*




Source: PitchBook. Data as of December 31, 2019.

*Figure 6.2*




Source: PitchBook. Data as of December 31, 2019.

**Figure 7. Commitment pacing schedule comparison**

| | Original | Updated |
|---|---|---|
| | Quarterly commitment size as % of target allocation | Quarterly commitment as % of next year's target allocation |
| PE | 2.50% | 3.25% |
| VC | 2.00% | 2.75% |
| Real assets | 2.50% | 3.25% |
| Private debt | 2.50% | 3.00% |
| Secondaries | 1.75% | 2.75% |

Source: PitchBook. Data as of December 31, 2019.

Figure 5.1 shows that committing capital under the original "maintenance period" pace results in the dollar value of the private market portfolio being maintained, as expected; however, as shown in Figure 5.2, the private market allocation will shrink relative to the rest of the portfolio, particularly the public equity portion, as the public equity and fixed income holdings continue to grow into the future. These developments complicate the analysis, but we can use these modeled returns to solve for the anticipated gap in the private market portfolio going forward.

Utilizing our model, we can then generate a new commitment pacing schedule beginning in Year 9 to close the gap and maintain the target allocation percentage into the future. The new commitment schedule prescribes a slightly higher pace of commitment based on the growth assumptions in the other parts of the portfolio. In practice, this means that the dollar value being committed will rise slightly even though the allocation percentage will remain constant. In Year 9, for example, the 3.25% quarterly commitment to PE represents $697,000, whereas that dollar value swells to $1,074,000 in Year 15 based on the same 3.25% due to portfolio growth. While this revised commitment pacing schedule incorporates additional portfolio assumptions, it will also have a limited shelf life and will need to be revisited periodically to account for developments throughout the portfolio.

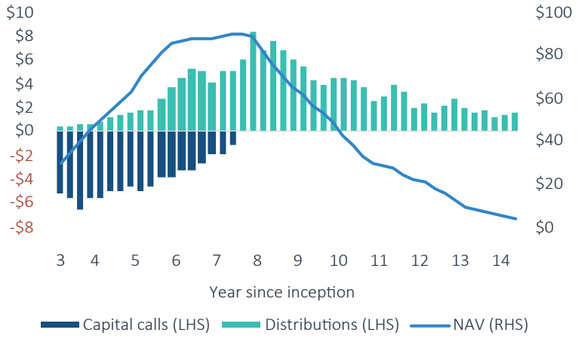
## Implementing (cash flow/contribution planning)

As soon as the initial commitments are made, cash flow management begins to come into play. Cash flow management is relatively straightforward in the first years of a private market program because there are few fund relationships and most vehicles are simply drawing down capital, with little coming back via distributions. Cash management grows exponentially more difficult as a program develops, however, and poses an ongoing challenge for LPs. A mature, diversified private market portfolio often has dozens of funds at disparate points in their lifecycles. As such, to ascertain the liquidity profile of the entire portfolio, an investor must first evaluate each underlying fund position to establish estimated capital calls and distributions over the coming quarters.

*All charts are for illustrative purposes.*

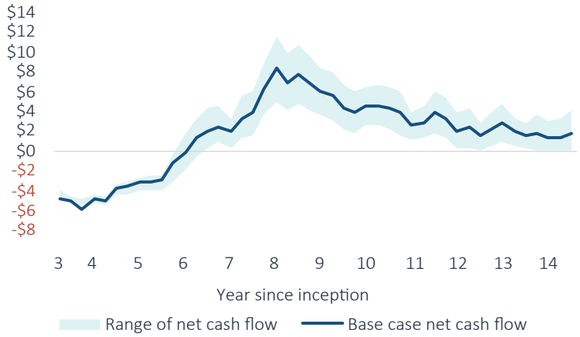
**Figure8. Buyout fund at 2.5 years**

*Figure 8.1*




Source: PitchBook. Data as of December 31, 2019.

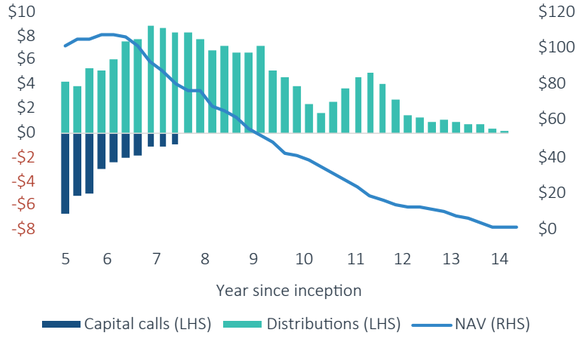
*Figure 8.2*




Source: PitchBook. Data as of December 31, 2019.

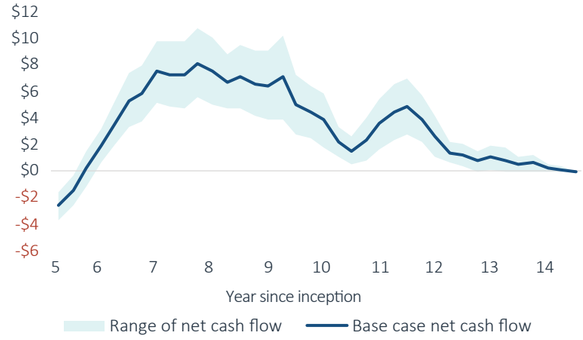
**Figure 9. Buyout fund at four years**

*Figure 9.1*




Source: PitchBook. Data as of December 31, 2019.

*Figure 9.2*

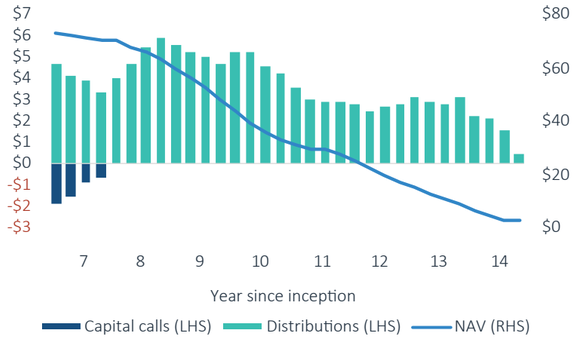



Source: PitchBook. Data as of December 31, 2019.

As we have shown throughout this series, fund cash flows are correlated to certain fund characteristics (such as dry powder, performance marks, fund age, etc.) and broader economic factors. Leveraging this research and the PitchBook database, we have constructed a model that both generates theoretical cash flows based purely on hypothetical inputs and can be used to model future cash flows for existing funds from any stage of their lifecycle. Additionally, since GPs provide LPs with regular updates about expectations for specific funds, users can feed these predictions from active funds into the model to generate a customized cash flow projection, with Figure 11 showing the inputs available for customization. To illustrate the impact of these variables on the modeled cash flows, we have modeled a buyout fund from different points of its lifecycle to depict how users can set the model to any point throughout the fund life. Our model produces a baseline scenario for future cash flows, as well as upper and lower bounds based on a 90% confidence threshold.

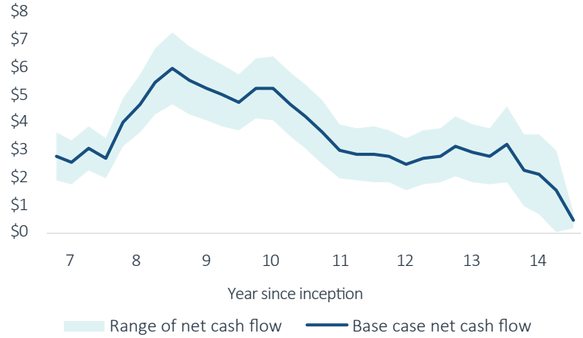
**Figure 10. Buyout fund at six years**

*Figure 10.1*




Source: PitchBook. Data as of December 31, 2019.

*Figure 10.2*




Source: PitchBook. Data as of December 31, 2019.
*All charts are for illustrative purposes.*

**Figure 11. Qualitative inputs for customization in cash flow model**

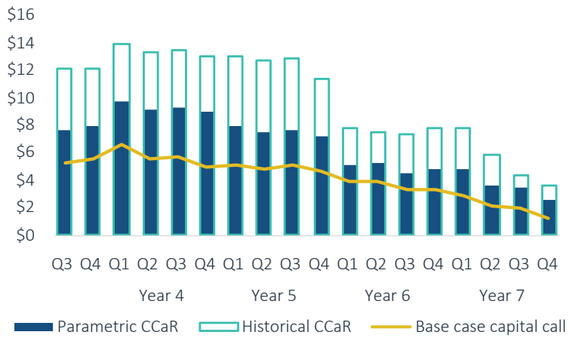
| | | Variable changed | |
|---|---|---|---|
| | | Contribution pace | Distribution timing |
| Inputs | Anticipated reserve capital | X | |
| | Near-term exits | | X |
| | Expected fund life | | X |

Cash flow management is important because LPs do not want to hold all future commitments in cash or other highly liquid, low-returning assets. While letting uncalled capital sit idly in a cash account is suboptimal, LPs can also encounter issues when they do not have enough capital available to meet capital calls. These situations force the LP to sell off a position in another portion of the portfolio or, in the worst-case scenario, fail to meet a capital call, which has serious repercussions.

Our model helps LPs to plan for these tail-end scenarios via a value-at-risk (VaR) model called PB Capital Call at Risk (PB CCaR). The calculations behind PB CCaR are the same as traditional VaR, but PB CCaR measures the risk associated with large capital calls rather than the portfolio value at risk in a drawdown. Like traditional VaR, our metric allows an LP to set a certain threshold (typically 90%, 95%, or 99%) to answer the question, "What is the most capital the fund/portfolio will call down 90%/95%/99% of the time?" For example, a PB CCaR of $10.0 million at 90% implies that there is a 10% probability that the fund will call $10.0 million or more in a given period. We produce a version of PB CCaR based on observed data (i.e. Historical), as well as a version calculated using the statistical mean and standard deviation (i.e. Parametric). PB CCaR will naturally decrease during the investment period as capital is called, as illustrated using the outputs from the previous buyout fund example.

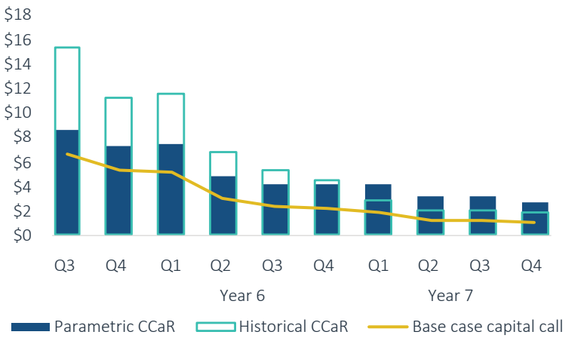
This cash flow model and the accompanying metrics can be calculated for any number of funds in a portfolio. Using our hypothetical LP as an example, we begin with portfolio from Year 8 in the prior example to establish underlying fund positions for each strategy. We then incorporate additional fund positions based on the commitment pacing schedule detailed in the "Maintaining" section. By aggregating the model outputs for each fund, we can produce estimates of both the size and timing of contributions, distributions, and subsequently net cash flows across the entire portfolio, as shown on the following page.

**Figure 12. Buyout fund at 2.5 years**



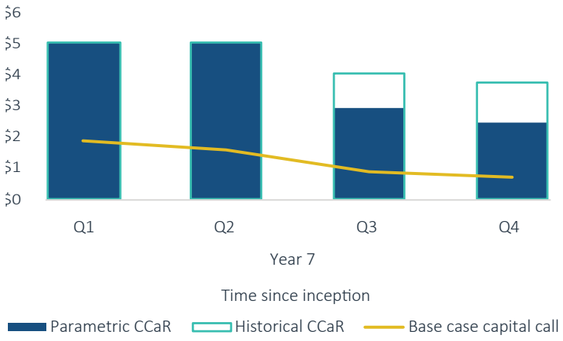

Source: PitchBook. Data as of December 31, 2019.
*Note: Capital Call at Risk in line with VaR methodologies. Confidence threshold set at 90%.*

**Figure 13. Buyout fund at 4.5 years**




Source: PitchBook. Data as of December 31, 2019.
*Note: Capital Call at Risk in line with VaR methodologies. Confidence threshold set at 90%.*

**Figure 14. Buyout fund at six years**




Source: PitchBook. Data as of December 31, 2019.
*Note: Capital Call at Risk in line with VaR methodologies. Confidence threshold set at 90%.*

*All charts are for illustrative purposes.*

**Figure 15. Modeled cash flows for hypothetical LP portfolio**

*Figure 15.1*


Source: PitchBook. Data as of December 31, 2019.

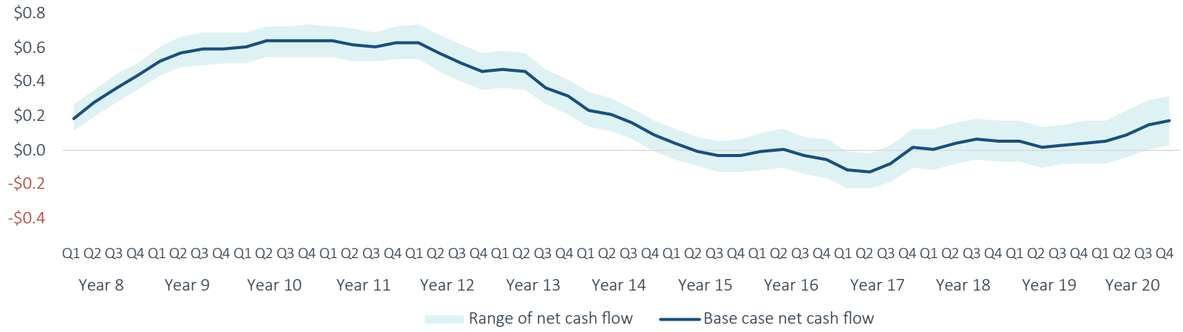
The period between Years 8 and 9 represents the switch from the initial commitment pacing model to the updated version, which incorporated new growth estimates for the rest of the portfolio. The initial ramp period helps to reach the target allocation (i.e. NAV) quickly and begins to produce relatively strong distributions beginning around Year 8, which leads to an expectation of strongly positive net cash flows. However, the impacts of the ramp period begin to wane as the updated commitment pacing schedule is incorporated in Year 9. As we detailed in the "Maintaining" section, the dollar value of commitments will necessarily increase over time as the portfolio grows. Accordingly, capital calls steadily increase over time as the portfolio matures and larger commitments are needed to maintain the allocation, as noted earlier.

Distributions, however, take longer to rise after the commitment pace is increased. So, while the portfolio goes through an extended period in which it is expectedly self-funded, we find periods in which additional cash will likely be required to meet capital calls, as shown in Figure 15.2. The increasing capital requirements can be seen clearly in the PB CCaR metric; note that this metric is particularly conservative, as it does not account for expected distributions back to the portfolio. This example highlights the difficulty in modeling private markets over long periods and underscores the importance of revisiting and recalibrating these models on a regular basis.

## Like a rolling stone

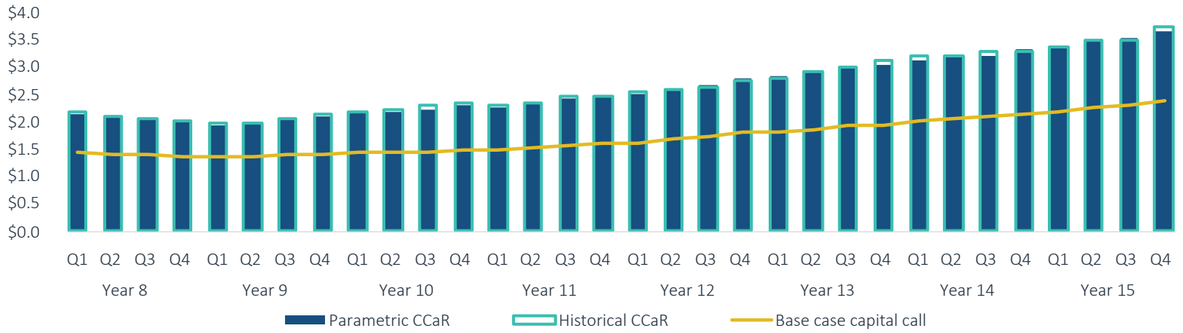
As we have emphasized throughout this series, private market investing is a continuous, iterative process. While a long-term mindset is needed to build a well-diversified portfolio that will withstand market cycles, LPs must also be cognizant of what impact the various moving parts of their portfolio—from sell-offs in public markets to unanticipated inflows or outflows—will have on the course of the private market allocation. Much like steering an

*Figure 15.2*




Source: PitchBook. Data as of December 31, 2019.

*Figure 15.3*



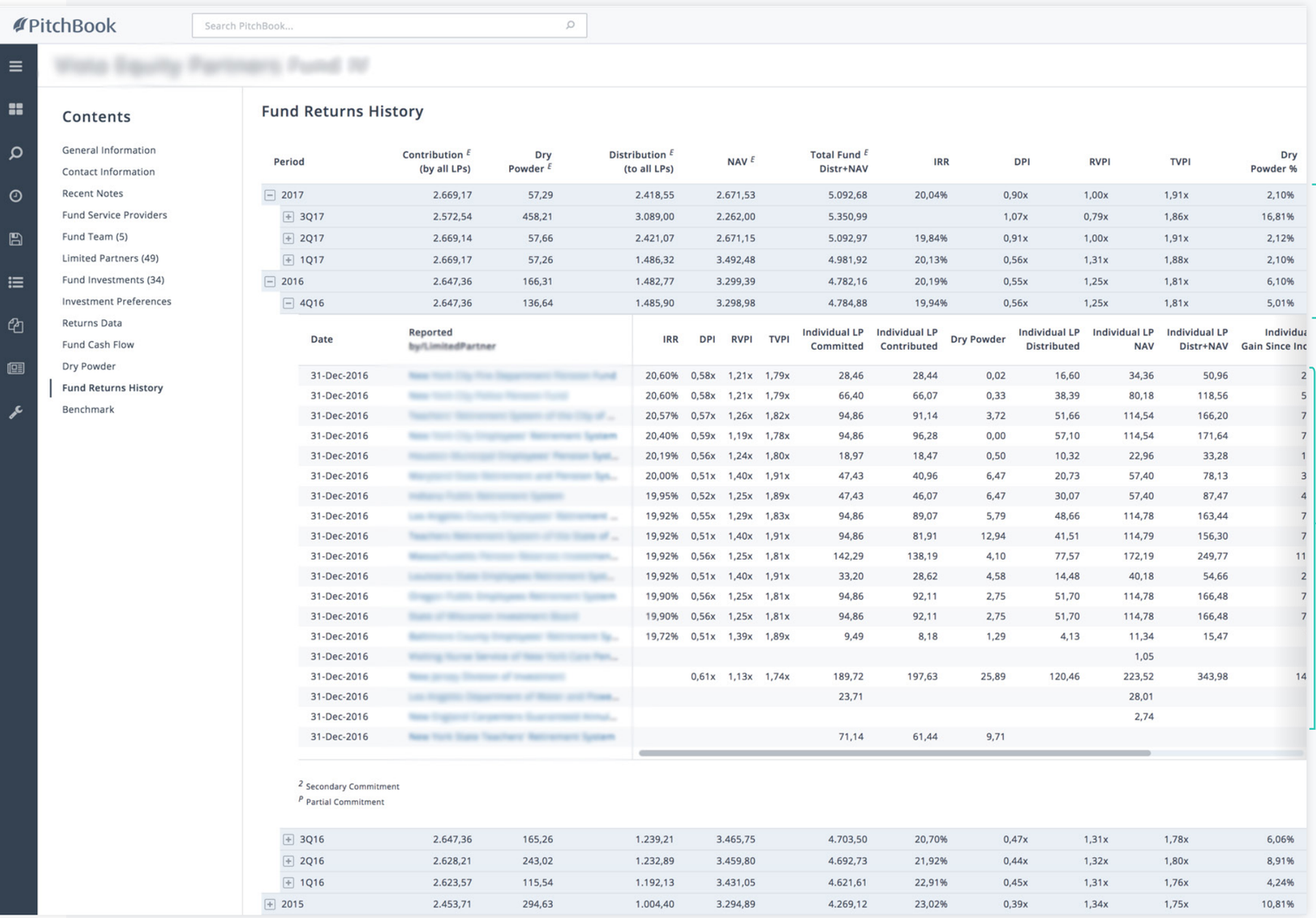

Source: PitchBook. Data as of December 31, 2019.

aircraft carrier, it is easier to make slight strategic moves early in the process as potential issues are visible on the horizon because the need to adjust on short timeframes can be costly—or impossible.

We believe that our models are valuable tools for LPs and consultants considering strategies for developing a private market allocation from scratch, as well as those seeking tactics to address the ongoing challenge of balancing the allocation with the liquid portions of the portfolio. The models can also help LPs design a plan to incorporate a new private market strategy into an existing portfolio.

*All charts are for illustrative purposes.*

PitchBook

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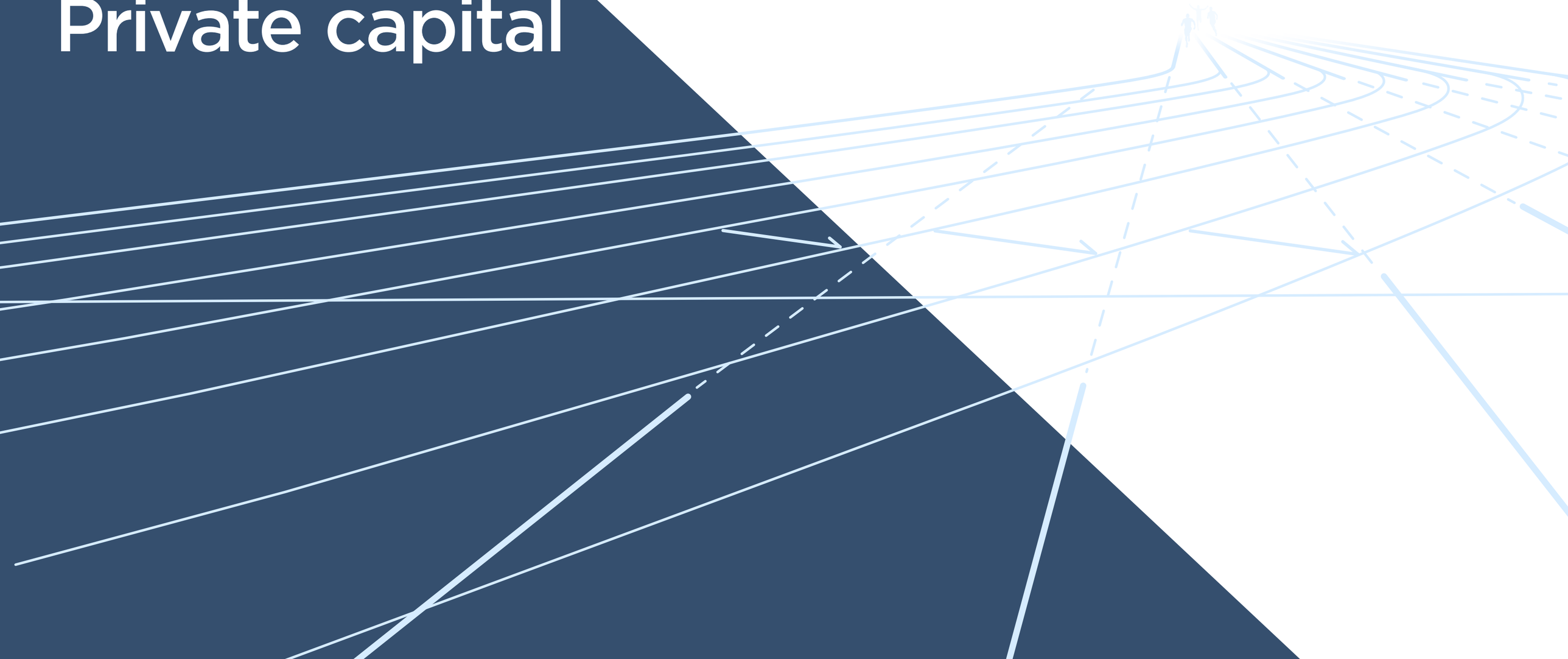
# Private capital



Private capital

# Horizon IRRs

| Strategy | 1-year | 3-year | 5-year | 10-year | 15-year | 18-year |
|---|---|---|---|---|---|---|
| Private capital | 11.60% | 12.58% | 11.51% | 12.33% | 10.71% | 10.70% |
| Private equity | 15.83% | 15.19% | 13.94% | 14.07% | 12.60% | 12.81% |
| Venture capital | 15.93% | 15.07% | 11.33% | 12.60% | 9.69% | 7.43% |
| Real assets | 3.83% | 8.20% | 8.07% | 9.41% | 6.82% | 7.01% |
| Debt | 6.95% | 7.52% | 6.74% | 8.85% | 8.34% | 8.92% |
| Fund-of-funds | 10.11% | 12.50% | 11.38% | 10.34% | 9.57% | 9.04% |
| Secondaries | 11.75% | 14.00% | 12.01% | 13.11% | 11.30% | 11.34% |
| S&P 500 | 31.49% | 15.27% | 11.70% | 13.56% | 9.00% | 8.08% |
| Russell 3000 | 31.02% | 14.57% | 11.24% | 13.42% | 9.03% | 8.31% |
| Russell 2000 Growth | 28.48% | 12.49% | 9.34% | 13.01% | 8.81% | 8.30% |
| Morningstar US Real Assets | 9.87% | 3.27% | 2.22% | 3.77% | 5.01% | 6.61% |
| Bloomberg Barclays US Corporate High Yield | 14.32% | 6.37% | 6.13% | 7.57% | 7.20% | 8.02% |

Source: PitchBook. Data as of December 31, 2019
*Note: All public index values are CAGRs.*

Private capital

# Equal-weighted horizon IRRs

| Strategy | 1-year | 3-year | 5-year | 10-year | 15-year | 18-year |
|---|---|---|---|---|---|---|
| Private capital | 9.91% | 11.80% | 10.75% | 11.56% | 10.14% | 9.38% |
| Private equity | 11.86% | 13.77% | 12.78% | 12.68% | 12.48% | 12.02% |
| Venture capital | 14.00% | 13.92% | 10.47% | 12.04% | 8.96% | 6.47% |
| Real assets | 7.80% | 8.90% | 8.95% | 9.64% | 7.51% | 7.77% |
| Debt | 3.97% | 6.76% | 6.76% | 9.08% | 8.23% | 9.37% |
| Fund-of-funds | 7.84% | 12.55% | 11.55% | 11.73% | 10.38% | 9.99% |
| Secondaries | 9.56% | 11.26% | 10.40% | 12.49% | 10.96% | 10.52% |
| S&P 500 | 31.49% | 15.27% | 11.70% | 13.56% | 9.00% | 8.08% |
| Russell 3000 | 31.02% | 14.57% | 11.24% | 13.42% | 9.03% | 8.31% |
| Russell 2000 Growth | 28.48% | 12.49% | 9.34% | 13.01% | 8.81% | 8.30% |
| Morningstar US Real Assets | 9.87% | 3.27% | 2.22% | 3.77% | 5.01% | 6.61% |
| Bloomberg Barclays US Corporate High Yield | 14.32% | 6.37% | 6.13% | 7.57% | 7.20% | 8.02% |

Source: PitchBook. Data as of December 31, 2019
*Note: All public index values are CAGRs.*

# 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-1996 | 19.98% | 10.46% | 6 | 37.46% | 28.78% | 16.75% | 9.01% | -4.39% | 19.11% | 82 |
| 1996 | 11.94% | 8.66% | 24 | 24.25% | 16.78% | 7.05% | 0.88% | -6.47% | 17.51% | 38 |
| 1997 | 9.52% | 7.07% | 26 | 23.20% | 13.17% | 7.35% | -0.73% | -8.04% | 20.01% | 36 |
| 1998 | 6.51% | 5.27% | 42 | 19.99% | 12.07% | 7.40% | -0.56% | -9.79% | 17.67% | 62 |
| 1999 | 9.75% | 10.85% | 41 | 22.49% | 17.29% | 11.16% | 4.83% | -1.76% | 10.99% | 60 |
| 2000 | 15.97% | 12.47% | 53 | 28.97% | 22.85% | 12.30% | 5.11% | -2.54% | 12.47% | 75 |
| 2001 | 24.15% | 19.71% | 36 | 36.67% | 28.92% | 16.20% | 9.42% | 1.92% | 17.66% | 49 |
| 2002 | 18.16% | 15.80% | 37 | 35.57% | 27.49% | 17.54% | 6.84% | 2.52% | 19.90% | 48 |
| 2003 | 22.21% | 15.60% | 24 | 36.76% | 23.90% | 13.98% | 7.12% | -1.71% | 22.41% | 40 |
| 2004 | 12.09% | 11.45% | 50 | 31.36% | 16.90% | 9.67% | 3.79% | -1.66% | 19.81% | 60 |
| 2005 | 9.53% | 9.27% | 78 | 20.44% | 13.46% | 8.35% | 3.14% | -1.23% | 13.51% | 106 |
| 2006 | 7.41% | 6.96% | 115 | 16.75% | 11.57% | 7.80% | 3.61% | -1.97% | 9.49% | 149 |
| 2007 | 8.95% | 9.40% | 113 | 21.41% | 15.90% | 9.00% | 4.30% | -0.25% | 10.18% | 150 |
| 2008 | 12.74% | 10.04% | 115 | 21.80% | 16.49% | 10.34% | 4.77% | -4.66% | 14.29% | 136 |
| 2009 | 13.46% | 14.07% | 47 | 26.98% | 22.07% | 11.85% | 8.75% | 4.89% | 46.10% | 60 |
| 2010 | 12.66% | 11.28% | 64 | 27.06% | 19.71% | 12.65% | 7.86% | -2.13% | 13.37% | 70 |

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 14.88% | 14.74% | 81 | 32.59% | 21.00% | 14.00% | 9.04% | 2.58% | 17.88% | 87 |
| 2012 | 15.70% | 13.31% | 114 | 29.44% | 19.62% | 14.18% | 8.19% | 1.39% | 12.74% | 108 |
| 2013 | 14.48% | 13.61% | 95 | 25.78% | 19.64% | 13.10% | 8.43% | 5.03% | 10.26% | 87 |
| 2014 | 18.46% | 17.97% | 98 | 31.38% | 22.43% | 16.76% | 9.77% | 6.90% | 13.47% | 91 |
| 2015 | 17.89% | 15.52% | 126 | 29.66% | 20.38% | 13.74% | 8.13% | 2.28% | 11.85% | 114 |
| 2016 | 18.39% | 17.82% | 120 | 36.23% | 23.69% | 15.60% | 7.90% | 0.02% | 15.60% | 115 |
| 2017 | 13.94% | 12.19% | 119 | 27.09% | 19.15% | 12.53% | 6.04% | -7.86% | 26.92% | 98 |
| 2018 | 13.47% | 7.10% | 131 | 29.90% | 14.76% | 2.66% | -9.60% | -28.90% | 28.38% | 81 |

Source: PitchBook. Data as of December 31, 2019

Private equity

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| Pre-1996 | 1.69x | 1.67x | 0.02x | 1.47x | 1.40x | 0.07x | 6 |
| 1996 | 1.56x | 1.56x | 0.00x | 1.39x | 1.39x | 0.00x | 24 |
| 1997 | 1.58x | 1.58x | 0.00x | 1.39x | 1.38x | 0.00x | 26 |
| 1998 | 1.39x | 1.38x | 0.00x | 1.28x | 1.28x | 0.00x | 42 |
| 1999 | 1.52x | 1.52x | 0.00x | 1.62x | 1.62x | 0.01x | 41 |
| 2000 | 1.83x | 1.82x | 0.02x | 1.71x | 1.69x | 0.02x | 53 |
| 2001 | 2.16x | 2.15x | 0.01x | 1.97x | 1.95x | 0.02x | 36 |
| 2002 | 1.90x | 1.88x | 0.01x | 1.75x | 1.73x | 0.02x | 37 |
| 2003 | 1.98x | 1.93x | 0.05x | 1.78x | 1.73x | 0.05x | 24 |
| 2004 | 1.73x | 1.68x | 0.05x | 1.68x | 1.63x | 0.06x | 50 |
| 2005 | 1.59x | 1.52x | 0.07x | 1.56x | 1.48x | 0.08x | 78 |
| 2006 | 1.48x | 1.41x | 0.08x | 1.43x | 1.32x | 0.11x | 115 |
| 2007 | 1.50x | 1.34x | 0.15x | 1.54x | 1.39x | 0.15x | 113 |
| 2008 | 1.65x | 1.49x | 0.17x | 1.53x | 1.32x | 0.21x | 115 |
| 2009 | 1.63x | 1.47x | 0.16x | 1.67x | 1.45x | 0.22x | 47 |
| 2010 | 1.59x | 1.19x | 0.39x | 1.56x | 1.11x | 0.46x | 64 |

Source: PitchBook. Data as of December 31, 2019

Private equity

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| 2011 | 1.73x | 1.11x | 0.62x | 1.73x | 1.10x | 0.63x | 81 |
| 2012 | 1.65x | 0.91x | 0.73x | 1.54x | 0.85x | 0.70x | 114 |
| 2013 | 1.49x | 0.67x | 0.82x | 1.49x | 0.68x | 0.80x | 95 |
| 2014 | 1.59x | 0.60x | 0.99x | 1.57x | 0.54x | 1.03x | 98 |
| 2015 | 1.42x | 0.39x | 1.03x | 1.38x | 0.37x | 1.01x | 126 |
| 2016 | 1.31x | 0.20x | 1.11x | 1.33x | 0.24x | 1.09x | 120 |
| 2017 | 1.19x | 0.12x | 1.07x | 1.16x | 0.17x | 0.99x | 119 |
| 2018 | 1.09x | 0.05x | 1.04x | 1.06x | 0.07x | 0.99x | 131 |

Source: PitchBook. Data as of December 31, 2019

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-1996 | | 1.82x | 1.39x | 0.96x | | | 1.82x | 1.20x | 0.79x | | 6 |
| 1996 | 2.27x | 1.83x | 1.28x | 0.95x | 0.55x | 2.27x | 1.83x | 1.28x | 0.95x | 0.55x | 24 |
| 1997 | 2.01x | 1.73x | 1.44x | 1.02x | 0.77x | 2.01x | 1.73x | 1.44x | 1.02x | 0.77x | 26 |
| 1998 | 1.88x | 1.57x | 1.32x | 0.93x | 0.58x | 1.88x | 1.57x | 1.30x | 0.93x | 0.58x | 42 |
| 1999 | 2.36x | 2.02x | 1.59x | 1.23x | 0.95x | 2.36x | 1.94x | 1.59x | 1.17x | 0.95x | 41 |
| 2000 | 2.41x | 2.11x | 1.67x | 1.33x | 0.95x | 2.41x | 2.08x | 1.66x | 1.33x | 0.86x | 53 |
| 2001 | 2.93x | 2.51x | 1.97x | 1.51x | 1.01x | 2.93x | 2.51x | 1.91x | 1.48x | 1.01x | 36 |
| 2002 | 2.59x | 2.15x | 1.62x | 1.33x | 1.21x | 2.59x | 2.14x | 1.62x | 1.33x | 1.17x | 37 |
| 2003 | 3.07x | 1.90x | 1.67x | 1.44x | 0.80x | 2.95x | 1.90x | 1.67x | 1.38x | 0.76x | 24 |
| 2004 | 2.54x | 2.02x | 1.61x | 1.31x | 0.99x | 2.54x | 2.02x | 1.58x | 1.17x | 0.80x | 50 |
| 2005 | 2.34x | 1.82x | 1.46x | 1.24x | 0.88x | 2.28x | 1.74x | 1.40x | 1.12x | 0.83x | 78 |
| 2006 | 2.08x | 1.65x | 1.39x | 1.17x | 0.83x | 1.93x | 1.59x | 1.35x | 1.04x | 0.53x | 115 |
| 2007 | 2.28x | 1.93x | 1.48x | 1.17x | 0.91x | 2.17x | 1.77x | 1.33x | 0.99x | 0.74x | 113 |
| 2008 | 2.12x | 1.85x | 1.50x | 1.19x | 0.88x | 2.00x | 1.64x | 1.32x | 0.93x | 0.60x | 115 |
| 2009 | 2.38x | 2.05x | 1.64x | 1.29x | 0.96x | 2.30x | 1.83x | 1.33x | 1.14x | 0.80x | 47 |
| 2010 | 2.29x | 1.86x | 1.54x | 1.18x | 0.83x | 1.78x | 1.46x | 1.06x | 0.78x | 0.43x | 64 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 2.57x | 1.99x | 1.57x | 1.30x | 1.01x | 1.87x | 1.40x | 1.04x | 0.62x | 0.27x | 81 |
| 2012 | 2.08x | 1.83x | 1.52x | 1.19x | 1.03x | 1.44x | 1.11x | 0.79x | 0.53x | 0.25x | 114 |
| 2013 | 1.90x | 1.68x | 1.48x | 1.28x | 1.07x | 1.22x | 0.95x | 0.59x | 0.32x | 0.13x | 95 |
| 2014 | 2.20x | 1.73x | 1.44x | 1.24x | 1.13x | 1.09x | 0.75x | 0.44x | 0.12x | 0.03x | 98 |
| 2015 | 1.84x | 1.49x | 1.31x | 1.16x | 0.97x | 0.72x | 0.49x | 0.31x | 0.12x | 0.03x | 126 |
| 2016 | 1.69x | 1.47x | 1.27x | 1.11x | 0.98x | 0.55x | 0.33x | 0.12x | 0.00x | 0.00x | 120 |
| 2017 | 1.38x | 1.23x | 1.11x | 1.02x | 0.85x | 0.38x | 0.19x | 0.06x | 0.00x | 0.00x | 119 |
| 2018 | 1.24x | 1.15x | 1.01x | 0.90x | 0.73x | 0.17x | 0.05x | 0.00x | 0.00x | 0.00x | 131 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

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 |
| 1996 | 11.94% | 8.91% | 1.39 | 11.94% | 8.95% | 1.36 | 24 |
| 1997 | 9.52% | 8.22% | 1.37 | 9.52% | 8.34% | 1.33 | 26 |
| 1998 | 6.51% | 7.21% | 1.30 | 6.51% | 7.37% | 1.25 | 42 |
| 1999 | 9.75% | 6.42% | 1.36 | 9.75% | 6.79% | 1.32 | 41 |
| 2000 | 15.97% | 6.05% | 1.49 | 15.97% | 6.27% | 1.45 | 53 |
| 2001 | 24.15% | 6.93% | 1.69 | 24.15% | 7.20% | 1.65 | 36 |
| 2002 | 18.16% | 7.97% | 1.41 | 18.16% | 8.20% | 1.38 | 37 |
| 2003 | 22.21% | 10.14% | 1.53 | 22.21% | 10.36% | 1.51 | 24 |
| 2004 | 12.09% | 8.78% | 1.34 | 12.09% | 8.86% | 1.32 | 50 |
| 2005 | 9.53% | 8.90% | 1.18 | 9.53% | 8.95% | 1.17 | 78 |
| 2006 | 7.41% | 8.84% | 1.00 | 7.41% | 8.75% | 0.99 | 115 |
| 2007 | 8.95% | 8.52% | 0.94 | 8.95% | 8.43% | 0.94 | 113 |
| 2008 | 12.74% | 9.59% | 0.99 | 12.74% | 9.58% | 0.99 | 115 |
| 2009 | 13.46% | 15.67% | 0.97 | 13.46% | 15.67% | 0.97 | 47 |
| 2010 | 12.66% | 13.24% | 0.96 | 12.66% | 13.06% | 0.97 | 64 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

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 |
| 2011 | 14.88% | 12.68% | 1.05 | 14.88% | 12.31% | 1.07 | 81 |
| 2012 | 15.70% | 13.60% | 1.09 | 15.70% | 13.28% | 1.10 | 114 |
| 2013 | 14.48% | 13.43% | 1.06 | 14.48% | 13.02% | 1.08 | 95 |
| 2014 | 18.46% | 11.72% | 1.16 | 18.46% | 11.08% | 1.18 | 98 |
| 2015 | 17.89% | 11.08% | 1.10 | 17.89% | 10.54% | 1.11 | 126 |
| 2016 | 18.39% | 15.30% | 1.08 | 18.39% | 15.15% | 1.09 | 120 |
| 2017 | 13.94% | 13.03% | 1.02 | 13.94% | 12.36% | 1.03 | 119 |
| 2018 | 13.47% | 9.31% | 0.99 | 13.47% | 8.65% | 1.00 | 131 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Private equity

# Quarterly return

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q1 2001 | -5.98% |
| Q2 2001 | -0.27% |
| Q3 2001 | -4.12% |
| Q4 2001 | -3.46% |
| Q1 2002 | -0.70% |
| Q2 2002 | -2.64% |
| Q3 2002 | -2.46% |
| Q4 2002 | -0.36% |
| Q1 2003 | 0.50% |
| Q2 2003 | 5.63% |
| Q3 2003 | 3.96% |
| Q4 2003 | 9.10% |
| Q1 2004 | 8.82% |
| Q2 2004 | 0.57% |
| Q3 2004 | 2.97% |
| Q4 2004 | 13.27% |
| Q1 2005 | 2.19% |
| Q2 2005 | 8.69% |
| Q3 2005 | 7.73% |

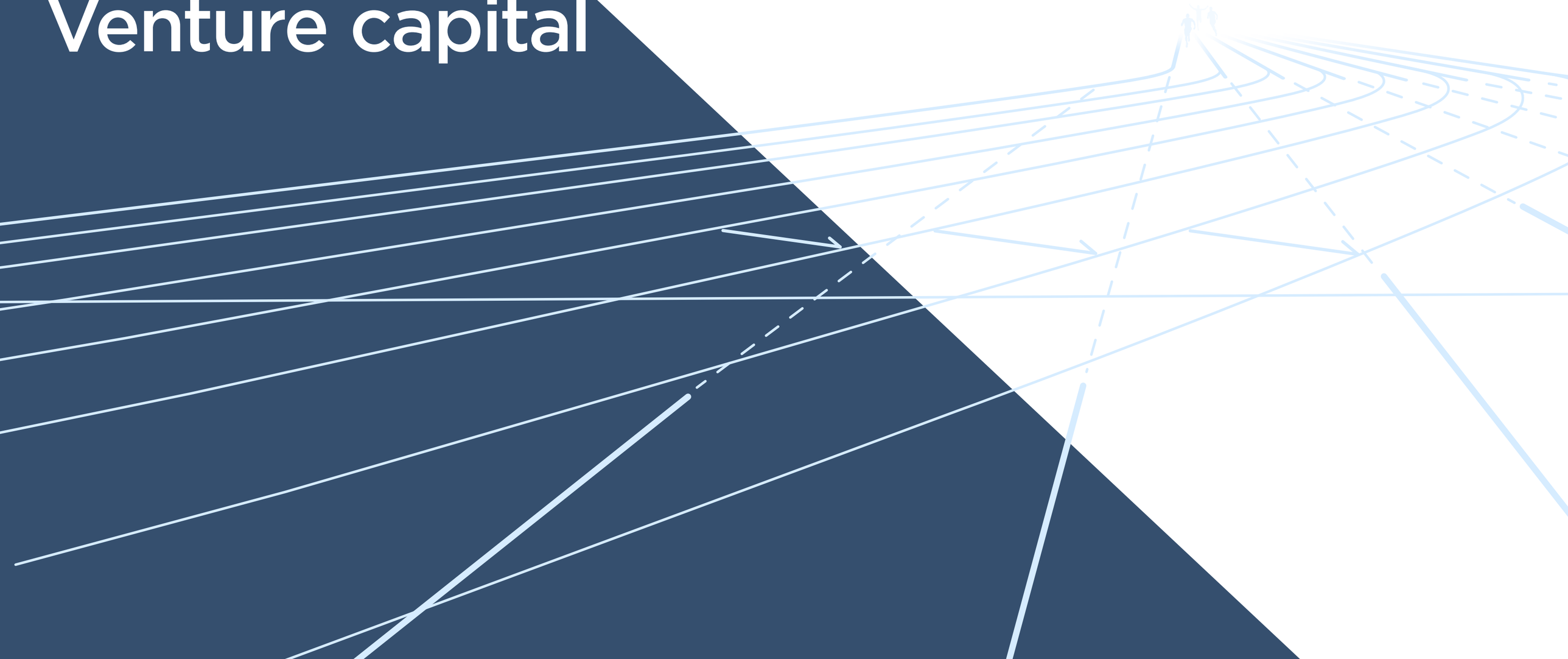
| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q4 2005 | 10.08% |
| Q1 2006 | 4.32% |
| Q2 2006 | 5.58% |
| Q3 2006 | 4.18% |
| Q4 2006 | 12.44% |
| Q1 2007 | 5.64% |
| Q2 2007 | 8.20% |
| Q3 2007 | 4.72% |
| Q4 2007 | 3.73% |
| Q1 2008 | -0.36% |
| Q2 2008 | -1.52% |
| Q3 2008 | -7.88% |
| Q4 2008 | -11.22% |
| Q1 2009 | -7.25% |
| Q2 2009 | 3.20% |
| Q3 2009 | 3.92% |
| Q4 2009 | 7.09% |
| Q1 2010 | 2.87% |
| Q2 2010 | 1.45% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q3 2010 | 4.49% |
| Q4 2010 | 7.47% |
| Q1 2011 | 5.24% |
| Q2 2011 | 4.44% |
| Q3 2011 | -2.80% |
| Q4 2011 | 1.09% |
| Q1 2012 | 5.82% |
| Q2 2012 | 0.70% |
| Q3 2012 | 3.83% |
| Q4 2012 | 3.26% |
| Q1 2013 | 3.22% |
| Q2 2013 | 2.99% |
| Q3 2013 | 4.81% |
| Q4 2013 | 5.70% |
| Q1 2014 | 4.47% |
| Q2 2014 | 6.11% |
| Q3 2014 | -0.20% |
| Q4 2014 | 2.97% |
| Q1 2015 | 3.41% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q2 2015 | 4.82% |
| Q3 2015 | 0.66% |
| Q4 2015 | 2.43% |
| Q1 2016 | 1.91% |
| Q2 2016 | 4.46% |
| Q3 2016 | 4.45% |
| Q4 2016 | 1.50% |
| Q1 2017 | 4.54% |
| Q2 2017 | 5.01% |
| Q3 2017 | 4.36% |
| Q4 2017 | 4.44% |
| Q1 2018 | 4.10% |
| Q2 2018 | 3.28% |
| Q3 2018 | 3.06% |
| Q4 2018 | -0.72% |
| Q1 2019 | 4.62% |
| Q2 2019 | 2.97% |
| Q3 2019 | 3.12% |
| Q4 2019 | 4.28% |

Source: PitchBook. Data as of December 31, 2019

# 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-1996 | 61.44% | 74.32% | 3 | 69.41% | 37.40% | 16.14% | 7.25% | 0.02% | 29.66% | 65 |
| 1996 | 91.71% | 143.96% | 8 | 116.37% | 74.78% | 37.56% | 9.93% | 1.27% | 55.15% | 16 |
| 1997 | 5.93% | 13.06% | 15 | 126.88% | 59.13% | 18.75% | 0.42% | -5.15% | 121.47% | 22 |
| 1998 | 6.60% | 5.21% | 21 | 44.32% | 13.96% | 9.22% | -7.44% | -10.57% | 35.12% | 25 |
| 1999 | -2.25% | -3.29% | 38 | 10.67% | 6.00% | -3.18% | -10.26% | -17.37% | 21.33% | 49 |
| 2000 | -0.04% | -1.30% | 58 | 7.59% | 3.19% | -1.08% | -5.93% | -14.97% | 10.78% | 88 |
| 2001 | 4.86% | 2.66% | 36 | 14.77% | 6.60% | 2.46% | -2.57% | -14.46% | 14.54% | 54 |
| 2002 | 3.14% | 3.02% | 17 | 9.79% | 6.78% | 3.15% | -4.27% | -11.72% | 10.46% | 30 |
| 2003 | 5.21% | 1.57% | 18 | 13.82% | 7.94% | 1.31% | -6.46% | -20.22% | 36.83% | 30 |
| 2004 | 4.02% | 6.45% | 21 | 10.30% | 6.19% | 0.30% | -12.26% | -19.69% | 17.16% | 33 |
| 2005 | 7.73% | 6.73% | 32 | 14.36% | 9.80% | 4.20% | 0.37% | -7.99% | 17.54% | 47 |
| 2006 | 5.46% | 3.53% | 42 | 21.03% | 11.00% | 4.80% | -4.81% | -10.15% | 13.91% | 57 |
| 2007 | 11.35% | 11.19% | 47 | 24.39% | 15.30% | 8.35% | 0.13% | -9.40% | 15.30% | 66 |
| 2008 | 13.62% | 9.91% | 55 | 27.03% | 20.06% | 8.11% | -1.82% | -17.66% | 21.35% | 64 |
| 2009 | 9.79% | 8.60% | 20 | 30.03% | 22.49% | 12.93% | 6.76% | -0.21% | 14.96% | 30 |
| 2010 | 16.65% | 17.76% | 25 | 33.58% | 25.46% | 11.32% | 2.60% | -4.46% | 17.20% | 33 |

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 17.36% | 15.42% | 21 | 24.27% | 21.20% | 14.18% | 4.14% | -4.82% | 12.54% | 38 |
| 2012 | 17.09% | 16.57% | 20 | 29.28% | 22.00% | 16.75% | 11.24% | 0.38% | 21.26% | 24 |
| 2013 | 19.83% | 14.49% | 23 | 34.29% | 30.19% | 15.50% | 9.02% | -10.11% | 27.16% | 30 |
| 2014 | 20.57% | 21.82% | 38 | 44.50% | 24.10% | 17.70% | 12.40% | 3.90% | 62.81% | 41 |
| 2015 | 19.25% | 17.62% | 46 | 33.68% | 21.16% | 15.00% | 9.48% | 5.95% | 11.62% | 43 |
| 2016 | 24.14% | 28.22% | 53 | 49.25% | 30.78% | 20.77% | 12.55% | 6.72% | 16.33% | 55 |
| 2017 | 21.28% | 23.12% | 37 | 49.82% | 34.40% | 20.10% | 11.42% | 1.65% | 22.40% | 33 |
| 2018 | 10.67% | 9.80% | 49 | 35.15% | 19.89% | 0.50% | -11.04% | -13.94% | 21.36% | 35 |

Source: PitchBook. Data as of December 31, 2019

Venture capital

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| Pre-1996 | 2.68x | 2.68x | 0.00x | 2.98x | 2.98x | 0.00x | 3 |
| 1996 | 3.44x | 3.41x | 0.02x | 4.47x | 4.44x | 0.03x | 8 |
| 1997 | 1.23x | 1.23x | 0.00x | 1.41x | 1.41x | 0.00x | 15 |
| 1998 | 1.31x | 1.30x | 0.01x | 1.22x | 1.20x | 0.02x | 21 |
| 1999 | 0.85x | 0.77x | 0.07x | 0.79x | 0.74x | 0.04x | 38 |
| 2000 | 1.00x | 0.94x | 0.05x | 0.91x | 0.88x | 0.04x | 58 |
| 2001 | 1.38x | 1.33x | 0.06x | 1.20x | 1.12x | 0.08x | 36 |
| 2002 | 1.19x | 1.17x | 0.02x | 1.20x | 1.10x | 0.10x | 17 |
| 2003 | 1.38x | 1.30x | 0.07x | 1.10x | 1.05x | 0.05x | 18 |
| 2004 | 1.31x | 1.16x | 0.15x | 1.53x | 1.34x | 0.19x | 21 |
| 2005 | 1.65x | 1.36x | 0.29x | 1.57x | 1.23x | 0.33x | 32 |
| 2006 | 1.39x | 1.09x | 0.30x | 1.26x | 0.93x | 0.33x | 42 |
| 2007 | 1.88x | 1.42x | 0.46x | 1.89x | 1.41x | 0.48x | 47 |
| 2008 | 1.91x | 1.52x | 0.39x | 1.65x | 1.24x | 0.41x | 55 |
| 2009 | 1.74x | 1.02x | 0.71x | 1.63x | 0.90x | 0.73x | 20 |
| 2010 | 2.10x | 1.20x | 0.89x | 2.26x | 1.33x | 0.93x | 25 |

Source: PitchBook. Data as of December 31, 2019

Venture capital

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| 2011 | 2.11x | 0.98x | 1.13x | 2.01x | 0.79x | 1.23x | 21 |
| 2012 | 2.12x | 0.75x | 1.37x | 2.08x | 0.52x | 1.56x | 20 |
| 2013 | 1.89x | 0.51x | 1.38x | 1.63x | 0.38x | 1.25x | 23 |
| 2014 | 1.88x | 0.26x | 1.62x | 1.88x | 0.24x | 1.64x | 38 |
| 2015 | 1.57x | 0.23x | 1.34x | 1.51x | 0.21x | 1.30x | 46 |
| 2016 | 1.47x | 0.09x | 1.38x | 1.61x | 0.13x | 1.48x | 53 |
| 2017 | 1.30x | 0.05x | 1.25x | 1.40x | 0.06x | 1.34x | 37 |
| 2018 | 1.08x | 0.02x | 1.06x | 1.08x | 0.04x | 1.04x | 49 |

Source: PitchBook. Data as of December 31, 2019

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-1996 | | | 2.13x | | | | | 2.13x | | | 3 |
| 1996 | | 4.15x | 1.90x | 1.41x | | | 4.15x | 1.82x | 1.40x | | 8 |
| 1997 | 2.43x | 1.71x | 1.14x | 0.87x | 0.64x | 2.43x | 1.71x | 1.14x | 0.87x | 0.64x | 15 |
| 1998 | 1.80x | 1.68x | 1.23x | 0.69x | 0.47x | 1.80x | 1.68x | 1.23x | 0.69x | 0.47x | 21 |
| 1999 | 1.68x | 1.10x | 0.69x | 0.39x | 0.20x | 1.39x | 0.99x | 0.69x | 0.36x | 0.20x | 38 |
| 2000 | 1.43x | 1.18x | 0.93x | 0.63x | 0.37x | 1.43x | 1.13x | 0.89x | 0.55x | 0.31x | 58 |
| 2001 | 1.81x | 1.49x | 1.20x | 0.77x | 0.29x | 1.81x | 1.40x | 1.08x | 0.69x | 0.26x | 36 |
| 2002 | 1.78x | 1.74x | 1.18x | 0.68x | 0.50x | 1.78x | 1.61x | 1.18x | 0.57x | 0.34x | 17 |
| 2003 | 1.56x | 1.45x | 1.12x | 0.58x | 0.42x | 1.50x | 1.34x | 1.08x | 0.58x | 0.42x | 18 |
| 2004 | 1.89x | 1.48x | 1.02x | 0.54x | 0.33x | 1.54x | 1.19x | 0.79x | 0.42x | 0.09x | 21 |
| 2005 | 2.37x | 1.68x | 1.30x | 1.12x | 0.67x | 2.03x | 1.50x | 1.09x | 0.82x | 0.50x | 32 |
| 2006 | 2.18x | 1.60x | 1.15x | 0.61x | 0.41x | 1.70x | 1.38x | 0.91x | 0.49x | 0.27x | 42 |
| 2007 | 2.91x | 2.24x | 1.75x | 0.97x | 0.47x | 2.50x | 1.78x | 1.26x | 0.48x | 0.12x | 47 |
| 2008 | 2.85x | 2.02x | 1.45x | 0.87x | 0.27x | 2.48x | 1.71x | 0.78x | 0.41x | 0.20x | 55 |
| 2009 | 2.44x | 1.94x | 1.63x | 1.23x | 0.85x | 1.58x | 1.16x | 0.89x | 0.46x | 0.23x | 20 |
| 2010 | 3.46x | 2.89x | 1.83x | 1.26x | 0.79x | 2.36x | 1.50x | 1.16x | 0.56x | 0.41x | 25 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 3.41x | 2.36x | 1.95x | 1.38x | 0.99x | 1.36x | 1.23x | 0.67x | 0.41x | 0.15x | 21 |
| 2012 | 2.63x | 2.36x | 1.82x | 1.29x | 0.98x | 0.99x | 0.73x | 0.40x | 0.12x | 0.00x | 20 |
| 2013 | 2.33x | 1.83x | 1.54x | 1.40x | 0.74x | 1.16x | 0.46x | 0.24x | 0.07x | 0.00x | 23 |
| 2014 | 2.71x | 2.00x | 1.73x | 1.41x | 1.05x | 0.47x | 0.37x | 0.11x | 0.03x | 0.00x | 38 |
| 2015 | 1.93x | 1.74x | 1.41x | 1.20x | 1.08x | 0.68x | 0.24x | 0.04x | 0.00x | 0.00x | 46 |
| 2016 | 2.07x | 1.63x | 1.43x | 1.18x | 1.06x | 0.40x | 0.16x | 0.00x | 0.00x | 0.00x | 53 |
| 2017 | 1.75x | 1.46x | 1.22x | 1.11x | 0.97x | 0.19x | 0.05x | 0.00x | 0.00x | 0.00x | 37 |
| 2018 | 1.23x | 1.13x | 0.99x | 0.90x | 0.81x | 0.01x | 0.00x | 0.00x | 0.00x | 0.00x | 49 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

Venture capital

# PMEs by vintage

| | S&P 500 Index | | | Russell 2000 Growth | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | PitchBook Benchmark return (%) | Index return (%) | KS-PME | PitchBook Benchmark return (%) | Index return (%) | KS-PME | Number of funds |
| 1996 | 91.71% | 8.91% | 2.65 | 91.71% | 8.02% | 2.93 | 8 |
| 1997 | 5.93% | 8.22% | 1.08 | 5.93% | 7.69% | 0.96 | 15 |
| 1998 | 6.60% | 7.21% | 1.18 | 6.60% | 6.94% | 0.95 | 21 |
| 1999 | -2.25% | 6.42% | 0.73 | -2.25% | 7.74% | 0.58 | 38 |
| 2000 | -0.04% | 6.05% | 0.72 | -0.04% | 6.53% | 0.61 | 58 |
| 2001 | 4.86% | 6.93% | 0.91 | 4.86% | 7.52% | 0.83 | 36 |
| 2002 | 3.14% | 7.97% | 0.87 | 3.14% | 7.81% | 0.81 | 17 |
| 2003 | 5.21% | 10.14% | 0.89 | 5.21% | 9.96% | 0.88 | 18 |
| 2004 | 4.02% | 8.78% | 0.81 | 4.02% | 7.40% | 0.82 | 21 |
| 2005 | 7.73% | 8.90% | 0.95 | 7.73% | 7.32% | 1.01 | 32 |
| 2006 | 5.46% | 8.84% | 0.79 | 5.46% | 6.60% | 0.84 | 42 |
| 2007 | 11.35% | 8.52% | 1.01 | 11.35% | 6.28% | 1.08 | 47 |
| 2008 | 13.62% | 9.59% | 1.02 | 13.62% | 7.94% | 1.12 | 55 |
| 2009 | 9.79% | 15.67% | 0.80 | 9.79% | 13.50% | 0.94 | 20 |
| 2010 | 16.65% | 13.24% | 1.12 | 16.65% | 10.22% | 1.33 | 25 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Venture capital

# PMEs by vintage

| | S&P 500 Index | | | Russell 2000 Growth | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | PitchBook Benchmark return (%) | Index return (%) | KS-PME | PitchBook Benchmark return (%) | Index return (%) | KS-PME | Number of funds |
| 2011 | 17.36% | 12.68% | 1.19 | 17.36% | 8.44% | 1.45 | 21 |
| 2012 | 17.09% | 13.60% | 1.21 | 17.09% | 9.38% | 1.50 | 20 |
| 2013 | 19.83% | 13.43% | 1.27 | 19.83% | 8.58% | 1.51 | 23 |
| 2014 | 20.57% | 11.72% | 1.28 | 20.57% | 5.39% | 1.50 | 38 |
| 2015 | 19.25% | 11.08% | 1.16 | 19.25% | 5.31% | 1.30 | 46 |
| 2016 | 24.14% | 15.30% | 1.19 | 24.14% | 10.45% | 1.29 | 53 |
| 2017 | 21.28% | 13.03% | 1.11 | 21.28% | 9.17% | 1.20 | 37 |
| 2018 | 10.67% | 9.31% | 0.98 | 10.67% | 3.14% | 1.04 | 49 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Venture capital

# Quarterly return

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q1 2001 | -11.85% |
| Q2 2001 | -9.42% |
| Q3 2001 | -12.85% |
| Q4 2001 | -11.61% |
| Q1 2002 | -8.25% |
| Q2 2002 | -12.15% |
| Q3 2002 | -9.14% |
| Q4 2002 | -9.99% |
| Q1 2003 | -7.77% |
| Q2 2003 | -2.16% |
| Q3 2003 | -2.41% |
| Q4 2003 | 4.30% |
| Q1 2004 | -2.07% |
| Q2 2004 | 0.97% |
| Q3 2004 | -0.86% |
| Q4 2004 | 2.72% |
| Q1 2005 | -1.62% |
| Q2 2005 | 0.54% |
| Q3 2005 | 4.95% |

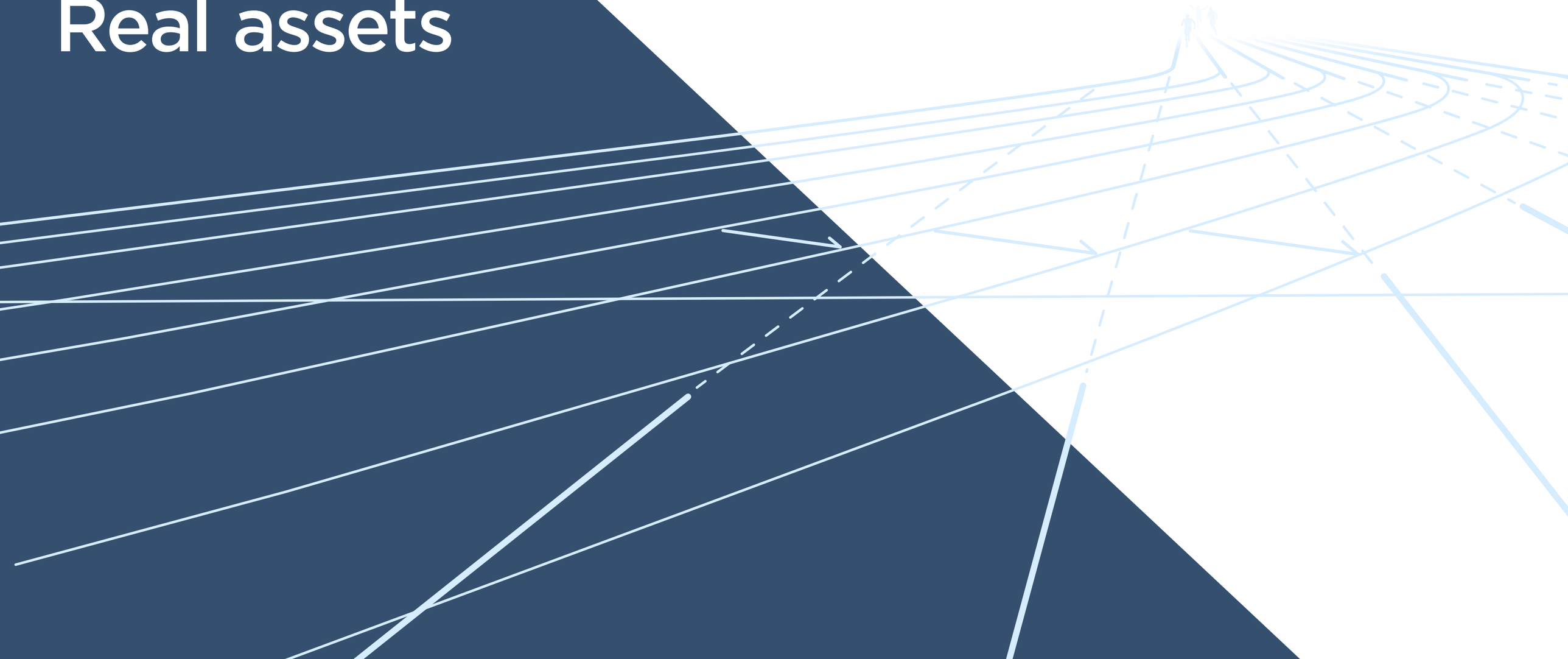
| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q4 2005 | 2.88% |
| Q1 2006 | 3.04% |
| Q2 2006 | 1.03% |
| Q3 2006 | 1.98% |
| Q4 2006 | 6.27% |
| Q1 2007 | 2.10% |
| Q2 2007 | 4.62% |
| Q3 2007 | 2.56% |
| Q4 2007 | 3.55% |
| Q1 2008 | 2.18% |
| Q2 2008 | -2.13% |
| Q3 2008 | -3.20% |
| Q4 2008 | -8.35% |
| Q1 2009 | -3.47% |
| Q2 2009 | -0.45% |
| Q3 2009 | 0.72% |
| Q4 2009 | 2.99% |
| Q1 2010 | 1.11% |
| Q2 2010 | 0.20% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q3 2010 | 3.79% |
| Q4 2010 | 6.22% |
| Q1 2011 | 4.42% |
| Q2 2011 | 4.84% |
| Q3 2011 | -0.21% |
| Q4 2011 | 1.78% |
| Q1 2012 | 4.14% |
| Q2 2012 | 1.11% |
| Q3 2012 | -0.25% |
| Q4 2012 | 1.90% |
| Q1 2013 | 2.15% |
| Q2 2013 | 4.36% |
| Q3 2013 | 4.83% |
| Q4 2013 | 7.05% |
| Q1 2014 | 5.71% |
| Q2 2014 | 3.88% |
| Q3 2014 | 2.45% |
| Q4 2014 | 6.63% |
| Q1 2015 | 4.39% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q2 2015 | 5.83% |
| Q3 2015 | 0.27% |
| Q4 2015 | 2.23% |
| Q1 2016 | -3.14% |
| Q2 2016 | -0.20% |
| Q3 2016 | 2.49% |
| Q4 2016 | 0.57% |
| Q1 2017 | 2.35% |
| Q2 2017 | 1.80% |
| Q3 2017 | 3.89% |
| Q4 2017 | 2.69% |
| Q1 2018 | 6.09% |
| Q2 2018 | 6.25% |
| Q3 2018 | 3.41% |
| Q4 2018 | 1.61% |
| Q1 2019 | 5.36% |
| Q2 2019 | 2.79% |
| Q3 2019 | 1.96% |
| Q4 2019 | 4.96% |

Source: PitchBook. Data as of December 31, 2019

# 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-1996 | 18.01% | 18.01% | 1 | | 22.30% | 20.00% | 8.91% | | 7.78% | 9 |
| 1996 | 10.02% | 7.45% | 5 | 13.37% | 11.18% | 10.14% | 6.42% | 4.72% | 6.24% | 11 |
| 1997 | 14.83% | 39.68% | 8 | 23.12% | 17.69% | 14.55% | 6.80% | 2.35% | 8.73% | 12 |
| 1998 | 9.70% | 9.53% | 11 | 21.11% | 12.90% | 7.30% | 3.78% | -1.50% | 9.70% | 15 |
| 1999 | 12.19% | 12.28% | 3 | | 18.10% | 11.04% | 8.40% | | 7.48% | 9 |
| 2000 | 15.25% | 13.35% | 12 | 23.47% | 19.69% | 13.00% | 4.37% | 2.74% | 10.27% | 15 |
| 2001 | 35.74% | 34.23% | 4 | 32.77% | 28.76% | 22.99% | 16.57% | 10.92% | 11.34% | 10 |
| 2002 | 24.23% | 26.34% | 6 | 32.91% | 25.99% | 10.58% | 3.82% | -4.65% | 22.27% | 15 |
| 2003 | 17.81% | 18.32% | 7 | 32.95% | 28.20% | 17.53% | 8.70% | 4.15% | 47.83% | 21 |
| 2004 | 9.18% | 7.72% | 11 | 17.66% | 11.62% | 6.47% | 1.20% | -1.02% | 17.39% | 27 |
| 2005 | 2.24% | 2.48% | 35 | 12.68% | 6.08% | 1.54% | -3.57% | -8.74% | 17.83% | 49 |
| 2006 | -1.46% | -2.41% | 43 | 7.96% | 4.36% | -0.70% | -7.60% | -16.07% | 15.62% | 67 |
| 2007 | 3.75% | 2.72% | 70 | 12.78% | 10.73% | 4.73% | -1.25% | -13.53% | 11.68% | 92 |
| 2008 | 5.39% | 5.51% | 63 | 16.49% | 11.10% | 7.06% | 0.28% | -6.94% | 10.72% | 86 |
| 2009 | 5.01% | 6.12% | 36 | 21.40% | 16.05% | 9.30% | 1.87% | -12.30% | 14.48% | 41 |
| 2010 | 8.31% | 7.88% | 45 | 19.47% | 17.09% | 9.80% | 6.24% | -2.72% | 16.47% | 60 |

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 10.57% | 9.58% | 58 | 24.64% | 19.36% | 13.01% | 6.31% | -4.18% | 11.11% | 62 |
| 2012 | 9.52% | 10.17% | 73 | 21.89% | 15.84% | 11.20% | 8.00% | 4.60% | 15.43% | 79 |
| 2013 | 10.65% | 10.42% | 76 | 19.38% | 14.95% | 10.65% | 6.33% | -2.33% | 12.06% | 68 |
| 2014 | 9.89% | 10.56% | 96 | 21.86% | 14.77% | 11.73% | 8.04% | 2.74% | 10.03% | 88 |
| 2015 | 12.12% | 11.27% | 122 | 21.35% | 15.13% | 11.85% | 8.28% | 6.10% | 19.40% | 100 |
| 2016 | 10.15% | 10.86% | 101 | 26.34% | 14.35% | 9.78% | 7.14% | 1.06% | 40.84% | 102 |
| 2017 | 16.58% | 17.76% | 83 | 20.71% | 14.81% | 9.95% | 2.24% | -19.11% | 17.54% | 70 |
| 2018 | 10.85% | 36.72% | 116 | 21.54% | 11.70% | 4.70% | -2.39% | -23.42% | 25.61% | 77 |

Source: PitchBook. Data as of December 31, 2019

Real assets

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| Pre-1996 | 2.47x | 2.47x | 0.00x | 2.47x | 2.47x | 0.00x | 1 |
| 1996 | 1.47x | 1.47x | 0.00x | 1.49x | 1.49x | 0.00x | 5 |
| 1997 | 1.92x | 1.82x | 0.10x | 2.77x | 2.51x | 0.26x | 8 |
| 1998 | 1.49x | 1.48x | 0.01x | 1.50x | 1.49x | 0.01x | 11 |
| 1999 | 1.93x | 1.92x | 0.01x | 1.87x | 1.83x | 0.03x | 3 |
| 2000 | 1.67x | 1.67x | 0.00x | 1.59x | 1.57x | 0.01x | 12 |
| 2001 | 2.20x | 2.20x | 0.01x | 2.23x | 2.23x | 0.00x | 4 |
| 2002 | 1.64x | 1.63x | 0.01x | 1.75x | 1.68x | 0.07x | 6 |
| 2003 | 1.57x | 1.56x | 0.01x | 1.68x | 1.66x | 0.02x | 7 |
| 2004 | 1.41x | 1.39x | 0.02x | 1.41x | 1.34x | 0.07x | 11 |
| 2005 | 1.13x | 1.09x | 0.04x | 1.15x | 1.09x | 0.06x | 35 |
| 2006 | 0.92x | 0.83x | 0.08x | 0.86x | 0.76x | 0.10x | 43 |
| 2007 | 1.22x | 1.14x | 0.08x | 1.15x | 1.05x | 0.10x | 70 |
| 2008 | 1.27x | 1.09x | 0.18x | 1.28x | 1.08x | 0.20x | 63 |
| 2009 | 1.22x | 0.98x | 0.24x | 1.30x | 1.05x | 0.25x | 36 |
| 2010 | 1.39x | 0.98x | 0.41x | 1.41x | 0.91x | 0.50x | 45 |

Source: PitchBook. Data as of December 31, 2019

Real assets

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| 2011 | 1.45x | 1.05x | 0.40x | 1.43x | 1.02x | 0.40x | 58 |
| 2012 | 1.37x | 0.87x | 0.50x | 1.39x | 0.95x | 0.44x | 73 |
| 2013 | 1.35x | 0.77x | 0.58x | 1.35x | 0.79x | 0.56x | 76 |
| 2014 | 1.27x | 0.54x | 0.74x | 1.35x | 0.51x | 0.84x | 96 |
| 2015 | 1.27x | 0.42x | 0.85x | 1.30x | 0.46x | 0.84x | 122 |
| 2016 | 1.19x | 0.27x | 0.92x | 1.23x | 0.34x | 0.89x | 101 |
| 2017 | 1.21x | 0.21x | 0.99x | 1.25x | 0.27x | 0.98x | 83 |
| 2018 | 1.11x | 0.18x | 0.93x | 1.36x | 0.43x | 0.93x | 116 |

Source: PitchBook. Data as of December 31, 2019

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-1996 | | | 2.47x | | | | | 2.47x | | | 1 |
| 1996 | | 1.58x | 1.46x | 1.13x | | | 1.58x | 1.46x | 1.13x | | 5 |
| 1997 | | 2.53x | 1.82x | 1.38x | | | 2.16x | 1.60x | 1.38x | | 8 |
| 1998 | 1.92x | 1.56x | 1.35x | 1.31x | 0.92x | 1.92x | 1.56x | 1.35x | 1.28x | 0.92x | 11 |
| 1999 | | | 2.20x | | | | | 2.19x | | | 3 |
| 2000 | 1.85x | 1.59x | 1.40x | 1.22x | 1.12x | 1.85x | 1.59x | 1.40x | 1.17x | 1.10x | 12 |
| 2001 | | 2.70x | 2.32x | 1.88x | | | 2.70x | 2.32x | 1.87x | | 4 |
| 2002 | | 2.07x | 1.94x | 1.48x | | | 2.00x | 1.75x | 1.45x | | 6 |
| 2003 | | 1.94x | 1.49x | 1.30x | | | 1.94x | 1.49x | 1.26x | | 7 |
| 2004 | 2.13x | 1.78x | 1.33x | 1.07x | 0.84x | 1.91x | 1.62x | 1.33x | 0.98x | 0.84x | 11 |
| 2005 | 1.94x | 1.32x | 1.10x | 0.77x | 0.60x | 1.73x | 1.29x | 1.09x | 0.72x | 0.47x | 35 |
| 2006 | 1.40x | 1.14x | 0.85x | 0.52x | 0.36x | 1.29x | 1.02x | 0.68x | 0.46x | 0.15x | 43 |
| 2007 | 1.70x | 1.43x | 1.15x | 0.89x | 0.43x | 1.64x | 1.36x | 1.08x | 0.77x | 0.28x | 70 |
| 2008 | 1.85x | 1.59x | 1.19x | 0.95x | 0.58x | 1.67x | 1.42x | 1.05x | 0.69x | 0.46x | 63 |
| 2009 | 2.12x | 1.50x | 1.28x | 1.11x | 0.50x | 1.90x | 1.45x | 1.05x | 0.48x | 0.30x | 36 |
| 2010 | 1.89x | 1.61x | 1.42x | 1.21x | 0.94x | 1.62x | 1.39x | 0.89x | 0.45x | 0.29x | 45 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 2.05x | 1.72x | 1.45x | 1.22x | 0.83x | 1.78x | 1.45x | 1.06x | 0.51x | 0.23x | 58 |
| 2012 | 1.83x | 1.53x | 1.41x | 1.24x | 1.05x | 1.51x | 1.34x | 0.95x | 0.57x | 0.22x | 73 |
| 2013 | 1.62x | 1.55x | 1.38x | 1.19x | 0.97x | 1.45x | 1.20x | 0.71x | 0.39x | 0.21x | 76 |
| 2014 | 1.66x | 1.49x | 1.33x | 1.19x | 1.01x | 1.11x | 0.73x | 0.40x | 0.17x | 0.08x | 96 |
| 2015 | 1.52x | 1.39x | 1.28x | 1.16x | 1.03x | 1.05x | 0.67x | 0.31x | 0.12x | 0.03x | 122 |
| 2016 | 1.48x | 1.31x | 1.18x | 1.10x | 0.95x | 0.66x | 0.40x | 0.22x | 0.07x | 0.00x | 101 |
| 2017 | 1.40x | 1.22x | 1.10x | 1.00x | 0.83x | 0.36x | 0.22x | 0.10x | 0.01x | 0.00x | 83 |
| 2018 | 1.37x | 1.13x | 1.03x | 0.94x | 0.78x | 0.34x | 0.13x | 0.03x | 0.00x | 0.00x | 116 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

Real assets

# PMEs by vintage

| | S&P 500 Index | | | Morningstar US Real Assets | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | PitchBook Benchmark return (%) | Index return (%) | KS-PME | PitchBook Benchmark return (%) | Index return (%) | KS-PME | Number of funds |
| 1996 | 10.02% | 8.91% | 1.14 | 10.02% | | | 5 |
| 1997 | 14.83% | 8.22% | 1.57 | 14.83% | | | 8 |
| 1998 | 9.70% | 7.21% | 1.46 | 9.70% | | | 11 |
| 1999 | 12.19% | 6.42% | 1.72 | 12.19% | | | 3 |
| 2000 | 15.25% | 6.05% | 1.51 | 15.25% | | | 12 |
| 2001 | 35.74% | 6.93% | 1.79 | 35.74% | 6.61% | 1.62 | 4 |
| 2002 | 24.23% | 7.97% | 1.27 | 24.23% | 6.56% | 1.25 | 6 |
| 2003 | 17.81% | 10.14% | 1.30 | 17.81% | 6.24% | 1.23 | 7 |
| 2004 | 9.18% | 8.78% | 1.15 | 9.18% | 5.48% | 1.07 | 11 |
| 2005 | 2.24% | 8.90% | 0.79 | 2.24% | 4.94% | 0.84 | 35 |
| 2006 | -1.46% | 8.84% | 0.60 | -1.46% | 4.56% | 0.69 | 43 |
| 2007 | 3.75% | 8.52% | 0.72 | 3.75% | 4.31% | 0.94 | 70 |
| 2008 | 5.39% | 9.59% | 0.74 | 5.39% | 3.47% | 1.05 | 63 |
| 2009 | 5.01% | 15.67% | 0.71 | 5.01% | 5.21% | 1.06 | 36 |
| 2010 | 8.31% | 13.24% | 0.82 | 8.31% | 3.73% | 1.22 | 45 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Real assets

# PMEs by vintage

| | S&P 500 Index | | | Morningstar US Real Assets | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | PitchBook Benchmark return (%) | Index return (%) | KS-PME | PitchBook Benchmark return (%) | Index return (%) | KS-PME | Number of funds |
| 2011 | 10.57% | 12.68% | 0.91 | 10.57% | 2.32% | 1.35 | 58 |
| 2012 | 9.52% | 13.60% | 0.90 | 9.52% | 1.74% | 1.29 | 73 |
| 2013 | 10.65% | 13.43% | 0.96 | 10.65% | 1.66% | 1.28 | 76 |
| 2014 | 9.89% | 11.72% | 0.94 | 9.89% | 2.14% | 1.20 | 96 |
| 2015 | 12.12% | 11.08% | 0.98 | 12.12% | 1.80% | 1.20 | 122 |
| 2016 | 10.15% | 15.30% | 0.95 | 10.15% | 3.94% | 1.12 | 101 |
| 2017 | 16.58% | 13.03% | 1.05 | 16.58% | 3.21% | 1.16 | 83 |
| 2018 | 10.85% | 9.31% | 0.98 | 10.85% | 3.61% | 1.07 | 116 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Real assets

# Quarterly return

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q1 2001 | 2.58% |
| Q2 2001 | 1.55% |
| Q3 2001 | -0.85% |
| Q4 2001 | 2.46% |
| Q1 2002 | 3.89% |
| Q2 2002 | 1.06% |
| Q3 2002 | -0.02% |
| Q4 2002 | -0.26% |
| Q1 2003 | -2.09% |
| Q2 2003 | 1.91% |
| Q3 2003 | 4.09% |
| Q4 2003 | 10.48% |
| Q1 2004 | -1.28% |
| Q2 2004 | 4.79% |
| Q3 2004 | 1.45% |
| Q4 2004 | 19.39% |
| Q1 2005 | 2.71% |
| Q2 2005 | 13.44% |
| Q3 2005 | 8.64% |

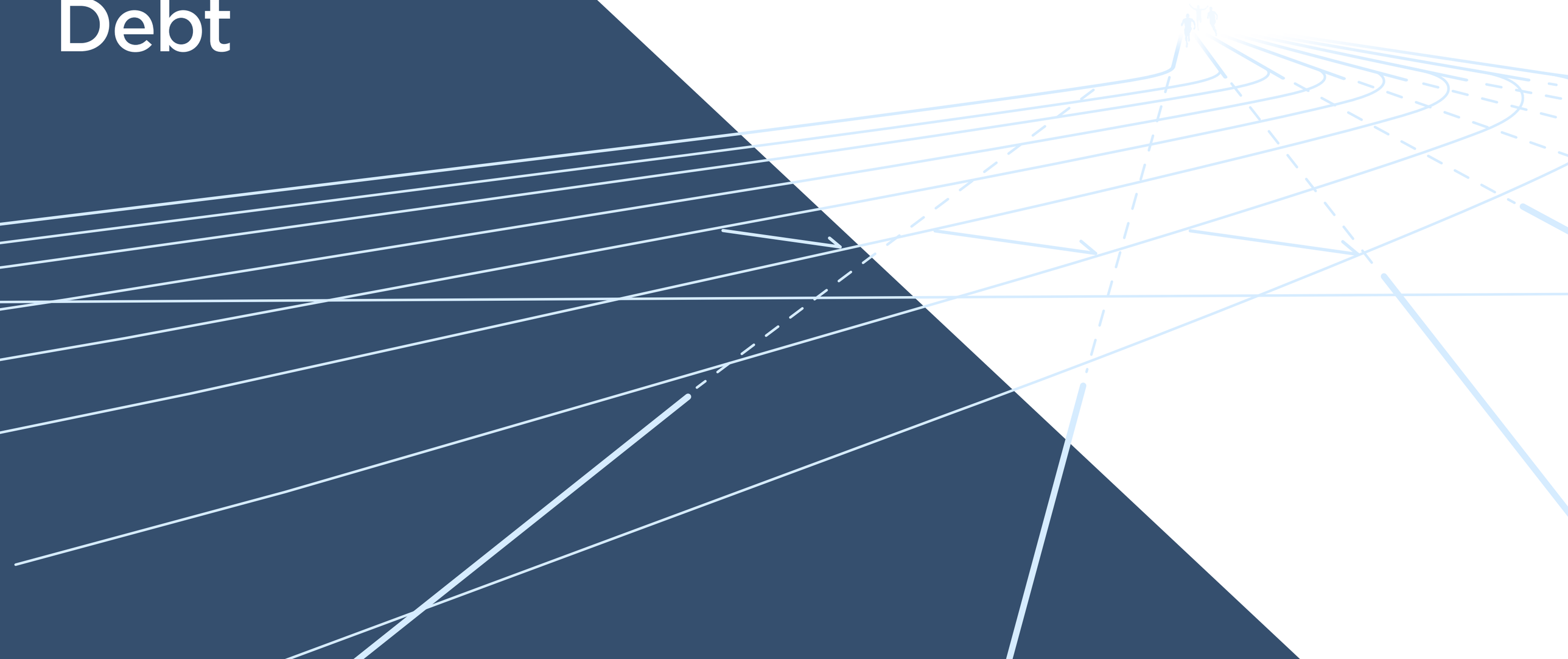
| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q4 2005 | 9.48% |
| Q1 2006 | 3.97% |
| Q2 2006 | 7.40% |
| Q3 2006 | 9.09% |
| Q4 2006 | 17.88% |
| Q1 2007 | 2.93% |
| Q2 2007 | 1.86% |
| Q3 2007 | 2.69% |
| Q4 2007 | 6.37% |
| Q1 2008 | -3.78% |
| Q2 2008 | -2.92% |
| Q3 2008 | -4.68% |
| Q4 2008 | -12.47% |
| Q1 2009 | -13.99% |
| Q2 2009 | -7.83% |
| Q3 2009 | -3.28% |
| Q4 2009 | -2.46% |
| Q1 2010 | -3.75% |
| Q2 2010 | 1.55% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q3 2010 | 4.29% |
| Q4 2010 | 7.95% |
| Q1 2011 | 4.74% |
| Q2 2011 | 4.05% |
| Q3 2011 | 0.13% |
| Q4 2011 | 2.40% |
| Q1 2012 | 3.07% |
| Q2 2012 | -0.06% |
| Q3 2012 | 2.98% |
| Q4 2012 | 2.18% |
| Q1 2013 | 3.46% |
| Q2 2013 | 2.27% |
| Q3 2013 | 1.63% |
| Q4 2013 | 4.24% |
| Q1 2014 | 3.34% |
| Q2 2014 | 4.71% |
| Q3 2014 | 2.92% |
| Q4 2014 | 0.24% |
| Q1 2015 | 0.81% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q2 2015 | 3.70% |
| Q3 2015 | 0.24% |
| Q4 2015 | 0.28% |
| Q1 2016 | 1.31% |
| Q2 2016 | 3.11% |
| Q3 2016 | 3.01% |
| Q4 2016 | 2.80% |
| Q1 2017 | 3.73% |
| Q2 2017 | 3.10% |
| Q3 2017 | 2.59% |
| Q4 2017 | 2.43% |
| Q1 2018 | 2.58% |
| Q2 2018 | 2.88% |
| Q3 2018 | 3.55% |
| Q4 2018 | -0.70% |
| Q1 2019 | 2.91% |
| Q2 2019 | 0.19% |
| Q3 2019 | -1.24% |
| Q4 2019 | 1.95% |

Source: PitchBook. Data as of December 31, 2019

# 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-1996 | | | | | 18.55% | 13.05% | 8.04% | | 20.80% | 8 |
| 1996 | 6.01% | 6.01% | 1 | | | 5.40% | | | | 1 |
| 1997 | 10.84% | 16.53% | 3 | | 35.20% | 21.68% | 10.20% | | 22.55% | 5 |
| 1998 | | | | | | 10.66% | | | 6.57% | 2 |
| 1999 | 11.58% | 11.00% | 2 | | | 10.54% | | | 2.04% | 2 |
| 2000 | 8.01% | 0.83% | 4 | | 16.26% | 7.25% | 0.55% | | 14.06% | 6 |
| 2001 | 27.52% | 29.86% | 3 | | 33.25% | 27.56% | 25.68% | | 12.04% | 4 |
| 2002 | 17.50% | 22.65% | 4 | | 17.01% | 15.71% | 10.50% | | 27.28% | 6 |
| 2003 | 13.25% | 13.44% | 8 | 20.60% | 13.23% | 8.85% | 7.39% | 6.16% | 7.63% | 10 |
| 2004 | 8.31% | 10.21% | 4 | | 14.99% | 10.69% | 7.05% | | 13.91% | 7 |
| 2005 | 6.05% | 5.79% | 7 | | 8.40% | 5.00% | 0.00% | | 7.01% | 9 |
| 2006 | 6.83% | 5.50% | 13 | 10.69% | 7.08% | 4.20% | 1.13% | -1.98% | 6.68% | 15 |
| 2007 | 6.86% | 6.51% | 20 | 12.68% | 9.14% | 5.60% | 2.21% | -0.26% | 7.25% | 24 |
| 2008 | 14.15% | 14.05% | 17 | 18.50% | 14.58% | 11.84% | 8.62% | 7.29% | 11.83% | 24 |
| 2009 | 8.09% | 7.21% | 12 | 15.44% | 11.40% | 8.58% | 4.70% | 1.70% | 7.93% | 13 |
| 2010 | 12.25% | 11.99% | 19 | 17.76% | 13.71% | 11.60% | 8.38% | 6.84% | 4.40% | 27 |

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 9.14% | 8.88% | 13 | 11.51% | 9.55% | 8.00% | 6.76% | 6.05% | 2.36% | 19 |
| 2012 | 6.92% | 7.82% | 32 | 13.69% | 10.97% | 7.14% | 3.28% | 0.99% | 6.54% | 35 |
| 2013 | 6.53% | 7.26% | 37 | 11.77% | 8.86% | 7.50% | 6.20% | 4.56% | 3.13% | 41 |
| 2014 | 6.47% | 6.70% | 40 | 12.06% | 10.24% | 8.37% | 7.00% | 3.92% | 3.11% | 35 |
| 2015 | 6.29% | 6.89% | 56 | 13.24% | 10.93% | 8.68% | 7.11% | 3.95% | 7.00% | 46 |
| 2016 | 8.50% | 8.01% | 44 | 15.43% | 11.30% | 8.40% | 7.20% | 2.30% | 11.65% | 33 |
| 2017 | 7.72% | 9.33% | 58 | 19.66% | 13.09% | 9.30% | 6.94% | 4.55% | 11.92% | 53 |
| 2018 | 5.03% | 2.38% | 52 | 15.11% | 11.71% | 8.65% | 4.29% | -2.48% | 76.54% | 38 |

Source: PitchBook. Data as of December 31, 2019

Debt

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| Pre-1996 | | | | | | | |
| 1996 | 1.45x | 1.45x | 0.00x | 1.45x | 1.45x | 0.00x | 1 |
| 1997 | 1.70x | 1.69x | 0.01x | 2.20x | 2.18x | 0.02x | 3 |
| 1998 | | | | | | | |
| 1999 | 1.49x | 1.48x | 0.01x | 1.48x | 1.45x | 0.03x | 2 |
| 2000 | 1.26x | 1.26x | 0.00x | 1.04x | 1.04x | 0.00x | 4 |
| 2001 | 2.08x | 2.08x | 0.00x | 2.15x | 2.15x | 0.00x | 3 |
| 2002 | 1.71x | 1.71x | 0.00x | 1.80x | 1.79x | 0.00x | 4 |
| 2003 | 1.86x | 1.77x | 0.09x | 1.95x | 1.86x | 0.08x | 8 |
| 2004 | 1.34x | 1.32x | 0.02x | 1.47x | 1.45x | 0.01x | 4 |
| 2005 | 1.35x | 1.34x | 0.02x | 1.30x | 1.26x | 0.04x | 7 |
| 2006 | 1.52x | 1.35x | 0.17x | 1.38x | 1.23x | 0.15x | 13 |
| 2007 | 1.35x | 1.31x | 0.04x | 1.32x | 1.28x | 0.04x | 20 |
| 2008 | 1.69x | 1.64x | 0.05x | 1.67x | 1.61x | 0.06x | 17 |
| 2009 | 1.35x | 1.27x | 0.09x | 1.29x | 1.19x | 0.10x | 12 |
| 2010 | 1.55x | 1.42x | 0.14x | 1.46x | 1.34x | 0.13x | 19 |

Source: PitchBook. Data as of December 31, 2019

Debt

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| 2011 | 1.47x | 1.14x | 0.33x | 1.40x | 1.17x | 0.23x | 13 |
| 2012 | 1.27x | 1.01x | 0.26x | 1.30x | 0.99x | 0.31x | 32 |
| 2013 | 1.22x | 0.90x | 0.32x | 1.24x | 0.86x | 0.38x | 37 |
| 2014 | 1.23x | 0.57x | 0.66x | 1.22x | 0.58x | 0.64x | 40 |
| 2015 | 1.15x | 0.43x | 0.72x | 1.17x | 0.45x | 0.72x | 56 |
| 2016 | 1.14x | 0.27x | 0.87x | 1.14x | 0.35x | 0.79x | 44 |
| 2017 | 1.11x | 0.20x | 0.91x | 1.12x | 0.23x | 0.90x | 58 |
| 2018 | 1.04x | 0.11x | 0.93x | 1.02x | 0.14x | 0.89x | 52 |

Source: PitchBook. Data as of December 31, 2019

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-1996 | | | | | | | | | | | |
| 1996 | | | 1.45x | | | | | 1.45x | | | 1 |
| 1997 | | | 1.49x | | | | | 1.49x | | | 3 |
| 1998 | | | | | | | | | | | |
| 1999 | | | 1.48x | | | | | 1.44x | | | 2 |
| 2000 | | 1.32x | 1.09x | 0.79x | | | 1.32x | 1.09x | 0.79x | | 4 |
| 2001 | | | 1.88x | | | | | 1.88x | | | 3 |
| 2002 | | 1.89x | 1.70x | 1.60x | | | 1.88x | 1.70x | 1.60x | | 4 |
| 2003 | | 1.98x | 1.54x | 1.47x | | | 1.67x | 1.49x | 1.43x | | 8 |
| 2004 | | 1.71x | 1.65x | 1.40x | | | 1.70x | 1.64x | 1.38x | | 4 |
| 2005 | | 1.47x | 1.34x | 1.25x | | | 1.47x | 1.34x | 1.14x | | 7 |
| 2006 | 1.76x | 1.36x | 1.19x | 1.10x | 0.93x | 1.64x | 1.36x | 1.18x | 1.10x | 0.92x | 13 |
| 2007 | 1.69x | 1.51x | 1.27x | 1.18x | 1.05x | 1.69x | 1.51x | 1.24x | 1.08x | 0.96x | 20 |
| 2008 | 2.47x | 1.81x | 1.52x | 1.36x | 1.16x | 2.44x | 1.72x | 1.51x | 1.29x | 1.09x | 17 |
| 2009 | 1.60x | 1.48x | 1.29x | 1.13x | 1.05x | 1.60x | 1.44x | 1.16x | 1.05x | 0.88x | 12 |
| 2010 | 1.81x | 1.58x | 1.39x | 1.28x | 1.24x | 1.65x | 1.47x | 1.32x | 1.18x | 0.96x | 19 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 1.65x | 1.56x | 1.37x | 1.24x | 1.15x | 1.51x | 1.34x | 1.13x | 1.05x | 0.86x | 13 |
| 2012 | 1.64x | 1.38x | 1.28x | 1.10x | 1.07x | 1.35x | 1.21x | 1.03x | 0.83x | 0.47x | 32 |
| 2013 | 1.42x | 1.33x | 1.21x | 1.11x | 1.03x | 1.15x | 1.07x | 0.92x | 0.79x | 0.44x | 37 |
| 2014 | 1.48x | 1.28x | 1.21x | 1.12x | 1.05x | 1.01x | 0.75x | 0.59x | 0.32x | 0.22x | 40 |
| 2015 | 1.31x | 1.27x | 1.20x | 1.13x | 1.00x | 0.73x | 0.61x | 0.40x | 0.27x | 0.18x | 56 |
| 2016 | 1.26x | 1.19x | 1.14x | 1.11x | 0.99x | 0.77x | 0.47x | 0.25x | 0.12x | 0.04x | 44 |
| 2017 | 1.21x | 1.15x | 1.09x | 1.07x | 0.98x | 0.47x | 0.32x | 0.18x | 0.09x | 0.02x | 58 |
| 2018 | 1.18x | 1.10x | 1.06x | 1.01x | 0.90x | 0.34x | 0.17x | 0.04x | 0.01x | 0.00x | 52 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

Debt

# PMEs by vintage

| | S&P 500 Index | | | Bloomberg Barclays US Corporate High Yield | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | PitchBook Benchmark return (%) | Index return (%) | KS-PME | PitchBook Benchmark return (%) | Index return (%) | KS-PME | Number of funds |
| 1996 | 6.01% | 8.91% | 1.36 | 6.01% | 38.09% | 0.00 | 1 |
| 1997 | 10.84% | 8.22% | 1.55 | 10.84% | 40.06% | 0.02 | 3 |
| 1998 | | | | | | | |
| 1999 | 11.58% | 6.42% | 1.76 | 11.58% | 6.84% | 1.19 | 2 |
| 2000 | 8.01% | 6.05% | 1.19 | 8.01% | 7.11% | 0.94 | 4 |
| 2001 | 27.52% | 6.93% | 1.60 | 27.52% | 7.50% | 1.42 | 3 |
| 2002 | 17.50% | 7.97% | 1.28 | 17.50% | 7.98% | 1.19 | 4 |
| 2003 | 13.25% | 10.14% | 1.34 | 13.25% | 8.36% | 1.24 | 8 |
| 2004 | 8.31% | 8.78% | 1.14 | 8.31% | 7.30% | 1.05 | 4 |
| 2005 | 6.05% | 8.90% | 1.16 | 6.05% | 7.16% | 0.91 | 7 |
| 2006 | 6.83% | 8.84% | 0.92 | 6.83% | 7.38% | 0.85 | 13 |
| 2007 | 6.86% | 8.52% | 0.99 | 6.86% | 7.04% | 0.86 | 20 |
| 2008 | 14.15% | 9.59% | 1.06 | 14.15% | 7.88% | 0.99 | 17 |
| 2009 | 8.09% | 15.67% | 0.81 | 8.09% | 11.04% | 0.95 | 12 |
| 2010 | 12.25% | 13.24% | 0.92 | 12.25% | 7.34% | 1.19 | 19 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Debt

# PMEs by vintage

| | S&P 500 Index | | | Bloomberg Barclays US Corporate High Yield | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | PitchBook Benchmark return (%) | Index return (%) | KS-PME | PitchBook Benchmark return (%) | Index return (%) | KS-PME | Number of funds |
| 2011 | 9.14% | 12.68% | 0.83 | 9.14% | 6.40% | 1.09 | 13 |
| 2012 | 6.92% | 13.60% | 0.81 | 6.92% | 6.45% | 1.03 | 32 |
| 2013 | 6.53% | 13.43% | 0.86 | 6.53% | 5.44% | 1.02 | 37 |
| 2014 | 6.47% | 11.72% | 0.84 | 6.47% | 5.11% | 1.02 | 40 |
| 2015 | 6.29% | 11.08% | 0.88 | 6.29% | 5.71% | 1.00 | 56 |
| 2016 | 8.50% | 15.30% | 0.93 | 8.50% | 9.22% | 1.03 | 44 |
| 2017 | 7.72% | 13.03% | 0.94 | 7.72% | 5.54% | 1.02 | 58 |
| 2018 | 5.03% | 9.31% | 0.94 | 5.03% | 5.61% | 0.98 | 52 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Debt

# Quarterly return

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q1 2001 | 1.59% |
| Q2 2001 | 4.57% |
| Q3 2001 | 0.68% |
| Q4 2001 | 2.31% |
| Q1 2002 | 3.28% |
| Q2 2002 | 1.53% |
| Q3 2002 | -1.49% |
| Q4 2002 | 1.34% |
| Q1 2003 | 3.29% |
| Q2 2003 | 7.31% |
| Q3 2003 | -1.92% |
| Q4 2003 | 11.68% |
| Q1 2004 | 7.24% |
| Q2 2004 | 7.06% |
| Q3 2004 | 4.56% |
| Q4 2004 | 13.33% |
| Q1 2005 | 5.49% |
| Q2 2005 | -3.44% |
| Q3 2005 | 8.37% |

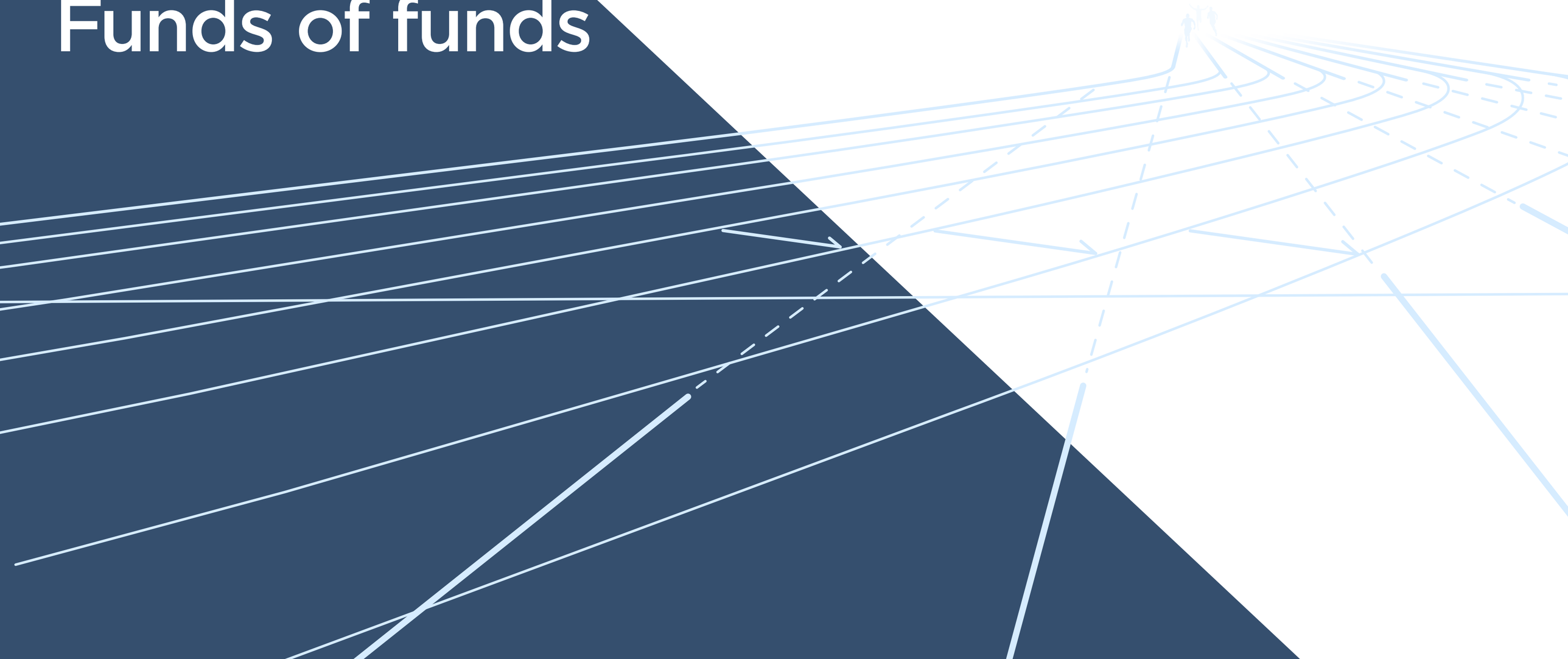
| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q4 2005 | 3.55% |
| Q1 2006 | 3.61% |
| Q2 2006 | 5.81% |
| Q3 2006 | 1.84% |
| Q4 2006 | 10.95% |
| Q1 2007 | 3.66% |
| Q2 2007 | 8.85% |
| Q3 2007 | 0.60% |
| Q4 2007 | 0.37% |
| Q1 2008 | -1.85% |
| Q2 2008 | -0.92% |
| Q3 2008 | -8.28% |
| Q4 2008 | -18.46% |
| Q1 2009 | -4.29% |
| Q2 2009 | 9.99% |
| Q3 2009 | 11.83% |
| Q4 2009 | 7.35% |
| Q1 2010 | 4.80% |
| Q2 2010 | 0.43% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q3 2010 | 2.18% |
| Q4 2010 | 8.18% |
| Q1 2011 | 3.78% |
| Q2 2011 | 2.22% |
| Q3 2011 | -5.13% |
| Q4 2011 | 9.20% |
| Q1 2012 | -0.97% |
| Q2 2012 | 0.55% |
| Q3 2012 | 5.37% |
| Q4 2012 | 3.10% |
| Q1 2013 | 4.74% |
| Q2 2013 | 1.98% |
| Q3 2013 | 2.80% |
| Q4 2013 | 2.59% |
| Q1 2014 | 2.44% |
| Q2 2014 | 2.51% |
| Q3 2014 | 2.03% |
| Q4 2014 | 0.07% |
| Q1 2015 | 6.27% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q2 2015 | -1.32% |
| Q3 2015 | -0.90% |
| Q4 2015 | -1.23% |
| Q1 2016 | 2.07% |
| Q2 2016 | 0.60% |
| Q3 2016 | 4.06% |
| Q4 2016 | 1.26% |
| Q1 2017 | 2.08% |
| Q2 2017 | 2.34% |
| Q3 2017 | 1.74% |
| Q4 2017 | 3.76% |
| Q1 2018 | 2.58% |
| Q2 2018 | 2.61% |
| Q3 2018 | 0.68% |
| Q4 2018 | -0.23% |
| Q1 2019 | 1.44% |
| Q2 2019 | 1.76% |
| Q3 2019 | 1.63% |
| Q4 2019 | 1.94% |

Source: PitchBook. Data as of December 31, 2019

# Funds of funds



Funds 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-1996 | | | | 30.18% | 17.27% | 11.22% | 1.84% | 1.08% | 15.31% | 13 |
| 1996 | | | | | | 15.17% | | | 1.32% | 2 |
| 1997 | -5.91% | -6.19% | 2 | | 10.85% | 0.38% | -7.65% | | 12.07% | 7 |
| 1998 | 7.86% | 7.64% | 3 | 13.45% | 10.93% | 9.00% | 7.41% | 3.82% | 6.01% | 10 |
| 1999 | 5.39% | 4.68% | 8 | 16.49% | 11.92% | 4.26% | 2.07% | -0.72% | 6.78% | 23 |
| 2000 | 5.60% | 6.36% | 9 | 13.19% | 11.00% | 6.72% | 3.80% | 2.40% | 4.88% | 21 |
| 2001 | 10.76% | 8.15% | 9 | 15.97% | 12.45% | 9.02% | 6.78% | 3.89% | 5.36% | 28 |
| 2002 | 7.87% | 6.20% | 4 | 12.21% | 9.45% | 7.81% | 5.06% | 3.82% | 6.10% | 19 |
| 2003 | 7.78% | 5.79% | 6 | 10.90% | 9.03% | 7.85% | 5.66% | 2.52% | 3.94% | 17 |
| 2004 | 7.99% | 7.63% | 11 | 11.60% | 10.39% | 7.20% | 6.06% | 3.19% | 7.96% | 35 |
| 2005 | 7.12% | 7.47% | 16 | 11.09% | 8.88% | 7.30% | 5.40% | 4.16% | 12.24% | 47 |
| 2006 | 8.17% | 7.37% | 35 | 11.67% | 9.76% | 7.03% | 5.33% | 2.64% | 4.21% | 66 |
| 2007 | 9.23% | 8.32% | 38 | 13.65% | 10.65% | 8.90% | 5.98% | 1.39% | 5.71% | 76 |
| 2008 | 3.11% | 10.64% | 39 | 17.43% | 15.08% | 11.97% | 8.69% | 2.85% | 6.27% | 66 |
| 2009 | 12.64% | 13.13% | 30 | 18.65% | 16.04% | 13.54% | 10.34% | 7.99% | 4.60% | 40 |
| 2010 | 11.79% | 11.85% | 32 | 15.83% | 14.37% | 12.41% | 8.73% | 6.48% | 4.81% | 44 |

Source: PitchBook. Data as of December 31, 2019

Funds 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 |
| 2011 | 13.31% | 13.76% | 45 | 19.84% | 18.23% | 14.13% | 11.59% | 8.66% | 6.27% | 52 |
| 2012 | 14.01% | 13.94% | 36 | 18.50% | 16.49% | 12.64% | 9.27% | 7.44% | 5.36% | 30 |
| 2013 | 14.01% | 12.60% | 47 | 21.24% | 17.86% | 14.38% | 11.20% | 6.86% | 5.84% | 35 |
| 2014 | 13.61% | 12.85% | 49 | 23.52% | 17.94% | 15.07% | 11.90% | 7.74% | 15.04% | 45 |
| 2015 | 13.67% | 13.46% | 48 | 23.94% | 19.90% | 15.69% | 11.06% | 6.95% | 7.37% | 41 |
| 2016 | 14.90% | 11.58% | 38 | 21.26% | 17.03% | 12.04% | 8.41% | 3.87% | 6.59% | 34 |
| 2017 | 6.08% | 5.73% | 25 | 20.16% | 12.82% | 8.00% | 5.13% | -5.03% | 12.90% | 22 |
| 2018 | 10.21% | 5.94% | 29 | 26.46% | 19.06% | 12.33% | 2.37% | -1.87% | 12.88% | 19 |

Source: PitchBook. Data as of December 31, 2019

Funds of funds

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| Pre-1996 | | | | | | | |
| 1996 | | | | | | | |
| 1997 | 0.47x | 0.31x | 0.16x | 0.46x | 0.32x | 0.14x | 2 |
| 1998 | 1.48x | 1.48x | 0.01x | 1.51x | 1.50x | 0.01x | 3 |
| 1999 | 1.34x | 1.33x | 0.01x | 1.30x | 1.29x | 0.01x | 8 |
| 2000 | 1.34x | 1.30x | 0.03x | 1.38x | 1.35x | 0.03x | 9 |
| 2001 | 1.65x | 1.55x | 0.10x | 1.56x | 1.38x | 0.18x | 9 |
| 2002 | 1.44x | 1.39x | 0.05x | 1.33x | 1.30x | 0.03x | 4 |
| 2003 | 1.61x | 1.51x | 0.10x | 1.41x | 1.33x | 0.09x | 6 |
| 2004 | 1.54x | 1.39x | 0.15x | 1.57x | 1.35x | 0.22x | 11 |
| 2005 | 1.48x | 1.31x | 0.17x | 1.51x | 1.29x | 0.22x | 16 |
| 2006 | 1.61x | 1.32x | 0.29x | 1.56x | 1.31x | 0.25x | 35 |
| 2007 | 1.65x | 1.27x | 0.38x | 1.55x | 1.23x | 0.32x | 38 |
| 2008 | 1.18x | 0.80x | 0.38x | 1.71x | 1.07x | 0.64x | 39 |
| 2009 | 1.74x | 1.01x | 0.73x | 1.78x | 1.16x | 0.62x | 30 |
| 2010 | 1.68x | 0.95x | 0.73x | 1.71x | 0.86x | 0.85x | 32 |

Source: PitchBook. Data as of December 31, 2019

Funds of funds

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| 2011 | 1.67x | 0.74x | 0.93x | 1.73x | 0.75x | 0.98x | 45 |
| 2012 | 1.66x | 0.53x | 1.13x | 1.64x | 0.58x | 1.07x | 36 |
| 2013 | 1.52x | 0.39x | 1.13x | 1.49x | 0.35x | 1.14x | 47 |
| 2014 | 1.44x | 0.27x | 1.17x | 1.43x | 0.32x | 1.12x | 49 |
| 2015 | 1.32x | 0.25x | 1.08x | 1.33x | 0.23x | 1.10x | 48 |
| 2016 | 1.29x | 0.13x | 1.16x | 1.22x | 0.12x | 1.10x | 38 |
| 2017 | 1.07x | 0.06x | 1.01x | 1.07x | 0.06x | 1.01x | 25 |
| 2018 | 1.09x | 0.04x | 1.05x | 1.05x | 0.05x | 1.00x | 29 |

Source: PitchBook. Data as of December 31, 2019

Funds 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-1996 | | | | | | | | | | | |
| 1996 | | | | | | | | | | | |
| 1997 | | | 0.46x | | | | | 0.32x | | | 2 |
| 1998 | | | 1.56x | | | | | 1.56x | | | 3 |
| 1999 | | 1.47x | 1.24x | 1.14x | | | 1.46x | 1.21x | 1.14x | | 8 |
| 2000 | | 1.57x | 1.50x | 1.21x | | | 1.57x | 1.48x | 1.12x | | 9 |
| 2001 | | 1.70x | 1.49x | 1.49x | | | 1.70x | 1.43x | 1.27x | | 9 |
| 2002 | | 1.47x | 1.41x | 1.28x | | | 1.41x | 1.38x | 1.27x | | 4 |
| 2003 | | 1.62x | 1.54x | 1.28x | | | 1.48x | 1.45x | 1.22x | | 6 |
| 2004 | 1.80x | 1.56x | 1.52x | 1.49x | 1.41x | 1.57x | 1.48x | 1.38x | 1.26x | 1.14x | 11 |
| 2005 | 1.80x | 1.63x | 1.46x | 1.37x | 1.28x | 1.65x | 1.40x | 1.30x | 1.16x | 1.03x | 16 |
| 2006 | 1.90x | 1.77x | 1.62x | 1.37x | 1.24x | 1.71x | 1.43x | 1.27x | 1.19x | 1.06x | 35 |
| 2007 | 1.93x | 1.80x | 1.57x | 1.29x | 1.02x | 1.58x | 1.40x | 1.30x | 1.02x | 0.83x | 38 |
| 2008 | 2.38x | 2.02x | 1.68x | 1.46x | 1.03x | 1.58x | 1.30x | 1.06x | 0.88x | 0.51x | 39 |
| 2009 | 2.19x | 1.95x | 1.77x | 1.60x | 1.43x | 1.72x | 1.43x | 1.12x | 0.87x | 0.63x | 30 |
| 2010 | 2.41x | 1.80x | 1.64x | 1.47x | 1.24x | 1.28x | 1.05x | 0.86x | 0.69x | 0.53x | 32 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

Funds 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 |
| 2011 | 2.32x | 1.94x | 1.73x | 1.45x | 1.29x | 1.07x | 0.92x | 0.74x | 0.66x | 0.35x | 45 |
| 2012 | 2.21x | 1.86x | 1.51x | 1.38x | 1.11x | 1.11x | 0.74x | 0.50x | 0.29x | 0.22x | 36 |
| 2013 | 1.96x | 1.66x | 1.48x | 1.26x | 1.05x | 0.66x | 0.49x | 0.27x | 0.17x | 0.09x | 47 |
| 2014 | 1.95x | 1.51x | 1.41x | 1.18x | 1.09x | 0.73x | 0.30x | 0.23x | 0.13x | 0.03x | 49 |
| 2015 | 1.69x | 1.54x | 1.33x | 1.21x | 1.00x | 0.50x | 0.34x | 0.16x | 0.05x | 0.02x | 48 |
| 2016 | 1.45x | 1.30x | 1.23x | 1.14x | 0.98x | 0.20x | 0.13x | 0.08x | 0.00x | 0.00x | 38 |
| 2017 | 1.25x | 1.22x | 1.11x | 0.99x | 0.50x | 0.16x | 0.05x | 0.02x | 0.00x | 0.00x | 25 |
| 2018 | 1.26x | 1.14x | 1.05x | 0.97x | 0.76x | 0.12x | 0.01x | 0.00x | 0.00x | 0.00x | 29 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

Funds 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 |
| 1996 | | | | | | | |
| 1997 | -5.91% | 8.22% | 0.31 | -5.91% | 8.34% | 0.29 | 2 |
| 1998 | 7.86% | 7.21% | 1.25 | 7.86% | 7.37% | 1.21 | 3 |
| 1999 | 5.39% | 6.42% | 1.05 | 5.39% | 6.79% | 1.02 | 8 |
| 2000 | 5.60% | 6.05% | 0.99 | 5.60% | 6.27% | 0.97 | 9 |
| 2001 | 10.76% | 6.93% | 1.12 | 10.76% | 7.20% | 1.10 | 9 |
| 2002 | 7.87% | 7.97% | 1.05 | 7.87% | 8.20% | 1.03 | 4 |
| 2003 | 7.78% | 10.14% | 1.05 | 7.78% | 10.36% | 1.04 | 6 |
| 2004 | 7.99% | 8.78% | 1.01 | 7.99% | 8.86% | 1.00 | 11 |
| 2005 | 7.12% | 8.90% | 0.94 | 7.12% | 8.95% | 0.93 | 16 |
| 2006 | 8.17% | 8.84% | 0.87 | 8.17% | 8.75% | 0.87 | 35 |
| 2007 | 9.23% | 8.52% | 0.88 | 9.23% | 8.43% | 0.87 | 38 |
| 2008 | 3.11% | 9.59% | 0.57 | 3.11% | 9.58% | 0.58 | 39 |
| 2009 | 12.64% | 15.67% | 0.95 | 12.64% | 15.67% | 0.96 | 30 |
| 2010 | 11.79% | 13.24% | 0.93 | 11.79% | 13.06% | 0.94 | 32 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Funds 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 |
| 2011 | 13.31% | 12.68% | 1.00 | 13.31% | 12.31% | 1.01 | 45 |
| 2012 | 14.01% | 13.60% | 1.06 | 14.01% | 13.28% | 1.07 | 36 |
| 2013 | 14.01% | 13.43% | 1.05 | 14.01% | 13.02% | 1.06 | 47 |
| 2014 | 13.61% | 11.72% | 1.03 | 13.61% | 11.08% | 1.05 | 49 |
| 2015 | 13.67% | 11.08% | 1.01 | 13.67% | 10.54% | 1.02 | 48 |
| 2016 | 14.90% | 15.30% | 1.03 | 14.90% | 15.15% | 1.04 | 38 |
| 2017 | 6.08% | 13.03% | 0.93 | 6.08% | 12.36% | 0.94 | 25 |
| 2018 | 10.21% | 9.31% | 0.98 | 10.21% | 8.65% | 0.99 | 29 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Funds of funds

# Quarterly return

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q1 2001 | -13.20% |
| Q2 2001 | -6.85% |
| Q3 2001 | -10.06% |
| Q4 2001 | -6.35% |
| Q1 2002 | -6.38% |
| Q2 2002 | -6.54% |
| Q3 2002 | -7.28% |
| Q4 2002 | -5.16% |
| Q1 2003 | -8.76% |
| Q2 2003 | 3.76% |
| Q3 2003 | 0.18% |
| Q4 2003 | -5.89% |
| Q1 2004 | 4.35% |
| Q2 2004 | 1.90% |
| Q3 2004 | 5.23% |
| Q4 2004 | 6.33% |
| Q1 2005 | 1.84% |
| Q2 2005 | 5.83% |
| Q3 2005 | 5.30% |

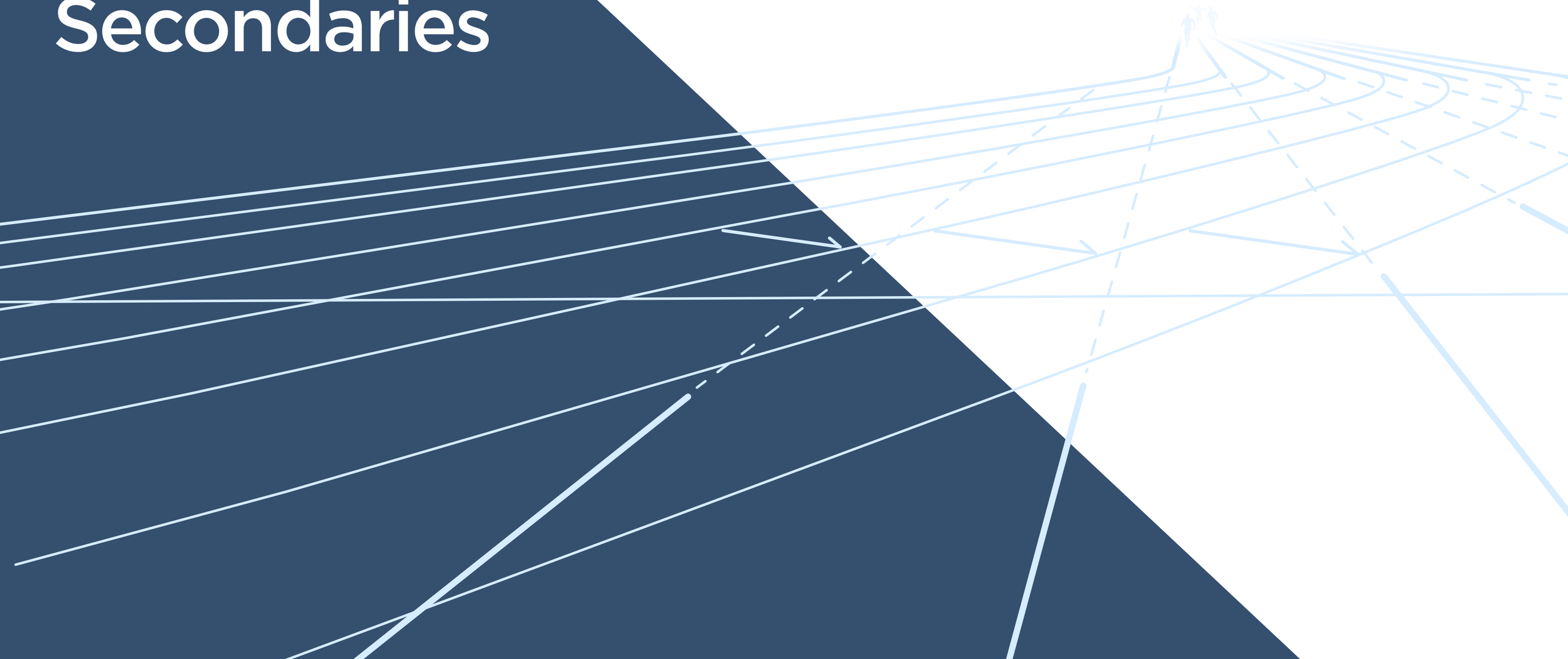
| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q4 2005 | 7.48% |
| Q1 2006 | 4.26% |
| Q2 2006 | 5.89% |
| Q3 2006 | 4.30% |
| Q4 2006 | 8.96% |
| Q1 2007 | -0.10% |
| Q2 2007 | 10.20% |
| Q3 2007 | 3.22% |
| Q4 2007 | 3.21% |
| Q1 2008 | 8.58% |
| Q2 2008 | -2.81% |
| Q3 2008 | -6.56% |
| Q4 2008 | -9.22% |
| Q1 2009 | -2.38% |
| Q2 2009 | -4.44% |
| Q3 2009 | 4.51% |
| Q4 2009 | 2.41% |
| Q1 2010 | 4.99% |
| Q2 2010 | 0.49% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q3 2010 | -2.47% |
| Q4 2010 | 3.13% |
| Q1 2011 | 3.75% |
| Q2 2011 | 5.34% |
| Q3 2011 | -2.69% |
| Q4 2011 | -0.29% |
| Q1 2012 | 5.39% |
| Q2 2012 | 0.91% |
| Q3 2012 | -1.04% |
| Q4 2012 | 3.08% |
| Q1 2013 | 1.93% |
| Q2 2013 | 3.26% |
| Q3 2013 | 2.83% |
| Q4 2013 | 3.95% |
| Q1 2014 | 2.57% |
| Q2 2014 | 6.36% |
| Q3 2014 | 1.28% |
| Q4 2014 | 2.90% |
| Q1 2015 | 3.08% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q2 2015 | 5.99% |
| Q3 2015 | 2.30% |
| Q4 2015 | 0.40% |
| Q1 2016 | 1.44% |
| Q2 2016 | 1.44% |
| Q3 2016 | 3.68% |
| Q4 2016 | 0.77% |
| Q1 2017 | 3.21% |
| Q2 2017 | 3.91% |
| Q3 2017 | 3.24% |
| Q4 2017 | 1.73% |
| Q1 2018 | 4.63% |
| Q2 2018 | 4.80% |
| Q3 2018 | 2.29% |
| Q4 2018 | 2.07% |
| Q1 2019 | 2.46% |
| Q2 2019 | 3.88% |
| Q3 2019 | 1.32% |
| Q4 2019 | 2.06% |

Source: PitchBook. Data as of December 31, 2019

# 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-1996 | | | | 34.97% | 33.58% | 28.69% | 15.70% | 13.98% | 11.73% | 13 |
| 1996 | 18.56% | 18.56% | 1 | | | 31.48% | | | 16.00% | 3 |
| 1997 | 16.60% | 16.60% | 1 | | | 16.60% | | | | 1 |
| 1998 | 8.97% | 11.56% | 3 | | 7.84% | 5.38% | 4.06% | | 7.38% | 9 |
| 1999 | 7.33% | 5.52% | 3 | | 13.90% | 8.60% | 4.77% | | 7.80% | 9 |
| 2000 | 15.09% | 14.35% | 3 | | 20.20% | 12.00% | 9.80% | | 7.56% | 5 |
| 2001 | 14.21% | 16.14% | 2 | | 21.34% | 18.01% | 15.45% | | 6.12% | 4 |
| 2002 | 16.03% | 17.98% | 4 | | 23.24% | 21.38% | 18.51% | | 14.87% | 6 |
| 2003 | 37.90% | 37.90% | 1 | | 24.60% | 17.93% | 13.92% | | 8.59% | 7 |
| 2004 | 10.70% | 8.74% | 6 | | 9.95% | 5.58% | 3.30% | | 9.99% | 8 |
| 2005 | 5.86% | 4.87% | 9 | 6.90% | 6.41% | 4.64% | 3.00% | -4.50% | 5.06% | 12 |
| 2006 | 6.36% | 6.90% | 9 | 14.17% | 12.05% | 8.00% | 4.31% | 2.20% | 5.27% | 11 |
| 2007 | 4.37% | 8.09% | 11 | 12.53% | 7.98% | 7.60% | 5.05% | -0.11% | 8.89% | 13 |
| 2008 | 10.98% | 11.32% | 16 | 24.79% | 14.84% | 11.94% | 9.11% | 5.15% | 7.89% | 16 |
| 2009 | 11.65% | 11.65% | 10 | 21.97% | 16.08% | 11.70% | 9.82% | 8.50% | 6.90% | 11 |
| 2010 | 12.15% | 12.39% | 7 | 19.21% | 18.03% | 14.45% | 9.10% | 7.53% | 5.48% | 12 |

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 14.48% | 12.72% | 11 | 18.94% | 18.16% | 14.61% | 11.68% | 9.61% | 4.05% | 14 |
| 2012 | 13.17% | 13.01% | 12 | 19.95% | 16.77% | 14.88% | 12.75% | 10.03% | 4.26% | 12 |
| 2013 | 11.19% | 10.76% | 15 | 18.46% | 17.41% | 14.20% | 11.00% | 6.69% | 13.66% | 17 |
| 2014 | 16.09% | 14.12% | 13 | 27.30% | 19.05% | 16.61% | 13.33% | 11.58% | 6.37% | 12 |
| 2015 | 17.17% | 23.15% | 10 | | 19.30% | 17.10% | 15.00% | | 11.66% | 9 |
| 2016 | 22.90% | 22.94% | 15 | 49.40% | 34.40% | 23.43% | 19.85% | 15.35% | 17.45% | 17 |
| 2017 | 23.58% | 16.76% | 14 | 45.37% | 27.96% | 18.02% | 14.36% | 7.17% | 20.27% | 15 |
| 2018 | 75.85% | 76.93% | 13 | 694.00% | 78.27% | 32.26% | 17.79% | 10.32% | 1866.44% | 10 |

Source: PitchBook. Data as of December 31, 2019

Secondaries

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| Pre-1996 | | | | | | | |
| 1996 | 1.55x | 1.55x | 0.00x | 1.55x | 1.55x | 0.00x | 1 |
| 1997 | 1.59x | 1.59x | 0.00x | 1.59x | 1.59x | 0.00x | 1 |
| 1998 | 1.33x | 1.33x | 0.00x | 1.35x | 1.35x | 0.00x | 3 |
| 1999 | 1.24x | 1.24x | 0.00x | 1.19x | 1.19x | 0.00x | 3 |
| 2000 | 1.64x | 1.64x | 0.00x | 1.62x | 1.62x | 0.00x | 3 |
| 2001 | 1.55x | 1.54x | 0.02x | 1.62x | 1.61x | 0.01x | 2 |
| 2002 | 1.51x | 1.50x | 0.01x | 1.53x | 1.53x | 0.00x | 4 |
| 2003 | 1.84x | 1.84x | 0.00x | 1.84x | 1.84x | 0.00x | 1 |
| 2004 | 1.47x | 1.42x | 0.06x | 1.38x | 1.33x | 0.04x | 6 |
| 2005 | 1.34x | 1.29x | 0.04x | 1.27x | 1.23x | 0.04x | 9 |
| 2006 | 1.37x | 1.26x | 0.12x | 1.42x | 1.31x | 0.11x | 9 |
| 2007 | 1.19x | 1.10x | 0.10x | 1.37x | 1.27x | 0.10x | 11 |
| 2008 | 1.54x | 1.37x | 0.17x | 1.55x | 1.35x | 0.21x | 16 |
| 2009 | 1.55x | 1.36x | 0.19x | 1.54x | 1.29x | 0.25x | 10 |
| 2010 | 1.46x | 1.34x | 0.12x | 1.51x | 1.26x | 0.25x | 7 |

Source: PitchBook. Data as of December 31, 2019

Secondaries

# Multiples by vintage

| | Pooled multiples | | | Equal-weighted pooled multiples | | | |
|---|---|---|---|---|---|---|---|
| Vintage year | TVPI | DPI | RVPI | TVPI | DPI | RVPI | Number of funds |
| 2011 | 1.56x | 1.25x | 0.31x | 1.52x | 1.08x | 0.44x | 11 |
| 2012 | 1.52x | 1.09x | 0.43x | 1.45x | 0.96x | 0.49x | 12 |
| 2013 | 1.42x | 0.74x | 0.68x | 1.40x | 0.69x | 0.70x | 15 |
| 2014 | 1.34x | 0.59x | 0.75x | 1.40x | 0.56x | 0.84x | 13 |
| 2015 | 1.32x | 0.35x | 0.97x | 1.44x | 0.76x | 0.68x | 10 |
| 2016 | 1.38x | 0.32x | 1.06x | 1.39x | 0.37x | 1.02x | 15 |
| 2017 | 1.26x | 0.28x | 0.98x | 1.21x | 0.24x | 0.97x | 14 |
| 2018 | 1.49x | 0.12x | 1.37x | 1.60x | 0.16x | 1.44x | 13 |

Source: PitchBook. Data as of December 31, 2019

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-1996 | | | | | | | | | | | |
| 1996 | | | 1.55x | | | | | 1.55x | | | 1 |
| 1997 | | | 1.59x | | | | | 1.59x | | | 1 |
| 1998 | | | 1.32x | | | | | 1.32x | | | 3 |
| 1999 | | | 1.26x | | | | | 1.25x | | | 3 |
| 2000 | | | 1.74x | | | | | 1.74x | | | 3 |
| 2001 | | | 1.63x | | | | | 1.61x | | | 2 |
| 2002 | | 1.58x | 1.54x | 1.49x | | | 1.57x | 1.54x | 1.49x | | 4 |
| 2003 | | | 1.84x | | | | | 1.84x | | | 1 |
| 2004 | | 1.62x | 1.43x | 1.27x | | | 1.52x | 1.38x | 1.24x | | 6 |
| 2005 | | 1.42x | 1.31x | 1.21x | | | 1.34x | 1.25x | 1.19x | | 9 |
| 2006 | | 1.43x | 1.38x | 1.20x | | | 1.32x | 1.26x | 1.14x | | 9 |
| 2007 | 1.71x | 1.54x | 1.38x | 1.26x | 0.87x | 1.54x | 1.34x | 1.31x | 1.11x | 0.83x | 11 |
| 2008 | 1.75x | 1.63x | 1.49x | 1.37x | 1.35x | 1.65x | 1.46x | 1.37x | 1.20x | 0.92x | 16 |
| 2009 | 1.83x | 1.69x | 1.52x | 1.35x | 1.20x | 1.69x | 1.46x | 1.36x | 1.18x | 0.75x | 10 |
| 2010 | | 1.67x | 1.52x | 1.38x | | | 1.43x | 1.25x | 1.13x | | 7 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

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 |
| 2011 | 1.84x | 1.65x | 1.47x | 1.32x | 1.28x | 1.35x | 1.22x | 1.09x | 0.90x | 0.84x | 11 |
| 2012 | 1.69x | 1.56x | 1.44x | 1.35x | 1.31x | 1.23x | 1.20x | 1.01x | 0.83x | 0.64x | 12 |
| 2013 | 1.71x | 1.56x | 1.43x | 1.22x | 1.17x | 0.94x | 0.79x | 0.75x | 0.58x | 0.31x | 15 |
| 2014 | 1.61x | 1.41x | 1.32x | 1.31x | 1.22x | 0.93x | 0.71x | 0.51x | 0.46x | 0.28x | 13 |
| 2015 | 1.64x | 1.54x | 1.42x | 1.30x | 1.28x | 1.35x | 0.88x | 0.72x | 0.39x | 0.25x | 10 |
| 2016 | 1.62x | 1.43x | 1.35x | 1.24x | 1.20x | 0.82x | 0.45x | 0.31x | 0.17x | 0.09x | 15 |
| 2017 | 1.37x | 1.31x | 1.19x | 1.09x | 1.05x | 0.37x | 0.32x | 0.23x | 0.10x | 0.01x | 14 |
| 2018 | 1.72x | 1.55x | 1.29x | 1.15x | 1.06x | 0.28x | 0.24x | 0.08x | 0.00x | 0.00x | 13 |

For RVPI data, please download the supplemental Excel pack

Source: PitchBook. Data as of December 31, 2019

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 |
| 1996 | 18.56% | 8.91% | 1.28 | 18.56% | 8.95% | 1.26 | 1 |
| 1997 | 16.60% | 8.22% | 1.36 | 16.60% | 8.34% | 1.35 | 1 |
| 1998 | 8.97% | 7.21% | 1.27 | 8.97% | 7.37% | 1.24 | 3 |
| 1999 | 7.33% | 6.42% | 1.23 | 7.33% | 6.79% | 1.20 | 3 |
| 2000 | 15.09% | 6.05% | 1.38 | 15.09% | 6.27% | 1.34 | 3 |
| 2001 | 14.21% | 6.93% | 1.20 | 14.21% | 7.20% | 1.18 | 2 |
| 2002 | 16.03% | 7.97% | 1.23 | 16.03% | 8.20% | 1.21 | 4 |
| 2003 | 37.90% | 10.14% | 1.57 | 37.90% | 10.36% | 1.55 | 1 |
| 2004 | 10.70% | 8.78% | 1.14 | 10.70% | 8.86% | 1.14 | 6 |
| 2005 | 5.86% | 8.90% | 0.93 | 5.86% | 8.95% | 0.92 | 9 |
| 2006 | 6.36% | 8.84% | 0.92 | 6.36% | 8.75% | 0.91 | 9 |
| 2007 | 4.37% | 8.52% | 0.80 | 4.37% | 8.43% | 0.79 | 11 |
| 2008 | 10.98% | 9.59% | 0.89 | 10.98% | 9.58% | 0.89 | 16 |
| 2009 | 11.65% | 15.67% | 0.90 | 11.65% | 15.67% | 0.90 | 10 |
| 2010 | 12.15% | 13.24% | 0.95 | 12.15% | 13.06% | 0.96 | 7 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

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 |
| 2011 | 14.48% | 12.68% | 1.00 | 14.48% | 12.31% | 1.01 | 11 |
| 2012 | 13.17% | 13.60% | 0.98 | 13.17% | 13.28% | 0.99 | 12 |
| 2013 | 11.19% | 13.43% | 0.97 | 11.19% | 13.02% | 0.99 | 15 |
| 2014 | 16.09% | 11.72% | 1.06 | 16.09% | 11.08% | 1.07 | 13 |
| 2015 | 17.17% | 11.08% | 1.08 | 17.17% | 10.54% | 1.10 | 10 |
| 2016 | 22.90% | 15.30% | 1.15 | 22.90% | 15.15% | 1.16 | 15 |
| 2017 | 23.58% | 13.03% | 1.11 | 23.58% | 12.36% | 1.12 | 14 |
| 2018 | 75.85% | 9.31% | 1.38 | 75.85% | 8.65% | 1.39 | 13 |

Source: PitchBook. Data as of December 31, 2019

*Note: All public index values are CAGRs from the start of the respective vintage year.*

Secondaries

# Quarterly return

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q1 2001 | -5.21% |
| Q2 2001 | -5.42% |
| Q3 2001 | 0.79% |
| Q4 2001 | 5.62% |
| Q1 2002 | 4.27% |
| Q2 2002 | 2.39% |
| Q3 2002 | -5.48% |
| Q4 2002 | -3.88% |
| Q1 2003 | -3.66% |
| Q2 2003 | -0.36% |
| Q3 2003 | 1.03% |
| Q4 2003 | 18.18% |
| Q1 2004 | 0.49% |
| Q2 2004 | 6.18% |
| Q3 2004 | 6.69% |
| Q4 2004 | 7.38% |
| Q1 2005 | 6.24% |
| Q2 2005 | 3.51% |
| Q3 2005 | 3.51% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q4 2005 | 1.32% |
| Q1 2006 | 11.80% |
| Q2 2006 | 4.56% |
| Q3 2006 | 4.08% |
| Q4 2006 | 7.21% |
| Q1 2007 | 2.64% |
| Q2 2007 | 9.89% |
| Q3 2007 | 8.80% |
| Q4 2007 | 4.76% |
| Q1 2008 | 2.58% |
| Q2 2008 | -2.44% |
| Q3 2008 | 0.68% |
| Q4 2008 | -5.61% |
| Q1 2009 | -10.87% |
| Q2 2009 | -4.29% |
| Q3 2009 | -0.49% |
| Q4 2009 | 0.51% |
| Q1 2010 | 1.19% |
| Q2 2010 | 6.14% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q3 2010 | 6.26% |
| Q4 2010 | 6.79% |
| Q1 2011 | 6.93% |
| Q2 2011 | 4.26% |
| Q3 2011 | 5.90% |
| Q4 2011 | -4.07% |
| Q1 2012 | 4.13% |
| Q2 2012 | 3.29% |
| Q3 2012 | 4.93% |
| Q4 2012 | 2.24% |
| Q1 2013 | 0.46% |
| Q2 2013 | 1.13% |
| Q3 2013 | 1.97% |
| Q4 2013 | 4.82% |
| Q1 2014 | 3.70% |
| Q2 2014 | 3.39% |
| Q3 2014 | 3.70% |
| Q4 2014 | 2.94% |
| Q1 2015 | 2.44% |

| Quarter end | 1-quarter benchmark return (%) |
|---|---|
| Q2 2015 | 6.54% |
| Q3 2015 | 1.68% |
| Q4 2015 | 0.10% |
| Q1 2016 | 0.25% |
| Q2 2016 | 3.09% |
| Q3 2016 | 1.32% |
| Q4 2016 | 2.92% |
| Q1 2017 | 3.61% |
| Q2 2017 | 4.01% |
| Q3 2017 | 3.62% |
| Q4 2017 | 3.66% |
| Q1 2018 | 2.57% |
| Q2 2018 | 6.85% |
| Q3 2018 | 3.55% |
| Q4 2018 | 0.87% |
| Q1 2019 | 2.55% |
| Q2 2019 | 4.99% |
| Q3 2019 | 0.13% |
| Q4 2019 | 3.65% |

Source: PitchBook. Data as of December 31, 2019

PitchBook