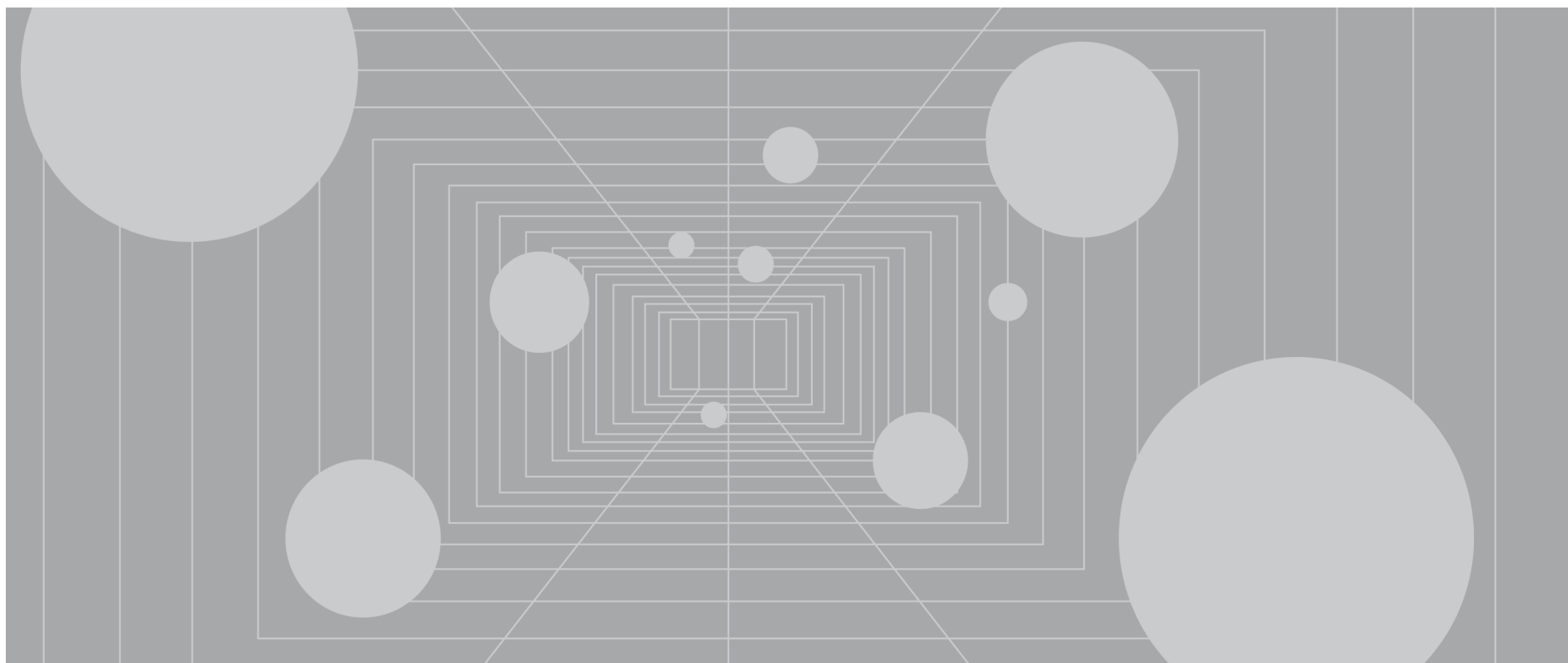


# EX US PRIVATE EQUITY & VENTURE CAPITAL

INDEX AND SELECTED BENCHMARK STATISTICS



## DISCLAIMER

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### DISCLAIMER

Our goal is to provide you with the most accurate and relevant performance information possible; as a result, Cambridge Associates' research organization continually monitors the constantly evolving private investments space and its fund managers. When we discern material changes in the structure of an asset class and/or a fund's investment strategy, it is in the interest of all users of our benchmark statistics that we implement the appropriate classification realignments.

In addition, Cambridge Associates is always working to grow our private investments performance database and ensure that our benchmarks are as representative as possible of investors' institutional-quality opportunity set. As a result we continually add funds to the database (both newly-raised funds and backfill funds) and occasionally we must remove funds that cease reporting. Our private investments performance database is dynamic and will reflect both classification adjustments and changes to the underlying pool of contributing funds. As a result, you may notice quarter to quarter changes in the results of some historical benchmark return analyses.

## OVERVIEW

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Cambridge Associates' Private Investments Database is one of the most robust collections of institutional quality private fund performance. It contains the historical performance records of over 2,000 fund managers and their over 7,600 funds. In addition, we capture the performance information (gross) of over 77,000 investments underlying our venture capital, growth equity, and buyout funds. This is one of the largest collections of portfolio-level performance information in the world and represents the investments of approximately 78% of these funds on a count basis and 84% on a total commitment basis. This fund and investment-level performance information is drawn from the quarterly and audited annual financial statements of the fund managers and each manager's reported performance numbers are independently recreated from the financial statements and verified by Cambridge Associates.

### **Institutional Quality Data**

Cambridge Associates strives to include only institutional quality funds in our benchmarks. "Institutional quality" funds, in our definition, tend to meet the following criteria: closed-end funds, commingled funds that invest 3rd party capital (we exclude firms that invest off of their balance sheet, such as a bank's principal investing group or a corporate's venture capital arm), and fund vehicles. This institutional quality screen seeks to provide investors with performance data consistent with their investible opportunity set.

### **Sources of Benchmark Data**

Our benchmark database utilizes the quarterly unaudited and annual audited fund financial statements produced by the fund managers (GPs) for their Limited Partners (LPs). These documents are provided to Cambridge Associates by the fund managers themselves. Unlike other data providers, Cambridge Associates does not use Freedom of Information Act (FOIA) requests, regulatory filings, manager surveys, or press "scrapings" to obtain information. Our goal is to have a complete historical record of the quarterly cash flows and net asset values for all funds in the benchmarks. We use a number of paths to encourage fund managers to submit their performance data to our database: our clients for whom we provide private investment performance reporting, our research organization's regular meetings with thousands of managers, our special projects designed to enhance existing benchmarks or launch new ones, our exclusive relationships with over ten globally-diverse fund manager associations, and finally, our exclusive relationships with Thomson Reuters and the Institutional Limited Partners Association (ILPA). By leveraging these varied sources and proprietary relationships, Cambridge Associates has constructed a rich and diversified benchmark data set.

### **Vintage Year Definition**

Vintage year is defined as the legal inception date as noted in a fund's financial statement. This date can usually be found in the first note to the audited financial statements and is prior to the first close or capital call.

## TIMING OF FINAL BENCHMARKS AND DATA EVOLUTION

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The Cambridge Associates' benchmarks are reported on a one-quarter lag from the end of the performance quarter due to the reporting time frame of private investments fund managers.

**Published Data:** When the vast majority of a benchmark group's (organized by asset class, e.g. Venture Capital or Real Estate) performance information is updated for a performance quarter, that benchmark is considered final and the data is "published" via the quarterly benchmark reports.

**Changes to Data:** After a benchmark group is published, any updates to historical data for these funds, which can include adding a fund and its performance history to the database ("backfills") and/or updating past information for an existing fund due to late-arriving, updated, or refined information, would be reflected when that group is published for the next performance quarter.

In addition, Cambridge Associates may change the classification of certain funds; this often driven by the evolution of private investments and the resulting need to introduce new benchmarks or refine our classification scheme. For example, as growth equity emerged as an asset class we reclassified certain venture capital and buyout funds accordingly.

**Survivorship Bias:** In order to track the performance of a fund in our benchmarks, we require the complete set of financial statements from the fund's inception to the most current reporting date. When an active fund stops providing financial statements, we reach out to the manager and make several attempts to encourage them to continue to submit their data. We may, during this communication period, roll forward the fund's last reported quarter's net asset value (NAV) for several quarters. When we are convinced that the manager will not resume reporting to us, the fund's entire performance history is removed from the database.

When fund managers stop reporting before their fund's return history is complete, an element of "survivorship bias" may be introduced to a performance database, which could skew the reported returns upwards if the funds dropping out had poorer returns than those funds that remained. Survivorship bias can affect all investment manager databases, including those for public stock managers and hedge funds. Compared to public stocks and hedge funds, however, the illiquid nature of private investments can actually help limit this survivorship effect. Whereas an underperforming stock manager may simply close up shop or drop out of databases as clients liquidate their positions and fire the manager, private investment partnerships owning illiquid assets continue to exist and require reporting to the limited partners, even if the original manager ceases to exist.

Over the last ten years the number of fund managers that stopped reporting to Cambridge Associates before liquidation represented an average of 0.6% (per year) of the total number of funds in the database during the respective year, and an average of 0.5% (per year) as a percentage of total NAV in the database during that respective year. During that same period the overall number of funds in our database increased by an average of 8% (per year). The performance of the small number of funds that have stopped reporting has been spread amongst all quartiles and has not been concentrated consistently in the poorer performing quartiles.

## NOTE ON CURRENCY

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The Ex US benchmarks are calculated in US Dollars. All funds denominated in other currencies are converted to US Dollars by using the average quarterly exchange rate for cash flows and ending quarterly exchange rate for net asset value as provided by WM/Reuters and Global Financial Data. Approximately 51% of the number of funds and 42% of commitments in our sample are denominated in US Dollars, 27% of the number of funds and 50% of commitments are denominated in Euros, 9% of the number of funds and 5% of commitments are denominated in UK Sterling, and 6% of the number of funds and 2% of commitments are denominated in Australian Dollars. However, in our Developed Europe sample, approximately 63% of the number of funds and 84% of commitments are denominated in Euros. Since currency exchange rates have an impact on returns, we have calculated the Developed Europe benchmarks in US Dollars as well as Euros. Approximately 79% of the number of funds and 91% of commitments of the Australia benchmarks are denominated in Australian Dollars. All Australia benchmarks have been calculated in Australian Dollars.

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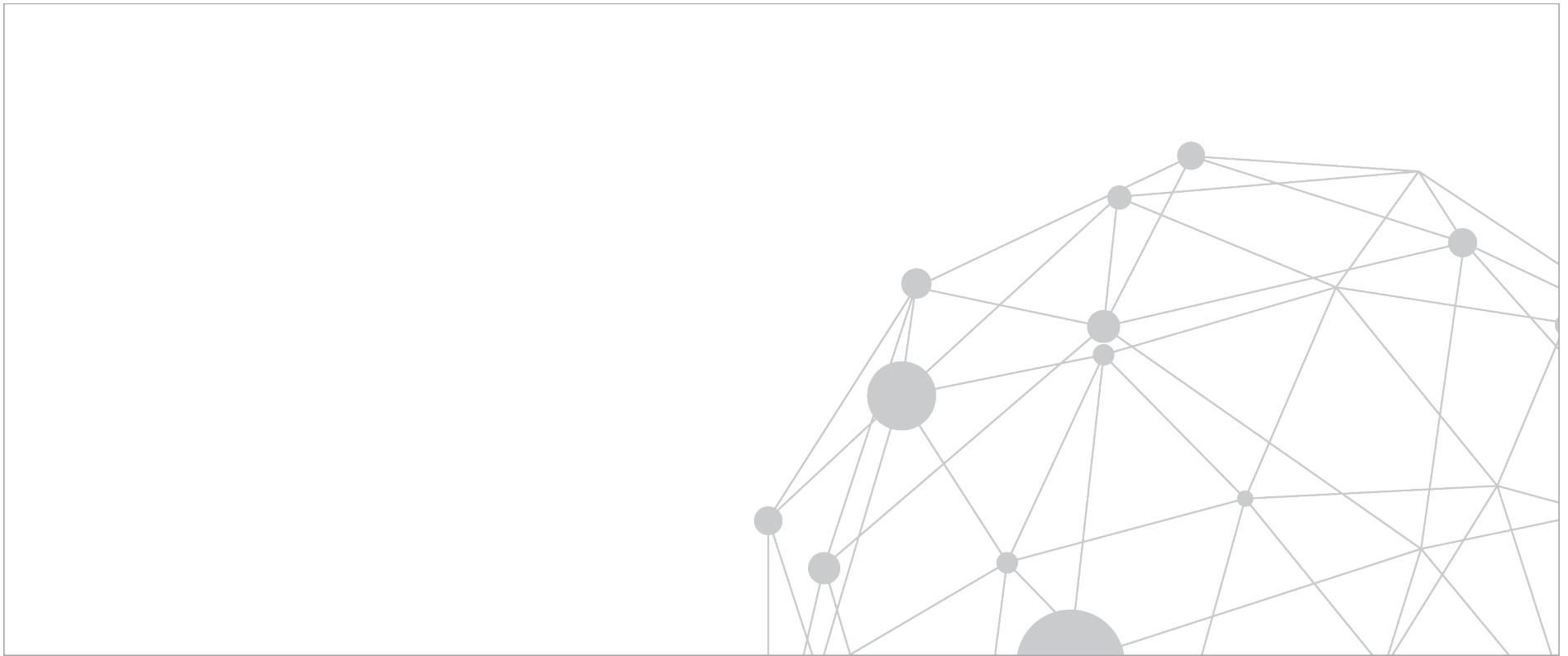
**EMERGING MARKETS PRIVATE EQUITY & VENTURE CAPITAL**

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# EX US DEVELOPED MARKETS PRIVATE EQUITY & VENTURE CAPITAL: FUND INDEX ANALYSIS



## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
<b>EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX<sup>1</sup></b>	<b>3.59</b>	<b>9.37</b>	<b>16.28</b>	<b>11.11</b>	<b>14.18</b>	<b>13.71</b>	<b>13.59</b>	<b>13.78</b>
<b>EUROPE DEVELOPED PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX (USD)<sup>1</sup></b>	<b>2.82</b>	<b>8.76</b>	<b>17.22</b>	<b>11.12</b>	<b>14.22</b>	<b>14.48</b>	<b>14.53</b>	<b>14.76</b>
<b>EUROPE DEVELOPED PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX (EUR)<sup>1</sup></b>	<b>4.68</b>	<b>19.32</b>	<b>17.72</b>	<b>17.36</b>	<b>16.15</b>	<b>15.45</b>	<b>14.04</b>	<b>14.50</b>
<b>ASIA/PACIFIC DEVELOPED PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX<sup>1</sup></b>	<b>2.85</b>	<b>3.83</b>	<b>12.09</b>	<b>11.46</b>	<b>14.53</b>	<b>11.28</b>	<b>11.80</b>	<b>11.43</b>
Bloomberg Barclays Capital Government/Credit Bond Index	3.26	4.48	2.12	2.78	3.92	3.86	4.78	5.36
Dow Jones Industrial Average Index	11.81	10.09	16.37	12.21	15.97	9.02	7.50	10.72
Dow Jones US Small Cap Index	16.70	4.86	11.98	7.06	16.48	8.83	9.87	10.26
Dow Jones US TopCap Index	13.70	9.50	13.65	10.79	16.01	8.82	6.27	9.80
MSCI Emerging Markets Index (gross)	9.95	-7.06	11.09	4.06	9.31	8.28	8.73	5.76
MSCI Europe Index (US\$) (net)	10.84	-3.72	6.56	1.04	8.95	5.24	3.86	6.72
MSCI Europe Index (€) (net)	12.84	5.45	7.08	5.27	10.79	5.88	3.66	6.92
MSCI Pacific Index (net)	8.53	-3.86	8.82	4.96	9.12	4.83	4.15	2.55
MSCI World Ex US Index (net)	10.45	-3.14	7.29	2.20	8.82	5.18	4.11	5.05
MSCI World Index (net)	12.48	4.01	10.68	6.78	12.38	6.82	4.82	7.03
Nasdaq Composite Index*	16.49	9.43	16.65	12.98	17.59	9.45	5.89	9.82
Russell 1000 <sup>®</sup> Index	14.00	9.30	13.52	10.63	16.05	8.74	6.33	9.89
Russell 2000 <sup>®</sup> Index	14.58	2.05	12.92	7.05	15.36	8.04	8.44	8.99
S&P 500 Index	13.65	9.50	13.51	10.91	15.92	8.57	6.04	9.80

The index is a horizon calculation based on data compiled from 833 Ex US Developed markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1986 and 2018.

<sup>1</sup> Private indexes are pooled horizon internal rate of return (IRR) calculations, net of fees, expenses, and carried interest. The timing and magnitude of fund cash flows are integral to the IRR performance calculation. Public indexes are average annual compounded return (AACR) calculations which are time weighted measures over the specified time horizon, and are shown for reference and directional purposes only. Due to the fundamental differences between the two calculations, direct comparison of IRRs to AACRs is not recommended. For a more accurate means of comparing private investment performance relative to public alternatives, see the analyses in this document using CA Modified Public Market Equivalent (mPME). See Methodology section for more detail.

Sources: Cambridge Associates LLC, Bloomberg Barclays, Dow Jones Indices, Frank Russell Company, MSCI Inc., Standard & Poor's and Thomson Reuters Datastream.

MSCI data provided "as is" without any express or implied warranties. Total returns for MSCI Emerging Markets Indices are gross of dividend taxes. Total Returns for MSCI Developed Markets Indices are net of dividend taxes.

\*Capital change only



## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## FUND INDEX SUMMARY: HORIZON POOLED RETURN COMPARED TO CA MODIFIED PUBLIC MARKET EQUIVALENT (MPME)

Net to Limited Partners

CA INDEX	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
<b>EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX<sup>1</sup></b>	<b>9.37</b>	<b>16.28</b>	<b>11.11</b>	<b>14.18</b>	<b>13.71</b>	<b>13.59</b>	<b>13.78</b>
<b>MPME ANALYSIS<sup>2</sup></b>							
MSCI EAFE Index (net)	-3.54	7.60	1.85	8.99	4.51	4.42	4.54
Value-Add (bps)	1,291	868	927	519	921	916	924
MSCI Europe Index (net)	-3.52	6.81	0.42	9.05	4.53	4.36	4.76
Value-Add (bps)	1,289	947	1,070	512	918	923	902
S&P 500 Index	9.67	13.83	10.68	16.49	9.29	8.30	8.99
Value-Add (bps)	-30	245	43	-232	442	529	479
Constructed Index: Global Financial Data Emerging Markets/MSCI Emerging Markets (gross) <sup>3</sup>	-7.07	11.61	3.50	9.50	7.25	8.16	7.64
Value-Add (bps)	1,644	467	761	468	646	543	615
Constructed Index: MSCI World/MSCI All Country World Index <sup>4</sup> (gross)	3.28	11.66	6.58	12.79	7.17	6.64	6.94
Value-Add (bps)	608	462	454	138	655	695	685

The index is a horizon calculation based on data compiled from 833 Ex US Developed markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1986 and 2018.

<sup>1</sup> Pooled horizon return, net of fees, expenses, and carried interest.

<sup>2</sup> CA Modified Public Market Equivalent (mPME) replicates private investment performance under public market conditions. The public index's shares are purchased and sold according to the private fund cash flow schedule, with distributions calculated in the same proportion as the private fund, and mPME NAV is a function of mPME cash flows and public index returns. "Value-Add" shows (in basis points) the difference between the actual private investment return and the mPME calculated return. Refer to Methodology page for details.

<sup>3</sup> Constructed MSCI EM Index: Data from 1/1/1986 to 12/31/1987 represented by GFD Emerging Markets price return. Data from 1/1/1988 to present represented by MSCI Emerging Markets total return gross.

<sup>4</sup> Constructed Index: MSCI World/MSCI All Country World Index: Data from 1/1/1986 to 12/31/1987 represented by MSCI index gross total return. Data from 1/1/1988 to present represented by MSCI ACWI gross total return.

Sources: Cambridge Associates LLC, Global Financial Data, Inc., MSCI Inc., Standard & Poor's, and Thomson Reuters Datastream.

MSCI data provided "as is" without any express or implied warranties. Total returns for MSCI Emerging Markets indexes are gross of dividend taxes. Total returns for MSCI Developed Markets indexes are net of dividend taxes.

## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN	QUARTER ENDING	HORIZON RETURN	QUARTER ENDING	HORIZON RETURN	QUARTER ENDING	HORIZON RETURN
1994 Q1	10.23	2000 Q3	-1.90	2007 Q1	4.31	2013 Q3	7.08
1994 Q2	-1.62	2000 Q4	5.75	2007 Q2	14.25	2013 Q4	7.86
1994 Q3	3.27	2001 Q1	-7.91	2007 Q3	5.93	2014 Q1	3.60
1994 Q4	5.28	2001 Q2	-1.38	2007 Q4	4.53	2014 Q2	4.84
1995 Q1	7.18	2001 Q3	1.51	2008 Q1	4.69	2014 Q3	-4.87
1995 Q2	3.97	2001 Q4	-2.92	2008 Q2	-4.40	2014 Q4	0.88
1995 Q3	4.24	2002 Q1	-1.02	2008 Q3	-16.25	2015 Q1	-2.87
1995 Q4	-5.72	2002 Q2	8.43	2008 Q4	-22.72	2015 Q2	7.76
1996 Q1	-0.44	2002 Q3	-2.29	2009 Q1	-8.59	2015 Q3	0.31
1996 Q2	4.41	2002 Q4	7.00	2009 Q2	9.00	2015 Q4	2.94
1996 Q3	-0.17	2003 Q1	0.78	2009 Q3	8.70	2016 Q1	4.37
1996 Q4	20.48	2003 Q2	7.29	2009 Q4	7.64	2016 Q2	0.74
1997 Q1	-1.22	2003 Q3	1.67	2010 Q1	-2.06	2016 Q3	5.13
1997 Q2	-0.89	2003 Q4	13.79	2010 Q2	-3.53	2016 Q4	0.88
1997 Q3	4.56	2004 Q1	0.91	2010 Q3	12.10	2017 Q1	4.61
1997 Q4	14.71	2004 Q2	6.14	2010 Q4	8.28	2017 Q2	10.97
1998 Q1	0.34	2004 Q3	4.75	2011 Q1	6.25	2017 Q3	6.13
1998 Q2	13.70	2004 Q4	19.04	2011 Q2	6.92	2017 Q4	5.73
1998 Q3	3.72	2005 Q1	-0.31	2011 Q3	-9.13	2018 Q1	3.04
1998 Q4	4.17	2005 Q2	6.21	2011 Q4	0.15	2018 Q2	3.26
1999 Q1	-0.11	2005 Q3	6.17	2012 Q1	7.53	2018 Q3	3.32
1999 Q2	7.14	2005 Q4	11.24	2012 Q2	-1.53	2018 Q4	-1.11
1999 Q3	8.15	2006 Q1	8.21	2012 Q3	3.75	2019 Q1	3.59
1999 Q4	12.80	2006 Q2	16.37	2012 Q4	5.02		
2000 Q1	6.06	2006 Q3	3.94	2013 Q1	0.28		
2000 Q2	4.10	2006 Q4	22.04	2013 Q2	2.41		

## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

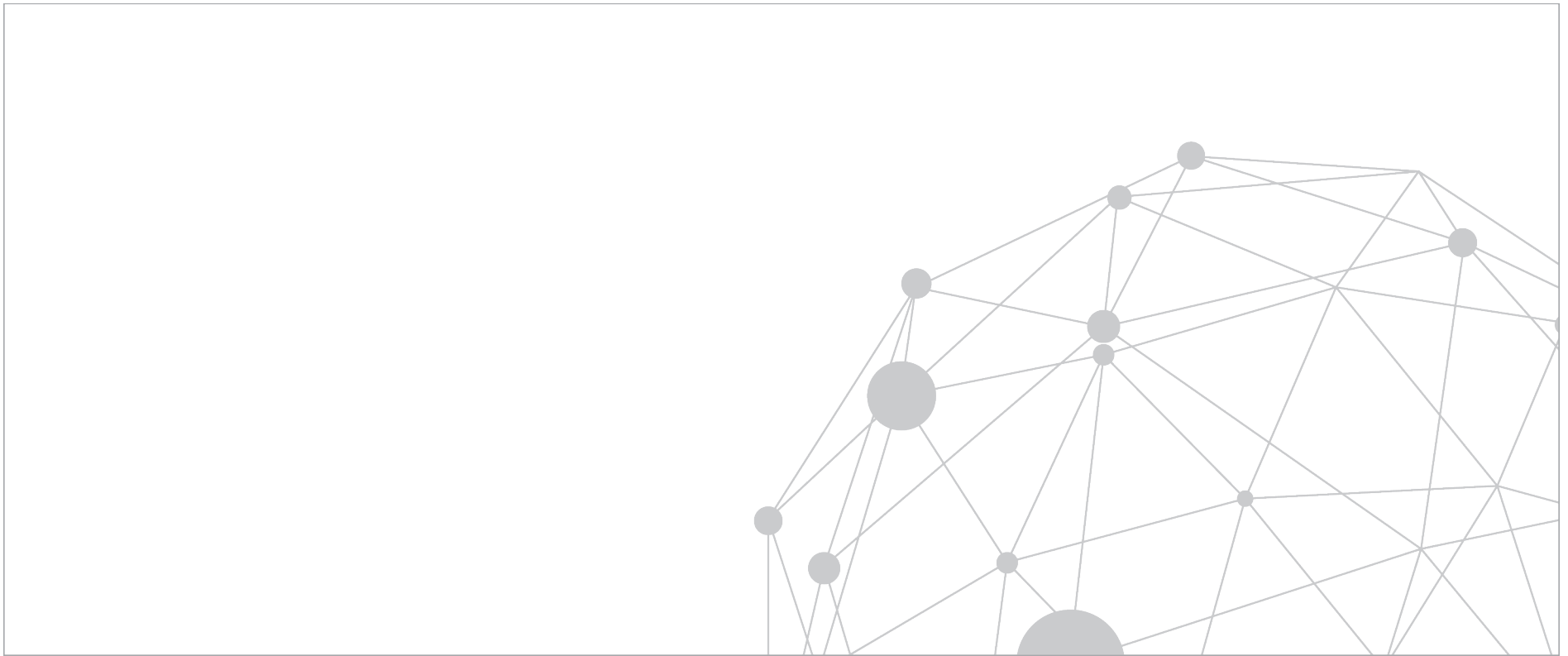
## FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	9.37	14 Years	12.56
2 Years	19.22	15 Years	13.71
3 Years	16.28	16 Years	14.38
4 Years	16.28	17 Years	14.36
5 Years	11.11	18 Years	13.53
6 Years	13.61	19 Years	12.95
7 Years	12.38	20 Years	13.59
8 Years	11.01	21 Years	13.72
9 Years	12.89	22 Years	13.80
10 Years	14.18	23 Years	13.94
11 Years	6.78	24 Years	13.77
12 Years	8.49	25 Years	13.78
13 Years	11.10		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
3/31/2019	9.37	3/31/2006	35.55
3/31/2018	28.67	3/31/2005	32.02
3/31/2017	11.63	3/31/2004	25.23
3/31/2016	16.29	3/31/2003	13.97
3/31/2015	-1.97	3/31/2002	-3.86
3/31/2014	22.44	3/31/2001	-0.85
3/31/2013	7.53	3/31/2000	38.45
3/31/2012	4.50	3/31/1999	21.07
3/31/2011	24.78	3/31/1998	19.29
3/31/2010	24.39	3/31/1997	23.72
3/31/2009	-43.94	3/31/1996	1.33
3/31/2008	32.30	3/31/1995	15.29
3/31/2007	54.13		

# EX US DEVELOPED MARKETS PRIVATE EQUITY & VENTURE CAPITAL: FUND SINCE INCEPTION ANALYSIS



## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## SINCE INCEPTION IRR &amp; MULTIPLES BY FUND VINTAGE YEAR

Net to Limited Partners

VINTAGE YEAR	POOLED RETURN (%)	ARITHMETIC MEAN (%)	MEDIAN (%)	EQUAL-WEIGHTED POOLED RETURN (%)	UPPER QUARTILE (%)	LOWER QUARTILE (%)	STANDARD DEVIATION (%)	DPI	RVPI	TVPI	NUMBER OF FUNDS
1994	39.50	30.67	28.76	29.27	47.17	18.67	15.86	3.05	0.00	3.05	12
1995	33.62	22.93	18.85	21.65	23.76	8.09	28.20	2.37	0.00	2.37	9
1996	22.39	16.55	11.77	14.50	20.01	6.44	23.36	1.89	0.00	1.89	14
1997	15.16	19.33	13.67	20.05	25.52	9.16	20.23	1.97	0.00	1.97	31
1998	13.19	39.62	11.66	15.92	20.36	-3.70	162.93	1.86	0.00	1.86	27
1999	16.01	12.02	7.29	10.06	19.98	-0.29	18.19	1.89	0.01	1.90	38
2000	21.31	10.77	8.50	12.23	25.09	-2.23	25.86	2.16	0.02	2.18	58
2001	26.70	14.19	13.51	13.41	28.41	-0.24	21.03	1.99	0.02	2.01	28
2002	21.57	13.25	15.34	16.62	25.52	6.91	28.57	2.04	0.01	2.05	26
2003	20.83	24.05	28.55	23.77	35.27	9.74	20.77	1.71	0.01	1.71	16
2004	13.87	18.89	9.61	21.03	23.68	3.50	26.34	1.71	0.09	1.81	27
2005	4.39	4.82	5.78	5.49	11.21	-1.40	12.70	1.20	0.07	1.27	58
2006	5.47	5.24	6.76	6.57	11.42	1.64	11.13	1.21	0.14	1.35	56
2007	10.76	7.10	7.99	9.20	14.18	4.01	16.47	1.44	0.23	1.68	62
2008	12.77	7.54	11.14	12.79	16.33	8.02	29.02	1.36	0.36	1.72	34
2009	13.09	14.35	14.08	14.26	18.87	7.79	15.18	1.20	0.56	1.76	21
2010	11.73	13.77	13.03	16.19	21.72	5.57	13.32	0.84	0.67	1.51	21
2011	15.01	14.72	12.55	15.76	16.55	5.09	13.88	1.02	0.73	1.75	34
2012	16.28	15.04	16.15	17.36	19.64	9.89	10.66	0.71	0.99	1.70	41
2013	16.28	19.69	18.94	20.21	26.29	7.54	14.00	0.33	1.08	1.41	32
2014	15.37	13.66	12.70	14.14	19.47	9.36	10.58	0.14	1.18	1.32	40
2015	13.80	16.76	12.66	17.34	20.86	5.29	48.63	0.07	1.14	1.22	35
2016	10.08	4.28	6.99	8.85	14.38	-2.17	23.45	0.01	1.10	1.11	38
2017	-8.58	-11.02	-12.83	-2.02	8.14	-25.91	33.95	0.00	0.96	0.96	20



Notes: Based on data compiled from 778 Ex US Developed markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## SINCE INCEPTION IRR &amp; MULTIPLES COMPARED TO CA MODIFIED PUBLIC MARKET EQUIVALENT (MPME)

Net to Limited Partners

VINTAGE YEAR	NUMBER OF FUNDS	POOLED IRR (%) AND IRR-BASED VALUE-ADD (BPS)					TOTAL VALUE TO PAID IN (TVPI)			DISTRIBUTIONS TO PAID IN (DPI)		
		CA BENCHMARK INDEX	MSCI EAFE INDEX (NET)		MSCI EUROPE INDEX (NET)		CA BENCHMARK INDEX	MSCI EAFE INDEX (NET)	MSCI EUROPE INDEX (NET)	CA BENCHMARK INDEX	MSCI EAFE INDEX (NET)	MSCI EUROPE INDEX (NET)
			IRR	MPME IRR	VALUE-ADD	MPME IRR						
1994	12	39.50	6.20	3,330	15.07	2,443	3.05	1.15	1.39	3.05	1.15	1.39
1995	9	33.62	6.50	2,711	12.93	2,069	2.37	1.18	1.34	2.37	1.17	1.34
1996	14	22.39	5.82	1,657	8.52	1,387	1.89	1.20	1.30	1.89	1.20	1.30
1997	31	15.16	2.34	1,282	2.53	1,264	1.97	1.11	1.12	1.97	1.11	1.12
1998	27	13.19	3.63	956	3.88	931	1.86	1.18	1.20	1.86	1.18	1.19
1999	38	16.01	6.17	984	6.75	926	1.90	1.27	1.30	1.89	1.27	1.30
2000	58	21.31	10.20	1,111	10.66	1,064	2.18	1.40	1.42	2.16	1.39	1.41
2001	28	26.70	13.51	1,320	13.93	1,277	2.01	1.41	1.42	1.99	1.40	1.41
2002	26	21.57	8.17	1,339	8.59	1,298	2.05	1.31	1.32	2.04	1.30	1.32
2003	16	20.83	6.42	1,441	7.03	1,381	1.71	1.22	1.24	1.71	1.22	1.24
2004	27	13.87	3.27	1,060	3.45	1,042	1.81	1.15	1.16	1.71	1.10	1.11
2005	58	4.39	1.58	281	1.45	294	1.27	1.09	1.08	1.20	1.03	1.03
2006	56	5.47	2.61	286	2.42	305	1.35	1.15	1.14	1.21	1.04	1.03
2007	62	10.76	4.67	609	4.58	618	1.68	1.23	1.23	1.44	1.12	1.12
2008	34	12.77	6.10	666	6.09	668	1.72	1.28	1.28	1.36	1.05	1.06
2009	21	13.09	5.56	753	5.33	776	1.76	1.26	1.25	1.20	0.93	0.92
2010	21	11.73	5.36	637	4.99	674	1.51	1.20	1.19	0.84	0.70	0.69
2011	34	15.01	5.13	988	4.61	1,040	1.75	1.21	1.19	1.02	0.74	0.73
2012	41	16.28	4.19	1,209	3.43	1,284	1.70	1.15	1.12	0.71	0.52	0.51
2013	32	16.28	4.22	1,206	3.48	1,280	1.41	1.09	1.08	0.33	0.27	0.27
2014	40	15.37	4.97	1,040	4.46	1,091	1.32	1.10	1.09	0.14	0.13	0.13
2015	35	13.80	3.78	1,002	3.38	1,042	1.22	1.06	1.05	0.07	0.07	0.07
2016	38	10.08	1.65	844	1.26	883	1.11	1.02	1.01	0.01	0.01	0.01
2017	20	-8.58	4.82	-1,339	5.50	-1,408	0.96	1.02	1.02	0.00	0.00	0.00

Notes: Based on data compiled from 778 Ex US Developed markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

mPME Note: Refer to Methodology page for further details on Cambridge Associates Modified PME (mPME).

Sources: Cambridge Associates LLC, MSCI, Inc., and Thomson Returns Datastream.

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## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## SINCE INCEPTION IRR &amp; MULTIPLES COMPARED TO CA MODIFIED PUBLIC MARKET EQUIVALENT (MPME)

Net to Limited Partners

VINTAGE YEAR	NUMBER OF FUNDS	POOLED IRR (%) AND IRR-BASED VALUE-ADD (BPS)					TOTAL VALUE TO PAID IN (TVPI)			DISTRIBUTIONS TO PAID IN (DPI)		
		CA BENCHMARK INDEX	S&P 500 INDEX		MSCI EMERGING MARKETS INDEX (GROSS)		CA BENCHMARK INDEX	S&P 500 INDEX	MSCI EMERGING MARKETS INDEX (GROSS)	CA BENCHMARK INDEX	S&P 500 INDEX	MSCI EMERGING MARKETS INDEX (GROSS)
			IRR	MPME IRR	VALUE-ADD	MPME IRR						
1994	12	39.50	20.15	1,936	-2.70	4,221	3.05	1.54	0.94	3.05	1.54	0.94
1995	9	33.62	16.90	1,671	0.33	3,328	2.37	1.43	1.01	2.37	1.43	1.01
1996	14	22.39	10.68	1,172	5.41	1,698	1.89	1.34	1.24	1.89	1.34	1.24
1997	31	15.16	1.73	1,344	8.99	618	1.97	1.08	1.52	1.97	1.08	1.52
1998	27	13.19	0.84	1,234	12.42	76	1.86	1.04	1.80	1.86	1.04	1.79
1999	38	16.01	3.00	1,301	15.04	97	1.90	1.13	1.85	1.89	1.12	1.84
2000	58	21.31	5.66	1,565	20.84	47	2.18	1.23	2.01	2.16	1.21	2.00
2001	28	26.70	8.05	1,865	25.60	111	2.01	1.27	1.89	1.99	1.25	1.87
2002	26	21.57	6.91	1,465	17.90	367	2.05	1.32	1.72	2.04	1.31	1.72
2003	16	20.83	6.87	1,396	15.06	578	1.71	1.30	1.52	1.71	1.29	1.51
2004	27	13.87	6.33	754	8.90	498	1.81	1.36	1.43	1.71	1.27	1.37
2005	58	4.39	6.94	-255	4.07	32	1.27	1.49	1.23	1.20	1.38	1.17
2006	56	5.47	9.08	-361	2.85	262	1.35	1.66	1.16	1.21	1.46	1.05
2007	62	10.76	12.13	-137	2.51	825	1.68	1.74	1.12	1.44	1.55	1.01
2008	34	12.77	13.98	-121	3.53	923	1.72	1.79	1.16	1.36	1.41	0.94
2009	21	13.09	13.54	-45	2.87	1,022	1.76	1.77	1.13	1.20	1.26	0.82
2010	21	11.73	13.29	-156	3.53	820	1.51	1.59	1.13	0.84	0.87	0.64
2011	34	15.01	12.69	232	4.21	1,080	1.75	1.60	1.17	1.02	0.94	0.71
2012	41	16.28	11.97	431	4.71	1,156	1.70	1.48	1.17	0.71	0.63	0.52
2013	32	16.28	11.76	452	7.15	913	1.41	1.28	1.16	0.33	0.31	0.29
2014	40	15.37	12.25	312	8.12	725	1.32	1.25	1.16	0.14	0.14	0.14
2015	35	13.80	12.01	179	6.72	708	1.22	1.19	1.10	0.07	0.07	0.07
2016	38	10.08	11.12	-103	4.11	598	1.11	1.12	1.04	0.01	0.01	0.01
2017	20	-8.58	15.93	-2,450	7.30	-1,587	0.96	1.06	1.03	0.00	0.00	0.00

Notes: Based on data compiled from 778 Ex US Developed markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

mPME Note: Refer to Methodology page for further details on Cambridge Associates Modified PME (mPME).

Sources: Cambridge Associates LLC, MSCI, Inc., Standard & Poor's, and Thomson Returns Datastream.

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## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## SINCE INCEPTION IRR &amp; MULTIPLES COMPARED TO CA MODIFIED PUBLIC MARKET EQUIVALENT (MPME)

Net to Limited Partners

VINTAGE YEAR	NUMBER OF FUNDS	POOLED IRR (%) AND IRR-BASED VALUE-ADD (BPS)			TOTAL VALUE TO PAID IN (TVPI)		DISTRIBUTIONS TO PAID IN (DPI)	
		CA BENCHMARK INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)	CA BENCHMARK INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)
			IRR	MPME IRR				
1994	12	39.50	11.56	2,794	3.05	1.30	3.05	1.30
1995	9	33.62	10.47	2,315	2.37	1.28	2.37	1.27
1996	14	22.39	7.80	1,459	1.89	1.27	1.89	1.27
1997	31	15.16	2.29	1,288	1.97	1.11	1.97	1.11
1998	27	13.19	2.70	1,049	1.86	1.13	1.86	1.13
1999	38	16.01	5.13	1,087	1.90	1.23	1.89	1.22
2000	58	21.31	8.65	1,266	2.18	1.35	2.16	1.34
2001	28	26.70	11.63	1,507	2.01	1.37	1.99	1.36
2002	26	21.57	8.30	1,327	2.05	1.35	2.04	1.34
2003	16	20.83	7.39	1,344	1.71	1.29	1.71	1.28
2004	27	13.87	5.40	847	1.81	1.28	1.71	1.21
2005	58	4.39	4.54	-15	1.27	1.29	1.20	1.21
2006	56	5.47	5.81	-34	1.35	1.38	1.21	1.23
2007	62	10.76	8.01	275	1.68	1.44	1.44	1.29
2008	34	12.77	9.59	317	1.72	1.49	1.36	1.20
2009	21	13.09	9.14	395	1.76	1.47	1.20	1.06
2010	21	11.73	9.06	266	1.51	1.37	0.84	0.77
2011	34	15.01	8.86	616	1.75	1.39	1.02	0.83
2012	41	16.28	8.28	800	1.70	1.31	0.71	0.57
2013	32	16.28	8.64	764	1.41	1.20	0.33	0.29
2014	40	15.37	9.36	601	1.32	1.19	0.14	0.14
2015	35	13.80	8.70	509	1.22	1.13	0.07	0.07
2016	38	10.08	7.19	289	1.11	1.08	0.01	0.01
2017	20	-8.58	11.47	-2,005	0.96	1.05	0.00	0.00

Notes: Based on data compiled from 778 Ex US Developed markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

mPME Note: Refer to Methodology page for further details on Cambridge Associates Modified PME (mPME).

Sources: Cambridge Associates LLC, MSCI, Inc., and Thomson Returns Datastream.

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## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## TOTAL VALUE TO PAID IN CAPITAL MULTIPLE (TVPI)

Net to Limited Partners

VINTAGE YEAR	POOLED RETURN	ARITHMETIC MEAN	MEDIAN	UPPER QUARTILE	LOWER QUARTILE	NUMBER OF FUNDS
1994	3.05	2.60	2.55	3.12	2.07	12
1995	2.37	2.11	1.90	2.13	1.58	9
1996	1.89	1.72	1.59	2.00	1.40	14
1997	1.97	1.93	1.88	2.13	1.54	31
1998	1.86	1.80	1.61	2.11	0.87	27
1999	1.90	1.63	1.37	2.15	0.98	38
2000	2.18	1.65	1.49	2.05	0.84	58
2001	2.01	1.69	1.68	2.38	0.98	28
2002	2.05	1.83	1.73	2.16	1.46	26
2003	1.71	1.97	1.87	2.49	1.43	16
2004	1.81	1.95	1.52	2.30	1.10	27
2005	1.27	1.36	1.38	1.77	0.90	58
2006	1.35	1.43	1.42	1.69	1.10	56
2007	1.68	1.54	1.48	1.80	1.20	62
2008	1.72	1.72	1.71	2.04	1.34	34
2009	1.76	1.77	1.62	2.04	1.44	21
2010	1.51	1.71	1.45	1.81	1.33	21
2011	1.75	1.74	1.57	1.79	1.23	34
2012	1.70	1.78	1.73	1.87	1.33	41
2013	1.41	1.68	1.59	1.89	1.20	32
2014	1.32	1.33	1.30	1.45	1.21	40
2015	1.22	1.26	1.20	1.44	1.09	35
2016	1.11	1.07	1.08	1.17	0.98	38
2017	0.96	0.93	0.90	1.07	0.81	20



Notes: Based on data compiled from 778 Ex US Developed markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## DISTRIBUTION TO PAID IN CAPITAL MULTIPLE (DPI)

Net to Limited Partners

VINTAGE YEAR	POOLED RETURN	ARITHMETIC MEAN	MEDIAN	UPPER QUARTILE	LOWER QUARTILE	NUMBER OF FUNDS
1994	3.05	2.60	2.55	3.12	2.07	12
1995	2.37	2.11	1.90	2.13	1.58	9
1996	1.89	1.72	1.59	2.00	1.40	14
1997	1.97	1.93	1.88	2.13	1.54	31
1998	1.86	1.78	1.61	2.11	0.87	27
1999	1.89	1.62	1.37	2.15	0.97	38
2000	2.16	1.63	1.49	2.05	0.84	58
2001	1.99	1.64	1.68	2.37	0.79	28
2002	2.04	1.82	1.73	2.16	1.43	26
2003	1.71	1.96	1.84	2.49	1.43	16
2004	1.71	1.81	1.50	2.26	0.99	27
2005	1.20	1.20	1.19	1.60	0.82	58
2006	1.21	1.23	1.23	1.54	0.75	56
2007	1.44	1.24	1.21	1.58	0.74	62
2008	1.36	1.28	1.34	1.70	0.87	34
2009	1.20	1.19	1.21	1.67	0.56	21
2010	0.84	0.99	0.74	1.27	0.45	21
2011	1.02	0.81	0.66	1.06	0.36	34
2012	0.71	0.56	0.56	0.79	0.29	41
2013	0.33	0.46	0.29	0.71	0.12	32
2014	0.14	0.19	0.07	0.25	0.00	40
2015	0.07	0.17	0.00	0.11	0.00	35
2016	0.01	0.03	0.00	0.02	0.00	38
2017	0.00	0.00	0.00	0.00	0.00	20



Notes: Based on data compiled from 778 Ex US Developed markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

## EX US DEVELOPED MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## RESIDUAL VALUE TO PAID IN CAPITAL MULTIPLE (RVPI)

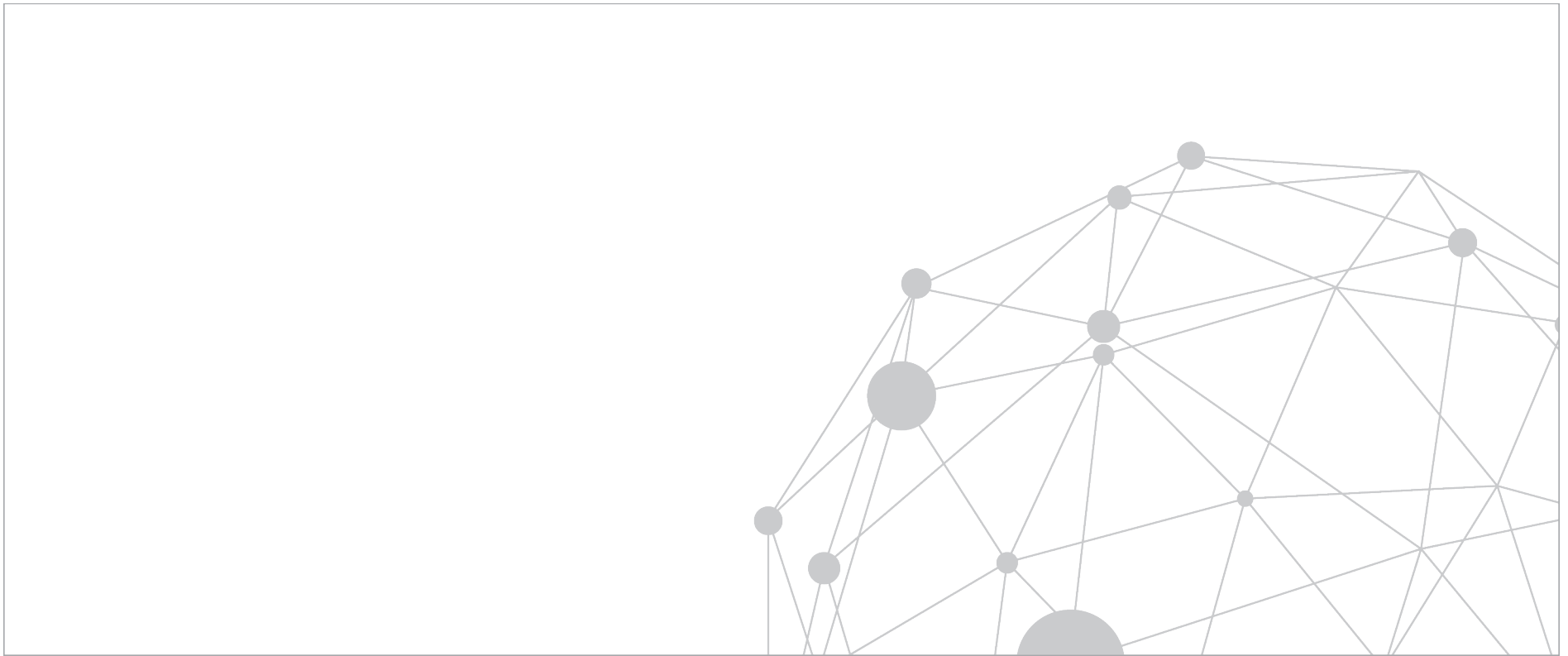
Net to Limited Partners

VINTAGE YEAR	POOLED RETURN	ARITHMETIC MEAN	MEDIAN	UPPER QUARTILE	LOWER QUARTILE	NUMBER OF FUNDS
1994	0.00	0.00	0.00	0.00	0.00	12
1995	0.00	0.00	0.00	0.00	0.00	9
1996	0.00	0.00	0.00	0.00	0.00	14
1997	0.00	0.00	0.00	0.00	0.00	31
1998	0.00	0.02	0.00	0.00	0.00	27
1999	0.01	0.01	0.00	0.00	0.00	38
2000	0.02	0.02	0.00	0.01	0.00	58
2001	0.02	0.05	0.00	0.01	0.00	28
2002	0.01	0.01	0.00	0.00	0.00	26
2003	0.01	0.01	0.00	0.01	0.00	16
2004	0.09	0.14	0.04	0.15	0.00	27
2005	0.07	0.16	0.03	0.13	0.00	58
2006	0.14	0.20	0.09	0.30	0.01	56
2007	0.23	0.30	0.16	0.48	0.04	62
2008	0.36	0.44	0.28	0.67	0.03	34
2009	0.56	0.59	0.43	0.89	0.25	21
2010	0.67	0.72	0.63	0.75	0.52	21
2011	0.73	0.94	0.78	1.16	0.53	34
2012	0.99	1.21	0.99	1.33	0.81	41
2013	1.08	1.22	1.08	1.60	0.88	32
2014	1.18	1.14	1.14	1.26	0.98	40
2015	1.14	1.10	1.12	1.40	0.95	35
2016	1.10	1.04	1.05	1.17	0.91	38
2017	0.96	0.93	0.90	1.07	0.81	20



Notes: Based on data compiled from 778 Ex US Developed markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

# EMERGING MARKETS PRIVATE EQUITY & VENTURE CAPITAL: FUND INDEX ANALYSIS



AS OF MARCH 31, 2019

## EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

## FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
<b>EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX<sup>1</sup></b>	<b>4.37</b>	<b>8.50</b>	<b>11.60</b>	<b>11.13</b>	<b>13.29</b>	<b>11.95</b>	<b>10.22</b>	<b>9.88</b>
<b>ASIA/PACIFIC EMERGING PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX<sup>1</sup></b>	<b>5.02</b>	<b>10.83</b>	<b>13.19</b>	<b>14.40</b>	<b>16.05</b>	<b>13.62</b>	<b>12.16</b>	<b>11.72</b>
<b>EUROPE EMERGING PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX (USD)<sup>1,2</sup></b>	<b>-0.25</b>	<b>-5.38</b>	<b>8.91</b>	<b>0.73</b>	<b>6.86</b>	<b>9.07</b>	<b>8.44</b>	<b>7.98</b>
<b>EUROPE EMERGING PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX (EUR)<sup>1,2</sup></b>	<b>1.54</b>	<b>3.68</b>	<b>9.53</b>	<b>5.65</b>	<b>8.88</b>	<b>11.01</b>	<b>9.09</b>	<b>8.74</b>
<b>LATIN AMERICA &amp; CARIBBEAN PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX<sup>1</sup></b>	<b>1.34</b>	<b>-3.80</b>	<b>4.08</b>	<b>0.27</b>	<b>4.81</b>	<b>7.32</b>	<b>3.19</b>	<b>2.97</b>
<b>AFRICA PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX<sup>1</sup></b>	<b>0.85</b>	<b>2.32</b>	<b>5.47</b>	<b>2.25</b>	<b>5.70</b>	<b>7.35</b>	<b>6.57</b>	<b>—</b>
<b>MIDDLE EAST EMERGING PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX<sup>1</sup></b>	<b>3.59</b>	<b>6.76</b>	<b>4.01</b>	<b>1.50</b>	<b>6.33</b>	<b>3.95</b>	<b>2.27</b>	<b>2.28</b>
MSCI Emerging Markets Index (gross)	9.95	-7.06	11.09	4.06	9.31	8.28	8.73	5.76
MSCI Emerging Markets Asia Index (gross)	11.13	-6.53	12.16	6.57	11.17	8.79	8.60	4.14
MSCI Emerging Markets Eastern Europe Index (gross)	8.65	0.85	14.37	2.90	8.38	4.61	9.82	—
MSCI Emerging Markets Latin America Index (gross)	7.94	-6.38	11.48	0.03	5.57	9.16	9.63	7.55
MSCI Europe Index (US\$) (net)	10.84	-3.72	6.56	1.04	8.95	5.24	3.86	6.72
MSCI Europe Index (€) (net)	12.84	5.45	7.08	5.27	10.79	5.88	3.66	6.92
MSCI Pacific Index (net)	8.53	-3.86	8.82	4.96	9.12	4.83	4.15	2.55
MSCI World Ex US Index (net)	10.45	-3.14	7.29	2.20	8.82	5.18	4.11	5.05
MSCI World Index (net)	12.48	4.01	10.68	6.78	12.38	6.82	4.82	7.03

The index is a horizon calculation based on data compiled from 671 emerging markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1986 and 2018.

<sup>1</sup> Private indexes are pooled horizon internal rate of return (IRR) calculations, net of fees, expenses, and carried interest. The timing and magnitude of fund cash flows are integral to the IRR performance calculation. Public indexes are average annual compounded return (AACR) calculations which are time weighted measures over the specified time horizon, and are shown for reference and directional purposes only. Due to the fundamental differences between the two calculations, direct comparison of IRRs to AACRs is not recommended. For a more accurate means of comparing private investment performance relative to public alternatives, see the analyses in this document using CA Modified Public Market Equivalent (mPME). See Methodology section for more detail.

<sup>2</sup> Includes Russia

Sources: Cambridge Associates LLC, MSCI Inc., and Thomson Reuters Datastream.

MSCI data provided "as is" without any express or implied warranties. Total returns for MSCI Emerging Markets Indices are gross of dividend taxes. Total Returns for MSCI Developed Markets Indices are net of dividend taxes.

## EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## FUND INDEX SUMMARY: HORIZON POOLED RETURN COMPARED TO CA MODIFIED PUBLIC MARKET EQUIVALENT (MPME)

Net to Limited Partners

CA INDEX	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
<b>EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL INDEX<sup>1</sup></b>	<b>8.50</b>	<b>11.60</b>	<b>11.13</b>	<b>13.29</b>	<b>11.95</b>	<b>10.22</b>	<b>9.88</b>
<b>MPME ANALYSIS<sup>2</sup></b>							
MSCI EAFE Index (net)	-3.52	7.04	2.54	7.26	4.32	4.01	4.14
Value-Add (bps)	1,202	455	859	603	763	622	574
MSCI Europe Index (net)	-3.49	6.38	1.34	7.12	4.19	3.81	4.24
Value-Add (bps)	1,199	522	979	617	776	641	564
Constructed Index: Global Financial Data Emerging Markets/MSCI Emerging Markets (gross) <sup>3</sup>	-6.63	10.82	4.48	7.66	5.94	6.39	5.98
Value-Add (bps)	1,513	78	665	563	601	384	390
Constructed Index: MSCI World/MSCI All Country World Index <sup>4</sup> (gross)	3.29	11.19	7.14	11.26	7.49	6.67	7.00
Value-Add (bps)	522	41	398	203	447	355	287

The index is a horizon calculation based on data compiled from 671 emerging markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1986 and 2018.

<sup>1</sup> Pooled horizon return, net of fees, expenses, and carried interest.

<sup>2</sup> CA Modified Public Market Equivalent (mPME) replicates private investment performance under public market conditions. The public index's shares are purchased and sold according to the private fund cash flow schedule, with distributions calculated in the same proportion as the private fund, and mPME NAV is a function of mPME cash flows and public index returns. "Value-Add" shows (in basis points) the difference between the actual private investment return and the mPME calculated return. Refer to Methodology page for details.

<sup>3</sup> Constructed MSCI EM Index: Data from 1/1/1986 to 12/31/1987 represented by GFD Emerging Markets price return. Data from 1/1/1988 to present represented by MSCI Emerging Markets total return gross.

<sup>4</sup> Constructed Index: MSCI World/MSCI All Country World Index: Data from 1/1/1986 to 12/31/1987 represented by MSCI index gross total return. Data from 1/1/1988 to present represented by MSCI ACWI gross total return.

Sources: Cambridge Associates LLC, Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream.

MSCI data provided "as is" without any express or implied warranties. Total returns for MSCI Emerging Markets indexes are gross of dividend taxes. Total returns for MSCI Developed Markets indexes are net of dividend taxes.

## EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

## FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN	QUARTER ENDING	HORIZON RETURN	QUARTER ENDING	HORIZON RETURN	QUARTER ENDING	HORIZON RETURN
1994 Q1	-0.54	2000 Q3	-1.65	2007 Q1	4.44	2013 Q3	4.17
1994 Q2	-0.86	2000 Q4	-5.40	2007 Q2	14.08	2013 Q4	7.20
1994 Q3	2.26	2001 Q1	-0.46	2007 Q3	7.59	2014 Q1	2.47
1994 Q4	-1.94	2001 Q2	-0.92	2007 Q4	12.70	2014 Q2	4.47
1995 Q1	-0.01	2001 Q3	-7.54	2008 Q1	-4.61	2014 Q3	1.69
1995 Q2	0.23	2001 Q4	-8.64	2008 Q2	-0.16	2014 Q4	5.17
1995 Q3	0.88	2002 Q1	-0.71	2008 Q3	-11.46	2015 Q1	3.29
1995 Q4	-4.66	2002 Q2	-2.33	2008 Q4	-17.51	2015 Q2	5.23
1996 Q1	2.18	2002 Q3	-7.26	2009 Q1	-1.74	2015 Q3	-4.77
1996 Q2	1.04	2002 Q4	-7.90	2009 Q2	11.33	2015 Q4	5.13
1996 Q3	2.17	2003 Q1	-2.00	2009 Q3	9.17	2016 Q1	0.21
1996 Q4	10.88	2003 Q2	1.63	2009 Q4	9.77	2016 Q2	1.08
1997 Q1	3.37	2003 Q3	4.84	2010 Q1	4.12	2016 Q3	2.79
1997 Q2	0.74	2003 Q4	6.71	2010 Q2	-0.24	2016 Q4	0.83
1997 Q3	-1.40	2004 Q1	5.20	2010 Q3	8.86	2017 Q1	4.04
1997 Q4	-2.96	2004 Q2	1.62	2010 Q4	11.74	2017 Q2	3.50
1998 Q1	2.49	2004 Q3	3.39	2011 Q1	3.05	2017 Q3	4.72
1998 Q2	-5.02	2004 Q4	11.60	2011 Q2	3.15	2017 Q4	5.87
1998 Q3	-2.91	2005 Q1	8.21	2011 Q3	-8.28	2018 Q1	2.46
1998 Q4	3.91	2005 Q2	2.72	2011 Q4	1.45	2018 Q2	3.18
1999 Q1	-1.29	2005 Q3	5.79	2012 Q1	6.10	2018 Q3	1.14
1999 Q2	3.91	2005 Q4	7.95	2012 Q2	-2.28	2018 Q4	-0.39
1999 Q3	1.00	2006 Q1	6.08	2012 Q3	2.34	2019 Q1	4.37
1999 Q4	9.25	2006 Q2	4.34	2012 Q4	3.66		
2000 Q1	5.07	2006 Q3	1.84	2013 Q1	2.65		
2000 Q2	4.05	2006 Q4	13.49	2013 Q2	0.10		

## EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

## FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	8.50	14 Years	11.57
2 Years	12.89	15 Years	11.95
3 Years	11.60	16 Years	12.15
4 Years	10.07	17 Years	11.27
5 Years	11.13	18 Years	10.42
6 Years	11.69	19 Years	10.03
7 Years	10.97	20 Years	10.22
8 Years	9.90	21 Years	10.02
9 Years	11.29	22 Years	9.91
10 Years	13.29	23 Years	9.97
11 Years	9.81	24 Years	9.91
12 Years	10.73	25 Years	9.88
13 Years	11.24		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
3/31/2019	8.50	3/31/2006	24.27
3/31/2018	17.55	3/31/2005	26.64
3/31/2017	9.02	3/31/2004	19.64
3/31/2016	5.59	3/31/2003	-18.21
3/31/2015	15.40	3/31/2002	-16.93
3/31/2014	14.58	3/31/2001	-4.13
3/31/2013	6.61	3/31/2000	21.19
3/31/2012	2.02	3/31/1999	-4.36
3/31/2011	25.06	3/31/1998	-0.94
3/31/2010	38.49	3/31/1997	19.10
3/31/2009	-28.68	3/31/1996	-1.44
3/31/2008	29.29	3/31/1995	-0.68
3/31/2007	26.55		



# EMERGING MARKETS PRIVATE EQUITY & VENTURE CAPITAL: FUND SINCE INCEPTION ANALYSIS



## EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## SINCE INCEPTION IRR &amp; MULTIPLES BY FUND VINTAGE YEAR

Net to Limited Partners

VINTAGE YEAR	POOLED RETURN (%)	ARITHMETIC MEAN (%)	MEDIAN (%)	EQUAL-WEIGHTED POOLED RETURN (%)	UPPER QUARTILE (%)	LOWER QUARTILE (%)	STANDARD DEVIATION (%)	DPI	RVPI	TVPI	NUMBER OF FUNDS
1994	3.83	4.28	4.44	5.27	8.61	-0.28	4.80	1.25	0.00	1.25	14
1995	2.05	0.77	-0.70	1.69	8.64	-4.05	8.09	1.12	0.00	1.12	14
1996	7.25	5.22	6.20	8.07	12.92	-3.28	14.39	1.52	0.01	1.53	14
1997	2.85	3.58	4.74	7.69	10.13	-3.27	22.71	1.18	0.01	1.18	23
1998	14.58	11.73	15.61	16.62	20.11	-1.01	15.44	2.08	0.01	2.09	17
1999	1.11	0.91	-1.88	1.57	3.24	-7.09	15.05	1.05	0.02	1.06	19
2000	12.66	8.80	7.22	8.80	17.22	1.47	12.36	1.86	0.10	1.96	23
2001	14.36	12.46	13.66	15.65	18.03	1.00	17.33	1.90	0.00	1.90	11
2002	26.88	21.92	18.57	19.79	—	—	—	2.09	0.08	2.16	7
2003	14.79	13.80	14.49	19.78	22.64	12.59	19.05	1.66	0.00	1.66	11
2004	7.80	21.54	8.36	11.38	14.32	1.18	49.06	1.29	0.18	1.48	27
2005	10.92	10.11	7.31	12.16	16.39	1.90	13.87	1.61	0.15	1.76	38
2006	8.33	6.73	5.55	10.21	15.74	-0.14	13.60	1.35	0.22	1.57	48
2007	7.88	5.05	6.05	8.20	11.02	-1.03	9.42	1.11	0.42	1.53	58
2008	10.13	6.79	5.14	13.85	8.88	1.91	12.03	0.98	0.75	1.73	48
2009	8.72	7.40	7.79	9.21	9.93	2.16	7.91	0.58	0.95	1.53	14
2010	11.41	8.31	6.95	10.21	17.24	-0.05	10.62	0.59	1.02	1.61	29
2011	15.88	13.57	13.13	19.04	17.09	4.51	12.86	0.44	1.34	1.78	39
2012	12.50	13.83	8.76	14.32	17.90	6.13	19.09	0.41	1.06	1.47	32
2013	16.19	15.96	13.89	20.14	19.46	8.58	14.48	0.21	1.30	1.52	24
2014	23.88	23.13	18.31	29.16	28.94	13.30	20.75	0.15	1.52	1.67	35
2015	16.60	15.58	16.62	20.37	26.20	4.88	16.38	0.11	1.21	1.32	35
2016	24.57	26.05	27.12	27.42	32.38	11.35	21.66	0.04	1.27	1.31	22
2017	0.60	1.07	-1.24	13.21	9.41	-6.95	28.02	0.00	1.00	1.00	23



Notes: Based on data compiled from 625 emerging markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

EMERGING MARKETS PRIVATE EQUITY & VENTURE CAPITAL

SINCE INCEPTION IRR & MULTIPLES COMPARED TO CA MODIFIED PUBLIC MARKET EQUIVALENT (MPME)

Net to Limited Partners

VINTAGE YEAR	NUMBER OF FUNDS	POOLED IRR (%) AND IRR-BASED VALUE-ADD (BPS)					TOTAL VALUE TO PAID IN (TVPI)			DISTRIBUTIONS TO PAID IN (DPI)		
		CA BENCHMARK INDEX	MSCI EAFE INDEX (NET)		MSCI EUROPE INDEX (NET)		CA BENCHMARK INDEX	MSCI EAFE INDEX (NET)	MSCI EUROPE INDEX (NET)	CA BENCHMARK INDEX	MSCI EAFE INDEX (NET)	MSCI EUROPE INDEX (NET)
			IRR	MPME IRR	VALUE-ADD	MPME IRR						
1994	14	3.83	6.09	-226	13.10	-927	1.25	1.39	1.91	1.25	1.39	1.90
1995	14	2.05	3.50	-146	7.23	-519	1.12	1.19	1.41	1.12	1.19	1.41
1996	14	7.25	4.03	322	5.24	202	1.53	1.23	1.31	1.52	1.23	1.30
1997	23	2.85	4.56	-170	4.82	-197	1.18	1.30	1.32	1.18	1.29	1.31
1998	17	14.58	4.45	1,013	4.81	977	2.09	1.20	1.22	2.08	1.19	1.21
1999	19	1.11	5.78	-467	6.37	-527	1.06	1.36	1.40	1.05	1.32	1.37
2000	23	12.66	7.41	525	7.65	502	1.96	1.38	1.39	1.86	1.34	1.35
2001	11	14.36	9.66	470	10.11	425	1.90	1.47	1.50	1.90	1.47	1.50
2002	7	26.88	8.84	1,805	9.48	1,740	2.16	1.33	1.35	2.09	1.21	1.24
2003	11	14.79	4.80	999	5.30	949	1.66	1.21	1.23	1.66	1.20	1.22
2004	27	7.80	2.17	563	2.17	563	1.48	1.13	1.13	1.29	0.99	0.99
2005	38	10.92	1.26	967	1.19	973	1.76	1.07	1.07	1.61	0.97	0.97
2006	48	8.33	2.95	538	2.75	558	1.57	1.18	1.17	1.35	0.98	0.97
2007	58	7.88	4.26	362	4.09	379	1.53	1.26	1.25	1.11	0.93	0.92
2008	48	10.13	5.75	439	5.57	456	1.73	1.37	1.35	0.98	0.77	0.76
2009	14	8.72	5.36	335	5.09	363	1.53	1.30	1.28	0.58	0.52	0.51
2010	29	11.41	5.34	608	4.98	644	1.61	1.25	1.23	0.59	0.50	0.49
2011	39	15.88	4.51	1,137	3.91	1,197	1.78	1.18	1.15	0.44	0.31	0.30
2012	32	12.50	3.82	867	3.08	942	1.47	1.13	1.10	0.41	0.34	0.34
2013	24	16.19	4.11	1,208	3.40	1,279	1.52	1.11	1.09	0.21	0.16	0.16
2014	35	23.88	4.31	1,957	3.71	2,017	1.67	1.10	1.08	0.15	0.12	0.12
2015	35	16.60	4.56	1,204	4.12	1,247	1.32	1.08	1.07	0.11	0.10	0.10
2016	22	24.57	2.36	2,221	2.08	2,249	1.31	1.03	1.02	0.04	0.03	0.03
2017	23	0.60	-0.87	146	-0.66	125	1.00	0.99	1.00	0.00	0.00	0.00

Notes: Based on data compiled from 625 emerging markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

mPME Note: Refer to Methodology page for further details on Cambridge Associates Modified PME (mPME).

Sources: Cambridge Associates LLC, MSCI, Inc., and Thomson Returns Datastream.

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EMERGING MARKETS PRIVATE EQUITY & VENTURE CAPITAL

AS OF MARCH 31, 2019

SINCE INCEPTION IRR & MULTIPLES COMPARED TO CA MODIFIED PUBLIC MARKET EQUIVALENT (MPME)

Net to Limited Partners

VINTAGE YEAR	NUMBER OF FUNDS	POOLED IRR (%) AND IRR-BASED VALUE-ADD (BPS)					TOTAL VALUE TO PAID IN (TVPI)			DISTRIBUTIONS TO PAID IN (DPI)		
		CA BENCHMARK INDEX	MSCI EMERGING MARKETS INDEX (GROSS)		MSCI ALL COUNTY WORLD INDEX (GROSS)		CA BENCHMARK INDEX	MSCI EMERGING MARKETS INDEX (GROSS)	MSCI ALL COUNTY WORLD INDEX (GROSS)	CA BENCHMARK INDEX	MSCI EMERGING MARKETS INDEX (GROSS)	MSCI ALL COUNTY WORLD INDEX (GROSS)
			IRR	MPME IRR	VALUE-ADD	MPME IRR						
1994	14	3.83	1.96	187	9.92	-609	1.25	1.14	1.65	1.25	1.14	1.65
1995	14	2.05	4.21	-216	5.42	-338	1.12	1.27	1.30	1.12	1.27	1.30
1996	14	7.25	8.68	-143	4.28	297	1.53	1.63	1.24	1.52	1.62	1.24
1997	23	2.85	11.69	-883	4.03	-117	1.18	2.02	1.26	1.18	2.00	1.25
1998	17	14.58	13.16	142	3.70	1,088	2.09	1.75	1.17	2.08	1.74	1.16
1999	19	1.11	14.83	-1,373	4.96	-385	1.06	2.22	1.32	1.05	2.15	1.27
2000	23	12.66	18.02	-536	6.62	604	1.96	2.19	1.35	1.86	2.12	1.30
2001	11	14.36	21.24	-689	8.70	565	1.90	2.29	1.44	1.90	2.29	1.44
2002	7	26.88	19.67	721	8.94	1,795	2.16	1.76	1.37	2.09	1.61	1.22
2003	11	14.79	13.24	155	6.12	867	1.66	1.59	1.29	1.66	1.59	1.28
2004	27	7.80	6.91	90	4.72	308	1.48	1.42	1.31	1.29	1.25	1.11
2005	38	10.92	4.96	596	4.10	683	1.76	1.30	1.27	1.61	1.18	1.13
2006	48	8.33	2.94	540	6.18	215	1.57	1.18	1.43	1.35	0.97	1.15
2007	58	7.88	2.95	492	7.63	25	1.53	1.17	1.52	1.11	0.86	1.08
2008	48	10.13	4.01	612	9.41	72	1.73	1.25	1.68	0.98	0.68	0.89
2009	14	8.72	3.47	525	9.10	-38	1.53	1.19	1.56	0.58	0.46	0.58
2010	29	11.41	4.10	732	9.12	229	1.61	1.19	1.46	0.59	0.45	0.55
2011	39	15.88	4.65	1,124	8.57	732	1.78	1.19	1.37	0.44	0.30	0.34
2012	32	12.50	5.13	737	8.03	447	1.47	1.17	1.28	0.41	0.35	0.38
2013	24	16.19	6.35	984	8.36	783	1.52	1.18	1.24	0.21	0.17	0.18
2014	35	23.88	7.18	1,670	8.73	1,515	1.67	1.17	1.21	0.15	0.12	0.12
2015	35	16.60	7.91	868	9.20	739	1.32	1.14	1.17	0.11	0.10	0.10
2016	22	24.57	4.67	1,990	7.61	1,695	1.31	1.05	1.09	0.04	0.03	0.03
2017	23	0.60	1.54	-95	5.38	-479	1.00	1.01	1.03	0.00	0.00	0.00

Notes: Based on data compiled from 625 emerging markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

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## EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## TOTAL VALUE TO PAID IN CAPITAL MULTIPLE (TVPI)

Net to Limited Partners

VINTAGE YEAR	POOLED RETURN	ARITHMETIC MEAN	MEDIAN	UPPER QUARTILE	LOWER QUARTILE	NUMBER OF FUNDS
1994	1.25	1.45	1.31	1.52	0.99	14
1995	1.12	1.06	0.96	1.23	0.83	14
1996	1.53	1.60	1.33	1.93	0.78	14
1997	1.18	1.53	1.31	1.76	0.74	23
1998	2.09	2.50	1.72	2.29	0.95	17
1999	1.06	1.10	0.92	1.13	0.59	19
2000	1.96	1.64	1.65	2.03	1.12	23
2001	1.90	1.93	1.77	2.66	1.07	11
2002	2.16	2.19	1.83	—	—	7
2003	1.66	2.17	1.94	2.37	1.57	11
2004	1.48	1.64	1.47	1.79	1.08	27
2005	1.76	1.94	1.52	2.20	1.14	38
2006	1.57	1.82	1.47	2.03	0.99	48
2007	1.53	1.65	1.43	1.79	0.93	58
2008	1.73	2.16	1.31	1.69	1.10	48
2009	1.53	1.59	1.48	1.74	1.11	14
2010	1.61	1.59	1.40	2.06	1.00	29
2011	1.78	2.17	1.59	2.02	1.21	39
2012	1.47	1.55	1.38	1.66	1.22	32
2013	1.52	1.72	1.40	1.70	1.26	24
2014	1.67	2.04	1.54	2.34	1.24	35
2015	1.32	1.41	1.30	1.63	1.10	35
2016	1.31	1.36	1.28	1.47	1.14	22
2017	1.00	1.01	0.99	1.09	0.95	23



Notes: Based on data compiled from 625 emerging markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

## EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## DISTRIBUTION TO PAID IN CAPITAL MULTIPLE (DPI)

Net to Limited Partners

VINTAGE YEAR	POOLED RETURN	ARITHMETIC MEAN	MEDIAN	UPPER QUARTILE	LOWER QUARTILE	NUMBER OF FUNDS
1994	1.25	1.45	1.31	1.52	0.99	14
1995	1.12	1.06	0.96	1.23	0.83	14
1996	1.52	1.60	1.33	1.90	0.78	14
1997	1.18	1.50	1.31	1.76	0.74	23
1998	2.08	2.48	1.72	2.29	0.95	17
1999	1.05	1.09	0.92	1.13	0.55	19
2000	1.86	1.57	1.60	2.01	0.99	23
2001	1.90	1.93	1.77	2.66	1.07	11
2002	2.09	2.13	1.83	—	—	7
2003	1.66	2.17	1.94	2.37	1.57	11
2004	1.29	1.42	1.30	1.57	0.91	27
2005	1.61	1.63	1.37	2.13	0.84	38
2006	1.35	1.51	1.12	1.85	0.74	48
2007	1.11	0.93	0.82	1.26	0.52	58
2008	0.98	1.09	0.71	1.06	0.41	48
2009	0.58	0.57	0.43	0.78	0.35	14
2010	0.59	0.59	0.48	0.91	0.14	29
2011	0.44	0.53	0.33	0.69	0.11	39
2012	0.41	0.43	0.35	0.55	0.03	32
2013	0.21	0.18	0.13	0.30	0.02	24
2014	0.15	0.15	0.07	0.16	0.02	35
2015	0.11	0.09	0.01	0.11	0.00	35
2016	0.04	0.03	0.00	0.06	0.00	22
2017	0.00	0.01	0.00	0.00	0.00	23



Notes: Based on data compiled from 625 emerging markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

## EMERGING MARKETS PRIVATE EQUITY &amp; VENTURE CAPITAL

AS OF MARCH 31, 2019

## RESIDUAL VALUE TO PAID IN CAPITAL MULTIPLE (RVPI)

Net to Limited Partners

VINTAGE YEAR	POOLED RETURN	ARITHMETIC MEAN	MEDIAN	UPPER QUARTILE	LOWER QUARTILE	NUMBER OF FUNDS
1994	0.00	0.01	0.00	0.00	0.00	14
1995	0.00	0.00	0.00	0.00	0.00	14
1996	0.01	0.00	0.00	0.00	0.00	14
1997	0.01	0.03	0.00	0.00	0.00	23
1998	0.01	0.01	0.00	0.00	0.00	17
1999	0.02	0.01	0.00	0.00	0.00	19
2000	0.10	0.06	0.00	0.03	0.00	23
2001	0.00	0.00	0.00	0.00	0.00	11
2002	0.08	0.05	0.00	—	—	7
2003	0.00	0.00	0.00	0.00	0.00	11
2004	0.18	0.23	0.02	0.19	0.00	27
2005	0.15	0.32	0.13	0.29	0.02	38
2006	0.22	0.31	0.20	0.39	0.07	48
2007	0.42	0.73	0.40	0.77	0.12	58
2008	0.75	1.07	0.60	0.89	0.34	48
2009	0.95	1.03	0.85	1.32	0.36	14
2010	1.02	1.00	0.87	1.16	0.65	29
2011	1.34	1.64	1.27	1.66	0.85	39
2012	1.06	1.12	0.97	1.30	0.80	32
2013	1.30	1.54	1.26	1.60	1.00	24
2014	1.52	1.89	1.42	2.19	1.11	35
2015	1.21	1.32	1.24	1.54	1.08	35
2016	1.27	1.33	1.25	1.40	1.12	22
2017	1.00	1.01	0.98	1.08	0.93	23



Notes: Based on data compiled from 625 emerging markets private equity & venture capital funds, including fully liquidated partnerships, formed between 1994 and 2017. Internal rates of returns are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and previous to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. Benchmarks with “—” have an insufficient number of funds in the vintage year sample to produce a meaningful return.

## DESCRIPTION OF PERFORMANCE MEASUREMENT METHODOLOGY

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Cambridge Associates LLC (CA) has established a database to monitor investments made by venture capital and other alternative asset partnerships. On March 31, 2019, 1,504 Ex US developed & emerging markets private equity and venture capital funds from the years 1986 through 2018 were included in the sample. Users of the analysis may find the following description of the data sources and calculation techniques helpful to their interpretation of information presented in the report:

Partnership financial statements and narratives are the primary source of information concerning cash flows and ending residual/ net asset values (NAV) for both partnerships and portfolio company investments.

Recognizing the alternative asset community's sensitivity to the distribution of information pertaining to individual fund investments, as a matter of policy CA only releases aggregated figures in its benchmark report.

Vintage year is defined as the legal inception date as noted in a fund's financial statement. This date can usually be found in the first note to the audited financial statements and is prior to the first close or capital call.

CA uses both the since inception internal rate of return and the end-to-end or horizon performance calculation in its benchmark reports:

The since inception internal rate of return (SI IRR) is a since inception calculation that solves for the discount rate, which makes the net present value of an investment equal to zero. The calculation is based on cash-on-cash returns over equal periods modified for the residual value of the partnership's equity or portfolio company's NAV. The residual value attributed to each respective group being measured is incorporated as its ending value. Transactions are accounted for on a quarterly basis, and annualized values are used for reporting purposes. Please note that all transactions are recorded on the 45th day or midpoint of the quarter.

Cambridge Associates uses the end-to-end or horizon internal rate of return calculation to calculate the official quarterly, annual, and multi-year index figures. The horizon IRR performance calculation is a money-weighted return similar to the since inception IRR; however, it is measuring performance between two points in time. The calculation incorporates the beginning NAV (if any, treated as an inflow), interim cash flows and the ending NAV (if any, treated as an outflow). All interim cash flows are recorded on the mid-period date of the quarter. In order for a fund to be included in a horizon IRR calculation, the fund must have at least one quarterly contribution, distribution or NAV during the time frame being measured. Similar to the since inception IRR, the horizon IRR is annualized for time frames greater than one year.



## DESCRIPTION OF PERFORMANCE MEASUREMENT METHODOLOGY

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### Additional Calculation Definitions:

In order to provide meaningful statistics, Cambridge Associates has applied minimum fund count thresholds for each calculation. See minimum counts in parenthesis after each calculation.

**Pooled return** aggregates all cash flows and ending NAVs in a sample to calculate a dollar-weighted return. (minimum 3 funds)

**Arithmetic mean** averages the individual fund IRRs included in a vintage year. (minimum 3 funds)

**Median** is the middle fund IRR of the group of individual fund IRRs included in a vintage year. (minimum 5 funds)

**Equal-weighted pooled return** equally weights all cash flows and ending NAVs based on committed capital to calculate a dollar-weighted return. (minimum 3 funds)

**Upper/ lower quartile** are the thresholds for the upper (top 25%) and lower (bottom 25%) quartiles based on the individual fund IRRs included in a vintage year. Can be used in conjunction with the median to determine quartile placement. (minimum 8 funds)

**Top 5 percent/ bottom 5 percent** are the thresholds for the upper and lower 5<sup>th</sup> percentiles based on the individual fund IRRs included in a vintage year. (minimum 8 funds)

**Standard deviation** is a measure of the dispersion of the individual returns. The calculation employs the standard methodology for calculating a sample mean (not a population mean). (minimum 8 funds)

**Realization ratio exhibits** (TVPI, DPI, RVPI): CA has independently calculated the proper realization ratio for each fund in each vintage year. Please note that each fund has been ranked within its respective vintage year by the corresponding realization ratio, as opposed to being ranked by IRR as they are ranked in the since inception IRR exhibit. As a result a fund's ranking within its vintage year may change. For example, it is possible that a vintage year can have a different median fund when ranked by IRR vs. when ranked by TVPI, DPI or RVPI.

**Cambridge Associates Modified Public Market Equivalent (mPME):** The mPME calculation is a private-to-public comparison that seeks to replicate private investment performance under public market conditions. The public index's shares are purchased and sold according to the private fund cash flow schedule, with distributions calculated in the same proportion as the private fund, and the mPME NAV (the value of the shares held by the public equivalent) is a function of mPME cash flows and public index returns. The mPME attempts to evaluate what return would have been earned had the dollars been deployed in the public markets instead of in private investments while avoiding the "negative NAV" issue inherent in some PME methodologies. "Value-Add" shows (in basis points) the difference between the actual private investment return and the mPME calculated return.

Exhibits detailing data for portfolio companies are grouped by year of the fund's initial investment in a company, as opposed to vintage year. Returns are gross returns.



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