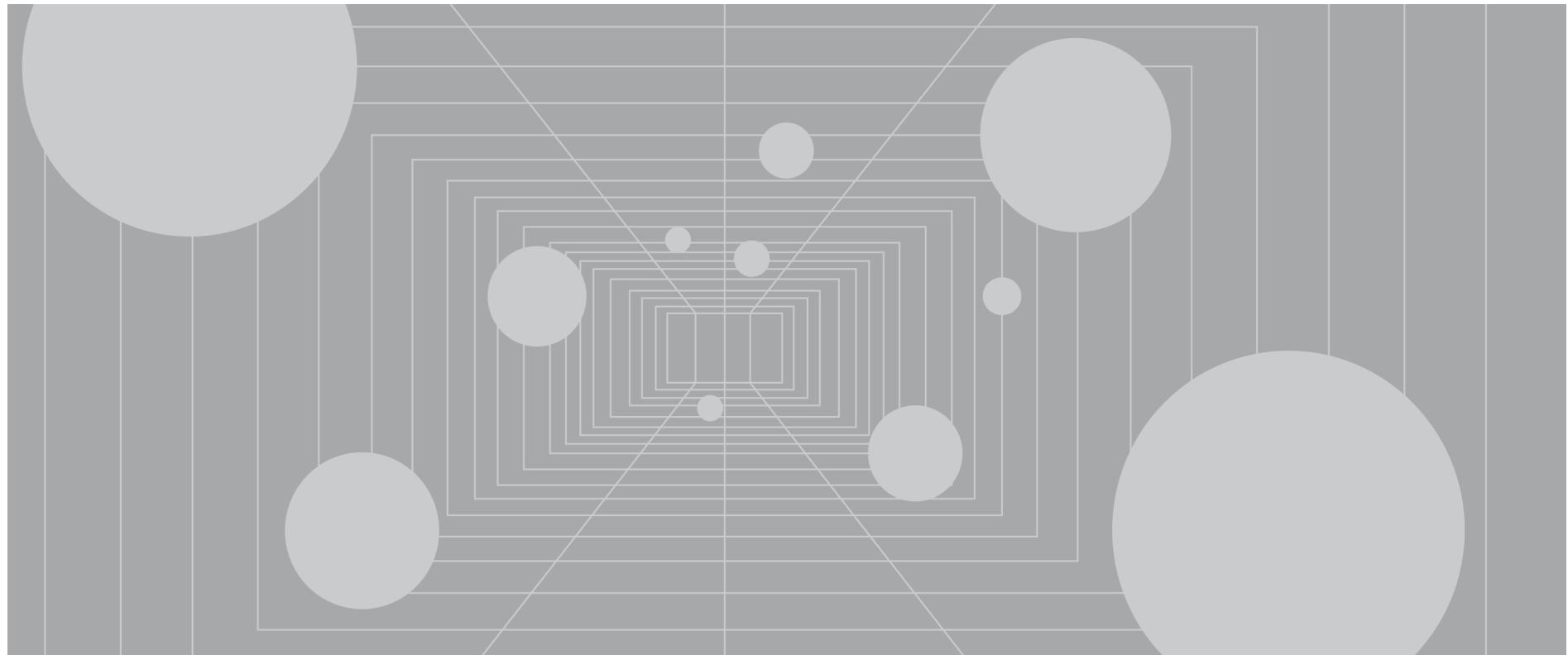


PRIVATE EQUITY

INDEX AND SELECTED BENCHMARK STATISTICS



CAMBRIDGE
ASSOCIATES

JUNE 30, 2019

NOTE ON UPCOMING PRIVATE EQUITY CHANGES

AS OF JUNE 30, 2019

Beginning in Q1 2019, we have reconfigured the asset class constituents of the CA Private Equity (PE) benchmark. The PE benchmarks now include only Buyout and Growth Equity funds, and exclude Private Equity Energy and Subordinated Capital strategies.

As the private investments landscape continues to evolve, strategies once considered a part of the PE benchmark grouping have become more distinct. Historically, the private equity grouping has been comprised of four asset classes: Buyouts, Growth Equity, Private Equity Energy, and Subordinated Capital. The focus on Buyout and Growth Equity funds is to better represent the private equity asset class; the removed strategies are established independent strategies in their own right and should be analyzed separately. As a result of this reconfiguration, Private Equity Energy now belongs to one benchmark group, Natural Resources, and Subordinated Capital now belongs to one benchmark group, Private Credit.

Please reach out to privatebenchmarks@cambridgeassociates.com with any questions.

DISCLAIMER

AS OF JUNE 30, 2019

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

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 7,700 funds. In addition, we capture the performance information (gross) of over 78,000 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

AS OF JUNE 30, 2019

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 0.7% (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 7% (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.

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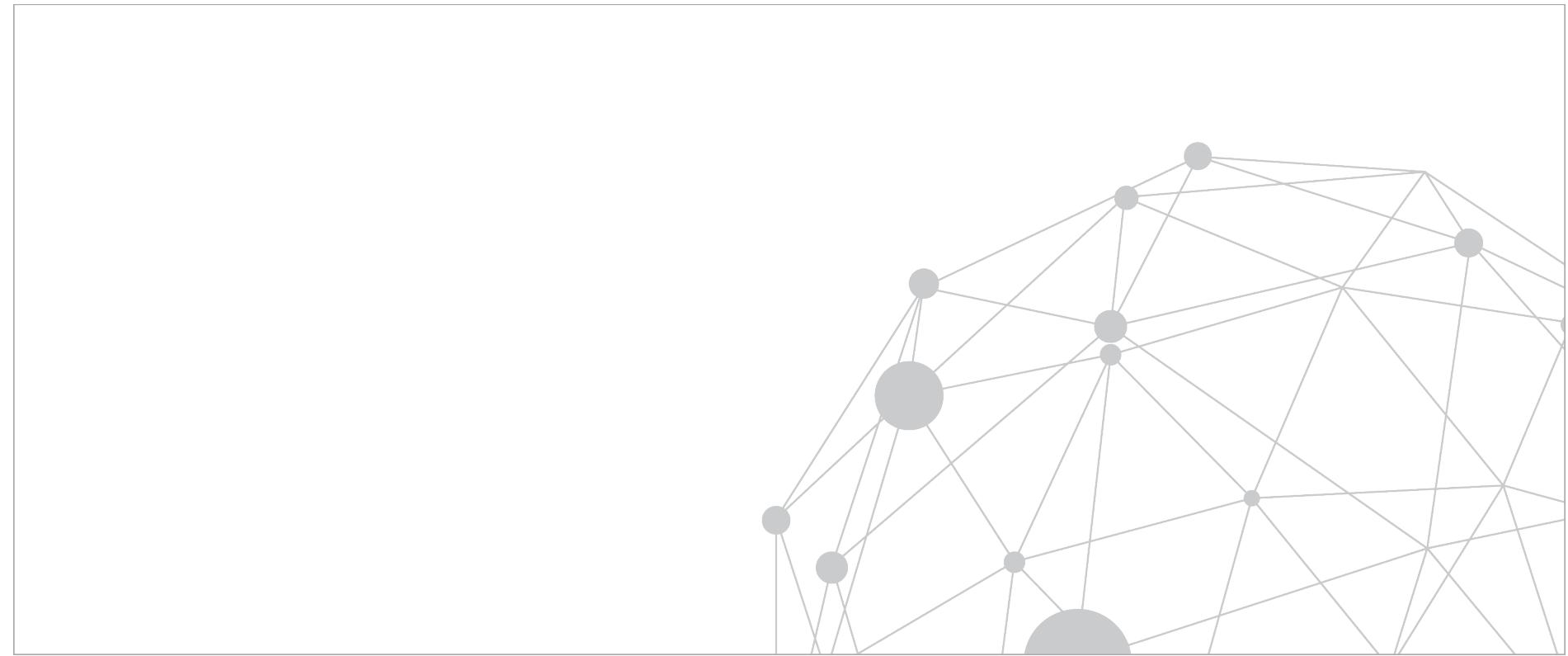
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PRIVATE EQUITY: FUND INDEX ANALYSIS



CAMBRIDGE
ASSOCIATES

PRIVATE EQUITY

AS OF JUNE 30, 2019

FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	YTD	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
PRIVATE EQUITY INDEX¹	4.27	9.48	11.91	16.46	12.16	15.18	13.70	12.28	13.52
BUYOUT INDEX¹	4.12	8.88	10.72	16.06	11.85	15.27	13.72	12.07	13.29
GROWTH EQUITY INDEX¹	4.70	11.18	15.37	17.71	13.26	14.77	13.59	13.53	15.01
Bloomberg Barclays Capital Government/Credit Bond Index	3.53	6.90	8.52	2.41	3.11	4.09	4.33	5.02	5.56
Dow Jones Industrial Average Index	3.21	15.40	12.20	16.80	12.29	15.03	9.16	7.04	10.84
Dow Jones US Small Cap Index	2.57	19.70	2.60	11.75	6.88	14.20	9.00	9.15	10.57
Dow Jones US TopCap Index	4.34	18.63	10.43	14.34	10.62	14.78	9.01	6.13	10.00
MSCI Emerging Markets Index (gross)	0.74	10.76	1.61	11.06	2.87	6.17	9.06	7.59	5.85
MSCI Europe Index (US\$) (net)	4.48	15.80	1.88	9.11	1.27	6.99	5.40	4.11	6.96
MSCI Europe Index (€) (net)	3.01	16.24	4.45	8.21	5.07	9.24	5.87	3.59	7.27
MSCI Pacific Index (net)	2.43	11.17	-0.17	9.38	4.29	6.90	5.29	3.80	2.25
MSCI World Ex US Index (net)	3.79	14.64	1.29	9.01	2.04	6.75	5.44	4.16	5.01
MSCI World Index (net)	4.00	16.98	6.33	11.77	6.60	10.72	7.03	4.78	7.07
Nasdaq Composite Index*	3.58	20.66	6.60	18.24	12.68	15.87	9.52	5.61	10.20
Russell 1000® Index	4.25	18.84	10.02	14.15	10.45	14.77	8.94	6.19	10.09
Russell 2000® Index	2.10	16.98	-3.31	12.30	7.06	13.45	8.15	7.77	9.26
S&P 500 Index	4.30	18.54	10.42	14.19	10.71	14.70	8.75	5.90	9.97

The index is a horizon calculation based on data compiled from 2,193 private equity funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ 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.

PRIVATE EQUITY

AS OF JUNE 30, 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
PRIVATE EQUITY INDEX¹	11.91	16.46	12.16	15.18	13.70	12.28	13.52
MPME ANALYSIS²							
MSCI EAFE Index (net)	1.37	9.22	2.10	7.04	4.69	4.32	4.51
Value-Add (bps)	1,054	723	1,007	814	901	796	901
MSCI Europe Index (net)	2.24	9.24	1.12	7.19	4.71	4.34	4.97
Value-Add (bps)	967	722	1,105	799	899	794	855
S&P 500 Index	10.46	14.38	10.43	15.12	9.32	7.77	8.97
Value-Add (bps)	145	208	173	6	438	451	454
Russell 2000® Index	-3.18	12.92	6.83	14.47	8.81	8.67	9.05
Value-Add (bps)	1,509	353	533	72	489	361	447
Russell 3000® Index	9.04	14.26	9.90	15.19	9.41	7.99	9.08
Value-Add (bps)	288	220	227	-1	429	429	444
Constructed Index: MSCI World/MSCI All Country World Index ³ (gross)	6.46	12.44	6.44	10.93	7.33	6.35	6.87
Value-Add (bps)	545	402	572	425	637	593	665

The index is a horizon calculation based on data compiled from 2,193 private equity funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ Pooled horizon return, net of fees, expenses, and carried interest.

² 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.

³ Constructed Index: MSCI World/MSCI All Country World Index: Data rom 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, 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 indexes are gross of dividend taxes. Total returns for MSCI Developed Markets indexes are net of dividend taxes.

AS OF JUNE 30, 2019

PRIVATE EQUITY

FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN
1994 Q1	2.04
1994 Q2	2.83
1994 Q3	1.98
1994 Q4	6.24
1995 Q1	3.96
1995 Q2	3.95
1995 Q3	4.16
1995 Q4	9.80
1996 Q1	5.38
1996 Q2	6.66
1996 Q3	6.40
1996 Q4	8.60
1997 Q1	0.61
1997 Q2	10.23
1997 Q3	6.37
1997 Q4	8.71
1998 Q1	9.08
1998 Q2	5.61
1998 Q3	-5.09
1998 Q4	6.74
1999 Q1	4.48
1999 Q2	9.66
1999 Q3	4.06
1999 Q4	17.14
2000 Q1	12.43
2000 Q2	-0.81

QUARTER ENDING	HORIZON RETURN
2000 Q3	-0.72
2000 Q4	-5.04
2001 Q1	-6.04
2001 Q2	2.16
2001 Q3	-6.68
2001 Q4	-1.00
2002 Q1	-0.55
2002 Q2	-0.31
2002 Q3	-4.44
2002 Q4	1.36
2003 Q1	-0.10
2003 Q2	7.16
2003 Q3	4.55
2003 Q4	10.75
2004 Q1	2.67
2004 Q2	4.23
2004 Q3	3.09
2004 Q4	16.45
2005 Q1	0.91
2005 Q2	7.63
2005 Q3	6.81
2005 Q4	9.16
2006 Q1	6.37
2006 Q2	7.78
2006 Q3	3.80
2006 Q4	15.89

QUARTER ENDING	HORIZON RETURN
2007 Q1	5.27
2007 Q2	10.48
2007 Q3	3.20
2007 Q4	4.31
2008 Q1	-0.52
2008 Q2	-1.68
2008 Q3	-10.37
2008 Q4	-18.83
2009 Q1	-5.04
2009 Q2	6.83
2009 Q3	7.54
2009 Q4	7.19
2010 Q1	2.75
2010 Q2	0.22
2010 Q3	7.31
2010 Q4	9.24
2011 Q1	5.22
2011 Q2	5.27
2011 Q3	-6.46
2011 Q4	3.20
2012 Q1	6.33
2012 Q2	-0.67
2012 Q3	3.89
2012 Q4	4.25
2013 Q1	3.31
2013 Q2	2.65

QUARTER ENDING	HORIZON RETURN
2013 Q3	5.84
2013 Q4	7.56
2014 Q1	3.18
2014 Q2	4.82
2014 Q3	-0.39
2014 Q4	2.19
2015 Q1	1.48
2015 Q2	5.38
2015 Q3	-0.98
2015 Q4	2.67
2016 Q1	1.49
2016 Q2	2.60
2016 Q3	4.07
2016 Q4	2.74
2017 Q1	4.37
2017 Q2	6.00
2017 Q3	4.88
2017 Q4	5.76
2018 Q1	2.69
2018 Q2	4.39
2018 Q3	3.27
2018 Q4	-1.00
2019 Q1	5.00
2019 Q2	4.27

AS OF JUNE 30, 2019

PRIVATE EQUITY

FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	11.91	14 Years	12.72
2 Years	15.48	15 Years	13.70
3 Years	16.46	16 Years	14.30
4 Years	13.33	17 Years	13.72
5 Years	12.16	18 Years	12.55
6 Years	14.45	19 Years	11.45
7 Years	14.54	20 Years	12.28
8 Years	12.29	21 Years	12.42
9 Years	14.72	22 Years	12.88
10 Years	15.18	23 Years	13.17
11 Years	10.14	24 Years	13.45
12 Years	9.70	25 Years	13.52
13 Years	11.50		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
6/30/2019	11.91	6/30/2006	33.66
6/30/2018	18.96	6/30/2005	30.44
6/30/2017	18.20	6/30/2004	24.02
6/30/2016	5.71	6/30/2003	4.31
6/30/2015	8.55	6/30/2002	-8.28
6/30/2014	23.26	6/30/2001	-9.44
6/30/2013	14.91	6/30/2000	35.37
6/30/2012	1.94	6/30/1999	17.15
6/30/2011	29.88	6/30/1998	33.22
6/30/2010	18.46	6/30/1997	28.22
6/30/2009	-25.52	6/30/1996	28.47
6/30/2008	4.79	6/30/1995	17.11
6/30/2007	39.95		



The index is a horizon calculation based on data compiled from 2,193 private equity funds, including fully liquidated partnerships, formed between 1986 and 2019. All returns are net of fees, expenses, and carried interest.

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PRIVATE EQUITY: FUND SINCE INCEPTION ANALYSIS



CAMBRIDGE
ASSOCIATES

AS OF JUNE 30, 2019

PRIVATE EQUITY

SINCE INCEPTION IRR & 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	24.51	16.02	10.01	15.31	25.53	2.74	17.61	2.48	0.00	2.48	36
1995	21.24	14.89	10.88	17.47	28.60	-2.08	24.53	1.97	0.00	1.97	46
1996	11.19	9.51	8.49	9.35	13.45	-1.79	19.38	1.63	0.00	1.63	52
1997	9.14	9.70	9.34	9.58	15.52	0.65	19.43	1.58	0.00	1.58	84
1998	8.63	11.35	10.76	13.11	18.97	4.83	11.13	1.54	0.02	1.56	80
1999	15.07	13.31	12.14	12.98	21.97	4.08	15.40	1.90	0.01	1.90	75
2000	18.48	16.45	15.57	16.72	24.43	8.25	15.72	1.99	0.02	2.01	112
2001	23.90	20.35	18.27	20.67	31.52	11.32	17.53	2.15	0.02	2.17	46
2002	19.22	15.87	18.22	18.35	26.82	7.43	28.89	1.99	0.02	2.02	51
2003	16.51	17.35	14.46	17.63	27.10	6.66	17.66	1.82	0.02	1.84	49
2004	10.99	16.24	9.61	13.48	14.97	5.13	29.33	1.65	0.07	1.72	99
2005	7.43	7.77	7.94	9.37	14.16	2.14	14.23	1.45	0.07	1.51	147
2006	7.78	8.49	8.73	9.83	14.19	3.48	13.68	1.38	0.17	1.55	136
2007	11.19	8.28	9.45	9.26	14.98	3.44	13.61	1.35	0.33	1.69	167
2008	13.41	11.26	11.24	11.93	16.99	5.20	15.26	1.39	0.37	1.76	104
2009	17.54	15.23	14.31	16.16	22.97	8.36	12.47	1.24	0.88	2.12	52
2010	14.16	14.23	14.19	15.26	20.36	5.10	15.14	0.95	0.79	1.74	57
2011	15.70	14.00	13.82	14.25	18.56	7.35	10.22	0.82	0.89	1.70	99
2012	16.15	14.06	14.53	14.71	18.36	8.64	9.27	0.58	1.05	1.63	88
2013	16.03	15.32	15.49	16.89	20.26	8.57	10.33	0.36	1.14	1.50	93
2014	21.25	18.12	16.53	19.90	23.90	11.19	11.18	0.31	1.21	1.53	100
2015	15.05	10.81	12.36	14.65	20.52	3.20	19.30	0.10	1.16	1.26	99
2016	17.74	14.48	13.40	18.45	23.09	5.91	24.15	0.06	1.18	1.23	81
2017	3.91	0.41	-0.93	8.45	10.56	-11.28	28.24	0.02	1.00	1.02	63

AS OF JUNE 30, 2019

PRIVATE EQUITY

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	VALUE-ADD	TVPI	MPME TVPI	MPME TVPI	DPI	MPME DPI
1994	36	24.51	6.70	1,780	12.70	1,181	2.48	1.27	1.53	2.48	1.27	1.53
1995	46	21.24	5.32	1,593	10.26	1,098	1.97	1.19	1.37	1.97	1.19	1.37
1996	52	11.19	3.86	733	5.11	608	1.63	1.19	1.26	1.63	1.19	1.26
1997	84	9.14	3.31	583	3.60	554	1.58	1.18	1.20	1.58	1.18	1.20
1998	80	8.63	3.87	477	4.17	447	1.56	1.21	1.23	1.54	1.20	1.22
1999	75	15.07	6.53	855	7.09	798	1.90	1.30	1.33	1.90	1.30	1.33
2000	112	18.48	9.80	868	10.26	822	2.01	1.39	1.41	1.99	1.38	1.40
2001	46	23.90	10.92	1,298	11.40	1,249	2.17	1.39	1.41	2.15	1.38	1.40
2002	51	19.22	7.96	1,125	8.42	1,080	2.02	1.33	1.34	1.99	1.31	1.33
2003	49	16.51	5.09	1,142	5.50	1,100	1.84	1.22	1.23	1.82	1.20	1.22
2004	99	10.99	2.48	851	2.59	840	1.72	1.13	1.14	1.65	1.09	1.10
2005	147	7.43	1.59	584	1.48	595	1.51	1.09	1.09	1.45	1.04	1.04
2006	136	7.78	2.30	547	2.12	566	1.55	1.14	1.13	1.38	1.02	1.01
2007	167	11.19	4.82	637	4.73	647	1.69	1.24	1.24	1.35	1.03	1.03
2008	104	13.41	6.11	730	6.08	733	1.76	1.28	1.28	1.39	1.05	1.05
2009	52	17.54	5.77	1,176	5.56	1,198	2.12	1.27	1.26	1.24	0.84	0.83
2010	57	14.16	5.73	843	5.46	870	1.74	1.25	1.23	0.95	0.73	0.72
2011	99	15.70	5.20	1,050	4.74	1,096	1.70	1.19	1.17	0.82	0.61	0.60
2012	88	16.15	4.59	1,155	4.02	1,213	1.63	1.15	1.13	0.58	0.44	0.43
2013	93	16.03	4.88	1,114	4.43	1,160	1.50	1.13	1.12	0.36	0.29	0.29
2014	100	21.25	5.44	1,581	5.19	1,606	1.53	1.11	1.11	0.31	0.25	0.24
2015	99	15.05	5.59	946	5.73	932	1.26	1.09	1.09	0.10	0.09	0.09
2016	81	17.74	4.74	1,300	5.12	1,262	1.23	1.06	1.06	0.06	0.05	0.05
2017	63	3.91	5.69	-178	7.13	-322	1.02	1.04	1.05	0.02	0.02	0.02

Notes: Based on data compiled from 2,016 private equity 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 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.

AS OF JUNE 30, 2019

PRIVATE EQUITY

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	S&P 500 INDEX			RUSSELL 2000® INDEX		CA BENCHMARK INDEX	S&P 500 INDEX	RUSSELL 2000® INDEX	CA BENCHMARK INDEX	S&P 500 INDEX	RUSSELL 2000® INDEX
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD						
1994	36	24.51	16.32	819	10.07	1,444	2.48	1.66	1.44	2.48	1.66	1.44	
1995	46	21.24	13.34	791	8.25	1,299	1.97	1.46	1.32	1.97	1.46	1.32	
1996	52	11.19	5.09	610	7.01	418	1.63	1.24	1.38	1.63	1.24	1.38	
1997	84	9.14	1.69	745	7.16	198	1.58	1.09	1.42	1.58	1.09	1.42	
1998	80	8.63	1.78	686	7.35	128	1.56	1.09	1.42	1.54	1.08	1.41	
1999	75	15.07	2.93	1,215	8.31	677	1.90	1.13	1.39	1.90	1.12	1.38	
2000	112	18.48	5.77	1,270	9.74	874	2.01	1.24	1.41	1.99	1.22	1.39	
2001	46	23.90	7.43	1,646	10.07	1,383	2.17	1.31	1.41	2.15	1.30	1.40	
2002	51	19.22	6.80	1,242	8.24	1,098	2.02	1.33	1.40	1.99	1.31	1.38	
2003	49	16.51	6.04	1,046	6.60	991	1.84	1.31	1.34	1.82	1.28	1.31	
2004	99	10.99	5.92	507	6.20	479	1.72	1.38	1.39	1.65	1.30	1.32	
2005	147	7.43	6.92	51	7.10	33	1.51	1.50	1.51	1.45	1.41	1.42	
2006	136	7.78	8.57	-79	8.53	-75	1.55	1.64	1.62	1.38	1.43	1.43	
2007	167	11.19	12.14	-94	11.49	-29	1.69	1.76	1.68	1.35	1.41	1.38	
2008	104	13.41	13.88	-47	12.84	57	1.76	1.78	1.69	1.39	1.40	1.35	
2009	52	17.54	13.62	391	11.57	596	2.12	1.76	1.61	1.24	1.10	1.04	
2010	57	14.16	13.44	71	11.09	307	1.74	1.68	1.53	0.95	0.93	0.88	
2011	99	15.70	12.70	300	10.08	562	1.70	1.54	1.40	0.82	0.75	0.71	
2012	88	16.15	12.05	410	9.03	712	1.63	1.44	1.31	0.58	0.53	0.50	
2013	93	16.03	12.04	399	8.58	744	1.50	1.36	1.24	0.36	0.34	0.32	
2014	100	21.25	12.51	873	8.54	1,271	1.53	1.28	1.18	0.31	0.28	0.27	
2015	99	15.05	12.90	216	7.70	735	1.26	1.22	1.13	0.10	0.10	0.10	
2016	81	17.74	12.51	523	5.71	1,203	1.23	1.16	1.07	0.06	0.05	0.05	
2017	63	3.91	13.72	-981	4.45	-54	1.02	1.09	1.03	0.02	0.02	0.02	

Notes: Based on data compiled from 2,016 private equity 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, Frank Russell Company, Standard & Poor's, and Thomson Reuters Datastream.

AS OF JUNE 30, 2019

PRIVATE EQUITY

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	RUSSELL 3000® INDEX		MSCI ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX	RUSSELL 3000® INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)	CA BENCHMARK INDEX	RUSSELL 3000® INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD	TVPI	MPME TVPI	MPME TVPI	DPI	MPME DPI
1994	36	24.51	15.44	906	10.39	1,411	2.48	1.63	1.42	2.48	1.63	1.42
1995	46	21.24	12.62	862	8.48	1,277	1.97	1.44	1.30	1.97	1.44	1.30
1996	52	11.19	5.45	574	4.53	666	1.63	1.26	1.22	1.63	1.26	1.22
1997	84	9.14	2.49	666	2.86	628	1.58	1.13	1.15	1.58	1.13	1.15
1998	80	8.63	2.55	608	3.27	537	1.56	1.14	1.18	1.54	1.12	1.17
1999	75	15.07	3.71	1,137	5.32	975	1.90	1.16	1.24	1.90	1.16	1.24
2000	112	18.48	6.45	1,203	8.55	993	2.01	1.27	1.36	1.99	1.25	1.34
2001	46	23.90	8.03	1,586	9.96	1,393	2.17	1.34	1.39	2.15	1.33	1.38
2002	51	19.22	7.24	1,198	8.18	1,104	2.02	1.36	1.37	1.99	1.33	1.35
2003	49	16.51	6.34	1,017	6.35	1,015	1.84	1.32	1.30	1.82	1.30	1.28
2004	99	10.99	6.13	485	4.82	617	1.72	1.39	1.28	1.65	1.31	1.22
2005	147	7.43	7.10	34	4.54	290	1.51	1.51	1.30	1.45	1.42	1.22
2006	136	7.78	8.70	-92	5.46	232	1.55	1.65	1.36	1.38	1.44	1.20
2007	167	11.19	12.17	-97	8.17	302	1.69	1.75	1.45	1.35	1.41	1.19
2008	104	13.41	13.86	-45	9.59	382	1.76	1.78	1.49	1.39	1.40	1.19
2009	52	17.54	13.40	413	9.38	816	2.12	1.74	1.48	1.24	1.09	0.94
2010	57	14.16	13.18	98	9.36	480	1.74	1.66	1.44	0.95	0.93	0.81
2011	99	15.70	12.37	333	9.01	669	1.70	1.52	1.36	0.82	0.74	0.67
2012	88	16.15	11.65	450	8.61	754	1.63	1.42	1.30	0.58	0.52	0.48
2013	93	16.03	11.61	442	8.94	709	1.50	1.34	1.26	0.36	0.33	0.32
2014	100	21.25	12.07	918	9.54	1,170	1.53	1.27	1.21	0.31	0.27	0.26
2015	99	15.05	12.41	264	9.85	521	1.26	1.21	1.16	0.10	0.10	0.10
2016	81	17.74	11.90	584	9.15	859	1.23	1.15	1.12	0.06	0.05	0.05
2017	63	3.91	12.94	-902	10.13	-622	1.02	1.08	1.06	0.02	0.02	0.02

Notes: Based on data compiled from 2,016 private equity 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, Frank Russell Company, MSCI Inc., and Thomson Reuters Datastream.

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AS OF JUNE 30, 2019

PRIVATE EQUITY

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	2.48	1.89	1.55	2.44	1.22	36
1995	1.97	1.75	1.56	2.18	0.89	46
1996	1.63	1.56	1.51	1.89	0.91	52
1997	1.58	1.55	1.58	1.94	1.02	84
1998	1.56	1.89	1.61	2.09	1.28	80
1999	1.90	1.79	1.57	2.22	1.15	75
2000	2.01	1.96	1.93	2.42	1.44	112
2001	2.17	1.98	1.94	2.41	1.52	46
2002	2.02	2.03	1.97	2.45	1.48	51
2003	1.84	1.87	1.78	2.18	1.35	49
2004	1.72	1.77	1.57	1.97	1.28	99
2005	1.51	1.62	1.51	1.97	1.11	147
2006	1.55	1.68	1.56	2.00	1.20	136
2007	1.69	1.57	1.56	1.91	1.18	167
2008	1.76	1.70	1.65	1.99	1.29	104
2009	2.12	1.97	1.92	2.40	1.51	52
2010	1.74	1.85	1.68	2.21	1.29	57
2011	1.70	1.67	1.61	1.92	1.34	99
2012	1.63	1.58	1.52	1.78	1.33	88
2013	1.50	1.55	1.46	1.74	1.26	93
2014	1.53	1.52	1.40	1.61	1.25	100
2015	1.26	1.24	1.22	1.43	1.06	99
2016	1.23	1.19	1.15	1.26	1.07	81
2017	1.02	1.01	0.99	1.09	0.91	63



Notes: Based on data compiled from 2,016 private equity 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.

AS OF JUNE 30, 2019

PRIVATE EQUITY

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	2.48	1.89	1.55	2.44	1.22	36
1995	1.97	1.75	1.56	2.18	0.89	46
1996	1.63	1.56	1.51	1.89	0.91	52
1997	1.58	1.55	1.58	1.94	1.02	84
1998	1.54	1.88	1.61	2.09	1.28	80
1999	1.90	1.78	1.57	2.20	1.15	75
2000	1.99	1.90	1.88	2.25	1.44	112
2001	2.15	1.97	1.94	2.41	1.50	46
2002	1.99	1.99	1.97	2.41	1.43	51
2003	1.82	1.84	1.76	2.15	1.25	49
2004	1.65	1.66	1.51	1.88	1.20	99
2005	1.45	1.51	1.39	1.91	0.99	147
2006	1.38	1.50	1.44	1.80	1.05	136
2007	1.35	1.26	1.30	1.66	0.80	167
2008	1.39	1.25	1.26	1.63	0.78	104
2009	1.24	1.23	0.95	1.78	0.56	52
2010	0.95	1.03	0.92	1.47	0.47	57
2011	0.82	0.78	0.73	1.09	0.29	99
2012	0.58	0.60	0.50	0.89	0.28	88
2013	0.36	0.46	0.32	0.65	0.12	93
2014	0.31	0.31	0.20	0.43	0.07	100
2015	0.10	0.11	0.03	0.16	0.00	99
2016	0.06	0.07	0.00	0.08	0.00	81
2017	0.02	0.03	0.00	0.00	0.00	63



Notes: Based on data compiled from 2,016 private equity 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.

AS OF JUNE 30, 2019

PRIVATE EQUITY

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	36
1995	0.00	0.00	0.00	0.00	0.00	46
1996	0.00	0.00	0.00	0.00	0.00	52
1997	0.00	0.00	0.00	0.00	0.00	84
1998	0.02	0.01	0.00	0.00	0.00	80
1999	0.01	0.01	0.00	0.00	0.00	75
2000	0.02	0.06	0.00	0.01	0.00	112
2001	0.02	0.01	0.00	0.01	0.00	46
2002	0.02	0.04	0.00	0.02	0.00	51
2003	0.02	0.03	0.00	0.01	0.00	49
2004	0.07	0.11	0.02	0.10	0.00	99
2005	0.07	0.11	0.04	0.13	0.00	147
2006	0.17	0.18	0.11	0.25	0.01	136
2007	0.33	0.32	0.19	0.45	0.04	167
2008	0.37	0.45	0.39	0.60	0.15	104
2009	0.88	0.74	0.68	1.10	0.26	52
2010	0.79	0.82	0.75	1.00	0.53	57
2011	0.89	0.89	0.90	1.18	0.56	99
2012	1.05	0.98	0.97	1.19	0.80	88
2013	1.14	1.09	1.05	1.26	0.89	93
2014	1.21	1.21	1.14	1.33	1.03	100
2015	1.16	1.13	1.12	1.29	0.96	99
2016	1.18	1.12	1.10	1.22	1.02	81
2017	1.00	0.97	0.98	1.06	0.90	63



Notes: Based on data compiled from 2,016 private equity 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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US PRIVATE EQUITY: FUND INDEX ANALYSIS



CAMBRIDGE
ASSOCIATES

US PRIVATE EQUITY

AS OF JUNE 30, 2019

FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	YTD	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
US PRIVATE EQUITY INDEX¹	4.68	10.59	13.75	17.39	13.87	16.79	14.05	12.10	13.84
Bloomberg Barclays Capital Government/Credit Bond Index	3.53	6.90	8.52	2.41	3.11	4.09	4.33	5.02	5.56
Dow Jones Industrial Average Index	3.21	15.40	12.20	16.80	12.29	15.03	9.16	7.04	10.84
Dow Jones US Small Cap Index	2.57	19.70	2.60	11.75	6.88	14.20	9.00	9.15	10.57
Dow Jones US TopCap Index	4.34	18.63	10.43	14.34	10.62	14.78	9.01	6.13	10.00
Nasdaq Composite Index*	3.58	20.66	6.60	18.24	12.68	15.87	9.52	5.61	10.20
Russell 1000® Index	4.25	18.84	10.02	14.15	10.45	14.77	8.94	6.19	10.09
Russell 2000® Index	2.10	16.98	-3.31	12.30	7.06	13.45	8.15	7.77	9.26
S&P 500 Index	4.30	18.54	10.42	14.19	10.71	14.70	8.75	5.90	9.97
Wilshire 5000 Total Market Index	3.99	18.66	9.10	14.03	10.33	14.66	8.96	6.37	9.98

The index is a horizon calculation based on data compiled from 1,154 US private equity funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ 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, Standard & Poor's and Thomson Reuters Datastream, and Wilshire Associates.

*Capital change only

US PRIVATE EQUITY

AS OF JUNE 30, 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
US PRIVATE EQUITY INDEX¹	13.75	17.39	13.87	16.79	14.05	12.10	13.84
MPME ANALYSIS²							
Russell 2000® Index	-3.17	12.81	6.92	14.72	8.61	8.45	8.96
Value-Add (bps)	1,692	458	695	207	543	365	489
Russell 2500™ Index	1.87	12.70	7.43	15.85	9.48	9.43	10.15
Value-Add (bps)	1,188	470	644	94	457	268	369
Russell 3000® Index	9.03	14.23	9.99	15.34	9.16	7.55	8.94
Value-Add (bps)	472	317	388	145	489	455	491
Russell Midcap® Index	7.90	12.36	8.42	16.49	10.08	9.51	10.54
Value-Add (bps)	585	504	545	30	397	259	330
S&P 500 Index	10.46	14.36	10.52	15.25	9.05	7.30	8.83
Value-Add (bps)	329	303	335	154	500	480	501
Constructed Index: MSCI World/MSCI All Country World Index ³ (gross)	6.47	12.40	6.59	11.10	7.27	6.12	6.77
Value-Add (bps)	729	499	728	569	678	598	707

The index is a horizon calculation based on data compiled from 1,154 US private equity funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ Pooled horizon return, net of fees, expenses, and carried interest.

² 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.

³ Constructed Index: MSCI World/MSCI All Country World Index: Data rom 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, Frank Russell Company, MSCI Inc., Standard & Poor's, and Thomson Reuters Datastream.

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AS OF JUNE 30, 2019

US PRIVATE EQUITY

FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN
1994 Q1	1.30
1994 Q2	3.19
1994 Q3	1.78
1994 Q4	6.94
1995 Q1	3.86
1995 Q2	4.05
1995 Q3	4.29
1995 Q4	11.27
1996 Q1	6.10
1996 Q2	6.92
1996 Q3	6.67
1996 Q4	6.66
1997 Q1	0.85
1997 Q2	11.58
1997 Q3	7.39
1997 Q4	9.30
1998 Q1	10.61
1998 Q2	4.92
1998 Q3	-6.84
1998 Q4	8.16
1999 Q1	5.86
1999 Q2	10.48
1999 Q3	3.49
1999 Q4	19.15
2000 Q1	14.86
2000 Q2	-1.50

QUARTER ENDING	HORIZON RETURN
2000 Q3	-0.18
2000 Q4	-6.99
2001 Q1	-6.36
2001 Q2	3.07
2001 Q3	-9.00
2001 Q4	-0.04
2002 Q1	-0.67
2002 Q2	-2.94
2002 Q3	-5.02
2002 Q4	-0.15
2003 Q1	-0.37
2003 Q2	7.11
2003 Q3	5.50
2003 Q4	9.49
2004 Q1	3.05
2004 Q2	3.43
2004 Q3	2.14
2004 Q4	15.15
2005 Q1	0.61
2005 Q2	8.38
2005 Q3	7.42
2005 Q4	7.96
2006 Q1	5.72
2006 Q2	3.50
2006 Q3	3.73
2006 Q4	12.56

QUARTER ENDING	HORIZON RETURN
2007 Q1	5.77
2007 Q2	7.76
2007 Q3	1.07
2007 Q4	2.83
2008 Q1	-2.65
2008 Q2	-0.23
2008 Q3	-6.69
2008 Q4	-16.65
2009 Q1	-3.71
2009 Q2	4.85
2009 Q3	6.41
2009 Q4	6.26
2010 Q1	4.92
2010 Q2	2.07
2010 Q3	4.83
2010 Q4	9.37
2011 Q1	5.25
2011 Q2	4.76
2011 Q3	-4.46
2011 Q4	5.01
2012 Q1	5.63
2012 Q2	0.26
2012 Q3	4.06
2012 Q4	3.83
2013 Q1	4.94
2013 Q2	3.47

QUARTER ENDING	HORIZON RETURN
2013 Q3	5.75
2013 Q4	7.62
2014 Q1	3.33
2014 Q2	4.92
2014 Q3	1.65
2014 Q4	3.32
2015 Q1	3.40
2015 Q2	4.53
2015 Q3	-0.19
2015 Q4	1.96
2016 Q1	0.48
2016 Q2	3.59
2016 Q3	3.98
2016 Q4	3.87
2017 Q1	4.22
2017 Q2	4.61
2017 Q3	4.38
2017 Q4	5.81
2018 Q1	3.22
2018 Q2	5.77
2018 Q3	4.09
2018 Q4	-1.15
2019 Q1	5.64
2019 Q2	4.68



The index is a horizon calculation based on data compiled from 1,154 US private equity funds, including fully liquidated partnerships, formed between 1986 and 2019. All returns are net of fees, expenses, and carried interest.

AS OF JUNE 30, 2019

US PRIVATE EQUITY

FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	13.75	14 Years	13.16
2 Years	17.21	15 Years	14.05
3 Years	17.39	16 Years	14.62
4 Years	14.04	17 Years	13.81
5 Years	13.87	18 Years	12.26
6 Years	15.90	19 Years	11.04
7 Years	16.19	20 Years	12.10
8 Years	14.33	21 Years	12.32
9 Years	16.15	22 Years	12.95
10 Years	16.79	23 Years	13.32
11 Years	11.84	24 Years	13.75
12 Years	10.83	25 Years	13.84
13 Years	12.28		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
6/30/2019	13.75	6/30/2006	26.92
6/30/2018	20.56	6/30/2005	28.21
6/30/2017	17.71	6/30/2004	23.32
6/30/2016	5.82	6/30/2003	1.84
6/30/2015	13.33	6/30/2002	-12.19
6/30/2014	23.54	6/30/2001	-10.31
6/30/2013	17.33	6/30/2000	39.01
6/30/2012	6.27	6/30/1999	18.77
6/30/2011	26.46	6/30/1998	36.22
6/30/2010	20.98	6/30/1997	28.03
6/30/2009	-21.05	6/30/1996	31.55
6/30/2008	0.70	6/30/1995	17.64
6/30/2007	33.12		



The index is a horizon calculation based on data compiled from 1,154 US private equity funds, including fully liquidated partnerships, formed between 1986 and 2019. All returns are net of fees, expenses, and carried interest.

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US PRIVATE EQUITY: FUND SINCE INCEPTION ANALYSIS



CAMBRIDGE
ASSOCIATES

AS OF JUNE 30, 2019

US PRIVATE EQUITY

SINCE INCEPTION IRR & 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	25.52	13.92	9.67	14.57	18.92	2.33	16.11	2.58	0.00	2.58	15
1995	21.79	18.50	15.36	22.44	33.17	-0.49	25.71	2.00	0.00	2.00	26
1996	10.42	8.19	7.34	8.13	12.30	-0.54	18.84	1.60	0.00	1.60	28
1997	7.10	6.67	6.92	5.72	12.67	-1.04	15.40	1.44	0.00	1.45	41
1998	7.19	9.91	9.65	10.36	14.68	3.92	10.03	1.44	0.02	1.45	47
1999	14.63	10.74	11.97	11.25	17.68	4.54	12.16	1.89	0.01	1.90	43
2000	15.05	13.21	13.11	12.97	21.14	7.48	12.36	1.81	0.03	1.84	67
2001	20.10	18.22	15.48	17.02	30.06	11.32	16.44	2.21	0.03	2.23	22
2002	16.37	12.23	15.92	14.98	22.54	6.16	26.18	1.91	0.03	1.94	25
2003	14.75	14.08	12.24	13.13	16.98	3.15	13.75	1.95	0.03	1.98	25
2004	10.21	10.41	9.80	10.42	13.01	7.47	7.09	1.65	0.05	1.71	54
2005	8.83	8.31	9.72	10.69	15.27	4.33	14.45	1.59	0.08	1.67	75
2006	9.08	12.00	11.88	11.73	16.25	7.23	14.15	1.49	0.19	1.68	60
2007	12.58	12.12	12.47	12.12	19.70	7.95	11.73	1.35	0.41	1.76	74
2008	16.38	17.47	15.37	16.62	24.36	11.23	10.57	1.53	0.38	1.91	49
2009	21.30	20.44	21.08	21.65	25.56	11.99	12.49	1.46	0.92	2.38	26
2010	22.42	24.85	18.91	23.79	24.47	16.68	17.32	1.54	0.87	2.41	19
2011	17.17	16.65	15.27	16.92	21.17	11.47	9.90	0.85	0.91	1.76	55
2012	17.82	17.59	15.74	18.46	22.07	9.75	9.27	0.48	1.14	1.62	35
2013	15.58	16.08	16.41	18.05	20.41	9.74	10.72	0.37	1.15	1.52	52
2014	22.24	19.14	16.53	20.39	25.18	11.00	11.95	0.36	1.20	1.56	60
2015	16.40	13.91	13.50	17.10	24.74	4.83	17.50	0.10	1.17	1.27	58
2016	18.50	18.20	13.53	22.45	27.61	6.94	24.88	0.08	1.17	1.25	43
2017	5.71	2.87	0.53	12.26	14.04	-8.42	30.14	0.03	1.00	1.04	41

AS OF JUNE 30, 2019

US PRIVATE EQUITY

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	RUSSELL 2000® INDEX			RUSSELL 2500™ INDEX		CA BENCHMARK INDEX	RUSSELL 2000® INDEX	RUSSELL 2500™ INDEX	CA BENCHMARK INDEX	RUSSELL 2000® INDEX	RUSSELL 2500™ INDEX
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD						
1994	15	25.52	9.34	1,618	11.86	1,366	2.58	1.45	1.61	2.58	1.45	1.61	
1995	26	21.79	8.29	1,350	10.89	1,089	2.00	1.33	1.45	2.00	1.33	1.45	
1996	28	10.42	6.86	356	8.92	150	1.60	1.39	1.53	1.60	1.39	1.53	
1997	41	7.10	7.33	-22	9.10	-200	1.45	1.45	1.58	1.44	1.44	1.57	
1998	47	7.19	7.39	-20	8.92	-173	1.45	1.44	1.56	1.44	1.42	1.53	
1999	43	14.63	8.28	634	9.42	521	1.90	1.39	1.46	1.89	1.39	1.45	
2000	67	15.05	9.36	569	10.25	480	1.84	1.42	1.48	1.81	1.40	1.45	
2001	22	20.10	8.68	1,142	9.56	1,054	2.23	1.44	1.50	2.21	1.43	1.48	
2002	25	16.37	8.06	831	8.98	739	1.94	1.43	1.50	1.91	1.40	1.46	
2003	25	14.75	6.24	851	7.08	767	1.98	1.37	1.43	1.95	1.34	1.39	
2004	54	10.21	6.12	409	6.96	324	1.71	1.40	1.47	1.65	1.35	1.41	
2005	75	8.83	7.33	150	8.16	67	1.67	1.54	1.62	1.59	1.45	1.52	
2006	60	9.08	8.11	97	8.86	22	1.68	1.59	1.66	1.49	1.41	1.47	
2007	74	12.58	11.65	94	12.43	15	1.76	1.66	1.72	1.35	1.30	1.34	
2008	49	16.38	12.94	344	13.71	267	1.91	1.63	1.67	1.53	1.35	1.39	
2009	26	21.30	11.71	959	12.30	900	2.38	1.57	1.61	1.46	1.08	1.10	
2010	19	22.42	11.63	1,079	12.12	1,030	2.41	1.55	1.58	1.54	1.10	1.11	
2011	55	17.17	10.09	708	10.61	655	1.76	1.39	1.41	0.85	0.72	0.73	
2012	35	17.82	8.73	909	9.39	843	1.62	1.27	1.29	0.48	0.41	0.41	
2013	52	15.58	8.53	706	9.24	634	1.52	1.26	1.28	0.37	0.33	0.33	
2014	60	22.24	8.44	1,379	9.47	1,277	1.56	1.18	1.21	0.36	0.30	0.30	
2015	58	16.40	7.70	871	9.47	693	1.27	1.12	1.15	0.10	0.10	0.10	
2016	43	18.50	5.89	1,261	8.32	1,018	1.25	1.08	1.11	0.08	0.07	0.07	
2017	41	5.71	4.51	120	8.53	-282	1.04	1.03	1.05	0.03	0.03	0.03	

Notes: Based on data compiled from 1,040 US private equity 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, Frank Russell Company, and Thomson Reuters Datastream.

AS OF JUNE 30, 2019

US PRIVATE EQUITY

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	RUSSELL 3000® INDEX			RUSSELL MIDCAP® INDEX	CA BENCHMARK INDEX	RUSSELL 3000® INDEX	RUSSELL MIDCAP® INDEX	CA BENCHMARK INDEX	RUSSELL 3000® INDEX	RUSSELL MIDCAP® INDEX
			IRR	MPME IRR	VALUE-ADD	MPME IRR						
1994	15	25.52	13.63	1,189		13.35	1,217			2.58	1.60	1.69
1995	26	21.79	12.62	917		12.44	935			2.00	1.46	1.51
1996	28	10.42	4.98	544		9.12	130			1.60	1.25	1.54
1997	41	7.10	2.51	460		8.57	-146			1.45	1.14	1.54
1998	47	7.19	2.73	446		8.44	-125			1.45	1.15	1.53
1999	43	14.63	3.76	1,087		9.35	527			1.90	1.17	1.46
2000	67	15.05	6.34	871		10.51	455			1.84	1.29	1.50
2001	22	20.10	7.41	1,269		10.19	991			2.23	1.39	1.54
2002	25	16.37	7.13	924		9.64	673			1.94	1.39	1.54
2003	25	14.75	5.83	891		7.47	727			1.98	1.34	1.45
2004	54	10.21	6.01	420		7.22	298			1.71	1.40	1.49
2005	75	8.83	7.35	149		8.36	47			1.67	1.55	1.64
2006	60	9.08	8.26	82		9.01	7			1.68	1.62	1.68
2007	74	12.58	12.37	22		12.84	-26			1.76	1.73	1.75
2008	49	16.38	13.85	252		14.21	217			1.91	1.70	1.71
2009	26	21.30	13.49	781		12.93	838			2.38	1.69	1.65
2010	19	22.42	13.44	898		12.71	971			2.41	1.67	1.62
2011	55	17.17	12.38	479		11.31	586			1.76	1.50	1.45
2012	35	17.82	11.58	624		10.05	777			1.62	1.37	1.32
2013	52	15.58	11.50	409		9.93	566			1.52	1.36	1.31
2014	60	22.24	11.94	1,030		10.33	1,191			1.56	1.27	1.23
2015	58	16.40	12.45	395		11.06	534			1.27	1.20	1.18
2016	43	18.50	11.93	657		10.67	783			1.25	1.16	1.14
2017	41	5.71	12.94	-723		13.24	-753			1.04	1.08	1.08

Notes: Based on data compiled from 1,040 US private equity 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, Frank Russell Company, and Thomson Reuters Datastream.

AS OF JUNE 30, 2019

US PRIVATE EQUITY

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	S&P 500 INDEX		MSCI ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX	S&P 500 INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)	CA BENCHMARK INDEX	S&P 500 INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD					
1994	15	25.52	14.30	1,122	9.75	1,578	2.58	1.62	1.43	2.58	1.62	1.43
1995	26	21.79	13.31	847	8.50	1,329	2.00	1.47	1.31	2.00	1.47	1.31
1996	28	10.42	4.57	585	4.18	624	1.60	1.22	1.22	1.60	1.22	1.21
1997	41	7.10	1.68	542	3.13	397	1.45	1.09	1.18	1.44	1.09	1.17
1998	47	7.19	1.98	522	3.38	381	1.45	1.11	1.19	1.44	1.09	1.18
1999	43	14.63	2.99	1,164	5.49	914	1.90	1.13	1.26	1.89	1.13	1.25
2000	67	15.05	5.70	935	8.19	687	1.84	1.26	1.36	1.81	1.24	1.35
2001	22	20.10	6.94	1,316	8.51	1,159	2.23	1.36	1.41	2.21	1.34	1.39
2002	25	16.37	6.70	967	7.98	839	1.94	1.36	1.40	1.91	1.32	1.37
2003	25	14.75	5.53	922	5.64	910	1.98	1.32	1.31	1.95	1.29	1.28
2004	54	10.21	5.79	442	4.63	557	1.71	1.38	1.28	1.65	1.32	1.23
2005	75	8.83	7.17	166	4.70	413	1.67	1.54	1.32	1.59	1.44	1.24
2006	60	9.08	8.13	95	5.13	395	1.68	1.61	1.34	1.49	1.40	1.19
2007	74	12.58	12.34	24	8.40	419	1.76	1.74	1.45	1.35	1.33	1.13
2008	49	16.38	13.86	252	9.62	676	1.91	1.71	1.44	1.53	1.39	1.20
2009	26	21.30	13.70	760	9.45	1,185	2.38	1.71	1.45	1.46	1.14	0.99
2010	19	22.42	13.68	874	9.53	1,289	2.41	1.68	1.44	1.54	1.17	1.01
2011	55	17.17	12.72	445	9.04	812	1.76	1.52	1.35	0.85	0.76	0.69
2012	35	17.82	12.00	582	8.75	907	1.62	1.39	1.27	0.48	0.43	0.40
2013	52	15.58	11.93	365	8.80	679	1.52	1.38	1.27	0.37	0.35	0.33
2014	60	22.24	12.39	985	9.37	1,286	1.56	1.28	1.21	0.36	0.31	0.30
2015	58	16.40	12.93	347	9.89	651	1.27	1.21	1.16	0.10	0.10	0.10
2016	43	18.50	12.53	597	9.30	920	1.25	1.17	1.12	0.08	0.07	0.07
2017	41	5.71	13.71	-800	10.17	-446	1.04	1.08	1.06	0.03	0.03	0.03

Notes: Based on data compiled from 1,040 US private equity 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 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.

AS OF JUNE 30, 2019

US PRIVATE EQUITY

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	2.58	1.79	1.41	2.08	1.16	15
1995	2.00	1.95	1.82	2.30	0.98	26
1996	1.60	1.45	1.30	1.83	0.97	28
1997	1.45	1.33	1.39	1.70	0.90	41
1998	1.45	1.64	1.50	2.00	1.27	47
1999	1.90	1.70	1.54	2.19	1.23	43
2000	1.84	1.82	1.78	2.22	1.35	67
2001	2.23	1.87	1.86	2.24	1.51	22
2002	1.94	1.90	1.96	2.40	1.37	25
2003	1.98	1.74	1.77	2.04	1.24	25
2004	1.71	1.72	1.64	1.93	1.45	54
2005	1.67	1.76	1.65	2.26	1.28	75
2006	1.68	1.82	1.75	2.16	1.45	60
2007	1.76	1.77	1.74	2.14	1.41	74
2008	1.91	1.96	1.81	2.31	1.60	49
2009	2.38	2.26	2.26	2.47	1.93	26
2010	2.41	2.52	2.21	2.54	1.91	19
2011	1.76	1.79	1.67	1.95	1.50	55
2012	1.62	1.69	1.53	1.92	1.40	35
2013	1.52	1.58	1.51	1.73	1.29	52
2014	1.56	1.56	1.42	1.78	1.25	60
2015	1.27	1.29	1.25	1.47	1.08	58
2016	1.25	1.23	1.13	1.32	1.07	43
2017	1.04	1.02	1.00	1.11	0.92	41

AS OF JUNE 30, 2019

US PRIVATE EQUITY

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	2.58	1.79	1.41	2.08	1.16	15
1995	2.00	1.95	1.82	2.30	0.98	26
1996	1.60	1.45	1.30	1.83	0.97	28
1997	1.44	1.32	1.39	1.70	0.90	41
1998	1.44	1.63	1.50	1.93	1.27	47
1999	1.89	1.68	1.54	2.11	1.23	43
2000	1.81	1.73	1.73	2.20	1.35	67
2001	2.21	1.85	1.83	2.19	1.49	22
2002	1.91	1.85	1.95	2.40	1.36	25
2003	1.95	1.69	1.74	2.04	1.18	25
2004	1.65	1.64	1.54	1.85	1.38	54
2005	1.59	1.65	1.59	2.06	1.15	75
2006	1.49	1.61	1.53	1.92	1.30	60
2007	1.35	1.43	1.41	1.92	1.08	74
2008	1.53	1.54	1.52	1.82	1.25	49
2009	1.46	1.59	1.69	2.10	0.84	26
2010	1.54	1.61	1.66	1.79	1.03	19
2011	0.85	0.87	0.87	1.14	0.40	55
2012	0.48	0.73	0.55	0.96	0.38	35
2013	0.37	0.46	0.32	0.58	0.13	52
2014	0.36	0.36	0.27	0.49	0.10	60
2015	0.10	0.12	0.04	0.18	0.00	58
2016	0.08	0.09	0.00	0.16	0.00	43
2017	0.03	0.05	0.00	0.01	0.00	41



Notes: Based on data compiled from 1,040 US private equity 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.

AS OF JUNE 30, 2019

US PRIVATE EQUITY

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	15
1995	0.00	0.00	0.00	0.00	0.00	26
1996	0.00	0.00	0.00	0.00	0.00	28
1997	0.00	0.00	0.00	0.00	0.00	41
1998	0.02	0.02	0.00	0.00	0.00	47
1999	0.01	0.01	0.00	0.00	0.00	43
2000	0.03	0.10	0.00	0.01	0.00	67
2001	0.03	0.02	0.00	0.03	0.00	22
2002	0.03	0.05	0.00	0.07	0.00	25
2003	0.03	0.05	0.00	0.03	0.00	25
2004	0.05	0.08	0.03	0.12	0.00	54
2005	0.08	0.11	0.04	0.14	0.00	75
2006	0.19	0.22	0.13	0.32	0.05	60
2007	0.41	0.33	0.25	0.53	0.08	74
2008	0.38	0.43	0.35	0.56	0.20	49
2009	0.92	0.67	0.69	1.04	0.27	26
2010	0.87	0.91	0.82	1.25	0.52	19
2011	0.91	0.92	0.92	1.18	0.58	55
2012	1.14	0.96	1.01	1.16	0.80	35
2013	1.15	1.12	1.11	1.26	0.96	52
2014	1.20	1.19	1.14	1.41	1.03	60
2015	1.17	1.17	1.12	1.30	0.99	58
2016	1.17	1.14	1.11	1.21	1.01	43
2017	1.00	0.98	0.98	1.06	0.91	41



Notes: Based on data compiled from 1,040 US private equity 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 PRIVATE EQUITY: FUND INDEX ANALYSIS



CAMBRIDGE
ASSOCIATES

EX US PRIVATE EQUITY

AS OF JUNE 30, 2019

FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	YTD	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
EX US PRIVATE EQUITY INDEX¹	3.62	7.77	9.07	15.01	9.73	12.84	13.09	12.66	12.87
Bloomberg Barclays Capital Government/Credit Bond Index	3.53	6.90	8.52	2.41	3.11	4.09	4.33	5.02	5.56
Dow Jones Industrial Average Index	3.21	15.40	12.20	16.80	12.29	15.03	9.16	7.04	10.84
Dow Jones US Small Cap Index	2.57	19.70	2.60	11.75	6.88	14.20	9.00	9.15	10.57
Dow Jones US TopCap Index	4.34	18.63	10.43	14.34	10.62	14.78	9.01	6.13	10.00
MSCI Emerging Markets Index (gross)	0.74	10.76	1.61	11.06	2.87	6.17	9.06	7.59	5.85
MSCI Europe Index (US\$) (net)	4.48	15.80	1.88	9.11	1.27	6.99	5.40	4.11	6.96
MSCI Europe Index (€) (net)	3.01	16.24	4.45	8.21	5.07	9.24	5.87	3.59	7.27
MSCI Pacific Index (net)	2.43	11.17	-0.17	9.38	4.29	6.90	5.29	3.80	2.25
MSCI World Ex US Index (net)	3.79	14.64	1.29	9.01	2.04	6.75	5.44	4.16	5.01
MSCI World Index (net)	4.00	16.98	6.33	11.77	6.60	10.72	7.03	4.78	7.07
Nasdaq Composite Index*	3.58	20.66	6.60	18.24	12.68	15.87	9.52	5.61	10.20
Russell 1000® Index	4.25	18.84	10.02	14.15	10.45	14.77	8.94	6.19	10.09
Russell 2000® Index	2.10	16.98	-3.31	12.30	7.06	13.45	8.15	7.77	9.26
S&P 500 Index	4.30	18.54	10.42	14.19	10.71	14.70	8.75	5.90	9.97

The index is a horizon calculation based on data compiled from 1,039 Ex US private equity funds, including fully liquidated partnerships, formed between 1987 and 2019.

¹ 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.

EX US PRIVATE EQUITY

AS OF JUNE 30, 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
EX US PRIVATE EQUITY INDEX¹	9.07	15.01	9.73	12.84	13.09	12.66	12.87

MPME ANALYSIS ²							
MSCI EAFE Index (net)	1.33	9.31	1.84	6.83	4.60	4.40	4.51
Value-Add (bps)	774	570	789	600	848	826	836
MSCI Europe Index (net)	2.19	9.30	0.81	6.94	4.57	4.37	4.69
Value-Add (bps)	688	570	892	590	851	828	819
S&P 500 Index	10.48	14.41	10.31	14.95	9.70	8.53	9.19
Value-Add (bps)	-141	60	-58	-211	339	413	368
Constructed Index: Global Financial Data Emerging Markets/MSCI Emerging Markets (gross) ³	1.80	11.35	2.46	5.93	7.07	7.01	6.94
Value-Add (bps)	727	365	727	691	602	565	593
Constructed Index: MSCI World/MSCI All Country World Index ⁴ (gross)	6.45	12.49	6.24	10.70	7.39	6.71	7.01
Value-Add (bps)	262	251	350	214	569	595	586

The index is a horizon calculation based on data compiled from 1,039 Ex US private equity funds, including fully liquidated partnerships, formed between 1987 and 2019.

¹ Pooled horizon return, net of fees, expenses, and carried interest.

² 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.

³ 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.

⁴ 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.

AS OF JUNE 30, 2019

EX US PRIVATE EQUITY

FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN
1994 Q1	8.04
1994 Q2	0.15
1994 Q3	3.48
1994 Q4	1.53
1995 Q1	4.59
1995 Q2	3.32
1995 Q3	3.35
1995 Q4	0.98
1996 Q1	1.06
1996 Q2	5.16
1996 Q3	4.87
1996 Q4	19.50
1997 Q1	-0.52
1997 Q2	4.32
1997 Q3	1.79
1997 Q4	5.97
1998 Q1	2.38
1998 Q2	8.69
1998 Q3	2.14
1998 Q4	1.78
1999 Q1	-0.31
1999 Q2	6.75
1999 Q3	6.15
1999 Q4	10.50
2000 Q1	4.45
2000 Q2	1.66

QUARTER ENDING	HORIZON RETURN
2000 Q3	-2.50
2000 Q4	1.38
2001 Q1	-5.08
2001 Q2	-0.54
2001 Q3	0.33
2001 Q4	-3.61
2002 Q1	-0.23
2002 Q2	6.98
2002 Q3	-2.99
2002 Q4	5.08
2003 Q1	0.53
2003 Q2	7.28
2003 Q3	2.47
2003 Q4	13.54
2004 Q1	1.87
2004 Q2	5.86
2004 Q3	5.01
2004 Q4	18.94
2005 Q1	1.46
2005 Q2	6.27
2005 Q3	5.66
2005 Q4	11.53
2006 Q1	7.60
2006 Q2	16.03
2006 Q3	3.92
2006 Q4	21.69

QUARTER ENDING	HORIZON RETURN
2007 Q1	4.46
2007 Q2	15.00
2007 Q3	6.61
2007 Q4	6.62
2008 Q1	2.71
2008 Q2	-3.74
2008 Q3	-15.61
2008 Q4	-22.19
2009 Q1	-7.23
2009 Q2	10.18
2009 Q3	9.33
2009 Q4	8.60
2010 Q1	-0.42
2010 Q2	-2.64
2010 Q3	11.33
2010 Q4	9.06
2011 Q1	5.19
2011 Q2	6.00
2011 Q3	-9.26
2011 Q4	0.50
2012 Q1	7.41
2012 Q2	-2.04
2012 Q3	3.62
2012 Q4	4.85
2013 Q1	1.04
2013 Q2	1.50

QUARTER ENDING	HORIZON RETURN
2013 Q3	5.98
2013 Q4	7.47
2014 Q1	2.98
2014 Q2	4.69
2014 Q3	-3.08
2014 Q4	0.63
2015 Q1	-1.22
2015 Q2	6.65
2015 Q3	-2.13
2015 Q4	3.72
2016 Q1	2.99
2016 Q2	1.15
2016 Q3	4.22
2016 Q4	1.03
2017 Q1	4.60
2017 Q2	8.18
2017 Q3	5.65
2017 Q4	5.70
2018 Q1	1.92
2018 Q2	2.32
2018 Q3	2.01
2018 Q4	-0.77
2019 Q1	4.00
2019 Q2	3.62

AS OF JUNE 30, 2019

EX US PRIVATE EQUITY

FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	9.07	14 Years	11.97
2 Years	12.85	15 Years	13.09
3 Years	15.01	16 Years	13.71
4 Years	12.23	17 Years	13.56
5 Years	9.73	18 Years	13.14
6 Years	12.38	19 Years	12.35
7 Years	12.21	20 Years	12.66
8 Years	9.49	21 Years	12.62
9 Years	12.62	22 Years	12.73
10 Years	12.84	23 Years	12.88
11 Years	7.75	24 Years	12.87
12 Years	8.01	25 Years	12.87
13 Years	10.25		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
6/30/2019	9.07	6/30/2006	46.73
6/30/2018	16.56	6/30/2005	34.85
6/30/2017	18.95	6/30/2004	25.51
6/30/2016	5.56	6/30/2003	10.48
6/30/2015	2.29	6/30/2002	3.41
6/30/2014	22.87	6/30/2001	-6.66
6/30/2013	11.45	6/30/2000	23.45
6/30/2012	-4.14	6/30/1999	11.09
6/30/2011	35.20	6/30/1998	20.66
6/30/2010	14.56	6/30/1997	29.24
6/30/2009	-31.81	6/30/1996	11.11
6/30/2008	11.46	6/30/1995	13.63
6/30/2007	51.96		

EX US PRIVATE EQUITY: FUND SINCE INCEPTION ANALYSIS



CAMBRIDGE
ASSOCIATES

AS OF JUNE 30, 2019

EX US PRIVATE EQUITY

SINCE INCEPTION IRR & 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	22.57	17.53	10.71	15.78	33.67	3.32	18.85	2.26	0.00	2.26	21
1995	19.32	10.18	6.04	11.05	14.53	-3.02	22.67	1.88	0.00	1.88	20
1996	15.24	11.06	10.25	10.63	16.70	-2.53	20.28	1.76	0.00	1.76	24
1997	11.83	12.51	11.06	13.07	18.88	4.81	22.37	1.77	0.00	1.77	43
1998	14.40	13.39	14.11	16.36	20.91	6.28	12.40	2.03	0.01	2.03	33
1999	15.87	16.77	16.02	15.40	22.95	3.31	18.56	1.90	0.00	1.91	32
2000	26.29	21.28	19.39	22.16	35.31	9.23	18.83	2.45	0.02	2.47	45
2001	28.70	22.30	20.55	23.16	31.55	11.49	18.61	2.08	0.00	2.09	24
2002	22.91	19.37	20.09	21.16	32.25	11.76	31.40	2.09	0.01	2.10	26
2003	19.56	20.77	17.58	22.38	33.36	10.78	20.74	1.69	0.01	1.70	24
2004	12.95	23.39	9.14	18.62	27.75	2.80	42.24	1.65	0.09	1.74	45
2005	5.53	7.20	6.26	7.81	12.84	-0.69	14.07	1.28	0.06	1.34	72
2006	5.90	5.73	5.70	8.36	12.43	0.64	12.71	1.24	0.14	1.38	76
2007	9.25	5.22	6.65	6.99	11.58	-0.64	14.27	1.36	0.22	1.58	93
2008	10.19	5.73	7.36	7.77	11.68	3.52	16.70	1.22	0.37	1.58	55
2009	9.67	10.01	9.53	10.68	14.53	4.44	10.23	0.80	0.78	1.58	26
2010	10.87	8.92	9.69	10.09	17.62	0.29	10.67	0.76	0.77	1.53	38
2011	12.72	10.68	11.46	10.67	14.18	3.90	9.72	0.74	0.84	1.58	44
2012	14.93	11.72	12.69	12.40	17.32	8.05	8.58	0.67	0.97	1.64	53
2013	16.52	14.36	13.63	15.42	20.19	7.81	9.87	0.36	1.13	1.49	41
2014	18.89	16.58	16.19	18.99	20.98	11.92	9.84	0.20	1.25	1.45	40
2015	12.57	6.43	8.87	11.58	16.73	-1.02	21.05	0.09	1.14	1.23	41
2016	16.36	10.27	12.61	14.22	20.62	4.79	22.90	0.02	1.18	1.20	38
2017	-0.05	-4.16	-2.64	0.84	7.86	-13.58	24.30	0.00	1.00	1.00	22



Notes: Based on data compiled from 976 Ex US private equity 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.

AS OF JUNE 30, 2019

EX US PRIVATE EQUITY

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	VALUE-ADD						
1994	21	22.57	6.26	1,631	14.99	758	2.26	1.21	1.54	2.26	1.21	1.54	
1995	20	19.32	5.30	1,402	10.63	869	1.88	1.18	1.34	1.88	1.17	1.34	
1996	24	15.24	5.37	987	7.48	776	1.76	1.21	1.29	1.76	1.21	1.29	
1997	43	11.83	2.75	907	2.93	890	1.77	1.14	1.15	1.77	1.14	1.15	
1998	33	14.40	3.75	1,065	4.04	1,036	2.03	1.18	1.19	2.03	1.17	1.19	
1999	32	15.87	6.15	972	6.76	911	1.91	1.27	1.30	1.90	1.27	1.30	
2000	45	26.29	11.00	1,529	11.46	1,482	2.47	1.40	1.42	2.45	1.39	1.41	
2001	24	28.70	13.93	1,477	14.36	1,434	2.09	1.41	1.42	2.08	1.40	1.42	
2002	26	22.91	8.30	1,461	8.72	1,419	2.10	1.31	1.32	2.09	1.30	1.31	
2003	24	19.56	6.13	1,343	6.72	1,284	1.70	1.22	1.24	1.69	1.21	1.23	
2004	45	12.95	3.00	995	3.15	980	1.74	1.14	1.15	1.65	1.09	1.10	
2005	72	5.53	1.43	410	1.32	421	1.34	1.08	1.07	1.28	1.03	1.03	
2006	76	5.90	2.70	320	2.52	337	1.38	1.16	1.15	1.24	1.04	1.03	
2007	93	9.25	4.54	471	4.45	481	1.58	1.24	1.24	1.36	1.10	1.10	
2008	55	10.19	6.05	414	6.03	416	1.58	1.31	1.31	1.22	1.02	1.02	
2009	26	9.67	5.63	404	5.43	425	1.58	1.30	1.29	0.80	0.70	0.69	
2010	38	10.87	5.64	523	5.38	549	1.53	1.24	1.23	0.76	0.65	0.64	
2011	44	12.72	5.17	755	4.72	800	1.58	1.20	1.19	0.74	0.58	0.57	
2012	53	14.93	4.52	1,041	3.92	1,101	1.64	1.16	1.14	0.67	0.51	0.50	
2013	41	16.52	5.00	1,153	4.57	1,195	1.49	1.13	1.12	0.36	0.29	0.28	
2014	40	18.89	5.85	1,304	5.73	1,317	1.45	1.12	1.12	0.20	0.17	0.17	
2015	41	12.57	5.49	707	5.57	700	1.23	1.10	1.10	0.09	0.08	0.08	
2016	38	16.36	4.29	1,208	4.63	1,174	1.20	1.05	1.06	0.02	0.02	0.02	
2017	22	-0.05	5.56	-561	6.97	-702	1.00	1.04	1.05	0.00	0.00	0.00	

Notes: Based on data compiled from 976 Ex US private equity 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.

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

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

AS OF JUNE 30, 2019

EX US PRIVATE EQUITY

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	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	VALUE-ADD					
1994	21	22.57	19.89	268	-1.74	2,431	2.26	1.75	0.94	2.26	1.75	0.94
1995	20	19.32	13.57	576	2.02	1,730	1.88	1.42	1.08	1.88	1.42	1.08
1996	24	15.24	8.51	673	6.87	837	1.76	1.30	1.34	1.76	1.30	1.34
1997	43	11.83	1.82	1,001	9.54	228	1.77	1.09	1.60	1.77	1.09	1.60
1998	33	14.40	1.14	1,326	12.40	200	2.03	1.05	1.75	2.03	1.05	1.74
1999	32	15.87	2.84	1,302	15.05	82	1.91	1.12	1.85	1.90	1.12	1.85
2000	45	26.29	5.87	2,041	21.81	447	2.47	1.22	1.98	2.45	1.20	1.97
2001	24	28.70	8.06	2,065	26.14	257	2.09	1.25	1.89	2.08	1.25	1.89
2002	26	22.91	6.90	1,601	18.21	470	2.10	1.31	1.72	2.09	1.30	1.71
2003	24	19.56	6.70	1,286	14.70	486	1.70	1.30	1.53	1.69	1.29	1.52
2004	45	12.95	6.19	676	8.53	442	1.74	1.36	1.42	1.65	1.26	1.36
2005	72	5.53	6.61	-108	4.23	131	1.34	1.46	1.24	1.28	1.37	1.19
2006	76	5.90	9.16	-326	2.83	307	1.38	1.68	1.16	1.24	1.45	1.04
2007	93	9.25	11.86	-261	2.61	665	1.58	1.78	1.13	1.36	1.54	1.01
2008	55	10.19	13.89	-370	3.55	664	1.58	1.88	1.17	1.22	1.39	0.91
2009	26	9.67	13.47	-379	3.30	637	1.58	1.88	1.17	0.80	0.94	0.62
2010	38	10.87	13.36	-249	3.83	705	1.53	1.68	1.16	0.76	0.82	0.59
2011	44	12.72	12.66	6	4.53	819	1.58	1.58	1.18	0.74	0.72	0.56
2012	53	14.93	12.09	284	4.74	1,019	1.64	1.49	1.17	0.67	0.62	0.51
2013	41	16.52	12.15	437	6.61	991	1.49	1.34	1.17	0.36	0.33	0.30
2014	40	18.89	12.79	611	7.51	1,138	1.45	1.29	1.16	0.20	0.19	0.18
2015	41	12.57	12.84	-27	6.60	597	1.23	1.24	1.12	0.09	0.09	0.09
2016	38	16.36	12.47	389	3.89	1,247	1.20	1.15	1.05	0.02	0.02	0.02
2017	22	-0.05	13.75	-1,380	3.30	-336	1.00	1.09	1.02	0.00	0.00	0.00

Notes: Based on data compiled from 976 Ex US private equity 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.

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.

AS OF JUNE 30, 2019

EX US PRIVATE EQUITY

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 ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX
			IRR	MPME IRR		TVPI	MPME TVPI	
1994	21	22.57	11.48	1,109	2.26	1.41	2.26	1.41
1995	20	19.32	8.47	1,085	1.88	1.27	1.88	1.27
1996	24	15.24	6.71	853	1.76	1.25	1.76	1.25
1997	43	11.83	2.57	926	1.77	1.13	1.77	1.13
1998	33	14.40	2.91	1,150	2.03	1.14	2.03	1.13
1999	32	15.87	5.07	1,080	1.91	1.23	1.90	1.22
2000	45	26.29	9.19	1,709	2.47	1.34	2.45	1.33
2001	24	28.70	11.90	1,681	2.09	1.36	2.08	1.36
2002	26	22.91	8.37	1,454	2.10	1.34	2.09	1.33
2003	24	19.56	7.18	1,239	1.70	1.29	1.69	1.28
2004	45	12.95	5.20	775	1.74	1.28	1.65	1.20
2005	72	5.53	4.34	119	1.34	1.27	1.28	1.20
2006	76	5.90	5.89	1	1.38	1.39	1.24	1.22
2007	93	9.25	7.86	139	1.58	1.46	1.36	1.28
2008	55	10.19	9.56	63	1.58	1.54	1.22	1.16
2009	26	9.67	9.24	43	1.58	1.55	0.80	0.79
2010	38	10.87	9.29	158	1.53	1.44	0.76	0.72
2011	44	12.72	8.94	378	1.58	1.38	0.74	0.64
2012	53	14.93	8.50	643	1.64	1.33	0.67	0.57
2013	41	16.52	9.09	743	1.49	1.24	0.36	0.31
2014	40	18.89	9.92	897	1.45	1.22	0.20	0.18
2015	41	12.57	9.77	280	1.23	1.18	0.09	0.09
2016	38	16.36	8.88	749	1.20	1.11	0.02	0.02
2017	22	-0.05	10.07	-1,012	1.00	1.07	0.00	0.00

Notes: Based on data compiled from 976 Ex US private equity 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 PRIVATE EQUITY

AS OF JUNE 30, 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	2.26	1.97	1.65	2.50	1.30	21
1995	1.88	1.50	1.21	1.92	0.87	20
1996	1.76	1.69	1.59	2.02	0.85	24
1997	1.77	1.77	1.80	2.09	1.24	43
1998	2.03	2.24	1.74	2.22	1.48	33
1999	1.91	1.91	1.87	2.27	1.13	32
2000	2.47	2.17	2.00	2.84	1.60	45
2001	2.09	2.09	2.09	2.60	1.62	24
2002	2.10	2.15	1.99	2.44	1.52	26
2003	1.70	2.01	1.86	2.47	1.52	24
2004	1.74	1.84	1.50	2.15	1.15	45
2005	1.34	1.47	1.38	1.79	0.96	72
2006	1.38	1.56	1.38	1.72	1.05	76
2007	1.58	1.42	1.46	1.75	0.97	93
2008	1.58	1.47	1.41	1.75	1.17	55
2009	1.58	1.69	1.53	1.90	1.22	26
2010	1.53	1.51	1.42	1.80	1.00	38
2011	1.58	1.52	1.47	1.73	1.18	44
2012	1.64	1.51	1.47	1.78	1.31	53
2013	1.49	1.53	1.43	1.80	1.25	41
2014	1.45	1.47	1.35	1.57	1.26	40
2015	1.23	1.17	1.19	1.38	0.99	41
2016	1.20	1.15	1.15	1.24	1.07	38
2017	1.00	0.98	0.98	1.06	0.89	22



Notes: Based on data compiled from 976 Ex US private equity 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 PRIVATE EQUITY

AS OF JUNE 30, 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	2.26	1.96	1.65	2.50	1.30	21
1995	1.88	1.50	1.21	1.92	0.87	20
1996	1.76	1.69	1.59	2.00	0.85	24
1997	1.77	1.76	1.80	2.09	1.24	43
1998	2.03	2.23	1.74	2.22	1.48	33
1999	1.90	1.91	1.87	2.27	1.12	32
2000	2.45	2.16	2.00	2.82	1.60	45
2001	2.08	2.08	2.09	2.59	1.62	24
2002	2.09	2.13	1.99	2.43	1.52	26
2003	1.69	2.00	1.86	2.47	1.52	24
2004	1.65	1.69	1.46	1.93	1.02	45
2005	1.28	1.37	1.34	1.70	0.82	72
2006	1.24	1.42	1.23	1.61	0.84	76
2007	1.36	1.12	1.11	1.48	0.72	93
2008	1.22	1.00	0.89	1.38	0.50	55
2009	0.80	0.87	0.75	1.19	0.40	26
2010	0.76	0.73	0.66	1.18	0.24	38
2011	0.74	0.66	0.53	1.06	0.21	44
2012	0.67	0.51	0.49	0.88	0.13	53
2013	0.36	0.48	0.32	0.71	0.12	41
2014	0.20	0.23	0.17	0.31	0.05	40
2015	0.09	0.10	0.02	0.11	0.00	41
2016	0.02	0.04	0.00	0.06	0.00	38
2017	0.00	0.00	0.00	0.00	0.00	22



Notes: Based on data compiled from 976 Ex US private equity 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 PRIVATE EQUITY

AS OF JUNE 30, 2019

RESIDUAL VALUE TO PAID IN CAPITAL MULTIPLE (RVPI)

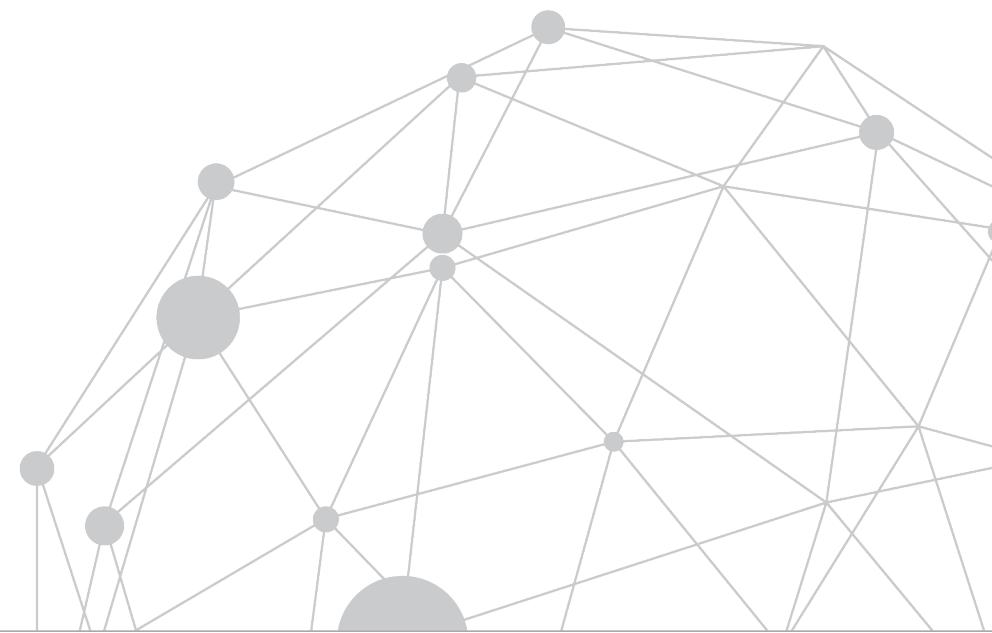
Net to Limited Partners

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	21
1995	0.00	0.00	0.00	0.00	0.00	20
1996	0.00	0.00	0.00	0.00	0.00	24
1997	0.00	0.00	0.00	0.00	0.00	43
1998	0.01	0.01	0.00	0.00	0.00	33
1999	0.00	0.00	0.00	0.00	0.00	32
2000	0.02	0.01	0.00	0.00	0.00	45
2001	0.00	0.01	0.00	0.00	0.00	24
2002	0.01	0.02	0.00	0.00	0.00	26
2003	0.01	0.01	0.00	0.00	0.00	24
2004	0.09	0.15	0.01	0.07	0.00	45
2005	0.06	0.11	0.03	0.11	0.00	72
2006	0.14	0.15	0.08	0.19	0.01	76
2007	0.22	0.30	0.14	0.39	0.02	93
2008	0.37	0.47	0.42	0.70	0.13	55
2009	0.78	0.82	0.68	1.16	0.27	26
2010	0.77	0.78	0.72	0.91	0.53	38
2011	0.84	0.86	0.86	1.15	0.55	44
2012	0.97	1.00	0.90	1.26	0.80	53
2013	1.13	1.05	1.03	1.20	0.87	41
2014	1.25	1.24	1.14	1.29	1.03	40
2015	1.14	1.07	1.10	1.28	0.92	41
2016	1.18	1.11	1.10	1.23	1.02	38
2017	1.00	0.97	0.98	1.06	0.89	22



Notes: Based on data compiled from 976 Ex US private equity 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.

BUYOUT: FUND INDEX ANALYSIS



CAMBRIDGE
ASSOCIATES

BUYOUT

AS OF JUNE 30, 2019

FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	YTD	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
BUYOUT INDEX¹	4.12	8.88	10.72	16.06	11.85	15.27	13.72	12.07	13.29
Bloomberg Barclays Capital Government/Credit Bond Index	3.53	6.90	8.52	2.41	3.11	4.09	4.33	5.02	5.56
Dow Jones Industrial Average Index	3.21	15.40	12.20	16.80	12.29	15.03	9.16	7.04	10.84
Dow Jones US Small Cap Index	2.57	19.70	2.60	11.75	6.88	14.20	9.00	9.15	10.57
Dow Jones US TopCap Index	4.34	18.63	10.43	14.34	10.62	14.78	9.01	6.13	10.00
MSCI Emerging Markets Index (gross)	0.74	10.76	1.61	11.06	2.87	6.17	9.06	7.59	5.85
MSCI Europe Index (US\$) (net)	4.48	15.80	1.88	9.11	1.27	6.99	5.40	4.11	6.96
MSCI Europe Index (€) (net)	3.01	16.24	4.45	8.21	5.07	9.24	5.87	3.59	7.27
MSCI Pacific Index (net)	2.43	11.17	-0.17	9.38	4.29	6.90	5.29	3.80	2.25
MSCI World Ex US Index (net)	3.79	14.64	1.29	9.01	2.04	6.75	5.44	4.16	5.01
MSCI World Index (net)	4.00	16.98	6.33	11.77	6.60	10.72	7.03	4.78	7.07
Nasdaq Composite Index*	3.58	20.66	6.60	18.24	12.68	15.87	9.52	5.61	10.20
Russell 1000® Index	4.25	18.84	10.02	14.15	10.45	14.77	8.94	6.19	10.09
Russell 2000® Index	2.10	16.98	-3.31	12.30	7.06	13.45	8.15	7.77	9.26
S&P 500 Index	4.30	18.54	10.42	14.19	10.71	14.70	8.75	5.90	9.97

The index is a horizon calculation based on data compiled from 1,576 buyout funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ 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.

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BUYOUT

AS OF JUNE 30, 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
BUYOUT INDEX¹	10.72	16.06	11.85	15.27	13.72	12.07	13.29

MPME ANALYSIS ²							
MSCI EAFE Index (net)	1.37	9.34	1.92	7.17	4.66	4.27	4.46
Value-Add (bps)	934	671	993	810	906	780	883
MSCI Europe Index (net)	2.24	9.35	0.90	7.35	4.70	4.30	4.96
Value-Add (bps)	848	671	1,095	792	902	778	833
S&P 500 Index	10.48	14.44	10.34	15.27	9.18	7.59	8.83
Value-Add (bps)	24	162	151	1	455	449	446
Russell 2000® Index	-3.17	13.14	6.75	14.77	8.78	8.63	9.03
Value-Add (bps)	1,389	291	510	51	495	344	425
Russell 3000® Index	9.05	14.33	9.80	15.36	9.29	7.83	8.95
Value-Add (bps)	167	173	205	-9	444	425	433
Constructed Index: MSCI World/MSCI All Country World Index ³ (gross)	6.46	12.53	6.28	11.05	7.25	6.23	6.77
Value-Add (bps)	425	352	557	422	648	584	652

The index is a horizon calculation based on data compiled from 1,576 buyout funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ Pooled horizon return, net of fees, expenses, and carried interest.

² 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.

³ 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, Frank Russell Company, MSCI Inc., Standard & Poor's, and Thomson Reuters Datastream.

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AS OF JUNE 30, 2019

BUYOUT

FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN
1994 Q1	1.75
1994 Q2	3.09
1994 Q3	1.64
1994 Q4	6.29
1995 Q1	3.41
1995 Q2	3.66
1995 Q3	3.82
1995 Q4	10.07
1996 Q1	5.23
1996 Q2	6.22
1996 Q3	6.49
1996 Q4	9.25
1997 Q1	0.52
1997 Q2	8.59
1997 Q3	5.79
1997 Q4	10.54
1998 Q1	8.59
1998 Q2	7.18
1998 Q3	-4.99
1998 Q4	6.67
1999 Q1	3.98
1999 Q2	8.88
1999 Q3	3.62
1999 Q4	11.29
2000 Q1	11.26
2000 Q2	-1.50

QUARTER ENDING	HORIZON RETURN
2000 Q3	-2.35
2000 Q4	-4.55
2001 Q1	-5.37
2001 Q2	2.15
2001 Q3	-5.93
2001 Q4	-1.58
2002 Q1	-0.21
2002 Q2	0.37
2002 Q3	-3.73
2002 Q4	1.72
2003 Q1	0.41
2003 Q2	7.27
2003 Q3	4.33
2003 Q4	11.27
2004 Q1	2.43
2004 Q2	4.71
2004 Q3	3.43
2004 Q4	17.31
2005 Q1	0.80
2005 Q2	7.63
2005 Q3	6.63
2005 Q4	9.93
2006 Q1	6.14
2006 Q2	8.84
2006 Q3	3.62
2006 Q4	16.61

QUARTER ENDING	HORIZON RETURN
2007 Q1	4.84
2007 Q2	10.50
2007 Q3	3.03
2007 Q4	3.84
2008 Q1	0.18
2008 Q2	-1.88
2008 Q3	-10.96
2008 Q4	-19.43
2009 Q1	-5.32
2009 Q2	6.61
2009 Q3	7.69
2009 Q4	7.36
2010 Q1	2.41
2010 Q2	0.24
2010 Q3	7.49
2010 Q4	9.04
2011 Q1	5.48
2011 Q2	5.46
2011 Q3	-6.63
2011 Q4	3.11
2012 Q1	6.35
2012 Q2	-0.54
2012 Q3	4.08
2012 Q4	4.35
2013 Q1	3.41
2013 Q2	2.80

QUARTER ENDING	HORIZON RETURN
2013 Q3	5.80
2013 Q4	7.33
2014 Q1	3.16
2014 Q2	4.92
2014 Q3	-0.83
2014 Q4	2.37
2015 Q1	1.12
2015 Q2	5.37
2015 Q3	-0.55
2015 Q4	2.51
2016 Q1	1.93
2016 Q2	2.83
2016 Q3	4.10
2016 Q4	2.88
2017 Q1	4.44
2017 Q2	6.60
2017 Q3	4.90
2017 Q4	5.71
2018 Q1	2.26
2018 Q2	3.78
2018 Q3	3.23
2018 Q4	-1.47
2019 Q1	4.57
2019 Q2	4.12

AS OF JUNE 30, 2019

BUYOUT

FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	10.72	14 Years	12.62
2 Years	14.33	15 Years	13.72
3 Years	16.06	16 Years	14.39
4 Years	13.25	17 Years	13.89
5 Years	11.85	18 Years	12.73
6 Years	14.29	19 Years	11.57
7 Years	14.54	20 Years	12.07
8 Years	12.14	21 Years	12.18
9 Years	14.80	22 Years	12.69
10 Years	15.27	23 Years	12.97
11 Years	9.78	24 Years	13.24
12 Years	9.35	25 Years	13.29
13 Years	11.24		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
6/30/2019	10.72	6/30/2006	35.39
6/30/2018	17.78	6/30/2005	31.75
6/30/2017	19.09	6/30/2004	24.63
6/30/2016	6.67	6/30/2003	6.13
6/30/2015	7.79	6/30/2002	-7.16
6/30/2014	23.04	6/30/2001	-9.80
6/30/2013	15.51	6/30/2000	25.76
6/30/2012	1.77	6/30/1999	15.66
6/30/2011	30.41	6/30/1998	36.17
6/30/2010	18.45	6/30/1997	27.08
6/30/2009	-26.91	6/30/1996	27.66
6/30/2008	4.69	6/30/1995	15.82
6/30/2007	40.01		



The index is a horizon calculation based on data compiled from 1,576 buyout funds, including fully liquidated partnerships, formed between 1986 and 2019. All returns are net of fees, expenses, and carried interest.

BUYOUT: FUND SINCE INCEPTION ANALYSIS



CAMBRIDGE
ASSOCIATES

BOUYOUT

AS OF JUNE 30, 2019

SINCE INCEPTION IRR & 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	16.15	18.63	11.16	17.88	30.52	7.19	16.82	1.92	0.00	1.92	25
1995	16.07	14.15	11.29	15.42	22.08	-0.46	21.66	1.76	0.00	1.76	35
1996	11.36	10.27	8.60	9.21	13.00	-0.85	21.37	1.63	0.00	1.63	39
1997	8.84	8.12	8.20	8.18	14.44	0.51	18.71	1.56	0.00	1.56	72
1998	8.34	11.88	11.66	13.65	19.87	5.77	11.41	1.53	0.02	1.55	67
1999	16.53	14.52	12.45	14.29	22.65	5.56	15.20	1.96	0.00	1.97	63
2000	20.90	19.69	18.63	20.49	28.04	10.69	16.01	2.08	0.02	2.10	83
2001	26.40	23.07	20.84	23.55	32.20	11.81	17.15	2.14	0.02	2.15	39
2002	19.36	14.56	18.45	18.11	27.76	7.93	28.53	1.99	0.02	2.02	44
2003	16.50	16.40	14.35	16.41	26.81	3.87	17.62	1.82	0.02	1.84	42
2004	11.16	13.59	9.68	13.54	14.38	7.36	16.39	1.67	0.06	1.73	79
2005	6.57	6.90	7.50	8.17	13.32	2.20	13.92	1.39	0.06	1.45	110
2006	7.76	8.78	9.35	9.36	14.34	4.11	14.41	1.38	0.17	1.55	106
2007	11.45	9.59	10.36	10.11	15.80	4.85	14.01	1.37	0.31	1.68	117
2008	14.06	12.65	13.00	13.69	18.18	8.18	17.59	1.44	0.32	1.76	69
2009	19.04	17.21	18.65	18.66	24.87	9.31	14.26	1.37	0.81	2.18	34
2010	13.56	12.95	13.78	15.93	20.66	-0.58	13.55	0.97	0.69	1.66	28
2011	15.94	14.61	14.08	14.87	19.38	7.61	11.15	0.85	0.82	1.67	64
2012	16.59	15.49	15.39	16.12	19.64	9.36	9.12	0.60	1.04	1.64	58
2013	16.18	15.83	16.47	17.92	20.26	9.38	9.86	0.35	1.12	1.47	57
2014	19.34	17.38	17.74	18.41	23.66	11.25	9.21	0.28	1.15	1.43	61
2015	12.92	8.06	9.03	12.11	19.83	1.61	20.59	0.10	1.11	1.21	62
2016	16.25	12.63	12.17	14.84	18.70	5.06	27.05	0.05	1.16	1.21	48
2017	1.07	-1.07	-1.33	5.87	10.26	-8.74	27.96	0.01	0.99	1.01	44

BUYOUT

AS OF JUNE 30, 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 EAFFE INDEX (NET)		MSCI EUROPE INDEX (NET)		CA BENCHMARK INDEX	MSCI EAFFE INDEX (NET)	MSCI EUROPE INDEX (NET)	CA BENCHMARK INDEX	MSCI EAFFE INDEX (NET)	MSCI EUROPE INDEX (NET)
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD	TVPI	MPME TVPI	MPME TVPI	DPI	MPME DPI
1994	25	16.15	4.56	1,158	9.65	650	1.92	1.20	1.42	1.92	1.20	1.42
1995	35	16.07	4.62	1,145	9.11	697	1.76	1.18	1.36	1.76	1.18	1.36
1996	39	11.36	3.85	752	5.11	626	1.63	1.19	1.26	1.63	1.19	1.26
1997	72	8.84	3.30	554	3.59	525	1.56	1.18	1.20	1.56	1.18	1.20
1998	67	8.34	4.18	416	4.49	385	1.55	1.23	1.25	1.53	1.22	1.24
1999	63	16.53	6.87	966	7.43	910	1.97	1.31	1.33	1.96	1.30	1.33
2000	83	20.90	10.35	1,056	10.82	1,008	2.10	1.39	1.41	2.08	1.38	1.40
2001	39	26.40	11.48	1,492	11.98	1,441	2.15	1.37	1.39	2.14	1.36	1.38
2002	44	19.36	7.84	1,152	8.30	1,106	2.02	1.32	1.34	1.99	1.31	1.32
2003	42	16.50	5.14	1,137	5.56	1,094	1.84	1.22	1.23	1.82	1.20	1.22
2004	79	11.16	2.46	870	2.58	858	1.73	1.13	1.14	1.67	1.09	1.10
2005	110	6.57	1.64	492	1.52	505	1.45	1.10	1.09	1.39	1.05	1.05
2006	106	7.76	2.29	547	2.11	565	1.55	1.14	1.13	1.38	1.02	1.01
2007	117	11.45	4.85	660	4.75	669	1.68	1.24	1.23	1.37	1.04	1.03
2008	69	14.06	6.19	787	6.18	788	1.76	1.27	1.27	1.44	1.07	1.07
2009	34	19.04	5.81	1,323	5.54	1,350	2.18	1.25	1.24	1.37	0.89	0.88
2010	28	13.56	5.73	783	5.44	811	1.66	1.23	1.22	0.97	0.76	0.76
2011	64	15.94	5.23	1,070	4.78	1,116	1.67	1.18	1.17	0.85	0.64	0.63
2012	58	16.59	4.66	1,192	4.09	1,249	1.64	1.15	1.13	0.60	0.45	0.44
2013	57	16.18	4.98	1,120	4.56	1,162	1.47	1.13	1.12	0.35	0.29	0.29
2014	61	19.34	5.42	1,392	5.23	1,412	1.43	1.11	1.10	0.28	0.23	0.23
2015	62	12.92	5.59	733	5.79	714	1.21	1.09	1.09	0.10	0.09	0.09
2016	48	16.25	4.84	1,141	5.22	1,103	1.21	1.06	1.06	0.05	0.05	0.05
2017	44	1.07	6.57	-550	8.10	-703	1.01	1.04	1.05	0.01	0.01	0.01

Notes: Based on data compiled from 1,446 buyout 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 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.

AS OF JUNE 30, 2019

BUYOUT

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	S&P 500 INDEX			RUSSELL 2000® INDEX		CA BENCHMARK INDEX	S&P 500 INDEX	RUSSELL 2000® INDEX	CA BENCHMARK INDEX	S&P 500 INDEX	RUSSELL 2000® INDEX
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD						
1994	25	16.15	12.31	384	8.59	756	1.92	1.51	1.40	1.92	1.51	1.40	
1995	35	16.07	11.55	452	7.81	826	1.76	1.44	1.33	1.76	1.44	1.33	
1996	39	11.36	5.16	620	7.01	436	1.63	1.24	1.38	1.63	1.24	1.38	
1997	72	8.84	1.68	716	7.13	171	1.56	1.09	1.42	1.56	1.09	1.42	
1998	67	8.34	2.06	629	7.48	86	1.55	1.11	1.45	1.53	1.09	1.43	
1999	63	16.53	3.16	1,337	8.49	805	1.97	1.14	1.39	1.96	1.13	1.38	
2000	83	20.90	6.00	1,491	10.19	1,071	2.10	1.23	1.40	2.08	1.22	1.39	
2001	39	26.40	7.65	1,875	10.47	1,593	2.15	1.29	1.39	2.14	1.28	1.38	
2002	44	19.36	6.80	1,256	8.18	1,118	2.02	1.33	1.40	1.99	1.31	1.38	
2003	42	16.50	6.04	1,046	6.58	993	1.84	1.31	1.33	1.82	1.28	1.31	
2004	79	11.16	5.91	525	6.20	496	1.73	1.37	1.39	1.67	1.30	1.33	
2005	110	6.57	7.11	-55	7.28	-72	1.45	1.52	1.53	1.39	1.44	1.45	
2006	106	7.76	8.54	-78	8.53	-76	1.55	1.64	1.62	1.38	1.43	1.43	
2007	117	11.45	12.20	-75	11.51	-6	1.68	1.73	1.66	1.37	1.40	1.37	
2008	69	14.06	13.95	11	12.99	107	1.76	1.74	1.66	1.44	1.42	1.38	
2009	34	19.04	13.62	542	11.66	738	2.18	1.70	1.57	1.37	1.15	1.10	
2010	28	13.56	13.43	13	11.06	250	1.66	1.64	1.50	0.97	0.96	0.91	
2011	64	15.94	12.70	324	10.13	581	1.67	1.50	1.38	0.85	0.78	0.74	
2012	58	16.59	12.10	448	9.14	745	1.64	1.43	1.31	0.60	0.53	0.51	
2013	57	16.18	12.11	407	8.59	759	1.47	1.33	1.23	0.35	0.33	0.32	
2014	61	19.34	12.54	681	8.41	1,094	1.43	1.26	1.17	0.28	0.26	0.25	
2015	62	12.92	12.92	1	7.61	531	1.21	1.21	1.12	0.10	0.10	0.10	
2016	48	16.25	12.54	371	5.82	1,043	1.21	1.16	1.07	0.05	0.05	0.05	
2017	44	1.07	14.54	-1,347	5.55	-448	1.01	1.09	1.03	0.01	0.01	0.01	

Notes: Based on data compiled from 1,446 buyout 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, Frank Russell Company, Standard & Poor's, and Thomson Reuters Datastream.

BUYOUT

AS OF JUNE 30, 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	RUSSELL 3000® INDEX		MSCI ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX	RUSSELL 3000® INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)	CA BENCHMARK INDEX	RUSSELL 3000® INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD	TVPI	MPME TVPI	MPME TVPI	DPI	MPME DPI
1994	25	16.15	11.74	441	7.46	869	1.92	1.49	1.32	1.92	1.49	1.32
1995	35	16.07	10.99	509	7.34	873	1.76	1.42	1.29	1.76	1.42	1.29
1996	39	11.36	5.51	586	4.56	681	1.63	1.27	1.23	1.63	1.27	1.23
1997	72	8.84	2.47	636	2.85	599	1.56	1.13	1.15	1.56	1.13	1.15
1998	67	8.34	2.82	552	3.56	478	1.55	1.16	1.20	1.53	1.14	1.19
1999	63	16.53	3.94	1,259	5.63	1,090	1.97	1.17	1.25	1.96	1.17	1.25
2000	83	20.90	6.71	1,420	8.94	1,196	2.10	1.26	1.35	2.08	1.25	1.34
2001	39	26.40	8.28	1,812	10.36	1,604	2.15	1.31	1.37	2.14	1.30	1.36
2002	44	19.36	7.23	1,213	8.12	1,124	2.02	1.36	1.37	1.99	1.33	1.35
2003	42	16.50	6.34	1,017	6.38	1,012	1.84	1.32	1.30	1.82	1.30	1.28
2004	79	11.16	6.13	503	4.81	635	1.73	1.39	1.28	1.67	1.32	1.23
2005	110	6.57	7.29	-72	4.62	194	1.45	1.54	1.31	1.39	1.45	1.24
2006	106	7.76	8.68	-91	5.43	233	1.55	1.65	1.36	1.38	1.44	1.20
2007	117	11.45	12.23	-78	8.21	324	1.68	1.73	1.44	1.37	1.41	1.19
2008	69	14.06	13.94	12	9.65	441	1.76	1.74	1.46	1.44	1.42	1.21
2009	34	19.04	13.41	563	9.42	962	2.18	1.69	1.45	1.37	1.15	1.00
2010	28	13.56	13.16	40	9.36	420	1.66	1.62	1.41	0.97	0.96	0.85
2011	64	15.94	12.37	357	9.02	691	1.67	1.48	1.34	0.85	0.77	0.70
2012	58	16.59	11.71	487	8.67	791	1.64	1.42	1.30	0.60	0.53	0.49
2013	57	16.18	11.68	450	9.04	714	1.47	1.32	1.24	0.35	0.33	0.31
2014	61	19.34	12.09	726	9.54	980	1.43	1.25	1.20	0.28	0.26	0.25
2015	62	12.92	12.42	50	9.84	308	1.21	1.20	1.16	0.10	0.10	0.10
2016	48	16.25	11.94	431	9.22	703	1.21	1.15	1.12	0.05	0.05	0.05
2017	44	1.07	13.79	-1,272	10.95	-988	1.01	1.08	1.07	0.01	0.01	0.01

Notes: Based on data compiled from 1,446 buyout 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.

CA

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

Sources: Cambridge Associates LLC, Frank Russell Company, 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.

BUYOUT

AS OF JUNE 30, 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	1.92	1.92	1.65	2.46	1.34	25
1995	1.76	1.67	1.57	2.16	0.98	35
1996	1.63	1.50	1.52	1.78	0.96	39
1997	1.56	1.45	1.48	1.90	1.00	72
1998	1.55	1.97	1.62	2.20	1.38	67
1999	1.97	1.83	1.64	2.23	1.29	63
2000	2.10	2.13	2.05	2.62	1.61	83
2001	2.15	2.08	1.97	2.50	1.62	39
2002	2.02	1.96	1.97	2.39	1.49	44
2003	1.84	1.80	1.79	2.16	1.24	42
2004	1.73	1.78	1.64	1.97	1.36	79
2005	1.45	1.52	1.50	1.82	1.11	110
2006	1.55	1.61	1.59	2.07	1.20	106
2007	1.68	1.59	1.62	1.93	1.29	117
2008	1.76	1.74	1.72	2.05	1.37	69
2009	2.18	2.03	2.03	2.44	1.52	34
2010	1.66	1.83	1.64	2.09	0.97	28
2011	1.67	1.64	1.61	1.83	1.34	64
2012	1.64	1.61	1.57	1.78	1.34	58
2013	1.47	1.54	1.47	1.65	1.26	57
2014	1.43	1.43	1.36	1.55	1.24	61
2015	1.21	1.17	1.16	1.35	1.04	62
2016	1.21	1.15	1.14	1.25	1.06	48
2017	1.01	0.99	0.99	1.09	0.92	44

BUYOUT

AS OF JUNE 30, 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	1.92	1.92	1.65	2.46	1.34	25
1995	1.76	1.67	1.57	2.16	0.98	35
1996	1.63	1.50	1.52	1.78	0.96	39
1997	1.56	1.45	1.48	1.90	0.99	72
1998	1.53	1.96	1.61	2.20	1.38	67
1999	1.96	1.82	1.64	2.23	1.28	63
2000	2.08	2.06	2.00	2.57	1.61	83
2001	2.14	2.06	1.97	2.48	1.60	39
2002	1.99	1.92	1.96	2.39	1.47	44
2003	1.82	1.78	1.74	2.13	1.20	42
2004	1.67	1.69	1.52	1.91	1.33	79
2005	1.39	1.45	1.38	1.78	1.00	110
2006	1.38	1.44	1.45	1.81	1.06	106
2007	1.37	1.34	1.34	1.71	0.93	117
2008	1.44	1.38	1.37	1.67	1.07	69
2009	1.37	1.50	1.44	2.09	0.80	34
2010	0.97	1.04	0.89	1.43	0.30	28
2011	0.85	0.86	0.83	1.13	0.40	64
2012	0.60	0.69	0.59	0.89	0.34	58
2013	0.35	0.49	0.33	0.59	0.12	57
2014	0.28	0.28	0.17	0.43	0.06	61
2015	0.10	0.12	0.04	0.20	0.00	62
2016	0.05	0.05	0.00	0.03	0.00	48
2017	0.01	0.02	0.00	0.00	0.00	44

BUYOUT

AS OF JUNE 30, 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	25
1995	0.00	0.00	0.00	0.00	0.00	35
1996	0.00	0.00	0.00	0.00	0.00	39
1997	0.00	0.00	0.00	0.00	0.00	72
1998	0.02	0.01	0.00	0.00	0.00	67
1999	0.00	0.01	0.00	0.00	0.00	63
2000	0.02	0.07	0.00	0.01	0.00	83
2001	0.02	0.01	0.00	0.00	0.00	39
2002	0.02	0.04	0.00	0.02	0.00	44
2003	0.02	0.03	0.00	0.02	0.00	42
2004	0.06	0.09	0.02	0.09	0.00	79
2005	0.06	0.07	0.02	0.10	0.00	110
2006	0.17	0.17	0.11	0.25	0.01	106
2007	0.31	0.25	0.16	0.37	0.03	117
2008	0.32	0.36	0.29	0.53	0.11	69
2009	0.81	0.53	0.35	0.79	0.22	34
2010	0.69	0.79	0.74	0.90	0.58	28
2011	0.82	0.78	0.76	1.04	0.51	64
2012	1.04	0.93	0.91	1.13	0.79	58
2013	1.12	1.05	1.05	1.20	0.89	57
2014	1.15	1.15	1.14	1.28	1.04	61
2015	1.11	1.05	1.07	1.18	0.93	62
2016	1.16	1.10	1.12	1.21	1.03	48
2017	0.99	0.97	0.98	1.06	0.90	44

US BUYOUT: FUND INDEX ANALYSIS



CAMBRIDGE
ASSOCIATES

US BUYOUT

AS OF JUNE 30, 2019

FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	YTD	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
US BUYOUT INDEX¹	3.70	9.26	11.55	16.13	13.35	16.74	13.93	11.55	13.13
US BUYOUT SMALL CAP INDEX¹	3.21	6.48	10.74	13.92	13.03	17.05	16.80	13.35	13.43
US BUYOUT MID CAP INDEX¹	4.73	10.19	13.40	15.10	14.21	14.86	15.13	12.18	15.10
US BUYOUT LARGE CAP INDEX¹	4.65	9.11	12.56	17.51	13.41	16.27	14.55	11.58	15.37
US BUYOUT MEGA CAP INDEX¹	3.16	9.26	10.83	16.00	13.16	17.39	13.20	11.25	—
Bloomberg Barclays Capital Government/Credit Bond Index	3.53	6.90	8.52	2.41	3.11	4.09	4.33	5.02	5.56
Dow Jones Industrial Average Index	3.21	15.40	12.20	16.80	12.29	15.03	9.16	7.04	10.84
Dow Jones US Small Cap Index	2.57	19.70	2.60	11.75	6.88	14.20	9.00	9.15	10.57
Dow Jones US TopCap Index	4.34	18.63	10.43	14.34	10.62	14.78	9.01	6.13	10.00
Nasdaq Composite Index*	3.58	20.66	6.60	18.24	12.68	15.87	9.52	5.61	10.20
Russell 1000® Index	4.25	18.84	10.02	14.15	10.45	14.77	8.94	6.19	10.09
Russell 2000® Index	2.10	16.98	-3.31	12.30	7.06	13.45	8.15	7.77	9.26
S&P 500 Index	4.30	18.54	10.42	14.19	10.71	14.70	8.75	5.90	9.97
Wilshire 5000 Total Market Index	3.99	18.66	9.10	14.03	10.33	14.66	8.96	6.37	9.98

The index is a horizon calculation based on data compiled from 875 US buyout funds, including fully liquidated partnerships, formed between 1986 and 2018.

¹ 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, Standard & Poor's and Thomson Reuters Datastream, and Wilshire Associates.

*Capital change only

US BUYOUT

AS OF JUNE 30, 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
US BUYOUT INDEX¹	11.55	16.13	13.35	16.74	13.93	11.55	13.13
MPME ANALYSIS²							
Russell 2000® Index	-3.18	12.97	6.86	14.95	8.57	8.38	8.93
Value-Add (bps)	1,474	316	649	179	536	317	420
Russell 2500™ Index	1.85	12.79	7.34	16.08	9.44	9.36	10.14
Value-Add (bps)	970	334	601	66	449	219	299
Russell 3000® Index	9.03	14.27	9.91	15.47	9.05	7.34	8.81
Value-Add (bps)	253	186	344	127	488	421	432
Russell Midcap® Index	7.88	12.39	8.34	16.71	10.03	9.41	10.51
Value-Add (bps)	368	374	501	3	390	214	262
S&P 500 Index	10.46	14.39	10.45	15.37	8.93	7.08	8.69
Value-Add (bps)	109	174	290	138	500	447	444
Constructed Index: MSCI World/MSCI All Country World Index ³ (gross)	6.45	12.45	6.47	11.20	7.20	5.96	6.64
Value-Add (bps)	510	368	689	554	673	559	648

The index is a horizon calculation based on data compiled from 875 US buyout funds, including fully liquidated partnerships, formed between 1986 and 2018.

¹ Pooled horizon return, net of fees, expenses, and carried interest.

² 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.

³ Constructed Index: MSCI World/MSCI All Country World Index: Data rom 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, 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 indexes are gross of dividend taxes. Total returns for MSCI Developed Markets indexes are net of dividend taxes.

AS OF JUNE 30, 2019

US BUYOUT

FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN
1994 Q1	0.87
1994 Q2	3.41
1994 Q3	1.43
1994 Q4	6.77
1995 Q1	3.11
1995 Q2	3.60
1995 Q3	3.82
1995 Q4	11.10
1996 Q1	5.80
1996 Q2	6.18
1996 Q3	6.57
1996 Q4	7.02
1997 Q1	0.98
1997 Q2	9.15
1997 Q3	6.32
1997 Q4	10.68
1998 Q1	9.91
1998 Q2	6.12
1998 Q3	-6.85
1998 Q4	8.24
1999 Q1	5.22
1999 Q2	9.56
1999 Q3	2.54
1999 Q4	11.58
2000 Q1	13.52
2000 Q2	-2.69

QUARTER ENDING	HORIZON RETURN
2000 Q3	-2.36
2000 Q4	-6.86
2001 Q1	-5.28
2001 Q2	3.02
2001 Q3	-8.31
2001 Q4	-0.59
2002 Q1	-0.04
2002 Q2	-2.57
2002 Q3	-4.47
2002 Q4	-0.05
2003 Q1	0.12
2003 Q2	7.19
2003 Q3	5.48
2003 Q4	9.79
2004 Q1	2.99
2004 Q2	3.73
2004 Q3	2.51
2004 Q4	15.89
2005 Q1	0.74
2005 Q2	8.39
2005 Q3	7.25
2005 Q4	8.85
2006 Q1	5.42
2006 Q2	4.08
2006 Q3	3.62
2006 Q4	13.27

QUARTER ENDING	HORIZON RETURN
2007 Q1	5.55
2007 Q2	7.55
2007 Q3	0.65
2007 Q4	2.58
2008 Q1	-2.50
2008 Q2	-0.30
2008 Q3	-7.19
2008 Q4	-17.25
2009 Q1	-3.73
2009 Q2	4.66
2009 Q3	6.62
2009 Q4	6.68
2010 Q1	5.00
2010 Q2	2.26
2010 Q3	4.88
2010 Q4	9.14
2011 Q1	5.44
2011 Q2	4.70
2011 Q3	-4.67
2011 Q4	4.80
2012 Q1	5.53
2012 Q2	0.33
2012 Q3	4.11
2012 Q4	3.95
2013 Q1	5.17
2013 Q2	3.51

QUARTER ENDING	HORIZON RETURN
2013 Q3	5.31
2013 Q4	7.46
2014 Q1	3.34
2014 Q2	4.94
2014 Q3	1.70
2014 Q4	3.66
2015 Q1	3.48
2015 Q2	4.43
2015 Q3	0.00
2015 Q4	2.02
2016 Q1	0.49
2016 Q2	3.82
2016 Q3	3.72
2016 Q4	4.13
2017 Q1	4.18
2017 Q2	4.68
2017 Q3	4.12
2017 Q4	5.68
2018 Q1	2.57
2018 Q2	5.21
2018 Q3	3.83
2018 Q4	-1.65
2019 Q1	5.36
2019 Q2	3.70

AS OF JUNE 30, 2019

US BUYOUT

FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	11.55	14 Years	12.91
2 Years	15.22	15 Years	13.93
3 Years	16.13	16 Years	14.58
4 Years	13.23	17 Years	13.82
5 Years	13.35	18 Years	12.29
6 Years	15.44	19 Years	10.97
7 Years	15.94	20 Years	11.55
8 Years	13.96	21 Years	11.73
9 Years	15.91	22 Years	12.36
10 Years	16.74	23 Years	12.67
11 Years	11.45	24 Years	13.06
12 Years	10.40	25 Years	13.13
13 Years	11.92		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
6/30/2019	11.55	6/30/2006	28.11
6/30/2018	18.73	6/30/2005	29.71
6/30/2017	17.74	6/30/2004	23.94
6/30/2016	6.28	6/30/2003	3.16
6/30/2015	13.74	6/30/2002	-11.15
6/30/2014	22.86	6/30/2001	-11.13
6/30/2013	17.82	6/30/2000	25.81
6/30/2012	5.78	6/30/1999	17.03
6/30/2011	26.43	6/30/1998	37.31
6/30/2010	22.02	6/30/1997	25.75
6/30/2009	-22.18	6/30/1996	29.52
6/30/2008	0.16	6/30/1995	15.70
6/30/2007	33.26		

US BUYOUT: FUND SINCE INCEPTION ANALYSIS



CAMBRIDGE
ASSOCIATES

AS OF JUNE 30, 2019

US BUYOUT

SINCE INCEPTION IRR & 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	7.50	9.75	7.49	9.52	13.66	2.33	10.00	1.51	0.00	1.51	11
1995	13.54	12.52	10.88	13.70	28.49	-1.47	19.53	1.66	0.00	1.66	22
1996	10.25	8.64	7.94	8.38	11.80	0.64	20.04	1.60	0.00	1.60	23
1997	6.78	5.96	6.78	5.12	12.38	-1.25	14.92	1.43	0.00	1.43	40
1998	6.51	10.14	9.65	10.39	14.68	5.13	10.50	1.40	0.02	1.42	39
1999	16.08	12.00	12.05	12.37	19.16	7.40	11.78	1.96	0.01	1.97	36
2000	16.79	15.64	14.08	15.44	22.57	9.90	11.41	1.88	0.02	1.90	51
2001	23.06	20.22	18.24	19.19	31.68	11.37	16.27	2.19	0.03	2.22	19
2002	16.78	12.16	16.91	15.63	26.93	4.99	28.57	1.91	0.03	1.95	21
2003	14.79	12.60	12.24	12.54	16.28	3.01	11.12	1.97	0.03	1.99	23
2004	10.55	10.52	9.80	10.47	13.18	7.63	7.15	1.68	0.05	1.73	48
2005	7.93	7.09	8.12	9.35	13.95	3.33	14.96	1.54	0.06	1.60	55
2006	9.35	12.85	12.83	12.44	17.27	7.69	15.09	1.52	0.20	1.71	51
2007	12.78	12.62	13.64	12.42	17.55	8.29	11.28	1.34	0.39	1.73	57
2008	15.98	18.27	15.85	17.28	23.44	11.37	10.50	1.50	0.35	1.86	39
2009	22.48	22.83	23.09	25.03	27.09	17.16	13.40	1.54	0.91	2.45	19
2010	22.43	21.50	18.42	24.20	25.01	14.85	10.38	1.47	0.84	2.31	11
2011	17.11	16.79	15.73	17.05	20.97	11.02	10.67	0.87	0.84	1.70	37
2012	18.13	18.44	16.22	19.63	24.09	11.37	9.98	0.49	1.13	1.62	27
2013	15.13	15.76	16.41	17.57	20.23	10.35	9.11	0.32	1.14	1.46	34
2014	20.03	18.31	18.09	19.43	24.84	11.11	9.51	0.32	1.13	1.45	35
2015	13.47	10.80	9.19	13.44	20.33	3.82	16.25	0.09	1.13	1.22	39
2016	16.49	14.89	11.39	17.11	18.13	5.07	28.07	0.07	1.15	1.23	24
2017	0.99	2.72	2.46	9.61	11.16	-5.25	28.19	0.02	0.99	1.01	29



Notes: Based on data compiled from 790 US buyout 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.

AS OF JUNE 30, 2019

US BUYOUT

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	RUSSELL 2000® INDEX			RUSSELL 2500™ INDEX		CA BENCHMARK INDEX	RUSSELL 2000® INDEX	RUSSELL 2500™ INDEX	CA BENCHMARK INDEX	RUSSELL 2000® INDEX	RUSSELL 2500™ INDEX
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD						
1994	11	7.50	7.48	2	9.64	-214	1.51	1.51	1.70	1.51	1.51	1.70	
1995	22	13.54	7.70	584	10.18	335	1.66	1.36	1.50	1.66	1.36	1.50	
1996	23	10.25	6.84	341	8.87	137	1.60	1.39	1.53	1.60	1.39	1.53	
1997	40	6.78	7.28	-50	9.04	-226	1.43	1.45	1.58	1.43	1.45	1.58	
1998	39	6.51	7.60	-109	9.09	-258	1.42	1.48	1.60	1.40	1.45	1.57	
1999	36	16.08	8.47	761	9.57	651	1.97	1.39	1.46	1.96	1.39	1.45	
2000	51	16.79	9.73	706	10.61	618	1.90	1.42	1.47	1.88	1.40	1.45	
2001	19	23.06	8.78	1,428	9.63	1,343	2.22	1.40	1.45	2.19	1.38	1.43	
2002	21	16.78	7.94	884	8.86	793	1.95	1.42	1.48	1.91	1.39	1.45	
2003	23	14.79	6.19	860	7.02	776	1.99	1.37	1.43	1.97	1.34	1.39	
2004	48	10.55	6.10	446	6.95	361	1.73	1.40	1.46	1.68	1.35	1.41	
2005	55	7.93	7.63	30	8.47	-54	1.60	1.58	1.66	1.54	1.51	1.58	
2006	51	9.35	8.09	126	8.83	52	1.71	1.59	1.66	1.52	1.41	1.47	
2007	57	12.78	11.59	118	12.38	40	1.73	1.63	1.68	1.34	1.27	1.31	
2008	39	15.98	12.99	299	13.75	223	1.86	1.62	1.66	1.50	1.34	1.38	
2009	19	22.48	11.77	1,071	12.34	1,014	2.45	1.56	1.59	1.54	1.10	1.12	
2010	11	22.43	11.47	1,096	11.92	1,052	2.31	1.52	1.55	1.47	1.05	1.06	
2011	37	17.11	10.13	698	10.64	648	1.70	1.36	1.39	0.87	0.74	0.74	
2012	27	18.13	8.72	941	9.38	875	1.62	1.26	1.29	0.49	0.41	0.41	
2013	34	15.13	8.51	662	9.28	586	1.46	1.24	1.26	0.32	0.30	0.30	
2014	35	20.03	8.22	1,181	9.36	1,067	1.45	1.16	1.19	0.32	0.28	0.28	
2015	39	13.47	7.65	582	9.46	401	1.22	1.12	1.15	0.09	0.09	0.09	
2016	24	16.49	6.04	1,046	8.41	809	1.23	1.08	1.11	0.07	0.06	0.06	
2017	29	0.99	5.16	-417	9.09	-810	1.01	1.03	1.06	0.02	0.02	0.02	

Notes: Based on data compiled from 790 US buyout 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, Frank Russell Company, and Thomson Reuters Datastream.

AS OF JUNE 30, 2019

US BUYOUT

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	RUSSELL 3000® INDEX			RUSSELL MIDCAP® INDEX		CA BENCHMARK INDEX	RUSSELL 3000® INDEX	RUSSELL MIDCAP® INDEX	CA BENCHMARK INDEX	RUSSELL 3000® INDEX	RUSSELL MIDCAP® INDEX
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD						
1994	11	7.50	7.46	4	10.38	-288	1.51	1.45	1.76	1.51	1.45	1.75	
1995	22	13.54	10.31	323	11.36	218	1.66	1.43	1.55	1.66	1.43	1.55	
1996	23	10.25	4.91	533	9.07	118	1.60	1.25	1.55	1.60	1.25	1.55	
1997	40	6.78	2.46	432	8.52	-173	1.43	1.14	1.55	1.43	1.13	1.54	
1998	39	6.51	3.14	337	8.67	-216	1.42	1.19	1.58	1.40	1.16	1.54	
1999	36	16.08	4.02	1,206	9.54	654	1.97	1.18	1.46	1.96	1.17	1.45	
2000	51	16.79	6.59	1,020	10.84	595	1.90	1.29	1.49	1.88	1.27	1.47	
2001	19	23.06	7.57	1,549	10.24	1,281	2.22	1.35	1.48	2.19	1.34	1.46	
2002	21	16.78	7.10	969	9.51	727	1.95	1.38	1.52	1.91	1.34	1.48	
2003	23	14.79	5.78	901	7.42	737	1.99	1.34	1.45	1.97	1.31	1.42	
2004	48	10.55	5.98	457	7.20	335	1.73	1.39	1.49	1.68	1.33	1.43	
2005	55	7.93	7.69	24	8.68	-76	1.60	1.60	1.69	1.54	1.51	1.60	
2006	51	9.35	8.22	113	8.97	38	1.71	1.62	1.68	1.52	1.42	1.48	
2007	57	12.78	12.38	40	12.81	-3	1.73	1.70	1.72	1.34	1.30	1.33	
2008	39	15.98	13.90	208	14.26	172	1.86	1.69	1.70	1.50	1.38	1.40	
2009	19	22.48	13.49	899	12.97	952	2.45	1.67	1.63	1.54	1.15	1.13	
2010	11	22.43	13.31	913	12.50	993	2.31	1.63	1.58	1.47	1.10	1.07	
2011	37	17.11	12.39	472	11.30	581	1.70	1.47	1.41	0.87	0.77	0.75	
2012	27	18.13	11.57	657	10.03	810	1.62	1.36	1.31	0.49	0.43	0.41	
2013	34	15.13	11.56	357	9.95	518	1.46	1.34	1.28	0.32	0.31	0.30	
2014	35	20.03	11.91	811	10.33	969	1.45	1.25	1.21	0.32	0.28	0.27	
2015	39	13.47	12.44	103	11.10	237	1.22	1.20	1.18	0.09	0.09	0.09	
2016	24	16.49	11.98	451	10.70	579	1.23	1.16	1.14	0.07	0.07	0.06	
2017	29	0.99	13.38	-1,239	13.62	-1,263	1.01	1.08	1.08	0.02	0.02	0.02	

Notes: Based on data compiled from 790 US buyout 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, Frank Russell Company, and Thomson Reuters Datastream.

AS OF JUNE 30, 2019

US BUYOUT

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	S&P 500 INDEX		MSCI ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX	S&P 500 INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)	CA BENCHMARK INDEX	S&P 500 INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD	TVPI	MPME TVPI	MPME TVPI	DPI	MPME DPI
1994	11	7.50	7.46	4	5.50	200	1.51	1.44	1.34	1.51	1.44	1.34
1995	22	13.54	10.77	276	6.88	666	1.66	1.44	1.29	1.66	1.44	1.29
1996	23	10.25	4.50	574	4.13	611	1.60	1.23	1.22	1.60	1.23	1.22
1997	40	6.78	1.64	514	3.09	369	1.43	1.09	1.18	1.43	1.09	1.17
1998	39	6.51	2.40	410	3.83	268	1.42	1.14	1.23	1.40	1.12	1.21
1999	36	16.08	3.25	1,282	5.82	1,025	1.97	1.14	1.27	1.96	1.14	1.26
2000	51	16.79	5.94	1,085	8.49	830	1.90	1.26	1.36	1.88	1.24	1.35
2001	19	23.06	7.11	1,595	8.60	1,445	2.22	1.33	1.37	2.19	1.31	1.35
2002	21	16.78	6.68	1,011	7.86	893	1.95	1.36	1.39	1.91	1.32	1.36
2003	23	14.79	5.48	931	5.62	917	1.99	1.32	1.31	1.97	1.29	1.28
2004	48	10.55	5.76	479	4.60	595	1.73	1.38	1.28	1.68	1.32	1.23
2005	55	7.93	7.52	41	4.87	306	1.60	1.58	1.34	1.54	1.50	1.28
2006	51	9.35	8.09	126	5.09	425	1.71	1.61	1.34	1.52	1.40	1.19
2007	57	12.78	12.36	42	8.41	437	1.73	1.71	1.43	1.34	1.30	1.11
2008	39	15.98	13.90	207	9.67	631	1.86	1.69	1.44	1.50	1.38	1.19
2009	19	22.48	13.69	879	9.50	1,298	2.45	1.68	1.44	1.54	1.16	1.01
2010	11	22.43	13.57	887	9.54	1,289	2.31	1.65	1.42	1.47	1.11	0.97
2011	37	17.11	12.72	439	9.06	805	1.70	1.48	1.32	0.87	0.77	0.70
2012	27	18.13	11.98	615	8.75	938	1.62	1.38	1.27	0.49	0.43	0.40
2013	34	15.13	12.00	314	8.93	620	1.46	1.35	1.25	0.32	0.31	0.29
2014	35	20.03	12.38	764	9.31	1,071	1.45	1.26	1.19	0.32	0.29	0.27
2015	39	13.47	12.93	54	9.82	364	1.22	1.21	1.15	0.09	0.09	0.09
2016	24	16.49	12.58	392	9.39	710	1.23	1.17	1.12	0.07	0.07	0.07
2017	29	0.99	14.13	-1,314	10.47	-948	1.01	1.09	1.07	0.02	0.02	0.02

Notes: Based on data compiled from 790 US buyout 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 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.

US BUYOUT

AS OF JUNE 30, 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	1.51	1.52	1.34	1.82	1.16	11
1995	1.66	1.60	1.56	2.21	0.91	22
1996	1.60	1.47	1.33	1.76	1.05	23
1997	1.43	1.30	1.38	1.68	0.89	40
1998	1.42	1.67	1.60	2.05	1.33	39
1999	1.97	1.73	1.54	2.22	1.29	36
2000	1.90	1.94	1.92	2.26	1.48	51
2001	2.22	1.92	1.78	2.22	1.52	19
2002	1.95	1.89	1.96	2.40	1.37	21
2003	1.99	1.75	1.80	2.07	1.21	23
2004	1.73	1.70	1.64	1.90	1.46	48
2005	1.60	1.65	1.61	2.01	1.27	55
2006	1.71	1.87	1.78	2.16	1.56	51
2007	1.73	1.75	1.77	2.10	1.42	57
2008	1.86	1.95	1.80	2.11	1.65	39
2009	2.45	2.37	2.40	2.59	2.03	19
2010	2.31	2.56	2.09	2.54	1.71	11
2011	1.70	1.71	1.66	1.92	1.44	37
2012	1.62	1.71	1.56	1.86	1.35	27
2013	1.46	1.52	1.49	1.64	1.30	34
2014	1.45	1.46	1.38	1.54	1.24	35
2015	1.22	1.21	1.15	1.34	1.07	39
2016	1.23	1.17	1.13	1.27	1.04	24
2017	1.01	1.02	1.02	1.11	0.97	29

US BUYOUT

AS OF JUNE 30, 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	1.51	1.52	1.34	1.82	1.16	11
1995	1.66	1.60	1.56	2.21	0.91	22
1996	1.60	1.47	1.33	1.76	1.05	23
1997	1.43	1.29	1.38	1.68	0.89	40
1998	1.40	1.65	1.50	1.97	1.32	39
1999	1.96	1.72	1.54	2.11	1.28	36
2000	1.88	1.83	1.88	2.21	1.48	51
2001	2.19	1.90	1.78	2.18	1.49	19
2002	1.91	1.84	1.95	2.40	1.29	21
2003	1.97	1.71	1.76	2.06	1.18	23
2004	1.68	1.63	1.54	1.83	1.38	48
2005	1.54	1.57	1.59	1.99	1.02	55
2006	1.52	1.66	1.62	1.95	1.41	51
2007	1.34	1.45	1.41	1.82	1.11	57
2008	1.50	1.54	1.52	1.70	1.25	39
2009	1.54	1.83	1.91	2.21	1.08	19
2010	1.47	1.56	1.25	1.68	0.86	11
2011	0.87	0.93	0.91	1.15	0.48	37
2012	0.49	0.79	0.57	0.97	0.44	27
2013	0.32	0.41	0.33	0.51	0.11	34
2014	0.32	0.31	0.27	0.45	0.10	35
2015	0.09	0.10	0.03	0.21	0.00	39
2016	0.07	0.06	0.00	0.03	0.00	24
2017	0.02	0.04	0.00	0.01	0.00	29



Notes: Based on data compiled from 790 US buyout 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.

AS OF JUNE 30, 2019

US BUYOUT

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	11
1995	0.00	0.00	0.00	0.00	0.00	22
1996	0.00	0.00	0.00	0.00	0.00	23
1997	0.00	0.00	0.00	0.00	0.00	40
1998	0.02	0.02	0.00	0.00	0.00	39
1999	0.01	0.01	0.00	0.00	0.00	36
2000	0.02	0.11	0.00	0.01	0.00	51
2001	0.03	0.02	0.00	0.02	0.00	19
2002	0.03	0.05	0.00	0.07	0.00	21
2003	0.03	0.05	0.00	0.03	0.00	23
2004	0.05	0.08	0.03	0.10	0.00	48
2005	0.06	0.08	0.03	0.12	0.00	55
2006	0.20	0.21	0.13	0.33	0.06	51
2007	0.39	0.30	0.24	0.49	0.06	57
2008	0.35	0.42	0.30	0.58	0.19	39
2009	0.91	0.54	0.37	0.79	0.20	19
2010	0.84	0.99	0.88	1.18	0.69	11
2011	0.84	0.78	0.76	1.04	0.51	37
2012	1.13	0.92	0.97	1.13	0.78	27
2013	1.14	1.11	1.09	1.22	0.91	34
2014	1.13	1.15	1.12	1.29	1.04	35
2015	1.13	1.11	1.09	1.19	0.96	39
2016	1.15	1.11	1.13	1.17	1.02	24
2017	0.99	0.98	0.98	1.07	0.94	29



Notes: Based on data compiled from 790 US buyout 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 BUYOUT: FUND INDEX ANALYSIS



CAMBRIDGE
ASSOCIATES

EX US BUYOUT

AS OF JUNE 30, 2019

FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	YTD	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
EX US BUYOUT INDEX¹	4.83	8.26	9.34	15.93	9.67	13.15	13.37	13.24	13.64
Bloomberg Barclays Capital Government/Credit Bond Index	3.53	6.90	8.52	2.41	3.11	4.09	4.33	5.02	5.56
Dow Jones Industrial Average Index	3.21	15.40	12.20	16.80	12.29	15.03	9.16	7.04	10.84
Dow Jones US Small Cap Index	2.57	19.70	2.60	11.75	6.88	14.20	9.00	9.15	10.57
Dow Jones US TopCap Index	4.34	18.63	10.43	14.34	10.62	14.78	9.01	6.13	10.00
MSCI Emerging Markets Index (gross)	0.74	10.76	1.61	11.06	2.87	6.17	9.06	7.59	5.85
MSCI Europe Index (US\$) (net)	4.48	15.80	1.88	9.11	1.27	6.99	5.40	4.11	6.96
MSCI Europe Index (€) (net)	3.01	16.24	4.45	8.21	5.07	9.24	5.87	3.59	7.27
MSCI Pacific Index (net)	2.43	11.17	-0.17	9.38	4.29	6.90	5.29	3.80	2.25
MSCI World Ex US Index (net)	3.79	14.64	1.29	9.01	2.04	6.75	5.44	4.16	5.01
MSCI World Index (net)	4.00	16.98	6.33	11.77	6.60	10.72	7.03	4.78	7.07
Nasdaq Composite Index*	3.58	20.66	6.60	18.24	12.68	15.87	9.52	5.61	10.20
Russell 1000® Index	4.25	18.84	10.02	14.15	10.45	14.77	8.94	6.19	10.09
Russell 2000® Index	2.10	16.98	-3.31	12.30	7.06	13.45	8.15	7.77	9.26
S&P 500 Index	4.30	18.54	10.42	14.19	10.71	14.70	8.75	5.90	9.97

The index is a horizon calculation based on data compiled from 701 Ex US buyout funds, including fully liquidated partnerships, formed between 1987 and 2019.

¹ 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.

EX US BUYOUT

AS OF JUNE 30, 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
EX US BUYOUT INDEX¹	9.34	15.93	9.67	13.15	13.37	13.24	13.64

MPME ANALYSIS ²							
MSCI EAFE Index (net)	1.38	9.51	1.60	7.00	4.57	4.42	4.53
Value-Add (bps)	796	642	807	615	880	882	911
MSCI Europe Index (net)	2.24	9.49	0.52	7.15	4.55	4.41	4.69
Value-Add (bps)	710	644	915	600	881	883	895
S&P 500 Index	10.51	14.50	10.18	15.14	9.52	8.45	9.05
Value-Add (bps)	-117	143	-51	-199	385	478	459
Constructed Index: Global Financial Data Emerging Markets/MSCI Emerging Markets (gross) ³	1.83	11.65	2.17	6.06	7.25	7.24	7.19
Value-Add (bps)	751	429	751	709	612	600	645
Constructed Index: MSCI World/MSCI All Country World Index ⁴ (gross)	6.49	12.65	6.02	10.85	7.29	6.68	6.96
Value-Add (bps)	285	329	365	230	608	656	668

The index is a horizon calculation based on data compiled from 701 Ex US buyout funds, including fully liquidated partnerships, formed between 1987 and 2019.

¹ Pooled horizon return, net of fees, expenses, and carried interest.

² 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.

³ 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.

⁴ 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.

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AS OF JUNE 30, 2019

EX US BUYOUT

FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN
1994 Q1	10.18
1994 Q2	0.38
1994 Q3	3.36
1994 Q4	2.44
1995 Q1	5.76
1995 Q2	4.09
1995 Q3	3.87
1995 Q4	2.60
1996 Q1	1.10
1996 Q2	6.49
1996 Q3	6.00
1996 Q4	24.04
1997 Q1	-1.92
1997 Q2	5.75
1997 Q3	3.13
1997 Q4	9.83
1998 Q1	2.36
1998 Q2	12.24
1998 Q3	3.11
1998 Q4	0.96
1999 Q1	-0.53
1999 Q2	6.32
1999 Q3	7.83
1999 Q4	10.28
2000 Q1	3.64
2000 Q2	2.92

QUARTER ENDING	HORIZON RETURN
2000 Q3	-2.31
2000 Q4	3.32
2001 Q1	-5.65
2001 Q2	-0.54
2001 Q3	1.52
2001 Q4	-4.35
2002 Q1	-0.72
2002 Q2	8.79
2002 Q3	-1.85
2002 Q4	6.10
2003 Q1	1.09
2003 Q2	7.45
2003 Q3	1.83
2003 Q4	14.49
2004 Q1	1.30
2004 Q2	6.68
2004 Q3	5.25
2004 Q4	19.97
2005 Q1	0.92
2005 Q2	6.31
2005 Q3	5.50
2005 Q4	11.98
2006 Q1	7.45
2006 Q2	17.66
2006 Q3	3.62
2006 Q4	22.16

QUARTER ENDING	HORIZON RETURN
2007 Q1	3.75
2007 Q2	15.22
2007 Q3	6.73
2007 Q4	5.74
2008 Q1	4.14
2008 Q2	-4.05
2008 Q3	-16.12
2008 Q4	-22.68
2009 Q1	-7.85
2009 Q2	9.80
2009 Q3	9.34
2009 Q4	8.37
2010 Q1	-1.29
2010 Q2	-2.84
2010 Q3	11.69
2010 Q4	8.90
2011 Q1	5.53
2011 Q2	6.53
2011 Q3	-9.34
2011 Q4	0.65
2012 Q1	7.61
2012 Q2	-1.83
2012 Q3	4.03
2012 Q4	4.92
2013 Q1	0.98
2013 Q2	1.80

QUARTER ENDING	HORIZON RETURN
2013 Q3	6.50
2013 Q4	7.14
2014 Q1	2.90
2014 Q2	4.88
2014 Q3	-4.18
2014 Q4	0.55
2015 Q1	-2.30
2015 Q2	6.82
2015 Q3	-1.38
2015 Q4	3.28
2016 Q1	4.22
2016 Q2	1.30
2016 Q3	4.71
2016 Q4	0.88
2017 Q1	4.87
2017 Q2	9.79
2017 Q3	6.15
2017 Q4	5.76
2018 Q1	1.80
2018 Q2	1.55
2018 Q3	2.24
2018 Q4	-1.19
2019 Q1	3.28
2019 Q2	4.83

AS OF JUNE 30, 2019

EX US BUYOUT

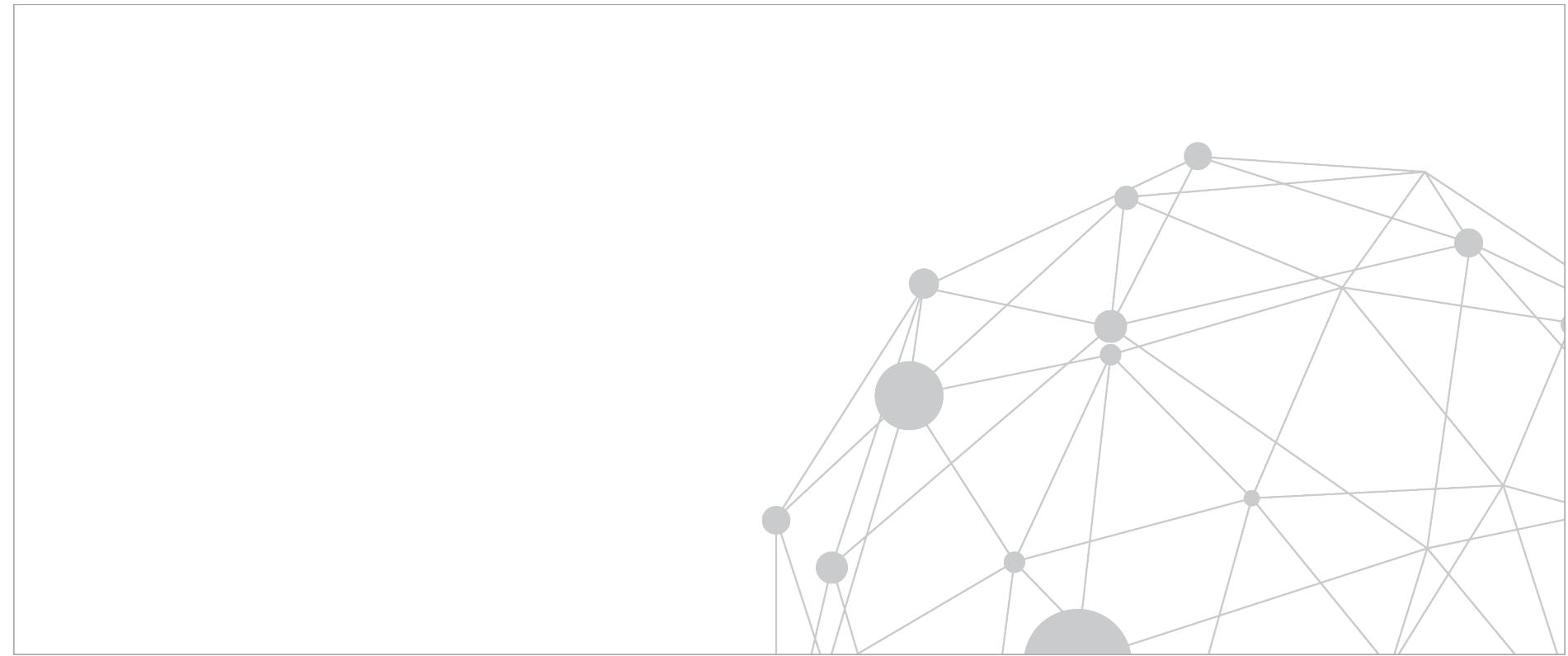
FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	9.34	14 Years	12.13
2 Years	12.91	15 Years	13.37
3 Years	15.93	16 Years	14.05
4 Years	13.28	17 Years	14.03
5 Years	9.67	18 Years	13.65
6 Years	12.61	19 Years	12.88
7 Years	12.54	20 Years	13.24
8 Years	9.61	21 Years	13.17
9 Years	13.15	22 Years	13.41
10 Years	13.15	23 Years	13.61
11 Years	7.46	24 Years	13.62
12 Years	7.79	25 Years	13.64
13 Years	10.17		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
6/30/2019	9.34	6/30/2006	48.90
6/30/2018	16.27	6/30/2005	35.64
6/30/2017	21.27	6/30/2004	26.07
6/30/2016	7.27	6/30/2003	13.67
6/30/2015	-0.08	6/30/2002	5.11
6/30/2014	23.29	6/30/2001	-5.27
6/30/2013	12.25	6/30/2000	25.59
6/30/2012	-3.76	6/30/1999	10.31
6/30/2011	36.56	6/30/1998	30.82
6/30/2010	13.10	6/30/1997	35.39
6/30/2009	-33.30	6/30/1996	14.88
6/30/2008	11.88	6/30/1995	16.73
6/30/2007	51.31		

EX US BUYOUT: FUND SINCE INCEPTION ANALYSIS



CAMBRIDGE
ASSOCIATES

AS OF JUNE 30, 2019

EX US BUYOUT

SINCE INCEPTION IRR & 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	31.62	25.61	18.94	23.76	45.76	10.82	18.06	2.75	0.00	2.75	14
1995	27.62	16.92	11.98	18.44	20.04	0.57	25.47	2.14	0.00	2.14	13
1996	20.29	12.62	10.78	10.56	18.54	-2.53	23.62	1.86	0.00	1.86	16
1997	11.96	10.74	10.83	12.12	18.86	4.26	22.47	1.77	0.00	1.77	32
1998	15.01	14.31	13.60	17.28	21.61	6.46	12.35	2.14	0.01	2.15	28
1999	17.34	17.89	17.52	16.91	22.99	5.22	18.54	1.96	0.00	1.96	27
2000	29.50	26.16	27.12	28.06	38.18	17.38	19.94	2.58	0.01	2.60	32
2001	29.05	25.77	26.00	26.48	33.50	15.14	17.93	2.09	0.00	2.09	20
2002	22.48	16.75	19.94	20.00	30.40	12.22	28.95	2.08	0.01	2.09	23
2003	19.83	21.00	25.96	22.22	33.97	9.71	22.69	1.66	0.01	1.67	19
2004	12.66	18.51	9.34	19.65	23.68	5.76	24.29	1.65	0.09	1.74	31
2005	4.99	6.72	7.11	6.85	12.32	0.74	12.93	1.25	0.05	1.30	55
2006	5.35	5.00	5.72	6.28	11.32	1.59	12.76	1.20	0.14	1.34	55
2007	9.68	6.73	8.19	7.87	13.30	4.04	15.76	1.41	0.18	1.60	60
2008	11.68	5.34	8.83	8.87	14.80	3.75	21.98	1.36	0.27	1.63	30
2009	8.21	10.10	9.95	10.01	16.64	2.65	12.30	0.92	0.51	1.43	15
2010	10.09	7.41	9.90	8.46	16.64	-2.95	12.63	0.82	0.64	1.46	17
2011	14.04	11.62	11.32	11.73	15.24	3.93	11.30	0.83	0.78	1.61	27
2012	15.35	12.92	14.35	13.22	16.70	9.10	7.56	0.71	0.95	1.66	31
2013	17.25	15.93	16.92	18.46	20.29	8.35	11.09	0.38	1.10	1.48	23
2014	17.70	16.11	17.50	16.68	21.00	11.68	8.82	0.19	1.20	1.39	26
2015	11.95	3.41	8.87	9.85	17.61	-3.61	26.14	0.12	1.09	1.20	23
2016	15.75	10.38	13.44	12.49	20.29	5.06	26.40	0.02	1.17	1.19	24
2017	1.28	-8.40	-3.41	-4.13	7.52	-19.56	26.92	0.00	1.01	1.01	15

AS OF JUNE 30, 2019

EX US BUYOUT

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	VALUE-ADD						
1994	14	31.62	6.67	2,495	15.80	1,582	2.75	1.20	1.50	2.75	1.20	1.50	
1995	13	27.62	6.07	2,155	11.84	1,578	2.14	1.17	1.33	2.14	1.17	1.33	
1996	16	20.29	6.15	1,415	9.00	1,129	1.86	1.21	1.31	1.86	1.21	1.31	
1997	32	11.96	2.72	924	2.87	909	1.77	1.14	1.14	1.77	1.14	1.14	
1998	28	15.01	3.44	1,157	3.72	1,129	2.15	1.17	1.18	2.14	1.16	1.18	
1999	27	17.34	6.44	1,090	7.06	1,028	1.96	1.28	1.30	1.96	1.27	1.30	
2000	32	29.50	11.79	1,772	12.26	1,724	2.60	1.40	1.41	2.58	1.39	1.41	
2001	20	29.05	14.03	1,502	14.46	1,459	2.09	1.41	1.42	2.09	1.40	1.42	
2002	23	22.48	8.28	1,420	8.70	1,378	2.09	1.31	1.32	2.08	1.30	1.32	
2003	19	19.83	6.32	1,351	6.93	1,290	1.67	1.22	1.24	1.66	1.22	1.24	
2004	31	12.66	3.04	963	3.19	947	1.74	1.15	1.16	1.65	1.10	1.10	
2005	55	4.99	1.43	356	1.31	368	1.30	1.08	1.07	1.25	1.04	1.03	
2006	55	5.35	2.71	264	2.55	280	1.34	1.16	1.15	1.20	1.04	1.03	
2007	60	9.68	4.62	506	4.54	514	1.60	1.24	1.23	1.41	1.13	1.12	
2008	30	11.68	6.16	552	6.17	551	1.63	1.29	1.29	1.36	1.09	1.09	
2009	15	8.21	5.60	262	5.33	288	1.43	1.27	1.26	0.92	0.85	0.84	
2010	17	10.09	5.64	445	5.38	471	1.46	1.23	1.22	0.82	0.71	0.71	
2011	27	14.04	5.21	883	4.75	929	1.61	1.19	1.17	0.83	0.64	0.63	
2012	31	15.35	4.64	1,071	4.05	1,130	1.66	1.17	1.14	0.71	0.53	0.52	
2013	23	17.25	5.01	1,224	4.60	1,265	1.48	1.12	1.11	0.38	0.31	0.30	
2014	26	17.70	6.03	1,166	5.94	1,176	1.39	1.12	1.12	0.19	0.17	0.17	
2015	23	11.95	5.68	627	5.85	610	1.20	1.09	1.10	0.12	0.11	0.11	
2016	24	15.75	4.26	1,149	4.61	1,114	1.19	1.05	1.05	0.02	0.02	0.02	
2017	15	1.28	8.02	-674	9.80	-852	1.01	1.04	1.05	0.00	0.00	0.00	

Notes: Based on data compiled from 656 Ex US buyout 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.

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.

AS OF JUNE 30, 2019

EX US BUYOUT

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	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	VALUE-ADD					
1994	14	31.62	20.90	1,072	-2.53	3,415	2.75	1.69	0.93	2.75	1.69	0.93
1995	13	27.62	15.20	1,242	1.50	2,612	2.14	1.40	1.05	2.14	1.40	1.05
1996	16	20.29	11.12	917	5.71	1,459	1.86	1.35	1.26	1.86	1.35	1.26
1997	32	11.96	1.90	1,007	9.41	255	1.77	1.09	1.59	1.77	1.09	1.59
1998	28	15.01	0.89	1,411	12.11	289	2.15	1.04	1.75	2.14	1.04	1.74
1999	27	17.34	3.03	1,431	15.40	194	1.96	1.12	1.83	1.96	1.12	1.83
2000	32	29.50	6.10	2,340	22.70	680	2.60	1.20	1.93	2.58	1.19	1.92
2001	20	29.05	8.11	2,094	26.25	280	2.09	1.25	1.88	2.09	1.25	1.88
2002	23	22.48	6.92	1,556	18.14	434	2.09	1.31	1.72	2.08	1.30	1.72
2003	19	19.83	6.85	1,298	14.99	484	1.67	1.30	1.53	1.66	1.29	1.52
2004	31	12.66	6.22	644	8.54	413	1.74	1.37	1.43	1.65	1.28	1.37
2005	55	4.99	6.68	-169	4.10	89	1.30	1.46	1.23	1.25	1.38	1.19
2006	55	5.35	9.17	-382	2.85	250	1.34	1.67	1.16	1.20	1.45	1.04
2007	60	9.68	11.99	-230	2.54	714	1.60	1.76	1.12	1.41	1.56	1.02
2008	30	11.68	14.01	-233	3.48	820	1.63	1.81	1.16	1.36	1.47	0.97
2009	15	8.21	13.42	-521	3.39	482	1.43	1.78	1.16	0.92	1.14	0.77
2010	17	10.09	13.36	-327	3.66	643	1.46	1.64	1.15	0.82	0.90	0.65
2011	27	14.04	12.65	139	4.62	941	1.61	1.54	1.17	0.83	0.78	0.62
2012	31	15.35	12.20	315	4.79	1,056	1.66	1.49	1.17	0.71	0.65	0.53
2013	23	17.25	12.22	504	6.68	1,057	1.48	1.32	1.16	0.38	0.35	0.32
2014	26	17.70	12.89	480	7.63	1,006	1.39	1.27	1.15	0.19	0.18	0.17
2015	23	11.95	12.89	-94	6.66	529	1.20	1.22	1.11	0.12	0.11	0.11
2016	24	15.75	12.47	328	3.80	1,195	1.19	1.15	1.04	0.02	0.02	0.02
2017	15	1.28	15.62	-1,434	5.27	-399	1.01	1.09	1.03	0.00	0.00	0.00

Notes: Based on data compiled from 656 Ex US buyout 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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AS OF JUNE 30, 2019

EX US BUYOUT

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 ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX
			IRR	MPME IRR		TVPI	MPME TVPI	
1994	14	31.62	12.17	1,945	2.75	1.38	2.75	1.38
1995	13	27.62	9.54	1,808	2.14	1.27	2.14	1.26
1996	16	20.29	8.17	1,213	1.86	1.28	1.86	1.28
1997	32	11.96	2.58	938	1.77	1.13	1.77	1.13
1998	28	15.01	2.61	1,240	2.15	1.12	2.14	1.12
1999	27	17.34	5.32	1,202	1.96	1.23	1.96	1.23
2000	32	29.50	9.74	1,976	2.60	1.33	2.58	1.32
2001	20	29.05	11.97	1,708	2.09	1.36	2.09	1.36
2002	23	22.48	8.36	1,412	2.09	1.35	2.08	1.34
2003	19	19.83	7.34	1,249	1.67	1.29	1.66	1.28
2004	31	12.66	5.23	743	1.74	1.28	1.65	1.21
2005	55	4.99	4.35	64	1.30	1.27	1.25	1.21
2006	55	5.35	5.90	-55	1.34	1.39	1.20	1.22
2007	60	9.68	7.94	175	1.60	1.45	1.41	1.30
2008	30	11.68	9.63	205	1.63	1.50	1.36	1.24
2009	15	8.21	9.21	-99	1.43	1.49	0.92	0.97
2010	17	10.09	9.26	83	1.46	1.41	0.82	0.79
2011	27	14.04	8.96	508	1.61	1.36	0.83	0.70
2012	31	15.35	8.60	675	1.66	1.33	0.71	0.59
2013	23	17.25	9.15	811	1.48	1.23	0.38	0.33
2014	26	17.70	10.07	763	1.39	1.21	0.19	0.18
2015	23	11.95	9.87	208	1.20	1.16	0.12	0.11
2016	24	15.75	8.86	689	1.19	1.10	0.02	0.02
2017	15	1.28	12.23	-1,095	1.01	1.07	0.00	0.00

Notes: Based on data compiled from 656 Ex US buyout 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 BUYOUT

AS OF JUNE 30, 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	2.75	2.23	2.01	2.62	1.56	14
1995	2.14	1.79	1.58	1.96	1.06	13
1996	1.86	1.53	1.59	1.81	0.85	16
1997	1.77	1.64	1.76	2.08	1.18	32
1998	2.15	2.39	1.78	2.42	1.48	28
1999	1.96	1.96	1.93	2.31	1.27	27
2000	2.60	2.43	2.35	2.98	1.92	32
2001	2.09	2.22	2.15	2.81	1.73	20
2002	2.09	2.02	1.97	2.25	1.52	23
2003	1.67	1.87	1.78	2.40	1.37	19
2004	1.74	1.90	1.52	2.23	1.26	31
2005	1.30	1.39	1.48	1.69	1.05	55
2006	1.34	1.37	1.38	1.70	1.09	55
2007	1.60	1.45	1.49	1.77	1.20	60
2008	1.63	1.47	1.43	1.80	1.14	30
2009	1.43	1.61	1.56	1.90	1.14	15
2010	1.46	1.35	1.41	1.65	0.85	17
2011	1.61	1.54	1.45	1.71	1.18	27
2012	1.66	1.53	1.58	1.77	1.35	31
2013	1.48	1.58	1.45	1.80	1.20	23
2014	1.39	1.39	1.32	1.54	1.25	26
2015	1.20	1.11	1.18	1.33	0.93	23
2016	1.19	1.13	1.16	1.23	1.07	24
2017	1.01	0.94	0.98	1.04	0.86	15

EX US BUYOUT

AS OF JUNE 30, 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	2.75	2.23	2.01	2.62	1.56	14
1995	2.14	1.79	1.58	1.96	1.06	13
1996	1.86	1.53	1.59	1.81	0.85	16
1997	1.77	1.64	1.76	2.08	1.18	32
1998	2.14	2.38	1.78	2.42	1.48	28
1999	1.96	1.96	1.93	2.31	1.27	27
2000	2.58	2.43	2.35	2.98	1.89	32
2001	2.09	2.22	2.15	2.81	1.73	20
2002	2.08	2.00	1.97	2.23	1.52	23
2003	1.66	1.86	1.72	2.40	1.37	19
2004	1.65	1.80	1.48	2.16	1.21	31
2005	1.25	1.33	1.36	1.63	0.92	55
2006	1.20	1.24	1.26	1.57	0.89	55
2007	1.41	1.24	1.32	1.51	0.88	60
2008	1.36	1.19	1.16	1.50	0.70	30
2009	0.92	1.09	0.95	1.44	0.55	15
2010	0.82	0.70	0.66	1.17	0.19	17
2011	0.83	0.77	0.67	1.06	0.27	27
2012	0.71	0.60	0.61	0.89	0.27	31
2013	0.38	0.60	0.33	0.90	0.19	23
2014	0.19	0.23	0.13	0.29	0.01	26
2015	0.12	0.15	0.07	0.16	0.00	23
2016	0.02	0.04	0.00	0.04	0.00	24
2017	0.00	0.00	0.00	0.00	0.00	15

EX US BUYOUT

AS OF JUNE 30, 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	14
1995	0.00	0.00	0.00	0.00	0.00	13
1996	0.00	0.00	0.00	0.00	0.00	16
1997	0.00	0.00	0.00	0.00	0.00	32
1998	0.01	0.01	0.00	0.00	0.00	28
1999	0.00	0.00	0.00	0.00	0.00	27
2000	0.01	0.01	0.00	0.00	0.00	32
2001	0.00	0.00	0.00	0.00	0.00	20
2002	0.01	0.02	0.00	0.01	0.00	23
2003	0.01	0.01	0.00	0.00	0.00	19
2004	0.09	0.10	0.01	0.06	0.00	31
2005	0.05	0.06	0.02	0.09	0.00	55
2006	0.14	0.14	0.08	0.17	0.01	55
2007	0.18	0.21	0.12	0.28	0.02	60
2008	0.27	0.28	0.18	0.48	0.01	30
2009	0.51	0.52	0.32	0.76	0.25	15
2010	0.64	0.65	0.70	0.75	0.54	17
2011	0.78	0.78	0.79	1.01	0.53	27
2012	0.95	0.94	0.90	1.12	0.86	31
2013	1.10	0.98	1.02	1.08	0.88	23
2014	1.20	1.15	1.15	1.27	1.05	26
2015	1.09	0.96	1.01	1.16	0.84	23
2016	1.17	1.09	1.10	1.23	1.04	24
2017	1.01	0.94	0.98	1.04	0.86	15

GROWTH EQUITY: FUND INDEX ANALYSIS



CAMBRIDGE
ASSOCIATES

GROWTH EQUITY

AS OF JUNE 30, 2019

FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	YTD	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
GROWTH EQUITY INDEX¹	4.70	11.18	15.37	17.71	13.26	14.77	13.59	13.53	15.01
Bloomberg Barclays Capital Government/Credit Bond Index	3.53	6.90	8.52	2.41	3.11	4.09	4.33	5.02	5.56
Dow Jones Industrial Average Index	3.21	15.40	12.20	16.80	12.29	15.03	9.16	7.04	10.84
Dow Jones US Small Cap Index	2.57	19.70	2.60	11.75	6.88	14.20	9.00	9.15	10.57
Dow Jones US TopCap Index	4.34	18.63	10.43	14.34	10.62	14.78	9.01	6.13	10.00
MSCI Emerging Markets Index (gross)	0.74	10.76	1.61	11.06	2.87	6.17	9.06	7.59	5.85
MSCI Europe Index (US\$) (net)	4.48	15.80	1.88	9.11	1.27	6.99	5.40	4.11	6.96
MSCI Europe Index (€) (net)	3.01	16.24	4.45	8.21	5.07	9.24	5.87	3.59	7.27
MSCI Pacific Index (net)	2.43	11.17	-0.17	9.38	4.29	6.90	5.29	3.80	2.25
MSCI World Ex US Index (net)	3.79	14.64	1.29	9.01	2.04	6.75	5.44	4.16	5.01
MSCI World Index (net)	4.00	16.98	6.33	11.77	6.60	10.72	7.03	4.78	7.07
Nasdaq Composite Index*	3.58	20.66	6.60	18.24	12.68	15.87	9.52	5.61	10.20
Russell 1000® Index	4.25	18.84	10.02	14.15	10.45	14.77	8.94	6.19	10.09
Russell 2000® Index	2.10	16.98	-3.31	12.30	7.06	13.45	8.15	7.77	9.26
S&P 500 Index	4.30	18.54	10.42	14.19	10.71	14.70	8.75	5.90	9.97

The index is a horizon calculation based on data compiled from 617 growth equity funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ 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.

GROWTH EQUITY

AS OF JUNE 30, 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
GROWTH EQUITY INDEX¹	15.37	17.71	13.26	14.77	13.59	13.53	15.01
MPME ANALYSIS²							
MSCI EAFE Index (net)	1.34	8.84	2.71	6.47	4.83	4.54	4.69
Value-Add (bps)	1,402	886	1,055	830	875	899	1,032
MSCI Europe Index (net)	2.22	8.89	1.87	6.48	4.78	4.48	4.95
Value-Add (bps)	1,315	882	1,139	829	880	904	1,006
S&P 500 Index	10.42	14.19	10.77	14.45	10.02	8.63	9.59
Value-Add (bps)	495	351	249	32	356	489	541
Russell 2000® Index	-3.21	12.22	7.13	13.06	8.97	8.80	9.06
Value-Add (bps)	1,858	549	614	171	461	472	595
Russell 3000® Index	8.99	14.02	10.25	14.39	10.02	8.76	9.62
Value-Add (bps)	637	368	301	38	356	476	539
Constructed Index: MSCI World/MSCI All Country World Index ³ (gross)	6.43	12.15	6.99	10.39	7.74	6.90	7.32
Value-Add (bps)	893	556	627	438	585	662	769

The index is a horizon calculation based on data compiled from 617 growth equity funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ Pooled horizon return, net of fees, expenses, and carried interest.

² 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.

³ Constructed Index: MSCI World/MSCI All Country World Index: Data rom 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.

AS OF JUNE 30, 2019

GROWTH EQUITY

FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN
1994 Q1	6.02
1994 Q2	-0.63
1994 Q3	6.56
1994 Q4	5.65
1995 Q1	10.13
1995 Q2	7.02
1995 Q3	7.49
1995 Q4	7.33
1996 Q1	6.61
1996 Q2	10.10
1996 Q3	5.72
1996 Q4	4.17
1997 Q1	1.24
1997 Q2	21.00
1997 Q3	9.74
1997 Q4	-1.66
1998 Q1	12.15
1998 Q2	-3.77
1998 Q3	-5.76
1998 Q4	7.21
1999 Q1	7.72
1999 Q2	14.35
1999 Q3	6.61
1999 Q4	53.09
2000 Q1	18.53
2000 Q2	2.88

QUARTER ENDING	HORIZON RETURN
2000 Q3	8.15
2000 Q4	-7.63
2001 Q1	-9.75
2001 Q2	2.23
2001 Q3	-10.91
2001 Q4	2.31
2002 Q1	-2.38
2002 Q2	-4.15
2002 Q3	-8.69
2002 Q4	-0.98
2003 Q1	-3.68
2003 Q2	6.37
2003 Q3	6.22
2003 Q4	6.95
2004 Q1	4.43
2004 Q2	0.89
2004 Q3	0.74
2004 Q4	10.50
2005 Q1	1.64
2005 Q2	7.64
2005 Q3	8.09
2005 Q4	3.62
2006 Q1	8.16
2006 Q2	-0.16
2006 Q3	5.23
2006 Q4	10.42

QUARTER ENDING	HORIZON RETURN
2007 Q1	8.59
2007 Q2	10.37
2007 Q3	4.44
2007 Q4	7.72
2008 Q1	-5.31
2008 Q2	-0.19
2008 Q3	-6.16
2008 Q4	-14.71
2009 Q1	-3.24
2009 Q2	8.23
2009 Q3	6.59
2009 Q4	6.08
2010 Q1	4.92
2010 Q2	0.08
2010 Q3	6.20
2010 Q4	10.53
2011 Q1	3.66
2011 Q2	4.07
2011 Q3	-5.37
2011 Q4	3.71
2012 Q1	6.18
2012 Q2	-1.36
2012 Q3	2.83
2012 Q4	3.67
2013 Q1	2.77
2013 Q2	1.84

QUARTER ENDING	HORIZON RETURN
2013 Q3	6.07
2013 Q4	8.80
2014 Q1	3.30
2014 Q2	4.34
2014 Q3	1.67
2014 Q4	1.39
2015 Q1	3.04
2015 Q2	5.44
2015 Q3	-2.70
2015 Q4	3.30
2016 Q1	-0.13
2016 Q2	1.78
2016 Q3	3.97
2016 Q4	2.28
2017 Q1	4.12
2017 Q2	3.99
2017 Q3	4.82
2017 Q4	5.94
2018 Q1	4.08
2018 Q2	6.28
2018 Q3	3.41
2018 Q4	0.35
2019 Q1	6.18
2019 Q2	4.70

AS OF JUNE 30, 2019

GROWTH EQUITY

FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	15.37	14 Years	13.20
2 Years	19.04	15 Years	13.59
3 Years	17.71	16 Years	13.83
4 Years	13.59	17 Years	12.90
5 Years	13.26	18 Years	11.68
6 Years	15.05	19 Years	10.92
7 Years	14.53	20 Years	13.53
8 Years	12.95	21 Years	13.95
9 Years	14.39	22 Years	14.01
10 Years	14.77	23 Years	14.46
11 Years	11.95	24 Years	14.79
12 Years	11.51	25 Years	15.01
13 Years	12.84		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
6/30/2019	15.37	6/30/2006	21.11
6/30/2018	22.84	6/30/2005	21.73
6/30/2017	15.13	6/30/2004	19.60
6/30/2016	2.18	6/30/2003	-7.16
6/30/2015	11.97	6/30/2002	-14.38
6/30/2014	24.38	6/30/2001	-7.36
6/30/2013	11.62	6/30/2000	101.89
6/30/2012	2.95	6/30/1999	26.88
6/30/2011	26.59	6/30/1998	16.11
6/30/2010	18.51	6/30/1997	35.93
6/30/2009	-15.59	6/30/1996	35.66
6/30/2008	5.54	6/30/1995	32.93
6/30/2007	39.55		

GROWTH EQUITY: FUND SINCE INCEPTION ANALYSIS



CAMBRIDGE
ASSOCIATES

GROWTH EQUITY

AS OF JUNE 30, 2019

SINCE INCEPTION IRR & 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	35.13	10.09	0.22	10.75	9.89	-1.29	18.72	3.62	0.00	3.62	11
1995	49.48	17.21	2.78	23.35	30.55	-3.54	33.24	3.44	0.00	3.44	11
1996	10.04	7.23	6.73	9.66	14.76	-3.55	11.92	1.59	0.00	1.60	13
1997	13.32	19.03	14.44	16.51	26.88	9.24	21.82	1.82	0.00	1.83	12
1998	10.14	8.61	9.74	9.49	15.18	2.01	9.48	1.58	0.00	1.58	13
1999	3.11	6.96	0.73	7.68	17.17	-3.81	15.53	1.21	0.01	1.22	12
2000	9.09	7.17	7.51	7.43	14.70	2.40	10.44	1.57	0.03	1.61	29
2001	14.48	5.21	10.58	6.93	—	—	—	2.24	0.01	2.25	7
2002	15.70	24.11	15.92	19.44	—	—	—	1.96	0.01	1.98	7
2003	16.55	23.08	14.49	24.09	—	—	—	1.90	0.04	1.94	7
2004	8.34	26.57	7.80	13.25	23.94	0.91	56.24	1.37	0.13	1.50	20
2005	12.02	10.34	9.85	12.51	17.55	1.29	15.02	1.75	0.13	1.88	37
2006	7.94	7.49	5.94	11.16	12.14	1.10	10.83	1.40	0.14	1.54	30
2007	10.02	5.20	5.77	7.55	11.19	-2.55	12.20	1.27	0.48	1.75	50
2008	10.92	8.52	6.87	9.12	12.15	3.52	8.69	1.13	0.61	1.74	35
2009	14.98	11.47	10.26	12.38	15.64	7.99	7.00	0.99	1.01	2.01	18
2010	14.98	15.47	14.35	14.69	19.30	5.90	16.68	0.92	0.96	1.88	29
2011	15.18	12.88	13.46	13.41	16.58	7.31	8.27	0.71	1.08	1.79	35
2012	13.47	11.29	11.29	12.35	17.23	8.09	9.06	0.47	1.10	1.57	30
2013	15.65	14.52	13.37	15.73	19.28	8.00	11.14	0.40	1.22	1.61	36
2014	24.64	19.28	14.96	21.42	24.44	11.91	13.75	0.38	1.36	1.75	39
2015	18.46	15.43	14.05	17.64	25.41	7.80	16.15	0.10	1.25	1.35	37
2016	24.43	17.17	14.49	22.67	24.45	6.89	19.26	0.08	1.26	1.34	33
2017	8.40	3.85	-0.20	13.12	12.67	-17.16	29.34	0.04	1.02	1.06	19

GROWTH EQUITY

AS OF JUNE 30, 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 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	VALUE-ADD						
1994	11	35.13	8.43	2,670		15.01	2,012	3.62	1.38	1.73	3.62	1.38	1.73
1995	11	49.48	7.72	4,176		14.46	3,502	3.44	1.21	1.41	3.44	1.21	1.41
1996	13	10.04	3.93	611		5.09	495	1.60	1.19	1.25	1.59	1.19	1.24
1997	12	13.32	3.37	996		3.60	972	1.83	1.17	1.18	1.82	1.16	1.18
1998	13	10.14	2.33	781		2.56	758	1.58	1.11	1.12	1.58	1.11	1.12
1999	12	3.11	3.98	-86		4.61	-150	1.22	1.24	1.29	1.21	1.23	1.28
2000	29	9.09	7.47	162		7.84	125	1.61	1.42	1.44	1.57	1.39	1.41
2001	7	14.48	8.25	623		8.64	584	2.25	1.53	1.56	2.24	1.52	1.55
2002	7	15.70	12.37	333		12.72	298	1.98	1.62	1.64	1.96	1.61	1.63
2003	7	16.55	3.99	1,256		4.20	1,234	1.94	1.17	1.18	1.90	1.15	1.16
2004	20	8.34	2.77	557		2.84	550	1.50	1.15	1.15	1.37	1.06	1.06
2005	37	12.02	1.40	1,062		1.36	1,066	1.88	1.08	1.08	1.75	1.00	1.00
2006	30	7.94	2.43	551		2.23	571	1.54	1.15	1.14	1.40	1.01	1.00
2007	50	10.02	4.70	531		4.63	538	1.75	1.29	1.28	1.27	1.02	1.02
2008	35	10.92	5.79	513		5.69	523	1.74	1.34	1.33	1.13	0.91	0.91
2009	18	14.98	5.71	927		5.58	940	2.01	1.30	1.29	0.99	0.72	0.72
2010	29	14.98	5.71	926		5.48	949	1.88	1.27	1.25	0.92	0.68	0.67
2011	35	15.18	5.11	1,007		4.64	1,054	1.79	1.22	1.20	0.71	0.53	0.52
2012	30	13.47	4.17	929		3.58	988	1.57	1.15	1.13	0.47	0.38	0.37
2013	36	15.65	4.65	1,101		4.10	1,155	1.61	1.15	1.14	0.40	0.30	0.30
2014	39	24.64	5.48	1,916		5.13	1,951	1.75	1.13	1.13	0.38	0.28	0.28
2015	37	18.46	5.58	1,287		5.64	1,282	1.35	1.10	1.10	0.10	0.09	0.09
2016	33	24.43	4.30	2,013		4.66	1,978	1.34	1.06	1.06	0.08	0.07	0.07
2017	19	8.40	4.33	407		5.63	277	1.06	1.03	1.04	0.04	0.04	0.04

Notes: Based on data compiled from 570 growth equity 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 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.

AS OF JUNE 30, 2019

GROWTH EQUITY

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	S&P 500 INDEX			RUSSELL 2000® INDEX		CA BENCHMARK INDEX	S&P 500 INDEX	RUSSELL 2000® INDEX	CA BENCHMARK INDEX	S&P 500 INDEX	RUSSELL 2000® INDEX
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD						
1994	11	35.13	19.16	1,597		11.39	2,374	3.62	1.94	1.56	3.62	1.94	1.56
1995	11	49.48	19.21	3,026		10.01	3,946	3.44	1.55	1.29	3.44	1.55	1.29
1996	13	10.04	4.60	544		7.07	297	1.60	1.21	1.37	1.59	1.20	1.36
1997	12	13.32	1.74	1,159		7.44	588	1.83	1.08	1.39	1.82	1.07	1.38
1998	13	10.14	0.32	982		6.65	349	1.58	1.01	1.32	1.58	1.01	1.32
1999	12	3.11	1.21	190		6.92	-381	1.22	1.07	1.45	1.21	1.06	1.43
2000	29	9.09	5.07	402		8.01	108	1.61	1.31	1.50	1.57	1.26	1.45
2001	7	14.48	6.50	798		8.29	619	2.25	1.48	1.62	2.24	1.46	1.60
2002	7	15.70	6.98	872		10.34	536	1.98	1.36	1.55	1.96	1.35	1.54
2003	7	16.55	5.99	1,056		6.98	957	1.94	1.31	1.36	1.90	1.26	1.32
2004	20	8.34	6.15	219		6.26	207	1.50	1.42	1.42	1.37	1.24	1.26
2005	37	12.02	5.94	608		6.16	586	1.88	1.40	1.41	1.75	1.26	1.29
2006	30	7.94	8.86	-92		8.58	-64	1.54	1.70	1.65	1.40	1.43	1.42
2007	50	10.02	11.85	-184		11.37	-136	1.75	1.92	1.84	1.27	1.44	1.42
2008	35	10.92	13.59	-267		12.24	-132	1.74	1.99	1.84	1.13	1.27	1.21
2009	18	14.98	13.63	135		11.42	356	2.01	1.86	1.68	0.99	0.96	0.91
2010	29	14.98	13.46	151		11.12	386	1.88	1.75	1.58	0.92	0.88	0.83
2011	35	15.18	12.71	247		9.98	520	1.79	1.63	1.47	0.71	0.66	0.63
2012	30	13.47	11.73	174		8.37	509	1.57	1.48	1.32	0.47	0.46	0.43
2013	36	15.65	11.86	379		8.57	708	1.61	1.44	1.30	0.40	0.36	0.34
2014	39	24.64	12.48	1,216		8.80	1,584	1.75	1.33	1.22	0.38	0.32	0.31
2015	37	18.46	12.87	559		7.85	1,061	1.35	1.23	1.14	0.10	0.10	0.09
2016	33	24.43	12.36	1,207		5.23	1,920	1.34	1.16	1.07	0.08	0.07	0.07
2017	19	8.40	12.45	-405		2.73	567	1.06	1.08	1.02	0.04	0.04	0.04

Notes: Based on data compiled from 570 growth equity 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, Frank Russell Company, Standard & Poor's, and Thomson Reuters Datastream.

GROWTH EQUITY

AS OF JUNE 30, 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	RUSSELL 3000® INDEX		MSCI ALL COUNTRY WORLD INDEX (GROSS)		CA BENCHMARK INDEX	RUSSELL 3000® INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)	CA BENCHMARK INDEX	RUSSELL 3000® INDEX	MSCI ALL COUNTRY WORLD INDEX (GROSS)
			IRR	MPME IRR	VALUE-ADD	MPME IRR	VALUE-ADD	TVPI	MPME TVPI	MPME TVPI	DPI	MPME DPI
1994	11	35.13	18.11	1,702	12.68	2,245	3.62	1.89	1.60	3.62	1.89	1.60
1995	11	49.48	18.04	3,143	12.41	3,707	3.44	1.52	1.35	3.44	1.52	1.35
1996	13	10.04	5.06	498	4.33	571	1.60	1.23	1.20	1.59	1.23	1.20
1997	12	13.32	2.58	1,074	2.90	1,042	1.83	1.12	1.14	1.82	1.12	1.14
1998	13	10.14	1.18	897	1.77	837	1.58	1.05	1.08	1.58	1.05	1.08
1999	12	3.11	2.00	111	3.10	1	1.22	1.12	1.19	1.21	1.10	1.18
2000	29	9.09	5.62	347	7.01	209	1.61	1.35	1.42	1.57	1.30	1.38
2001	7	14.48	6.98	750	8.14	633	2.25	1.52	1.57	2.24	1.50	1.56
2002	7	15.70	7.73	797	10.41	529	1.98	1.40	1.53	1.96	1.39	1.52
2003	7	16.55	6.33	1,022	5.65	1,089	1.94	1.33	1.27	1.90	1.28	1.23
2004	20	8.34	6.34	199	5.07	327	1.50	1.44	1.31	1.37	1.26	1.18
2005	37	12.02	6.13	590	4.14	788	1.88	1.42	1.25	1.75	1.28	1.15
2006	30	7.94	8.96	-102	5.68	226	1.54	1.70	1.39	1.40	1.44	1.20
2007	50	10.02	11.91	-190	8.01	200	1.75	1.92	1.55	1.27	1.44	1.19
2008	35	10.92	13.51	-259	9.35	156	1.74	1.98	1.61	1.13	1.26	1.05
2009	18	14.98	13.39	158	9.31	567	2.01	1.84	1.53	0.99	0.95	0.82
2010	29	14.98	13.21	177	9.36	562	1.88	1.73	1.48	0.92	0.87	0.76
2011	35	15.18	12.36	282	8.98	620	1.79	1.61	1.42	0.71	0.66	0.59
2012	30	13.47	11.27	219	8.23	524	1.57	1.46	1.32	0.47	0.46	0.42
2013	36	15.65	11.43	422	8.68	697	1.61	1.42	1.31	0.40	0.36	0.33
2014	39	24.64	12.05	1,259	9.56	1,508	1.75	1.32	1.25	0.38	0.32	0.30
2015	37	18.46	12.40	606	9.85	861	1.35	1.22	1.18	0.10	0.10	0.09
2016	33	24.43	11.71	1,272	8.84	1,559	1.34	1.15	1.12	0.08	0.07	0.07
2017	19	8.40	11.60	-319	8.85	-45	1.06	1.08	1.06	0.04	0.04	0.04

Notes: Based on data compiled from 570 growth equity 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, Frank Russell Company, 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.

GROWTH EQUITY

AS OF JUNE 30, 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	3.62	1.83	1.02	2.02	0.94	11
1995	3.44	2.03	1.18	2.31	0.85	11
1996	1.60	1.75	1.43	2.02	0.77	13
1997	1.83	2.17	1.88	2.52	1.58	12
1998	1.58	1.48	1.50	1.78	1.14	13
1999	1.22	1.57	1.07	2.08	0.81	12
2000	1.61	1.48	1.44	1.88	1.14	29
2001	2.25	1.48	1.51	—	—	7
2002	1.98	2.46	2.32	—	—	7
2003	1.94	2.25	1.77	—	—	7
2004	1.50	1.74	1.41	1.89	1.05	20
2005	1.88	1.91	1.65	2.42	1.13	37
2006	1.54	1.90	1.37	1.84	1.07	30
2007	1.75	1.53	1.37	1.74	0.89	50
2008	1.74	1.63	1.42	1.89	1.18	35
2009	2.01	1.86	1.66	2.11	1.52	18
2010	1.88	1.87	1.80	2.23	1.31	29
2011	1.79	1.72	1.64	1.97	1.35	35
2012	1.57	1.52	1.46	1.88	1.28	30
2013	1.61	1.57	1.43	1.78	1.28	36
2014	1.75	1.66	1.43	1.80	1.28	39
2015	1.35	1.35	1.29	1.54	1.14	37
2016	1.34	1.25	1.19	1.32	1.07	33
2017	1.06	1.04	1.00	1.08	0.91	19

GROWTH EQUITY

AS OF JUNE 30, 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	3.62	1.83	1.02	2.02	0.94	11
1995	3.44	2.03	1.18	2.31	0.85	11
1996	1.59	1.74	1.43	1.98	0.77	13
1997	1.82	2.16	1.88	2.52	1.58	12
1998	1.58	1.48	1.50	1.78	1.14	13
1999	1.21	1.56	1.06	2.08	0.72	12
2000	1.57	1.43	1.44	1.87	1.14	29
2001	2.24	1.45	1.51	—	—	7
2002	1.96	2.44	2.32	—	—	7
2003	1.90	2.22	1.77	—	—	7
2004	1.37	1.53	1.26	1.67	0.86	20
2005	1.75	1.71	1.41	2.14	0.66	37
2006	1.40	1.71	1.18	1.62	0.95	30
2007	1.27	1.07	0.91	1.50	0.53	50
2008	1.13	1.00	0.85	1.35	0.50	35
2009	0.99	0.71	0.71	0.95	0.38	18
2010	0.92	1.01	0.96	1.47	0.48	29
2011	0.71	0.62	0.39	1.08	0.24	35
2012	0.47	0.43	0.40	0.65	0.10	30
2013	0.40	0.43	0.25	0.68	0.13	36
2014	0.38	0.36	0.24	0.46	0.11	39
2015	0.10	0.09	0.01	0.09	0.00	37
2016	0.08	0.10	0.01	0.11	0.00	33
2017	0.04	0.05	0.00	0.00	0.00	19

GROWTH EQUITY

AS OF JUNE 30, 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	11
1995	0.00	0.00	0.00	0.00	0.00	11
1996	0.00	0.00	0.00	0.00	0.00	13
1997	0.00	0.01	0.00	0.00	0.00	12
1998	0.00	0.00	0.00	0.00	0.00	13
1999	0.01	0.02	0.00	0.01	0.00	12
2000	0.03	0.05	0.00	0.02	0.00	29
2001	0.01	0.03	0.01	—	—	7
2002	0.01	0.03	0.00	—	—	7
2003	0.04	0.03	0.00	—	—	7
2004	0.13	0.21	0.02	0.13	0.00	20
2005	0.13	0.20	0.11	0.25	0.01	37
2006	0.14	0.19	0.13	0.25	0.02	30
2007	0.48	0.46	0.23	0.60	0.08	50
2008	0.61	0.63	0.54	0.86	0.31	35
2009	1.01	1.14	1.11	1.24	0.80	18
2010	0.96	0.86	0.83	1.15	0.51	29
2011	1.08	1.10	1.10	1.35	0.84	35
2012	1.10	1.09	1.14	1.38	0.80	30
2013	1.22	1.15	1.12	1.39	0.93	36
2014	1.36	1.30	1.24	1.45	1.00	39
2015	1.25	1.26	1.18	1.43	1.01	37
2016	1.26	1.15	1.09	1.24	1.00	33
2017	1.02	0.99	0.98	1.05	0.91	19

US GROWTH EQUITY: FUND INDEX ANALYSIS



CAMBRIDGE
ASSOCIATES

US GROWTH EQUITY

AS OF JUNE 30, 2019

FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	YTD	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
US GROWTH EQUITY INDEX¹	7.69	14.68	20.79	21.75	15.78	17.01	14.62	16.01	20.66
Bloomberg Barclays Capital Government/Credit Bond Index	3.53	6.90	8.52	2.41	3.11	4.09	4.33	5.02	5.56
Dow Jones Industrial Average Index	3.21	15.40	12.20	16.80	12.29	15.03	9.16	7.04	10.84
Dow Jones US Small Cap Index	2.57	19.70	2.60	11.75	6.88	14.20	9.00	9.15	10.57
Dow Jones US TopCap Index	4.34	18.63	10.43	14.34	10.62	14.78	9.01	6.13	10.00
Nasdaq Composite Index*	3.58	20.66	6.60	18.24	12.68	15.87	9.52	5.61	10.20
Russell 1000® Index	4.25	18.84	10.02	14.15	10.45	14.77	8.94	6.19	10.09
Russell 2000® Index	2.10	16.98	-3.31	12.30	7.06	13.45	8.15	7.77	9.26
S&P 500 Index	4.30	18.54	10.42	14.19	10.71	14.70	8.75	5.90	9.97
Wilshire 5000 Total Market Index	3.99	18.66	9.10	14.03	10.33	14.66	8.96	6.37	9.98

The index is a horizon calculation based on data compiled from 279 US growth equity funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ 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, Standard & Poor's and Thomson Reuters Datastream, and Wilshire Associates.

*Capital change only

US GROWTH EQUITY

AS OF JUNE 30, 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
US GROWTH EQUITY INDEX¹	20.79	21.75	15.78	17.01	14.62	16.01	20.66
MPME ANALYSIS²							
Russell 2000® Index	-3.12	12.29	7.19	13.64	8.83	8.74	8.99
Value-Add (bps)	2,392	946	859	337	579	727	1,167
Russell 2500™ Index	1.93	12.37	7.77	14.74	9.69	9.67	10.06
Value-Add (bps)	1,887	938	801	227	493	634	1,060
Russell 3000® Index	9.04	14.07	10.30	14.73	9.69	8.49	9.35
Value-Add (bps)	1,175	768	548	229	493	752	1,131
Russell Midcap® Index	7.98	12.23	8.73	15.43	10.32	9.92	10.52
Value-Add (bps)	1,281	952	705	158	430	609	1,014
S&P 500 Index	10.46	14.24	10.82	14.73	9.65	8.33	9.29
Value-Add (bps)	1,034	751	496	228	498	768	1,137
Constructed Index: MSCI World/MSCI All Country World Index ³ (gross)	6.51	12.22	7.08	10.68	7.64	6.84	7.27
Value-Add (bps)	1,428	953	870	634	698	917	1,339

The index is a horizon calculation based on data compiled from 279 US growth equity funds, including fully liquidated partnerships, formed between 1986 and 2019.

¹ Pooled horizon return, net of fees, expenses, and carried interest.

² 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.

³ 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.

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AS OF JUNE 30, 2019

US GROWTH EQUITY

FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN
1994 Q1	9.23
1994 Q2	-0.54
1994 Q3	7.92
1994 Q4	9.70
1995 Q1	15.18
1995 Q2	10.30
1995 Q3	10.45
1995 Q4	13.30
1996 Q1	9.30
1996 Q2	14.17
1996 Q3	7.58
1996 Q4	3.56
1997 Q1	-0.19
1997 Q2	31.44
1997 Q3	14.58
1997 Q4	0.49
1998 Q1	15.49
1998 Q2	-2.94
1998 Q3	-6.77
1998 Q4	7.59
1999 Q1	10.45
1999 Q2	16.48
1999 Q3	9.55
1999 Q4	70.40
2000 Q1	22.17
2000 Q2	5.26

QUARTER ENDING	HORIZON RETURN
2000 Q3	12.48
2000 Q4	-7.72
2001 Q1	-12.53
2001 Q2	3.35
2001 Q3	-13.01
2001 Q4	3.18
2002 Q1	-4.20
2002 Q2	-5.12
2002 Q3	-8.39
2002 Q4	-0.82
2003 Q1	-3.80
2003 Q2	6.51
2003 Q3	5.66
2003 Q4	7.36
2004 Q1	3.50
2004 Q2	1.47
2004 Q3	-0.17
2004 Q4	10.56
2005 Q1	-0.22
2005 Q2	8.31
2005 Q3	8.45
2005 Q4	2.22
2006 Q1	7.80
2006 Q2	-0.35
2006 Q3	4.49
2006 Q4	7.91

QUARTER ENDING	HORIZON RETURN
2007 Q1	7.25
2007 Q2	9.14
2007 Q3	3.86
2007 Q4	4.47
2008 Q1	-3.62
2008 Q2	0.25
2008 Q3	-3.49
2008 Q4	-12.93
2009 Q1	-3.58
2009 Q2	5.92
2009 Q3	5.22
2009 Q4	3.81
2010 Q1	4.44
2010 Q2	0.92
2010 Q3	4.52
2010 Q4	10.77
2011 Q1	4.11
2011 Q2	5.07
2011 Q3	-3.24
2011 Q4	6.18
2012 Q1	6.19
2012 Q2	-0.17
2012 Q3	3.80
2012 Q4	3.20
2013 Q1	3.70
2013 Q2	3.26

QUARTER ENDING	HORIZON RETURN
2013 Q3	8.15
2013 Q4	8.49
2014 Q1	3.25
2014 Q2	4.81
2014 Q3	1.41
2014 Q4	1.70
2015 Q1	3.03
2015 Q2	4.95
2015 Q3	-1.03
2015 Q4	1.74
2016 Q1	0.47
2016 Q2	2.70
2016 Q3	5.01
2016 Q4	2.88
2017 Q1	4.34
2017 Q2	4.34
2017 Q3	5.32
2017 Q4	6.27
2018 Q1	5.51
2018 Q2	7.70
2018 Q3	4.94
2018 Q4	0.41
2019 Q1	6.49
2019 Q2	7.69

AS OF JUNE 30, 2019

US GROWTH EQUITY

FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	20.79	14 Years	14.36
2 Years	23.96	15 Years	14.62
3 Years	21.75	16 Years	14.83
4 Years	16.93	17 Years	13.75
5 Years	15.78	18 Years	12.14
6 Years	17.72	19 Years	11.39
7 Years	17.20	20 Years	16.01
8 Years	15.92	21 Years	16.80
9 Years	17.26	22 Years	17.34
10 Years	17.01	23 Years	18.50
11 Years	13.70	24 Years	19.74
12 Years	12.96	25 Years	20.66
13 Years	14.08		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
6/30/2019	20.79	6/30/2006	19.23
6/30/2018	27.12	6/30/2005	19.28
6/30/2017	17.62	6/30/2006	19.23
6/30/2016	3.90	6/30/2005	19.28
6/30/2015	11.43	3/31/2002	-11.10
6/30/2014	27.19	3/31/2001	-2.73
6/30/2013	14.73	3/31/2000	163.05
6/30/2012	9.05	3/31/1999	8.73
6/30/2011	26.65	3/31/1998	74.29
6/30/2010	15.06	3/31/1997	26.73
6/30/2009	-13.78	3/31/1996	50.56
6/30/2008	4.33	3/31/1995	36.41
6/30/2007	32.17		

EX US GROWTH EQUITY: FUND INDEX ANALYSIS



CAMBRIDGE
ASSOCIATES

EX US GROWTH EQUITY

AS OF JUNE 30, 2019

FUND INDEX SUMMARY: HORIZON POOLED RETURN

Net to Limited Partners

INDEX	1-QUARTER	YTD	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
EX US GROWTH EQUITY INDEX¹	0.74	6.56	8.40	12.49	9.94	11.42	11.64	10.04	9.73
Bloomberg Barclays Capital Government/Credit Bond Index	3.53	6.90	8.52	2.41	3.11	4.09	4.33	5.02	5.56
Dow Jones Industrial Average Index	3.21	15.40	12.20	16.80	12.29	15.03	9.16	7.04	10.84
Dow Jones US Small Cap Index	2.57	19.70	2.60	11.75	6.88	14.20	9.00	9.15	10.57
Dow Jones US TopCap Index	4.34	18.63	10.43	14.34	10.62	14.78	9.01	6.13	10.00
MSCI Emerging Markets Index (gross)	0.74	10.76	1.61	11.06	2.87	6.17	9.06	7.59	5.85
MSCI Europe Index (US\$) (net)	4.48	15.80	1.88	9.11	1.27	6.99	5.40	4.11	6.96
MSCI Europe Index (€) (net)	3.01	16.24	4.45	8.21	5.07	9.24	5.87	3.59	7.27
MSCI Pacific Index (net)	2.43	11.17	-0.17	9.38	4.29	6.90	5.29	3.80	2.25
MSCI World Ex US Index (net)	3.79	14.64	1.29	9.01	2.04	6.75	5.44	4.16	5.01
MSCI World Index (net)	4.00	16.98	6.33	11.77	6.60	10.72	7.03	4.78	7.07
Nasdaq Composite Index*	3.58	20.66	6.60	18.24	12.68	15.87	9.52	5.61	10.20
Russell 1000® Index	4.25	18.84	10.02	14.15	10.45	14.77	8.94	6.19	10.09
Russell 2000® Index	2.10	16.98	-3.31	12.30	7.06	13.45	8.15	7.77	9.26
S&P 500 Index	4.30	18.54	10.42	14.19	10.71	14.70	8.75	5.90	9.97

The index is a horizon calculation based on data compiled from 338 Ex US growth equity funds, including fully liquidated partnerships, formed between 1989 and 2018.

¹ 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.

EX US GROWTH EQUITY

AS OF JUNE 30, 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
EX US GROWTH EQUITY INDEX¹	8.40	12.49	9.94	11.42	11.64	10.04	9.73

MPME ANALYSIS ²							
MSCI EAFE Index (net)	1.23	8.74	2.57	6.11	4.76	4.29	4.44
Value-Add (bps)	717	375	737	530	688	574	529
MSCI Europe Index (net)	2.07	8.78	1.70	6.06	4.67	4.20	4.66
Value-Add (bps)	633	371	823	536	697	584	507
S&P 500 Index	10.40	14.15	10.72	14.09	10.54	8.77	9.75
Value-Add (bps)	-200	-166	-78	-267	110	127	-2
Constructed Index: Global Financial Data Emerging Markets/MSCI Emerging Markets (gross) ³	1.73	10.55	3.37	5.39	6.27	5.99	5.88
Value-Add (bps)	667	194	657	603	537	405	385
Constructed Index: MSCI World/MSCI All Country World Index ⁴ (gross)	6.37	12.07	6.90	10.02	7.90	6.82	7.24
Value-Add (bps)	203	42	304	139	374	322	250

The index is a horizon calculation based on data compiled from 338 Ex US growth equity funds, including fully liquidated partnerships, formed between 1989 and 2018.

¹ Pooled horizon return, net of fees, expenses, and carried interest.

² 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.

³ 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.

⁴ 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.

AS OF JUNE 30, 2019

EX US GROWTH EQUITY

FUND INDEX DETAILS: ONE QUARTER HORIZON POOLED RETURN

Net to Limited Partners

QUARTER ENDING	HORIZON RETURN
1994 Q1	-0.74
1994 Q2	-0.84
1994 Q3	3.95
1994 Q4	-2.00
1995 Q1	0.07
1995 Q2	0.48
1995 Q3	1.53
1995 Q4	-4.38
1996 Q1	0.92
1996 Q2	1.13
1996 Q3	1.39
1996 Q4	5.62
1997 Q1	4.46
1997 Q2	-0.42
1997 Q3	-2.78
1997 Q4	-7.75
1998 Q1	2.50
1998 Q2	-6.37
1998 Q3	-2.76
1998 Q4	6.18
1999 Q1	0.78
1999 Q2	8.71
1999 Q3	-1.07
1999 Q4	11.47
2000 Q1	8.17
2000 Q2	-3.72

QUARTER ENDING	HORIZON RETURN
2000 Q3	-3.37
2000 Q4	-7.39
2001 Q1	-2.21
2001 Q2	-0.52
2001 Q3	-5.47
2001 Q4	0.18
2002 Q1	2.18
2002 Q2	-1.86
2002 Q3	-9.39
2002 Q4	-1.35
2003 Q1	-3.42
2003 Q2	6.03
2003 Q3	7.57
2003 Q4	5.97
2004 Q1	6.68
2004 Q2	-0.51
2004 Q3	3.07
2004 Q4	10.36
2005 Q1	6.43
2005 Q2	5.90
2005 Q3	7.14
2005 Q4	7.40
2006 Q1	9.11
2006 Q2	0.36
2006 Q3	7.21
2006 Q4	16.92

QUARTER ENDING	HORIZON RETURN
2007 Q1	11.66
2007 Q2	13.03
2007 Q3	5.62
2007 Q4	14.10
2008 Q1	-8.32
2008 Q2	-1.02
2008 Q3	-11.17
2008 Q4	-18.20
2009 Q1	-2.52
2009 Q2	13.01
2009 Q3	9.27
2009 Q4	10.28
2010 Q1	5.72
2010 Q2	-1.29
2010 Q3	9.02
2010 Q4	10.16
2011 Q1	2.94
2011 Q2	2.52
2011 Q3	-8.77
2011 Q4	-0.44
2012 Q1	6.15
2012 Q2	-3.37
2012 Q3	1.22
2012 Q4	4.43
2013 Q1	1.39
2013 Q2	-0.25

QUARTER ENDING	HORIZON RETURN
2013 Q3	3.12
2013 Q4	9.24
2014 Q1	3.36
2014 Q2	3.74
2014 Q3	2.02
2014 Q4	1.01
2015 Q1	3.06
2015 Q2	6.05
2015 Q3	-4.73
2015 Q4	5.23
2016 Q1	-0.84
2016 Q2	0.66
2016 Q3	2.68
2016 Q4	1.50
2017 Q1	3.82
2017 Q2	3.53
2017 Q3	4.17
2017 Q4	5.51
2018 Q1	2.26
2018 Q2	4.45
2018 Q3	1.43
2018 Q4	0.28
2019 Q1	5.77
2019 Q2	0.74

AS OF JUNE 30, 2019

EX US GROWTH EQUITY

FUND INDEX DETAILS: HORIZON POOLED RETURN

Net to Limited Partners

MULTI-YEAR RETURNS			
YEARS	HORIZON RETURN (%)	YEARS	HORIZON RETURN (%)
1 Year	8.40	14 Years	11.13
2 Years	12.71	15 Years	11.64
3 Years	12.49	16 Years	11.92
4 Years	9.29	17 Years	11.24
5 Years	9.94	18 Years	10.71
6 Years	11.56	19 Years	9.94
7 Years	10.96	20 Years	10.04
8 Years	9.02	21 Years	10.11
9 Years	10.43	22 Years	9.83
10 Years	11.42	23 Years	9.84
11 Years	9.24	24 Years	9.77
12 Years	9.17	25 Years	9.73
13 Years	10.69		

ONE YEAR ROLLING RETURNS			
ONE YEAR ENDED	HORIZON RETURN (%)	ONE YEAR ENDED	HORIZON RETURN (%)
6/30/2019	8.40	6/30/2006	26.25
6/30/2018	17.39	6/30/2005	28.24
6/30/2017	12.04	6/30/2004	20.95
6/30/2016	0.12	6/30/2003	-8.26
6/30/2015	12.65	6/30/2002	-4.81
6/30/2014	20.72	6/30/2001	-12.82
6/30/2013	6.89	6/30/2000	14.35
6/30/2012	-6.54	6/30/1999	14.95
6/30/2011	26.50	6/30/1998	-13.90
6/30/2010	25.03	6/30/1997	11.08
6/30/2009	-18.90	6/30/1996	-0.55
6/30/2008	7.92	6/30/1995	2.07
6/30/2007	58.65		

DESCRIPTION OF PERFORMANCE MEASUREMENT METHODOLOGY

Cambridge Associates LLC (CA) has established a database to monitor investments made by venture capital and other alternative asset partnerships. On June 30, 2019, 2,193 private equity funds (buyout & growth equity only) from the years 1986 through 2019 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

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 5th 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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