

PASERS Private Equity Vintage Year PME Comparison^{1,2}

Vintage Year	No. of Funds	Commitment	Contributions	Distributions	Market Value	TVM	Net IRR	Direct Alpha	
								PME ^{3,4}	KS PME ^{3,4}
1980	1	\$2.0	\$2.0	\$0.6	\$0.0	0.3x	(10.3%)	(22.5%)	0.1x
1985	6	\$38.0	\$38.0	\$74.1	-	2.0x	9.2%	(5.1%)	0.7x
1987	2	28.0	21.0	78.5	-	3.7x	19.0%	5.0%	1.4x
1988	3	27.7	27.7	49.4	-	1.8x	10.2%	(4.7%)	0.7x
1989	3	25.5	24.6	46.4	-	1.9x	11.8%	(3.5%)	0.8x
1990	5	23.3	23.3	54.8	-	2.4x	20.3%	2.1%	1.1x
1991	1	21.1	23.2	39.8	-	1.7x	15.3%	(5.2%)	0.8x
1992	2	22.5	22.5	66.4	0.9	3.0x	23.4%	4.2%	1.2x
1993	9	255.0	275.8	821.3	-	3.0x	36.4%	12.2%	1.9x
1994	6	129.9	127.9	229.1	-	1.8x	16.1%	(1.4%)	0.9x
1995	7	206.6	192.9	487.2	-	2.5x	32.7%	13.2%	1.8x
1996	10	280.2	286.7	465.2	0.2	1.6x	14.1%	7.7%	1.4x
1997	22	800.6	799.0	1,300.2	0.2	1.6x	12.2%	8.2%	1.4x
1998	12	572.5	545.5	604.4	4.1	1.1x	2.3%	0.1%	1.0x
1999	30	1,243.0	1,209.4	1,695.0	11.9	1.4x	6.7%	4.1%	1.2x
2000	45	1,649.6	1,662.0	2,521.3	73.0	1.6x	9.8%	5.4%	1.3x
2001	23	783.9	766.9	1,258.6	67.0	1.7x	13.4%	6.5%	1.3x
2002	13	467.0	471.8	829.8	31.2	1.8x	17.1%	9.2%	1.4x
2003	13	484.0	459.0	718.1	34.3	1.6x	12.6%	5.4%	1.2x
2004	25	761.0	752.2	1,174.1	239.8	1.9x	13.0%	7.0%	1.4x
2005	36	1,410.9	1,419.1	2,096.6	266.4	1.7x	10.3%	3.3%	1.2x
2006	40	1,972.2	1,943.8	2,805.7	346.7	1.6x	8.8%	0.6%	1.0x
2007	35	1,461.0	1,437.5	1,733.2	406.7	1.5x	8.5%	(1.9%)	0.9x
2008	27	896.2	898.6	1,120.5	330.9	1.6x	12.1%	(1.8%)	0.9x
2009	2	106.4	99.5	87.9	31.6	1.2x	4.7%	(9.1%)	0.7x
2010	8	155.0	143.0	111.4	76.7	1.3x	7.1%	(6.2%)	0.8x
2011	10	203.5	207.5	179.7	171.7	1.7x	15.1%	1.7%	1.1x
2012	7	423.0	352.3	210.7	277.1	1.4x	12.4%	(1.0%)	1.0x
2013	9	381.0	346.6	213.7	309.1	1.5x	16.0%	3.8%	1.1x
2014	9	360.4	281.6	82.3	288.6	1.3x	16.7%	3.0%	1.1x
2015	19	665.0	450.1	68.3	488.6	1.2x	17.9%	2.4%	1.0x
2016	7	543.4	270.4	15.2	303.7	1.2x	16.2%	3.2%	1.0x
2017	9	720.7	66.6	4.2	62.2	1.0x	NM	NM	NM
2018	4	296.5	19.4	0.0	21.0	1.1x	NM	NM	NM
Total PE Portfolio	460	\$17,416.6	\$15,667.4	\$21,243.6	\$3,843.7	1.6x	12.3%	3.6%	1.3x

1. As of June 30, 2018.

2. Investments less than two years are not considered relevant, therefore performance for vintage years 2017 and 2018 are not shown.

3. S&P 500 Total Return benchmark was used for PME Direct Alpha and KS PME comparisons.

4. Returns represent outperformance or underperformance of PASERS performance compared to the S&P 500 Total Return.

The S&P 500 Total Return index comparison provided herein is solely for informational purposes only and should not be relied upon for any purpose. These funds differ from the S&P 500 in that they are actively managed entities that bear fees and use leverage, among other factors. An investor cannot directly invest in an index.

Past performance is not necessarily indicative of future results and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.

PASERS Private Equity Strategy & Vintage Year PME Comparision^{1,2}

Strategy & Vintage Year	No. of Funds	Commitment	Contributions	Distributions	Market Value	TVM	Net IRR	Direct Alpha PME ^{3,4}	KS PME ^{3,4}
Buyout									
1985	1	\$5.0	\$5.0	\$12.1	\$0.0	2.4x	12.8%	(2.1%)	0.9x
1988	1	12.5	12.5	22.0	-	1.7x	11.7%	(6.1%)	0.7x
1989	1	10.0	9.7	29.5	-	3.1x	30.0%	13.3%	1.7x
1990	1	5.0	5.1	11.6	-	2.3x	13.8%	(2.0%)	0.9x
1991	1	21.1	23.2	39.8	-	1.7x	15.3%	(5.2%)	0.8x
1993	5	160.0	180.6	497.9	-	2.8x	37.3%	13.6%	2.0x
1994	1	20.0	20.0	69.9	-	3.5x	34.4%	14.5%	2.1x
1995	4	145.0	131.4	375.6	-	2.9x	42.2%	19.8%	2.1x
1996	3	125.0	131.4	172.4	0.2	1.3x	6.2%	3.0%	1.2x
1997	14	564.9	563.7	981.2	0.1	1.7x	12.7%	9.2%	1.5x
1998	8	382.5	348.4	412.9	0.1	1.2x	3.6%	1.7%	1.1x
1999	17	937.2	905.5	1,445.2	7.1	1.6x	9.9%	7.1%	1.4x
2000	22	953.9	957.2	1,923.0	14.0	2.0x	18.9%	13.5%	1.6x
2001	5	207.0	206.5	457.4	11.7	2.3x	21.3%	13.5%	1.7x
2002	8	287.0	302.3	616.9	20.0	2.1x	22.5%	14.6%	1.6x
2003	5	299.0	302.4	497.8	22.4	1.7x	15.4%	9.0%	1.4x
2004	12	448.5	443.2	778.9	23.2	1.8x	14.3%	9.8%	1.5x
2005	22	872.9	887.8	1,372.4	135.4	1.7x	9.9%	3.1%	1.2x
2006	25	1,391.4	1,394.6	1,965.0	219.6	1.6x	7.8%	(0.3%)	1.0x
2007	18	878.2	873.2	993.5	278.0	1.5x	7.8%	(3.7%)	0.8x
2008	17	596.6	619.9	856.9	201.0	1.7x	13.5%	(0.4%)	1.0x
2009	2	106.4	99.5	87.9	31.6	1.2x	4.7%	(9.1%)	0.7x
2010	3	65.0	55.5	57.2	17.9	1.4x	9.4%	(3.8%)	0.9x
2011	8	163.5	167.1	141.8	122.2	1.6x	14.5%	2.3%	1.1x
2012	6	348.0	291.0	127.2	261.3	1.3x	10.9%	0.5%	1.0x
2013	4	131.0	111.8	82.7	99.8	1.6x	25.1%	10.9%	1.3x
2014	7	312.4	249.5	75.8	255.8	1.3x	15.7%	3.0%	1.1x
2015	11	420.0	261.5	38.8	273.1	1.2x	15.6%	1.6%	1.0x
2016	5	393.4	221.0	14.9	240.7	1.2x	15.2%	0.8%	1.0x
2017	8	620.7	55.6	4.2	51.7	1.0x	NM	NM	NM
2018	2	150.0	7.3	-	7.6	1.0x	NM	NM	NM
Total Buyout	247	\$11,033.1	\$9,843.6	\$14,162.3	\$2,294.4	1.7x	14.3%	6.6%	1.4x

PASERS Private Equity Strategy & Vintage Year PME Comparision^{1,2}

Strategy & Vintage Year	No. of Funds	Commitment	Contributions	Distributions	Market Value	TVM	Net IRR	Direct Alpha PME ^{3,4}	KS PME ^{3,4}
Special Situations									
1994	2	\$49.9	\$47.9	\$79.7	\$0.0	1.7x	15.2%	(4.2%)	0.8x
1995	2	43.6	43.4	63.2	-	1.5x	10.1%	(1.9%)	0.9x
1996	2	60.0	59.5	86.8	-	1.5x	6.4%	3.5%	1.2x
1997	1	40.0	40.0	60.4	-	1.5x	8.6%	7.1%	1.4x
1998	1	40.0	39.5	52.6	-	1.3x	8.2%	7.2%	1.3x
1999	2	70.0	69.5	123.3	0.3	1.8x	13.2%	12.8%	1.7x
2000	1	60.0	60.0	90.3	-	1.5x	12.0%	20.3%	1.8x
2001	7	287.6	274.2	510.9	2.3	1.9x	21.3%	14.3%	1.5x
2002	3	120.0	109.6	174.6	5.6	1.6x	15.4%	6.2%	1.2x
2003	2	85.0	57.7	105.4	0.9	1.8x	18.6%	8.3%	1.3x
2004	6	170.0	168.0	276.7	141.0	2.5x	17.8%	10.1%	1.6x
2005	5	260.0	239.5	372.1	6.2	1.6x	13.7%	10.8%	1.4x
2006	6	305.0	276.7	429.5	32.7	1.7x	10.7%	1.9%	1.1x
2007	8	355.0	344.3	468.7	28.3	1.4x	8.8%	1.8%	1.1x
2008	5	223.6	206.9	190.1	75.2	1.3x	5.7%	(6.8%)	0.8x
2010	3	45.0	45.2	46.8	10.1	1.3x	5.3%	(8.3%)	0.7x
2012	1	75.0	61.3	83.4	15.8	1.6x	17.3%	2.0%	1.1x
2013	4	200.0	182.6	116.0	134.3	1.4x	12.8%	0.5%	1.0x
2014	1	25.0	12.3	6.5	8.6	1.2x	23.5%	11.7%	1.1x
2015	5	170.0	125.1	25.7	128.9	1.2x	15.3%	0.9%	1.0x
2016	2	150.0	49.4	0.3	63.0	1.3x	31.8%	15.3%	1.1x
2018	2	146.5	12.1	0.0	13.4	1.1x	NM	NM	NM
Total Special Situations	71	\$2,981.3	\$2,524.9	\$3,363.0	\$666.8	1.6x	12.9%	5.5%	1.2x

PASERS Private Equity Strategy & Vintage Year PME Comparision^{1,2}

Strategy & Vintage Year	No. of Funds	Commitment	Contributions	Distributions	Market Value	TVM	Net IRR	Direct Alpha PME ^{3,4}	KS PME ^{3,4}
Venture Capital									
1980	1	\$2.0	\$2.0	\$0.6	\$0.0	0.3x	(10.3%)	(22.5%)	0.1x
1985	5	33.0	33.0	62.1	-	1.9x	8.6%	(5.6%)	0.7x
1987	2	28.0	21.0	78.5	-	3.7x	19.0%	5.0%	1.4x
1988	2	15.2	15.2	27.5	-	1.8x	9.5%	(4.0%)	0.8x
1989	2	15.5	15.0	16.9	-	1.1x	1.6%	(13.1%)	0.3x
1990	4	18.3	18.2	43.2	-	2.4x	22.4%	3.7%	1.2x
1992	2	22.5	22.5	66.4	0.9	3.0x	23.4%	4.2%	1.2x
1993	4	95.0	95.1	323.3	-	3.4x	35.4%	10.4%	1.7x
1994	3	60.0	60.0	79.5	-	1.3x	8.5%	(8.2%)	0.7x
1995	1	18.0	18.0	48.3	-	2.7x	22.4%	6.3%	1.4x
1996	5	95.2	95.8	206.0	-	2.1x	40.0%	21.6%	1.7x
1997	7	195.7	195.3	258.6	0.1	1.3x	11.4%	3.8%	1.1x
1998	3	150.0	157.6	138.9	4.0	0.9x	(1.6%)	(4.9%)	0.7x
1999	11	235.8	234.4	126.6	4.6	0.6x	(7.1%)	(10.1%)	0.5x
2000	22	635.7	644.7	508.0	59.0	0.9x	(1.7%)	(6.8%)	0.6x
2001	11	289.2	286.2	290.3	53.0	1.2x	2.6%	(4.2%)	0.7x
2002	2	60.0	59.8	38.3	5.5	0.7x	(4.5%)	(11.3%)	0.5x
2003	6	100.0	98.8	114.8	11.0	1.3x	3.8%	(3.9%)	0.8x
2004	7	142.5	141.0	118.5	75.6	1.4x	4.2%	(3.9%)	0.8x
2005	9	278.0	291.8	352.1	124.8	1.6x	8.6%	(1.3%)	0.9x
2006	9	275.8	272.4	411.2	94.3	1.9x	13.1%	3.8%	1.2x
2007	9	227.8	220.0	271.0	100.3	1.7x	10.6%	(0.6%)	1.0x
2008	5	76.0	71.9	73.4	54.7	1.8x	14.7%	0.1%	1.0x
2010	2	45.0	42.4	7.5	48.7	1.3x	6.1%	(6.3%)	0.7x
2011	2	40.0	40.4	37.9	49.5	2.2x	19.3%	4.8%	1.2x
2013	1	50.0	52.3	15.0	75.0	1.7x	15.6%	3.4%	1.1x
2014	1	23.0	19.7	-	24.1	1.2x	11.4%	(1.2%)	1.0x
2015	3	75.0	63.4	3.9	86.6	1.4x	20.5%	6.4%	1.1x
2017	1	100.0	11.0	-	10.5	1.0x	NM	NM	NM
Total Venture Capital	142	\$3,402.2	\$3,298.9	\$3,718.2	\$882.5	1.4x	7.4%	(2.2%)	0.9x
Total PE Portfolio	460	\$17,416.6	\$15,667.4	\$21,243.6	\$3,843.7	1.6x	12.3%	3.6%	1.3x

PASERS Core Private Equity Strategy & Vintage Year PME Comparison^{1,2}

Strategy & Vintage Year	No. of Funds	Commitment	Contributions	Distributions	Market Value	TVM	Net IRR	Direct Alpha PME ^{3,4}	KS PME ^{3,4}
Buyout									
1985	1	\$5.0	\$5.0	\$12.1	\$0.0	2.4x	12.8%	(2.1%)	0.9x
1988	1	12.5	12.5	22.0	-	1.7x	11.7%	(6.1%)	0.7x
1989	1	10.0	9.7	29.5	-	3.1x	30.0%	13.3%	1.7x
1990	1	5.0	5.1	11.6	-	2.3x	13.8%	(2.0%)	0.9x
1991	1	21.1	23.2	39.8	-	1.7x	15.3%	(5.2%)	0.8x
1993	5	160.0	180.6	497.9	-	2.8x	37.3%	13.6%	2.0x
1994	1	20.0	20.0	69.9	-	3.5x	34.4%	14.5%	2.1x
1995	4	145.0	131.4	375.6	-	2.9x	42.2%	19.8%	2.1x
1996	2	100.0	107.1	144.6	-	1.4x	7.0%	3.8%	1.2x
1997	14	564.9	563.7	981.2	0.1	1.7x	12.7%	9.2%	1.5x
1998	5	260.0	243.8	268.4	0.1	1.1x	2.0%	0.3%	1.0x
1999	11	692.2	671.1	1,101.6	3.1	1.6x	10.7%	8.0%	1.4x
2000	17	773.0	758.5	1,518.3	6.3	2.0x	18.1%	12.8%	1.6x
2001	2	115.0	108.0	254.9	8.7	2.4x	27.0%	17.3%	1.7x
2002	2	95.0	88.2	161.4	17.3	2.0x	23.2%	15.9%	1.6x
2003	4	261.0	270.2	441.6	21.1	1.7x	14.6%	8.4%	1.4x
2004	6	250.0	239.0	458.8	7.4	2.0x	16.1%	12.7%	1.6x
2005	8	240.1	233.0	477.9	19.5	2.1x	18.1%	12.9%	1.6x
2006	14	963.6	938.7	1,380.3	164.7	1.6x	8.7%	0.6%	1.0x
2007	8	409.5	391.5	465.7	156.6	1.6x	10.7%	(1.4%)	0.9x
2008	6	234.3	250.1	373.6	97.3	1.9x	18.0%	4.1%	1.2x
2010	3	65.0	55.5	57.2	17.9	1.4x	9.4%	(3.8%)	0.9x
2011	6	112.0	116.3	122.6	83.5	1.8x	17.3%	3.0%	1.1x
2012	5	298.0	242.5	105.5	224.7	1.4x	11.4%	(1.4%)	1.0x
2013	4	131.0	111.8	82.7	99.8	1.6x	25.1%	10.9%	1.3x
2014	7	312.4	249.5	75.8	255.8	1.3x	15.7%	3.0%	1.1x
2015	11	420.0	261.5	38.8	273.1	1.2x	15.6%	1.6%	1.0x
2016	5	393.4	221.0	14.9	240.7	1.2x	15.2%	0.8%	1.0x
2017	8	620.7	55.6	4.2	51.7	1.0x	NM	NM	NM
2018	2	150.0	7.3	-	7.6	1.0x	NM	NM	NM
Total Core Buyout	165	\$7,839.8	\$6,571.5	\$9,588.5	\$1,757.0	1.7x	16.3%	8.1%	1.5x

PASERS Core Private Equity Strategy & Vintage Year PME Comparison^{1,2}

Strategy & Vintage Year	No. of Funds	Commitment	Contributions	Distributions	Market Value	TVM	Net IRR	Direct Alpha PME ^{3,4}	KS PME ^{3,4}
Special Situations									
1994	1	\$35.0	\$35.4	\$60.9	\$0.0	1.7x	14.9%	(5.4%)	0.8x
1995	1	24.0	24.0	39.3	-	1.6x	10.6%	(2.4%)	0.9x
1996	2	60.0	59.5	86.8	-	1.5x	6.4%	3.5%	1.2x
1997	1	40.0	40.0	60.4	-	1.5x	8.6%	7.1%	1.4x
1998	1	40.0	39.5	52.6	-	1.3x	8.2%	7.2%	1.3x
1999	2	70.0	69.5	123.3	0.3	1.8x	13.2%	12.8%	1.7x
2000	1	60.0	60.0	90.3	-	1.5x	12.0%	20.3%	1.8x
2001	6	252.6	244.1	417.0	2.2	1.7x	19.9%	13.3%	1.4x
2002	2	70.0	56.1	87.8	-	1.6x	20.3%	8.5%	1.2x
2003	1	50.0	35.4	56.0	-	1.6x	28.5%	11.0%	1.2x
2004	4	120.0	114.0	250.2	128.1	3.3x	23.7%	15.6%	2.1x
2005	4	240.0	219.5	349.7	6.2	1.6x	14.6%	11.5%	1.4x
2006	5	230.0	207.5	319.1	18.1	1.6x	11.5%	2.9%	1.1x
2007	5	205.0	198.1	280.7	11.1	1.5x	11.9%	3.7%	1.1x
2008	2	68.6	56.7	70.5	16.6	1.5x	12.5%	0.6%	1.0x
2010	3	45.0	45.2	46.8	10.1	1.3x	5.3%	(8.3%)	0.7x
2012	1	75.0	61.3	83.4	15.8	1.6x	17.3%	2.0%	1.1x
2013	4	200.0	182.6	116.0	134.3	1.4x	12.8%	0.5%	1.0x
2014	1	25.0	12.3	6.5	8.6	1.2x	23.5%	11.7%	1.1x
2015	5	170.0	125.1	25.7	128.9	1.2x	15.3%	0.9%	1.0x
2016	2	150.0	49.4	0.3	63.0	1.3x	31.8%	15.3%	1.1x
2018	2	146.5	12.1	0.0	13.4	1.1x	NM	NM	NM
Total Core Special Situations	56	\$2,376.8	\$1,947.4	\$2,623.3	\$556.8	1.6x	14.0%	7.0%	1.3x

PASERS Core Private Equity Strategy & Vintage Year PME Comparison^{1,2}

Strategy & Vintage Year	No. of Funds	Commitment	Contributions	Distributions	Market Value	TVM	Net IRR	Direct Alpha PME ^{3,4}	KS PME ^{3,4}
Venture Capital									
1980	1	\$2.0	\$2.0	\$0.6	\$0.0	0.3x	(10.3%)	(22.5%)	0.1x
1985	5	33.0	33.0	62.1	-	1.9x	8.6%	(5.6%)	0.7x
1987	2	28.0	21.0	78.5	-	3.7x	19.0%	5.0%	1.4x
1988	2	15.2	15.2	27.5	-	1.8x	9.5%	(4.0%)	0.8x
1989	2	15.5	15.0	16.9	-	1.1x	1.6%	(13.1%)	0.3x
1990	4	18.3	18.2	43.2	-	2.4x	22.4%	3.7%	1.2x
1992	1	15.0	15.0	31.5	-	2.1x	14.2%	(1.0%)	0.9x
1993	4	95.0	95.1	323.3	-	3.4x	35.4%	10.4%	1.7x
1994	3	60.0	60.0	79.5	-	1.3x	8.5%	(8.2%)	0.7x
1995	1	18.0	18.0	48.3	-	2.7x	22.4%	6.3%	1.4x
1996	5	95.2	95.8	206.0	-	2.1x	40.0%	21.6%	1.7x
1997	5	150.7	150.3	198.6	-	1.3x	12.3%	3.9%	1.1x
1998	1	25.0	25.0	24.6	-	1.0x	(0.8%)	(0.2%)	1.0x
1999	5	131.0	129.2	39.1	2.1	0.3x	(11.7%)	(15.1%)	0.3x
2000	6	160.3	158.8	133.5	12.9	0.9x	(1.0%)	(4.8%)	0.7x
2003	1	25.0	25.0	57.2	7.1	2.6x	15.4%	8.1%	1.6x
2005	1	18.0	18.0	48.2	6.4	3.0x	14.7%	5.3%	1.5x
2006	2	70.0	70.6	226.3	14.6	3.4x	29.2%	21.9%	2.4x
2007	3	80.0	80.2	148.4	43.4	2.4x	17.0%	4.8%	1.3x
2008	2	24.0	21.4	39.4	23.0	2.9x	26.2%	10.2%	1.5x
2010	1	25.0	23.3	7.5	34.0	1.8x	12.9%	(0.6%)	1.0x
2011	2	40.0	40.4	37.9	49.5	2.2x	19.3%	4.8%	1.2x
2013	1	50.0	52.3	15.0	75.0	1.7x	15.6%	3.4%	1.1x
2014	1	23.0	19.7	-	24.1	1.2x	11.4%	(1.2%)	1.0x
2015	2	65.0	55.8	3.8	80.3	1.5x	24.3%	9.7%	1.2x
2017	1	100.0	11.0	-	10.5	1.0x	NM	NM	NM
Total Core Venture Capital	64	\$1,382.2	\$1,269.2	\$1,896.9	\$382.8	1.8x	14.2%	0.8%	1.1x
Total Core PE Portfolio	285	\$11,598.7	\$9,788.2	\$14,108.7	\$2,696.7	1.7x	15.3%	5.4%	1.4x