

Private Equity Asset Class Review Year-End 2019

Charles Spiller, CPM
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Luke Jacobs, CFA, CAIA
Patrick Knapp, CFA
Tony Meadows, CAIA, CPA.CITP
Phil VanGraafeiland

October 8, 2020

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- **Executive Summary & Team Update - Charlie**
 - Portfolio Performance Update - Luke
 - Portfolio General Update - Darren
 - PE Review & Due Diligence Summary - Patrick
 - Jobs Data Update and Fund Commitments - Phil
 - Co-Investment Program Update - Tony
 - Appendix

Executive Summary

Executive Summary

- 230 Active Partnerships across 71 GPs
- NAV of \$8,618.8M and Unfunded Commitment of \$4,874.8M

Activity Update

- The Portfolio made 5 new investments (\$656.9M) during the quarter
- During 2019, PSERS made 9 new commitments in PE (\$1B)
- Cash flow positive for the quarter as distributions of \$575.1M outpaced contributions of \$311.1M
- Cash flow positive for the last twelve months as distributions of \$1,967.7M outpaced contributions of \$1,432.7M

Performance Update

- 11.37% Since Inception Net IRR remained relatively steady from last quarter
- Portfolio Since Inception Net IRR outperformed the Burgiss All Private Markets North America benchmark by 478 bps

Exposure Update

- Investments made since 2010 account for 84.4% of the Total PE NAV.

Private Equity Staff – Benefitting from Longevity & Recent Hires

Name	Years at PSERS	Years of Professional Experience
Charles Spiller	26	45
Darren Foreman	23	26
Luke Jacobs	21	23
Tony Meadows	10	16
Patrick Knapp	2	12
Phil VanGraafeiland	1<	9

Private Equity Portfolio Quarterly Summary

Performance	1-QTR ¹	1-YR ¹	3-YR ¹	5-YR ¹	10-YR ¹	Since-Inception
Final - 4Q19	4.26%	11.55%	13.26%	10.46%	11.31%	11.37%
Burgiss Benchmark ²	3.89%	13.12%	13.50%	11.41%	12.45%	6.59%
Blended Benchmark - 65% MSCI USA Small Cap / 35% MSCI ACWI x US Small Cap Index as of 12/31/2019 ³	10.74%	25.51%	12.49%	9.19%	10.77%	9.26%
Final - 1Q20	(11.12%)	(4.20%)	7.90%	8.27%	10.45%	11.05%
Blended Benchmark - 65% MSCI USA Small Cap / 35% MSCI ACWI x US Small Cap Index as of 3/31/2020 ³	(30.15%)	(23.97%)	(2.25%)	1.19%	6.28%	8.08%
Preliminary - 2Q20 ⁴	8.11%	0.13%	8.42%	8.91%	11.08%	11.16%
Blended Benchmark - 65% MSCI USA Small Cap / 35% MSCI ACWI x US Small Cap Index as of 6/30/2020 ³	32.45%	(5.42%)	4.23%	5.74%	10.26%	8.73%

¹ Dollar-weighted (IRR)

² Burgiss Index All Private Markets North America - 12/31/2019 - Source: AON (As provided by PSERS)

³ Post-12/31/2018, the PSERS Blended Public Benchmark reflects a 65%/35% blend of the MSCI USA Small Cap and MSCI ACWI x US Small Cap Indices, respectively. Between 12/31/1998 and 12/31/2018 the PSERS Blended Public Benchmark reflected a 70%/30% blend of the Russell 3000 and MSCI ACWI x US Indices, respectively. Prior to 12/31/1998, the MSCI ACWI x US Index was unavailable, thus the MSCI World x US Net Total Return Index has been used in its place

⁴ 2Q20 metrics reflect reported valuations for 75% of investments and preliminary data for the remaining 25%. As such, 2Q20 performance may be change due to increased information received by the general partners of the underlying investments

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Private Equity Portfolio Quarterly Summary (continued)

Cash Flow Activity - Final - 4Q19 (\$M)

	New Commitments	Contributions	Distributions	Residual Value	Unfunded
Quarter	\$656.9	\$311.1	\$575.1		
YTD	\$1,637.9	\$1,432.7	\$1,967.7		
ITD	\$33,081.0	\$29,645.3	\$36,041.1	\$8,618.8	\$4,874.8

Asset Allocation (\$M)	Total Fund	Target	NAV	Outstanding Commitment	NAV + Outstanding Commitment
Final - 4Q19	\$59,279.2	14.5%	14.5%	8.2%	22.7%
Preliminary - 1Q20 ^s	\$53,933.6	14.5%	14.3%	10.0%	24.3%

Private Equity Portfolio – By Core, Legacy, PEIP

(As of December 31, 2019)

PSERS Private Equity Portfolio Performance Summary by Manager Rank as of December 31, 2019								
Manager Rank	NAV	1-QTR ¹	1-YR ¹	3-YR ¹	5-YR ¹	10-YR ¹	Since-Inception ¹	MoC
Core	\$ 4,340.4	6.65%	18.59%	19.54%	17.96%	16.14%	20.05%	1.7x
Legacy	\$ 3,440.3	1.90%	4.30%	7.89%	4.76%	8.88%	9.01%	1.4x
PE Internal Program	\$ 838.1	2.26%	10.08%	13.18%	16.85%	N/A	20.74%	1.5x
Total Portfolio	\$ 8,618.8	4.26%	11.55%	13.26%	10.46%	11.31%	11.37%	1.5x
Burgiss Benchmark ²		3.89%	13.12%	13.50%	11.41%	12.45%	6.59%	

¹ Dollar-weighted (IRR)

² Burgiss Index All Private Markets North America - 12/31/2019 - Source: AON (As provided by PSERS)

PE Net IRR Performance by Geography

(As of December 31, 2019)

PSERS Private Equity Portfolio Performance Summary by Geography as of December 31, 2019								
Fund Geography	NAV	1-QTR IRR	1-YR IRR	3-YR IRR	5-YR IRR	10-YR IRR	Since Inception IRR	MoC
Asia	\$755.0	2.46%	5.06%	12.07%	7.94%	11.67%	13.76%	1.5x
Global	\$1,660.3	2.58%	7.59%	9.67%	5.20%	8.80%	8.43%	1.4x
North America	\$4,966.5	3.93%	12.41%	12.91%	11.28%	11.69%	10.87%	1.5x
Western Europe	\$1,237.1	8.87%	17.36%	19.64%	15.85%	13.02%	17.19%	1.7x
Total Portfolio	\$ 8,618.8	4.26%	11.55%	13.26%	10.46%	11.31%	11.37%	1.5x
Burgiss All Private Markets ²		3.89%	13.12%	13.50%	11.41%	12.45%	6.59%	
Hamilton Lane All PE ¹		4.40%	15.38%	14.86%	12.31%	13.13%	12.19%	
Blended Benchmark ³		10.74%	25.51%	12.49%	9.19%	10.77%	9.26%	

¹ Source: Hamilton Lane data via Cobalt. Hamilton Lane All PE Benchmark excludes RE, Infrastructure, and Natural Resource sector returns

² Source: AON (as provided by PSERS)

³ Source: Bloomberg (as calculated by HL). Post-12/31/2018, the PSERS Blended Public Benchmark reflects a 65%/35% blend of the MSCI USA Small Cap and MSCI ACWI x US Small Cap Indices, respectively. Between 12/31/1998 and 12/31/2018, the PSERS Blended Public Benchmark reflected a 70%/30% blend of the Russell 3000 and MSCI ACWI x US Indices, respectively. Prior to 12/31/1998, the MSCI ACWI x US Index was unavailable, thus the MSCI World x US Net Total Return Index has been used in its place

IRR Performance by PE Strategy

(As of December 31, 2019)

PSERS Private Equity Portfolio Performance Summary by Strategy as of December 31, 2019								
Strategy	NAV	1-QTR IRR	1-YR IRR	3-YR IRR	5-YR IRR	10-YR IRR	Since Inception IRR	MOC
Buyout	\$5,423.2	4.59%	11.58%	13.26%	10.82%	11.55%	11.75%	1.5x
Venture Capital/Growth Equity	\$1,140.4	7.52%	19.41%	18.61%	11.87%	10.75%	8.04%	1.4x
Special Situations	\$1,217.1	1.30%	5.92%	8.51%	5.14%	9.56%	12.84%	1.5x
PE Internal Program ¹	\$838.1	2.26%	10.08%	13.18%	16.85%	N/A	20.74%	1.5x
Total Portfolio	\$ 8,618.8	4.26%	11.55%	13.26%	10.46%	11.31%	11.37%	1.5x
Burgiss All Private Markets ²		3.89%	13.12%	13.50%	11.41%	12.45%	6.59%	
Hamilton Lane All PE ³		4.40%	15.38%	14.86%	12.31%	13.13%	12.19%	
Blended Benchmark ⁴		10.74%	25.51%	12.49%	9.19%	10.77%	9.26%	

¹ PE Internal Program performance excludes Wilson currency hedge; these Co-Investments have no relevant Hamilton Lane benchmark

² Source: AON (as provided by PSERS)

³ Source: Hamilton Lane data via Cobalt; Hamilton Lane All PE benchmark excludes RE, Infrastructure, and Natural Resource sector returns.

⁴ Source: Bloomberg (as calculated by HL). Post-12/31/2018, the PSERS Blended Public Benchmark reflects a 65%/35% blend of the MSCI USA Small Cap and MSCI ACWI x US Small Cap Indices, respectively. Between 12/31/1998 and 12/31/2018, the PSERS Blended Public Benchmark reflected a 70%/30% blend of the Russell 3000 and MSCI ACWI x US Indices, respectively. Prior to 12/31/1998, the MSCI ACWI x US Index was unavailable, thus the MSCI World x US Net Total Return Index has been used in its place

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Diversification by Vintage Year – Last 10 Years

Vintage Year	Total Exposure ¹	MoC	Since Inception IRR	Burgiss Benchmark	KS PME ²	Direct Alpha
2010	\$5.3	1.1x	1.38%	16.00%	0.66	-9.25%
2011	\$691.9	1.5x	12.22%	12.77%	1.04	1.24%
2012	\$984.7	1.7x	16.34%	12.02%	1.16	5.05%
2013	\$945.1	1.7x	16.74%	15.05%	1.19	5.91%
2014	\$780.6	1.5x	15.18%	15.79%	1.13	4.98%
2015	\$1,646.8	1.2x	10.14%	7.40%	0.99	-0.57%
2016	\$1,553.4	1.4x	22.22%	8.72%	1.17	9.81%
2017	\$1,478.8	1.3x	20.71%	15.58%	1.10	8.39%
2018	\$1,750.9	1.1x	11.97%	15.71%	1.00	-0.24%
2019	\$1,598.1	1.0x	5.88%	8.10%	0.93	-11.77%
2010-2019 Vintage Year Portfolio Total	\$11,435.6	1.4x	14.81%	12.45%	1.09x	3.65%

1. Total Exposure = NAV + Unfunded Commitments.

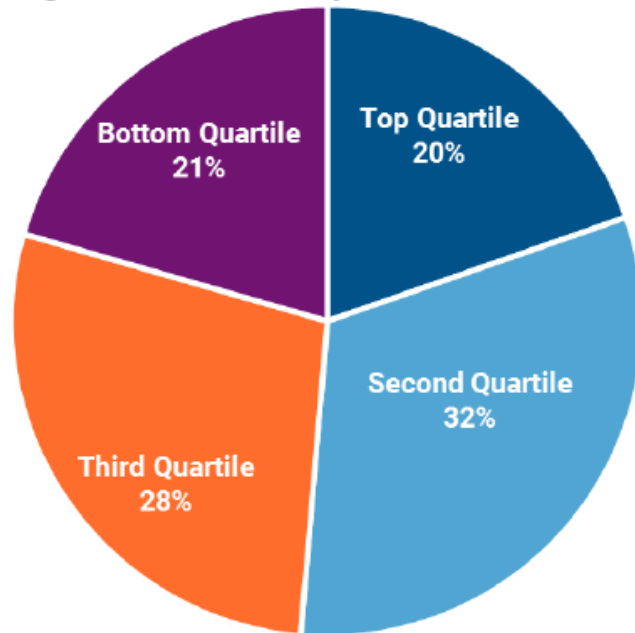
2. KS PME is calculated compared to the PSERS Blended custom benchmark.

Note: The above analysis takes into account the vintage year of the fund, not necessarily when PSERS committed capital. Data shown represents 01/01/2010 to 12/31/2019.

PE Quartile Rankings: Pre-Global Financial Crisis Vintage Years versus 2011 – 2016 (As of December 31, 2019)

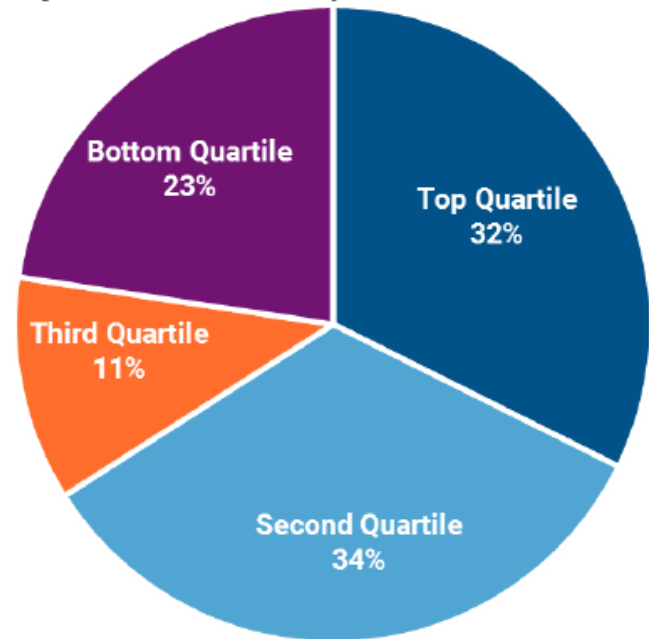
PSERS Portfolio Exposure by Quartile

Vintage Years 2004-2008 By Commitment Amount



PSERS Portfolio Exposure by Quartile

Vintage Years 2011-2016 By Commitment Amount

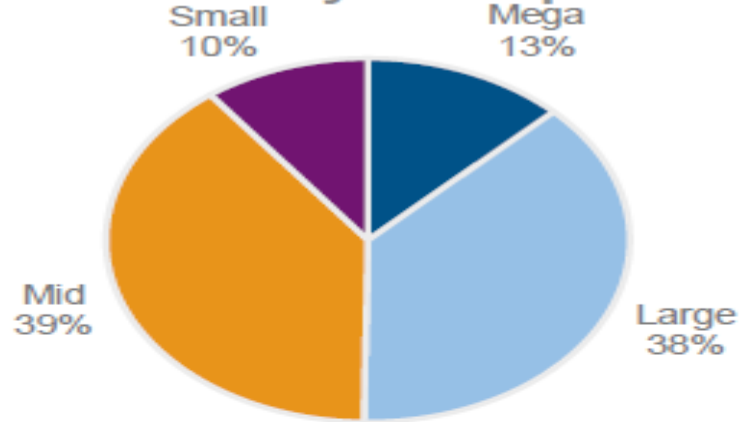


- 20% of commitments made during the 2004 – 2008 vintages were to top quartile funds
- 32% of commitments made during the 2011 – 2016 vintages were to top quartile funds
 - 66% of commitments made have performed above median

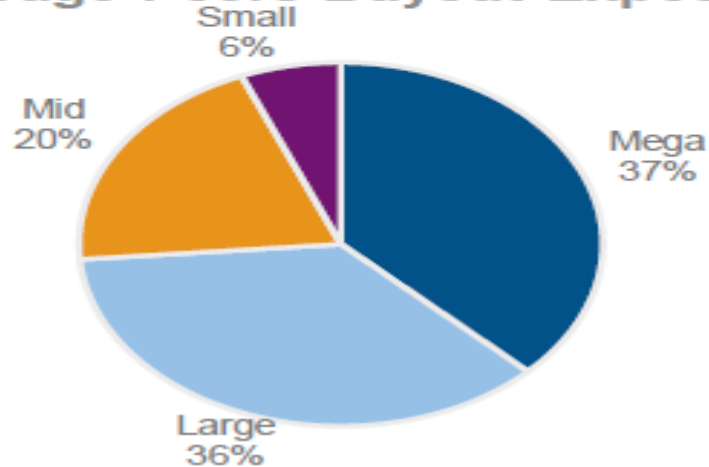
PSERS Buyout Fund Exposure vs Peers

(March 31, 2020)

PSERS Buyout Exposure



Average Peers Buyout Exposure



Source: Hamilton Lane

PSERS Sector Exposure vs Peers

(March 31, 2020)

Sector by Exposed Market Value

	Consumer Discretionary	Consumer Staples	Energy	Financials	FoF Holding	Health Care	Industrials	Information Technology	Materials	Real Estate	Communication Services	Utilities	Other Investments
<i>PSERS Portfolio</i>	12%	6%	4%	8%	6%	15%	16%	20%	3%	2%	3%	1%	5%
Peer #1	14%	4%	3%	10%	0%	15%	12%	27%	3%	4%	7%	1%	1%
Peer #2	9%	5%	4%	8%	9%	12%	12%	31%	2%	3%	5%	1%	1%
Peer #3	12%	5%	6%	11%	0%	14%	11%	30%	2%	2%	6%	1%	1%
Peer #4	11%	3%	2%	6%	13%	16%	13%	24%	5%	1%	6%	1%	0%
Peer #5	10%	4%	7%	7%	1%	10%	9%	13%	3%	29%	4%	2%	1%
Peer #6	12%	4%	11%	7%	4%	19%	14%	15%	5%	1%	8%	2%	0%
Peer #7	5%	2%	3%	6%	4%	4%	10%	8%	1%	53%	2%	1%	1%
<i>Average Peers</i>	<i>10%</i>	<i>4%</i>	<i>5%</i>	<i>8%</i>	<i>4%</i>	<i>13%</i>	<i>12%</i>	<i>21%</i>	<i>3%</i>	<i>13%</i>	<i>5%</i>	<i>1%</i>	<i>1%</i>

Data as of 3/31/20.

Data is based on unexposed market value of the portfolio company level.

Source: Hamilton Lane

PSERS Geographic Exposure vs Peers

(March 31, 2020)

Geography by Exposed Market Value				
	North America	Western Europe	Asia	Rest of World
<i>PSERS Portfolio</i>	67%	16%	10%	7%
Peer #1	61%	22%	11%	7%
Peer #2	66%	16%	13%	6%
Peer #3	71%	22%	2%	5%
Peer #4	70%	20%	2%	8%
Peer #5	73%	18%	2%	7%
Peer #6	76%	18%	2%	5%
Peer #7	76%	18%	2%	5%
Average Peers	70%	19%	5%	6%

Data as of 3/31/20.

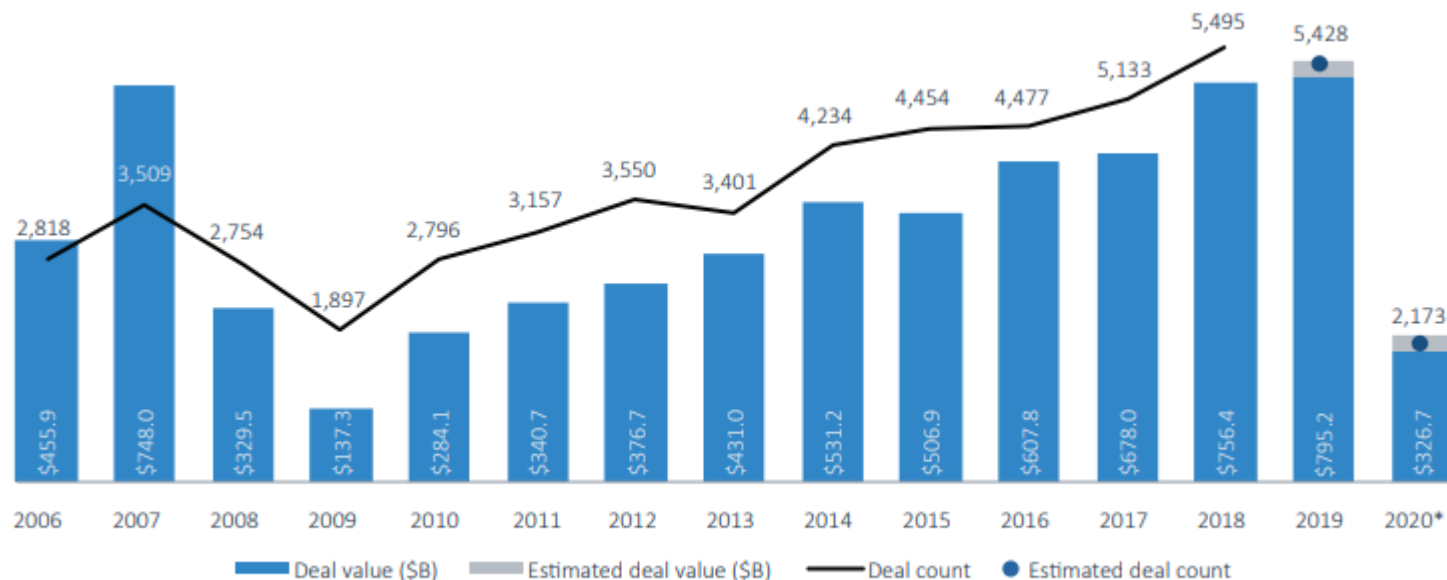
Data is based on exposed market values at the portfolio company level

Source: Hamilton Lane

U.S. PE Deal Activity

Through the first half of 2020, US PE dealmakers closed on 2,173 deals totaling \$326.7 billion, meaning deal volume was down nearly 20% compared to the first half of 2019

PE deal activity



Source: PitchBook | Geography: US
*As of June 30, 2020

Fee Savings To Date

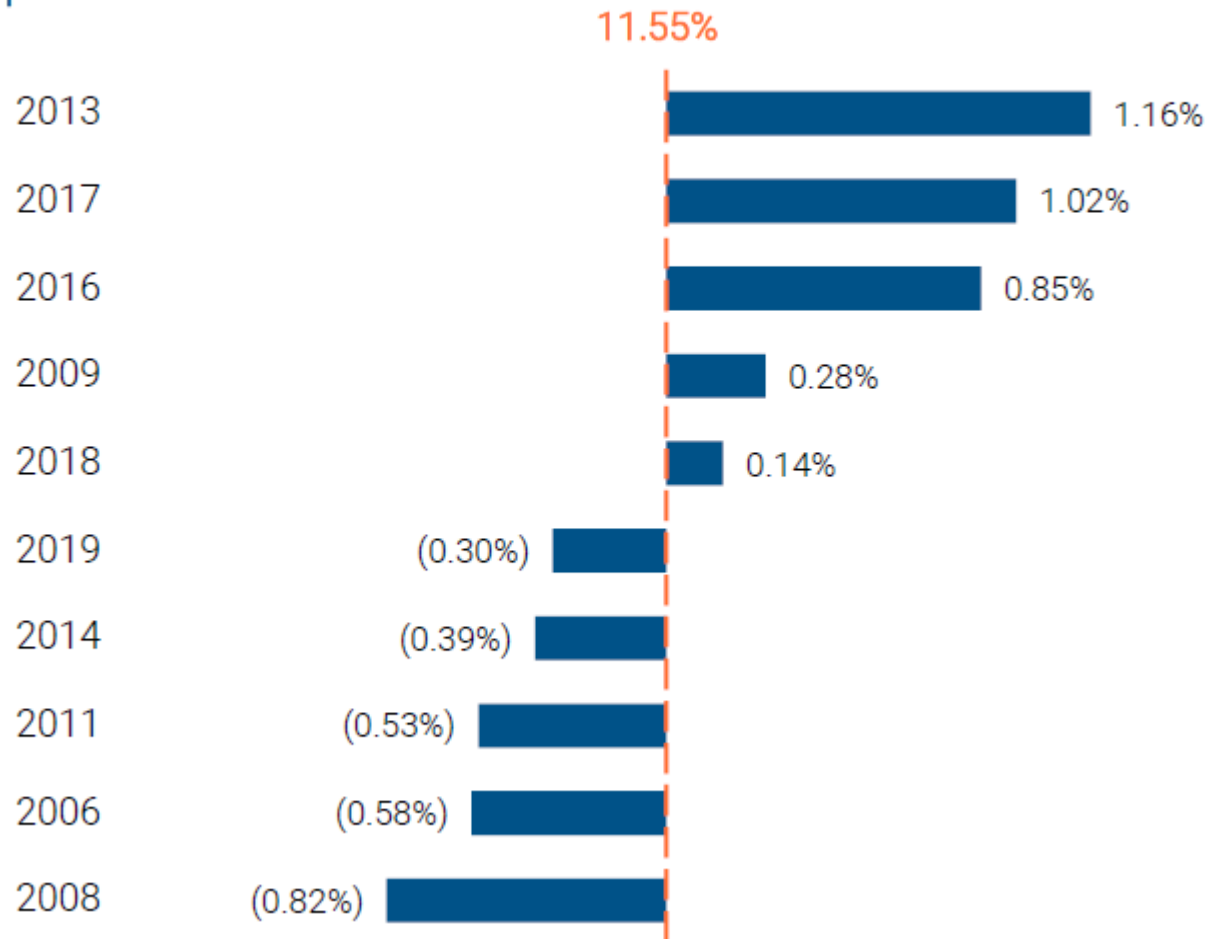
- Management fee savings to date of \$161.4 million on fund commitments
- Management fee savings of \$36.3 million to date from the in-house co-investment program (1% management fee is typically charged on co-investment funds)
- Carry savings of \$15.9 million to date from the in-house co-investment program (10% carry is typically charged on co-investment funds)
- Additional savings of \$95.3 million from the NAV of the internal co-investment program instead of investing in private equity funds:
 - \$63.5 million (1.75% management fee on PE funds)
 - \$31.8 million (20% carry on PE funds)

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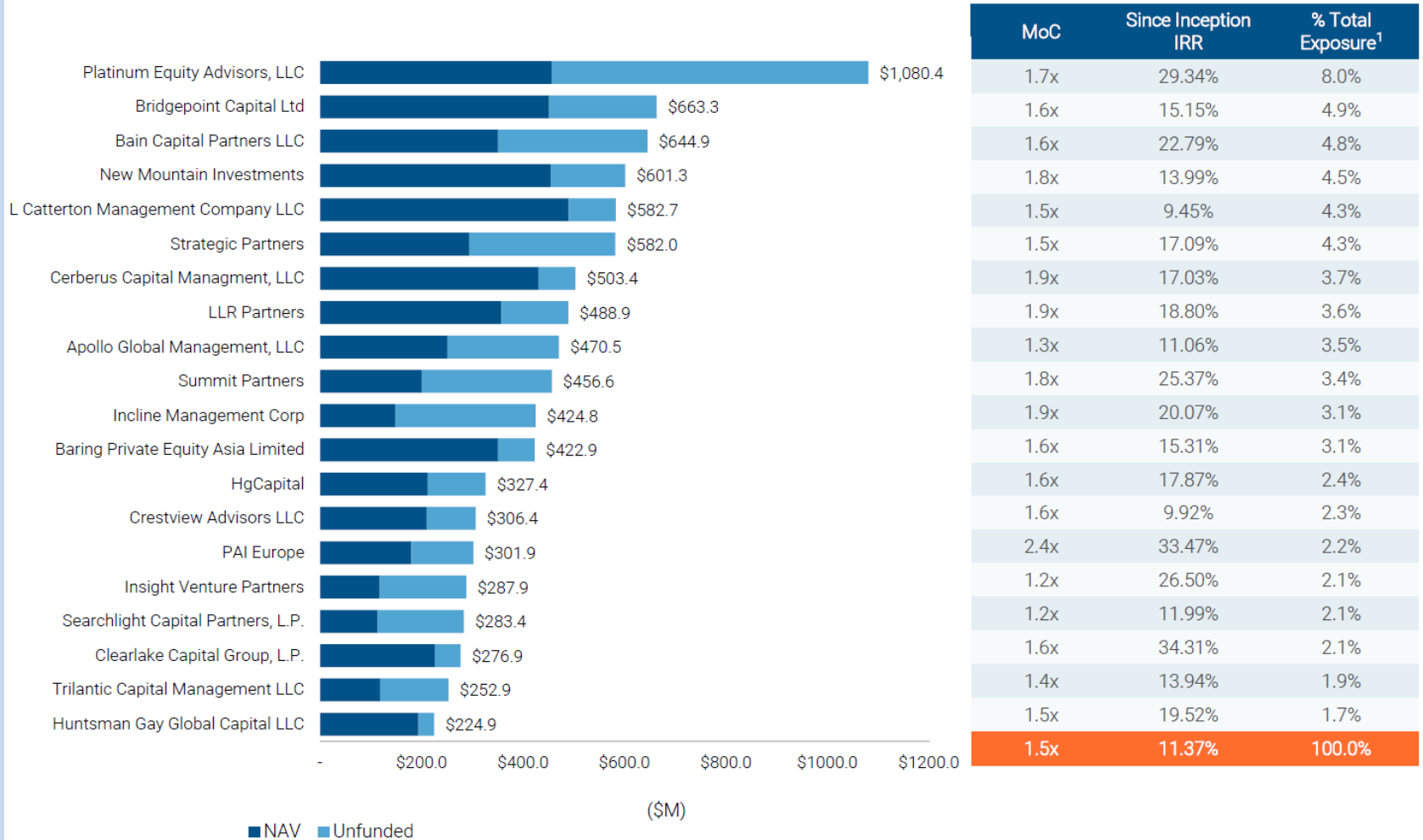
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Value Drivers by Vintage Year – for the Year 2019

Impact on 1-Year Portfolio IRR by Vintage Year -
Top & Bottom 5

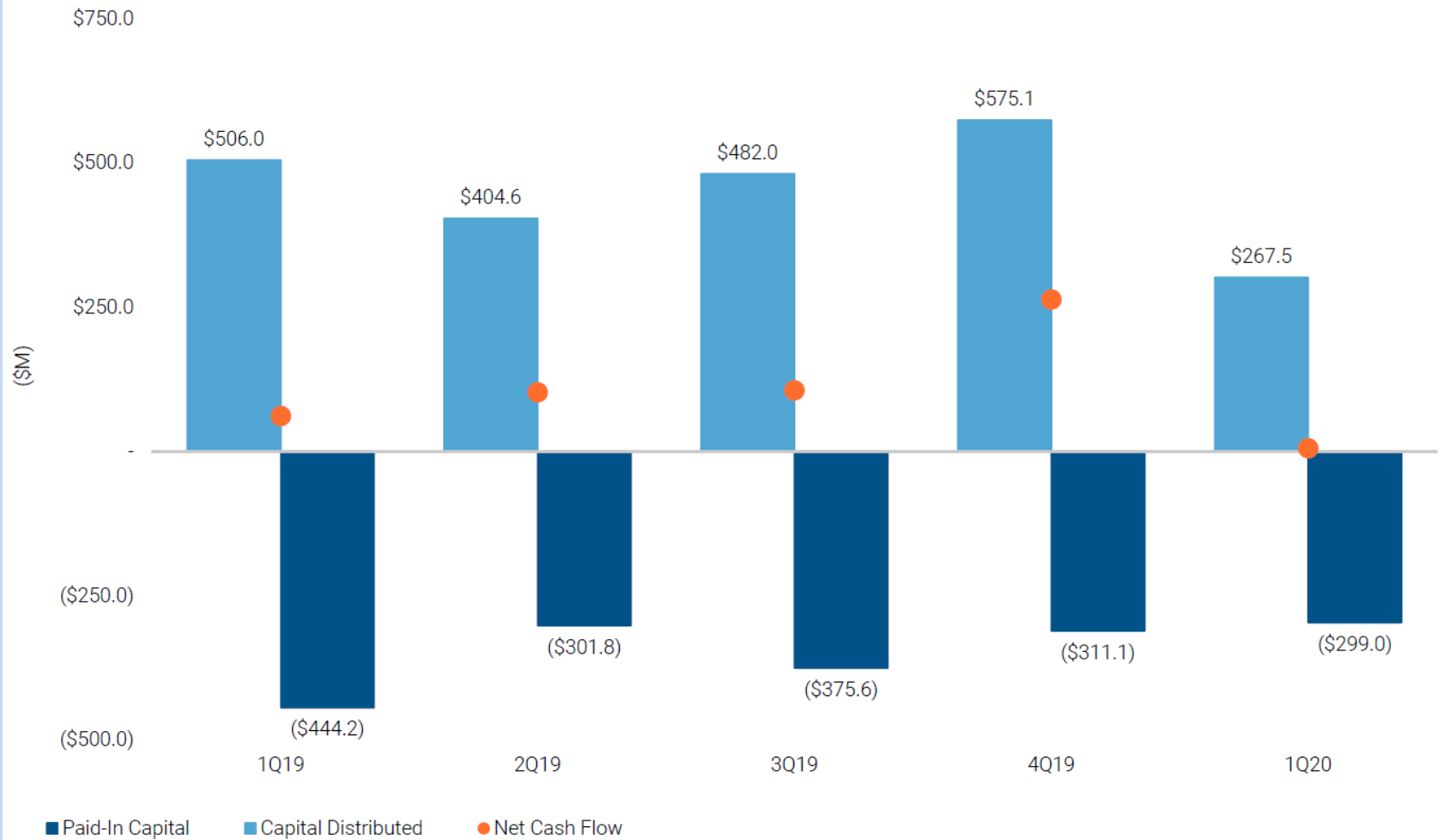


Top 20 Total Exposures

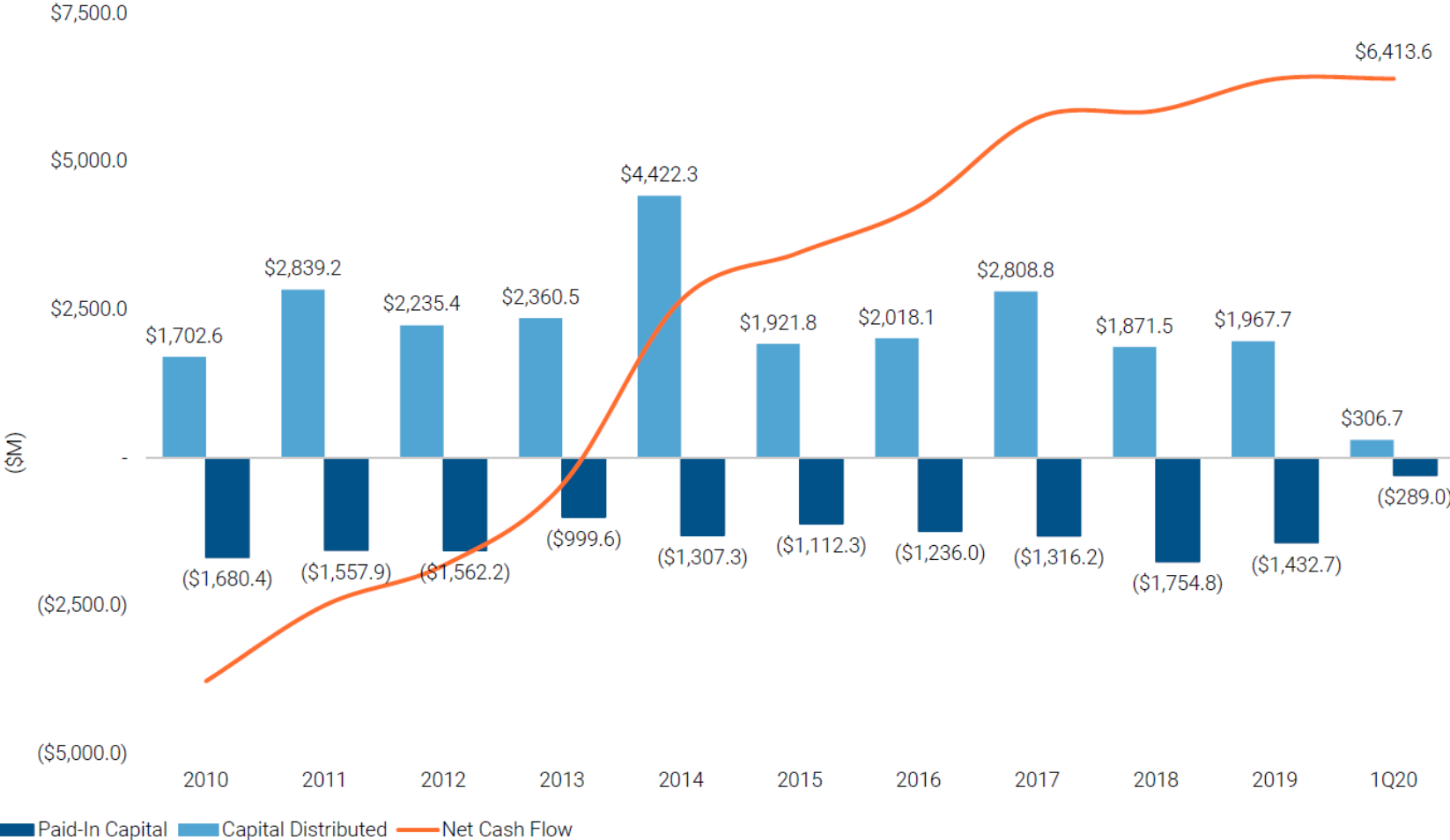


¹ % Total Exposure reflective of GP Total Exposure as a percentage of PSERS Total PM Portfolio Total Exposure (Total Exposure = NAV + Unfunded Commitments)

Private Equity – Quarterly Cash Flow Summary



Cumulative Net Cash Flow Activity – Last 10 Years



Portfolio by Industry, Geography and Public/Private

As of December 31, 2019

- As of December 31, 2019, there were 3,074 unique underlying holdings in the PSERS Private Markets Portfolio, including 109 unique publicly-held companies
- The PSERS Private Markets Portfolio's largest exposure was to the Information Technology sector
 - 1 of the top 10 holdings was classified within this sector
- Top PSERS Private Markets Portfolio holding, Avantor, Inc - Exposed Market Value: \$117.4M
 - Held by: New Mountain Partners III, L.P.

Industry Exposure by Exposed Market Value ¹

Sector	9/30/2019	12/31/2019	Change
Information Technology	19%	19%	-
Industrials	16%	15%	(1%)
Health Care	14%	14%	-
Consumer Discretionary	13%	13%	-
Financials	8%	8%	-
FoF Holding	7%	7%	-
Other Investments	4%	6%	2%
Consumer Staples	5%	5%	-
Energy	5%	4%	(1%)
Communication Services	3%	3%	-
Materials	3%	3%	-
Utilities	1%	1%	-

Geographic Exposure by Exposed Market Value ¹

Region	9/30/2019	12/31/2019	Change
North America	65%	66%	1%
Western Europe	18%	17%	(1%)
Asia	9%	9%	-
Rest of World	8%	8%	-

Public/Private Holdings by Exposed Market Value ¹

Public/Private	9/30/2019	12/31/2019	Change
Private	92%	92%	-
Public	8%	8%	-

¹ Exposed Market Value is LP's share of Market Value at the Portfolio Holding Level. May not sum to 100% due to rounding.

Due Diligence Process

- Completed in conjunction with PSERS legal teams (Thank you!)
- Review of ~150 pg. LPA
- 3+ internal meetings, 2+ meetings with GP legal

Goal: Alignment of interests between PSERS and GP, ensure Commonwealth required terms included in legal agreements.

Legal Review & Negotiation

Strategy, Team, & Market Review

- 400+ pages of reading (generally 40+ documents)
- Performance calculation & review (PME, levered & unlevered)
- Site visit(s) with GP, 8+ phone calls with GP, 3+ with Hamilton Lane

Goal: Develop an opinion on competitive advantages vs. market and likelihood of success.

- Variable and continuous throughout process
- Key terms targeted typically include fees and carry, waterfall structure, clawbacks, key person clause

Goal: Alignment of interests between PSERS and GP, alignment between perceived value of/to PSERS program and GP economics.

Terms Negotiation

Reference Checks

- 10 – 15 (existing manager), 15+ new manager
- Covers portfolio company staff, former employees of GP, co-investors/lenders, other LPs

Goal: Uncover major red flags, highlight blind spots in due diligence, and separate marketing from reality.

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PSERS & PE - Jobs by the numbers

529,000

Net jobs created or added

2 MM

Total jobs supported

35

GP relationships have addressed the growing importance of tracking job creation

94%

of our private equity funds produced net positive job growth

Data as of 12/31/2019.

89% of NAV reported jobs data (80 PE Funds)

Last 12 Months (LTM) Commitment Summary

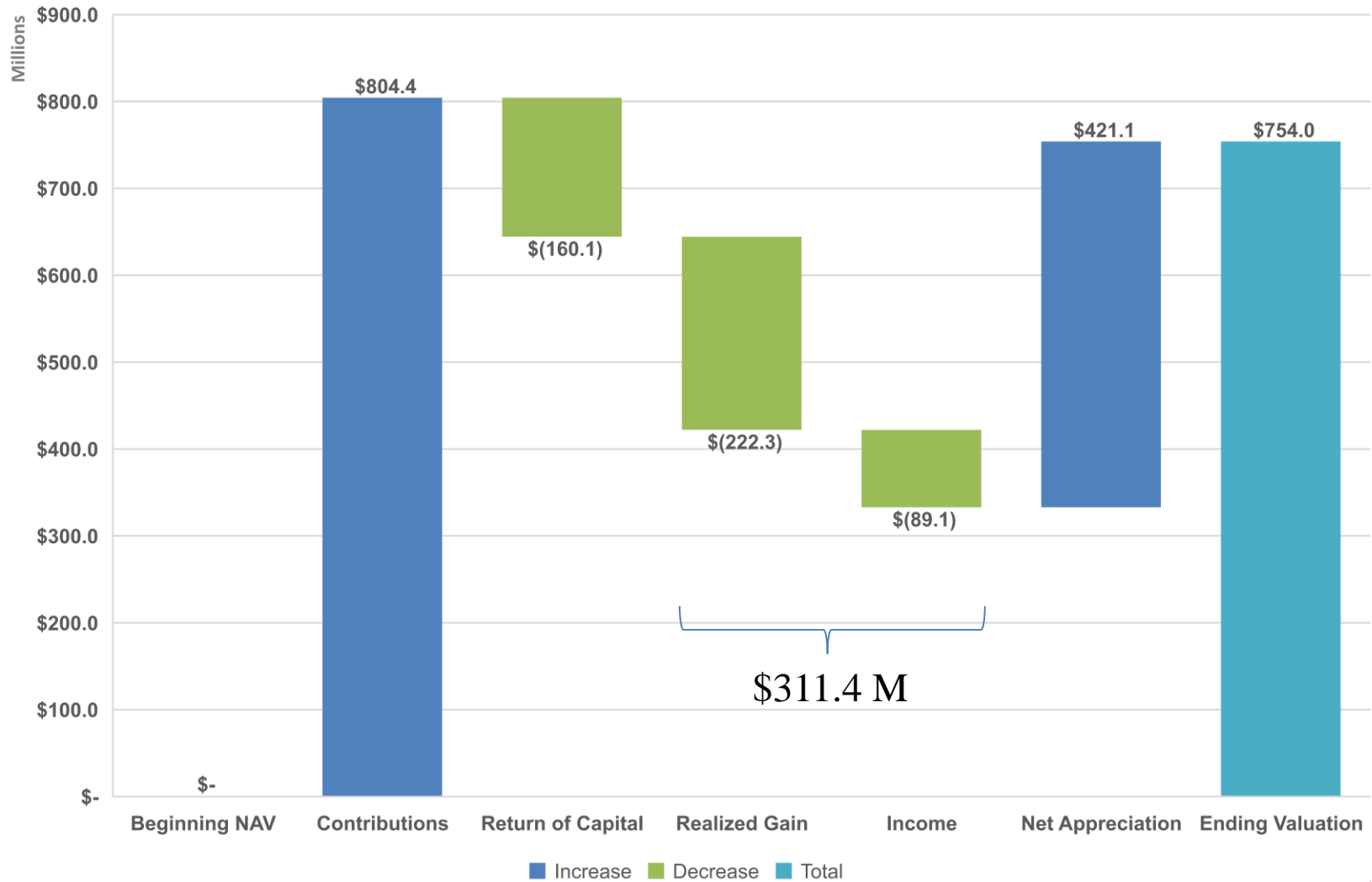
LTM Commitment Summary		
Fund	Strategy	Capital Committed
4Q18 Closings:		
Bain Capital Asia Fund IV, L.P.	Buyout	\$150
1Q19 Closings:		
Tulco, LLC	Special Situations	\$100
Summit Partners Growth Equity Fund X, L.P.	Venture Capital	\$150
Lindsay Goldberg V, L.P.	Buyout	\$150
2Q19 Closings:		
Searchlight Capital Partners III, L.P.	Special Situations	\$150
Sante Health Ventures III, L.P.	Venture Capital	\$75
3Q19 Closings:		
Incline Elevate Fund, L.P.	Buyout	\$75
Hahn & Company III-S, L.P.	Buyout	\$37.5
Hahn & Company III, L.P.	Buyout	\$112.5

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Since Inception (Feb 2012) NAV Bridge

as of December 31, 2019



Private Equity Internal Co-Investments

as of December 31, 2019

(\$mm)	Private Equity					Pennsylvania Co-Invest	Total Program
	Fund I	Fund II	Total	Wilson Currency Hedge	Grand Total		
Performance (net of fees):							
Inception IRR	23.2%	12.7%	21.0%	n/a	21.7%	17.9%	21.4%
Benchmark *	12.1%	13.5%	12.1%	n/a	12.1%	12.7%	12.2%
Direct Alpha	11.1%	-0.7%	8.8%	n/a	9.6%	5.2%	9.2%
1-Quarter (TWR)	1.2%	3.0%	1.5%	n/a	1.5%	0.0%	1.3%
1-Year (IRR)	6.0%	11.8%	10.3%	n/a	10.3%	16.7%	10.9%
3-Year (IRR)	12.6%	n/a	12.9%	n/a	12.9%	17.2%	13.3%
5-Year (IRR)	18.0%	n/a	17.5%	n/a	17.5%	17.9%	17.5%
Inception Multiple	2.02x	1.17x	1.52x	n/a	1.54x	1.62x	1.55x
Commitment Summary:							
Authorized			\$ 1,000.0	n/a	\$ 1,000.0	\$ 250.0	\$ 1,250.0
Outstanding Cost	\$ 175.8	\$ 468.3	\$ 644.1	n/a	\$ 644.1	\$ 49.8	\$ 693.9
Unfunded Commitments	\$ 33.8	\$ 26.4	\$ 60.2	n/a	\$ 60.2	\$ 2.5	\$ 62.7
Available			\$ 295.7	n/a	\$ 295.7	\$ 197.7	\$ 493.4
Flows & Valuations:							
Contributions	\$ 335.9	\$ 468.5	\$ 804.4	\$ (.1)	\$ 804.3	\$ 57.8	\$ 862.1
Distributions	\$ 441.9	\$ 29.1	\$ 471.1	\$ 19.0	\$ 490.1	\$ 10.1	\$ 500.2
Valuations	\$ 236.4	\$ 517.6	\$ 754.0	\$ (3.3)	\$ 750.7	\$ 83.5	\$ 834.2

* 65% MSCI USA Small Cap / 35% MSCI ACWI x US Small Cap;

Minor differences due to rounding

Internal Private Equity Internal Co-Investments

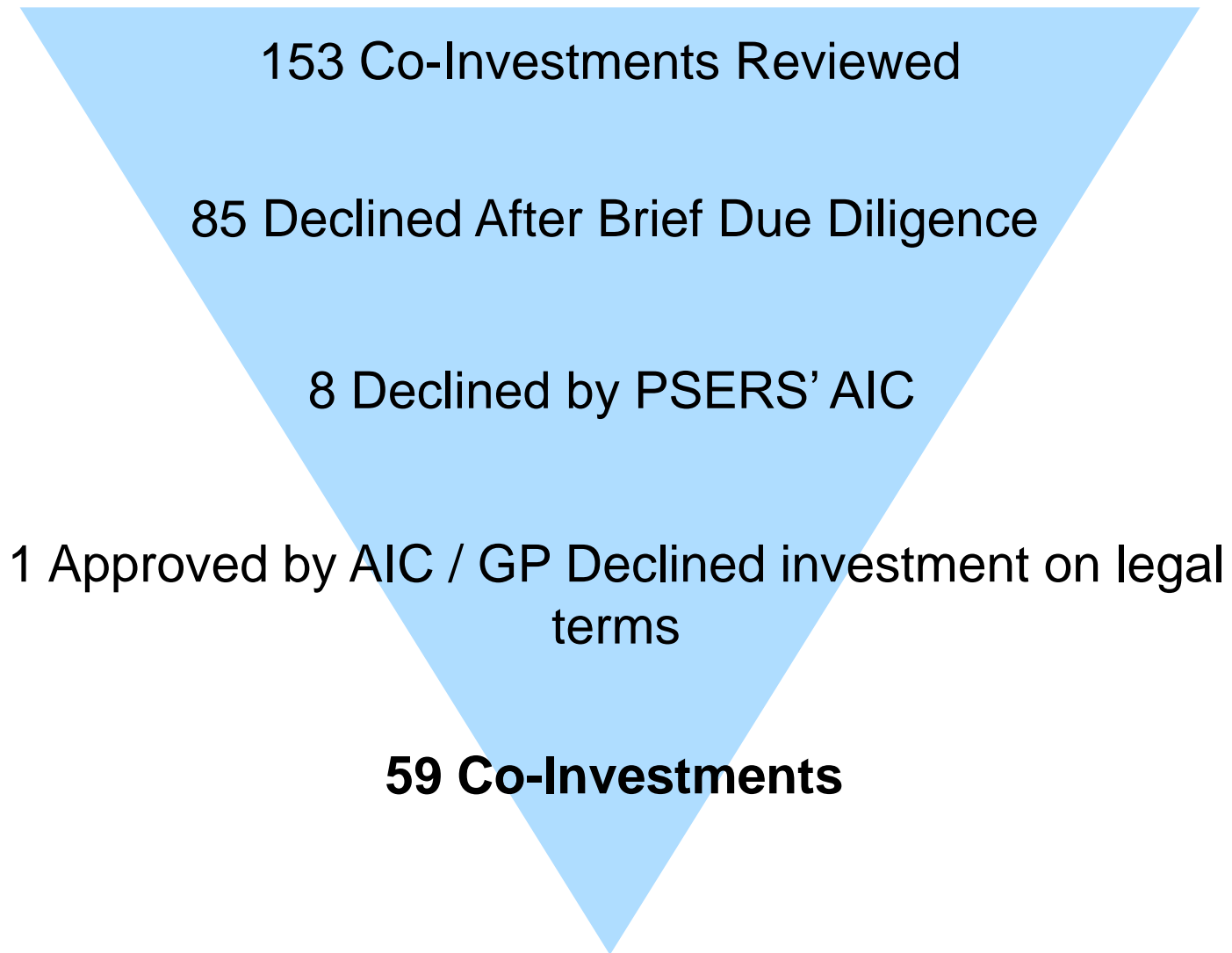
Performance by “Fund” as of December 31, 2019

Investment	Vintage	Commitment	Cumulative Contributions	Cumulative Distributions	Valuation	IRR	TVPI	DPI
Fund 1								
CEIL (Guernsey), L.P.	2013	\$ 9,386,879	\$ 12,086,263	\$ 43,766,157	\$ -	16.1%	1.84x	1.84x
CP-VER Aggregating, L.P.	2015	15,000,000	15,175,000	3,684	-	-86.4%	0.00x	0.00x
Ferrara Candy Company	2012	10,000,000	7,500,000	12,939,297	-	11.8%	1.73x	1.73x
Penrose Topco Ltd	2012	12,842,192	13,878,761	33,036,817	-	44.4%	2.38x	2.38x
PPHC Holdings, LLC	2014	12,056,481	12,086,263	44,193,142	-	46.5%	3.66x	3.66x
PSERS Ortholite, L.P.	2014	13,000,000	13,035,722	94,207,284	-	90.6%	7.23x	7.23x
Redtop Co-Invest, L.P.	2012	8,488,708	10,000,061	25,548,076	-	22.5%	2.55x	2.55x
WCI-HFG Holdings, LLC	2016	11,000,000	11,000,000	17,519,990	-	16.1%	1.59x	1.59x
WCI-Quantum Holdings, Inc.	2015	12,000,000	12,362,967	17,826,120	-	10.7%	1.44x	1.44x
Total Realized		103,774,260	105,200,434	263,970,046	-	32.9%	2.51x	2.51x
Total Partially Realized and Unrealized		265,851,161	230,658,068	177,950,038	236,441,566	17.0%	1.80x	0.77x
Total - Fund 1		369,625,421	335,858,502	441,920,084	236,441,566	23.2%	2.02x	1.32x
Total - Fund 2		494,960,690	468,563,163	29,109,333	517,662,950	12.7%	1.17x	0.06x
Total - Private Equity Internal		\$ 864,586,111	\$ 804,421,665	\$ 471,530,211	\$ 753,603,723	21.0%	1.52x	0.59x

Excludes Wilson Currency Hedge
 Minor differences due to rounding

Co-Investments Deal Flow Funnel Since Inception

(Feb 2012 – December 2019)



Key Takeaways - Private Equity

- The Private Equity Program has generated a Net IRR of 11.4% since inception versus 9.3% for the custom public index
- The PE Team since 2011 has been better at:
 - picking 1st and 2nd quartile funds at an increased rate
 - 2011 and forward Vintage Years have outperformed the Program's PME and the Burgiss Benchmark
- Portfolio will remain focused on larger commitments to high conviction managers

The Next Year:

- Funds:
 - We will opportunistically add new GPs that have a proven ability to add value to their portfolio companies and generate top quartile performance
 - Would like to add a fund or two in the sub \$1.5B fund size
- Co-Investments:
 - Portfolio has generated a very good return since inception
 - Deal flow has been very good
 - At the March Board meeting we received approval to go up to \$50M per deal

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Performance Summary by Investment Fund

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
Buyout and Secondary Portfolio									
ABS Capital Partners II, L.P.	1996	Buyout	40,000,000	39,291,734	45,875,748	-	1.2x	6.73%	1.2x
Actis Emerging Markets 3, L.P.	2007	Buyout	200,000,000	224,263,721	201,167,784	15,436,000	1.0x	(0.85%)	0.9x
Actis Global 4, L.P.	2012	Buyout	100,000,000	105,810,823	44,269,656	92,759,000	1.3x	8.15%	0.4x
Allegheny New Mountain Partners, L.P.	2004	Buyout	100,000,000	85,315,511	172,133,406	1,036,963	2.0x	14.15%	2.0x
Apax Digital L.P.	2017	Buyout	100,000,000	24,128,716	-	27,446,318	1.1x	15.79%	-
Apax Europe VII-A, L.P.	2007	Buyout	224,313,321	291,179,212	361,379,813	8,738,865	1.3x	4.56%	1.2x
Bain Capital Asia Fund II, L.P.	2012	Buyout	100,000,000	110,481,364	130,972,056	83,889,831	1.9x	21.39%	1.2x
Bain Capital Asia Fund III, L.P.	2016	Buyout	130,000,000	96,333,732	45,326,084	73,371,549	1.2x	17.27%	0.5x
Bain Capital Asia Fund IV, L.P.	2018	Buyout	150,000,000	7,125,000	-	6,850,106	1.0x	(3.69%)	-
Bain Capital Fund XI, L.P.	2014	Buyout	100,000,000	99,968,680	89,319,962	110,500,220	2.0x	29.36%	0.9x
Bain Capital Fund XII, L.P.	2017	Buyout	125,000,000	57,073,257	246,613	59,274,079	1.0x	4.99%	0.0x
Baring Asia Private Equity Fund III, L.P.	2005	Buyout	122,500,000	146,449,202	341,148,266	-	2.3x	52.20%	2.3x
Baring Asia Private Equity Fund IV, L.P.	2007	Buyout	300,000,000	334,700,676	530,525,309	11,011,515	1.6x	8.88%	1.6x
Baring Asia Private Equity Fund V, L.P.	2011	Buyout	200,000,000	267,247,408	161,228,457	199,962,135	1.4x	7.98%	0.6x
Baring Asia Private Equity Fund VI, L.P.	2015	Buyout	100,000,000	102,727,769	27,242,908	112,741,692	1.4x	14.61%	0.3x
Bastion Capital Fund, LP	1994	Buyout	12,500,000	12,246,895	24,148,319	-	2.0x	18.93%	2.0x
BDC III, L.P.	2016	Buyout	98,893,709	52,355,208	12,189,025	73,886,928	1.6x	42.30%	0.2x
BG Media International Investors	1997	Buyout	25,000,000	24,729,264	21,119,037	-	0.9x	(2.40%)	0.9x
Blue Point Capital Partners I, L.P.	2001	Buyout	103,750,000	91,140,153	143,028,571	299,444	1.6x	12.09%	1.6x
Blue Point Capital Partners II, L.P.	2007	Buyout	100,000,000	103,476,766	272,064,650	3,373,914	2.7x	20.87%	2.6x
Blue Point Capital Partners III, L.P.	2014	Buyout	60,000,000	58,226,830	42,555,077	36,541,853	1.4x	13.93%	0.7x
Blue Point Capital Partners IV, L.P.	2018	Buyout	70,000,000	29,931,851	-	30,664,104	1.0x	3.61%	-
Bridgepoint Capital II (Secondary)	1998	Secondary	84,714,906	81,290,641	166,312,361	263,894	2.0x	18.65%	2.0x
Bridgepoint Europe I	1998	Buyout	79,622,624	75,126,567	135,823,089	107,335	1.8x	12.43%	1.8x
Bridgepoint Europe II, L.P.	2001	Buyout	336,469,981	313,199,355	612,897,208	1,129,232	2.0x	29.40%	2.0x
Bridgepoint Europe III, L.P.	2005	Buyout	224,313,321	260,820,005	264,873,337	63,498,723	1.3x	2.98%	1.0x
Bridgepoint Europe IV, L.P.	2008	Buyout	336,469,981	374,983,531	518,325,022	66,685,059	1.6x	9.84%	1.4x
Bridgepoint Europe V, L.P.	2015	Buyout	168,234,991	166,703,081	59,244,914	162,464,019	1.3x	14.29%	0.4x
Bridgepoint Europe VI, L.P.	2018	Buyout	112,156,660	16,578,746	-	18,086,431	1.1x	15.86%	-

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
Bruckmann, Rosser, Sherrill & Co. L.P.	1995	Buyout	25,000,000	24,465,163	44,580,173	-	1.8x	10.37%	1.8x
Capital International Private Equity Fund V, L.P.	2007	Buyout	200,000,000	206,286,344	182,602,895	4,212,649	0.9x	(2.84%)	0.9x
Capital International Private Equity Fund VI, L.P.	2011	Buyout	100,000,000	104,900,940	20,407,360	86,182,243	1.0x	0.36%	0.2x
Catterton Growth Partners II, L.P.	2013	Buyout	75,000,000	74,553,262	-	91,351,210	1.2x	4.25%	-
Catterton Growth Partners, L.P.	2008	Buyout	75,000,000	92,996,496	119,839,200	20,234,427	1.5x	8.27%	1.3x
Catterton Partners V, L.P.	2004	Buyout	100,000,000	101,386,111	141,630,626	-	1.4x	5.46%	1.4x
Catterton Partners VI, L.P.	2006	Buyout	130,000,000	147,723,222	232,294,627	41,124,030	1.9x	11.43%	1.6x
Catterton Partners VII, L.P.	2012	Buyout	100,000,000	112,342,899	103,970,162	94,976,071	1.8x	15.99%	0.9x
CIGNA	1988	Buyout	4,566,946	4,566,946	6,645,349	-	1.5x	9.21%	1.5x
Cinven Fifth Fund, L.P.	2012	Buyout	112,156,660	125,806,451	171,252,881	49,012,784	1.8x	20.78%	1.4x
Cinven Fourth Fund	2007	Buyout	168,234,991	206,694,831	300,991,037	143,912	1.5x	7.47%	1.5x
Cinven Sixth Fund	2016	Buyout	100,940,994	73,615,660	2,791,490	82,301,642	1.2x	11.34%	0.0x
Clarity Partners L.P.	2000	Buyout	203,590,000	204,760,392	150,711,218	-	0.7x	(6.93%)	0.7x
Clarity PSERS II, L.P.	2008	Buyout	17,386,250	12,225,121	2,451,273	-	0.2x	(28.86%)	0.2x
Coller International Partners VI, L.P.	2011	Secondary	100,000,000	72,678,082	88,231,479	33,408,076	1.7x	15.57%	1.2x
Coller International Partners VII, L.P.	2015	Secondary	100,000,000	76,587,923	10,374,349	87,296,741	1.3x	16.14%	0.1x
Credit Suisse First Boston Equity Partners, LP	1998	Buyout	137,172,500	114,737,213	32,970,843	-	0.3x	(16.26%)	0.3x
Credit Suisse First Boston Intl. Equity Partners	1997	Buyout	100,000,000	76,663,758	95,813,877	-	1.2x	5.22%	1.2x
Crestview Capital Partners	2005	Buyout	150,000,000	154,361,773	226,159,577	20,067,651	1.6x	7.30%	1.5x
Crestview Partners II, L.P.	2009	Buyout	200,000,000	232,998,581	306,675,121	105,099,693	1.8x	13.84%	1.3x
Crestview Partners III, L.P.	2015	Buyout	150,000,000	105,513,006	63,973,796	75,033,104	1.3x	11.99%	0.6x
CVC Capital Partners Asia Pacific III, L.P.	2008	Buyout	300,000,000	296,917,032	444,383,307	34,675,860	1.6x	13.17%	1.5x
CVC European Equity Partners V, L.P.	2008	Buyout	336,469,981	434,374,269	799,069,420	51,163,088	2.0x	16.57%	1.8x
DCPF VI Oil and Gas Coinvestment Fund LP	2013	Buyout	25,000,000	21,218,942	27,759,128	7,423,130	1.7x	17.37%	1.3x
Denham Commodity Partners Fund VI, L.P.	2011	Buyout	75,000,000	83,343,814	46,401,661	44,518,333	1.1x	3.13%	0.6x
Deutsche European Partners IV	1999	Buyout	200,000,000	180,960,550	224,577,100	-	1.2x	6.41%	1.2x

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
DLJ Merchant Banking Partners III, L.P.	2000	Buyout	300,000,000	310,668,837	671,148,994	-	2.2x	20.27%	2.2x
Dubin Clark Fund II, L.P.	2000	Buyout	24,083,333	23,706,041	27,060,085	-	1.1x	1.99%	1.1x
Edgewater Growth Capital Partners, L.P.	2001	Buyout	59,196,500	59,196,500	77,379,658	-	1.3x	6.58%	1.3x
Edgewater Private Equity Fund III	1998	Buyout	39,000,000	39,000,000	23,129,095	-	0.6x	(7.85%)	0.6x
Equistone Partners Europe Fund V, L.P.	2015	Buyout	72,901,829	70,113,595	9,134,899	74,787,386	1.2x	6.31%	0.1x
Equistone Partners Europe Fund VI, L.P.	2018	Buyout	84,117,495	24,090,974	-	26,857,522	1.1x	19.86%	-
Evergreen Pacific Partners II, L.P.	2008	Buyout	80,954,545	71,098,524	156,200,884	407,288	2.2x	22.03%	2.2x
Evergreen Pacific Partners, L.P.	2005	Buyout	50,000,000	45,104,137	5,292,828	1,184,088	0.1x	(61.13%)	0.1x
First Reserve Fund XI, L.P.	2006	Buyout	200,000,000	213,209,232	140,355,363	-	0.7x	(9.68%)	0.7x
First Reserve Fund XII, L.P.	2008	Buyout	250,000,000	275,544,748	139,102,853	34,662,488	0.6x	(10.27%)	0.5x
Furman Selz Investors II, L.P.	1998	Buyout	56,250,000	55,816,077	96,375,368	-	1.7x	11.53%	1.7x
Furman Selz Investors III, L.P.	2000	Buyout	100,000,000	95,025,051	206,864,610	-	2.2x	22.58%	2.2x
GoldPoint Partners Co-Investment V, L.P.	2012	Buyout	50,000,000	57,121,765	52,792,637	45,021,100	1.7x	19.54%	0.9x
Graham Partners	1999	Buyout	56,671,214	61,946,457	82,648,447	-	1.3x	5.47%	1.3x
Green Equity Investors II, L.P.	1994	Buyout	25,000,000	24,151,005	50,916,127	-	2.1x	14.40%	2.1x
Greenwich Street Capital Partners II, L.P.	1998	Buyout	200,000,000	216,105,302	214,588,348	-	1.0x	(0.13%)	1.0x
GS Mezzanine Partners, LP	1996	Buyout	30,000,000	26,883,828	39,260,072	-	1.5x	8.82%	1.5x
Hahn & Company III, L.P.	2019	Buyout	112,500,000	20,168,795	130,103	15,779,847	0.8x	(20.58%)	0.0x
Hahn & Company III-S, L.P.	2019	Buyout	37,500,000	12,332,332	85,054	11,718,872	1.0x	(4.15%)	0.0x
Halifax Capital Partners	1999	Buyout	50,000,000	39,967,488	63,972,891	-	1.6x	11.77%	1.6x
Headland Private Equity Fund 6 Ltd.	2008	Buyout	200,000,000	187,330,868	215,392,572	-	1.1x	5.08%	1.1x
Heritage Fund I, L.P.	1994	Buyout	25,000,000	24,999,999	24,755,484	-	1.0x	(0.46%)	1.0x
HgCapital 7, L.P.	2013	Buyout	98,893,709	99,768,053	73,972,648	100,065,495	1.7x	16.03%	0.7x
HgCapital 8, L.P.	2017	Buyout	125,265,365	37,691,226	-	48,102,937	1.3x	35.46%	-
HGGC Fund II, L.P.	2014	Buyout	100,000,000	92,623,574	56,293,529	88,849,638	1.6x	16.10%	0.6x
HGGC Fund III, L.P.	2017	Buyout	125,000,000	103,984,744	39,735,798	104,968,584	1.4x	29.33%	0.4x
Incline Elevate Fund, L.P.	2019	Buyout	75,000,000	5,437,787	-	3,934,219	0.7x	(27.65%)	-
Incline Equity Partners III, L.P.	2011	Buyout	65,000,000	68,037,678	117,177,913	50,899,023	2.5x	34.68%	1.7x
Incline Equity Partners IV, L.P.	2017	Buyout	90,000,000	48,695,980	161,296	58,822,231	1.2x	20.79%	0.0x
Incline Equity Partners V, L.P.	2019	Buyout	150,000,000	-	-	-	N/A	N/A	N/A

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
Irving Place Capital III SPV, L.P.	2006	Buyout	150,000,000	157,759,004	215,206,079	40,091,863	1.6x	7.61%	1.4x
Irving Place Capital MB-PSERS II, L.P.	2000	Buyout	300,000,000	285,417,494	462,986,839	3,520,215	1.6x	12.46%	1.6x
Jefferies Capital Partners IV, L.P.	2005	Buyout	100,000,000	95,270,050	108,935,198	-	1.1x	2.85%	1.1x
K4 Private Investors, L.P.	2018	Buyout	100,000,000	69,737,813	4,564,017	66,441,303	1.0x	3.08%	0.1x
KKR 2006 Fund, L.P.	2006	Buyout	300,000,000	299,054,703	408,221,889	-	1.4x	6.52%	1.4x
KRG Capital Fund II (PA) L.P.	2001	Buyout	100,000,000	79,636,623	119,983,431	-	1.5x	22.08%	1.5x
KRG Capital Fund III, (PA) L.P.	2005	Buyout	88,000,000	88,076,832	77,248,244	-	0.9x	(2.67%)	0.9x
KRG Capital Fund IV, L.P.	2007	Buyout	300,000,000	287,028,332	337,445,210	-	1.2x	6.26%	1.2x
KRG Capital Partners I, L.P.	1999	Buyout	50,000,000	43,261,578	91,634,458	-	2.1x	17.75%	2.1x
L Catterton Growth Partners III, L.P.	2016	Buyout	100,000,000	82,126,179	24,732,159	114,199,397	1.7x	27.87%	0.3x
L Catterton VIII, L.P.	2016	Buyout	100,000,000	64,993,818	-	77,203,729	1.2x	13.41%	-
Landmark Equity Partners III, LP	1993	Secondary	27,085,010	27,085,010	76,454,209	-	2.8x	33.81%	2.8x
Landmark Equity Partners IV, LP	1994	Secondary	10,533,687	10,254,032	15,424,473	-	1.5x	16.66%	1.5x
Landmark Equity Partners XIII, L.P.	2006	Secondary	100,000,000	96,213,979	104,420,811	22,597,334	1.3x	5.36%	1.1x
Landmark Equity Partners XIV, L.P.	2008	Secondary	150,000,000	145,726,243	168,403,826	24,506,086	1.3x	9.38%	1.2x
Landmark Mezzanine Partners	1995	Secondary	75,000,000	59,315,512	107,971,301	-	1.8x	28.73%	1.8x
Lehman Brothers Merchant Banking Partners II, L.P.	1997	Buyout	158,552,133	168,556,341	220,371,513	-	1.3x	5.72%	1.3x
Lexington Capital Partners I, L.P.	1996	Secondary	50,000,000	49,613,120	62,993,730	-	1.3x	13.16%	1.3x
Lindsay Goldberg & Bessemer, L.P.	2002	Buyout	300,000,000	313,313,056	733,251,794	-	2.3x	34.18%	2.3x
Lindsay Goldberg V, L.P.	2019	Buyout	150,000,000	-	-	-	N/A	N/A	N/A
Milestone Partners FS 2, L.P.	2020	Buyout	39,240,590	39,240,590	-	38,882,326	1.0x	(0.91%)	-
Milestone Partners II, L.P.	2004	Buyout	29,890,000	27,844,247	44,374,647	-	1.6x	17.23%	1.6x
Milestone Partners III, L.P.	2008	Buyout	60,000,000	61,078,376	55,613,526	4,425,128	1.0x	(0.32%)	0.9x
Milestone Partners IV, L.P.	2011	Buyout	70,000,000	35,900,696	54,185,229	19,550,704	2.1x	9.93%	1.5x
Morgan Stanley DW Capital Partners IV, L.P.	1998	Buyout	300,000,000	236,774,394	478,042,786	-	2.0x	16.87%	2.0x
Navis Asia Fund V, L.P.	2007	Buyout	100,000,000	121,024,807	181,335,725	-	1.5x	8.83%	1.5x
New Mountain Partners III, L.P.	2007	Buyout	300,000,000	305,309,625	406,920,130	234,269,331	2.1x	13.50%	1.3x
New Mountain Partners IV, L.P.	2013	Buyout	100,000,000	89,272,197	86,898,590	77,173,924	1.8x	22.90%	1.0x
New Mountain Partners V, L.P.	2017	Buyout	200,000,000	105,888,371	2,487,777	122,569,997	1.2x	15.68%	0.0x

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
New Mountain Partners, L.P.	2000	Buyout	192,509,033	161,121,249	243,188,690	-	1.5x	13.69%	1.5x
New York Life Capital Partners I, L.P.	1999	Buyout	200,000,000	205,037,393	226,909,340	158,847	1.1x	1.75%	1.1x
New York Life Capital Partners II, L.P.	2001	Buyout	200,000,000	194,782,469	552,868,863	459,515	2.8x	32.47%	2.8x
New York Life Capital Partners III-A, L.P.	2005	Buyout	200,000,000	218,961,291	211,174,370	772,137	1.0x	(0.48%)	1.0x
New York Life Capital Partners IV-A, L.P.	2008	Buyout	100,000,000	109,607,090	190,419,281	19,037,761	1.9x	13.84%	1.7x
NGP Natural Resources X, L.P.	2012	Buyout	100,000,000	102,080,519	82,352,330	22,111,457	1.0x	0.74%	0.8x
NGP Natural Resources XI, L.P.	2014	Buyout	100,000,000	95,269,634	29,222,191	82,371,261	1.2x	6.96%	0.3x
Nordic Capital VII Beta, L.P.	2008	Buyout	168,234,991	187,621,305	230,587,380	-	1.2x	5.34%	1.2x
North Haven Private Equity Asia IV, L.P.	2013	Buyout	100,000,000	113,530,672	46,215,765	100,001,643	1.3x	8.41%	0.4x
Odyssey Investment Partners Fund V, L.P.	2014	Buyout	100,000,000	85,979,364	13	97,660,052	1.1x	5.09%	0.0x
Orchid Asia Fund VI, L.P.	2014	Buyout	75,000,000	73,475,285	14,459,329	72,004,061	1.2x	7.98%	0.2x
Orchid Asia V, L.P.	2011	Buyout	40,000,000	35,822,235	53,678,953	9,352,115	1.8x	26.34%	1.5x
Orchid Asia VII, L.P.	2017	Buyout	75,000,000	22,052,552	240,549	23,618,201	1.1x	11.02%	0.0x
PAI Europe III	2001	Buyout	336,469,981	335,956,000	1,112,343,391	-	3.3x	38.15%	3.3x
PAI Europe IV	2005	Buyout	112,156,660	131,323,788	193,968,308	4,250,580	1.5x	9.39%	1.5x
PAI Europe V	2008	Buyout	112,156,660	130,515,315	223,586,617	2,316,555	1.7x	9.23%	1.7x
PAI Europe VI	2015	Buyout	112,156,660	106,381,565	44,247,249	98,569,831	1.3x	13.11%	0.4x
PAI Europe VII	2018	Buyout	140,195,826	10,196,389	-	7,064,698	0.7x	(32.88%)	-
Palladium Equity Partners II-A, L.P.	2000	Buyout	57,750,000	67,771,944	142,953,682	-	2.1x	8.46%	2.1x
Palladium Equity Partners IV, L.P.	2012	Buyout	75,000,000	71,422,889	34,922,568	63,546,201	1.4x	11.68%	0.5x
Partners Group Secondary 2008 S.C.A., SICAR	2007	Secondary	168,234,991	178,460,588	249,380,268	17,988,140	1.5x	8.75%	1.4x
Partners Group Secondary 2011 (USD), L.P. Inc.	2011	Secondary	100,000,000	63,330,430	78,787,325	31,188,515	1.7x	15.94%	1.2x
Partners Group Secondary 2015 (USD) A, L.P.	2015	Secondary	100,000,000	47,402,320	8,506,282	52,050,424	1.3x	14.99%	0.2x
Permira IV, L.P.	2006	Buyout	140,195,826	170,128,039	254,816,724	22,357,901	1.6x	8.72%	1.5x
Platinum Equity Capital Partners II, L.P.	2007	Buyout	300,000,000	283,245,919	436,208,541	21,242,915	1.6x	12.69%	1.5x
Platinum Equity Capital Partners III, L.P.	2012	Buyout	200,000,000	176,922,044	236,258,009	105,885,682	1.9x	28.43%	1.3x
Platinum Equity Capital Partners IV, L.P.	2016	Buyout	300,000,000	260,897,764	75,387,380	267,103,483	1.3x	22.49%	0.3x
Platinum Equity Capital Partners V, L.P.	2019	Buyout	300,000,000	1,022,876	-	774,443	0.8x	N/A	-
Platinum Equity Capital Partners, L.P.	2004	Buyout	125,000,000	98,459,619	250,769,692	9,901,089	2.6x	59.93%	2.5x

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
Platinum Equity Small Cap Fund, L.P.	2018	Buyout	160,000,000	27,544,826	400,320	16,976,339	0.6x	(57.57%)	0.0x
PNC Equity Partners II, L.P.	2007	Buyout	68,065,386	59,222,426	125,464,678	223,107	2.1x	14.81%	2.1x
PNC Equity Partners, L.P.	2001	Buyout	43,154,458	39,619,636	77,640,378	-	2.0x	21.11%	2.0x
Portfolio Advisors Secondary Fund III, L.P.	2017	Secondary	125,000,000	79,805,417	20,995,868	82,285,542	1.3x	31.73%	0.3x
Providence Equity Partners VI, L.P.	2007	Buyout	300,000,000	316,291,227	403,436,046	-	1.3x	5.69%	1.3x
Quadrangle Capital Partners II, L.P.	2005	Buyout	250,000,000	227,201,835	296,569,830	-	1.3x	5.70%	1.3x
Quadrangle Capital Partners, L.P.	2001	Buyout	270,422,415	225,438,094	386,739,733	-	1.7x	11.07%	1.7x
StepStone International Investors III L.P.	2007	Secondary	112,156,660	136,755,032	110,130,511	3,225,098	0.8x	(3.65%)	0.8x
Sterling Capital Partners, L.P.	2002	Buyout	75,000,000	84,393,474	163,071,264	5,895,179	2.0x	17.81%	1.9x
Strategic Feeder, L.P.	2001	Secondary	200,000,000	194,687,388	308,973,117	-	1.6x	16.81%	1.6x
Strategic Partners Fund II, L.P.	2003	Secondary	300,000,000	265,035,869	473,134,217	-	1.8x	34.15%	1.8x
Strategic Partners Fund III-B, L.P.	2005	Secondary	200,000,000	218,827,873	293,051,861	839,965	1.3x	6.14%	1.3x
Strategic Partners Fund IV, L.P.	2008	Secondary	100,000,000	96,000,852	144,823,889	9,979,646	1.6x	13.15%	1.5x
Strategic Partners Fund V, L.P.	2011	Secondary	150,000,000	123,143,002	175,645,660	28,859,673	1.7x	19.46%	1.4x
Strategic Partners Fund VI, L.P.	2014	Secondary	150,000,000	107,086,582	105,124,289	47,004,537	1.4x	16.16%	1.0x
Strategic Partners Fund VII, L.P.	2016	Secondary	250,000,000	156,004,532	48,921,837	183,798,130	1.5x	26.78%	0.3x
Sunrise Capital Partners, L.P.	1998	Buyout	57,388,755	57,104,502	20,834,805	-	0.4x	(15.59%)	0.4x
The Energy & Minerals Group Fund III, L.P.	2014	Buyout	100,000,000	100,796,932	11,094,698	62,488,974	0.7x	(7.26%)	0.1x
TPG Partners II, L.P.	1997	Buyout	50,000,000	53,854,393	91,361,723	-	1.7x	9.93%	1.7x
TPG Partners V, L.P.	2006	Buyout	250,000,000	261,876,873	307,855,529	-	1.2x	3.11%	1.2x
TPG Partners VI, L.P.	2008	Buyout	360,000,000	364,618,439	486,773,394	-	1.3x	10.75%	1.3x
TPG Partners, L.P.	1993	Buyout	24,194,356	24,465,437	89,300,776	-	3.7x	36.55%	3.7x
Trilantic Capital Partners IV L.P.	2007	Buyout	76,752,676	79,470,839	118,525,922	7,679,173	1.6x	13.70%	1.5x
Trilantic Capital Partners V (North America), L.P.	2013	Buyout	100,000,000	110,826,328	104,002,098	62,058,318	1.5x	16.13%	0.9x
Trilantic Capital Partners VI (North America), L.P.	2018	Buyout	150,000,000	35,258,143	336,687	33,550,344	1.0x	(3.34%)	0.0x
U.S. Equity Partners II, L.P.	2002	Buyout	300,000,000	218,963,263	427,862,437	-	2.0x	14.97%	2.0x

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
U.S. Equity Partners, L.P.	1996	Buyout	75,000,000	76,336,235	69,738,856	-	0.9x	(1.56%)	0.9x
Webster Capital IV, L.P.	2018	Buyout	75,000,000	43,522,500	664	46,788,195	1.1x	8.48%	0.0x
Wicks Communications and Media Partners, L.P.	1999	Buyout	87,500,000	88,993,376	115,304,727	-	1.3x	8.57%	1.3x
Willis Stein & Partners, L.P.	1996	Buyout	25,000,000	25,004,635	53,581,016	-	2.1x	20.65%	2.1x
PSERS Buyout Portfolio Total			22,844,788,561	20,487,106,602	25,758,159,691	5,423,175,636	1.5x	11.75%	1.3x

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
Special Situations Portfolio									
Apollo Investment Fund IX, L.P.	2018	Special Situations	225,000,000	41,803,699	419,560	36,445,117	0.9x	(22.11%)	0.0x
Apollo Investment Fund VIII, L.P.	2013	Special Situations	220,000,000	203,108,139	94,168,018	189,010,017	1.4x	12.12%	0.5x
Avenue Asia Special Situations Fund II, L.P.	2001	Special Situations	220,000,000	220,000,000	413,276,527	-	1.9x	21.47%	1.9x
Avenue Asia Special Situations Fund III, L.P.	2003	Special Situations	100,000,000	76,892,230	114,952,589	-	1.5x	8.41%	1.5x
Avenue Asia Special Situations Fund IV, L.P.	2006	Special Situations	300,000,000	225,070,059	246,579,577	-	1.1x	1.98%	1.1x
Avenue Europe Special Situations Fund, L.P.	2008	Special Situations	224,313,321	260,544,517	362,645,255	-	1.4x	12.18%	1.4x
Avenue Special Situations Fund II, L.P.	2000	Special Situations	125,000,000	126,838,089	199,775,750	-	1.6x	19.22%	1.6x
Avenue Special Situations Fund III, L.P.	2002	Special Situations	205,156,000	152,853,651	259,715,762	-	1.7x	18.53%	1.7x
Avenue Special Situations Fund IV, L.P.	2006	Special Situations	115,000,000	144,782,669	190,119,308	-	1.3x	8.40%	1.3x
Avenue Special Situations Fund V, L.P.	2007	Special Situations	300,000,000	301,785,852	399,729,589	-	1.3x	11.07%	1.3x
Avenue Special Situations Fund VI, L.P.	2010	Special Situations	75,000,000	76,892,726	76,363,160	5,255,873	1.1x	1.38%	1.0x
Cerberus Institutional Partners L.P. (Series Two)	2001	Special Situations	200,000,000	173,047,901	539,836,820	-	3.1x	27.08%	3.1x
Cerberus Institutional Partners V, L.P.	2012	Special Situations	200,000,000	212,359,277	216,968,655	144,514,493	1.7x	12.57%	1.0x
Cerberus Institutional Partners VI, L.P.	2015	Special Situations	200,000,000	207,028,933	33,872,857	197,848,014	1.1x	6.77%	0.2x
Cerberus Institutional Partners, L.P. - Series 3	2003	Special Situations	100,000,000	81,055,777	161,222,268	1,568,083	2.0x	12.89%	2.0x
Cerberus Institutional Partners, L.P. (Series 4)	2006	Special Situations	400,000,000	369,661,873	604,320,113	61,819,831	1.8x	9.08%	1.6x
Clearlake Capital Partners IV, L.P.	2015	Special Situations	57,500,000	77,161,821	53,285,897	73,034,045	1.6x	31.50%	0.7x
Clearlake Capital Partners V, L.P.	2018	Special Situations	100,000,000	73,191,185	13,700,279	98,282,428	1.5x	54.18%	0.2x
Gleacher Mezzanine Fund I, L.P.	2001	Special Situations	75,000,000	63,450,304	95,943,900	-	1.5x	20.30%	1.5x
Gleacher Mezzanine Fund II, L.P.	2007	Special Situations	100,000,000	91,977,798	121,870,338	753,187	1.3x	10.59%	1.3x
Gold Hill Venture Lending 03, L.P.	2004	Special Situations	50,000,000	50,000,000	81,731,620	479,081	1.6x	10.80%	1.6x
GSC Partners CDO Investors III, L.P.	2001	Special Situations	80,000,000	80,000,000	146,903,688	-	1.8x	18.58%	1.8x
GSC Partners CDO Investors IV, L.P.	2003	Special Situations	80,000,000	80,000,000	114,506,209	-	1.4x	7.17%	1.4x
GSC Recovery II, L.P.	2000	Special Situations	280,000,000	279,170,771	430,168,227	-	1.5x	10.13%	1.5x
GSC Recovery III (Parallel Fund), L.P.	2005	Special Situations	200,000,000	201,994,894	267,374,604	-	1.3x	6.68%	1.3x
NYLIM Mezzanine Partners (Parallel Fund) L.P.	2003	Special Situations	75,000,000	69,151,449	93,056,893	-	1.3x	9.88%	1.3x

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
NYLIM Mezzanine Partners II (Parallel Fund) LP	2006	Special Situations	150,000,000	166,209,906	211,122,379	104,473	1.3x	6.99%	1.3x
OCM Opportunities Fund VII, L.P.	2007	Special Situations	75,000,000	75,000,000	100,198,889	2,778,907	1.4x	7.33%	1.3x
OCM Opportunities Fund VII-B, L.P.	2008	Special Situations	225,000,000	202,500,000	346,672,327	4,082,153	1.7x	16.53%	1.7x
Searchlight Capital Partners II, L.P.	2015	Special Situations	74,000,000	56,544,981	10,879,450	63,843,273	1.3x	15.43%	0.2x
Searchlight Capital Partners III, L.P.	2019	Special Situations	150,000,000	-	-	-	N/A	N/A	N/A
Tulco LLC	2019	Special Situations	100,000,000	100,000,000	-	109,907,192	1.1x	9.91%	-
Venor Special Situations Fund II, L.P.	2015	Special Situations	100,000,000	100,000,000	54,150,933	66,332,553	1.2x	6.24%	0.5x
Versa Capital Fund I, L.P.	2005	Special Situations	75,000,000	88,556,473	88,976,434	12,529,998	1.1x	2.72%	1.0x
Versa Capital Fund II, L.P.	2008	Special Situations	150,000,000	166,539,127	79,588,569	49,042,194	0.8x	(5.87%)	0.5x
Versa Capital Fund III, L.P.	2015	Special Situations	150,000,000	135,000,000	3,375,000	99,454,592	0.8x	(11.15%)	0.0x
Windjammer Senior Equity Fund III, L.P.	2006	Special Situations	50,000,000	45,230,610	106,717,135	-	2.4x	19.56%	2.4x
Windjammer Senior Equity Fund IV, L.P.	2012	Special Situations	100,000,000	86,855,484	110,831,454	-	1.3x	7.42%	1.3x
Special Situations Portfolio Total			5,705,969,321	5,162,260,196	6,445,020,032	1,217,085,504	1.5x	12.84%	1.2x

Performance Summary by Fund (continued)

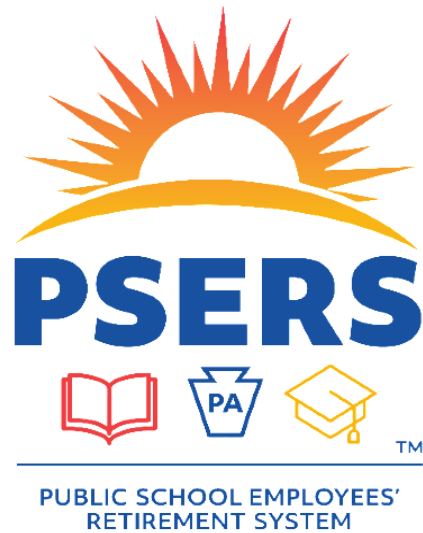
Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
Venture Capital/Growth Equity Portfolio									
Adams Capital Management, L.P.	1997	Venture Capital	12,500,000	12,500,000	22,671,838	160,867	1.8x	44.80%	1.8x
Aisling Capital II, L.P.	2006	Venture Capital	50,000,000	58,983,213	57,850,047	2,545,489	1.0x	0.41%	1.0x
Aisling Capital III, L.P.	2008	Venture Capital	50,000,000	56,403,429	129,770,506	4,920,993	2.4x	26.59%	2.3x
Aisling Capital IV, L.P.	2016	Venture Capital	100,000,000	110,691,981	46,176,889	113,340,871	1.4x	24.99%	0.4x
APA/Fostin Venture Fund I, L.P.	1987	Venture Capital	20,000,000	20,000,000	77,132,193	-	3.9x	19.88%	3.9x
CEO Venture Fund I, L.P.	1987	Venture Capital	1,000,000	1,000,000	1,101,749	-	1.1x	1.43%	1.1x
CEO Venture Fund II, L.P.	1989	Venture Capital	15,000,000	15,000,000	10,651,730	-	0.7x	(4.17%)	0.7x
Co-Investment 2000 Fund, L.P.	2000	Venture Capital	135,000,000	135,286,750	212,362,128	32,507	1.6x	7.59%	1.6x
Co-Investment Fund II, L.P.	2006	Venture Capital	135,000,000	134,811,285	50,229,127	72,467,956	0.9x	(1.17%)	0.4x
Commonwealth Venture Partners I	1986	Venture Capital	20,000,000	20,000,000	20,584,156	-	1.0x	0.30%	1.0x
Commonwealth Venture Partners II	1992	Venture Capital	10,000,000	10,000,000	15,214,766	-	1.5x	15.10%	1.5x
Cross Atlantic Technology Fund II, L.P.	2001	Venture Capital	21,119,734	21,119,734	21,562,069	71,282	1.0x	0.40%	1.0x
Cross Atlantic Technology Fund, L.P.	1999	Venture Capital	30,141,666	30,357,584	35,781,536	68,954	1.2x	2.33%	1.2x
Edison II-PA Venture Fund	1991	Venture Capital	10,000,000	10,000,000	25,972,603	-	2.6x	22.19%	2.6x
Edison Venture Fund III, L.P.	1994	Venture Capital	14,807,690	14,807,690	28,785,013	-	1.9x	18.19%	1.9x
Franklin Capital Associates III, L.P.	1995	Venture Capital	15,000,000	15,000,000	14,558,465	-	1.0x	(0.33%)	1.0x
Genesis Seed Fund	1987	Venture Capital	2,000,000	2,000,000	815,687	-	0.4x	(12.43%)	0.4x
Grotech Capital Partners IV, L.P.	1993	Venture Capital	25,000,000	25,000,000	44,210,693	-	1.8x	15.67%	1.8x
Insight Partners XI, L.P.	2019	Venture Capital	150,000,000	-	-	-	N/A	N/A	N/A
Insight Venture Partners X, L.P.	2018	Venture Capital	100,000,000	82,500,000	34,245	102,746,308	1.2x	25.19%	0.0x
Jefferson Partners Fund IV, L.P.	2003	Venture Capital	22,414,407	24,583,511	219,088	-	0.0x	(54.80%)	0.0x
KBL Partnership, L.P.	1999	Venture Capital	13,743,333	13,711,864	6,919,745	695,230	0.6x	(9.51%)	0.5x
Keystone Minority Capital Fund	1994	Venture Capital	114,865	114,865	15,365	-	0.1x	(15.91%)	0.1x
Keystone Venture Fund IV, L.P.	1993	Venture Capital	7,766,667	7,766,666	5,904,516	-	0.8x	(8.41%)	0.8x
Landmark Equity Partners II, L.P.	1992	Venture Capital	25,000,000	25,000,000	39,042,318	-	1.6x	24.34%	1.6x
Landmark Equity Partners V, L.P.	1995	Venture Capital	49,060,283	48,481,948	59,574,190	-	1.2x	8.28%	1.2x
Lehman Brothers Communications Partners, L.P.	1999	Venture Capital	12,500,000	11,442,260	5,210,205	-	0.5x	(13.81%)	0.5x
LLR Equity Partners II, L.P.	2004	Venture Capital	75,000,000	75,003,401	135,331,303	883,523	1.8x	12.42%	1.8x

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
LLR Equity Partners III, L.P.	2008	Venture Capital	187,500,000	168,296,850	311,245,950	36,600,094	2.1x	16.73%	1.8x
LLR Equity Partners IV, L.P.	2013	Venture Capital	200,000,000	184,000,000	208,583,261	177,304,684	2.1x	27.91%	1.1x
LLR Equity Partners V, L.P.	2017	Venture Capital	200,000,000	124,000,000	19,473,515	123,735,713	1.2x	18.50%	0.2x
LLR Equity Partners, L.P.	1999	Venture Capital	62,500,000	61,344,870	131,600,274	-	2.1x	21.74%	2.1x
Loyalhanna Venture Fund	1987	Venture Capital	15,000,000	15,000,000	21,446,203	-	1.4x	3.58%	1.4x
NEPA Venture Fund I	1985	Venture Capital	1,000,000	1,000,000	6,080,528	-	6.1x	17.08%	6.1x
NEPA Venture Fund II	1992	Venture Capital	5,000,000	5,000,000	23,252,576	579,363	4.8x	38.02%	4.7x
Novitas Capital II, L.P.	2000	Venture Capital	75,000,000	74,775,000	16,643,432	-	0.2x	(18.72%)	0.2x
Novitas Capital, L.P.	1998	Venture Capital	30,000,000	29,952,000	35,662,962	-	1.2x	9.22%	1.2x
P/A Fund	1993	Venture Capital	30,000,000	30,000,000	66,835,233	-	2.2x	18.83%	2.2x
Perseus-Soros BioPharmaceutical Fund, L.P.	2001	Venture Capital	112,206,666	124,112,299	202,856,847	624,573	1.6x	20.29%	1.6x
Psilos Group Partners III, L.P.	2007	Venture Capital	62,500,000	64,471,078	32,146,734	65,007,050	1.5x	5.62%	0.5x
Quaker BioVentures II, L.P.	2007	Venture Capital	100,000,000	98,153,932	97,999,292	-	1.0x	(0.04%)	1.0x
Quaker Bio-Ventures, L.P.	2003	Venture Capital	69,350,000	69,458,692	28,113,254	-	0.4x	(13.37%)	0.4x
Sante Health Ventures III, L.P.	2019	Venture Capital	75,000,000	15,503,933	2,270,833	15,919,003	1.2x	28.40%	0.1x
SCP Private Equity Partners I, L.P.	1996	Venture Capital	62,500,000	63,285,918	43,196,320	-	0.7x	(6.43%)	0.7x
SCP Private Equity Partners II, L.P.	2000	Venture Capital	125,000,000	129,745,343	41,010,860	13,595,629	0.4x	(8.59%)	0.3x
Spectrum Equity Investors, L.P.	1994	Venture Capital	25,000,000	25,000,000	52,261,392	-	2.1x	23.59%	2.1x
StarVest	1999	Venture Capital	67,500,000	65,659,367	113,929,664	84,175	1.7x	7.38%	1.7x
StarVest Partners II (Parallel), L.P.	2007	Venture Capital	50,000,000	49,586,990	21,856,959	25,362,472	1.0x	(0.68%)	0.4x
Sterling Venture Partners I, L.P.	2000	Venture Capital	33,986,000	36,115,022	39,387,959	76,596	1.1x	1.65%	1.1x
Strategic Partners Fund III VC, L.P.	2005	Venture Capital	50,000,000	56,524,122	73,410,509	975,436	1.3x	5.83%	1.3x
Strategic Partners Fund IV VC, L.P.	2008	Venture Capital	50,000,000	58,917,760	75,922,406	5,901,744	1.4x	7.56%	1.3x
Summit Partners Growth Equity Fund IX, L.P.	2017	Venture Capital	100,000,000	94,536,174	27,858,013	98,424,377	1.3x	28.92%	0.3x
Summit Partners Growth Equity Fund VIII, L.P.	2012	Venture Capital	100,000,000	110,778,631	188,635,669	53,015,923	2.2x	26.49%	1.7x
Summit Partners Growth Equity Fund X, L.P.	2019	Venture Capital	150,000,000	-	-	-	N/A	N/A	N/A
Summit Partners Venture Capital Fund III, L.P.	2012	Venture Capital	25,000,000	26,805,000	29,011,686	24,527,556	2.0x	17.31%	1.1x
Summit Partners Venture Capital Fund IV, L.P.	2015	Venture Capital	50,000,000	32,185,701	29,012,052	24,254,079	1.7x	39.22%	0.9x
TDH III, L.P.	1993	Venture Capital	7,350,750	7,350,750	4,874,316	-	0.7x	(5.23%)	0.7x

Performance Summary by Fund (continued)

Partnership	Vintage Year	Strategy	Capital Committed	Contributions	Distributions	NAV	MoC	Since Inception IRR	DPI
Technology Leaders, L.P.	1992	Venture Capital	10,000,000	10,000,000	22,111,898	-	2.2x	23.24%	2.2x
Tenaya Capital IV-P, L.P.	2003	Venture Capital	75,000,000	72,679,657	103,124,246	9,458,625	1.5x	6.72%	1.4x
Tenaya Capital VI, L.P.	2012	Venture Capital	50,000,000	48,803,702	-	48,569,919	1.0x	(0.09%)	-
Tenaya Capital VII, L.P.	2015	Venture Capital	100,000,000	77,246,701	16,563,827	91,302,818	1.4x	16.20%	0.2x
Tenaya Capital V-P, L.P.	2007	Venture Capital	75,000,000	71,675,021	132,870,375	27,187,696	2.2x	18.25%	1.9x
TL Ventures III, L.P.	1997	Venture Capital	50,000,000	50,000,000	69,245,707	-	1.4x	24.67%	1.4x
Venture Capital Portfolio Total			3,603,562,061	3,133,530,694	3,356,176,921	1,140,441,505	1.4x	8.04%	1.1x
Total Portfolio			33,080,978,010	29,645,268,408	36,041,121,380	8,618,779,899	1.5x	11.37%	1.2x



Private Equity Asset Class Review Year-End 2019

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