



Semi-Annual Board Update

For the period ending June 30, 2019

Report Prepared For:



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I. Overview

StepStone Group LP (“StepStone”) was engaged by Pennsylvania State Employees’ Retirement System (“SERS”) to provide Private Equity Advisory services for prospective investment opportunities as well as portfolio monitoring and reporting. StepStone monitors new and existing private equity investments for SERS at both the fund level and underlying portfolio company level to provide detailed performance and exposure analysis. The following report represents SERS’ portfolio of Private Investments (the “Portfolio”).

Since inception through June 30, 2019, SERS has committed US\$13.3 billion to 305 partnerships, of which 176 are active. This quarterly monitoring report covers the performance of the Portfolio as of June 30, 2019, as well as significant activity that occurred during the second quarter of 2019. Natural Resource partnerships are included in Buyout as of July 1, 2016. SERS consolidated 171 Fund investments under Keystone Legacy Fund as of July 1, 2018.

Portfolio Performance Assessment

As of June 30, 2019, the Portfolio managed by SERS consisted of the following (all amounts herein US\$ millions unless otherwise noted):

	INCEPTION TO DATE		INCEPTION TO DATE		INCEPTION TO DATE	
<i>US\$ in millions</i>	JUNE 30, 2019	MARCH 31, 2019	JUNE 30, 2018	QUARTERLY Δ	ANNUAL Δ	
Number of Managers	112	112	108	-	4	
Number of Investments	305	301	291	4	14	
Number of Active Managers	63	63	61	-	2	
Number of Active Investments	176	171	162	5	14	
Committed Capital ¹	\$13,250.3	\$12,950.3	\$12,211.9	\$300.0	\$1,038.3	
Contributed Capital ²	16,363.9	16,166.9	15,670.9	197.0	693.0	
Distributed Capital ³	22,195.1	21,952.7	21,243.6	242.5	951.6	
Market Value	3,985.3	3,919.6	3,902.5	65.7	82.8	
Total Value	26,180.4	25,872.2	25,146.0	308.2	1,034.4	
Unfunded Commitment	2,868.4	2,729.3	2,091.5	139.1	777.0	
Total Exposure ⁴	6,853.7	6,648.9	5,993.9	204.8	859.7	
Total Gain/(Loss)	\$9,816.5	\$9,705.3	\$9,475.1	\$111.1	\$341.3	
DPI ⁵	1.36x	1.36x	1.36x	0.00x	0.00x	
TVM ⁶	1.60x	1.60x	1.60x	0.00x	(0.00x)	
IRR ⁷	12.23%	12.23%	12.28%	(0) bps	(5) bps	

Note: Portfolio excludes T.Rowe Price Stock Distribution Account. **Past performance is not necessarily indicative of future results** and there can be no assurance that the fund will achieve comparable results or avoid substantial losses.

Portfolio Performance vs. Benchmarks

The Portfolio's performance is measured against two benchmarks, the Russell 3000® and Burgiss Private iQ.

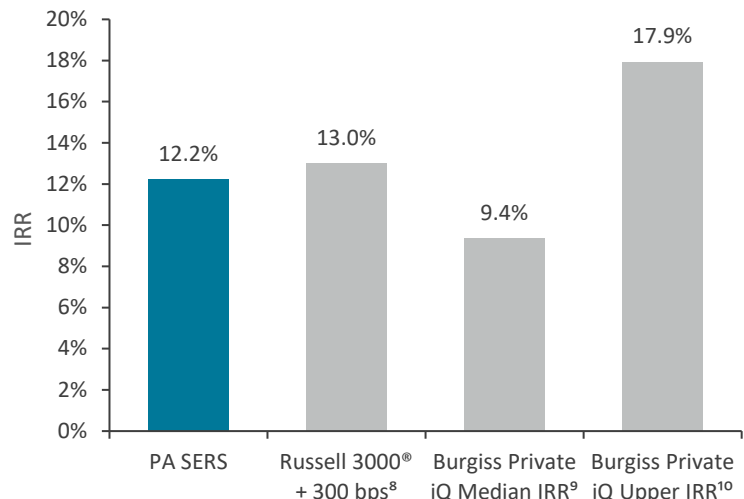
The following graph illustrates Portfolio IRR performance versus benchmarks as of June 30, 2019.

StepStone believes the Russell 3000® Index plus 300 bps from inception appropriately reflects the opportunity cost of investing in Buyout, Venture, and Special Situations investments versus publicly traded common stocks and therefore is an appropriate benchmark for SERS.

SERS' returns include Buyout, Venture Capital, and Special Situations investments from vintage years 1980 to 2019.

SERS' Core Venture Capital, Buyout, and Special Situations investments have a since inception IRR of 16.5%, 15.2%, and 13.9% respectively.

PORTFOLIO PERFORMANCE vs BENCHMARKS



	1 YEAR RETURN	3 YEAR RETURN	5 YEAR RETURN	10 YEAR RETURN
SERS Combined Portfolio (IRR)	9.0%	11.7%	8.3%	13.4%
Burgiss Private iQ Pooled PE Benchmark ¹¹	11.0%	14.7%	11.3%	14.0%
Burgiss Private iQ All PE Top-Quartile ¹²	18.4%	20.2%	18.0%	19.5%
Russell 3000 ⁸	9.0%	14.0%	10.2%	14.7%
Russell 3000® + 300 bps ⁸	12.0%	17.0%	13.2%	17.7%
SERS Core Buyout (IRR)	10.1%	14.2%	11.8%	16.2%
Burgiss Private iQ Pooled Buyout Benchmark ¹¹	8.8%	15.1%	10.9%	14.3%
Burgiss Private iQ Buyout Top-Quartile ¹²	17.3%	23.4%	19.2%	21.0%
SERS Core Venture Capital (IRR)	24.1%	21.5%	15.6%	20.4%
Burgiss Private iQ Pooled VC Benchmark ¹¹	20.1%	17.3%	15.5%	15.3%
Burgiss Private iQ VC Top-Quartile ¹²	24.8%	21.6%	20.8%	20.8%
SERS Core Special Situations (IRR)	13.8%	12.0%	7.9%	17.0%
Burgiss Private iQ Pooled SS Benchmark ¹¹	4.3%	8.6%	6.6%	11.2%
Burgiss Private iQ SS Top-Quartile ¹²	9.9%	13.0%	12.1%	13.1%
SERS Keystone Legacy Fund (IRR)	(3.3%)	5.2%	3.5%	9.4%
Burgiss Private iQ Pooled PE Benchmark ¹¹	11.0%	14.7%	11.3%	14.0%
Burgiss Private iQ All PE Top-Quartile ¹²	18.4%	20.2%	18.0%	19.5%

Note: Burgiss Private iQ data is continuously updated and is therefore subject to change. The referenced indices are shown for general market comparisons and are not meant to represent any specific fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

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

II. Market Overview

Executive Summary

Global equity markets advanced during the second quarter of 2019 as U.S.-China trade tensions diminished near the end of the quarter and investor sentiment improved due to major central banks indicating accommodative monetary policy if necessary. The MSCI Emerging Markets Index declined 0.3%, as trade uncertainty weighed on Chinese and South Korean stocks. The MSCI Europe Index gained 2.9%, despite a sharp drop in May, as European Central Bank President, Mario Draghi, hinted at further monetary policy easing if the inflation outlook fails to improve. The S&P 500 Total Return Index achieved a new record high during the quarter, returning 4.3%, as the Federal Reserve indicated that there may be rate cuts in the coming months. Elevated trade tensions with China rattled markets in May as the U.S. increased tariffs on US\$200 billion of Chinese goods from 10% to 25%, and China retaliated with measures on US\$60 billion of U.S. exports. However, markets calmed in June as optimism grew that the dispute would be resolved when leaders of the two countries met at the G20 summit.

In private markets, U.S. leveraged buyout (“LBO”) debt volume decreased by 53.6% quarter-over-quarter, from US\$36.6 billion to US\$17.0 billion, 50.8% lower than the second quarter of 2018 and 10.5% lower than the 10-year quarterly average of US\$19.0 billion. According to data from S&P, purchase price multiples for U.S. LBOs increased to 11.3x EBITDA in the second quarter, up 10.2% from 10.3x EBITDA in the prior quarter, and above the 10-year average of 9.7x EBITDA. Average debt multiples of large corporate U.S. LBO loans remained at 5.7x for the quarter, above the 10-year average of 5.2x. Equity contributions for U.S. LBOs increased to 46.8%, a 10.9% increase quarter-over-quarter and above the 10-year average of 41.8%.¹³

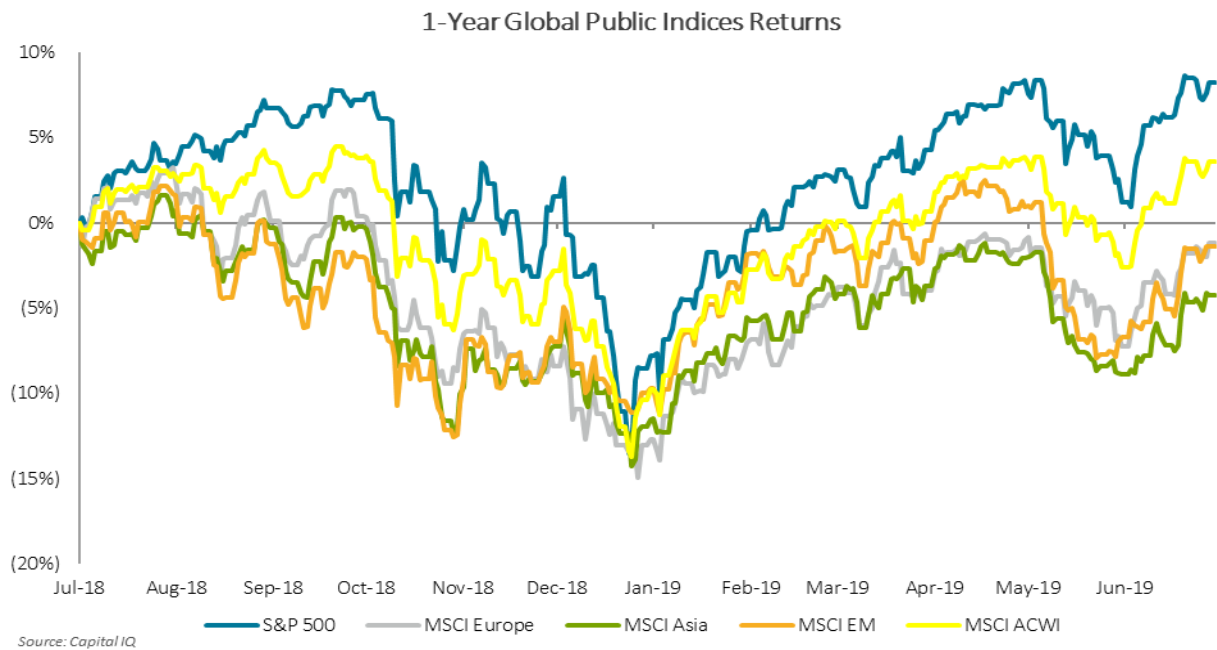
Fundraising for global private equity totaled US\$152.9 billion in the second quarter of 2019, a 15.4% decrease compared to the prior quarter and a 45.0% increase from the second quarter of 2018. Geographically, the U.S. represented 65.8% of total funds raised in the quarter, higher than the 10-year average of 59.1%. Funds raised in Europe, Asia, and the Rest of World made up 18.0%, 9.6% and 6.6% of global fundraising for the quarter, respectively. Invested capital for private equity funds increased 13.1% quarter-over-quarter and decreased 1.5% year-over-year, with US\$88.0 billion invested in 3,475 deals. A significant portion of the capital deployed was in the Information Technology sector, accounting for 38.1% compared to the 10-year average of 35.9%.¹⁴

Private equity-backed IPO transaction volume increased in the second quarter with US\$21.8 billion raised in 42 IPOs. The amount raised through IPOs increased 457.6% compared to the prior quarter and 134.8% compared to the second quarter of 2018. The largest IPOs of the quarter were completed by Uber Technologies, Inc. (NYSE: UBER), a provider of technology applications that enable providers of ridesharing and meal preparation and delivery services to transact with end-users worldwide, which raised US\$8.1 billion, and Avantor Inc (NYSE: AVTR), a developer of products and services to customers in the biopharma, healthcare, education and government, and advanced technologies and applied materials industries, which raised US\$3.3 billion. Together these deals represented 53.7% of the total value for all IPOs in the quarter. M&A activity decreased in the second quarter with a total value of US\$87.7 billion, a 50.2% decrease compared to the prior quarter and a 59.5% decrease compared to the second quarter of 2018. The largest M&A deals of the quarter were the US\$19.7 billion purchase of L3 Technologies, Inc. by L3Harris Technologies, Inc. (NYSE: LHX) and the US\$8.0 billion purchase of ARRIS International Limited by CommScope Holding Company, Inc. Together these deals represent 31.6% of the total value for all deals in the quarter.¹⁵

Capital Markets Overview

Public Equity Markets

Global public markets grew, and several key market indexes hit record highs during the quarter as U.S.-China trade tensions eased and major banks around the world made it clear that the era of easy monetary policy is far from over. U.S. markets fueled global growth as investors took comfort in the growing likelihood of future interest rate cuts. Financials, Materials, and Information Technology sectors for U.S. equities increased 5.4%, 4.7%, and 4.6% for the quarter, respectively. Although global markets grew over the quarter, uncertainty with U.S.-China trade negotiations remains a concern amongst investors.



The following table shows the returns of four major MSCI indices, as well as the S&P 500 and the S&P 500 Total Return Index, over various time horizons through June 30, 2019. Returns for time periods greater than one year are annualized. During the quarter, U.S. markets increased 4.3% followed by MSCI ACWI at 2.9%, and MSCI Europe at 2.9%, while MSCI Emerging Markets declined 0.3% and MSCI Asia declined 0.6%.

Regional Indices

	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr
MSCI Asia	(0.6%)	(4.3%)	7.7%	2.6%	4.6%
MSCI Europe	2.9%	(1.2%)	6.0%	(1.6%)	3.9%
MSCI EM	(0.3%)	(1.4%)	8.1%	0.1%	3.3%
MSCI ACWI	2.9%	3.6%	9.4%	4.1%	7.9%
S&P 500	3.8%	8.2%	11.9%	8.5%	12.3%
S&P 500 Total Return*	4.3%	10.4%	14.2%	10.7%	14.7%

For the period ended June 30, 2019

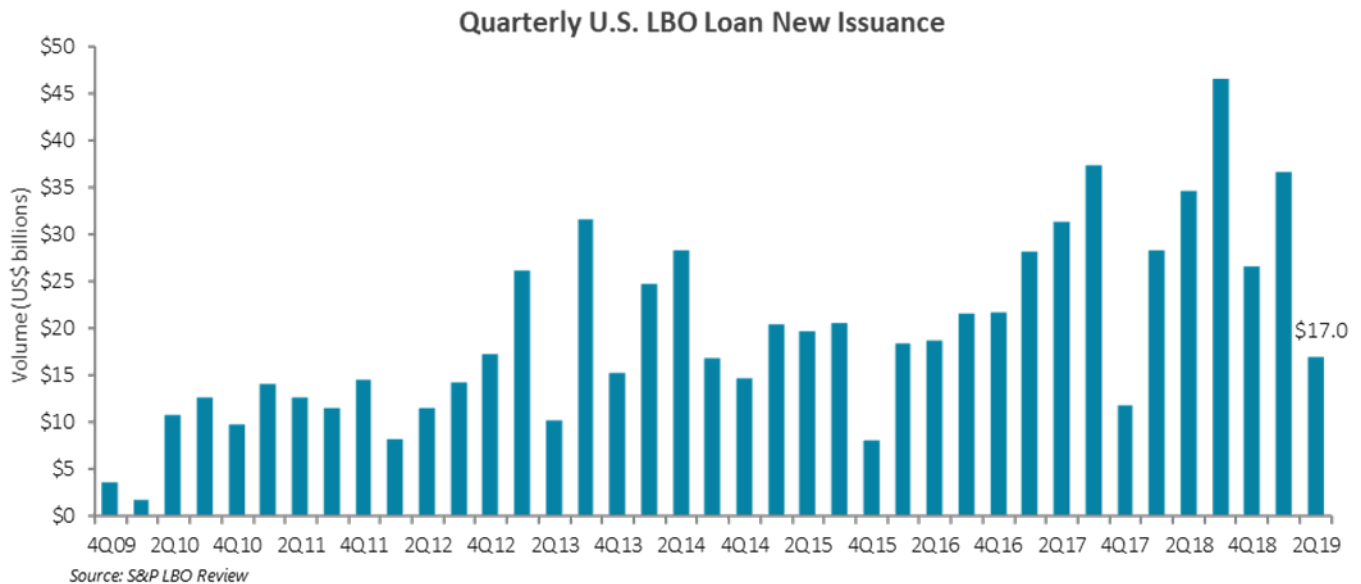
*Includes reinvestment of dividends.

Source: Capital IQ

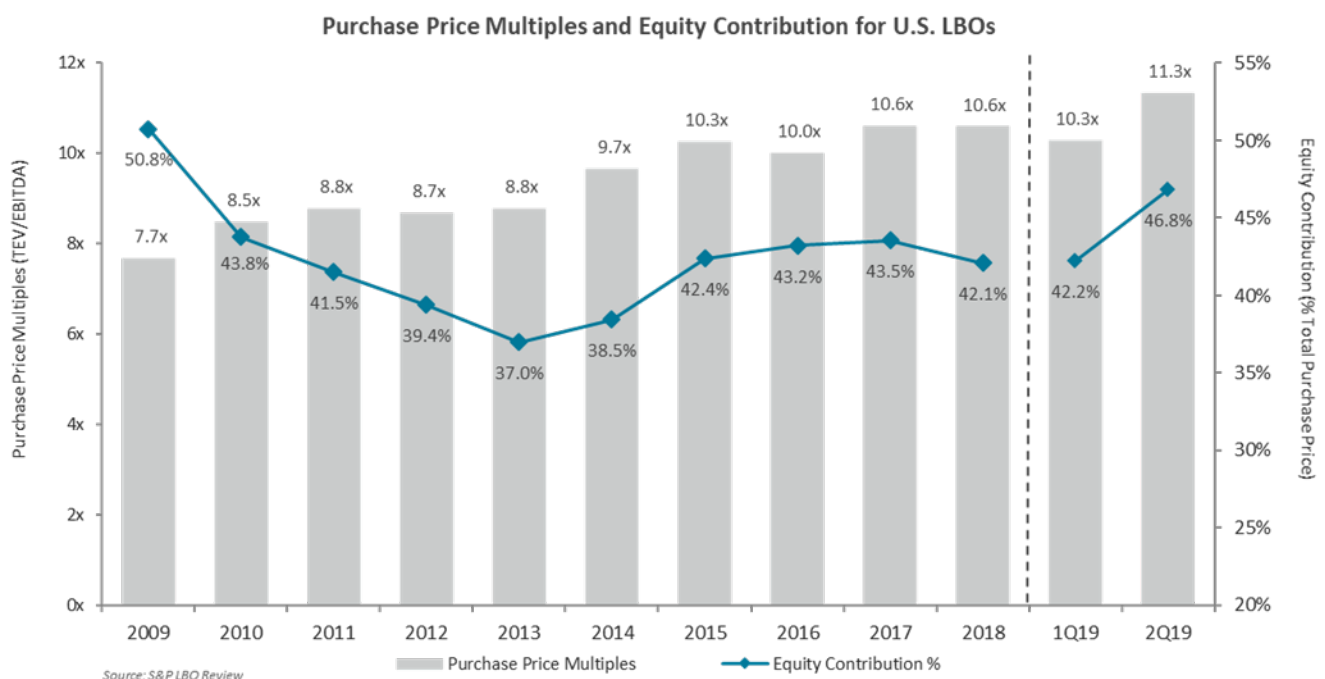
The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

Debt Markets

During the second quarter of 2019, U.S. LBO new loan issuance totaled US\$17.0 billion, representing a decrease of 53.6% from the prior quarter and a decrease of 50.8% from the second quarter of 2018. The following chart shows the quarterly volume of U.S. LBO new loan issuance for the past ten years.



The weighted average purchase price multiple for U.S. LBO deals was 11.3x total enterprise value (“TEV”) to EBITDA in the second quarter, an increase from the prior quarter and above the 10-year average of 9.7x. Average debt multiples of large corporate U.S. LBO loans remained at 5.7x EBITDA, as equity contributions for U.S. LBOs decreased from 42.2% to 46.8%. The following chart compares purchase price multiples and equity contribution percentages for U.S. LBO deals.



Private Equity Market Overview

All Private Equity

The table below shows the pooled Internal Rate of Return (“IRR”) performance of global private equity investments by sector over various investment horizons through June 30, 2019. The All Private Equity benchmark had an IRR of 3.5% for the quarter. Four out of five sectors were positive for the quarter, led by Venture Capital with 5.4%, followed by Small/Middle Buyouts with 3.2%, Large Buyouts with 3.0%, and Mezzanine with 1.9%, and Energy with (2.9%).

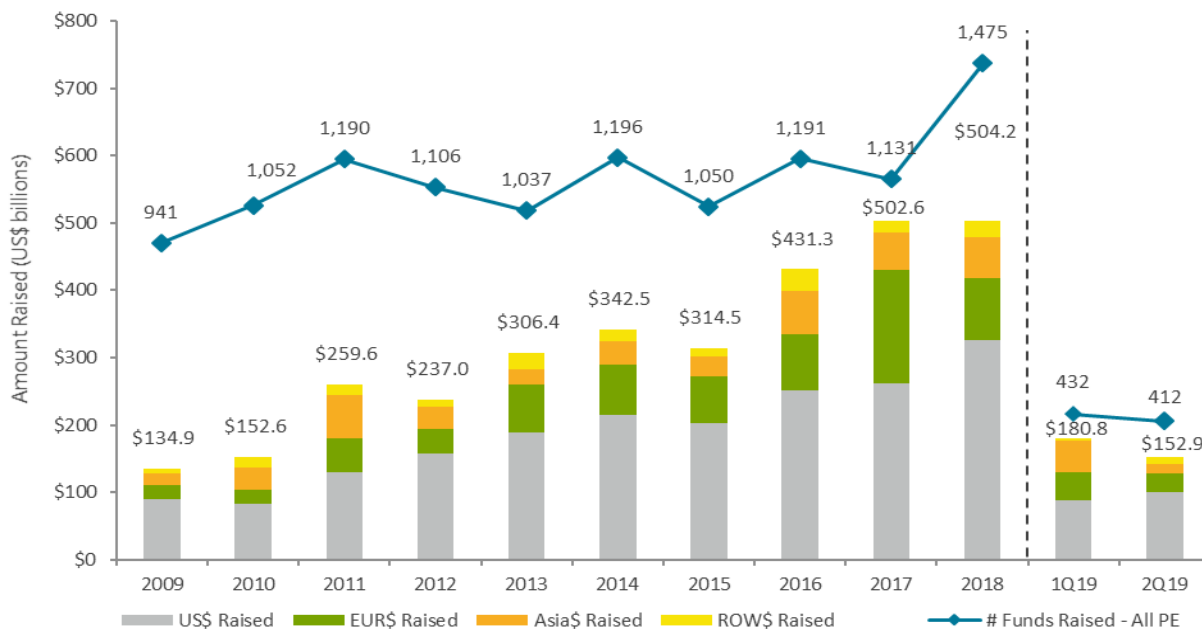
Sector	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr
Small/Middle Buyouts (<\$3bn)	3.2%	10.7%	15.5%	11.5%	14.0%
Large Buyouts (>\$3bn)	3.0%	10.0%	16.2%	12.2%	15.4%
Mezzanine	1.9%	6.5%	9.3%	8.3%	10.0%
Energy	(2.9%)	(10.3%)	4.0%	(2.9%)	4.9%
Venture Capital	5.4%	20.2%	17.2%	15.5%	15.4%
All Private Equity	3.5%	11.3%	15.0%	11.5%	14.1%

Source: Burgiss PrivateIQ

Fundraising

Global private equity fundraising totaled US\$152.9 billion in the second quarter, representing a decrease of 15.4% quarter-over-quarter and an increase of 50.0% compared to the second quarter of 2018. Buyout fundraising totaled US\$115.6 billion, decreasing 12.3% quarter-over-quarter and increasing 57.3% compared to the prior year period. Venture Capital raised US\$23.1 billion in the second quarter, an increase of 3.6% quarter-over-quarter and an increase of 6.4% compared to the second quarter of 2018. Geographically, the U.S. represented 65.8% of total funds raised in the quarter, higher than the 10-year average of 59.1%. Funds raised in Europe, Asia, and the Rest of World made up 18.0%, 9.6% and 6.6%, respectively, of global fundraising for the quarter. The chart below shows annual private equity fundraising activity across all sectors.

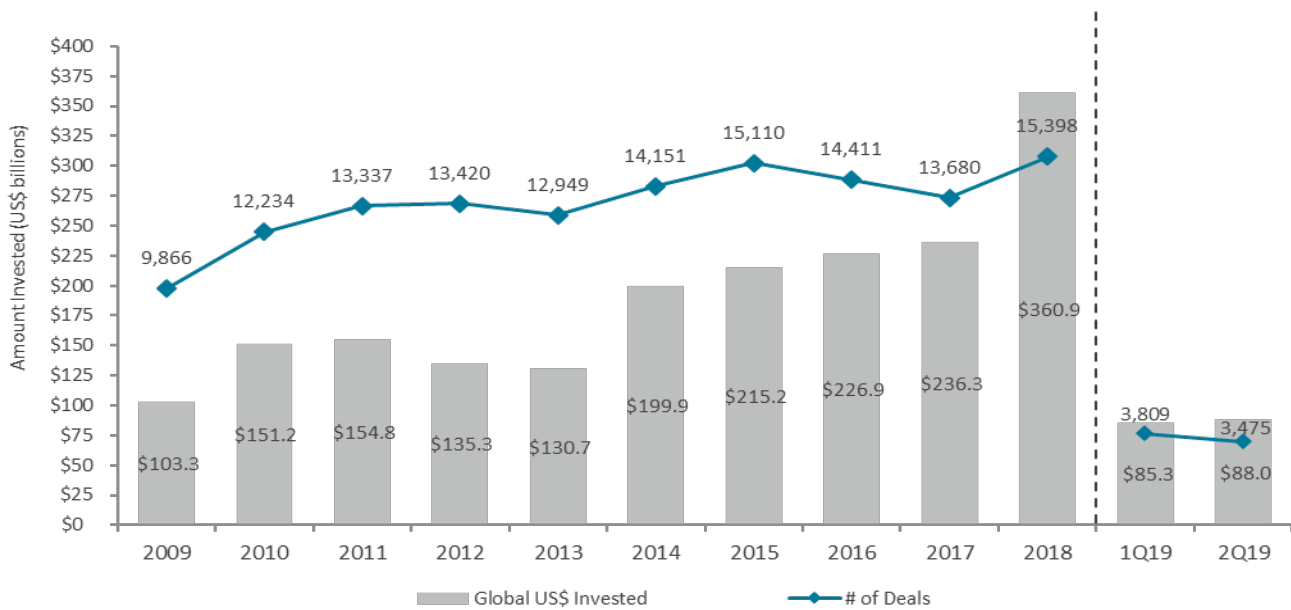
Regional Fundraising by Year – All Private Equity



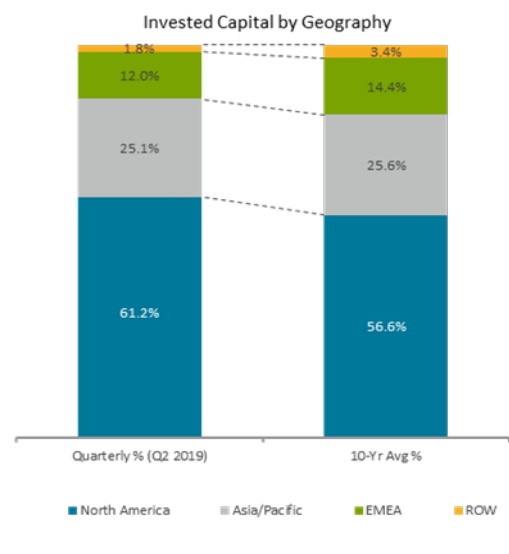
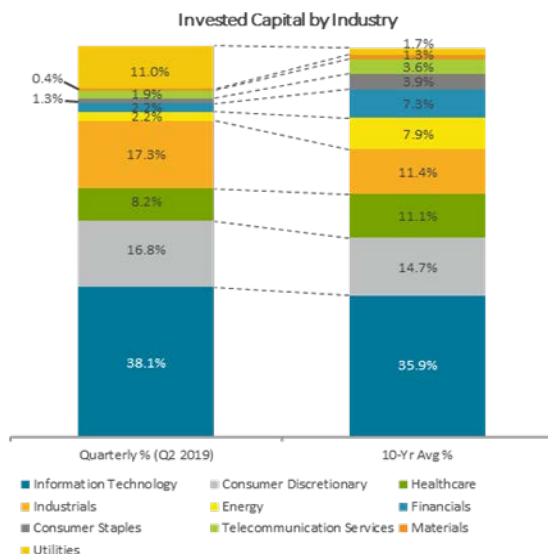
Investment Activity

Private equity funds invested US\$88.0 billion globally during the second quarter, representing a quarter-over-quarter increase of 3.2% and a decrease of 13.7% from the second quarter of 2018. The average investment size during the quarter was US\$25.3 million, an increase of 13.1% compared to the average investment size of US\$22.4 million in the first quarter.

Investment Activity - All Private Equity

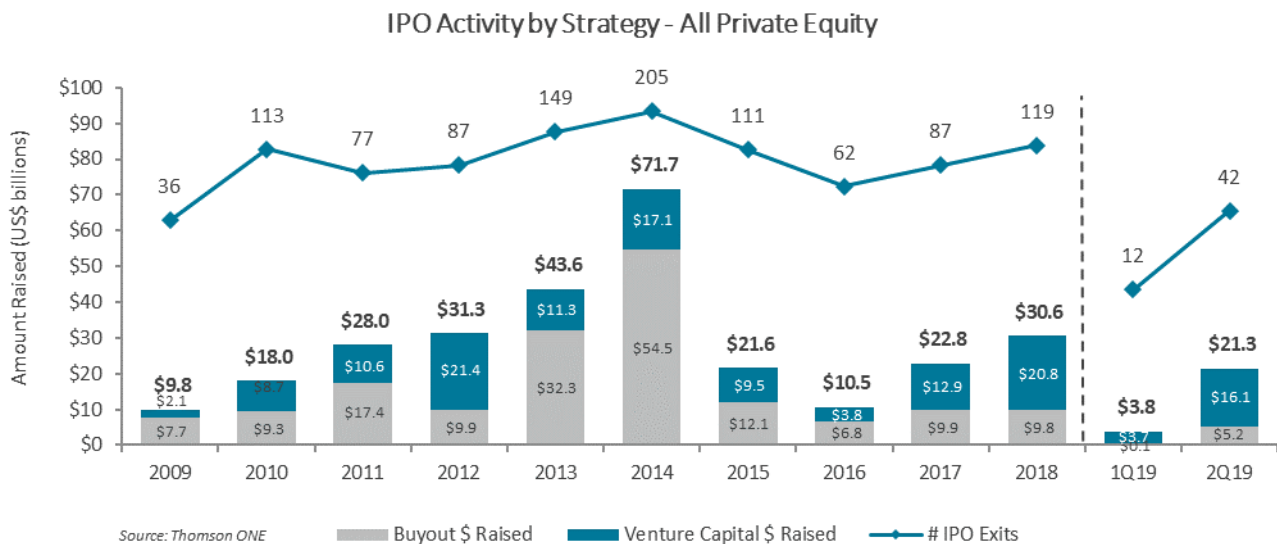


The graphs below depict the percentage of invested capital by industry and geography for the second quarter of 2019 and over the last ten years. The Information Technology sector had the largest departure from its 10-year average, accounting for US\$33.5 billion of transactions, or 38.1% of total capital invested by private equity firms, compared to its 10-year average of 35.9%. Considering geography, investment activity was below average in North America, comprising 61.2% of total capital invested compared to its 10-year historical average of 56.6%.

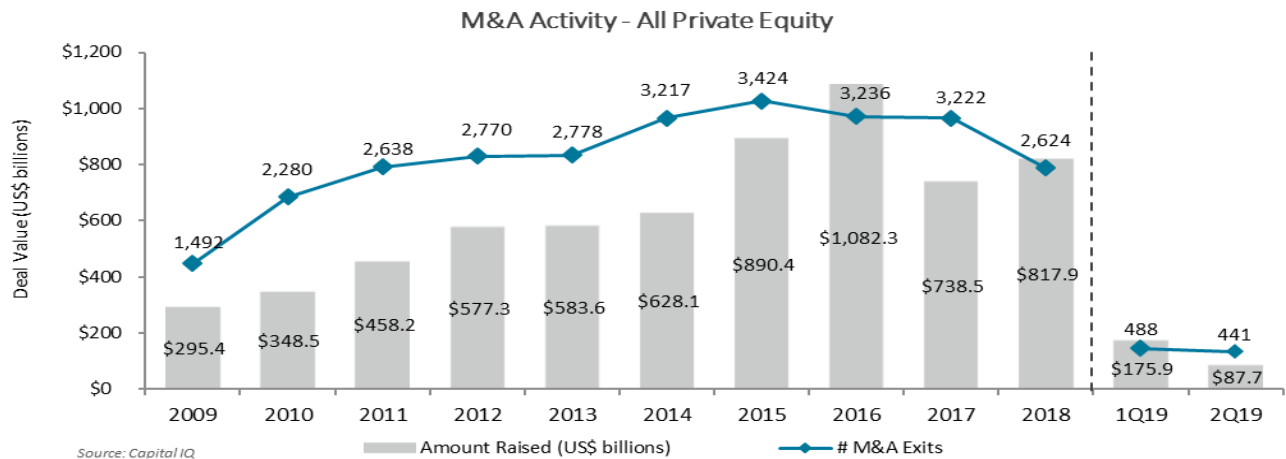


Deal Environment

In the second quarter, the number of private equity-backed IPOs increased 250.0%, from 12 to 42, and the amount raised increased 457.6%, from US\$3.8 billion to US\$21.3 billion, compared to the prior quarter. The IPOs were comprised of 33 venture capital-backed IPOs that raised a total of US\$16.1 billion and nine IPO from buyouts that raised US\$5.2 billion. The largest IPOs of the quarter were completed by Uber Technologies, Inc. (NYSE: UBER), a provider of peer-to-peer on-demand ridesharing, and meal preparation and delivery services worldwide, which raised US\$8.1 billion, and Avantor Inc (NYSE: AVTR), a developer of products and services to customers in the biopharma, healthcare, education and government, and advanced technologies and applied materials industries, which raised US\$3.3 billion. Together these deals represented 53.7% of the total value for all IPOs in the quarter. The graph below shows the amount raised and the number of IPOs on the NYSE and NASDAQ.



The number of private equity-backed Mergers and Acquisitions (“M&A”) declined 9.6%, and the total value of M&A deals decreased 35.4% compared to the prior quarter. In the second quarter, there were 441 private-equity backed M&A deals totaling US\$87.7 billion. The largest M&A deals of the quarter were the US\$19.7 billion purchase of L3 Technologies, Inc. by L3Harris Technologies, Inc. (NYSE: LHX) and the US\$8.0 billion purchase of ARRIS International Limited by CommScope Holding Company, Inc. Together these deals represent 31.6% of the total value for all deals in the quarter. The graph below shows the deal value and the number of M&A deals.



III. SERS Portfolio Review

Summary

During the second quarter of 2019, SERS made total contributions of US\$197.0 million (including US\$9.6 million in fees) and received US\$242.5 million in distributions, for a net cash inflow of US\$45.4 million during the period. With US\$4.0 billion in market value and US\$2.9 billion in unfunded commitments as of June 30, 2019, SERS' total exposure to private equity is approximately US\$6.9 billion.

New Investment Commitments

The Portfolio made four new commitments for the period, April 1, 2019 through June 30, 2019.

New Investment Commitments Q2 2019

Fund	Closing Date	Sector	Geographic Focus	Commitments (US\$)
ASF VIII B	5/31/2019	Special Situations	Global	\$100.0
ASF VIII PA Co-Invest	5/31/2019	Special Situations	Global	\$50.0
Blackstone Capital Partners VIII	6/27/2019	Buyout	Global	\$75.0
Permira VII	6/28/2019	Buyout	Europe	\$76.1
Total				\$301.1

Subsequent Investment Commitments

The Portfolio made one new commitment for the period, July 1, 2019 through September 30, 2019.

New Investment Commitments Q3 2019

Fund	Closing Date	Sector	Geographic Focus	Commitments (US\$)
Wind Point IX	8/1/2019	Buyout	North America	\$75.0
Total				\$75.0

Performance

Quarterly Performance

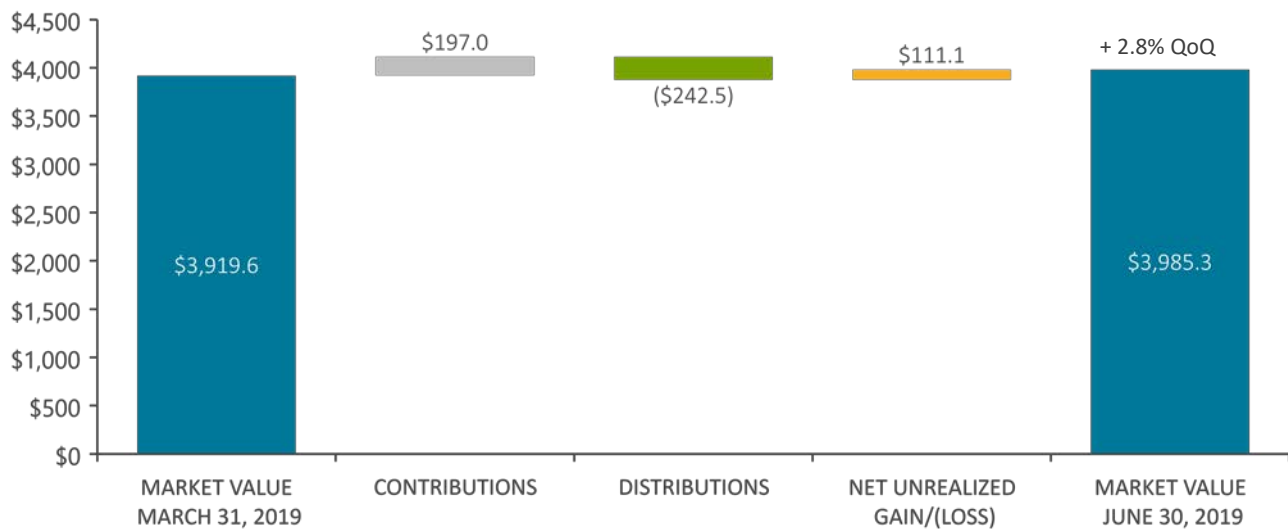
The following table details the quarterly change in value by contributions, distributions, and unrealized gains and losses which occurred during the past eight quarters, net of any partnership fees and expenses.

US\$ in millions	2017		2018				2019	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Beginning Market Value	\$4,038.8	\$4,064.6	\$4,034.4	\$4,010.5	\$3,902.5	\$3,989.5	\$3,791.1	\$3,919.6
Contributed Capital	185.8	161.5	117.9	110.4	142.5	185.9	167.6	197.0
Distributed Capital	(289.9)	(316.3)	(226.3)	(373.2)	(187.7)	(283.5)	(237.9)	(242.5)
Appreciation/(Depreciation)¹³	\$129.7	\$124.6	\$84.5	\$154.8	\$132.3	(\$100.8)	\$198.8	\$111.1
Ending Market Value	4,064.6	4,034.4	4,010.5	3,902.5	3,989.5	3,791.1	3,919.6	3,985.3
Unfunded Commitment	2,190.2	2,088.5	2,143.6	2,591.5	2,681.2	2,728.9	2,729.3	2,868.4
Total Exposure	\$6,254.8	\$6,122.9	\$6,154.1	\$6,493.9	\$6,670.7	\$6,519.9	\$6,648.9	\$6,853.7
Since Inception IRR	12.3%	12.3%	12.3%	12.3%	12.3%	12.2%	12.2%	12.2%

Valuation Movement

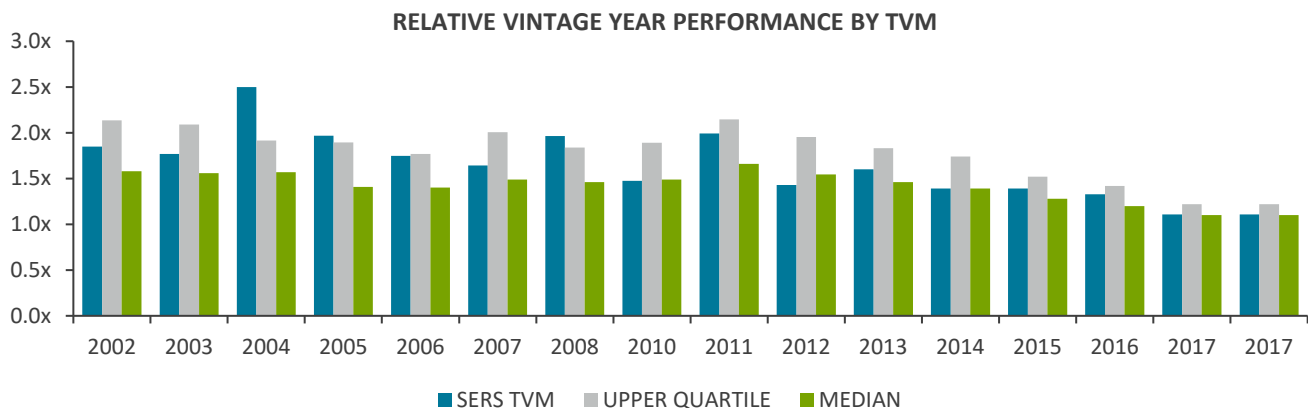
The valuation of the Portfolio increased by US\$111.1 million, or 2.8% (on a net, after-fees basis) during the second quarter, primarily driven by Buyout-focused partnership investments.

QUARTERLY CHANGE IN PORTFOLIO VALUE



Performance by Vintage Year

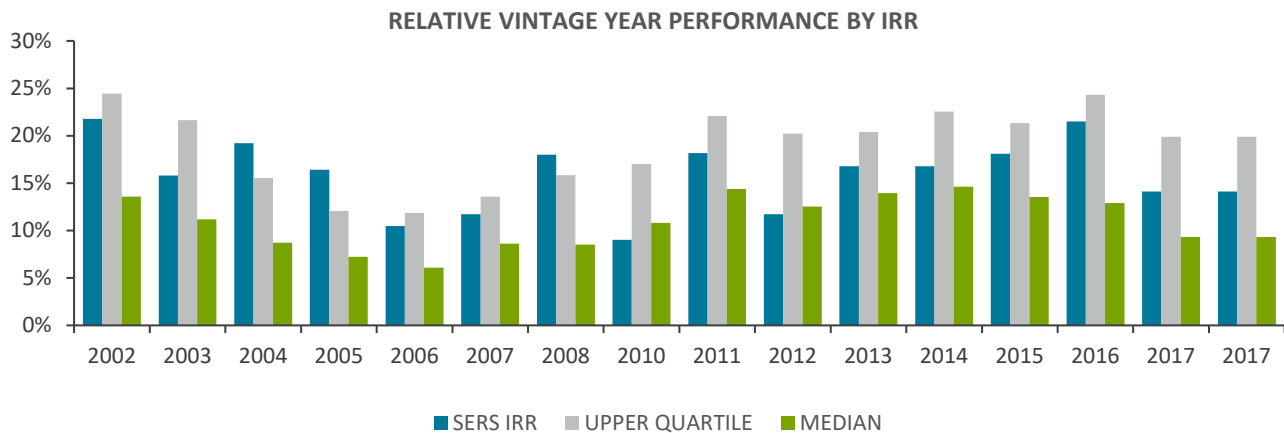
The following graph illustrates Portfolio investment performance by vintage year as of June 30, 2019 relative to the upper quartile and median Global Private Equity TVM benchmarks as provided by Burgiss Private iQ. Performance of funds that are less than two years old is not meaningful. In aggregate, 13 out of 15 vintage years shown have outperformed the median and three have outperformed the upper quartile.



Note: Vintage years prior to 2001 have a market value of US\$16.4 million, representing 0.4% of the Portfolio's total market value as of June 30, 2019. **Past performance is not necessarily indicative of future results** and there can be no assurance that the fund will achieve comparable results or avoid substantial losses. No assurance can be given that the performance of unrealized investments has not significantly changed from the date the performance reflected herein was determined.

Performance by IRR

The following graph illustrates Portfolio investment performance by vintage year as of June 30, 2019 relative to the upper quartile and median Global Private Equity IRR benchmarks as provided by Burgiss Private iQ. In aggregate, 13 out of 15 vintage years shown have outperformed the median and three have outperformed the upper quartile.



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Diversification

Geographic Focus

(US\$ in millions)

	MARKET VALUE		UNFUNDED		TOTAL EXPOSURE	
	\$	% OF TOTAL	\$	% OF TOTAL	\$	% OF TOTAL
North America	2,079.8	52.2%	1,292.0	45.0%	3,371.8	49.2%
Europe	155.8	3.9%	329.1	11.5%	485.0	7.1%
Global	324.4	8.1%	482.5	16.8%	807.0	11.8%
Asia	456.1	11.4%	238.1	8.3%	694.2	10.1%
Emerging Markets	86.3	2.2%	40.8	1.4%	127.1	1.9%
Keystone Legacy Fund	882.7	22.1%	485.8	16.9%	1,368.5	20.0%
Total	\$3,985.3	100.0%	\$2,868.4	100.0%	\$6,853.6	100.0%

By Investment Manager

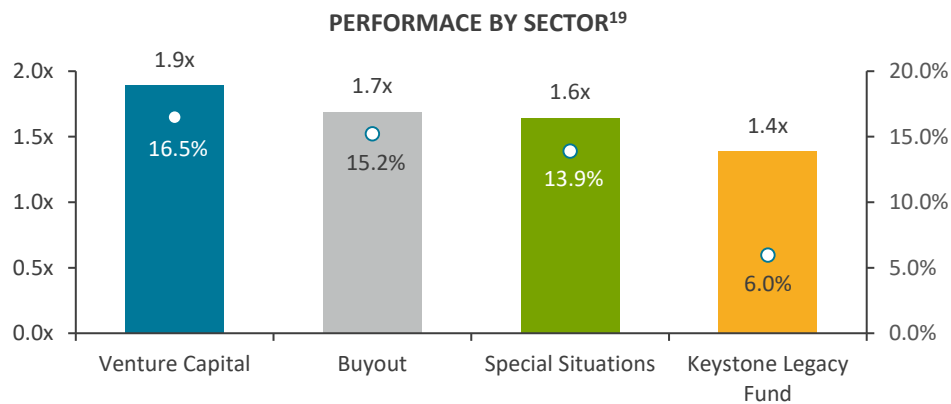
As of June 30, 2019, the top 20 managers comprising US\$5.0 billion, or 73% of total exposure. The remaining 44 active managers comprised 27% of total exposure as of quarter-end.

Core Portfolio Periodic Returns vs. Russell 3000® Index

	1 YEAR RETURN	3 YEAR RETURN	5 YEAR RETURN	10 YEAR RETURN	SINCE INCEPTION
SERS Core Portfolio (IRR)¹⁸	13.8%	15.4%	11.8%	17.2%	15.4%
Russell 3000®	9.0%	14.0%	10.2%	14.7%	10.0%
Russell 3000® + 300 bps	12.0%	17.0%	13.2%	17.7%	13.0%
PA SERS Outperformance/(Underperformance)					
Russell 3000®	4.8%	1.3%	1.6%	2.6%	5.5%
Russell 3000® + 300 bps	1.8%	(1.7%)	(1.4%)	(0.4%)	2.5%

Performance by Sector

Venture Capital is the best performing sector generating an IRR of 16.5% and a TVM of 1.9x as of June 30, 2019.

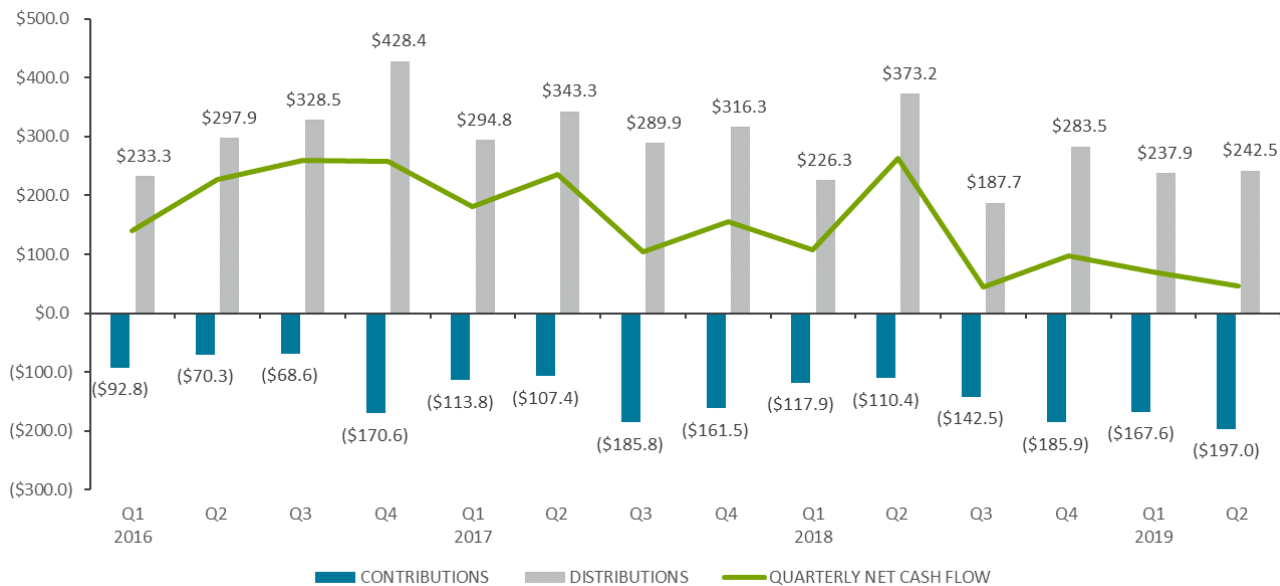


The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.

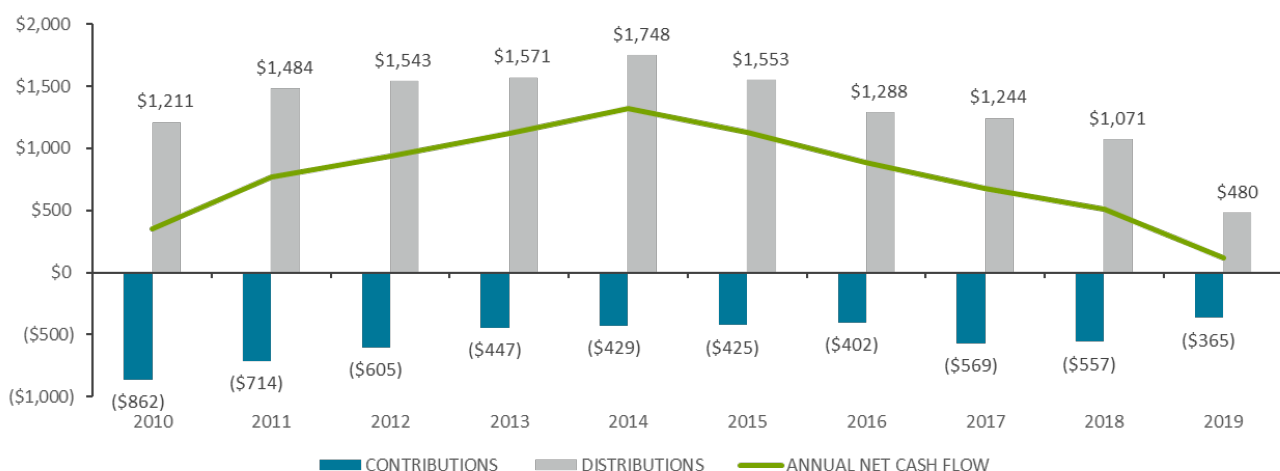
Portfolio Cash Flow Analysis

During the second quarter of 2019, the Portfolio made US\$197.0 million of contributions and received US\$242.5 million of distributions, for a net cash inflow of US\$45.4 million. The portfolio has been cash flow positive for 38 consecutive quarters. The graphs below illustrate recent cash flow activity by quarter and year.

Quarterly Cash Flow Activity

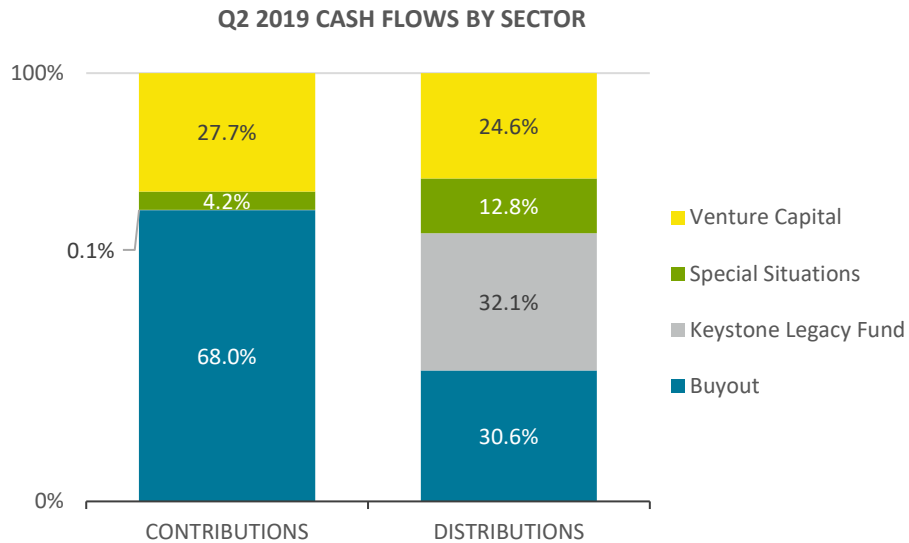


Annual Cash Flow Activity



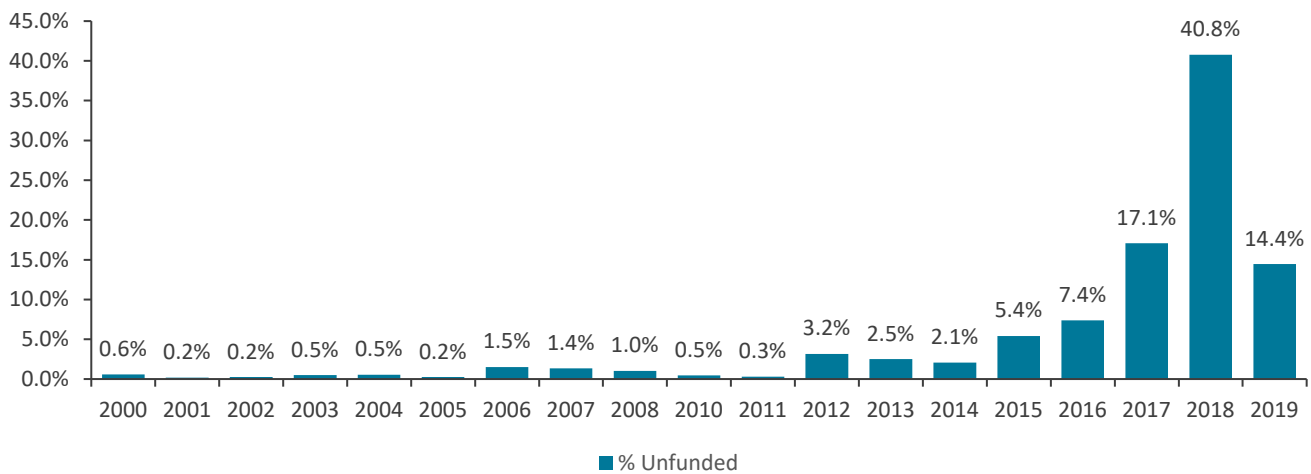
Cash Flow by Sector

Buyout funds were the most active in terms of cash flow activity during the second quarter of 2019, drawing down US\$134.1 million, or 68.0% of total contributions during the quarter, and distributing US\$74.1 million, or 30.6% of total distributions during the quarter.



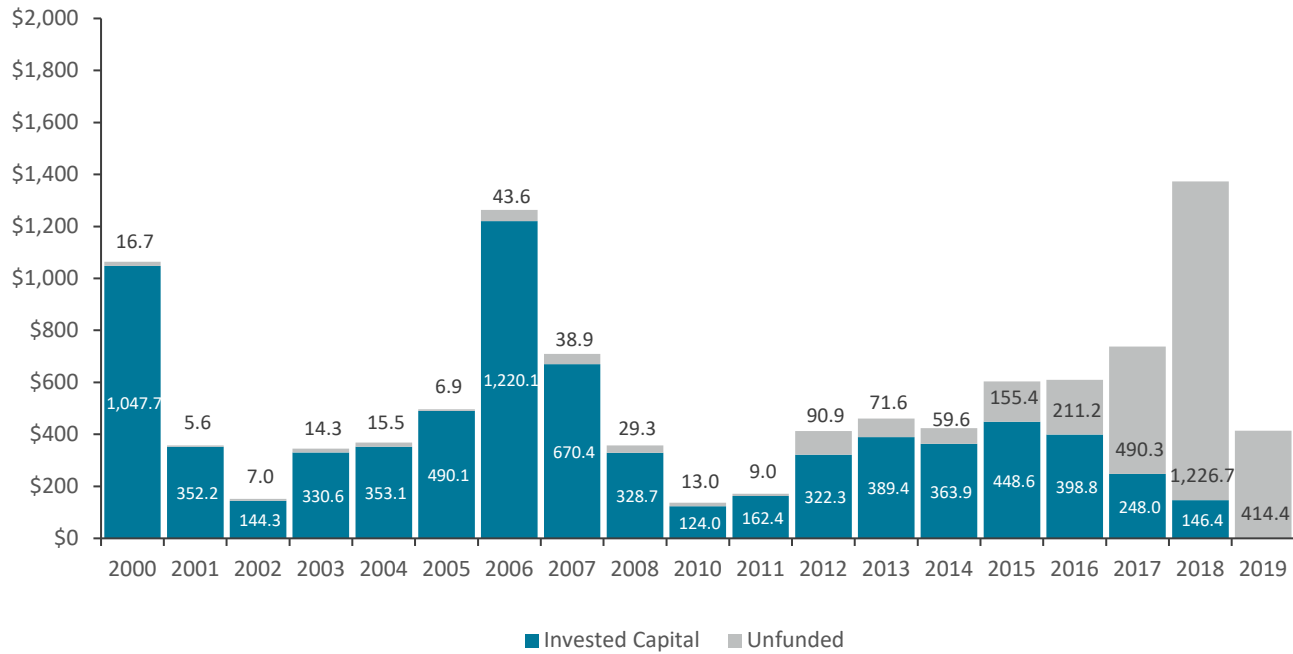
Unfunded % by Vintage Year

The following chart provides unfunded commitments by vintage year as a percentage of the Portfolio's total unfunded commitments. Vintage years 2015 through 2019 make up 85.1% of the Portfolio's unfunded commitments.



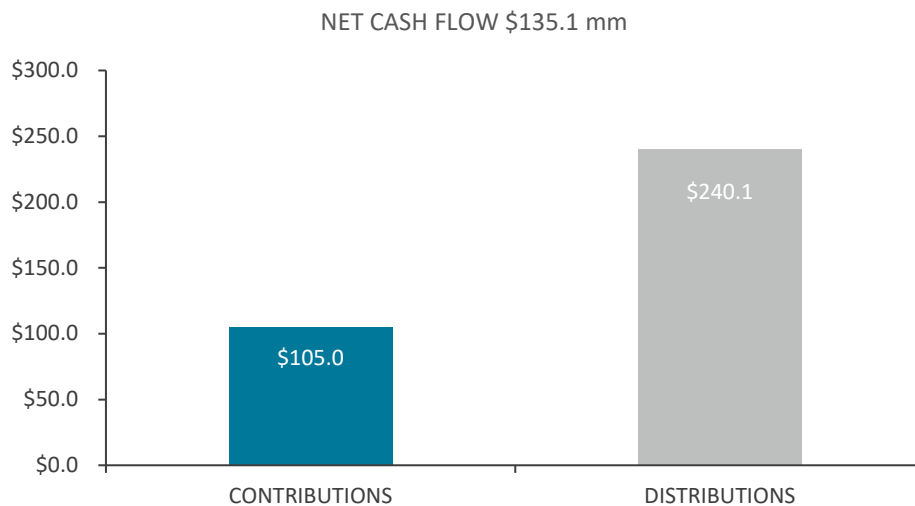
Invested Capital to Unfunded by Vintage Year

The following chart provides invested capital and unfunded capital commitments by vintage year.



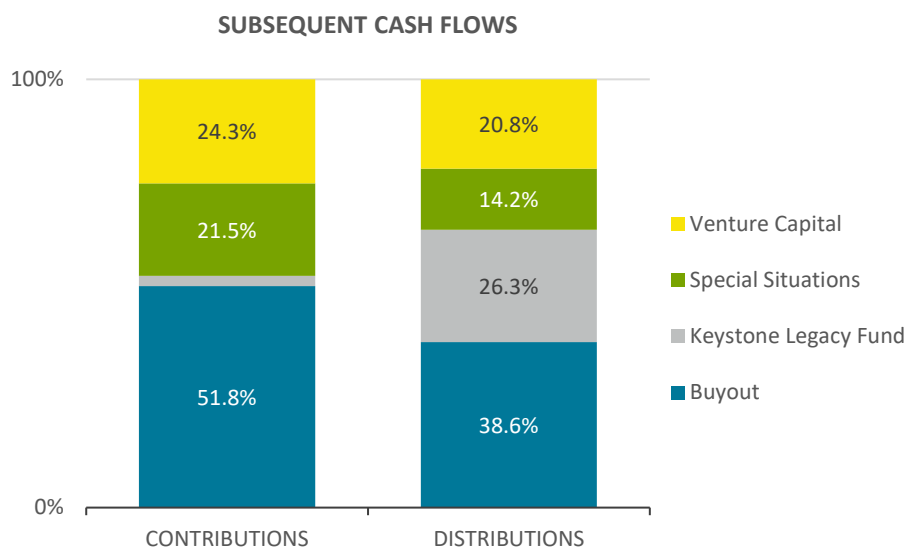
Subsequent Cash Flow Activity

Subsequent to quarter-end through September 30, 2019, the Portfolio made US\$105.0 million of contributions and received US\$240.1 million of distributions, for a net cash inflow of US\$135.1 million, an increase of 197% from the previous quarter total.



Subsequent Cash Flow by Sector

The largest concentration of net cash flows during Q3 2019 was Keystone Legacy Fund, which resulted in a net cash inflow of US\$60.5 million.



IV. End Notes

¹ Commitment reflects original commitment including fx fluctuations for non-usd funds.

² Contributed Capital includes contributions for investments, management fees and expenses to underlying partnership investments. Contributions do not include since inception non-core cash flows

³ Includes stock distributions. Distributions do not include since inception non-core cash flows.

⁴ Total Exposure represents the sum of Market Value and Unfunded Commitment.

⁵ DPI, or Distributed to Paid-In Multiple, is a performance metric that measures distributions received relative to capital invested. DPI is calculated as Distributed Capital divided by Contributed Capital. Includes since inception cash flows for all non-core funds.

⁶ TVM, or Total Value Multiple, is a performance metric that measures total value created by the Portfolio relative to capital invested, without consideration for time. TVM is calculated as Total Value, which is comprised of Market Value plus Distributed Capital, divided by Contributed Capital. TVM net of StepStone's fees is 1.6x. Includes since inception cash flows for all non-core funds.

⁷ IRR, or Internal Rate of Return, is a performance metric that is calculated based on the Portfolio's daily cash flows and market value as of quarter-end. IRR is net of manager's fees, expenses and carried interest. IRR net of StepStone's fees is 12.22% as of June 30, 2019. Includes since inception cash flows for all non-core funds.

⁸ Benchmark is a dollar-weighted calculation of quarterly changes in the Russell 3000[®] Index. Russell Investment Group is the source and owner of the trademark, service marks and copyrights related to the Russell Indexes. Russell[®] is a trademark of Russell Investment Group. Returns shown are time-weighted (TWR).

⁹ Benchmark is provided by Burgiss Private iQ and reflects Global Private Equity Funds (excluding Real Assets and Real Estate) Median IRR as of June 30, 2019, for funds with vintage years 1980 to 2019. Returns shown are dollar-weighted (IRR).

¹⁰ Benchmark is provided by Burgiss Private iQ and reflects Global Private Equity Funds (excluding Real Assets and Real Estate) Upper Quartile IRR as of June 30, 2019, for funds with vintage years 1980 to 2019. Returns shown are dollar-weighted (IRR).

¹¹ Benchmark is provided by Burgiss Private iQ and reflects Global pooled returns for Buyout (including Natural Resources), Venture Capital, Special Situations (including Distressed and Mezzanine), and all Private Equity (excluding Real Assets and Real Estate), respectively, as of June 30, 2019, for funds with vintage years 1980 to 2019. Returns shown are dollar-weighted (IRR).

¹² Benchmark is provided by Burgiss Private iQ and reflects Global Upper Quartile IRR for Buyout (including Natural Resources), Venture Capital, Special Situations (including Distressed and Mezzanine), and all Private Equity (excluding Real Assets and Real Estate), respectively, as of June 30, 2019, for funds with vintage years 1980 to 2019. Returns shown are dollar-weighted (IRR).

¹³ S&P US LBO Review, Q2 2019.

¹⁴ Thomson ONE data as of September 10, 2019. Please note, all data in this report from Thomson ONE is subject to revision as further data is made available.

¹⁵ Capital IQ Transaction Screening Report as of September 10, 2019.

¹⁶ Appreciation/ (Depreciation) represents realized and unrealized gains/(losses) during the quarter, which is comprised of the difference between Ending Market Value and Beginning Market Value plus Contributed Capital minus Distributed Capital.

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

¹⁷ Other includes sub-sectors secondaries, early stage, late stage and mezzanine, which represented 2% or less of the total exposure.

¹⁸ Benchmark is a dollar-weighted calculation of quarterly changes in the Russell 3000[®] Index. Russell Investment Group is the source and owner of the trademark, service marks and copyrights related to the Russell Indexes. Russell[®] is a trademark of Russell Investment Group. Returns shown are time-weighted (TWR).

¹⁹ Buyout, Venture Capital, and Special Situations sectors represent PASERS core portfolio of investment returns within each sector. Keystone Legacy Fund contains Buyout, Venture Capital, and Special Situation Funds defined as non-core by PASERS.

V. Exhibits

Exhibit A – Investments by Vintage Year

Commonwealth of Pennsylvania State Employees' Retirement System

Schedule of Investments by Vintage Year

As of June 30, 2019

VINTAGE	FUND	SECTOR	COMMITMENT ¹	CONTRIBUTIONS ²	DISTRIBUTIONS	MARKET VALUE	GAIN/LOSS	TVM	IRR	IRR RANK ³	TVM RANK ³
1997	Apollo Investment Fund IV	Buyout	\$75,000,000	\$74,838,620	\$124,814,033	\$85,586	\$50,060,999	1.7x	8.5%	Second	Second
1997 Total			\$75,000,000	\$74,838,620	\$124,814,033	\$85,586	\$50,060,999	1.7x	8.5%	Second	Second
1998	HarbourVest IPEP III	Buyout	40,000,000	39,400,000	61,092,165	80,994	21,773,159	1.6x	8.6%	Second	Second
1998 Total			\$40,000,000	\$39,400,000	\$61,092,165	\$80,994	\$21,773,159	1.6x	8.6%	Second	Second
1999	HarbourVest Partners VI	Venture Capital	200,000,000	196,586,055	250,693,463	1,629,031	55,736,439	1.3x	3.6%	Second	Second
1999	Lexington Capital Partners III	Special Situations	35,000,000	34,516,449	43,363,378						
1999	New Enterprise Associates IX	Venture Capital	20,000,000	19,600,000	7,978,301	1,620,554	-10,001,145	0.5x	(5.7%)	Third	Fourth
1999	TPG Partners III	Buyout	75,000,000	64,119,169	165,990,273						
1999 Total			\$330,000,000	\$314,821,673	\$468,025,415						
2000	ABRY Partners IV	Buyout	35,000,000	25,497,290	74,633,973						
2000	Apollo Investment Fund V	Buyout	50,000,000	44,972,146	122,507,048	431,965	77,966,867	2.7x	38.8%	First	First
2000	Audax Private Equity Fund	Buyout	35,000,000	36,839,098	56,057,910	124,854	19,343,666	1.5x	13.1%	First	Second
2000	Blackstone Communications Partners I	Buyout	25,000,000	25,114,042	30,998,189	170,714	6,054,861	1.2x	6.3%	Second	Second
2000	Francisco Partners	Buyout	50,000,000	47,769,948	61,464,903	452,058	14,147,013	1.3x	4.4%	Second	Second
2000	Madison Dearborn Capital Partners IV	Buyout	90,000,000	90,365,390	169,072,775	3,310,614	82,017,998	1.9x	14.2%	First	First
2000	New Enterprise Associates X	Venture Capital	35,000,000	35,028,000	33,995,586	7,421,557	6,389,143	1.2x	2.6%	Third	Third
2000	Permira European Fund II	Buyout	48,000,000	45,672,612	91,464,087	424,143	46,215,618	2.0x	21.6%	First	First
2000	Providence Equity Partners IV	Buyout	25,000,000	23,420,840	56,065,270						
2000 Total			\$393,000,000	\$374,679,366	\$696,259,741						
2001	ABRY Mezzanine Partners	Special Situations	30,000,000	26,731,187	49,707,116						
2001	Blackstone Capital IV	Buyout	75,000,000	69,086,898	191,122,894	3,216,423	125,252,419	2.8x	36.2%	First	First
2001	Lexington Capital Partners V	Special Situations	75,000,000	74,623,418	125,170,164						
2001 Total			\$180,000,000	\$170,441,503	\$366,000,174						
2002	Berkshire Fund VI	Buyout	20,000,000	18,819,615	54,873,734						
2002	GTCR VIII	Buyout	75,000,000	69,393,599	120,471,948				22.3%	Second	
2002 Total			\$95,000,000	\$88,213,214	\$175,345,682						
2003	HarbourVest Partners VII	Venture Capital	75,000,000	73,687,500	105,087,881	14,082,848	45,483,229	1.6x	6.9%	Third	Second
2003	Kelso VII	Buyout	40,000,000	41,194,550	65,845,731	767,495	25,418,676	1.6x	11.5%	Second	Second
2003	New Enterprise Associates 11	Venture Capital	25,000,000	25,000,000	62,741,850	3,098,379	40,840,229	2.6x	15.6%	Second	First
2003	Permira European Fund III	Buyout	115,960,000	127,340,454	217,778,356	512,326	90,950,228	1.7x	26.1%	First	Second
2003	TPG Partners IV	Buyout	30,000,000	27,981,463	57,968,285						
2003 Total			\$285,960,000	\$295,203,966	\$509,422,103						
2004	ABRY Partners V	Buyout	45,000,000	41,742,771	83,293,903						
2004	AXA Secondary Fund III	Special Situations	26,000,000	21,737,894	37,244,706						
2004	AXA Secondary Fund III-2	Special Situations	14,000,000	11,677,210	19,062,764						
2004	LLR Equity Partners II	Buyout	25,000,000	25,000,000	44,945,591	232,851	20,178,442	1.8x	12.2%	Second	Second
2004	Oaktree Capital Management	Special Situations	40,000,000	40,582,060	138,594,329						
2004	OCM Opportunities Fund V	Special Situations	40,000,000	40,003,507	65,911,274						
2004	Providence Equity Partners V	Buyout	45,000,000	42,692,171	51,743,883						
2004 Total			\$235,000,000	\$223,435,614	\$440,796,449						
2005	Apollo Investment Fund VI	Buyout	40,000,000	38,911,805	64,467,407	746,105	26,301,706	1.7x	8.7%	Second	Second
2005	Audax Private Equity Fund II	Buyout	25,000,000	25,517,152	45,240,610	980,171	20,703,629	1.8x	14.0%	First	Second
2005	HIPEP V-Asia Pacific & Rest of World	Buyout	30,000,000	28,245,316	34,310,232	6,622,595	12,687,511	1.4x	6.3%	Third	Second
2005	Lexington Capital Partners VI	Special Situations	50,000,000	53,066,325	69,215,321						
2005	Lightspeed Venture Partners VII	Venture Capital	18,000,000	18,000,000	49,449,448						
2005	Newbridge Asia IV	Buyout	40,000,000	38,903,378	85,845,344						
2005	OCM Opportunities Fund VI	Special Situations	40,000,000	40,000,000	63,171,009						
2005	OCM/GFI Power Opportunities Fund II	Buyout	25,000,000	13,470,852	41,644,215						
2005 Total			\$268,000,000	\$256,114,829	\$453,343,587						
2006	ABRY Senior Equity II	Special Situations	30,000,000	28,282,103	44,960,375						
2006	Asia Alternatives Capital Partners	Buyout	50,000,000	25,180,175	41,648,780	4,665,880	21,134,485	1.8x	11.2%	Second	First
2006	AXA Secondary Fund IV	Special Situations	80,000,000	70,134,752	98,638,689						
2006	Berkshire Fund VII	Buyout	32,000,000	32,612,736	60,660,471						
2006	Blackstone Capital Partners V	Buyout	150,000,000	149,951,913	241,388,866	7,301,370	98,738,323	1.7x	7.6%	Second	Second
2006	Centerbridge Capital Partners I	Special Situations	50,000,000	57,490,446	113,038,748	6,736,353	62,284,655	2.1x	19.4%	First	First
2006	Eureka II	Buyout	20,000,000	21,884,526	20,777,356	7,318,077	6,210,907	1.3x	5.1%	Third	Third
2006	Francisco Partners II	Buyout	30,000,000	29,383,916	41,240,515	5,064,784	16,921,382	1.6x	10.1%	Second	Second
2006	Great Hill Equity Partners III	Buyout	35,000,000	35,000,000	41,935,541						
2006	GTCR IX	Buyout	50,000,000	47,916,718	86,149,702				13.8%	First	
2006	HarbourVest Partners VIII	Venture Capital	100,000,000	98,000,000	130,568,903	58,444,775	91,013,678	1.9x	10.9%	Second	First
2006	Hellman & Friedman Capital Partners VI	Buyout	125,000,000	119,913,412	218,556,925	6,130,684	104,774,197	1.9x	12.9%	First	First
2006	Madison Dearborn Capital Partners V	Buyout	75,000,000	71,558,278	113,628,059	1,576,124	43,645,905	1.6x	7.2%	Second	Second
2006	Meritech Capital Partners III	Venture Capital	35,000,000	35,000,000	190,791,007						
2006	New Enterprise Associates 12	Venture Capital	35,000,000	35,631,130	45,554,802	4,442,250	14,365,922	1.4x	6.6%	Second	Second

Commonwealth of Pennsylvania State Employees' Retirement System

Schedule of Investments by Vintage Year

As of June 30, 2019

VINTAGE	FUND	SECTOR	COMMITMENT ¹	CONTRIBUTIONS ²	DISTRIBUTIONS	MARKET VALUE	GAIN/LOSS	TVM	IRR	IRR RANK ³	TVM RANK ³
2006	NewSpring Growth Capital II	Venture Capital	\$10,000,000	\$9,850,000	\$13,962,639						
2006	OCM Principal Opportunities Fund IV	Special Situations	20,000,000	20,400,000	34,019,822						
2006	Permira IV	Buyout	127,779,198	137,762,438	203,511,684	18,401,131	84,150,377	1.6x	8.6%	Second	Second
2006	TA X	Buyout	70,000,000	69,732,009	90,382,009						
2006	TPG Partners V	Buyout	100,000,000	92,531,812	125,076,000	7,054,651	39,598,839	1.4x	5.0%	Third	Second
2006 Total			\$1,224,779,198	\$1,188,216,365	\$1,956,490,892						
2007	ABRY Advanced Securities Fund	Special Situations	25,000,000	23,508,684	38,682,209						
2007	Advent Latin American Private Equity Fund IV	Buyout	30,000,000	30,797,073	39,725,921	6,444,835	15,373,683	1.5x	9.2%	Second	Second
2007	Asia Alternatives Capital Partners II	Buyout	50,000,000	28,867,904	38,236,443	30,160,736	39,529,275	2.4x	17.7%	First	First
2007	Audax Private Equity Fund III	Buyout	37,000,000	42,498,691	80,644,845	2,410,188	40,556,342	2.0x	15.0%	First	Second
2007	Battery Ventures VIII	Venture Capital	25,000,000	25,050,751	55,602,642						
2007	Dover Street VII	Special Situations	30,000,000	28,696,128	38,403,160	3,221,740	12,928,772	1.5x	9.5%	Second	Third
2007	Energy Spectrum Partners V	Buyout	28,326,735	27,661,855	51,487,729	139,992	23,965,866	1.9x	31.7%	First	Second
2007	Insight Venture Partners VI	Venture Capital	30,000,000	32,244,177	73,211,458	8,388,669	49,355,951	2.5x	19.2%	First	First
2007	JMI Equity Fund VI	Venture Capital	40,000,000	40,000,246	67,630,800						
2007	Kelso VIII	Buyout	150,000,000	146,269,405	164,521,918	30,779,441	49,031,954	1.3x	6.3%	Third	Third
2007	OCM Opportunities Fund VII	Special Situations	40,000,000	40,000,000	53,450,728						
2007	OCM Opportunities Fund VII b	Special Situations	40,000,000	36,000,000	61,488,034						
2007	Providence Equity Partners VI	Buyout	50,000,000	53,946,228	58,171,556						
2007	TPG Asia V	Buyout	22,500,000	21,964,311	26,447,030	4,484,817	8,967,536	1.4x	6.5%	Third	Third
2007	Weathergage Venture Capital	Venture Capital	25,000,000	22,875,000	29,841,174	17,657,284	24,623,458	2.1x	12.3%	Second	First
2007 Total			\$622,826,735	\$600,380,453	\$877,545,645						
2008	ABRY Partners VI	Buyout	50,000,000	59,994,861	107,608,270						
2008	Advent International GPE VI-A	Buyout	35,000,000	35,146,325	67,433,549	6,571,805	38,859,029	2.1x	16.9%	First	First
2008	Battery Ventures VIII Side Car Fund	Venture Capital	9,000,000	6,803,790	17,412,210						
2008	Great Hill Equity Partners IV	Buyout	25,000,000	25,125,662	56,840,270						
2008	H.I.G. Bayside Debt & LBO Fund II	Special Situations	30,000,000	30,996,778	45,748,556						
2008	Lightspeed Venture Partners VIII	Venture Capital	15,000,000	14,550,000	27,045,680						
2008	LLR Equity Partners III	Buyout	30,000,000	29,108,722	51,222,009	5,404,040	27,517,326	1.9x	15.2%	Second	First
2008	Madison Dearborn Capital Partners VI	Buyout	50,000,000	51,131,247	83,530,324	25,114,672	57,513,749	2.1x	23.6%	First	First
2008	TPG Partners VI	Buyout	45,000,000	50,111,214	64,622,335	11,249,919	25,761,040	1.5x	10.4%	Second	Second
2008 Total			\$289,000,000	\$302,968,599	\$521,463,204						
2010	Advent Latin American Private Equity Fund V	Buyout	15,000,000	14,430,000	7,200,000	9,642,880	2,412,880	1.2x	3.3%	Fourth	Fourth
2010	Avenue Special Situations Fund VI	Special Situations	20,000,000	20,068,464	20,720,289						
2010	Oaktree Power Opportunities Fund III	Buyout	25,000,000	17,464,459	22,150,923						
2010	OCM Opportunities Fund VIII	Special Situations	12,500,000	12,583,425	17,430,778						
2010	OCM Opportunities Fund VIIIb	Special Situations	12,500,000	12,500,000	12,123,310						
2010	Weathergage Venture Capital II	Venture Capital	25,000,000	23,250,000	13,736,090	38,759,161	29,245,251	2.3x	15.5%	Second	First
2010 Total			\$110,000,000	\$100,296,348	\$93,361,391						
2011	ABRY Partners VII	Buyout	30,000,000	37,852,221	48,702,195						
2011	Asia Alternatives Korea Buyout Investors (Hahn & Co)	Buyout	7,000,000	8,643,252	9,137,898	5,702,293	6,196,939	1.7x	13.5%	Third	Second
2011	Berkshire Fund VIII	Buyout	30,000,000	30,492,170	29,747,778						
2011	Francisco Partners III	Buyout	20,000,000	20,275,777	31,902,241	15,016,264	26,642,728	2.3x	20.8%	Second	First
2011	H.I.G. Growth Buyouts & Equity Fund II	Buyout	15,000,000	14,656,287	4,086,778						
2011	Insight Venture Partners VII	Venture Capital	20,000,000	21,319,992	35,746,037	22,683,421	37,109,466	2.7x	22.1%	Second	First
2011	JMI Equity Fund VII	Venture Capital	10,000,000	9,780,000	12,047,439						
2011	Meritech Capital Partners IV	Venture Capital	20,000,000	19,400,000	24,718,878						
2011 Total			\$152,000,000	\$162,419,700	\$196,089,244						
2012	Advent International GPE VII-B	Buyout	40,000,000	37,600,000	33,752,625	33,141,296	29,293,921	1.8x	16.1%	Second	Second
2012	Asia Alternatives Capital Partners III	Buyout	50,000,000	53,341,818	34,787,177	49,410,042	30,855,401	1.6x	13.7%	Second	Second
2012	AXA Secondary Fund V B	Special Situations	75,000,000	61,682,742	86,729,624						
2012	Carlyle Energy Mezzanine Opportunities Fund	Buyout	50,000,000	64,797,142	26,707,945	22,168,152	-15,921,045	0.8x	(10.9%)	Fourth	Fourth
2012	NewSpring Growth Capital III	Venture Capital	25,000,000	23,361,239	10,192,997						
2012	Penn Asia Investors	Buyout	133,000,000	81,472,349	36,002,134	90,496,040	45,025,825	1.6x	16.2%	Second	Second
2012 Total			\$373,000,000	\$322,255,290	\$228,172,502						
2013	Eureka Growth Capital III	Buyout	20,000,000	14,652,268	13,614,722	13,251,765	12,214,219	1.8x	47.7%	First	First
2013	FSN Capital IV	Buyout	46,049,703	37,755,593	47,457,821						
2013	H.I.G. Bayside Loan Opp. Fund III	Special Situations	50,000,000	40,418,122	30,839,392						
2013	H.I.G. Europe Capital Partners II	Buyout	27,544,596	16,364,744	3,985,287						
2013	Incline Equity Partners III	Buyout	15,000,000	15,701,555	20,874,842	14,772,698	19,945,985	2.3x	33.9%	First	First
2013	Insight Venture Partners VIII	Venture Capital	50,000,000	52,250,000	54,139,530	49,994,405	51,883,934	2.0x	16.7%	Second	First
2013	KPS Special Situations Fund IV	Special Situations	25,000,000	15,892,288	7,178,052	12,725,182	4,010,946	1.3x	20.2%	Second	Fourth
2013	LBC Credit Partners III	Special Situations	50,000,000	46,718,245	42,649,375				8.3%	Third	
2013	LLR Equity Partners IV	Buyout	50,000,000	45,485,764	44,684,210	42,917,983	42,116,430	1.9x	26.7%	First	First

Commonwealth of Pennsylvania State Employees' Retirement System
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2013	Oaktree Opportunities Fund IX	Special Situations	\$50,000,000	\$50,000,000	\$21,447,715						
2013	Platinum Equity Capital Partners III	Special Situations	50,000,000	45,516,573	61,303,698	18,899,947	34,687,072	1.8x	38.0%	First	Second
2013	Sentinel Capital Partners V	Buyout	10,000,000	8,671,252	4,324,736	8,025,824	3,679,308	1.4x	15.1%	Second	Third
2013 Total			\$443,594,299	\$389,426,405	\$352,499,379						
2014	ABRY Partners VIII	Buyout	25,000,000	28,901,530	11,682,961						
2014	Capvis Equity IV	Buyout	49,855,591	42,153,784	33,984,236	18,296,760	10,127,213				
2014	GTCR Fund XI	Buyout	25,000,000	22,337,831	15,362,006				25.8%	First	
2014	Hahn & Company II	Buyout	50,000,000	49,358,451	9,040,888						
2014	Hellman & Friedman Capital Partners VIII	Buyout	50,000,000	49,055,284	4,699,979	NM	NM	NM	NM	NM	NM
2014	Horizon Impact Fund	Buyout	50,000,000	39,004,802	10,399,736	47,868,354	19,263,288	1.5x	17.3%	Second	Second
2014	Horizon Strategic Fund - Carlyle Group	Buyout	100,000,000	86,130,870	26,652,737	93,283,807	33,805,674	1.4x	10.8%	Third	Second
2014	JMI Equity Fund VIII	Venture Capital	25,000,000	25,600,000	11,546,162						
2014	Meritech Capital Partners V	Venture Capital	23,000,000	21,332,500	5,531,882						
2014 Total			\$397,855,591	\$363,875,051	\$128,900,586						
2015	ADV Opportunities Fund I	Special Situations	50,000,000	53,420,909	7,425,158	58,455,617	12,459,866	1.2x	8.3%	Third	Third
2015	Advent Latin American Private Equity Fund VI	Buyout	25,000,000	17,425,000	5,000,000	17,733,054	5,308,054	1.3x	18.3%	Second	Second
2015	Audax Private Equity Fund V	Buyout	50,000,000	36,836,467	13,303,726	33,196,070	9,663,329	1.3x	16.7%	Second	Third
2015	Blackstone Capital Partners VII	Buyout	50,000,000	29,222,806	2,961,871	NM	NM	NM	NM	NM	NM
2015	Centerbridge Capital Partners III	Special Situations	30,000,000	19,320,874	6,196,230	19,850,912	6,726,268	1.3x	14.9%	Second	Second
2015	Clearlake Capital Partners IV	Special Situations	15,000,000	17,747,942	9,919,448	18,240,505	10,412,011	1.6x	31.8%	First	First
2015	Francisco Partners IV	Buyout	25,000,000	24,656,280	13,481,280	32,404,368	21,229,368	1.9x	27.3%	First	First
2015	H.I.G. Bayside Loan Opp. Fund IV	Special Situations	25,000,000	17,671,163	10,688,197						
2015	H.I.G. Brazil and Latin America Partners	Buyout	50,000,000	20,988,594	9,139						
2015	Insight Venture Partners IX	Venture Capital	50,000,000	49,250,000	8,503,088	91,627,148	50,880,236	2.0x	29.4%	First	First
2015	Lightspeed India Partners I	Venture Capital	15,000,000	13,155,000	-						
2015	Primavera Capital Fund II	Buyout	50,000,000	52,132,478	3,728,092						
2015	Ridgmont Equity Partners II	Buyout	50,000,000	46,314,670	15,029,495						
2015	RRJ Capital Master Fund III	Special Situations	50,000,000	37,642,913	11,191,862	38,038,405	11,587,354	1.3x	16.5%	Second	Second
2015	Sterling Group Partners IV	Buyout	20,000,000	12,792,335	432,248	14,100,696	1,740,610	1.1x	7.9%	Third	Fourth
2015 Total			\$555,000,000	\$448,577,430	\$107,869,836						
2016	Advent International GPE VIII-B	Buyout	50,000,000	42,050,000	-	NM	NM	NM	NM	NM	NM
2016	ASF VII B	Special Situations	100,000,000	34,740,238	5,735,152						
2016	ASF VII PA Co-Invest	Special Situations	50,000,000	21,643,723	998,004						
2016	FSN Capital V	Buyout	77,189,328	35,336,314	7,278,360	NM	NM	NM	NM	NM	NM
2016	Permira VI	Buyout	56,202,000	38,480,132	-	NM	NM	NM	NM	NM	NM
2016	Providence Strategic Growth II	Venture Capital	60,000,000	63,619,121	38,573,480	NM	NM	NM	NM	NM	NM
2016	Vista Equity Partners Fund VI	Buyout	150,000,000	162,890,528	35,980,028	NM	NM	NM	NM	NM	NM
2016 Total			\$543,391,328	\$398,760,056	\$88,565,024						
2017	Apollo Investment Fund IX	Buyout	85,400,000	8,174,793	884	NM	NM	NM	NM	NM	NM
2017	Asia Alternatives Capital Partners V	Buyout	50,000,000	7,353,488	143,561	NM	NM	NM	NM	NM	NM
2017	CVC Capital Partners VII	Buyout	91,202,040	14,786,945	318,774	NM	NM	NM	NM	NM	NM
2017	GTCR Fund XII	Buyout	32,500,000	8,047,000	286,544	NM	NM	NM	NM	NM	NM
2017	Horizon Impact Fund B	Buyout	100,000,000	38,750,000	-	NM	NM	NM	NM	NM	NM
2017	Insight Venture Partners X	Venture Capital	100,000,000	71,000,000	34,245	NM	NM	NM	NM	NM	NM
2017	Silver Lake Partners V	Buyout	78,000,000	31,307,930	-	NM	NM	NM	NM	NM	NM
2017	TDR Capital IV	Buyout	83,638,400	1,823,120	-	NM	NM	NM	NM	NM	NM
2017	Wind Point Partners VIII	Buyout	100,000,000	66,797,671	15,747,005	NM	NM	NM	NM	NM	NM
2017 Total			\$720,740,440	\$248,040,947	\$16,531,013						
2018	Audax Private Equity Fund VI	Buyout	75,000,000	-	-	NM	NM	NM	NM	NM	NM
2018	Clearlake Capital Partners V	Special Situations	55,000,000	26,430,270	830,199	NM	NM	NM	NM	NM	NM
2018	Hahn & Company III	Buyout	56,250,000	12,084,171	1,656	NM	NM	NM	NM	NM	NM
2018	Hahn & Company III - Supplemental Fund	Buyout	18,750,000	7,592,032	1,126	NM	NM	NM	NM	NM	NM
2018	Hellman & Friedman Capital Partners IX	Buyout	90,000,000	-	-	NM	NM	NM	NM	NM	NM
2018	Keystone Legacy Fund	Keystone Legacy Fund	500,000,000	5,759,594,929	7,116,342,924	882,711,978	2,239,459,973	1.4x	6.0%	NM	NM
2018	LLR Equity Partners V	Buyout	75,000,000	29,569,792	2,706,267	NM	NM	NM	NM	NM	NM
2018	NGP Keystone	Buyout	25,000,000	-	-	NM	NM	NM	NM	NM	NM
2018	NGP XII	Buyout	75,000,000	22,009,102	113,471	NM	NM	NM	NM	NM	NM
2018	Providence Strategic Growth III	Venture Capital	75,000,000	52,669,218	2,549,236	NM	NM	NM	NM	NM	NM
2018	TCV X	Venture Capital	75,000,000	3,750,000	-	NM	NM	NM	NM	NM	NM
2018	Thoma Bravo Fund XIII	Buyout	75,000,000	26,793,430	-	NM	NM	NM	NM	NM	NM
2018	TSG8	Buyout	100,000,000	1,362,253	-	NM	NM	NM	NM	NM	NM
2018	Vista Equity Partners Fund VII	Buyout	75,000,000	10,276,037	11,098	NM	NM	NM	NM	NM	NM
2018 Total			\$1,370,000,000	\$5,952,131,233	\$7,122,555,977						

Commonwealth of Pennsylvania State Employees' Retirement System

Schedule of Investments by Vintage Year

As of June 30, 2019

VINTAGE	FUND	SECTOR	COMMITMENT ¹	CONTRIBUTIONS ²	DISTRIBUTIONS	MARKET VALUE	GAIN/LOSS	TVM	IRR	IRR RANK ³	TVM RANK ³
2019	ASF VIII B	Special Situations	\$100,000,000	\$10,000	-	NM	NM	NM	NM	NM	NM
2019	ASF VIII PA Co-Invest	Special Situations	50,000,000	-	-	NM	NM	NM	NM	NM	NM
2019	Blackstone Capital Partners VIII	Buyout	75,000,000	-	-	NM	NM	NM	NM	NM	NM
2019	Permira VII	Buyout	75,000,000	-	-	NM	NM	NM	NM	NM	NM
2019	Primavera Capital Fund III	Buyout	75,000,000	38,743,493	89,979	NM	NM	NM	NM	NM	NM
2019	Providence Strategic Growth IV	Venture Capital	75,000,000	-	-	NM	NM	NM	NM	NM	NM
2019 Total			\$450,000,000	\$38,753,493	\$89,979	NM	NM	NM	NM	NM	NM
Total: Active Investments			\$9,154,147,590	\$12,353,250,156	\$14,985,234,019	\$3,985,255,450	\$6,617,239,314	1.5x	9.1%	Second	Second
Total: Liquidated Investments			\$4,096,120,724	\$4,010,681,840	\$7,209,909,915	\$0	\$3,199,228,076	1.8x	16.5%	First	Second
Total: Commonwealth of Pennsylvania State Employees' Retirement System			\$13,250,268,315	\$16,363,931,996	\$22,195,143,935	\$3,985,209,504	\$9,816,421,443	1.6x	12.2%	Second	Second

1. Commitment reflects original commitment including fx fluctuations for non-usd funds.

2. Contributions includes management fees and expenses.

3. Fund quartile rankings provided by Burgiss Private IQ as of June 30, 2019, and represents sector-comparable funds aggregated by vintage year, asset class and geography, with special situation funds benchmarked to All Private Equity. Total Buyout, Venture Capital and Special Situations are benchmarked by sector-comparable funds, which includes vintages in which SERS made commitments. Vintage year benchmarks compares Burgiss Private IQ vintage year by Global All Private Equity Benchmarks.

Note: Keystone Legacy Fund performance represents since inception returns for all non-core funds combined and contributions and distributions reflect since inception cash flows for the non-core portfolio.

NM - Not Meaningful

These figures have been prepared by Stepstone on behalf of SERS and have not been provided by any General Partner.

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

Exhibit B – Investments by Sector

Commonwealth of Pennsylvania State Employees' Retirement System

Schedule of Private Equity Investments by Sector

As of June 30, 2019

SECTOR	FUND	VINTAGE	COMMITMENT ¹	CONTRIBUTIONS ²	DISTRIBUTIONS	MARKET VALUE	GAIN/LOSS	TVM	IRR	IRR RANK ³	TVM RANK ³
Buyout	ABRY Partners IV	2000	\$35,000,000	\$25,497,290	\$74,633,973						
Buyout	ABRY Partners V	2004	45,000,000	41,742,771	83,293,903						
Buyout	ABRY Partners VI	2008	50,000,000	59,994,861	107,608,270						
Buyout	ABRY Partners VII	2011	30,000,000	37,852,221	48,702,195						
Buyout	ABRY Partners VIII	2014	25,000,000	28,901,530	11,682,961						
Buyout	Advent International GPE VI-A	2008	35,000,000	35,146,325	67,433,549	6,571,805	38,859,029	2.1x	16.9%	First	First
Buyout	Advent International GPE VII-B	2012	40,000,000	37,600,000	33,752,625	33,141,296	29,293,921	1.8x	16.1%	Second	Second
Buyout	Advent International GPE VIII-B	2016	50,000,000	42,050,000	-	NM	NM	NM	NM	NM	NM
Buyout	Advent Latin American Private Equity Fund IV	2007	30,000,000	30,797,073	39,725,921	6,444,835	15,373,683	1.5x	9.2%	Second	Second
Buyout	Advent Latin American Private Equity Fund V	2010	15,000,000	14,430,000	7,200,000	9,642,880	2,412,880	1.2x	3.3%	Fourth	Fourth
Buyout	Advent Latin American Private Equity Fund VI	2015	25,000,000	17,425,000	5,000,000	17,733,054	5,308,054	1.3x	18.3%	Second	Second
Buyout	Apollo Investment Fund IV	1997	75,000,000	74,838,620	124,814,033	85,586	50,060,999	1.7x	8.5%	Second	Second
Buyout	Apollo Investment Fund IX	2017	85,400,000	8,174,793	884	NM	NM	NM	NM	NM	NM
Buyout	Apollo Investment Fund V	2000	50,000,000	44,972,146	122,507,048	431,965	77,966,867	2.7x	38.8%	First	First
Buyout	Apollo Investment Fund VI	2005	40,000,000	38,911,805	64,467,407	746,105	26,301,706	1.7x	8.7%	Second	Second
Buyout	Asia Alternatives Capital Partners	2006	50,000,000	25,180,175	41,648,780	4,665,880	21,134,485	1.8x	11.2%	Second	First
Buyout	Asia Alternatives Capital Partners II	2007	50,000,000	28,867,904	38,236,443	30,160,736	39,529,275	2.4x	17.7%	First	First
Buyout	Asia Alternatives Capital Partners III	2012	50,000,000	53,341,818	34,787,177	49,410,042	30,855,401	1.6x	13.7%	Second	Second
Buyout	Asia Alternatives Capital Partners V	2017	50,000,000	7,353,488	143,561	NM	NM	NM	NM	NM	NM
Buyout	Asia Alternatives Korea Buyout Investors (Hahn & Co)	2011	7,000,000	8,643,252	9,137,898	5,702,293	6,196,939	1.7x	13.5%	Third	Second
Buyout	Audax Private Equity Fund	2000	35,000,000	36,839,098	56,057,910	124,854	19,343,666	1.5x	13.1%	First	Second
Buyout	Audax Private Equity Fund II	2005	25,000,000	25,517,152	45,240,610	980,171	20,703,629	1.8x	14.0%	First	Second
Buyout	Audax Private Equity Fund III	2007	37,000,000	42,498,691	80,644,845	2,410,188	40,556,342	2.0x	15.0%	First	Second
Buyout	Audax Private Equity Fund V	2015	50,000,000	36,836,467	13,303,726	33,196,070	9,663,329	1.3x	16.7%	Second	Third
Buyout	Audax Private Equity Fund VI	2018	75,000,000	-	-	NM	NM	NM	NM	NM	NM
Buyout	Berkshire Fund VI	2002	20,000,000	18,819,615	54,873,734						
Buyout	Berkshire Fund VII	2006	32,000,000	32,612,736	60,660,471						
Buyout	Berkshire Fund VIII	2011	30,000,000	30,492,170	29,747,778						
Buyout	Blackstone Capital IV	2001	75,000,000	69,086,898	191,122,894	3,216,423	125,252,419	2.8x	36.2%	First	First
Buyout	Blackstone Capital Partners V	2006	150,000,000	149,951,913	241,388,866	7,301,370	98,738,323	1.7x	7.6%	Second	Second
Buyout	Blackstone Capital Partners VII	2015	50,000,000	29,222,806	2,961,871	NM	NM	NM	NM	NM	NM
Buyout	Blackstone Capital Partners VIII	2019	75,000,000	-	-	NM	NM	NM	NM	NM	NM
Buyout	Blackstone Communications Partners I	2000	25,000,000	25,114,042	30,998,189	170,714	6,054,861	1.2x	6.3%	Second	Second
Buyout	Capvis Equity IV	2014	49,855,591	42,153,784	33,984,236	18,296,760	10,127,213				
Buyout	Carlyle Energy Mezzanine Opportunities Fund	2012	50,000,000	64,797,142	26,707,945	22,168,152	-15,921,045	0.8x	(10.9%)	Fourth	Fourth
Buyout	CVC Capital Partners VII	2017	91,202,040	14,786,945	318,774	NM	NM	NM	NM	NM	NM
Buyout	Energy Spectrum Partners V	2007	28,326,735	27,661,855	51,487,729	139,992	23,965,866	1.9x	31.7%	First	Second
Buyout	Eureka Growth Capital III	2013	20,000,000	14,652,268	13,614,722	13,251,765	12,214,219	1.8x	47.7%	First	First
Buyout	Eureka II	2006	20,000,000	21,884,526	20,777,356	7,318,077	6,210,907	1.3x	5.1%	Third	Third
Buyout	Francisco Partners	2000	50,000,000	47,769,948	61,464,903	452,058	14,147,013	1.3x	4.4%	Second	Second
Buyout	Francisco Partners II	2006	30,000,000	29,383,916	41,240,515	5,064,784	16,921,382	1.6x	10.1%	Second	Second
Buyout	Francisco Partners III	2011	20,000,000	20,275,777	31,902,241	15,016,264	26,642,728	2.3x	20.8%	Second	First
Buyout	Francisco Partners IV	2015	25,000,000	24,656,280	13,481,280	32,404,368	21,229,368	1.9x	27.3%	First	First
Buyout	FSN Capital IV	2013	46,049,703	37,755,593	47,457,821						
Buyout	FSN Capital V	2016	77,189,328	35,336,314	7,278,360	NM	NM	NM	NM	NM	NM
Buyout	Great Hill Equity Partners III	2006	35,000,000	35,000,000	41,935,541						
Buyout	Great Hill Equity Partners IV	2008	25,000,000	25,125,662	56,840,270						
Buyout	GTCR Fund XI	2014	25,000,000	22,337,831	15,362,006						
Buyout	GTCR Fund XII	2017	32,500,000	8,047,000	286,544	NM	NM	NM	NM	First	NM
Buyout	GTCR IX	2006	50,000,000	47,916,718	86,149,702					13.8%	First
Buyout	GTCR VIII	2002	75,000,000	69,393,599	120,471,948					22.3%	Second
Buyout	H.I.G. Brazil and Latin America Partners	2015	50,000,000	20,988,594	9,139						
Buyout	H.I.G. Europe Capital Partners II	2013	27,544,596	16,364,744	3,985,287						
Buyout	H.I.G. Growth Buyouts & Equity Fund II	2011	15,000,000	14,656,287	4,086,778						
Buyout	Hahn & Company II	2014	50,000,000	49,358,451	9,040,888						
Buyout	Hahn & Company III	2018	56,250,000	12,084,171	1,656	NM	NM	NM	NM	NM	NM
Buyout	Hahn & Company III – Supplemental Fund	2018	18,750,000	7,592,032	1,126	NM	NM	NM	NM	NM	NM
Buyout	HarbourVest IPEP III	1998	40,000,000	39,400,000	61,092,165	80,994	21,773,159	1.6x	8.6%	Second	Second
Buyout	Hellman & Friedman Capital Partners IX	2018	90,000,000	-	-	NM	NM	NM	NM	NM	NM

Commonwealth of Pennsylvania State Employees' Retirement System

Schedule of Private Equity Investments by Sector

As of June 30, 2019

SECTOR	FUND	VINTAGE	COMMITMENT ¹	CONTRIBUTIONS ²	DISTRIBUTIONS	MARKET VALUE	GAIN/LOSS	TVM	IRR	IRR RANK ³	TVM RANK ³
Buyout	Hellman & Friedman Capital Partners VI	2006	\$125,000,000	\$119,913,412	\$218,556,925	6,130,684	104,774,197	1.9x	12.9%	First	First
Buyout	Hellman & Friedman Capital Partners VIII	2014	50,000,000	49,055,284	4,699,979	NM	NM	NM	NM	NM	NM
Buyout	HIPEP V-Asia Pacific & Rest of World	2005	30,000,000	28,245,316	34,310,232	6,622,595	12,687,511	1.4x	6.3%	Third	Second
Buyout	Horizon Impact Fund	2014	50,000,000	39,004,802	10,399,736	47,868,354	19,263,288	1.5x	17.3%	Second	Second
Buyout	Horizon Impact Fund B	2017	100,000,000	38,750,000	-	NM	NM	NM	NM	NM	NM
Buyout	Horizon Strategic Fund - Carlyle Group	2014	100,000,000	86,130,870	26,652,737	93,283,807	33,805,674	1.4x	10.8%	Third	Second
Buyout	Incline Equity Partners III	2013	15,000,000	15,701,555	20,874,842	14,772,698	19,945,985	2.3x	33.9%	First	First
Buyout	Kelso VII	2003	40,000,000	41,194,550	65,845,731	767,495	25,418,676	1.6x	11.5%	Second	Second
Buyout	Kelso VIII	2007	150,000,000	146,269,405	164,521,918	30,779,441	49,031,954	1.3x	6.3%	Third	Third
Buyout	LLR Equity Partners II	2004	25,000,000	25,000,000	44,945,591	232,851	20,178,442	1.8x	12.2%	Second	Second
Buyout	LLR Equity Partners III	2008	30,000,000	29,108,722	51,222,009	5,404,040	27,517,326	1.9x	15.2%	Second	First
Buyout	LLR Equity Partners IV	2013	50,000,000	45,485,764	44,684,210	42,917,983	42,116,430	1.9x	26.7%	First	First
Buyout	LLR Equity Partners V	2018	75,000,000	29,569,792	2,706,267	NM	NM	NM	NM	NM	NM
Buyout	Madison Dearborn Capital Partners IV	2000	90,000,000	90,365,390	169,072,775	3,310,614	82,017,998	1.9x	14.2%	First	First
Buyout	Madison Dearborn Capital Partners V	2006	75,000,000	71,558,278	113,628,059	1,576,124	43,645,905	1.6x	7.2%	Second	Second
Buyout	Madison Dearborn Capital Partners VI	2008	50,000,000	51,131,247	83,530,324	25,114,672	57,513,749	2.1x	23.6%	First	First
Buyout	Newbridge Asia IV	2005	40,000,000	38,903,378	85,845,344						
Buyout	NGP Keystone	2018	25,000,000	-	-	NM	NM	NM	NM	NM	NM
Buyout	NGP XII	2018	75,000,000	22,009,102	113,471	NM	NM	NM	NM	NM	NM
Buyout	Oaktree Power Opportunities Fund III	2010	25,000,000	17,464,459	22,150,923						
Buyout	OCM/GFI Power Opportunities Fund II	2005	25,000,000	13,470,852	41,644,215						
Buyout	Penn Asia Investors	2012	133,000,000	81,472,349	36,002,134	90,496,040	45,025,825	1.6x	16.2%	Second	Second
Buyout	Permira European Fund II	2000	48,000,000	45,672,612	91,464,087	424,143	46,215,618	2.0x	21.6%	First	First
Buyout	Permira European Fund III	2003	115,960,000	127,340,454	217,778,356	512,326	90,950,228	1.7x	26.1%	First	Second
Buyout	Permira IV	2006	127,779,198	137,762,438	203,511,684	18,401,131	84,150,377	1.6x	8.6%	Second	Second
Buyout	Permira VI	2016	56,202,000	38,480,132	-	NM	NM	NM	NM	NM	NM
Buyout	Permira VII	2019	75,000,000	-	-	NM	NM	NM	NM	NM	NM
Buyout	Primavera Capital Fund II	2015	50,000,000	52,132,478	3,728,092						
Buyout	Primavera Capital Fund III	2019	75,000,000	38,743,493	89,979	NM	NM	NM	NM	NM	NM
Buyout	Providence Equity Partners IV	2000	25,000,000	23,420,840	56,065,270						
Buyout	Providence Equity Partners V	2004	45,000,000	42,692,171	51,743,883						
Buyout	Providence Equity Partners VI	2007	50,000,000	53,946,228	58,171,556						
Buyout	Ridgmont Equity Partners II	2015	50,000,000	46,314,670	15,029,495						
Buyout	Sentinel Capital Partners V	2013	10,000,000	8,671,252	4,324,736	8,025,824	3,679,308	1.4x	15.1%	Second	Third
Buyout	Silver Lake Partners V	2017	78,000,000	31,307,930	-	NM	NM	NM	NM	NM	NM
Buyout	Sterling Group Partners IV	2015	20,000,000	12,792,335	432,248	14,100,696	1,740,610	1.1x	7.9%	Third	Fourth
Buyout	TA X	2006	70,000,000	69,732,009	90,382,009						
Buyout	TDR Capital IV	2017	83,638,400	1,823,120	-	NM	NM	NM	NM	NM	NM
Buyout	Thoma Bravo Fund XIII	2018	75,000,000	26,793,430	-	NM	NM	NM	NM	NM	NM
Buyout	TPG Asia V	2007	22,500,000	21,964,311	26,447,030	4,484,817	8,967,536	1.4x	6.5%	Third	Third
Buyout	TPG Partners III	1999	75,000,000	64,119,169	165,990,273						
Buyout	TPG Partners IV	2003	30,000,000	27,981,463	57,968,285						
Buyout	TPG Partners V	2006	100,000,000	92,531,812	125,076,000	7,054,651	39,598,839	1.4x	5.0%	Third	Second
Buyout	TPG Partners VI	2008	45,000,000	50,111,214	64,622,335	11,249,919	25,761,040	1.5x	10.4%	Second	Second
Buyout	TSG8	2018	100,000,000	1,362,253	-	NM	NM	NM	NM	NM	NM
Buyout	Vista Equity Partners Fund VI	2016	150,000,000	162,890,528	35,980,028	NM	NM	NM	NM	NM	NM
Buyout	Vista Equity Partners Fund VII	2018	75,000,000	10,276,037	11,098	NM	NM	NM	NM	NM	NM
Buyout	Wind Point Partners VIII	2017	100,000,000	66,797,671	15,747,005	NM	NM	NM	NM	NM	NM
Buyout Total			\$5,744,147,590	\$4,243,556,675	\$4,996,727,325	\$1,832,389,593	\$2,585,560,243	160.9%	13.6%	Second	Second
Keystone Legacy Fund	Keystone Legacy Fund	2018	500,000,000	5,759,594,929	7,116,342,924	882,711,978	2,239,459,973	138.9%	6.0%	NM	NM
Keystone Legacy Fund Total			\$500,000,000	\$5,759,594,929	\$7,116,342,924	\$882,711,978	\$2,239,459,973	138.9%	6.0%	NM	NM
Special Situations	ABRY Advanced Securities Fund	2007	25,000,000	23,508,684	38,682,209						
Special Situations	ABRY Mezzanine Partners	2001	30,000,000	26,731,187	49,707,116						
Special Situations	ABRY Senior Equity II	2006	30,000,000	28,282,103	44,960,375						
Special Situations	ADV Opportunities Fund I	2015	50,000,000	53,420,909	7,425,158	58,455,617	12,459,866	1.2x	8.3%	Third	Third
Special Situations	ASF VII B	2016	100,000,000	34,740,238	5,735,152						
Special Situations	ASF VII PA Co-Invest	2016	50,000,000	21,643,723	998,004						
Special Situations	ASF VIII B	2019	100,000,000	10,000	-	NM	NM	NM	NM	NM	NM
Special Situations	ASF VIII PA Co-Invest	2019	50,000,000	-	-	NM	NM	NM	NM	NM	NM

Commonwealth of Pennsylvania State Employees' Retirement System

Schedule of Private Equity Investments by Sector

As of June 30, 2019

SECTOR	FUND	VINTAGE	COMMITMENT ¹	CONTRIBUTIONS ²	DISTRIBUTIONS	MARKET VALUE	GAIN/LOSS	TVM	IRR	IRR RANK ³	TVM RANK ³
Special Situations	Avenue Special Situations Fund VI	2010	\$20,000,000	\$20,068,464	\$20,720,289						
Special Situations	AXA Secondary Fund III	2004	26,000,000	21,737,894	37,244,706						
Special Situations	AXA Secondary Fund III-2	2004	14,000,000	11,677,210	19,062,764						
Special Situations	AXA Secondary Fund IV	2006	80,000,000	70,134,752	98,638,689						
Special Situations	AXA Secondary Fund V B	2012	75,000,000	61,682,742	86,729,624						
Special Situations	Centerbridge Capital Partners I	2006	50,000,000	57,490,446	113,038,748	6,736,353	62,284,655	2.1x	19.4%	First	First
Special Situations	Centerbridge Capital Partners III	2015	30,000,000	19,320,874	6,196,230	19,850,912	6,726,268	1.3x	14.9%	Second	Second
Special Situations	Clearlake Capital Partners IV	2015	15,000,000	17,747,942	9,919,448	18,240,505	10,412,011	1.6x	31.8%	First	First
Special Situations	Clearlake Capital Partners V	2018	55,000,000	26,430,270	830,199	NM	NM	NM	NM	NM	NM
Special Situations	Dover Street VII	2007	30,000,000	28,696,128	38,403,160	3,221,740	12,928,772	1.5x	9.5%	Second	Third
Special Situations	H.I.G. Bayside Debt & LBO Fund II	2008	30,000,000	30,996,778	45,748,556						
Special Situations	H.I.G. Bayside Loan Opp. Fund III	2013	50,000,000	40,418,122	30,839,392						
Special Situations	H.I.G. Bayside Loan Opp. Fund IV	2015	25,000,000	17,671,163	10,688,197						
Special Situations	KPS Special Situations Fund IV	2013	25,000,000	15,892,288	7,178,052	12,725,182	4,010,946	1.3x	20.2%	Second	Fourth
Special Situations	LBC Credit Partners III	2013	50,000,000	46,718,245	42,649,375				8.3%	Third	
Special Situations	Lexington Capital Partners III	1999	35,000,000	34,516,449	43,363,378						
Special Situations	Lexington Capital Partners V	2001	75,000,000	74,623,418	125,170,164						
Special Situations	Lexington Capital Partners VI	2005	50,000,000	53,066,325	69,215,321						
Special Situations	Oaktree Capital Management	2004	40,000,000	40,582,060	138,594,329						
Special Situations	Oaktree Opportunities Fund IX	2013	50,000,000	50,000,000	21,447,715						
Special Situations	OCM Opportunities Fund V	2004	40,000,000	40,003,507	65,911,274						
Special Situations	OCM Opportunities Fund VI	2005	40,000,000	40,000,000	63,171,009						
Special Situations	OCM Opportunities Fund VII	2007	40,000,000	40,000,000	53,450,728						
Special Situations	OCM Opportunities Fund VII b	2007	40,000,000	36,000,000	61,488,034						
Special Situations	OCM Opportunities Fund VIII	2010	12,500,000	12,583,425	17,430,778						
Special Situations	OCM Opportunities Fund VIIIb	2010	12,500,000	12,500,000	12,123,310						
Special Situations	OCM Principal Opportunities Fund IV	2006	20,000,000	20,400,000	34,019,822						
Special Situations	Platinum Equity Capital Partners III	2013	50,000,000	45,516,573	61,303,698	18,899,947	34,687,072	1.8x	38.0%	First	Second
Special Situations	RRJ Capital Master Fund III	2015	50,000,000	37,642,913	11,191,862	38,038,405	11,587,354	1.3x	16.5%	Second	Second
Special Situations Total			\$1,565,000,000	\$1,212,454,833	\$1,493,276,864	\$564,065,630	\$844,887,662	169.7%	15.2%	First	First
Venture Capital	Battery Ventures VIII	2007	25,000,000	25,050,751	55,602,642						
Venture Capital	Battery Ventures VIII Side Car Fund	2008	9,000,000	6,803,790	17,412,210						
Venture Capital	HarbourVest Partners VI	1999	200,000,000	196,586,055	250,693,463	1,629,031	55,736,439	1.3x	3.6%	Second	Second
Venture Capital	HarbourVest Partners VII	2003	75,000,000	73,687,500	105,087,881	14,082,848	45,483,229	1.6x	6.9%	Third	Second
Venture Capital	HarbourVest Partners VIII	2006	100,000,000	98,000,000	130,568,903	58,444,775	91,013,678	1.9x	10.9%	Second	First
Venture Capital	Insight Venture Partners IX	2015	50,000,000	49,250,000	8,503,088	91,627,148	50,880,236	2.0x	29.4%	First	First
Venture Capital	Insight Venture Partners VI	2007	30,000,000	32,244,177	73,211,458	8,388,669	49,355,951	2.5x	19.2%	First	First
Venture Capital	Insight Venture Partners VII	2011	20,000,000	21,319,992	35,746,037	22,683,421	37,109,466	2.7x	22.1%	Second	First
Venture Capital	Insight Venture Partners VIII	2013	50,000,000	52,250,000	54,139,530	49,994,405	51,883,934	2.0x	16.7%	Second	First
Venture Capital	Insight Venture Partners X	2017	100,000,000	71,000,000	34,245	NM	NM	NM	NM	NM	NM
Venture Capital	JMI Equity Fund VI	2007	40,000,000	40,000,246	67,630,800						
Venture Capital	JMI Equity Fund VII	2011	10,000,000	9,780,000	12,047,439						
Venture Capital	JMI Equity Fund VIII	2014	25,000,000	25,600,000	11,546,162						
Venture Capital	Lightspeed India Partners I	2015	15,000,000	13,155,000	-						
Venture Capital	Lightspeed Venture Partners VII	2005	18,000,000	18,000,000	49,449,448						
Venture Capital	Lightspeed Venture Partners VIII	2008	15,000,000	14,550,000	27,045,680						
Venture Capital	Meritech Capital Partners III	2006	35,000,000	35,000,000	190,791,007						
Venture Capital	Meritech Capital Partners IV	2011	20,000,000	19,400,000	24,718,878						
Venture Capital	Meritech Capital Partners V	2014	23,000,000	21,332,500	5,531,882						
Venture Capital	New Enterprise Associates 11	2003	25,000,000	25,000,000	62,741,850	3,098,379	40,840,229	2.6x	15.6%	Second	First
Venture Capital	New Enterprise Associates 12	2006	35,000,000	35,631,130	45,554,802	4,442,250	14,365,922	1.4x	6.6%	Second	Second
Venture Capital	New Enterprise Associates IX	1999	20,000,000	19,600,000	7,978,301	1,620,554	-10,001,145	0.5x	(5.7%)	Third	Fourth
Venture Capital	New Enterprise Associates X	2000	35,000,000	35,028,000	33,995,586	7,421,557	6,389,143	1.2x	2.6%	Third	Third
Venture Capital	NewSpring Growth Capital II	2006	10,000,000	9,850,000	13,962,639						
Venture Capital	NewSpring Growth Capital III	2012	25,000,000	23,361,239	10,192,997						
Venture Capital	Providence Strategic Growth II	2016	60,000,000	63,619,121	38,573,480	NM	NM	NM	NM	NM	NM
Venture Capital	Providence Strategic Growth III	2018	75,000,000	52,669,218	2,549,236	NM	NM	NM	NM	NM	NM
Venture Capital	Providence Strategic Growth IV	2019	75,000,000	-	-	NM	NM	NM	NM	NM	NM
Venture Capital	TCV X	2018	75,000,000	3,750,000	-	NM	NM	NM	NM	NM	NM

Commonwealth of Pennsylvania State Employees' Retirement System

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As of June 30, 2019

SECTOR	FUND	VINTAGE	COMMITMENT ¹	CONTRIBUTIONS ²	DISTRIBUTIONS	MARKET VALUE	GAIN/LOSS	TVM	IRR	IRR RANK ³	TVM RANK ³
Venture Capital	Weathergage Venture Capital	2007	\$25,000,000	\$22,875,000	\$29,841,174	17,657,284	24,623,458	2.1x	12.3%	Second	First
Venture Capital	Weathergage Venture Capital II	2010	25,000,000	23,250,000	13,736,090	38,759,161	29,245,251	2.3x	15.5%	Second	First
Venture Capital Total			\$1,345,000,000	\$1,137,643,719	\$1,378,886,906	\$706,088,249	\$947,331,436	1.8x	10.7%	Second	First
Total: Active Investments			\$9,154,147,590	\$12,353,250,156	\$14,985,234,019	\$3,985,255,450	\$6,617,239,314	1.5x	9.1%	Second	Second
Total: Liquidated Investments			\$4,096,120,724	\$4,010,681,840	\$7,209,909,915	\$0	\$3,199,228,076	1.8x	16.5%	First	Second
Total: Commonwealth of Pennsylvania State Employees' Retirement System			\$13,250,268,315	\$16,363,931,996	\$22,195,143,935	\$3,985,255,450	\$9,816,467,389	1.6x	12.2%	Second	Second

1. Commitment reflects original commitment including fx fluctuations for non-usd funds.

2. Contributions includes management fees and expenses.

3. Fund quartile rankings provided by Burgiss Private IQ as of June 30, 2019, and represents sector-comparable funds aggregated by vintage year, asset class and geography, with special situation funds benchmarked to All Private Equity. Total Buyout, Venture Capital and Special Situations are benchmarked by sector-comparable funds, which includes vintages in which SERS made commitments. Vintage year benchmarks compares Burgiss Private IQ vintage year by Global All Private Equity Benchmarks.

Note: Keystone Legacy Fund performance represents since inception returns for all non-core funds combined and contributions and distributions reflect since inception cash flows for the non-core portfolio.

NM - Not Meaningful

These figures have been prepared by Stepstone on behalf of SERS and have not been provided by any General Partner.

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

Definitions on Pages 29-35 - Redacted