



California Public Employees' Retirement System

Semi-Annual Report – December 31, 2019

Private Equity Program



California Public Employees' Retirement System Private Equity Program

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Introduction and Executive Summary



California Public Employees' Retirement System Private Equity Program

Introduction and Executive Summary

Overview

This report provides a review of CalPERS Private Equity Program as of December 31, 2019, and includes a review and outlook for the Private Equity industry. CalPERS began investing in the Private Equity asset class in 1990. CalPERS currently has an 8% Policy Target allocation to the Private Equity asset class. The total value of the portfolio was \$26.1 billion,¹ with total exposure (net asset value plus unfunded commitments) of \$44.7 billion.² The Private Equity Portfolio represented 6.6% of CalPERS total assets as of December 31, 2019.

Executive Summary

Portfolio

- The Portfolio is diversified by strategy, with Buyouts representing the largest allocation at nearly 70% of total Private Equity net asset value (NAV).
 - Mega and Large buyout funds represent approximately 55% of CalPERS' Buyouts NAV, and 39% of total Private Equity Program NAV.
- Assets within the United States comprise approximately 60% of the Program's NAV.
- Fund investments represent 69% of NAV, with the balance in Customized Investment Accounts (18%), Fund of Funds (8%), and Co-Investments/Direct Investments (5%).

¹ Source: State Street cash-flow adjusted NAVs, as of 12/31/2019.

² Source: State Street, CalPERS. Total exposure is the sum of NAVs and unfunded commitments.



California Public Employees' Retirement System Private Equity Program

Introduction and Executive Summary

Performance

- The Program had a value increase (net of contributions and distributions) of \$0.4 billion for the second half of 2019, and \$0.7 billion for calendar year 2019.
- The Private Equity Program outperformed its Policy Benchmark by 30 basis points in the 1-year trailing period, but has underperformed across trailing periods of 3-, 5-, and 10-years.
 - The Program outperformed the FTSE Global All Cap Index plus 150 basis points in the trailing 1-, 5-, and 10-year periods, while slightly underperforming in the 3- year period.

Activity

- The Private Equity Program experienced a net positive cash flow of \$0.8 billion through the second half of 2019, and \$2.5 billion for the four quarters ending December 2019.
- For the second half of 2019, Staff completed 3 commitments totaling \$1.2 billion¹, and 12 commitments totaling \$4.7 billion from January 2019 through December 2019.
- Since 2011 CalPERS has received over \$34 billion in net cash flow from the Private Equity Portfolio.

¹ Does not include \$2.8 billion in commitments approved, but not signed as of January 10, 2020.

Portfolio Overview



California Public Employees' Retirement System Private Equity Program

Portfolio Overview

CalPERS Private Equity Overview As of December 31, 2019

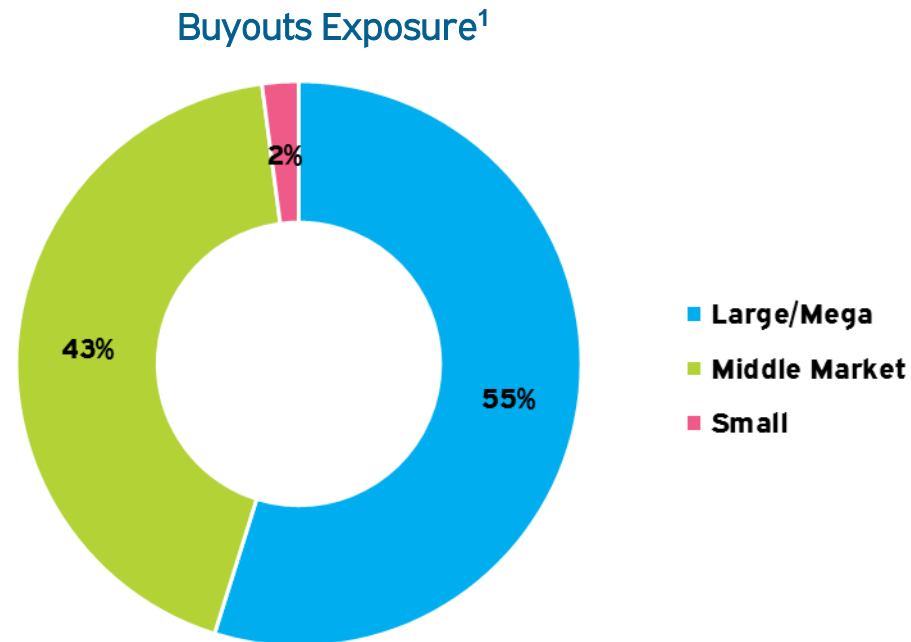
Strategy	NAV ¹ (\$ mm)	Percent of Total NAV (%)	CalPERS Target (%)	Target Range (%)
Buyout	17,945	68.7	65	55-75
Credit	1,737	6.7	10	0-15
Growth/Expansion	3,721	14.3	15	5-20
Opportunistic	2,168	8.3	10	0-15
Venture	477	1.8	1	0-7
Other ²	57	0.2	NA	NA
Total Program	26,104	6.6³	8	+/- 4%

- The CalPERS Private Equity Program was within the diversification ranges outlined in the Private Equity Investment Policy.
- Due to the Program's shift away from Venture in recent years, the sector is becoming a smaller portion of overall exposure.
- The overall private equity program was below the Policy Target of 8% as of December 31, 2019.
 - We note that CalPERS has over \$18 billion of unfunded commitments as of December 31, 2019.

¹ Source: State Street.

² Includes currency and stock holdings.

³ PE program NAV as a percent of total CalPERS portfolio as of 12/31/2019.

California Public Employees' Retirement System Private Equity Program**Portfolio Overview**

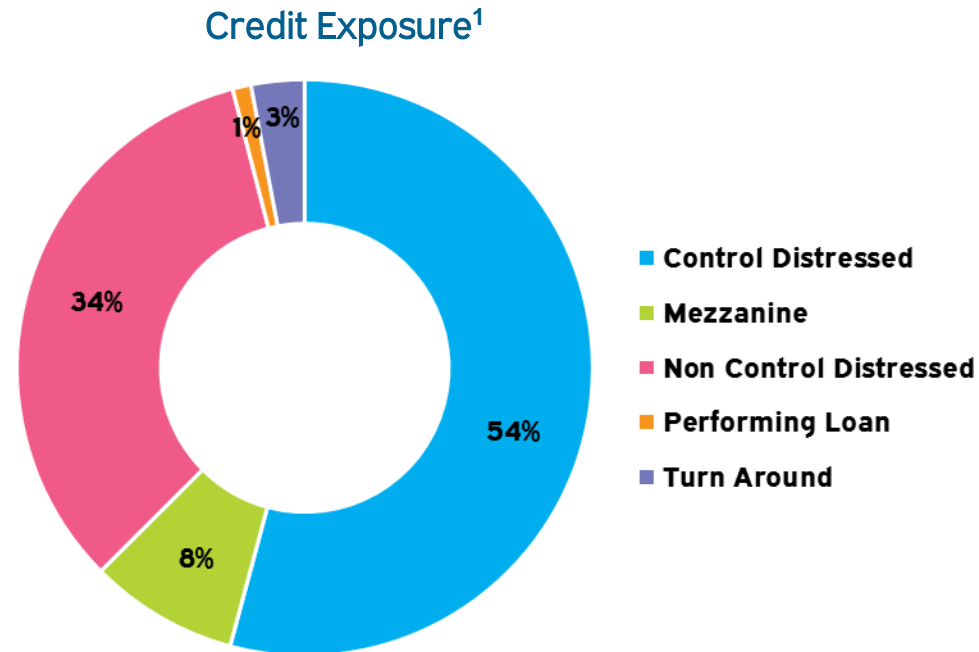
- The CalPERS Buyouts portfolio maintains a large exposure to both Large/Mega Buyouts (55%) and Middle Market Buyouts (43%), with minimal exposure to Small Buyouts (2%).

¹ Source: State Street, CalPERS. Exposure is the sum of NAVs and unfunded commitments.



California Public Employees' Retirement System Private Equity Program

Portfolio Overview



- Over half of CalPERS Credit portfolio exposure is attributable to Control Distressed investments with approximately one-third in Non Control Distressed investments. Mezzanine investments (8%), Turn Around investments (3%), and Performing Loans (1%) make up the remainder of CalPERS Credit exposure.

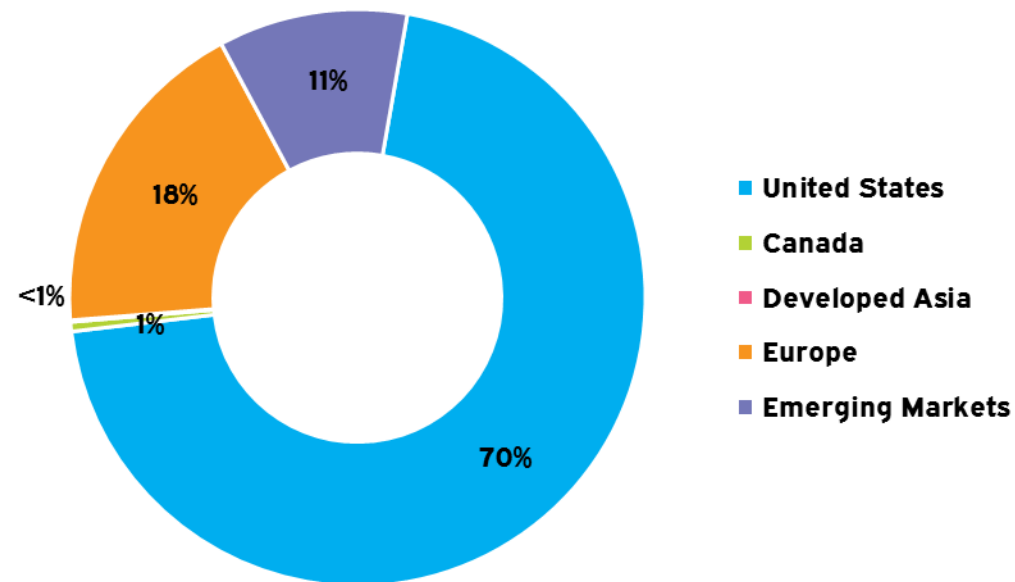
¹ Source: State Street, CalPERS. Exposure is the sum of NAVs and unfunded commitments.



California Public Employees' Retirement System Private Equity Program

Portfolio Overview

Fund-Level NAV by Region¹



- The Program has primarily targeted US-focused investments, which comprise 70% of the current portfolio value at the fund level.

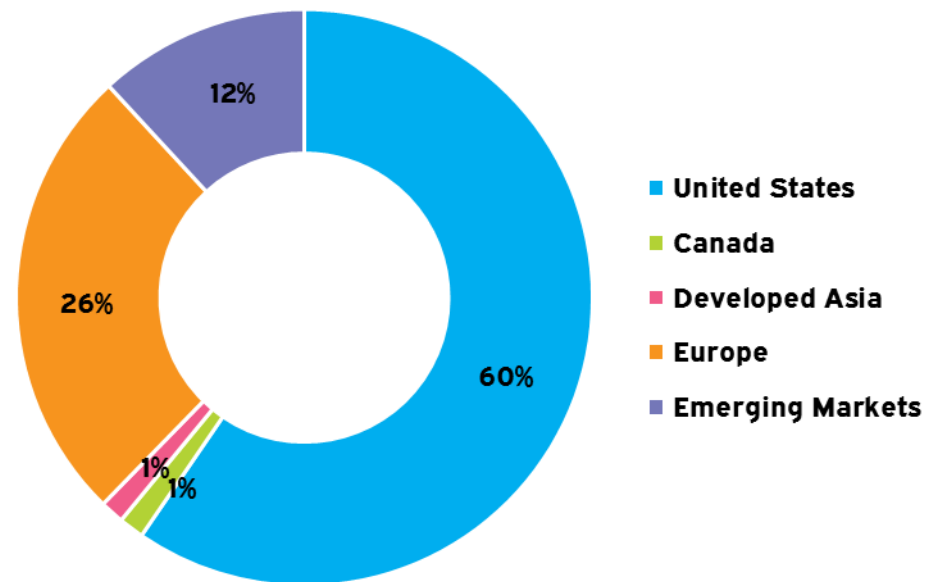
¹ Source: State Street.



California Public Employees' Retirement System Private Equity Program

Portfolio Overview

Asset-Level NAV by Region¹



- At the asset level, the majority of the Program's NAV is held in US-based portfolio companies at 60%, along with meaningful exposure to Europe (26%), and Emerging Markets (12%).

¹ Source: CalPERS, as of 12/31/2019.

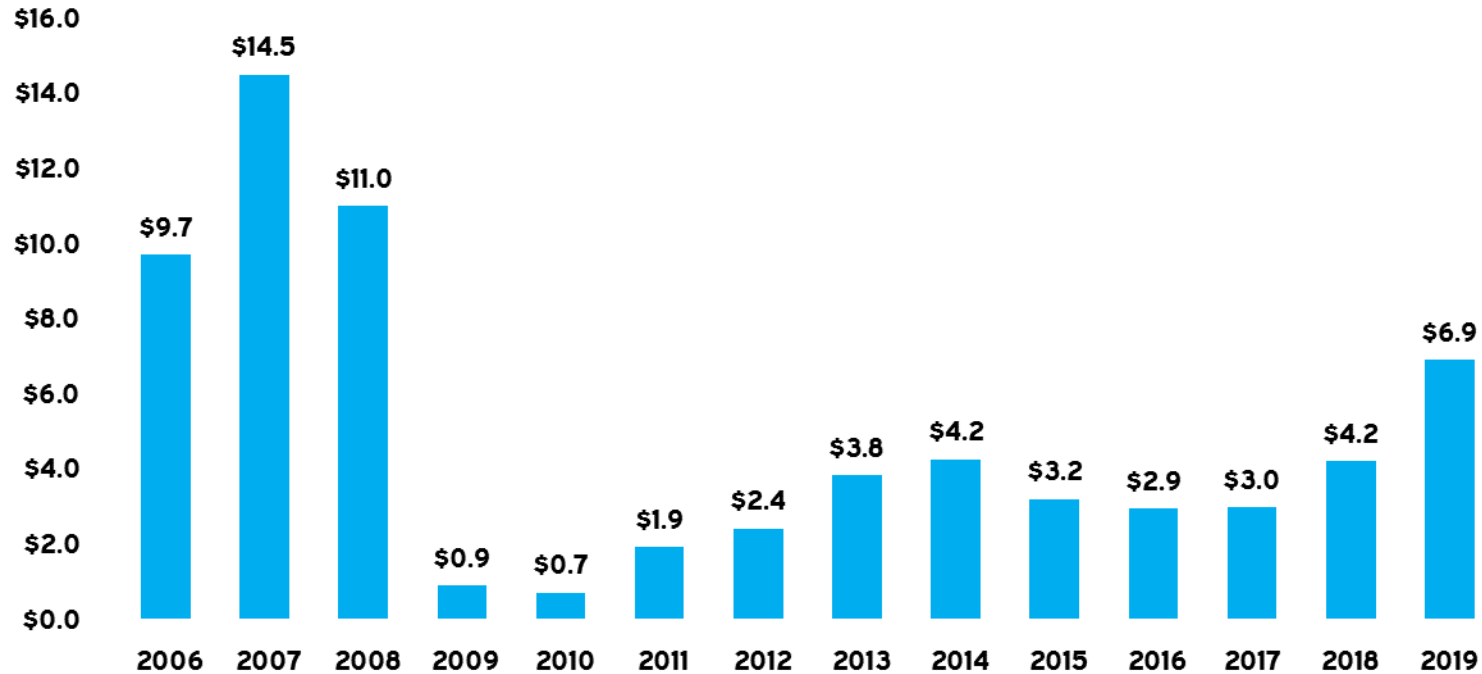


California Public Employees' Retirement System Private Equity Program

Portfolio Overview

Vintage Year Composition (2006 – 2019)

Total Commitments (\$ bn)¹



- The PE program has recently increased its annual commitment pace, committing more to 2019 vintage year funds than to any previous post-crisis vintage year.
- The Program committed 37% of total historical commitments to the 2006-2008 vintage years.

¹ CalPERS. Some recent commitments are not yet included in data.

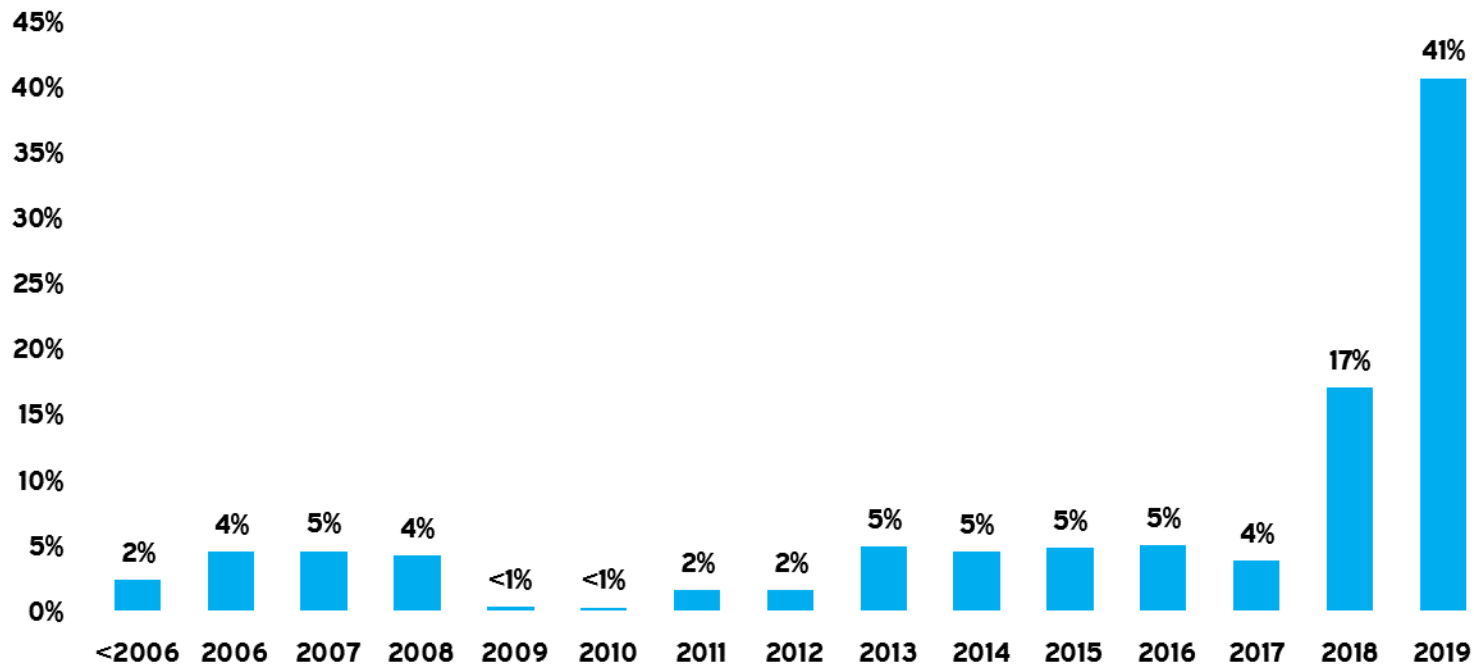


California Public Employees' Retirement System Private Equity Program

Portfolio Overview

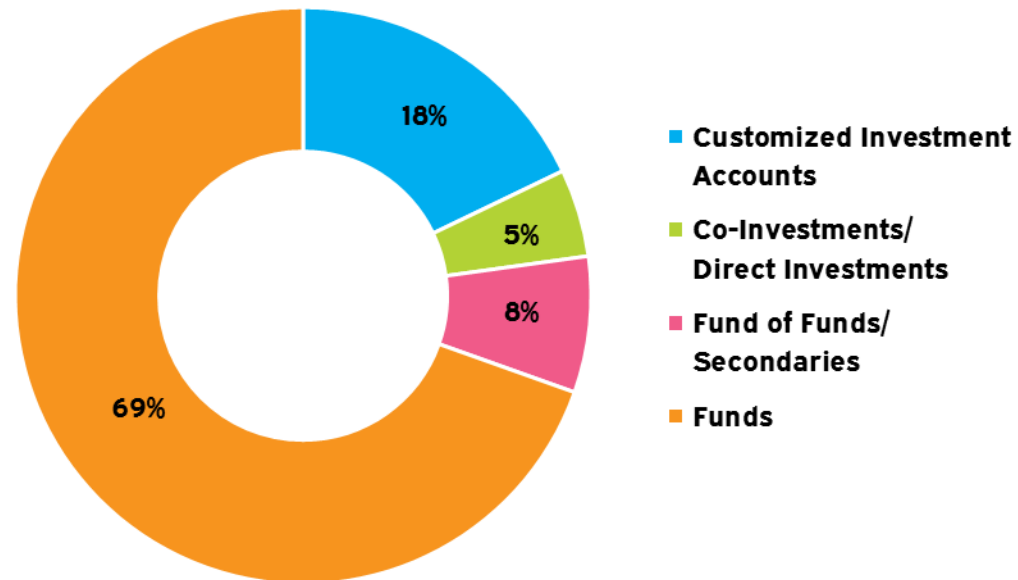
Vintage Year Composition

Vintage Year (% of Unfunded Commitments)¹



- Vintage years 2018 and 2019 account for nearly 60% of the Program's current unfunded commitments.

¹ CalPERS. Total unfunded commitments includes fund of fund commitments, which do not yet have a vintage year.

California Public Employees' Retirement System Private Equity Program**Portfolio Overview**NAV by Structure¹

- Fund investments make up over two-thirds of the Program's NAV.

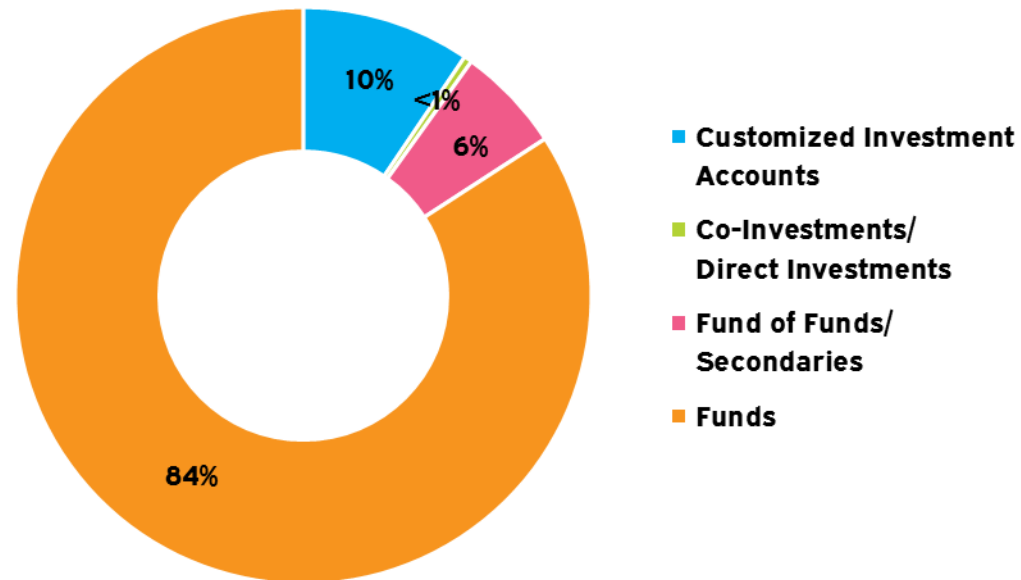
¹ Source: State Street.



California Public Employees' Retirement System Private Equity Program

Portfolio Overview

Unfunded Commitment by Structure¹



- Fund investments comprise even more of the Program's unfunded commitments (relative to NAV) at 84% of the total.
- Co-Investments, Direct Investments, Fund of Funds, and Secondaries make up only 6% of the Program's unfunded commitments, while comprising close to 15% of the Program's NAV.

¹ Source: CalPERS.



California Public Employees' Retirement System Private Equity Program

Portfolio Overview

Largest Manager Relationships As of December 31, 2019

Manager	Number of Vehicles ¹	Remaining Value ² (\$ mm)	Unfunded Commitment ² (\$ mm)	Total Exposure (\$ mm)	Total Program Exposure (%)
Blackstone Group ³	24	2,630	2,159	4,789	10.7
The Carlyle Group ⁴	24	1,353	1,391	2,744	6.1
CVC Capital Partners	7	1,936	477	2,413	5.4
Cerberus	6	1,398	745	2,143	4.8
Hellman & Friedman Capital Partners	6	1,305	708	2,013	4.5

- CalPERS PE Program has regularly committed across several vehicles offered by the managers listed above, including select co-investments. In several cases, the commitments are managed by separate teams within the manager and execute on different strategies.

¹ Only includes vehicles with remaining exposure. Includes co-investments.

² Source: CalPERS.

³ Includes GSO.

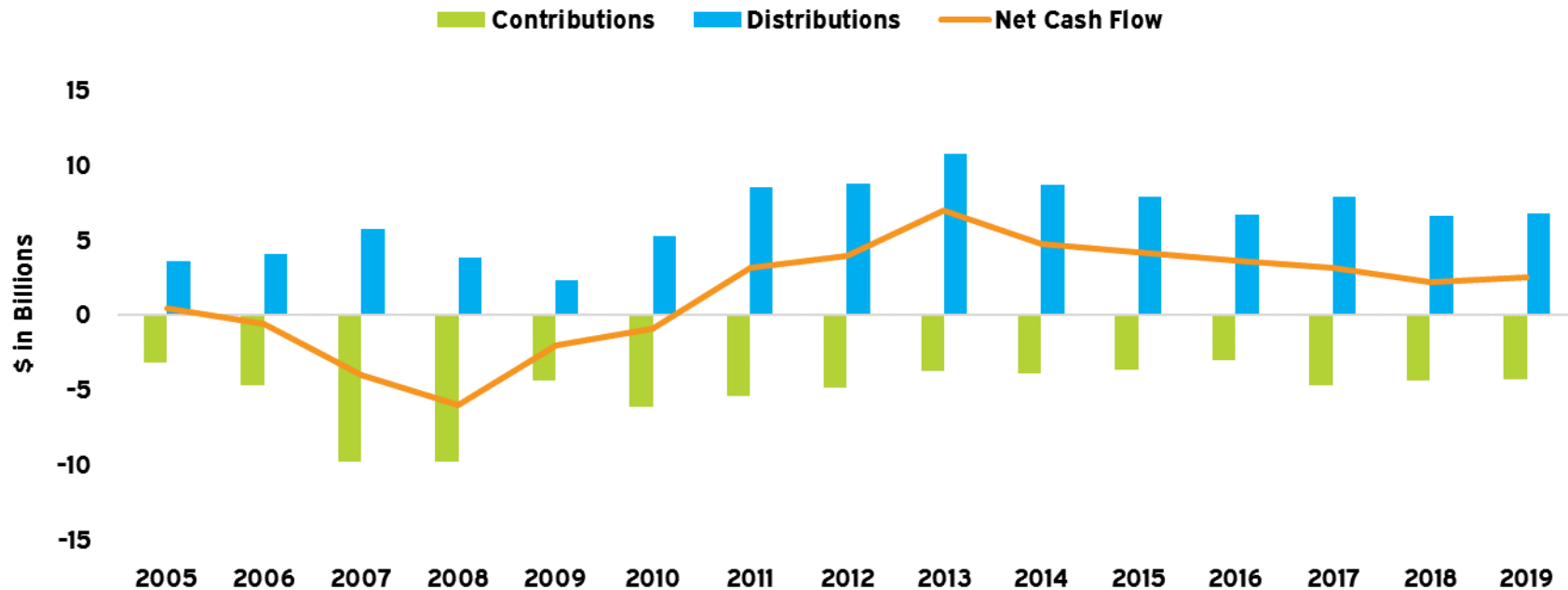
⁴ Includes Carlyle Realty Partners, Carlyle Infrastructure, and an investment in The Carlyle Group. Does not include Carlyle/Riverstone.



California Public Employees' Retirement System Private Equity Program

Portfolio Overview

Annual Cash Flows – Total Program Through December 31, 2019¹



- Since 2011, CalPERS has received \$34.4 billion in net distributions due to the strong exit environment.
- This trend continued through 2019, though the pace of net distributions has slowed since the 2013 calendar year during which CalPERS received \$7.0 billion in net distributions.

¹ Source: State Street.

Program Performance



California Public Employees' Retirement System Private Equity Program

Program Performance

Program Value Change – July 1 to December 31, 2019¹



- The Private Equity Program reported a NAV decrease of approximately \$0.4 billion in the six months from July to December 2019, as strong net cash distributions more than offset the portfolio value increase.
- The Private Equity Program reported a positive portfolio value increase of approximately \$0.4 billion during this time period.

¹ Source: State Street, CalPERS.



California Public Employees' Retirement System Private Equity Program

Program Performance

Program Performance

	1 Year	3 Year	5 Year	10 Year
CalPERS PE Program ¹	2.9	11.0	9.0	12.4
<i>Policy Benchmark²</i>	2.6	12.5	10.3	13.4
<i>Cambridge Associates All PE Global³</i>	9.5	14.3	12.3	14.0
<i>FTSE Global All Cap + 150 bp⁴</i>	2.6	11.7	8.7	10.0
Excess vs. Policy Benchmark (%)	↑ 0.3	↓ -1.6	↓ -1.3	↓ -1.1
Excess vs. CA All PE Global (%)	↓ -6.6	↓ -3.3	↓ -3.3	↓ -1.6
Excess vs. FTSE Global All Cap + 150 bp (%)	↑ 0.3	↓ -0.7	↑ 0.3	↑ 2.4

- The overall Program performance has shown strong absolute returns in the trailing 3-, 5-, and 10-years, but continues to trail the Policy Benchmark across these time periods.
 - The Program's longer term historical performance has exceeded the Private Equity projected return included in the recently adopted Capital Market Assumptions (8.3%).
- The Program's performance has underperformed the Cambridge Associates index (private equity peer index).
- The Program has exceeded the FTSE All World Index plus 150 basis points in the 1-, 5-, and 10-year periods, while slightly underperforming in the 3-year period.

¹ Source: State Street. CalPERS returns are reported as time-weighted.

² The current Policy Benchmark is a Custom FTSE Global All Cap ex-Tobacco Net of Tax Index + 150 basis points, lagged by one quarter. Previous benchmark was blend FTSE US + FTSE AW ex US + 3%

lagged 1 quarter from September 2011 to June 2018, Wilshire 2500 ex-tobacco +3% between July 2009 and September 2011, and the Custom Young Fund Index prior to July 2009.

³ Returns as of September 30, 2019. Figures are IRR.

⁴ Figures are one quarter lagged, time weighted. FTSE Global All Cap returns are based on the FTSE Global All Cap Index + 150 basis points through October 2011, the FTSE Global All Cap Net of Tax (US) Index + 150 basis points through March 2015, and thereafter on the FTSE Global All Cap ex-Tobacco Net of Tax Index + 150 basis points.



California Public Employees' Retirement System Private Equity Program

Program Performance

Strategy Performance¹

	NAV (\$ mm)	1 Year	3 Year	5 Year	10 Year
Buyouts	17,945	2.9	12.7	10.5	13.2
Credit	1,737	-4.2	2.8	0.6	9.7
Growth/Expansion	3,721	2.8	12.2	10.7	12.7
Opportunistic	2,168	8.8	9.4	12.3	13.2
Venture	477	5.8	4.5	2.1	6.4
Other ²	57				
CalPERS PE Program	26,104	2.9	11.0	9.0	12.4

- Buyouts and Growth investments have generated strong returns over the last 3-, 5-, and 10 years.
- The Program's Venture portfolio has historically underperformed other strategies.
- The Program's Credit portfolio has generally underperformed across 1-, 3-, and 5-year periods.
- Opportunistic investments have generated consistently strong returns across trailing periods, outperforming all other strategies over the trailing 1- and 5-year periods.

¹ Source: State Street. All trailing returns included in this report are time-weighted.

² Includes currency and stock holdings.



California Public Employees' Retirement System Private Equity Program

Program Performance

Performance by Structure¹

	NAV (\$ mm)	1 Year	3 Year	5 Year	10 Year
Customized Investment Accounts	4,656	5.2	9.5	8.9	9.4
Co-Investments/Direct Investments	1,283	3.6	17.2	9.9	14.8
Fund of Funds/Secondaries	1,988	-4.3	4.5	6.6	8.8
Funds	18,121	3.3	11.7	9.3	13.1
Other ²	57				
CalPERS PE Program	26,104	2.9	11.0	9.0	12.4

- Fund investments have performed well while also making up a significant majority of the PE Program.
- Co-Investments/Direct Investments have outperformed all other investment structures across the 3-, 5-, and 10-year periods. Due to the concentration of the Co-Investment/Direct Investment portfolio, a small number of substantial investments tend to drive performance.
- Fund of Funds/Secondaries posted slightly negative 1-year returns and have lagged the broader PE Program over all trailing time periods.

¹ Source: State Street.

² Includes currency and stock holdings.



California Public Employees' Retirement System Private Equity Program

Program Performance

Performance by Geography¹ (Fund-Level)

	NAV (\$ mm)	1 Year	3 Year	5 Year	10 Year
United States	18,325	2.2	10.6	7.9	12.4
Canada	139	26.3	20.0	18.1	15.3
Developed Asia	24	-51.7	-20.1	-2.6	-0.7
Europe	4,793	8.5	17.1	15.5	13.9
Emerging Markets	2,767	-1.9	5.4	8.0	10.6
Other ²	57				
CalPERS PE Program	26,104	2.9	11.0	9.0	12.4

- The Program's returns are largely driven by investments in United States.
- European investments have outperformed US investments over the previous 1-, 3-, 5-, and 10-year periods.
- Investments in the Emerging Markets have generally underperformed investments in other regions while still generating solid absolute returns over the trailing 5- and 10-year periods.
- The Program's investments in Developed Asia, comprising a very small amount of capital, significantly underperformed over the prior 1-year period due to mark-downs of assets within a Japan-focused Buyout fund. Investments in Canada, also accounting for a relatively small portion of total NAV, have generated strong returns over all trailing periods.

¹ Source: State Street.

² Includes currency and stock holdings.

Program Activity



California Public Employees' Retirement System Private Equity Program

Program Activity

CalPERS Private Equity Completed Investments – H2 2019

Investment	Date Signed	Geography	Strategy	Commitment (\$ mm)
Green Equity Investors VIII	October 2019	US	Buyout	600
Jade Equity Investors	October 2019	US	Buyout	155
Madison Dearborn Capital Partners VIII	October 2019	US	Buyout	400

- For the first half of 2019, Staff completed three commitments totaling \$1.2 billion.¹

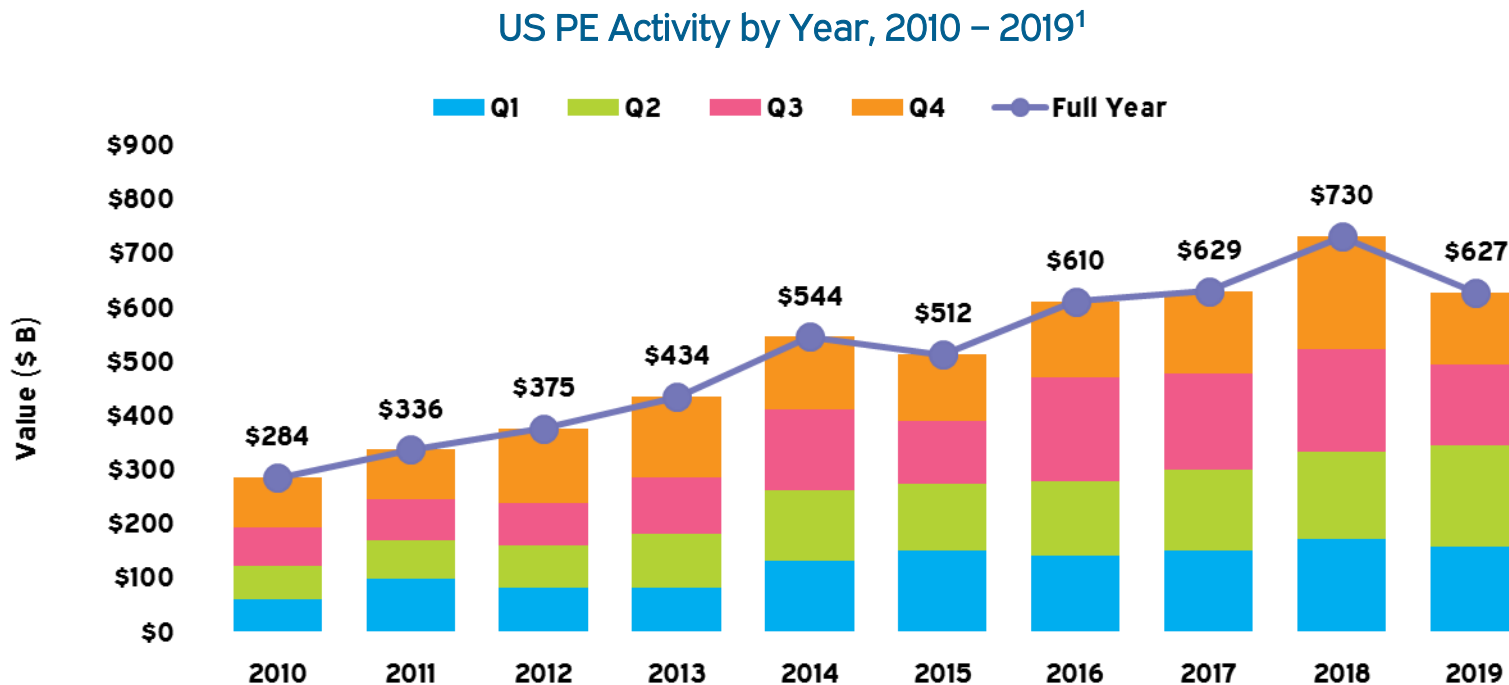
¹ Does not include \$2.8 billion in commitments approved, but not signed as of January 10, 2020.

Private Equity Industry Review



California Public Employees' Retirement System Private Equity Program

Private Equity Industry Review – Buyouts



- US buyout investment activity was strong in 2019 – in line with 2016 and 2017 levels, though down approximately \$100 billion from the 2018 record.²
- Software deals continue to make up a growing portion of private equity transactions, rising to 17% of total PE deal value from 13% in 2018 and 10% in 2017.

¹ Source: Pitchbook.

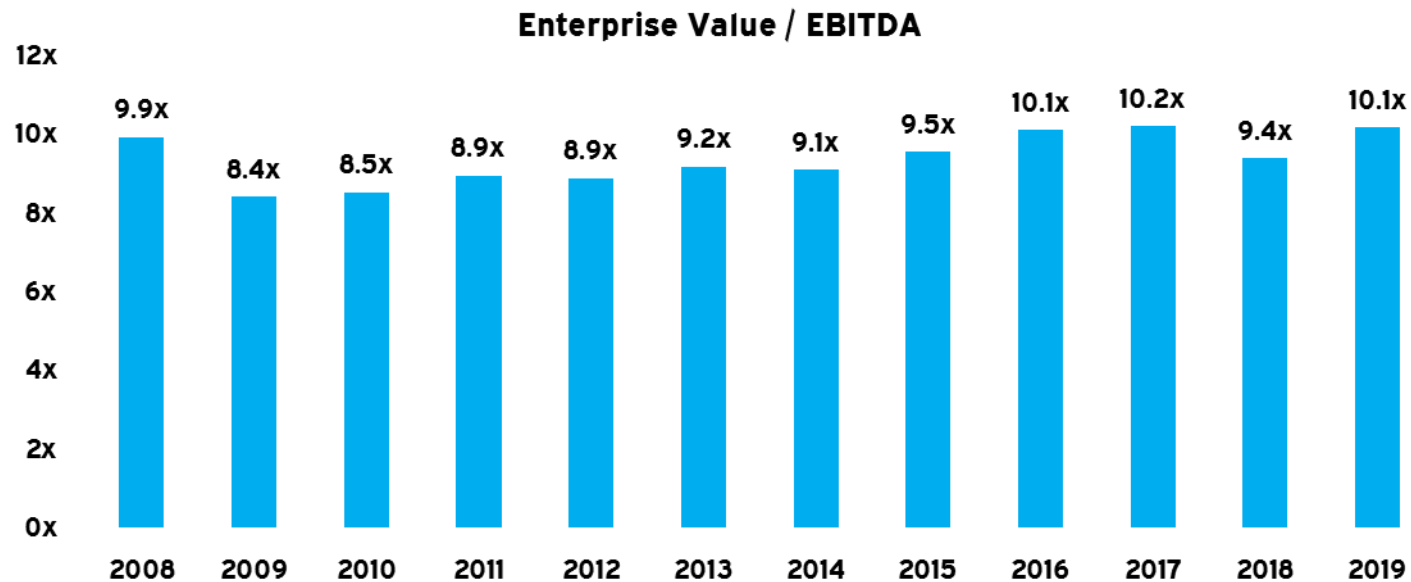
² Does not include additional estimated 2019 deal value, which would reduce this gap.



California Public Employees' Retirement System Private Equity Program

Private Equity Industry Review – Buyouts

North America M&A Transaction Multiples, 2008 – 2019¹



- Median transaction valuations in North America during 2018 declined slightly to the lowest level since 2014, but increased back to near-record levels during 2019.

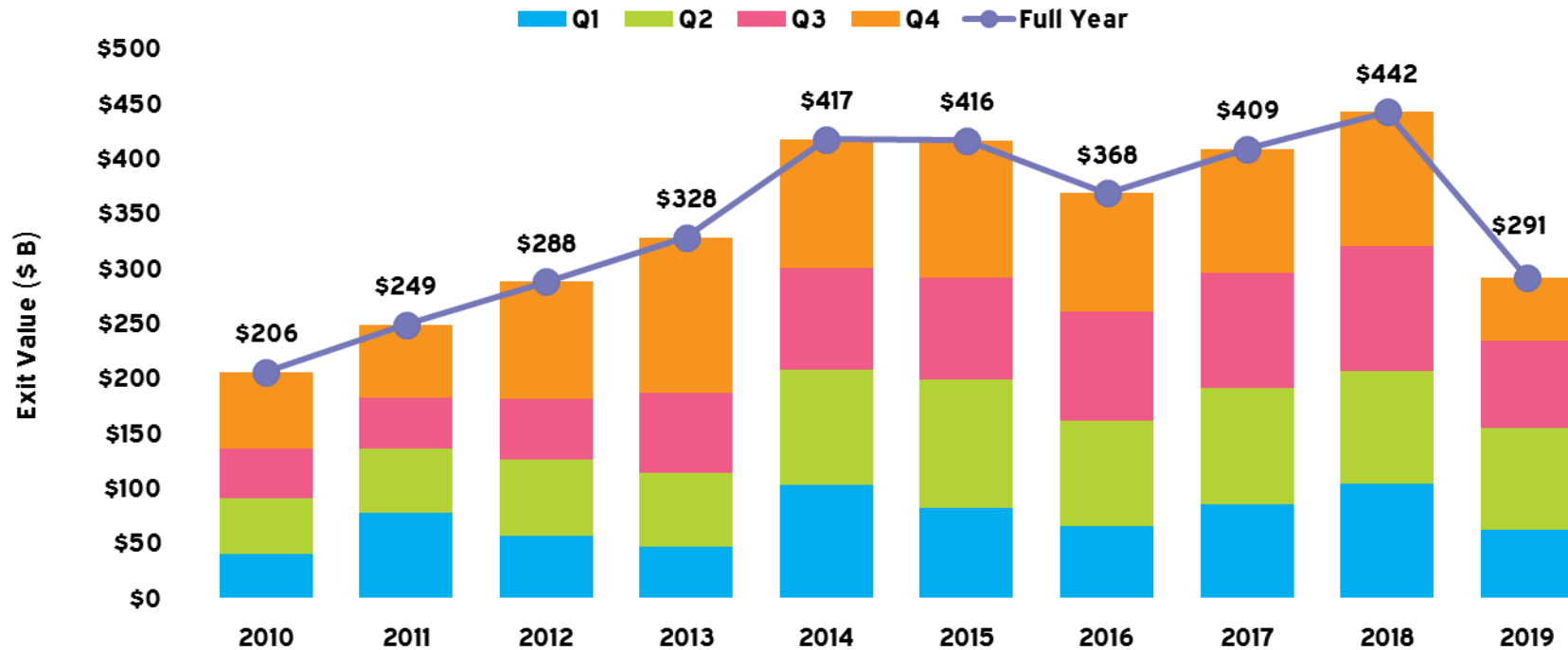
¹ Source: Pitchbook.



California Public Employees' Retirement System Private Equity Program

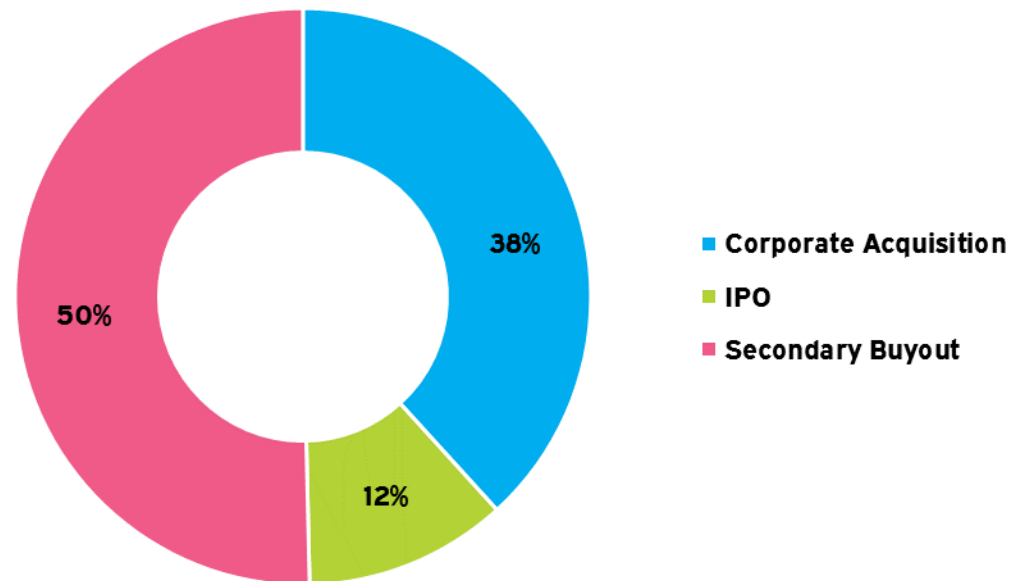
Private Equity Industry Review – Buyouts

US PE-backed Exit Activity, 2010 –2019¹



- Following the strong exit activity during 2018, exit value dropped meaningfully during 2019 to the lowest level since 2012, and the number of exits declined below 1,000 for the first time since 2011.
- Public market volatility in Q4 2018 may have encouraged delays in planned 2019 exits, while WeWork's failed IPO process, among others, likely contributed to further hesitation surrounding public offerings.

¹ Source: Pitchbook.

California Public Employees' Retirement System Private Equity Program**Private Equity Industry Review – Buyouts**US PE-backed Exits (\$ Value), 2019¹

- For the first time, secondary buyouts accounted for the majority of exit value during 2019.
- IPOs continued to comprise a small portion of exits with just \$33 billion in exit value, the lowest dollar amount since 2012.

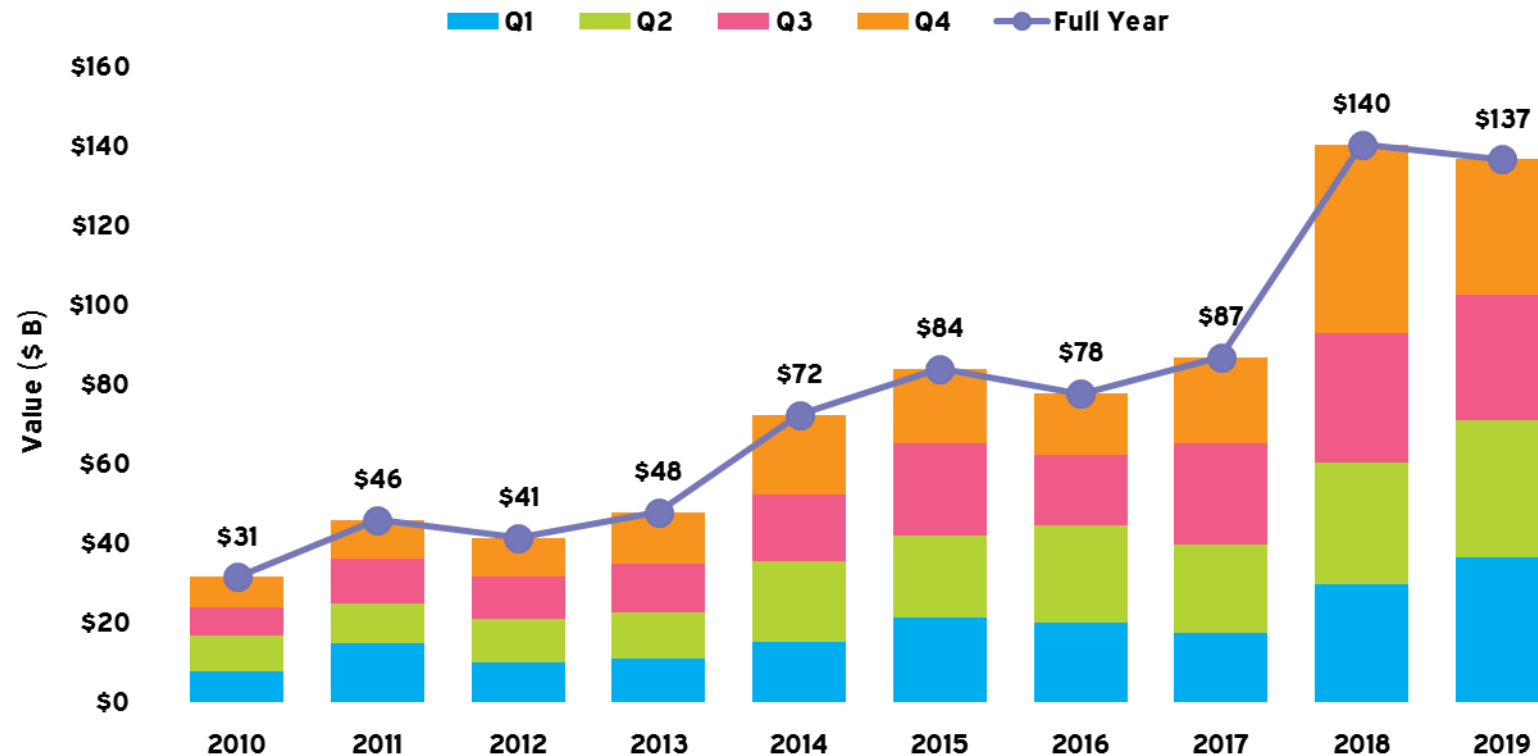
¹ Source: Pitchbook.



California Public Employees' Retirement System Private Equity Program

Private Equity Industry Review – Venture Capital

US VC Activity by Year, 2010 – 2019¹



- US Venture investment activity remained strong in 2019, nearly surpassing 2018's record high level.
- Bay Area investments comprised less than 40% of annual US deal value in 2019 for the first time since 2016 coinciding with strong investment in the Mid-Atlantic and other US regions.

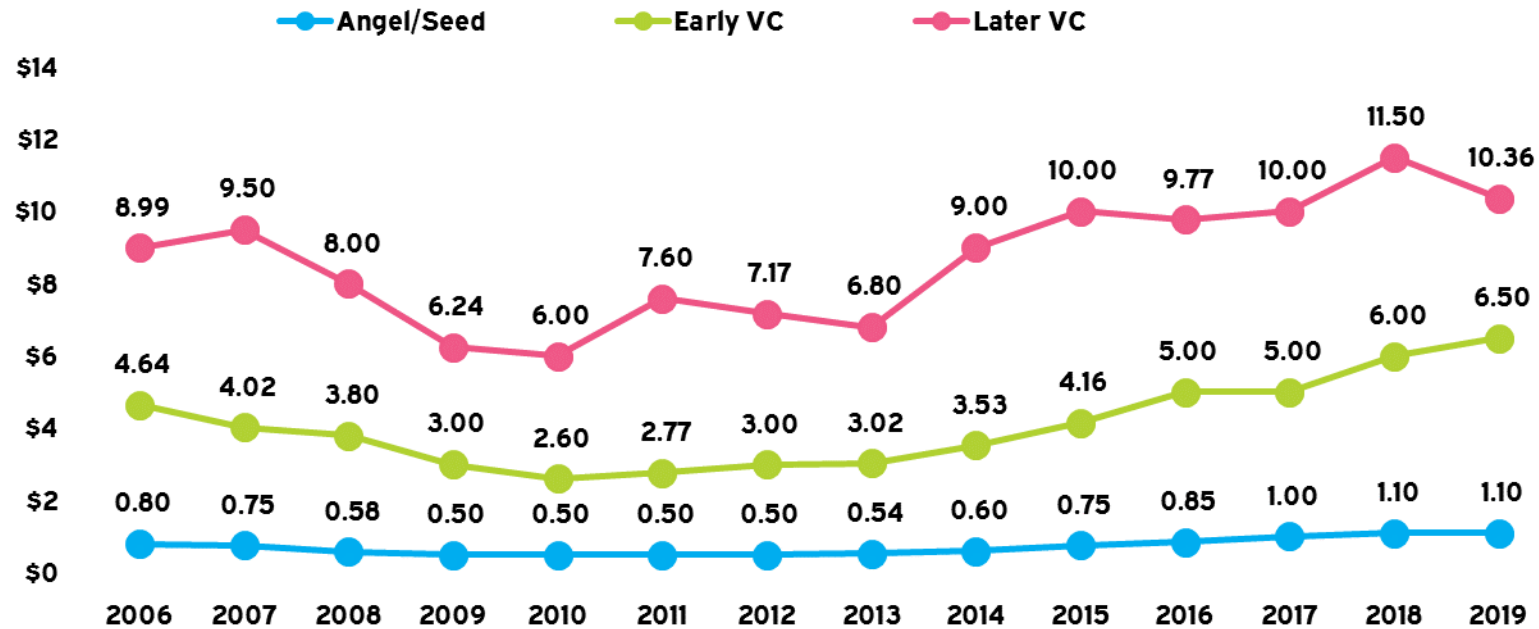
¹ Source: Pitchbook.



California Public Employees' Retirement System Private Equity Program

Private Equity Industry Review – Venture Capital

Median VC Round Size (\$mm), 2006 – 2019¹



- Median round sizes for US venture transactions in later stage VC stages were down from the 2018 record at \$11.5 million while early VC stage round sizes increased significantly during 2019 and set a new high watermark at \$6.5 million. Angel/seed median round sizes remained stable at \$1.1 million.
- Late stage deals continued to capture a growing proportion of overall deal value in the software and healthtech sectors, while early stage funding comprised the majority of fundraising in the pharma & biotech space.

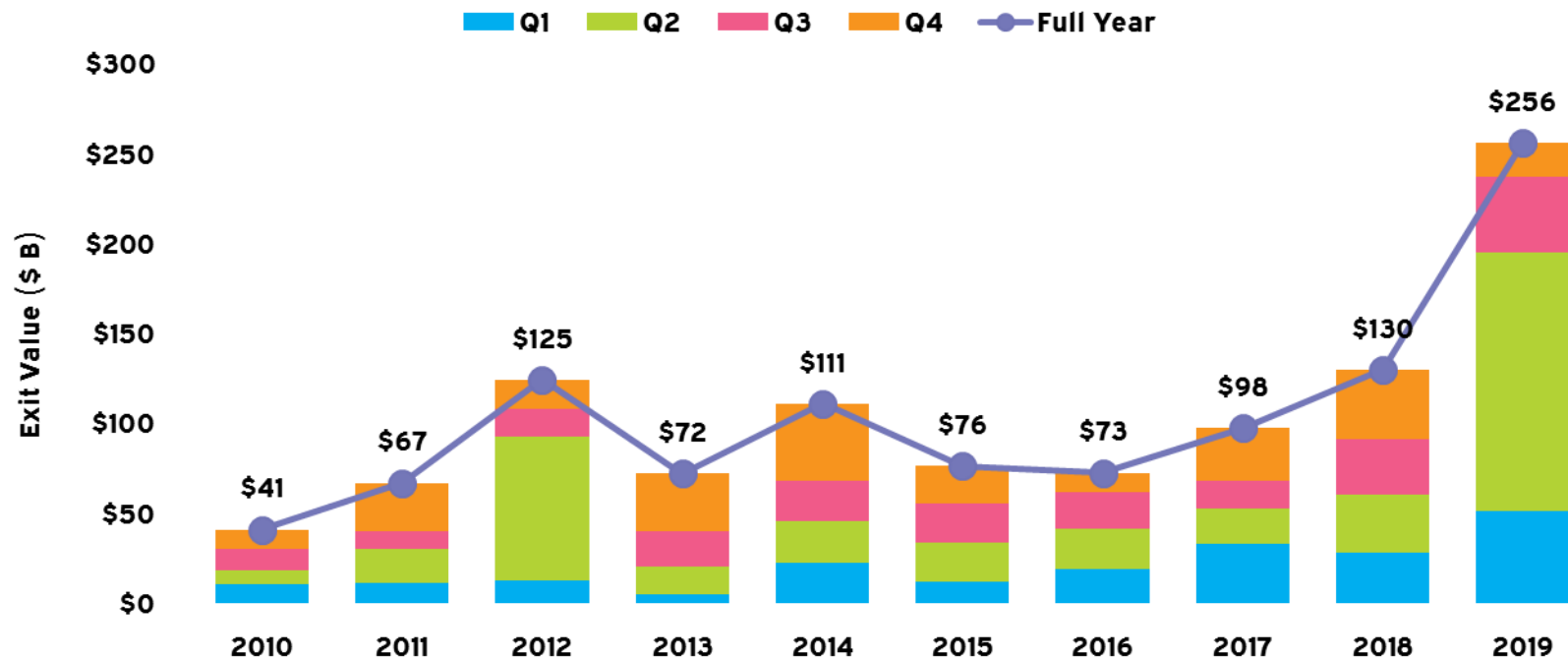
¹ Source: Pitchbook.



California Public Employees' Retirement System Private Equity Program

Private Equity Industry Review – Venture Capital

US VC-backed Exit Activity, 2010 – 2019¹



- Due to the long-awaited IPO of Uber in addition to other high-profile public offerings, there was more US VC-backed exit value during the second quarter of 2019 alone than in any recent prior year.
- VC exit value in the first and third quarters was also strong, though the fourth quarter of 2019 saw a meaningful drop-off in both value and number of exits.

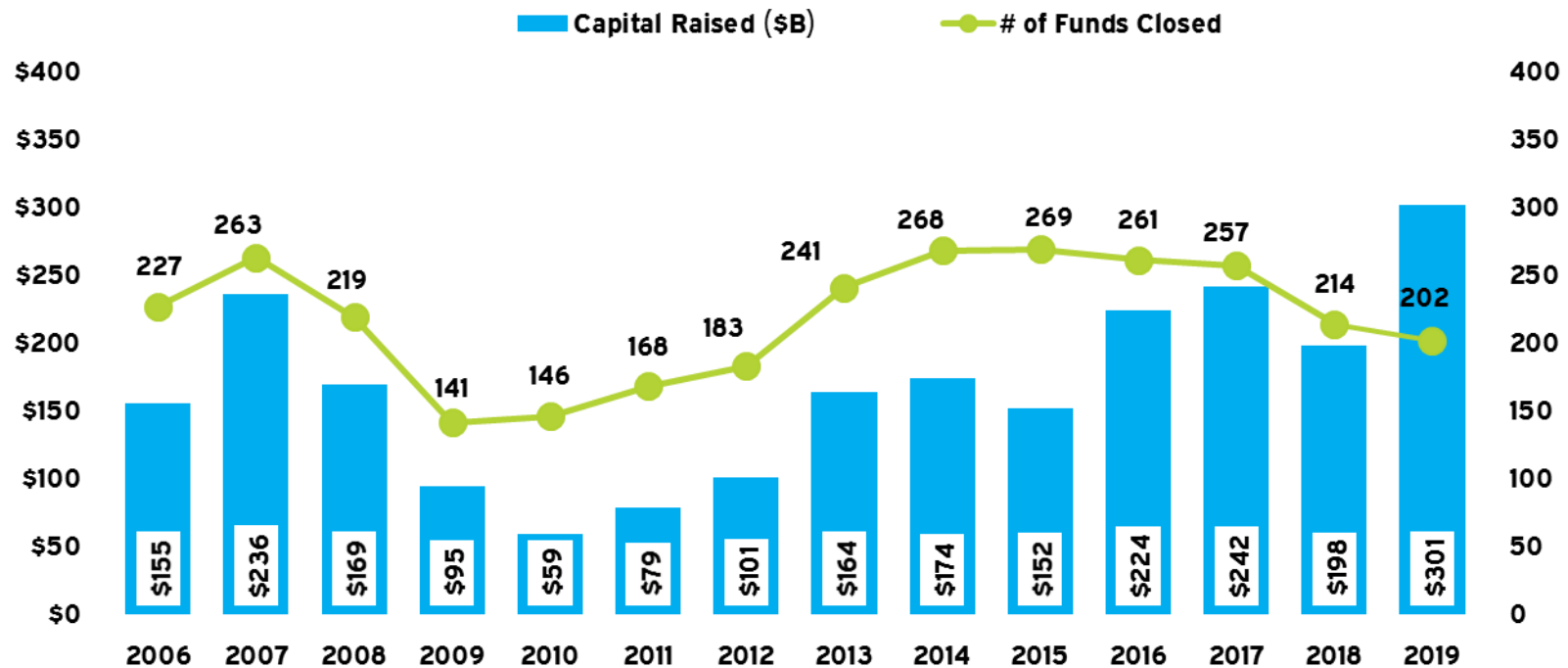
¹ Source: Pitchbook.



California Public Employees' Retirement System Private Equity Program

Private Equity Industry Review – Fundraising

US PE Fundraising, 2006 – 2019¹



- Annual PE fundraising totaled over \$300 billion for the first time, up nearly 25% from the previous fundraising record set in 2017.
- 2019 continued the trend towards fewer – but larger – funds as the number of funds closed dropped to the lowest point since 2012.

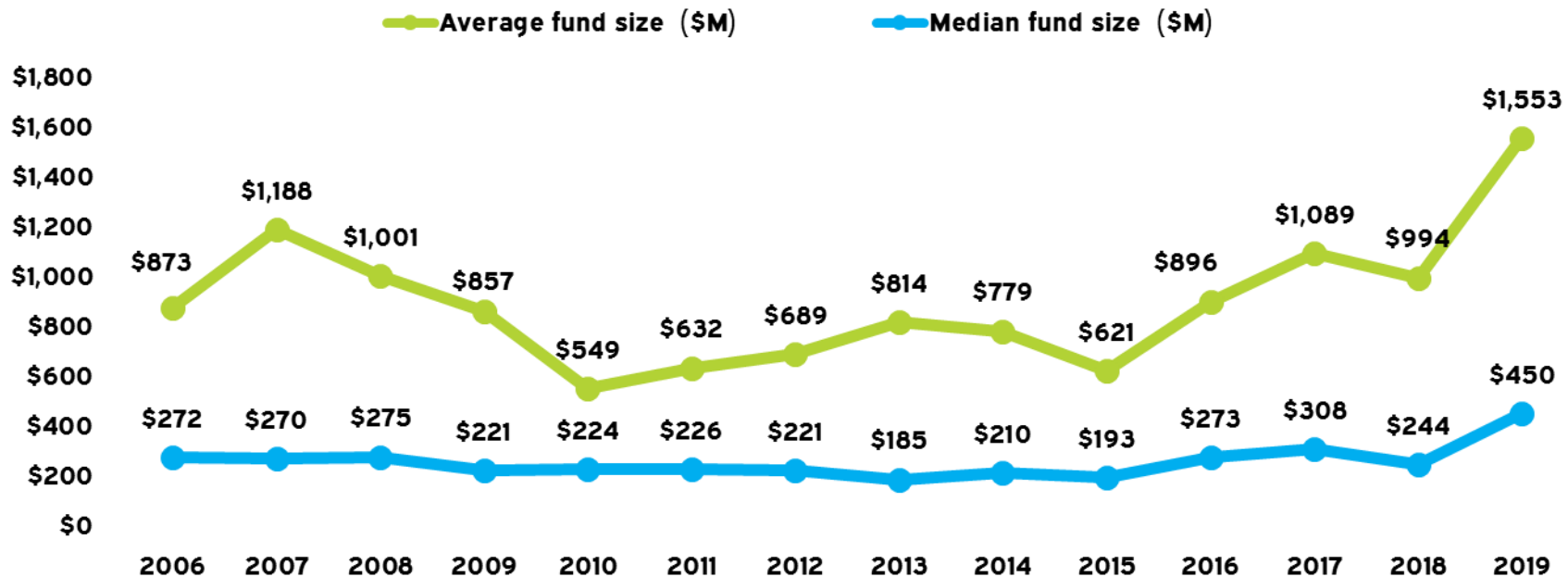
¹ Source: Pitchbook.



California Public Employees' Retirement System Private Equity Program

Private Equity Industry Review – Fundraising

Average & Median US PE Buyout Fund Size, 2006 – 2019¹



- Average and median fund sizes during 2019 for US buyouts increased meaningfully beyond levels reached in any prior years with both figures increasing over 50% from 2018.
- A number of PE mega-funds drove 2019's fund size increases including Blackstone Capital Partners VII's \$26 billion, Advent Global Private Equity IX's \$17.5 billion and Vista Equity VII's \$16 billion fundraises.
- In 2019, many of the biggest GPs closed on their largest flagship funds to date. As a result, 2020 is expected to see a decline in overall fundraising totals and fund sizes from 2019's record-breaking levels.

¹ Source: Pitchbook.

Appendix



California Public Employees' Retirement System Private Equity Program

Appendix – Vintage Years

Vintage Years	Capital Committed ¹ (\$ mm)	Total Contributions ¹ (\$ mm)	Unfunded Commitment ¹ (\$ mm)	Total Distributions ¹ (\$ mm)	Reported Value ¹ (\$ mm)
Vintage Year 1990	125.3	124.1	0.0	298.1	0.0
Vintage Year 1991	171.8	207.2	0.0	537.7	0.0
Vintage Year 1992	160.0	156.6	0.0	341.5	0.0
Vintage Year 1993	538.0	567.9	0.0	1,083.3	0.0
Vintage Year 1994	1,494.2	1,512.9	0.0	2,515.6	0.0
Vintage Year 1995	1,222.9	1,236.8	0.0	2,034.4	0.0
Vintage Year 1996	1,157.3	1,183.2	31	1,580.1	0.0
Vintage Year 1997	1,101.7	1,133.5	0.0	1,668.7	0.0
Vintage Year 1998	2,205.5	2,387.8	0.3	3,166.6	0.0
Vintage Year 1999	3,271.1	3,457.1	36.9	4,258.0	32.2
Vintage Year 2000	2,708.5	2,675.7	5.3	3,886.8	6.3
Vintage Year 2001	4,520.1	4,769.6	38.2	7,645.2	136.3
Vintage Year 2002	884.8	1,104.0	1.5	1,599.6	18.5
Vintage Year 2003	1,543.6	1,752.5	24.8	3,507.4	46.4
Vintage Year 2004	1,887.9	1,972.7	32.6	3,183.7	15.6
Vintage Year 2005	3,765.0	3,972.1	196.1	5,685.4	113.0
Vintage Year 2006	9,679.9	10,907.3	640.4	14,084.5	930.5
Vintage Year 2007	14,482.0	15,737.4	649.6	21,123.7	1,884.9
Vintage Year 2008	10,989.6	12,592.4	599.8	18,074.6	2,008.8
Vintage Year 2009	891.5	880.5	40.5	706.1	630.4

¹ Source: CalPERS. As of 12/31/2019. Some signed commitments are not yet included in data.



California Public Employees' Retirement System Private Equity Program

Appendix – Vintage Years

Vintage Years (continued)	Capital Committed ¹ (\$ mm)	Total Contributions ¹ (\$ mm)	Unfunded Commitment ¹ (\$ mm)	Total Distributions ¹ (\$ mm)	Reported Value ¹ (\$ mm)
Vintage Year 2010	699.4	853.3	33.5	1,050.1	295.5
Vintage Year 2011	1,912.0	2,003.9	222.5	2,009.3	1,256.2
Vintage Year 2012	2,406.0	2,737.2	227.0	2,561.2	1,307.7
Vintage Year 2013	3,815.9	3,963.4	699.3	2,516.2	3,309.5
Vintage Year 2014	4,245.2	4,104.9	645.5	2,317.0	3,031.9
Vintage Year 2015	3,193.5	2,723.6	685.9	1,162.4	3,046.1
Vintage Year 2016	2,926.5	3,051.2	708.1	1,027.1	2,362.5
Vintage Year 2017	2,980.6	2,588.9	544.1	268.8	2,695.8
Vintage Year 2018	4,190.3	1,813.5	2,425.4	68.0	1,931.2
Vintage Year 2019	6,890.1	1,141.5	5,802.0	2.0	1,114.5

¹ Source: CalPERS. As of 12/31/2019. Some signed commitments are not yet included in data.



California Public Employees' Retirement System Private Equity Program

Appendix – Vintage Years

Strategies	Capital Committed ¹ (\$ mm)	Total Contributions ¹ (\$ mm)	Unfunded Commitment ¹ (\$ mm)	Total Distributions ¹ (\$ mm)	Reported Value ¹ (\$ mm)
Buyouts	61,661.3	54,950.7	14,923.9	64,631.1	18,357.2
Credit	11,734.6	12,504.4	990.6	16,309.9	1,736.8
Growth/Expansion	12,956.2	12,009.8	1,410.7	13,761.0	3,721.3
Opportunistic	6,094.7	5,682.1	1,241.0	5,592.6	1,881.6
Venture	7,985.7	8,165.8	68.6	9,668.5	477.1

¹ Source: CalPERS. As of 12/31/2019. Some signed commitments are not yet included in data.