



WILSHIRE ASSOCIATES

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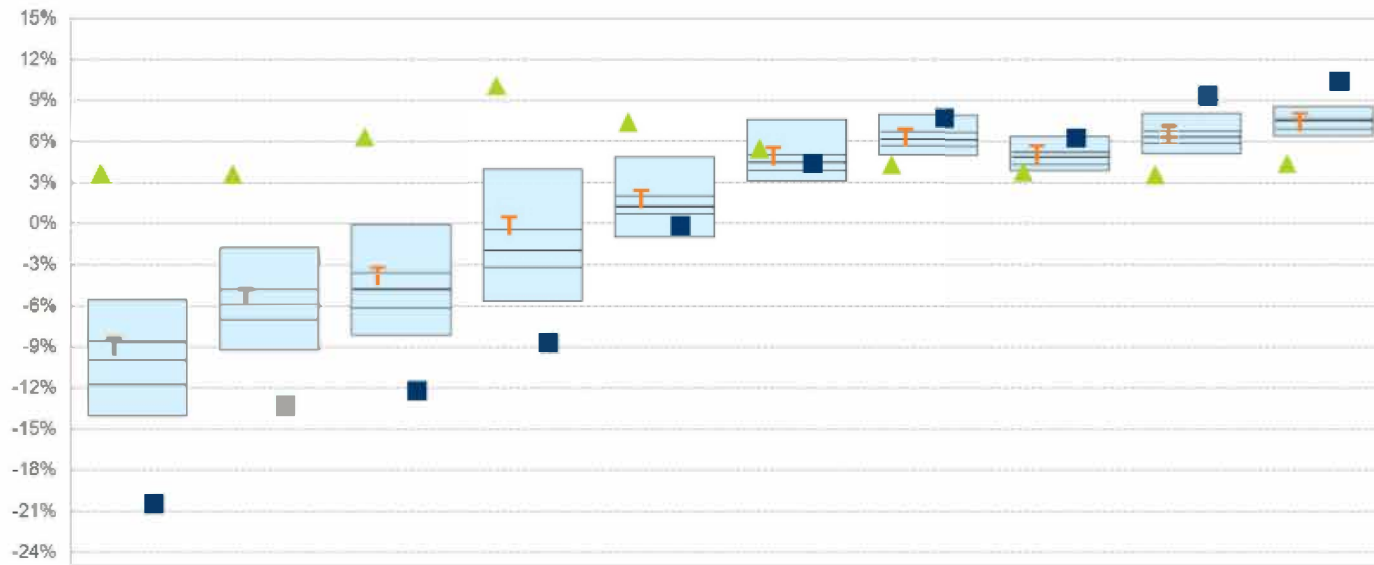


California Public Employees' Retirement System
Universe Comparison Report – March 31, 2020

Total Fund – Universe Comparison

California Public Employees Retirement Performance Comparison

Total Returns of Public Funds > \$10 Billion
Cumulative Periods Ending : March 31, 2020



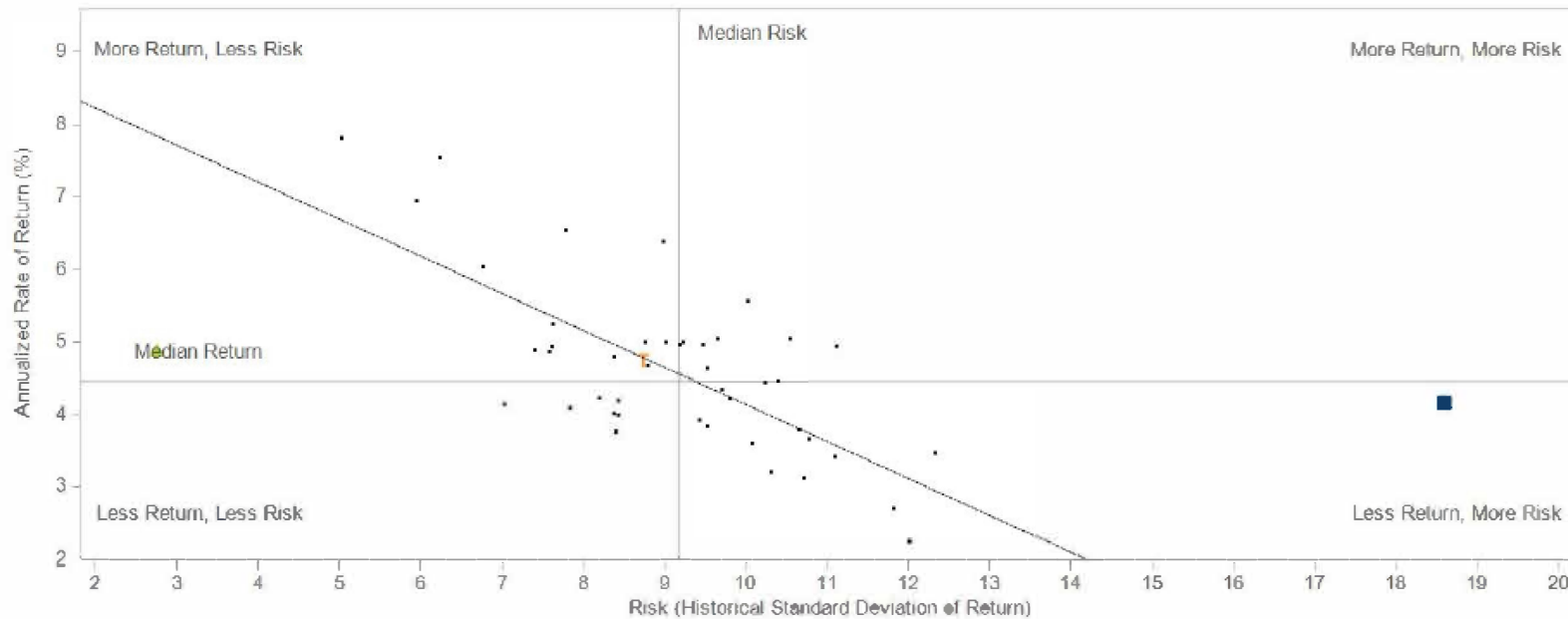
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	-5.54	-1.73	-0.06	3.83	4.85	7.53	7.88	8.40	8.07	8.80
25th	-8.60	-4.78	-3.54	-0.44	1.99	5.00	6.88	5.24	6.77	7.68
50th	-9.95	-5.88	-4.76	-1.88	1.23	4.47	6.15	4.90	6.33	7.51
75th	-11.72	-8.94	-8.14	-3.19	0.72	3.85	5.64	4.33	5.89	6.96
95th	-14.00	-9.18	-8.12	-5.62	-0.97	3.13	5.03	3.89	5.14	6.43
No. Of Obs	48	47	46	45	45	45	45	45	45	42
Total Plan - Composite	-8.16 (31)	-5.56 (37)	-4.02 (28)	-0.36 (23)	1.55 (43)	4.88 (45)	6.06 (52)	4.84 (50)	6.31 (52)	7.18 (65)
Wilshire 5000	-20.70 (100)	-13.50 (100)	-12.44 (100)	-8.84 (100)	-0.41 (89)	4.09 (65)	7.46 (9)	5.99 (9)	9.08 (1)	10.19 (1)
Barclays Govt/Credit	3.37 (1)	3.36 (1)	6.08 (1)	9.82 (1)	7.12 (1)	5.17 (17)	4.00 (100)	3.54 (100)	3.32 (100)	4.14 (100)



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Total Fund – Risk and Returns

California Public Employees Retirement
 Risk vs Total Returns of Public Funds > \$10 Billion
 3 Years Ending March 31, 2020



Alpha: 9.25
 Beta: -0.51
 R-Squared: 0.5

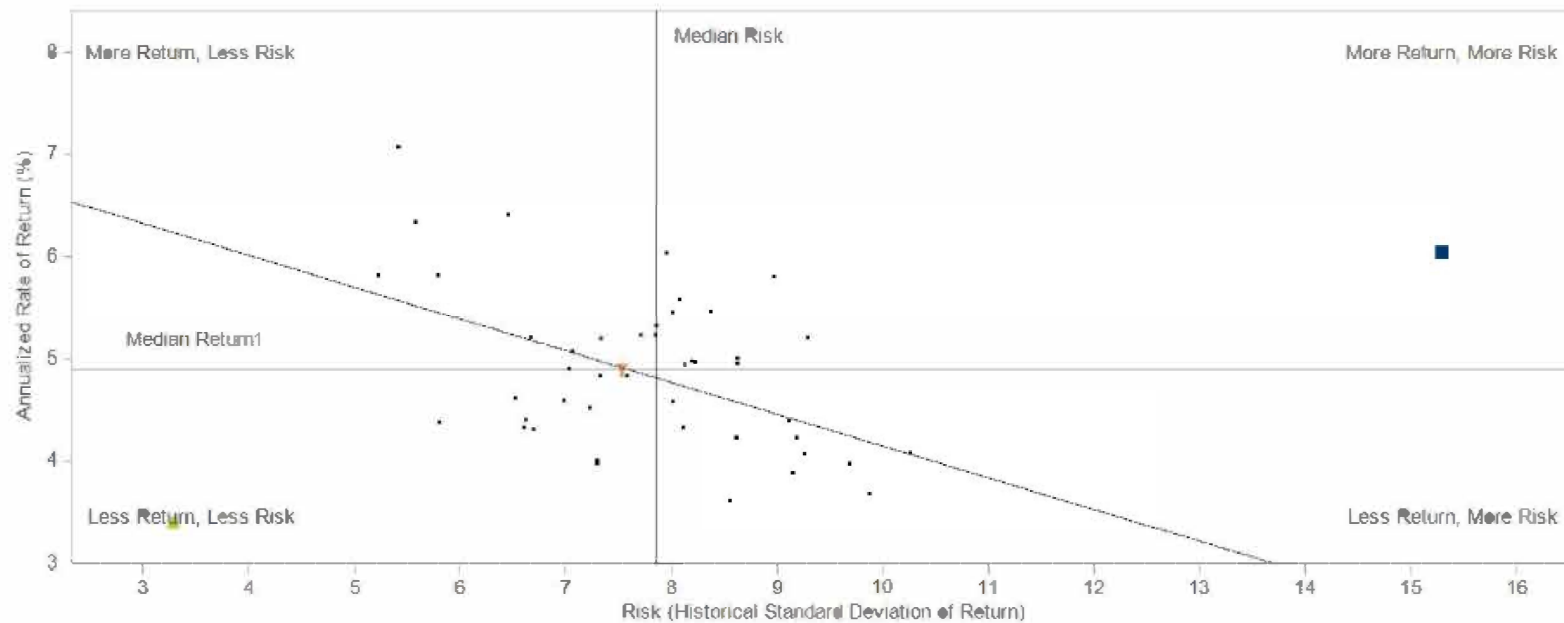
	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	8.80	56	4.68	45
■ Wilshire 5000	18.66	1	4.08	65
▲ Barclays Aggregate	2.82	100	4.82	40
Median	9.18		4.47	



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Total Fund – Risk and Returns

California Public Employees Retirement
 Risk vs Total Returns of Public Funds > \$10 Billion
 5 Years Ending March 31, 2020

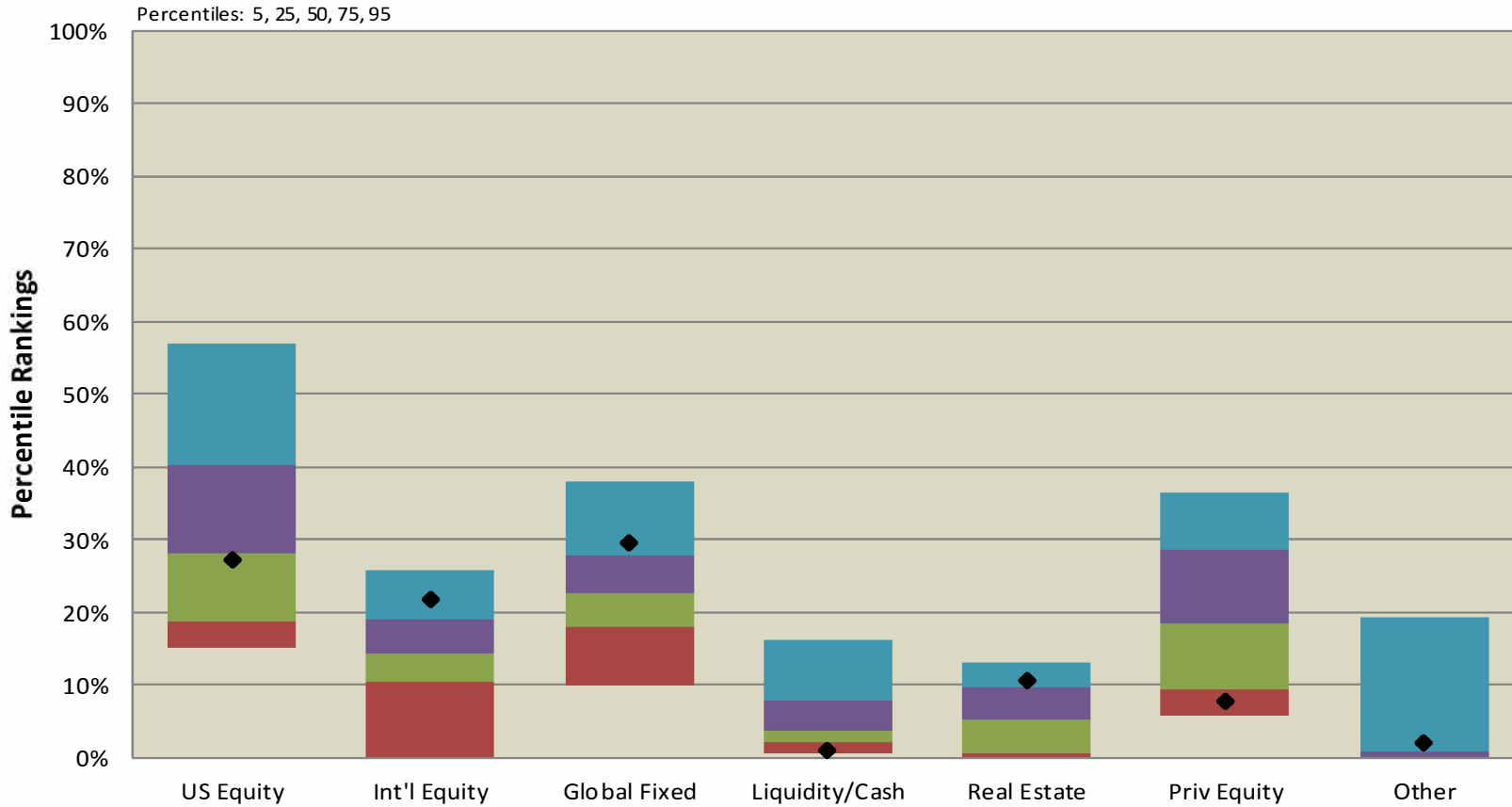


Alpha: 7.25
 Beta: -0.31
 R-Squared: 0.24

	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	7.58	56	4.84	50
■ Wilshire 5000	15.33	1	5.99	9
▲ Barclays Aggregate	3.33	100	3.36	100
Median	7.86		4.80	

Asset Allocation Ranking – Universe Analysis

Asset Allocation Ranking of Public Funds > \$10 Billion

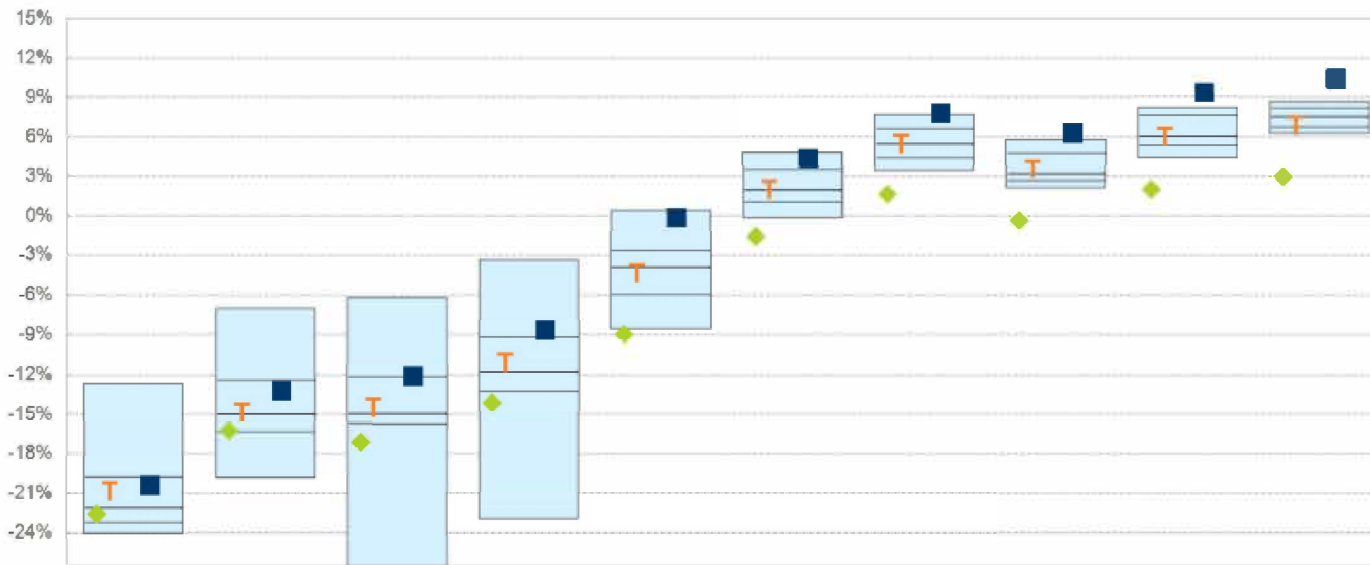


Percentile Rankings	US Equity	Int'l Equity	Global Fixed	Liquidity/Cash	Real Estate	Priv Equity	Other
5th	56.91%	25.84%	37.96%	16.13%	12.95%	36.41%	19.29%
25th	40.36%	19.12%	27.77%	7.88%	9.57%	28.52%	0.97%
50th	28.18%	14.34%	22.67%	3.78%	5.39%	18.41%	0.00%
75th	18.65%	10.40%	18.02%	2.15%	0.62%	9.46%	0.00%
95th	15.05%	0.01%	9.85%	0.59%	0.00%	5.90%	0.00%
CalPERS	27.20% (53)	21.87% (9)	29.53% (15)	1.00% (79)	10.56% (13)	7.66% (79)	2.14% (12)

Growth: Public Equity – Universe Comparison

California Public Employees Retirement Performance Comparison

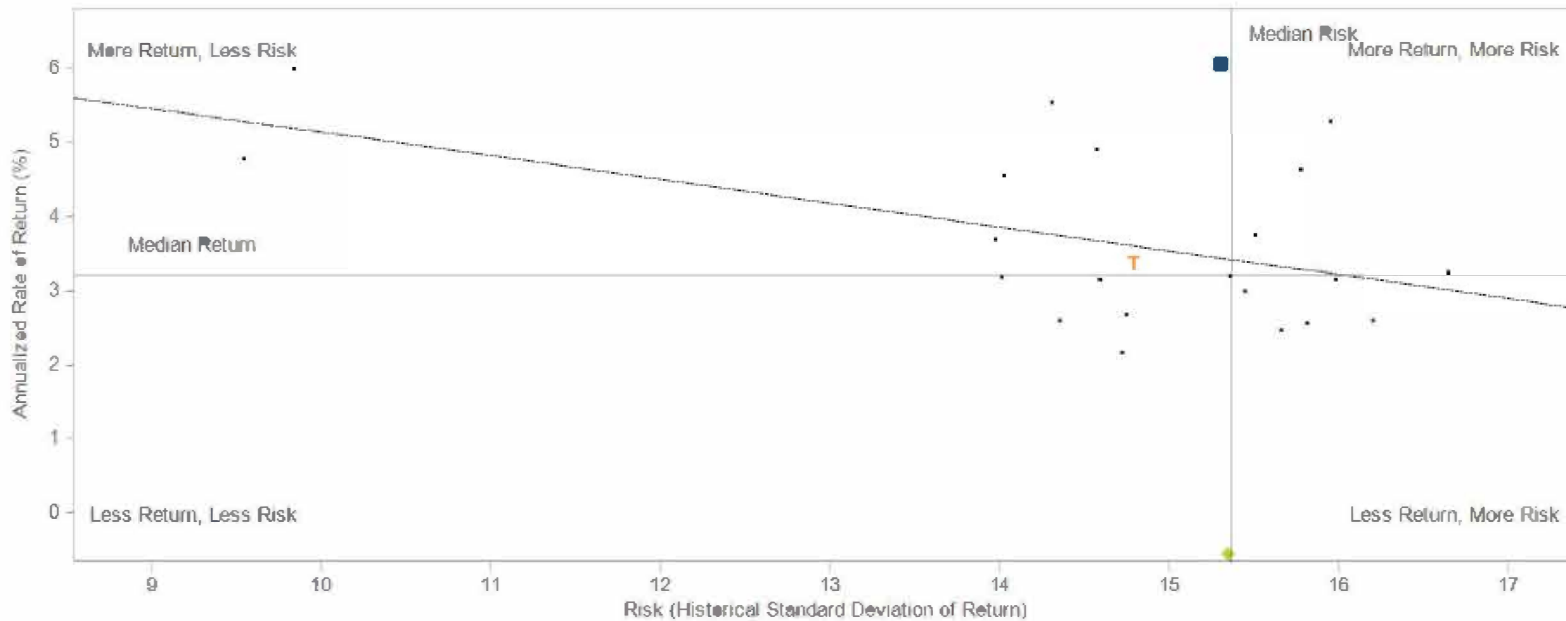
Total Equity Returns of Public Funds > \$10 Billion
Cumulative Periods Ending : March 31, 2020



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	-12.73	-7.01	-8.14	-3.38	0.46	4.83	7.88	5.77	8.19	8.71
25th	-19.80	-12.44	-12.17	-8.21	-2.61	3.49	6.62	4.78	7.62	8.19
50th	-22.08	-14.86	-14.82	-11.81	-3.88	1.88	5.49	3.21	6.07	7.54
75th	-23.18	-16.35	-15.75	-13.28	-5.93	1.05	4.46	2.88	5.37	6.78
95th	-24.01	-19.83	-26.56	-22.84	-8.47	-0.11	3.47	2.16	4.48	6.28
No. Of Obs	29	27	25	24	24	24	24	23	21	18
T Total Plan - Composite	-21.10 (32)	-15.12 (50)	-14.89 (41)	-11.38 (41)	-4.53 (54)	1.76 (54)	5.25 (50)	3.32 (41)	5.77 (55)	6.84 (83)
■ Wilshire 5000	-20.70 (28)	-13.50 (32)	-12.44 (25)	-8.84 (20)	-0.41 (10)	4.09 (5)	7.48 (5)	5.88 (1)	9.08 (1)	10.19 (1)
◆ MSCI EAFE (Net)	-22.83 (64)	-16.53 (75)	-17.42 (84)	-14.38 (84)	-9.20 (88)	-1.82 (98)	1.38 (99)	-0.82 (99)	1.75 (99)	2.71 (100)

Growth: Public Equity – Risk and Returns

California Public Employees Retirement
 Risk vs Total Equity Returns of Public Funds > \$10 Billion
 5 Years Ending March 31, 2020



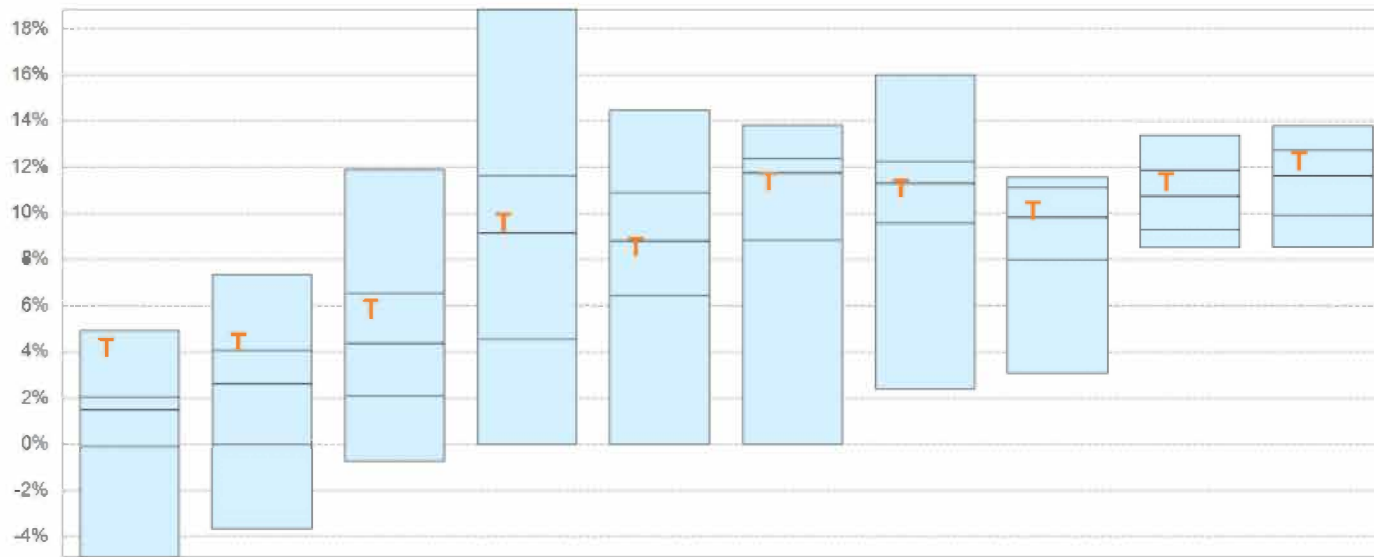
Alpha: 8.34
 Beta: -0.32
 R-Squared: 0.26

	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	14.81	50	3.32	41
■ Wilshire 5000	15.33	50	5.98	1
◆ MSCI EAFE (Net)	15.37	45	-0.62	99
Median	15.36		3.21	

Growth: Private Equity – Universe Comparison

California Public Employees Retirement Performance Comparison

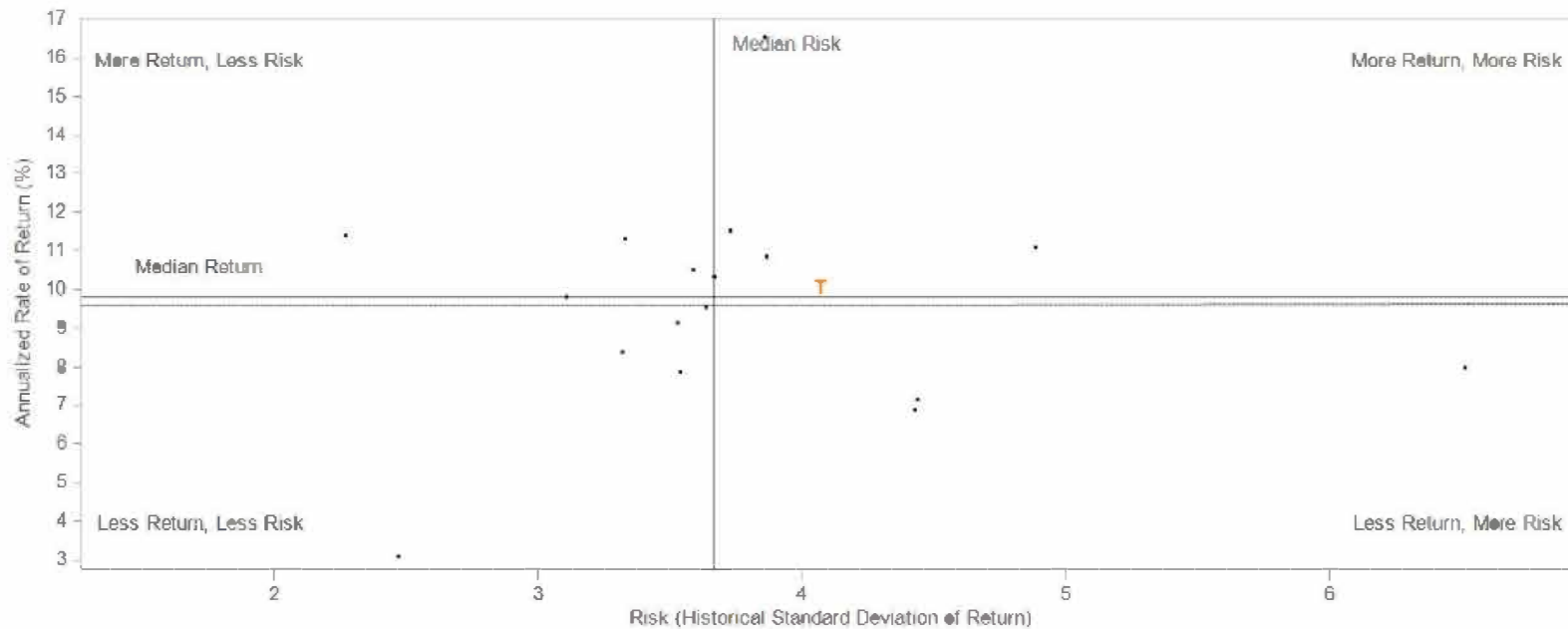
Total Private Equity Returns of Public Funds > \$10 Billion
Cumulative Periods Ending : March 31, 2020



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	4.92	7.33	11.88	18.84	14.48	13.84	16.01	11.52	13.37	13.79
25th	2.05	4.08	6.54	11.64	10.88	12.37	12.24	11.08	11.86	12.72
50th	1.48	2.62	4.37	9.15	8.80	11.77	11.29	8.80	10.74	11.64
75th	-0.10	0.00	2.10	4.55	6.45	8.82	8.56	7.99	9.30	8.82
95th	-4.90	-3.65	-0.74	0.00	0.00	0.00	2.42	3.10	8.51	8.55
No. Of Obs	27	25	23	22	22	20	20	18	17	15
T Total Plan - Composite	4.08 (5)	4.27 (17)	5.73 (33)	8.45 (45)	8.42 (50)	11.22 (55)	10.95 (55)	8.85 (43)	11.22 (37)	12.13 (37)

Growth: Private Equity – Risk and Return

California Public Employees Retirement
 Risk vs Total Private Equity Returns of Public Funds > \$10 Billion
 5 Years Ending March 31, 2020



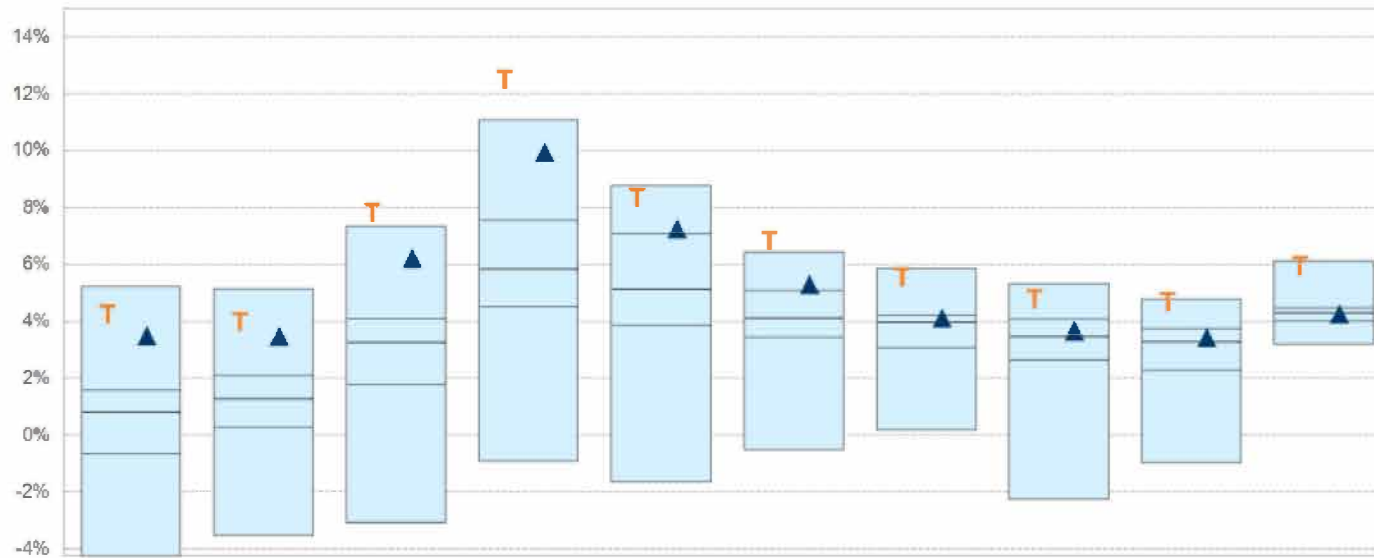
Alpha: 9.56
 Beta: 0.01
 R-Squared: 0

	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	4.08	25	9.95	43
Median	3.67		9.80	

Income – Universe Comparison

California Public Employees Retirement Performance Comparison

Total Fixed Income Returns of Public Funds > \$10 Billion
Cumulative Periods Ending : March 31, 2020



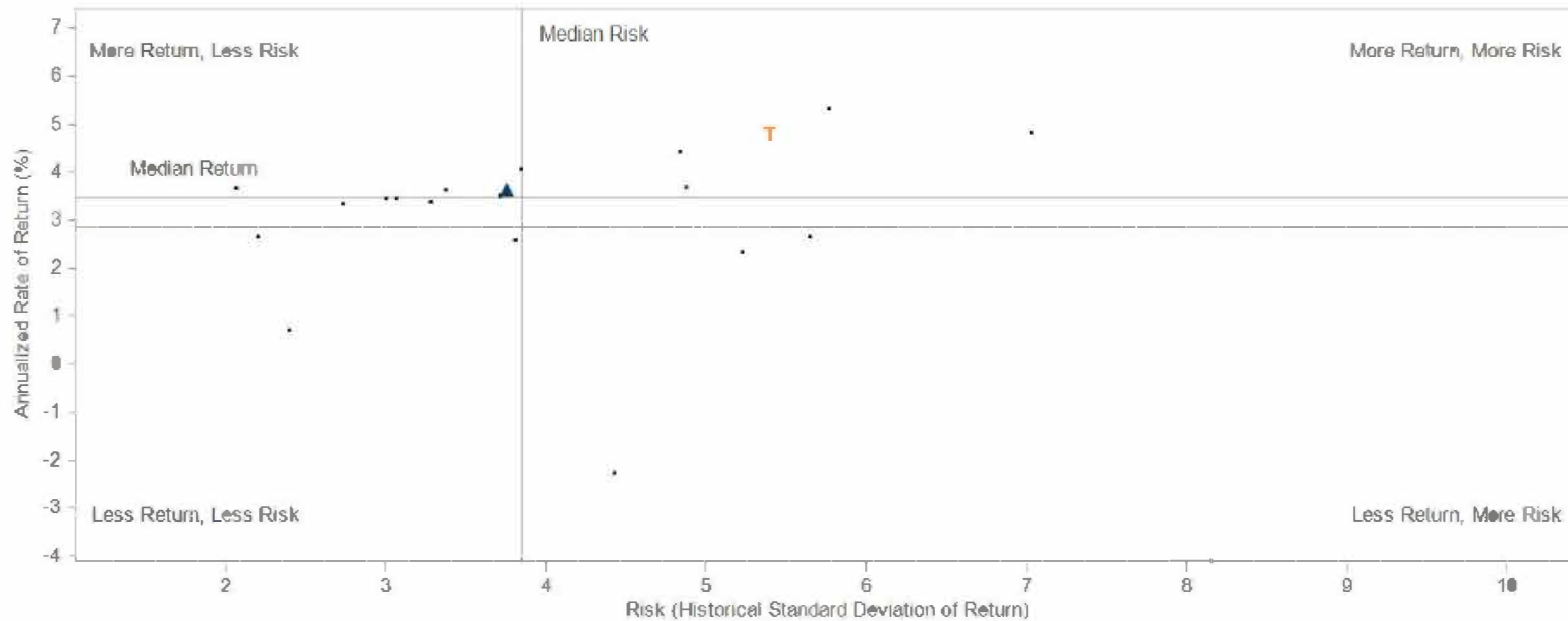
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	5.23	5.18	7.38	11.09	8.77	8.45	5.87	5.34	4.79	6.14
25th	1.60	2.11	4.11	7.56	7.08	5.09	4.23	4.08	3.74	4.50
50th	0.81	1.29	3.27	5.85	5.14	4.12	3.98	3.47	3.30	4.31
75th	-0.64	0.29	1.78	4.53	3.88	3.45	3.09	2.65	2.29	4.01
95th	-4.25	-3.52	-3.08	-0.92	-1.84	-0.50	0.18	-2.25	-0.88	3.20
No. Of Obs	29	27	25	24	24	22	22	20	20	17
T Total Plan - Composite	4.14 (5)	3.88 (5)	7.71 (1)	12.38 (1)	8.24 (5)	6.72 (1)	5.44 (5)	4.69 (12)	4.58 (5)	5.85 (5)
▲ Barclays Govt/Credit	3.37 (5)	3.38 (5)	6.08 (9)	9.82 (20)	7.12 (20)	5.17 (20)	4.00 (40)	3.54 (40)	3.32 (45)	4.14 (58)



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Income – Risk and Returns

California Public Employees Retirement
Risk vs Total Fixed Income Returns of Public Funds > \$10 Billion
5 Years Ending March 31, 2020



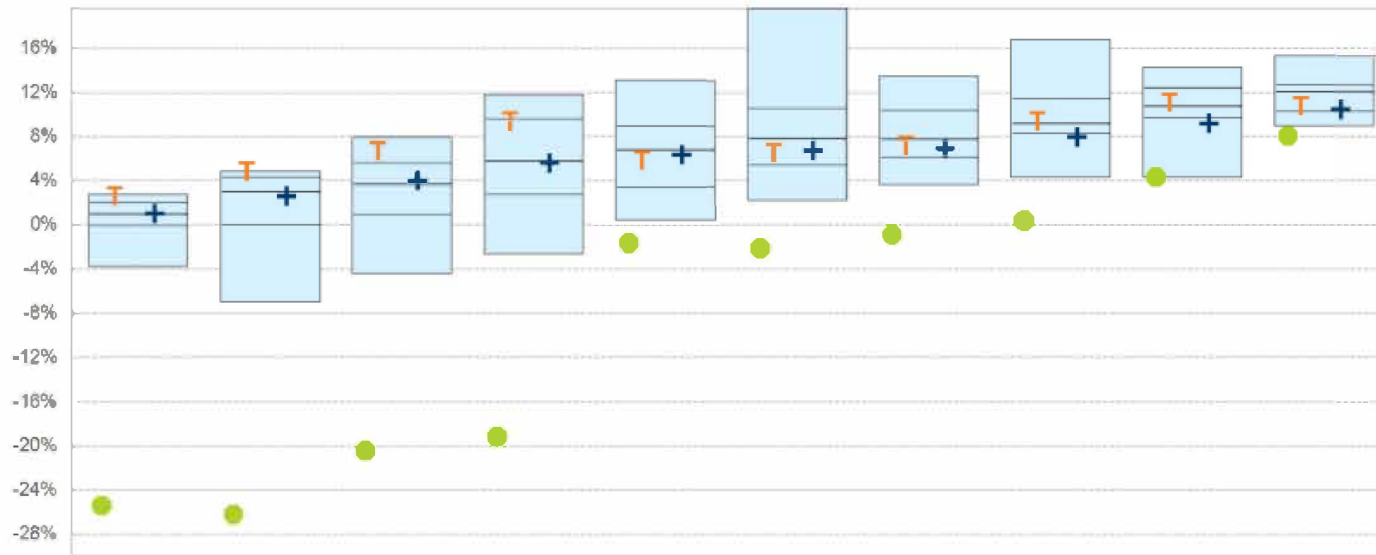
Alpha: 2.89
 Beta: 0
 R-Squared: 0

	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	5.43	25	4.69	12
▲ Barclays Govt/Credit	3.79	55	3.54	40
Median	3.85		3.47	

Real Estate – Universe Comparison

California Public Employees Retirement Performance Comparison

Total Real Estate Returns of Public Funds > \$10 Billion
Cumulative Periods Ending : March 31, 2020



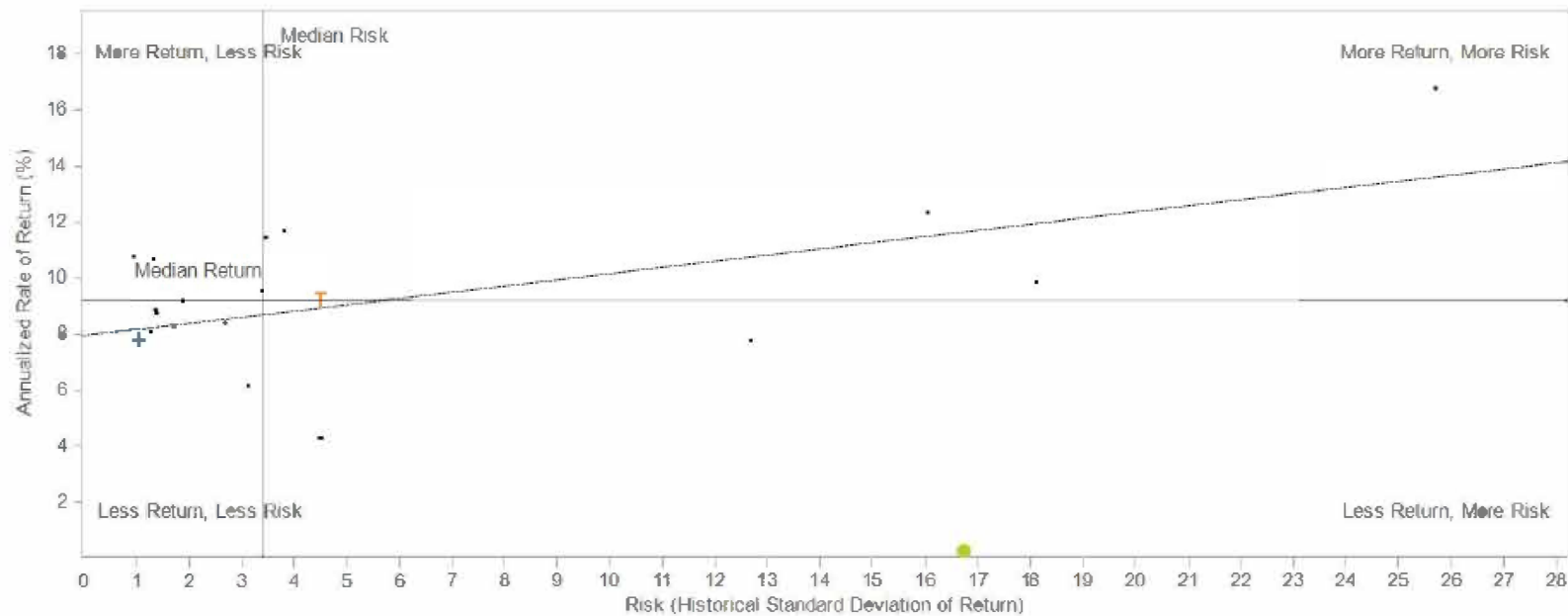
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	2.71	4.82	7.02	11.83	13.04	18.61	13.48	18.80	14.28	15.31
25th	2.03	4.26	5.59	9.80	8.94	10.55	10.37	11.45	12.42	12.67
50th	0.96	2.93	3.99	5.79	6.77	7.79	7.78	8.21	10.76	12.08
75th	-0.04	0.01	0.90	2.71	3.45	5.40	6.10	8.30	9.72	10.28
95th	-3.75	-8.95	-4.43	-2.59	0.49	2.23	3.63	4.32	4.34	8.98
No. Of Obs	26	24	22	21	21	21	21	19	18	14
T Total Plan - Composite + NCREIF Property Indx ● Wilshire RESI	2.32 (13)	4.48 (10)	6.38 (15)	9.10 (25)	5.59 (80)	8.24 (60)	6.81 (70)	9.10 (50)	10.82 (43)	10.48 (86)
	0.71 (50)	2.27 (54)	3.71 (45)	5.28 (55)	6.05 (80)	8.41 (60)	6.62 (70)	7.65 (87)	8.95 (81)	10.17 (83)
	-25.73 (100)	-28.53 (100)	-20.76 (100)	-18.47 (100)	-1.99 (89)	-2.47 (100)	-1.20 (100)	0.08 (100)	4.00 (100)	7.76 (100)



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Real Estate – Risk and Returns

California Public Employees Retirement
 Risk vs Total Real Estate Returns of Public Funds > \$10 Billion
 5 Years Ending March 31, 2020



Alpha: 7.97
 Beta: 0.22
 R-Squared: 0.29

	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	4.60	25	9.10	50
+ NCREIF Property Index	1.15	99	7.65	87
● Wilshire RESI	16.83	12	0.08	100
Median	3.41		9.21	

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