Wilshire

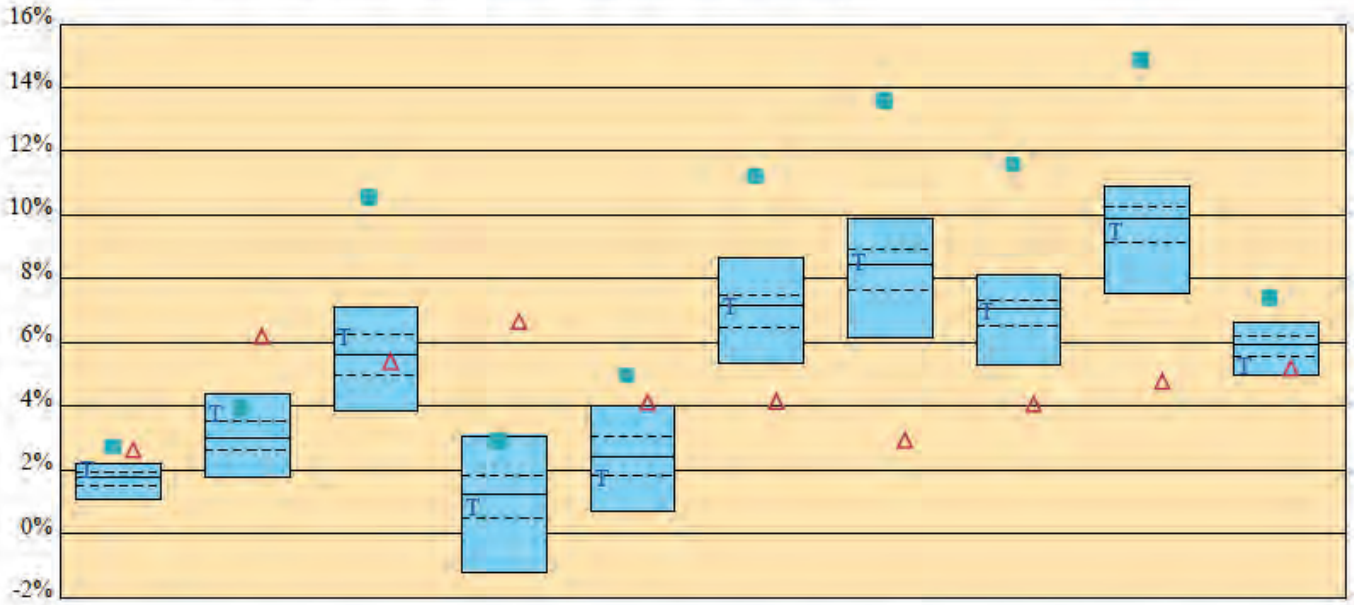
California Public Employees' Retirement System

Universe Comparison Report – June 30, 2016

Total Fund – Universe Comparison

Wilshire

California Public Employees Retirement
Total Returns of Public Funds > $10 Billion
Rates of Return for Periods Ending June 30, 2016

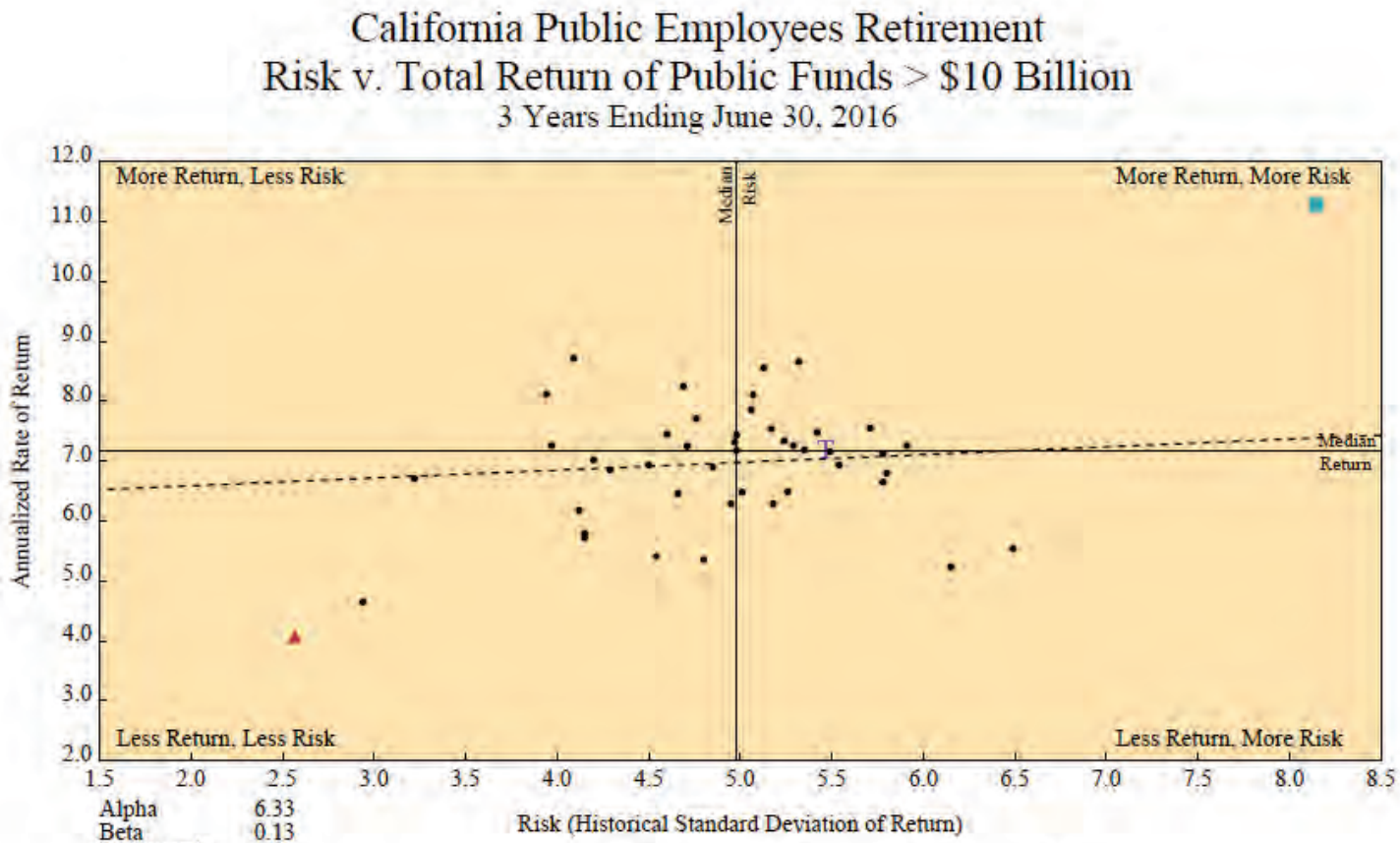


	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th Percentile	2.23	4.40	7.11	3.09	4.04	8.66	9.90	8.14	10.90	6.64
25th Percentile	1.92	3.55	6.29	1.86	3.08	7.48	8.94	7.31	10.29	6.19
Median	1.77	3.03	5.64	1.27	2.43	7.16	8.45	7.06	9.91	5.93
75th Percentile	1.51	2.65	4.99	0.51	1.82	6.48	7.67	6.54	9.15	5.57
95th Percentile	1.07	1.79	3.89	-1.21	0.73	5.36	6.15	5.32	7.52	5.00
T Total Plan - Composites	2.04 (16)	3.80 (14)	6.20 (27)	0.87 (59)	1.77 (77)	7.14 (50)	8.52 (43)	7.00 (52)	9.50 (72)	5.30 (88)
■ Wilshire 5000	2.78 (1)	3.98 (8)	10.60 (1)	2.96 (5)	5.01 (1)	11.26 (1)	13.65 (1)	11.64 (1)	14.92 (1)	7.46 (1)
△ Barclays Govt/Credit	2.67 (1)	6.23 (1)	5.44 (61)	6.70 (1)	4.17 (1)	4.20 (100)	2.98 (100)	4.11 (100)	4.82 (100)	5.23 (91)

GOF returns are used in universe comparison.

Total Fund – Risk and Return

Wilshire



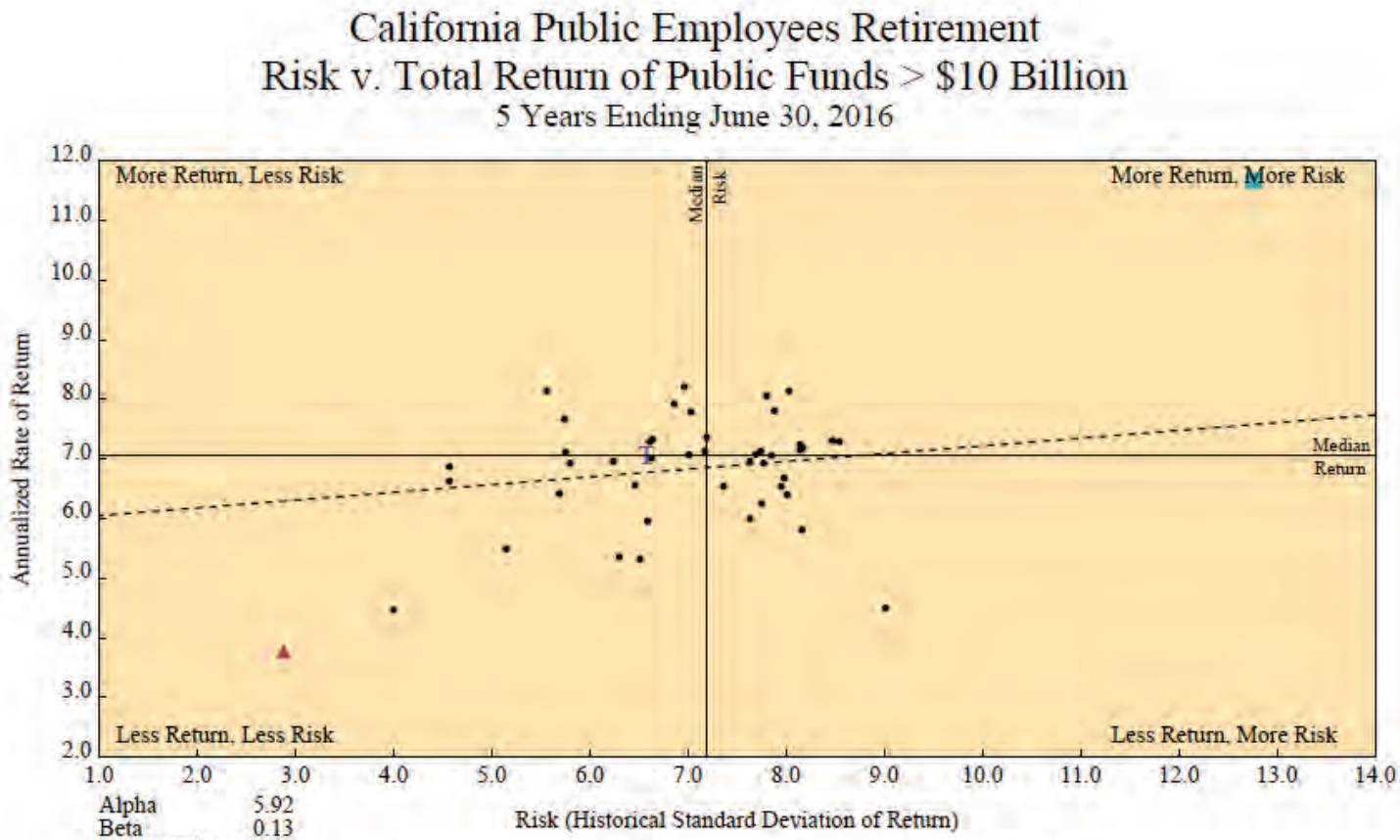
Alpha	6.33
Beta	0.13
R-Squared	0.01

	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	5.49	20	7.14	50
Wilshire 5000	8.18	1	11.26	1
Barclays Aggregate	2.60	100	4.06	100
Median	4.98		7.16	

GOF returns are used in universe comparison.

Total Fund – Risk and Return

Wilshire



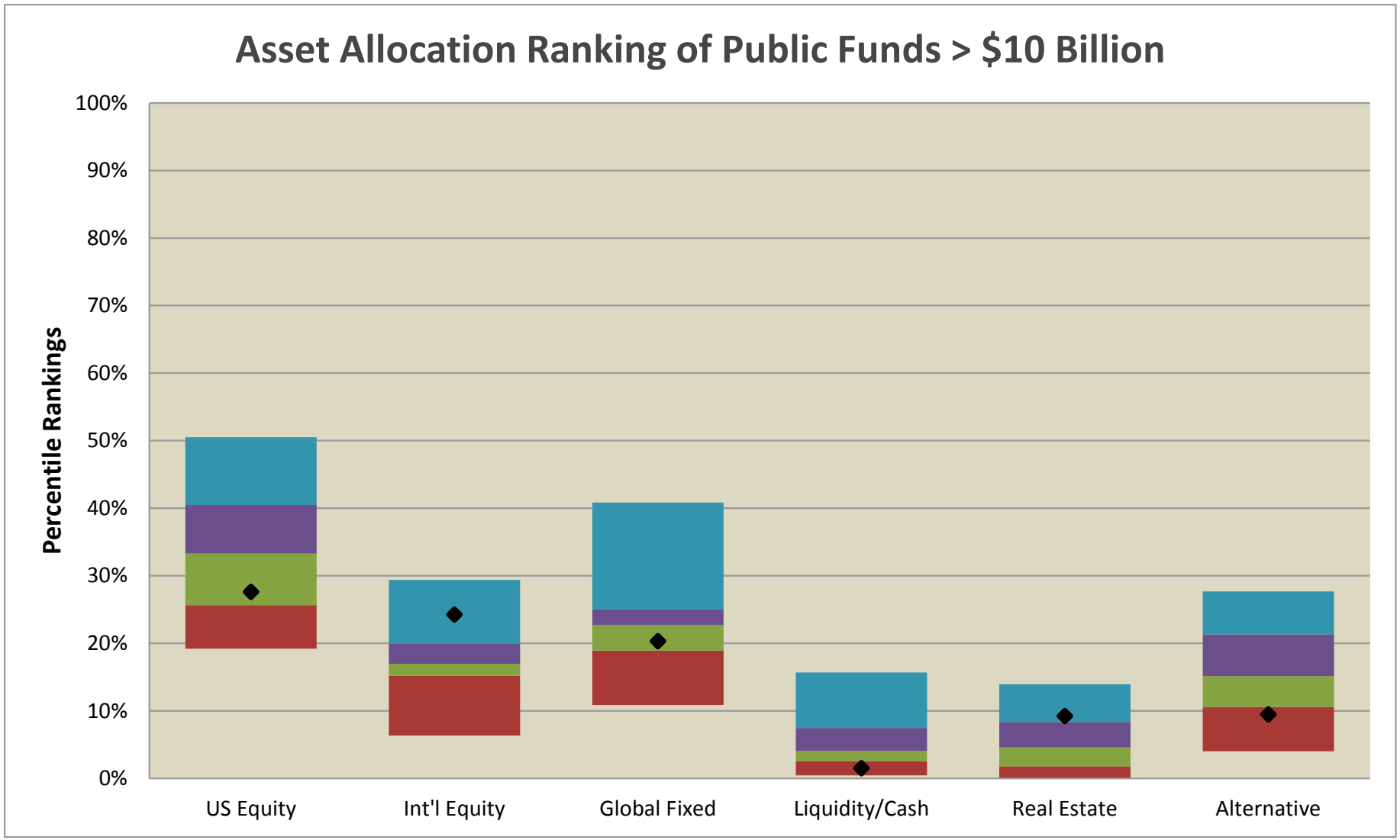
Alpha	5.92
Beta	0.13
R-Squared	0.03

	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	6.62	65	7.00	52
Wilshire 5000	12.82	1	11.64	1
Barclays Aggregate	2.94	100	3.76	100
Median	7.19		7.06	

GOF returns are used in universe comparison.

Asset Allocation Ranking – Universe Analysis

Wilshire

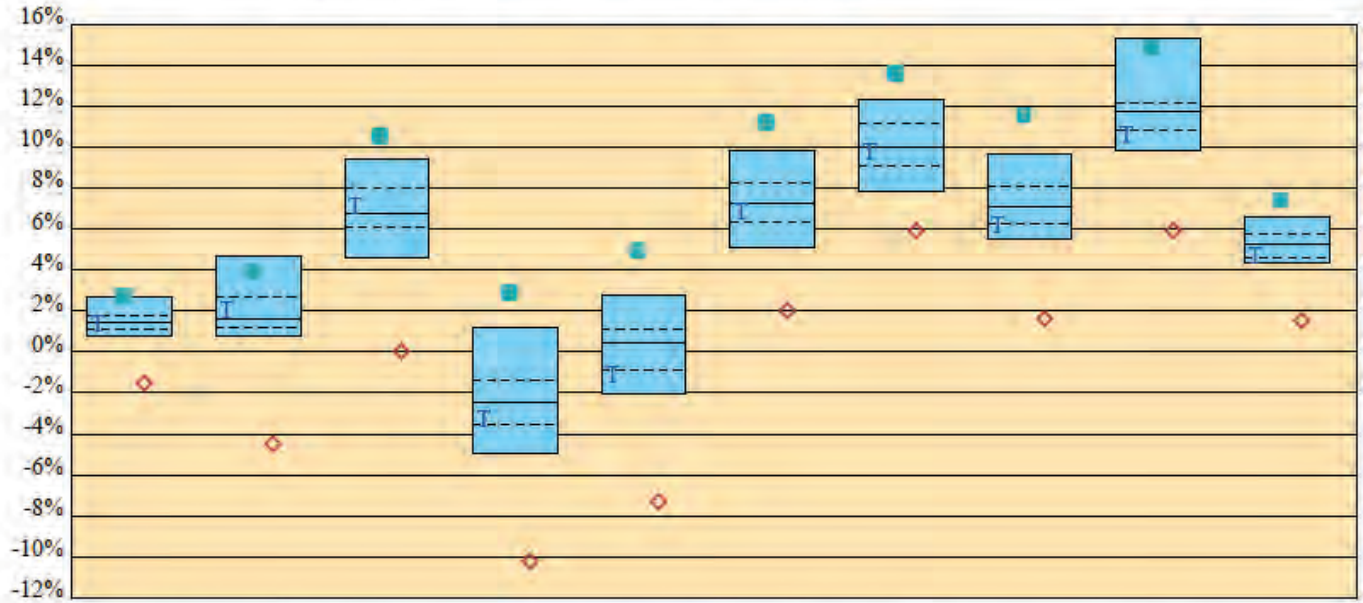


CalPERS	US Equity	Int'l Equity	Global Fixed	Liquidity/Cash	Real Estate	Alternative
Weight%(Rank)	27.62% (63)	24.26% (15)	20.31% (69)	1.51% (87)	9.25% (22)	9.48% (78)

Growth:
Public Equity – Universe Comparison

Wilshire

California Public Employees Retirement
Equity Returns of Public Funds > $10 Billion
Rates of Return for Periods Ending June 30, 2016

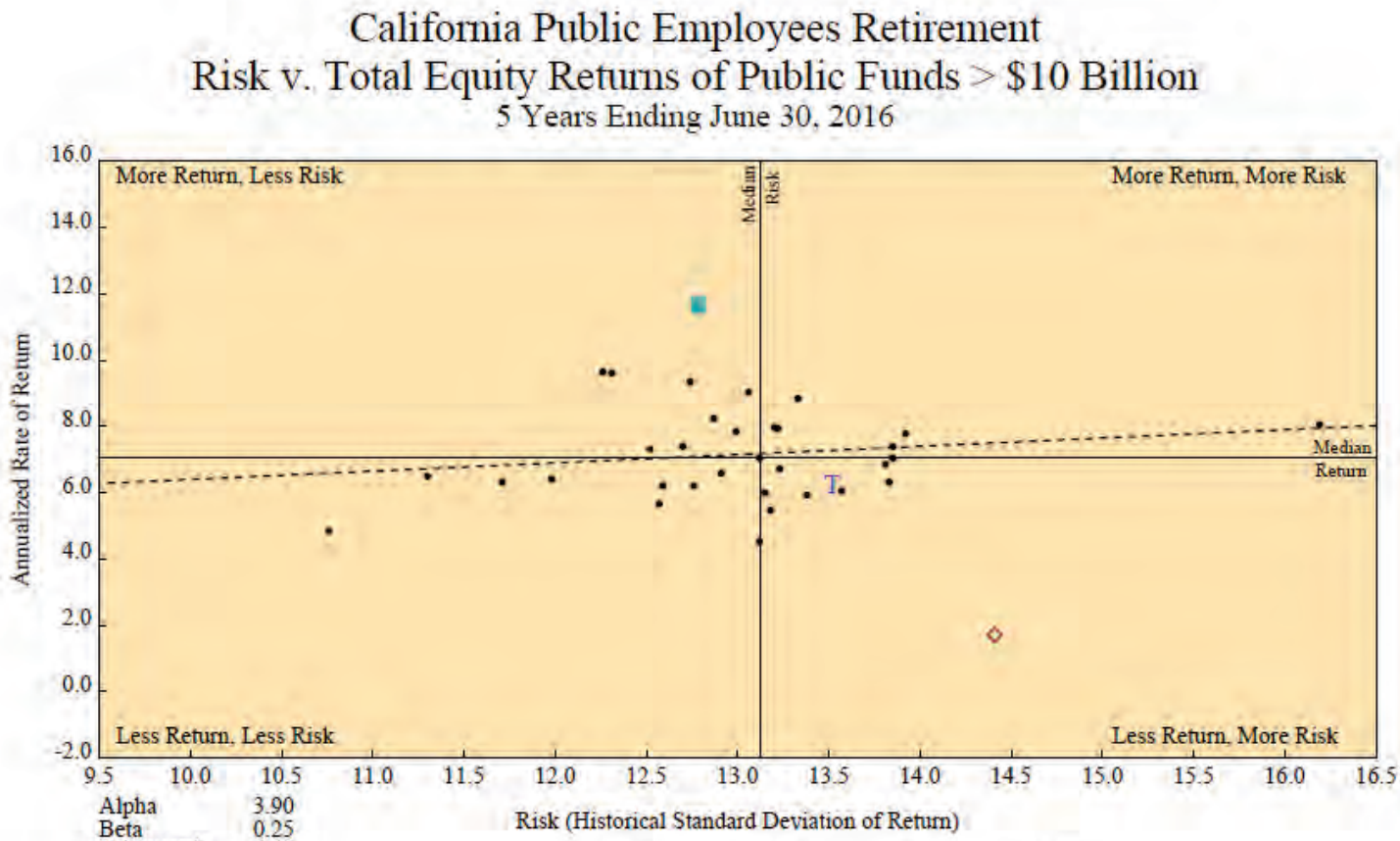


	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th Percentile	2.71	4.66	9.43	1.17	2.79	9.85	12.31	9.64	15.31	6.62
25th Percentile	1.81	2.65	7.99	-1.42	1.08	8.24	11.13	8.06	12.15	5.78
Median	1.40	1.57	6.79	-2.50	0.47	7.21	9.96	7.05	11.70	5.24
75th Percentile	1.09	1.18	6.12	-3.51	-0.85	6.37	9.11	6.21	10.79	4.60
95th Percentile	0.78	0.76	4.59	-4.98	-2.07	5.09	7.79	5.47	9.78	4.33
T Total Plan - Composites	1.36 (55)	2.02 (41)	7.11 (38)	-3.27 (63)	-1.11 (78)	6.87 (58)	9.80 (56)	6.17 (78)	10.61 (75)	4.73 (70)
■ Wilshire 5000	2.78 (1)	3.98 (10)	10.60 (1)	2.96 (1)	5.01 (1)	11.26 (1)	13.65 (1)	11.64 (1)	14.92 (5)	7.46 (1)
◇ MSCI EAFE (Net)	-1.46 (100)	-4.42 (100)	0.08 (100)	-10.16 (100)	-7.24 (99)	2.07 (99)	5.97 (99)	1.68 (100)	5.97 (100)	1.58 (100)

GOF returns are used in universe comparison.

Growth:
Public Equity – Risk and Return

Wilshire



Alpha	3.90
Beta	0.25
R-Squared	0.03

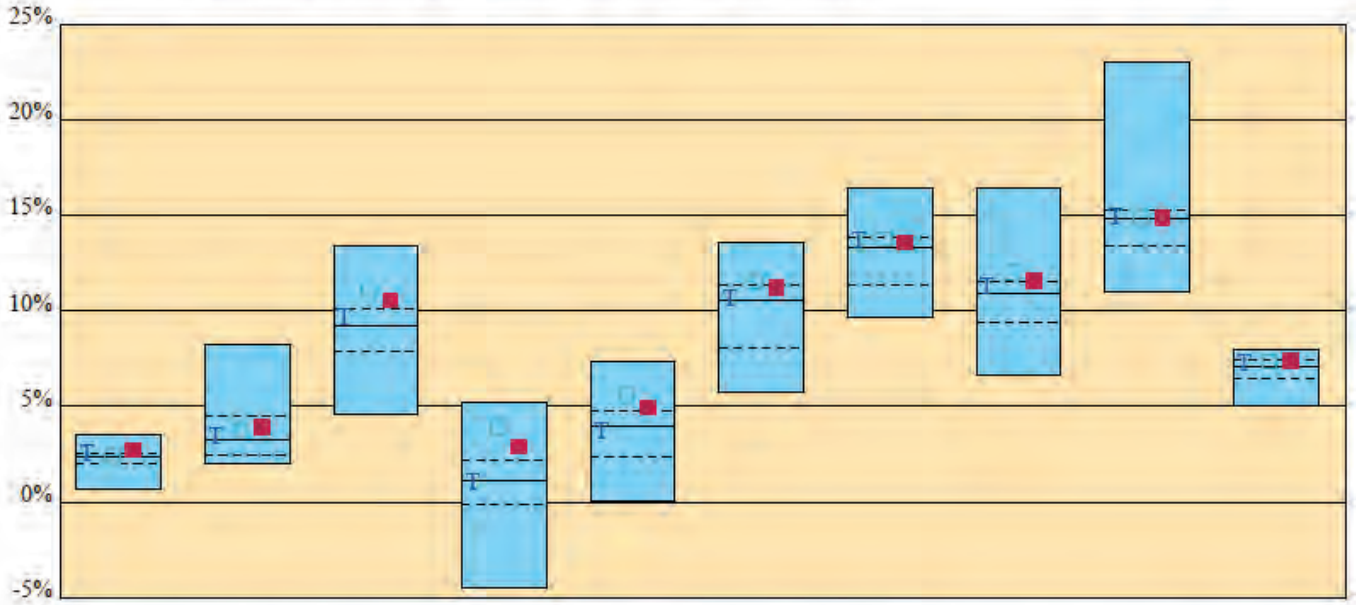
	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	13.54	25	6.17	78
■ Wilshire 5000	12.82	62	11.64	1
◇ MSCI EAFE (Net)	14.44	5	1.68	100
Median	13.12		7.05	

GOF returns are used in universe comparison.

Growth:
US Equity – Universe Comparison

Wilshire

California Public Employees Retirement
US Equity Returns of Public Funds > $10 Billion
Rates of Return for Periods Ending June 30, 2016



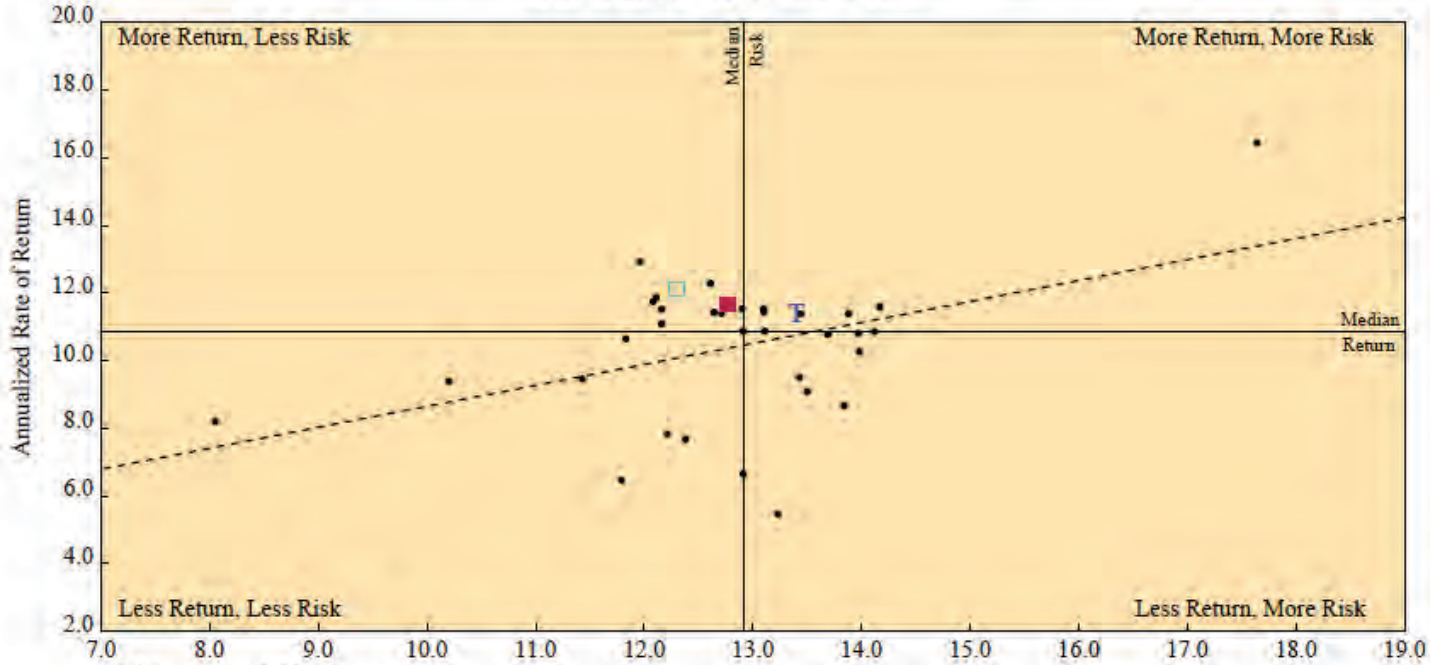
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th Percentile	3.56	8.26	13.42	5.24	7.35	13.60	16.45	16.44	23.02	7.98
25th Percentile	2.58	4.47	10.09	2.20	4.81	11.37	13.84	11.53	15.29	7.46
Median	2.36	3.27	9.25	1.12	3.99	10.58	13.32	10.87	14.79	7.12
75th Percentile	2.01	2.50	7.90	-0.15	2.38	8.02	11.35	9.39	13.36	6.46
95th Percentile	0.65	1.99	4.59	-4.48	0.07	5.79	9.67	6.65	11.04	5.06
T Total Plan - Composites	2.57 (30)	3.46 (41)	9.67 (30)	1.06 (50)	3.74 (55)	10.67 (47)	13.67 (37)	11.32 (43)	14.91 (39)	7.33 (33)
□ S&P 500	2.46 (44)	3.84 (33)	11.15 (10)	3.99 (8)	5.69 (11)	11.66 (14)	13.83 (25)	12.10 (11)	14.92 (35)	7.43 (29)
■ Wilshire 5000	2.78 (22)	3.98 (27)	10.60 (13)	2.96 (10)	5.01 (16)	11.26 (25)	13.65 (40)	11.64 (16)	14.92 (35)	7.46 (25)

GOF returns are used in universe comparison.

Growth:
US Equity – Risk and Return

Wilshire

California Public Employees Retirement
Risk v. US Equity Returns of Public Funds > $10 Billion
5 Years Ending June 30, 2016



Alpha	2.45
Beta	0.62
R-Squared	0.19

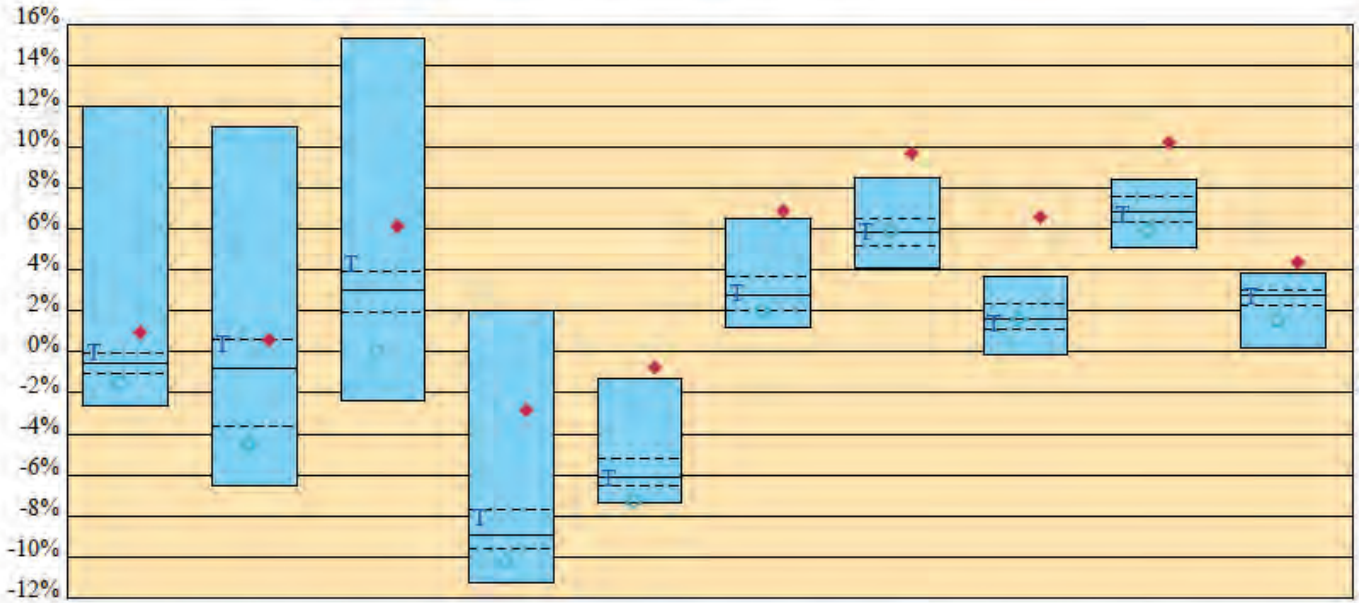
	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	13.44	31	11.32	43
S&P 500	12.35	65	12.10	11
Wilshire 5000	12.82	53	11.64	16
Median	12.91		10.87	

GOF returns are used in universe comparison.

Growth: International Equity – Universe Comparison

Wilshire

California Public Employees Retirement
International Equity Returns of Public Funds > $10 Billion
Rates of Return for Periods Ending June 30, 2016

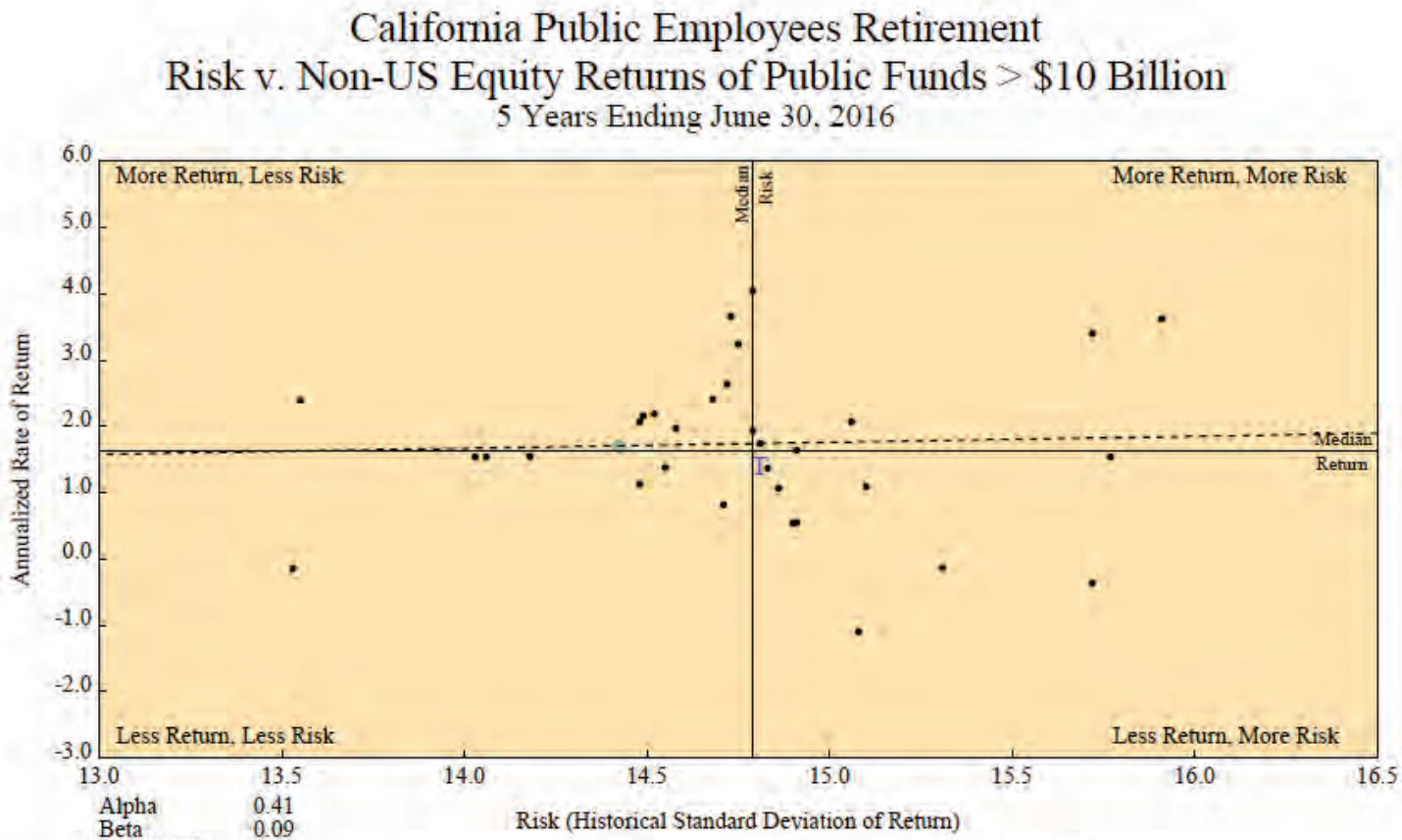


	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th Percentile	11.94	10.98	15.30	2.05	-1.34	6.51	8.53	3.66	8.39	3.86
25th Percentile	-0.08	0.60	3.96	-7.72	-5.17	3.65	6.48	2.39	7.56	3.04
Median	-0.55	-0.83	3.04	-8.97	-6.11	2.75	5.83	1.64	6.84	2.74
75th Percentile	-1.04	-3.62	1.91	-9.56	-6.57	2.03	5.16	1.09	6.31	2.28
95th Percentile	-2.59	-6.51	-2.41	-11.30	-7.39	1.15	4.10	-0.14	5.10	0.22
T Total Plan - Composites	0.01 (22)	0.42 (25)	4.30 (20)	-8.03 (30)	-6.18 (53)	2.90 (41)	5.87 (46)	1.37 (68)	6.74 (54)	2.68 (60)
◇ MSCI EAFE (Net)	-1.46 (90)	-4.42 (87)	0.08 (93)	-10.16 (78)	-7.24 (90)	2.07 (68)	5.97 (43)	1.68 (46)	5.97 (79)	1.58 (81)
◆ MSCI World (Net)	1.01 (8)	0.65 (20)	6.19 (5)	-2.78 (8)	-0.70 (1)	6.95 (1)	9.74 (1)	6.63 (1)	10.27 (1)	4.43 (1)

GOF returns are used in universe comparison.

Growth:
International Equity – Risk and Return

Wilshire



Alpha	0.41
Beta	0.09
R-Squared	0.00

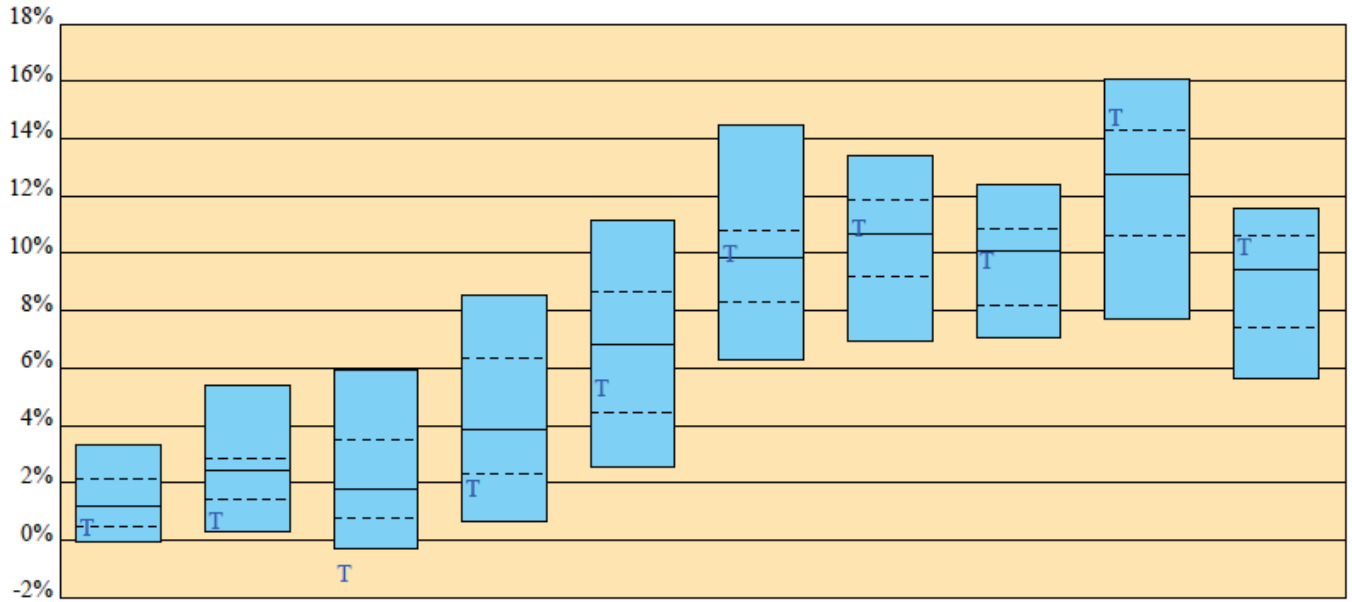
	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	14.82	43	1.37	68
◇ MSCI EAFE (Net)	14.44	85	1.68	46
Median	14.79		1.64	

GOF returns are used in universe comparison.

Growth:
Private Equity – Universe Comparison

Wilshire

California Public Employees Retirement
Private Equity Returns of Public Funds > $10 Billion
Rates of Return for Periods Ending June 30, 2016



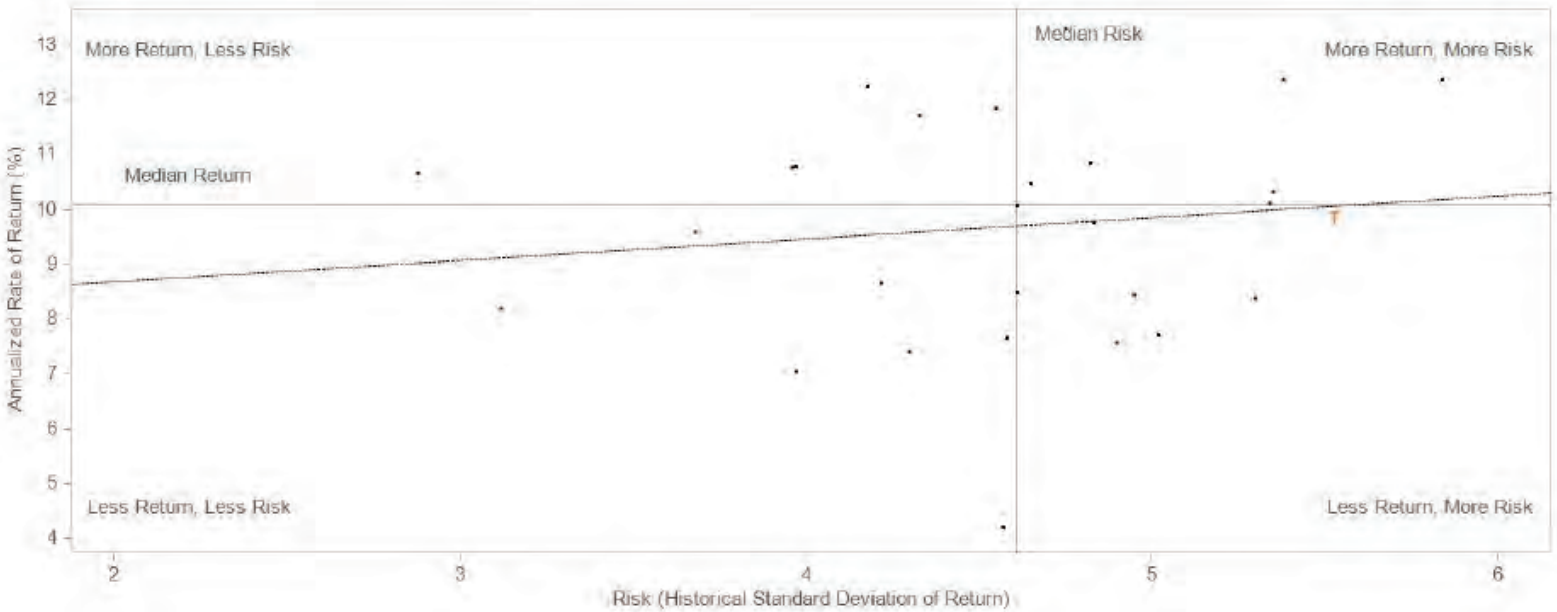
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th Percentile	3.31	5.42	5.91	8.53	11.15	14.47	13.43	12.37	16.06	11.58
25th Percentile	2.16	2.86	3.48	6.33	8.68	10.78	11.84	10.86	14.29	10.62
Median	1.20	2.47	1.77	3.89	6.83	9.86	10.71	10.08	12.78	9.41
75th Percentile	0.47	1.45	0.78	2.34	4.47	8.33	9.18	8.19	10.65	7.42
95th Percentile	-0.04	0.30	-0.29	0.66	2.54	6.29	6.92	7.04	7.71	5.66
T Total Plan - Composites	0.43 (78)	0.71 (90)	-1.14 (100)	1.80 (87)	5.30 (71)	9.99 (46)	10.88 (39)	9.75 (53)	14.71 (15)	10.21 (35)

GOF returns are used in universe comparison.

Growth:
Private Equity – Risk and Return

Wilshire

California Public Employees Retirement
Risk vs Total Private Equity Returns of Public Funds > $10 Billion
5 Years Ending June 30, 2016



Alpha: 7.9
Beta: 0.39
R-Squared: 0.02

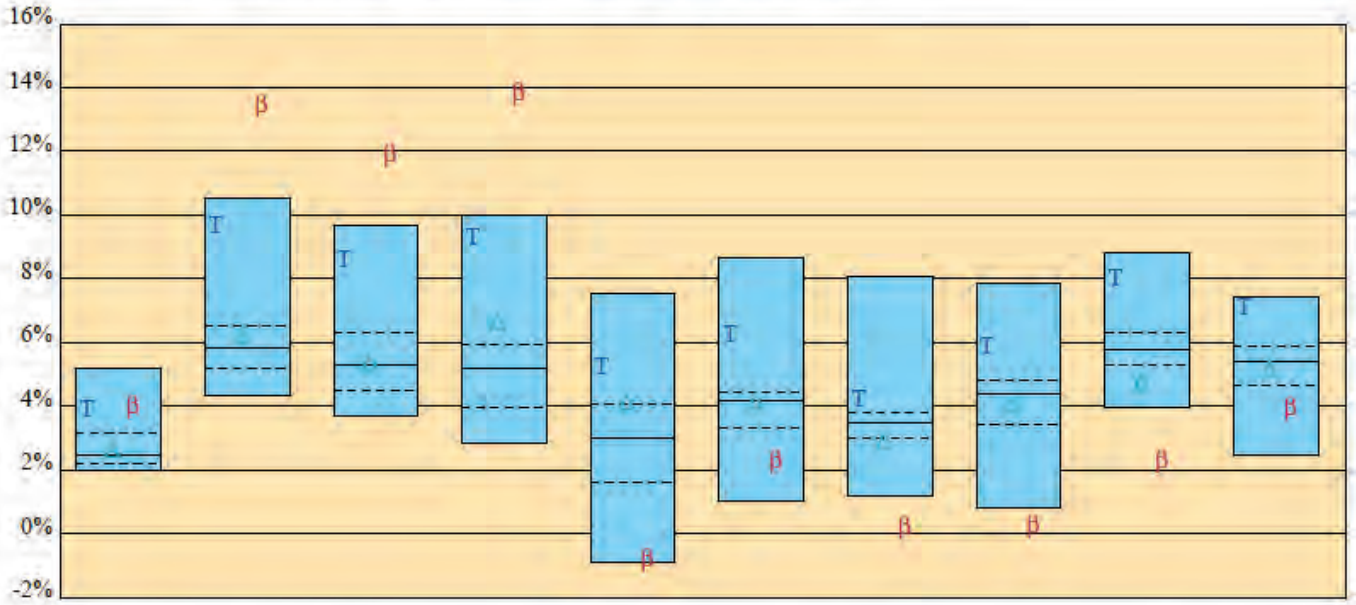
	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	5.54	5	9.75	53
Median	4.61		10.08	

GOF returns are used in universe comparison.

Income – Universe Comparison

Wilshire

California Public Employees Retirement
Fixed Income Returns of Public Funds > $10 Billion
Rates of Return for Periods Ending June 30, 2016

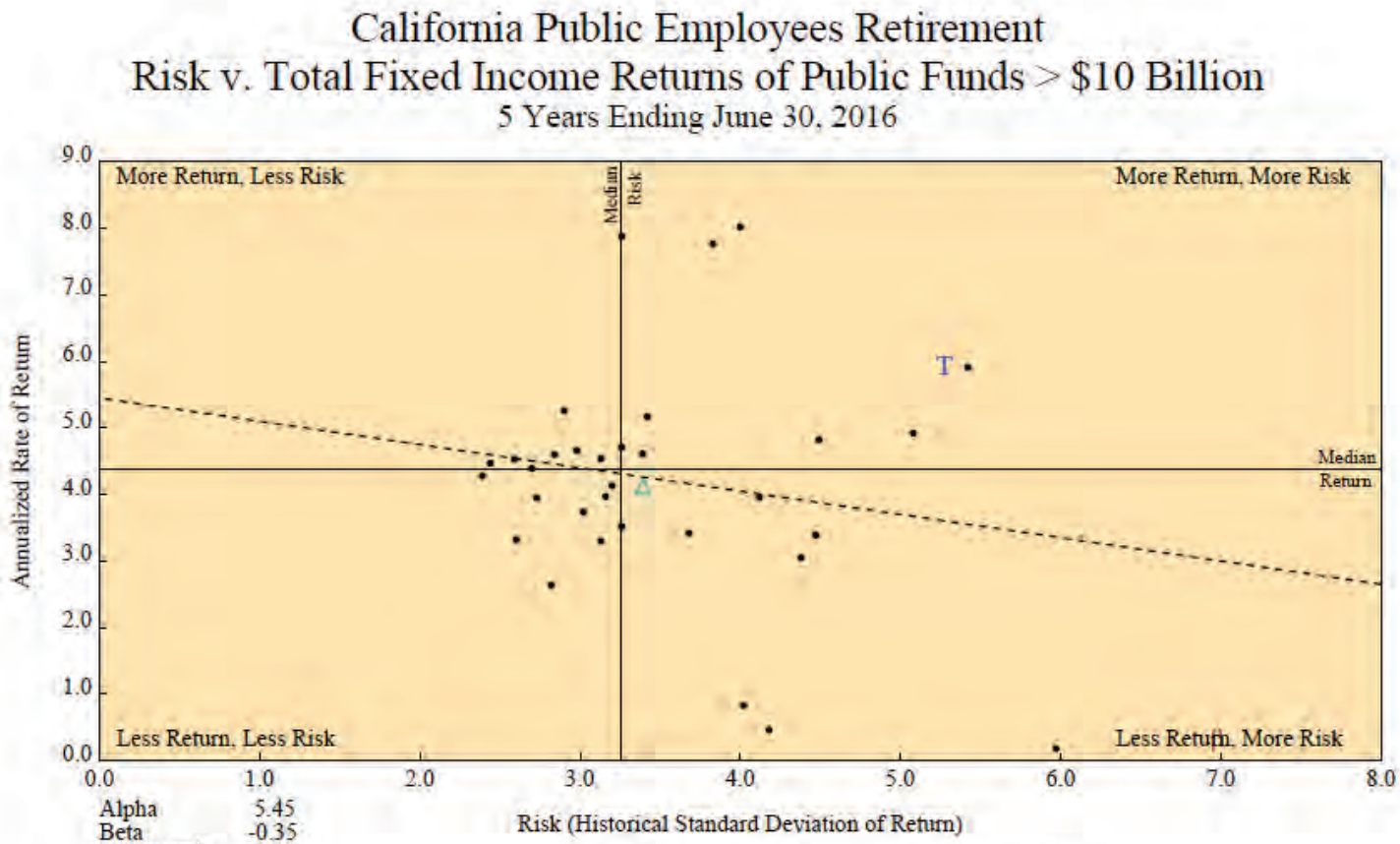


	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th Percentile	5.21	10.52	9.66	10.01	7.52	8.67	8.10	7.88	8.83	7.43
25th Percentile	3.15	6.52	6.30	5.94	4.09	4.45	3.80	4.82	6.34	5.88
Median	2.48	5.82	5.30	5.19	2.99	4.21	3.49	4.39	5.81	5.41
75th Percentile	2.20	5.20	4.52	3.96	1.63	3.34	2.99	3.42	5.31	4.65
95th Percentile	1.99	4.34	3.69	2.86	-0.88	1.03	1.17	0.83	3.96	2.47
T Total Plan - Composites	3.95 (11)	9.72 (8)	8.65 (8)	9.32 (5)	5.25 (11)	6.27 (8)	4.24 (16)	5.89 (12)	8.04 (9)	7.16 (5)
Δ Barclays Govt/Credit	2.67 (38)	6.23 (30)	5.44 (38)	6.70 (8)	4.17 (16)	4.20 (50)	2.98 (75)	4.11 (56)	4.82 (79)	5.23 (58)
β Citigroup Non-US Govt Bond	4.04 (11)	13.50 (1)	11.94 (1)	13.85 (1)	-0.76 (93)	2.36 (90)	0.28 (99)	0.31 (99)	2.33 (100)	3.97 (89)

GOF returns are used in universe comparison.

Income – Risk and Return

Wilshire



Alpha	5.45
Beta	-0.35
R-Squared	0.03

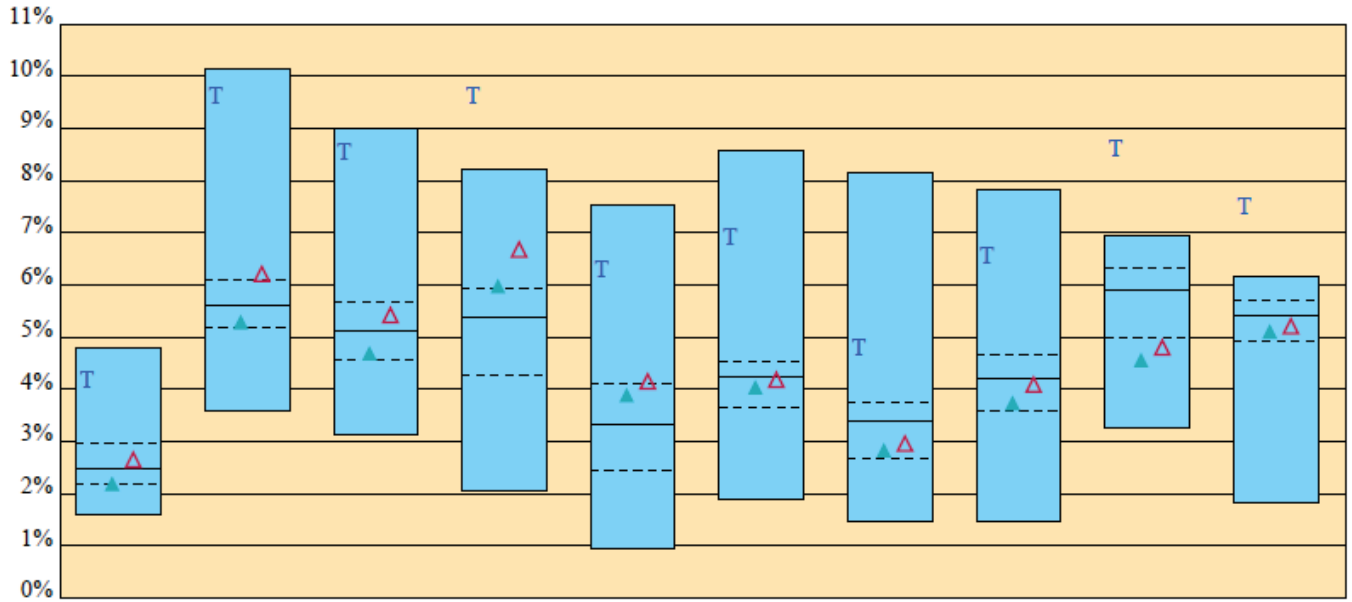
		Risk Value	Risk Rank	Return Value	Return Rank
T	Total Plan - Composites	5.30	9	5.89	12
Δ	Barclays Govt/Credit	3.43	40	4.11	56
β	Citigroup Non-US Govt Bond	7.02	1	0.31	99
	Median	3.26		4.39	

GOF returns are used in universe comparison.

US Income – Universe Comparison

Wilshire

California Public Employees Retirement
US Fixed Income Returns of Public Funds > $10 Billion
Rates of Return for Periods Ending June 30, 2016



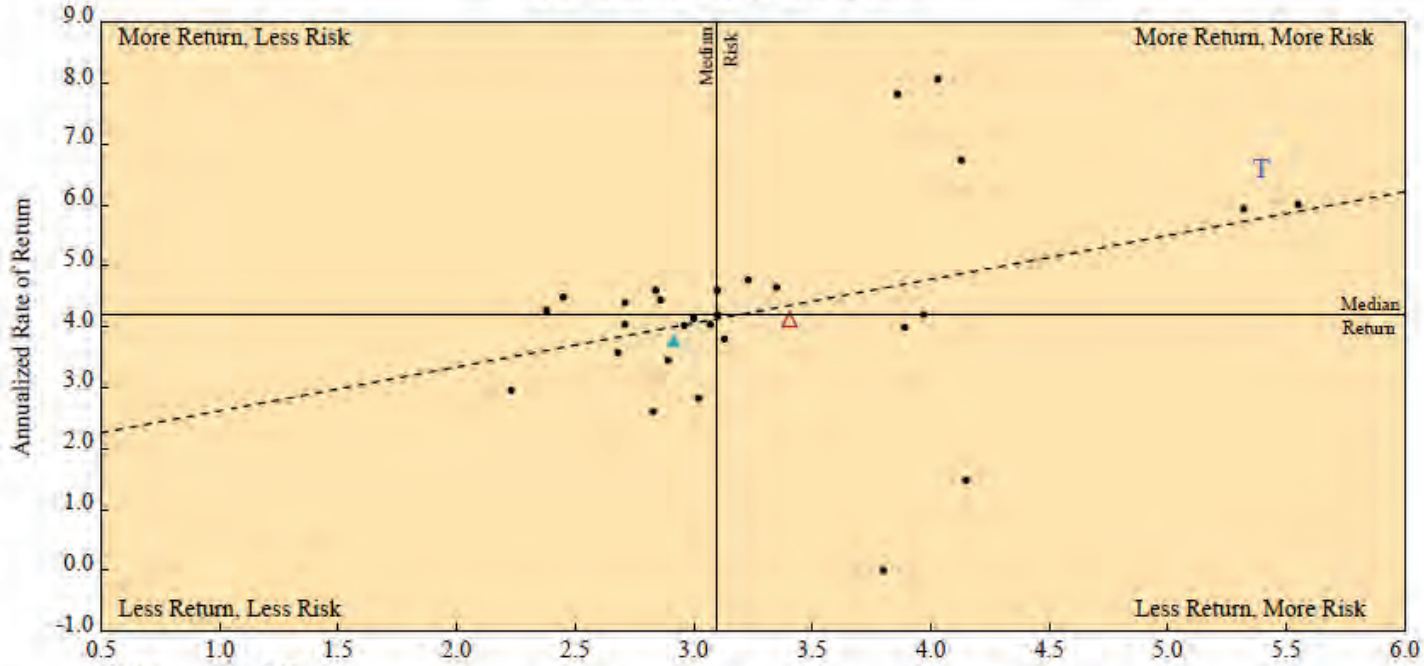
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th Percentile	4.80	10.14	9.00	8.22	7.54	8.57	8.15	7.82	6.93	6.17
25th Percentile	2.98	6.10	5.67	5.92	4.09	4.53	3.75	4.65	6.32	5.69
Median	2.48	5.59	5.10	5.38	3.33	4.23	3.38	4.20	5.89	5.41
75th Percentile	2.19	5.17	4.55	4.28	2.45	3.66	2.67	3.58	5.00	4.93
95th Percentile	1.58	3.59	3.14	2.04	0.95	1.88	1.46	1.48	3.27	1.81
T Total Plan - Composites	4.18 (5)	9.63 (5)	8.57 (5)	9.62 (1)	6.29 (9)	6.92 (9)	4.82 (12)	6.56 (9)	8.61 (1)	7.50 (1)
▲ Barclays Aggregate	2.21 (71)	5.31 (65)	4.71 (65)	6.00 (19)	3.91 (25)	4.06 (53)	2.85 (67)	3.76 (71)	4.58 (79)	5.13 (70)
△ Barclays Govt/Credit	2.67 (37)	6.23 (19)	5.44 (31)	6.70 (5)	4.17 (18)	4.20 (53)	2.98 (64)	4.11 (53)	4.82 (79)	5.23 (65)

GOF returns are used in universe comparison.

US Income – Risk and Return

Wilshire

California Public Employees Retirement
Risk v. US Fixed Income Returns of Public Funds > $10 Billion
5 Years Ending June 30, 2016



Alpha	1.90
Beta	0.72
R-Squared	0.12

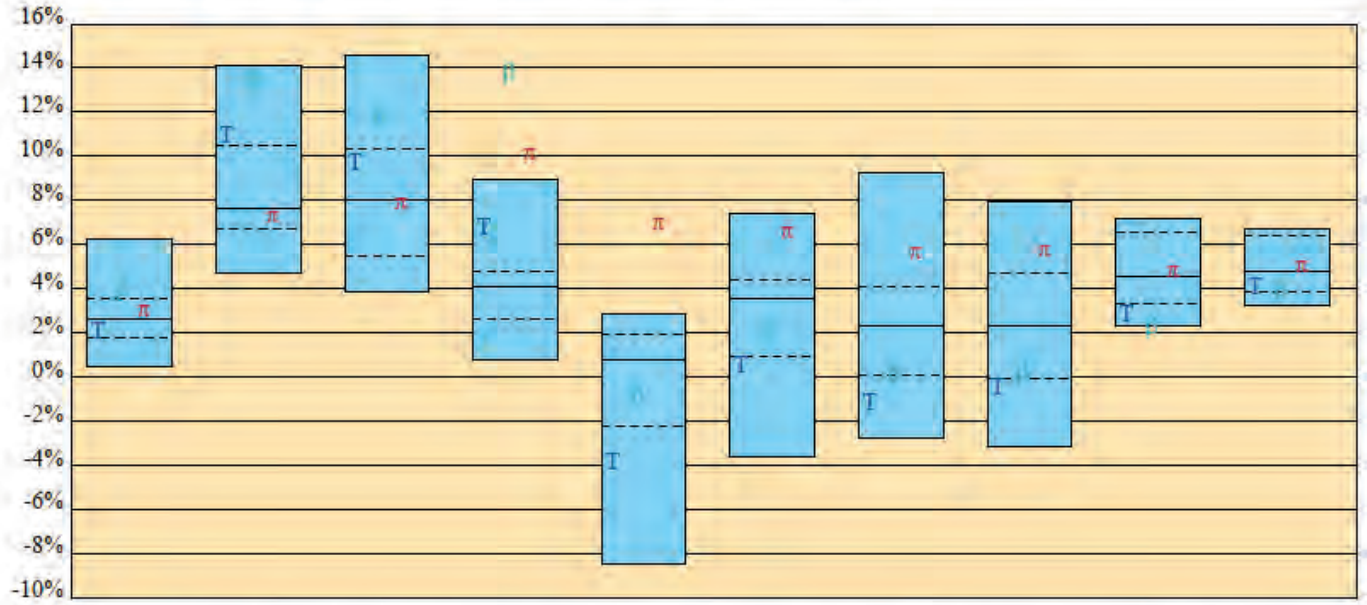
	Risk Value	Risk Rank	Return Value	Return Rank
T Total Plan - Composites	5.41	5	6.56	9
▲ Barclays Aggregate	2.94	64	3.76	71
△ Barclays Govt/Credit	3.43	35	4.11	53
Median	3.10		4.20	

GOF returns are used in universe comparison.

International Income – Universe Comparison

Wilshire

California Public Employees Retirement
International Fixed Income Returns of Public Funds > $10 Billion
Rates of Return for Periods Ending June 30, 2016

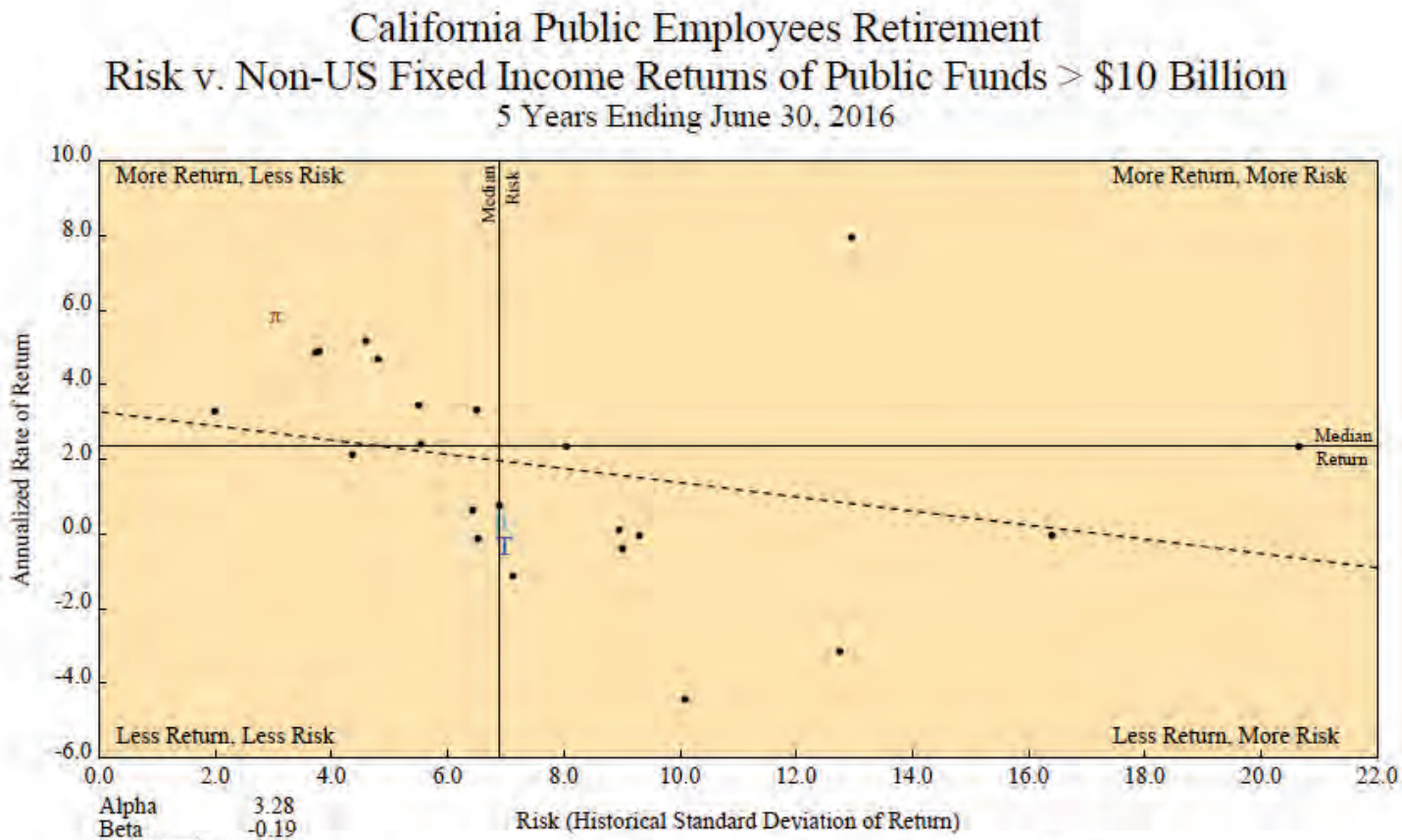


	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th Percentile	6.24	14.14	14.58	8.97	2.87	7.40	9.27	7.96	7.21	6.71
25th Percentile	3.59	10.47	10.32	4.77	1.97	4.44	4.13	4.69	6.55	6.42
Median	2.63	7.61	8.05	4.09	0.75	3.59	2.29	2.35	4.53	4.77
75th Percentile	1.76	6.71	5.47	2.61	-2.26	0.95	0.10	-0.03	3.33	3.86
95th Percentile	0.46	4.72	3.84	0.82	-8.43	-3.59	-2.80	-3.14	2.33	3.24
T Total Plan - Composites	2.10 (65)	10.99 (19)	9.79 (28)	6.81 (15)	-3.84 (78)	0.60 (78)	-1.10 (89)	-0.38 (84)	2.91 (91)	4.13 (66)
β Citigroup Non-US Govt Bond	4.04 (14)	13.50 (8)	11.94 (15)	13.85 (1)	-0.76 (57)	2.36 (60)	0.28 (70)	0.31 (65)	2.33 (99)	3.97 (66)
π Citigroup Hedged Non-US Govt	3.11 (37)	7.40 (56)	8.02 (50)	10.19 (1)	7.06 (1)	6.69 (5)	5.76 (5)	5.84 (5)	4.88 (31)	5.12 (33)

GOF returns are used in universe comparison.

International Income – Risk and Return

Wilshire



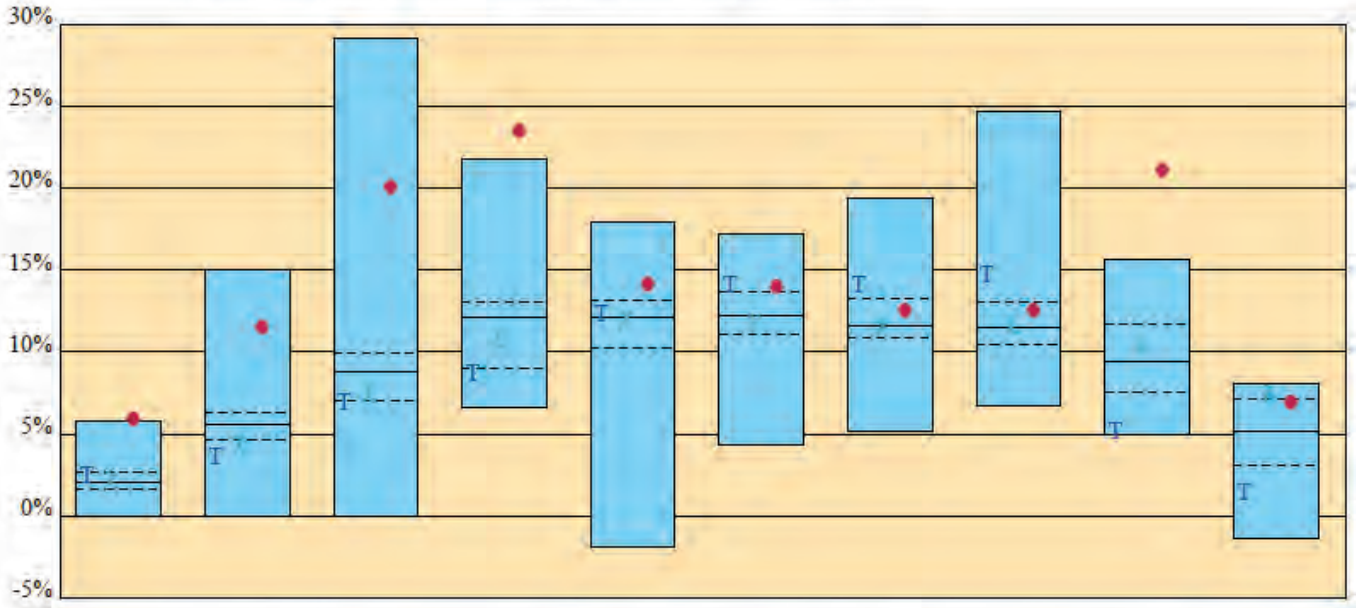
		Risk Value	Risk Rank	Return Value	Return Rank
T	Total Plan - Composites	7.05	45	-0.38	84
β	Citigroup Non-US Govt Bond	7.02	45	0.31	65
π	Citigroup Hedged Non-US Govt	3.15	99	5.84	5
	Median	6.89		2.35	

GOF returns are used in universe comparison.

Real Estate – Universe Comparison

Wilshire

California Public Employees Retirement
Real Estate Returns of Public Funds > $10 Billion
Rates of Return for Periods Ending June 30, 2016



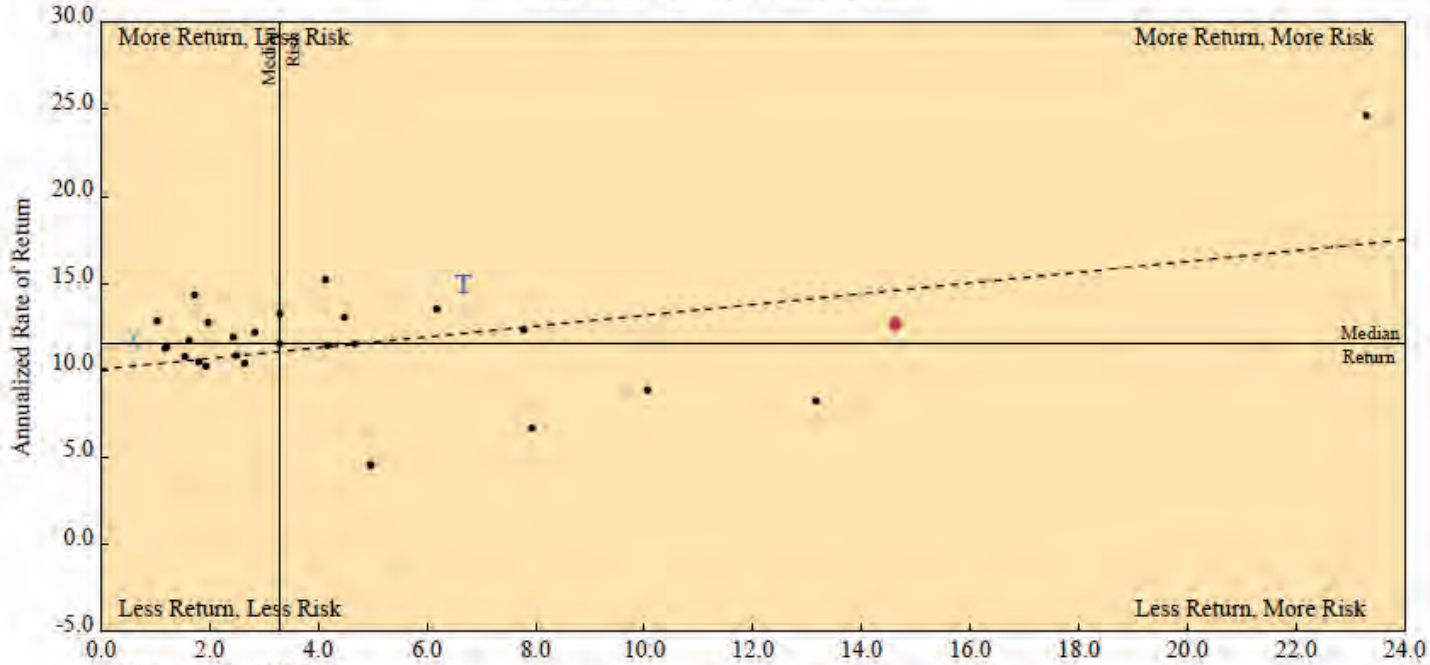
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th Percentile	5.75	15.02	29.08	21.72	17.93	17.23	19.38	24.64	15.61	8.01
25th Percentile	2.65	6.30	9.91	13.01	13.16	13.68	13.21	13.05	11.66	7.14
Median	2.04	5.53	8.75	12.07	12.13	12.26	11.58	11.53	9.46	5.15
75th Percentile	1.67	4.65	6.99	8.99	10.21	11.08	10.91	10.48	7.51	3.05
95th Percentile	-0.00	0.00	0.00	6.56	-1.88	4.31	5.16	6.68	4.98	-1.37
T Total Plan - Composites	2.50 (28)	3.60 (85)	6.96 (75)	8.71 (75)	12.34 (42)	14.09 (15)	14.10 (13)	14.78 (9)	5.23 (94)	1.51 (87)
NCREIF Property Index	2.03 (50)	4.28 (78)	7.32 (71)	10.64 (68)	11.79 (50)	11.60 (64)	11.38 (53)	11.51 (50)	10.27 (30)	7.40 (12)
● Wilshire RESI	5.99 (1)	11.60 (11)	20.13 (5)	23.55 (1)	14.22 (12)	14.07 (15)	12.62 (42)	12.61 (32)	21.17 (1)	7.01 (30)

GOF returns are used in universe comparison.

Real Estate – Risk and Returns

Wilshire

California Public Employees Retirement
Risk v. Total Real Estate Returns of Public Funds > $10 Billion
5 Years Ending June 30, 2016



Alpha	10.06
Beta	0.31
R-Squared	0.16

		Risk Value	Risk Rank	Return Value	Return Rank
T	Total Plan - Composites	6.75	21	14.78	9
X	NCREIF Property Index	0.72	100	11.51	50
●	Wilshire RESI	14.73	5	12.61	32
	Median	3.29		11.53	

GOF returns are used in universe comparison.

Important Information

Wilshire

This material contains confidential and proprietary information of Wilshire Consulting, and is intended for the exclusive use of the person to whom it is provided. It may not be modified, sold or otherwise provided, in whole or in part, to any other person or entity without prior written permission from Wilshire Consulting. The information contained herein has been obtained from sources believed to be reliable. Wilshire Consulting gives no representations or warranties as to the accuracy of such information, and accepts no responsibility or liability (including for indirect, consequential or incidental damages) for any error, omission or inaccuracy in such information and for results obtained from its use. Information and opinions are as of the date indicated, and are subject to change without notice.

This material is intended for informational purposes only and should not be construed as legal, accounting, tax, investment, or other professional advice.

This presentation represents the current opinion of the firm based on sources deemed reliable. The information and statistical data contained herein are based on sources believed to be reliable. Wilshire does not represent that it is accurate and should not be relied on as such or be the basis for an investment decision. This Presentation is for information purposes only. Past performance is no guarantee of future results.

Any opinions expressed in this Presentation are current only as of the time made and are subject to change without notice. Wilshire assumes no duty to update any such statements. Any holdings of a particular company or security discussed herein are under periodic review by the author and are subject to change at any time, without notice.

This report may include estimates, projections and other "forward-looking statements." Due to numerous factors, actual events may differ substantially from those presented.

This presentation is not to be used or considered as an offer to sell, or a solicitation to an offer to buy, any security. Nothing contained herein should be considered a recommendation or advice to purchase or sell any security. Wilshire, its officers, directors, employees or clients may have positions in securities or investments mentioned in this publication, which positions may change at any time, without notice.

Wilshire® is a registered service mark of Wilshire Associates Incorporated, Santa Monica, California. All other trade names, trademarks, and/or service marks are the property of their respective holders.

Copyright © 2011 Wilshire Associates Incorporated. All rights reserved.