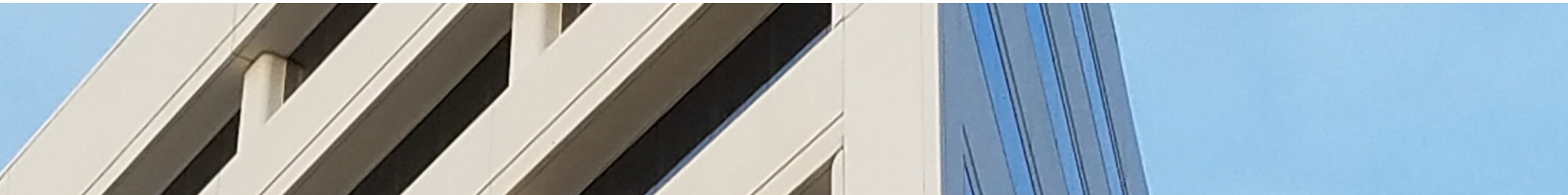




WILSHIRE ASSOCIATES

Wilshire Consulting



The City of Grand Rapids – Police and Fire

Executive Summary of Investment Performance

June 30, 2018

Wilshire Consulting
Contents

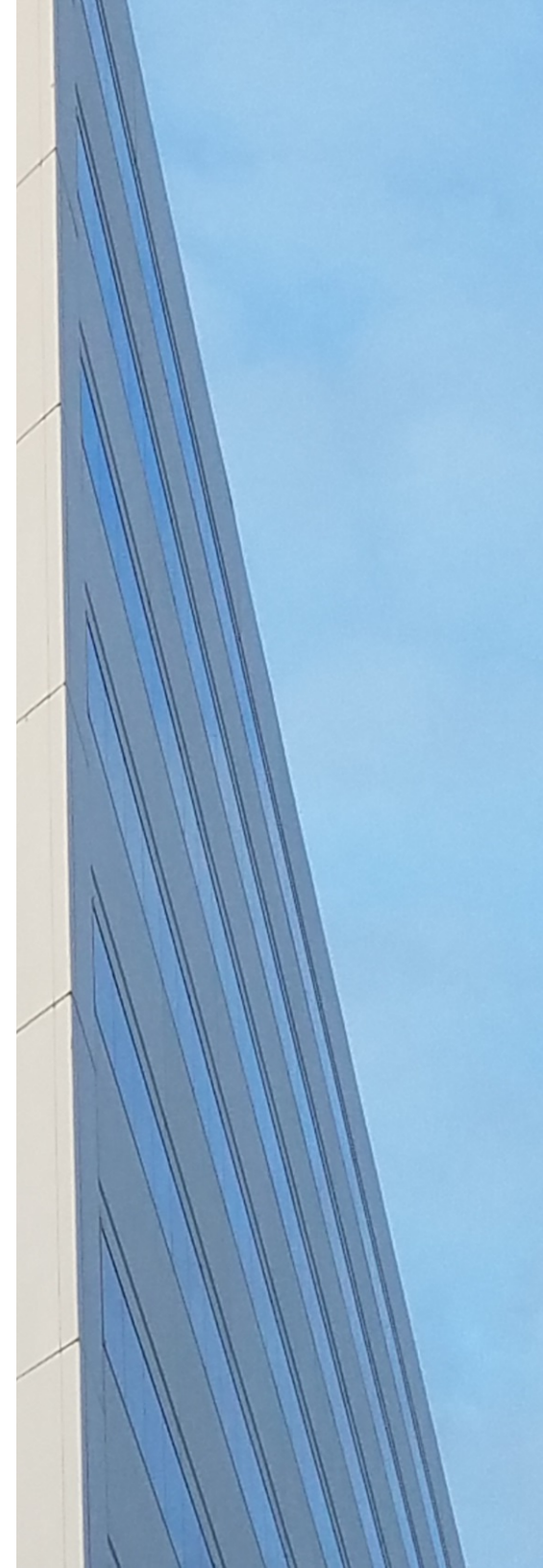
Investment Performance

Tab 1

Capital Market Review

Tab 2

Appendix





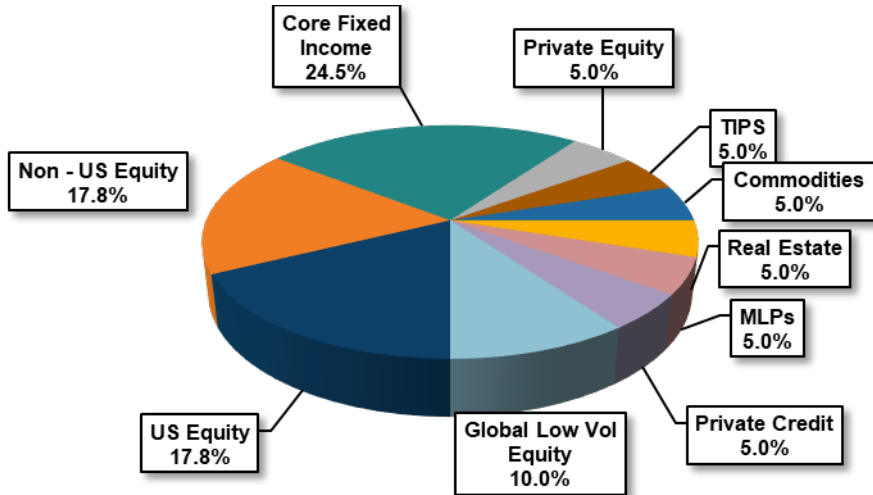
TOTAL FUND

Policy Allocation vs Actual Allocation

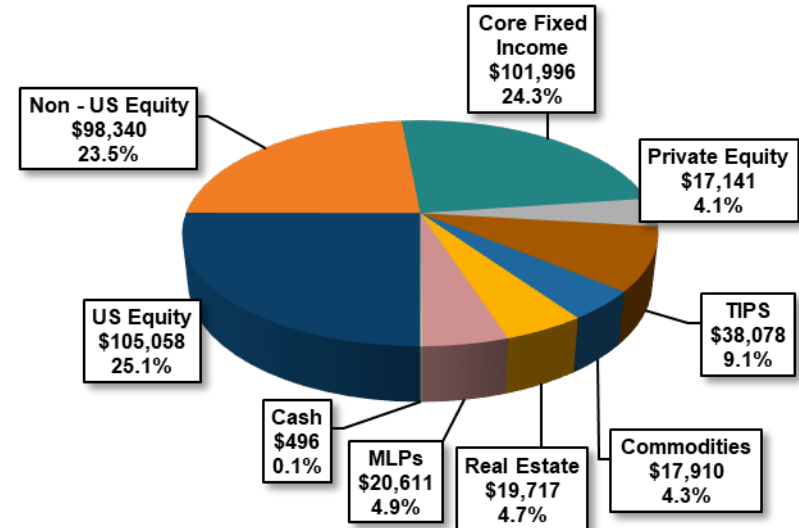
Total Fund Composite

As of June 30, 2018

Policy Allocation



Actual Allocation (in \$'000)



Total Assets: \$419,346,557

Policy Allocation vs Actual Allocation

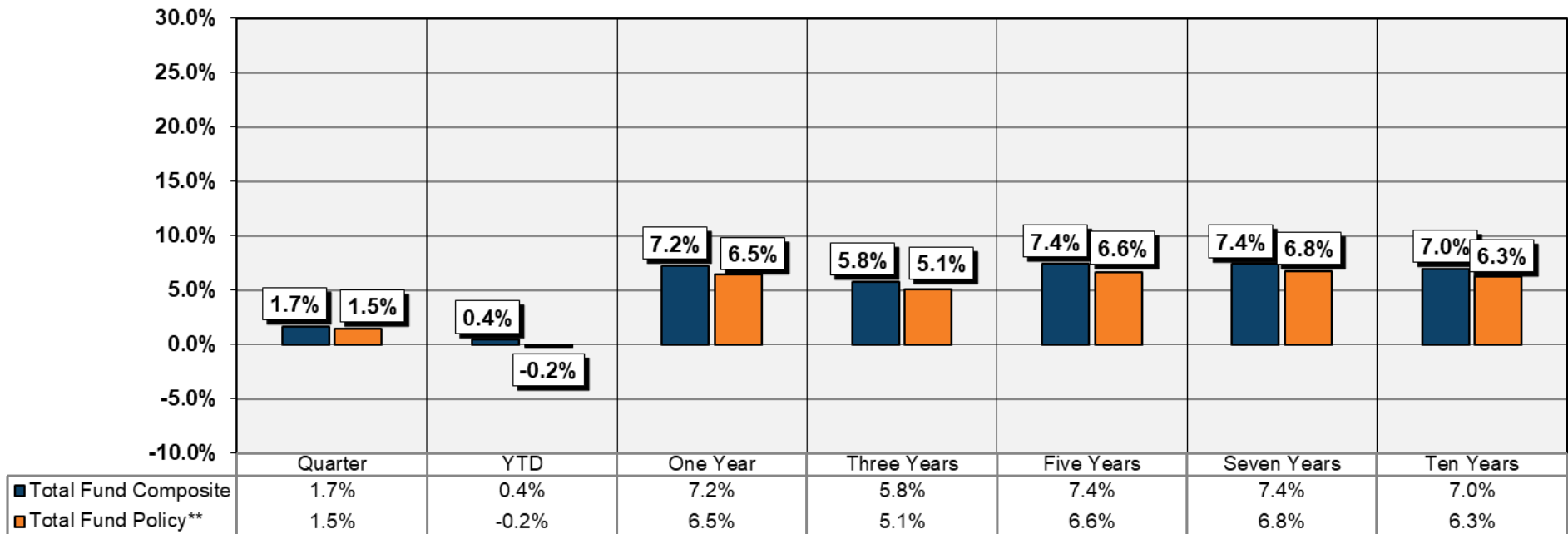
Total Fund Composite

As of June 30, 2018

	Market Value (in \$'000)	Asset Allocation	
		Actual	Policy
US Equity	\$105,058	25.05%	17.75%
Non - US Equity	\$98,340	23.45%	17.75%
Global Low Volatility Equity	\$0	0.00%	10.00%
Core Fixed Income	\$101,996	24.32%	24.50%
Private Equity	\$17,141	4.09%	5.00%
Private Credit	\$0	0.00%	5.00%
TIPS	\$38,078	9.08%	5.00%
Commodities	\$17,910	4.27%	5.00%
Real Estate	\$19,717	4.70%	5.00%
MLPs	\$20,611	4.92%	5.00%
Cash	\$496	0.12%	0.00%
Total Fund Composite	\$419,347	100.00%	100.00%

Investment Performance Total Fund Composite*

As of June 30, 2018



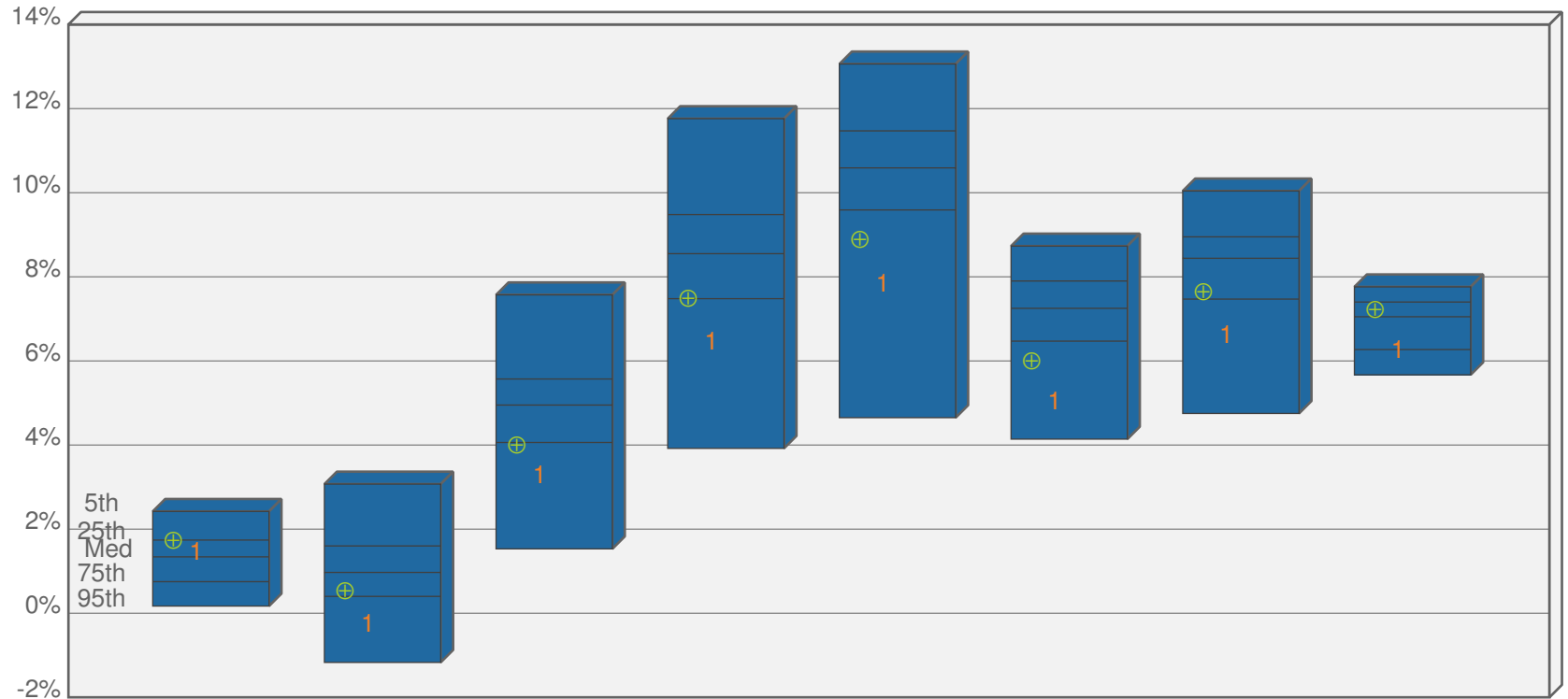
*Returns are net of fees.

**Policy index = Wilshire 5000 (22.50%), MSCI ACWI ex U.S. (22.50%), Bloomberg Barclays Aggregate (25.00%), Bloomberg Barclays TIPS (10.00%), FTSE EPRA NAREIT Dev RE (5.00%), Wilshire 5000 +2.5% (5.00%), Bloomberg Commodity Index (5.00%), S&P MLP Index (5.00%)

PERFORMANCE COMPARISON

Total Fund Composite

Periods Ended June 30, 2018



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊕ Total Fund	1.74 (25)	0.55 (67)	4.01 (75)	7.50 (74)	8.89 (81)	6.02 (81)	7.66 (70)	7.24 (35)
1 Policy Index	1.47 (45)	-0.23 (87)	3.30 (84)	6.47 (85)	7.86 (85)	5.06 (89)	6.64 (87)	6.27 (75)
5th %tile	2.42	3.07	7.57	11.76	13.06	8.73	10.04	7.76
25th %tile	1.74	1.60	5.57	9.48	11.47	7.90	8.95	7.40
Median	1.34	0.97	4.95	8.55	10.59	7.25	8.44	7.05
75th %tile	0.75	0.40	4.06	7.48	9.59	6.47	7.47	6.27
95th %tile	0.17	-1.17	1.53	3.92	4.65	4.14	4.75	5.67
Number of Funds	127	127	127	125	125	125	124	107

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2018

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
U.S. Equity Composite									
Net of Fee Return	4.16	3.27	14.77	12.02	13.72	13.41	10.74	9/30/87	9.68
DJ Wilshire 5000	3.83	3.04	14.66	11.85	13.36	13.03	10.23	9/30/87	9.63
Value Added	0.33	0.23	0.11	0.17	0.35	0.38	0.51	9/30/87	0.05
Core Fixed Composite									
Net of Fee Return	-0.70	-1.98	-0.28	2.68	3.25	3.74	5.21	9/30/87	6.74
Bloomberg Aggregate	-0.16	-1.62	-0.40	1.72	2.27	2.57	3.72	9/30/87	6.34
Value Added	-0.54	-0.37	0.12	0.96	0.98	1.17	1.49	9/30/87	0.40
Non-U.S. Equity Composite									
Net of Fee Return	-0.69	-1.17	8.89	6.54	7.70	5.47	3.68	12/31/89	8.23
Policy Benchmark	-2.61	-3.77	7.28	5.07	5.99	3.81	2.54	12/31/89	4.62
Value Added	1.92	2.60	1.61	1.47	1.70	1.66	1.14	12/31/89	3.62
Real Estate Composite									
Net of Fee Return	3.10	-1.92	4.35	3.80	4.74	5.07		6/30/09	9.60
FTSE EPRA/NAREIT Dev (N)	5.12	0.36	5.64	5.71	5.97	6.38		6/30/09	10.90
Value Added	-2.02	-2.28	-1.30	-1.91	-1.23	-1.30		6/30/09	-1.30
Commodities Composite									
Net of Fee Return	1.30	0.45	13.76	-1.52	-4.29			3/31/13	-6.26
Bloomberg Commodity Index	0.40	-0.00	7.35	-4.54	-6.40			3/31/13	-7.87
Value Added	0.90	0.45	6.42	3.01	2.11			3/31/13	1.60
MLP Composite									
Net of Fee Return	13.57	2.67	-0.24	-5.79				3/31/15	-6.14
S&P MLP Index	13.15	1.01	-1.76	-6.32				3/31/15	-7.37
Value Added	0.42	1.66	1.52	0.53				3/31/15	1.23

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2018

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
TIPS Composite									
Net of Fee Return	0.57	-0.24	1.80	1.85				6/30/15	1.85
Barclays U.S. TIPS	0.77	-0.02	2.11	1.93				6/30/15	1.93
Value Added	-0.20	-0.22	-0.31	-0.07				6/30/15	-0.07
Total Real Assets Composite									
Net of Fee Return	3.77	0.14	3.81	0.38				3/31/15	-0.40
Policy Index	4.04	0.46	3.27	0.12				3/31/15	-0.48
Value Added	-0.27	-0.31	0.53	0.26				3/31/15	0.08
Alternative Investments Composite									
Net of Fee Return	4.94	10.12	18.76	13.70	12.26	9.29		6/30/10	8.79
Wilshire 5000 +2.5%	4.45	4.28	17.16	14.35	15.86	15.53		6/30/10	17.74
Value Added	0.50	5.84	1.60	-0.65	-3.60	-6.24		6/30/10	-8.95
Total Fund									
Net of Fee Return	1.68	0.42	7.23	5.76	7.40	7.39	6.95	9/30/87	8.22
Policy Index	1.47	-0.23	6.47	5.06	6.64	6.78	6.27	9/30/87	8.21
Value Added	0.21	0.65	0.76	0.69	0.76	0.60	0.67	9/30/87	0.01

CUSTOM BENCHMARK SPECIFICATION

Total Fund

June 30, 2018

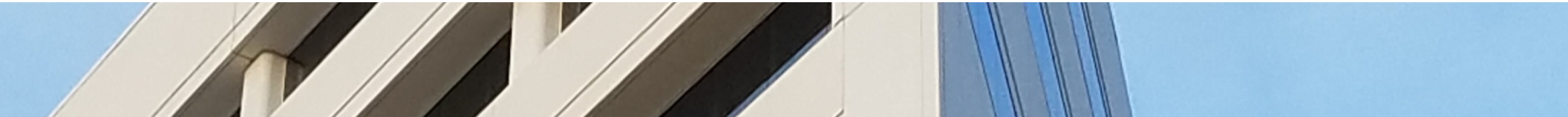
	Quarter Start	Quarter End	Percent	Description
Policy Index	12/79	6/98	55.00	Wilshire 5000
			40.00	Bloomberg Aggregate
			5.00	MSCI EAFE Index (N)
	9/98	9/02	50.00	Wilshire 5000
			40.00	Bloomberg Aggregate
			10.00	MSCI EAFE Index (N)
	12/02	3/06	50.00	Wilshire 5000
			35.00	Bloomberg Aggregate
			15.00	MSCI EAFE Index (N)
	6/06	6/06	55.00	Wilshire 5000
30.00			Bloomberg Aggregate	
15.00			MSCI EAFE Index (N)	
9/06	6/09	55.00	Wilshire 5000	
		30.00	Bloomberg Aggregate	
		15.00	MSCI ACWI ex US (N)	
9/09	3/10	5.00	FTSE EPRA/NAREIT Dev (N)	
		15.00	MSCI ACWI ex US (N)	
		30.00	Bloomberg Aggregate	
		50.00	Wilshire 5000	
6/10	12/12	5.00	FTSE EPRA/NAREIT Dev (N)	
		5.00	Wilshire 5000 + 2.5%	
		30.00	Bloomberg Aggregate	
		15.00	MSCI ACWI ex US (N)	
		45.00	Wilshire 5000	
3/13	3/15	5.00	FTSE EPRA/NAREIT Dev (N)	
		40.00	Wilshire 5000	
		15.00	MSCI ACWI ex US (N)	
		30.00	Bloomberg Aggregate	
		5.00	Wilshire 5000 + 2.5%	

CUSTOM BENCHMARK SPECIFICATION

Total Fund

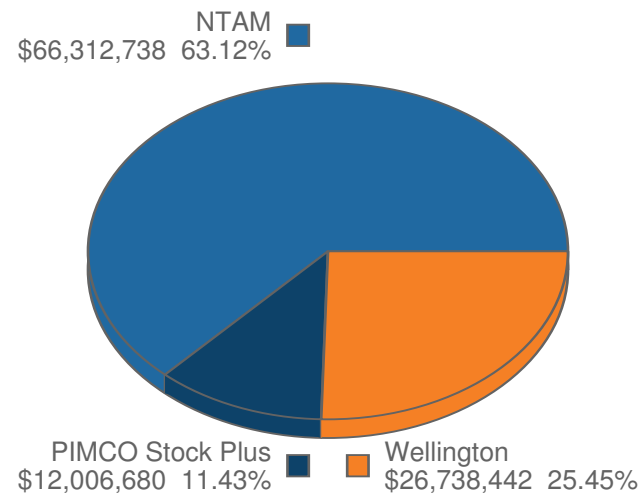
June 30, 2018

	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)			5.00	Bloomberg Commodity Index
	6/15	6/18	22.50	Wilshire 5000
			5.00	Wilshire 5000 + 2.5%
			22.50	MSCI ACWI ex US (N)
			25.00	Bloomberg Aggregate
			5.00	FTSE EPRA/NAREIT Dev (N)
			5.00	Bloomberg Commodity Index
			10.00	Bloomberg U.S. TIPS
		5.00	S&P MLP Index	



U.S. EQUITY

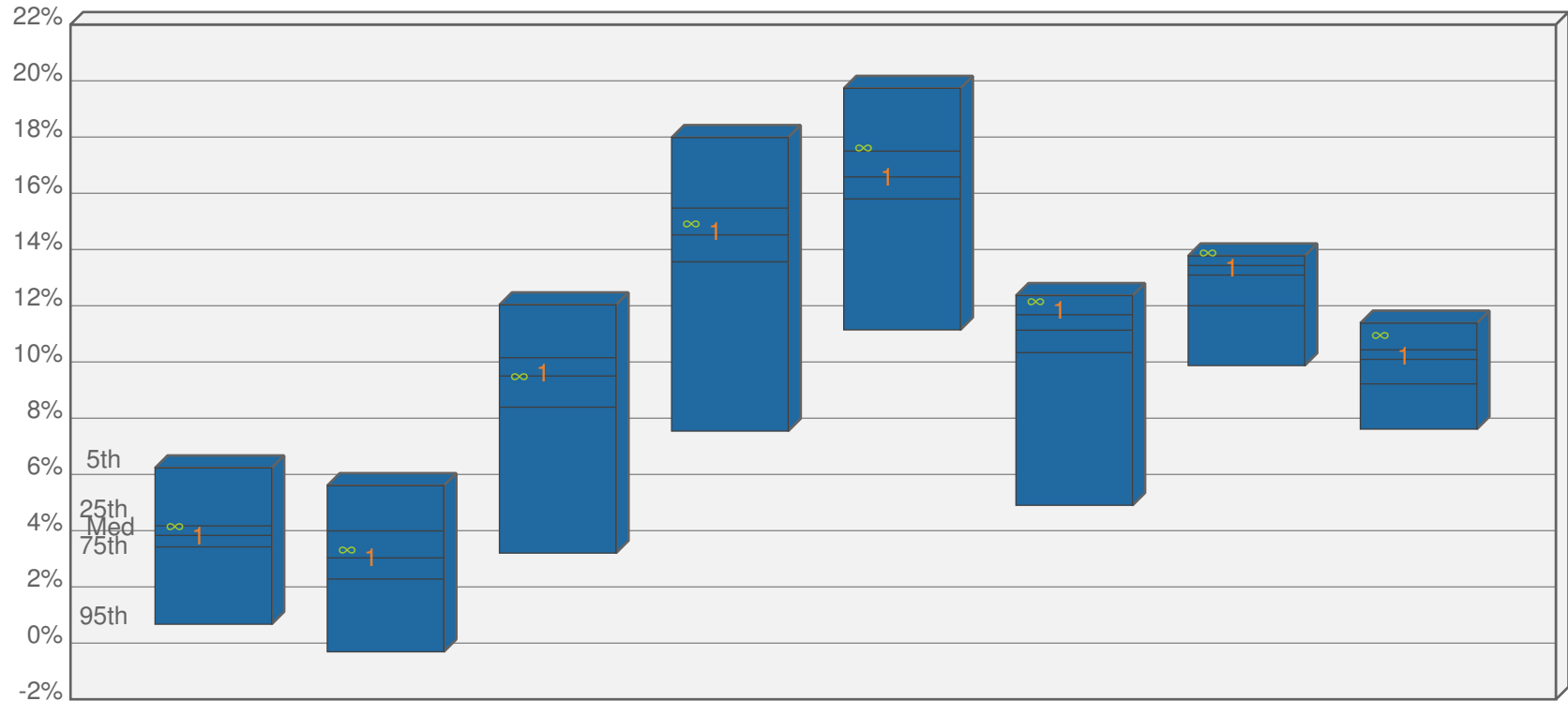
Wilshire Consulting
MANAGER ALLOCATION
U.S. Equity Composite
As of June 30, 2018



PERFORMANCE COMPARISON

U.S. Equity Composite

Periods Ended June 30, 2018



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
∞ U.S. Equity Composite	4.21 (22)	3.37 (35)	9.55 (47)	14.98 (35)	17.70 (20)	12.23 (5)	13.95 (3)	11.02 (9)
1 DJ Wilshire 5000	3.83 (50)	3.04 (47)	9.63 (44)	14.66 (44)	16.59 (48)	11.85 (16)	13.36 (31)	10.23 (40)
5th %tile	6.23	5.60	12.03	17.98	19.73	12.36	13.77	11.38
25th %tile	4.17	3.99	10.15	15.47	17.50	11.68	13.43	10.43
Median	3.83	3.03	9.50	14.52	16.58	11.13	13.09	10.09
75th %tile	3.42	2.28	8.39	13.56	15.80	10.33	12.00	9.22
95th %tile	0.67	-0.31	3.20	7.54	11.14	4.90	9.87	7.61
Number of Funds	95	93	90	87	84	78	74	63

*TUCS Total Ret of US Equity Investment Pools Universe - Gross of Fees Police & Fire

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2018

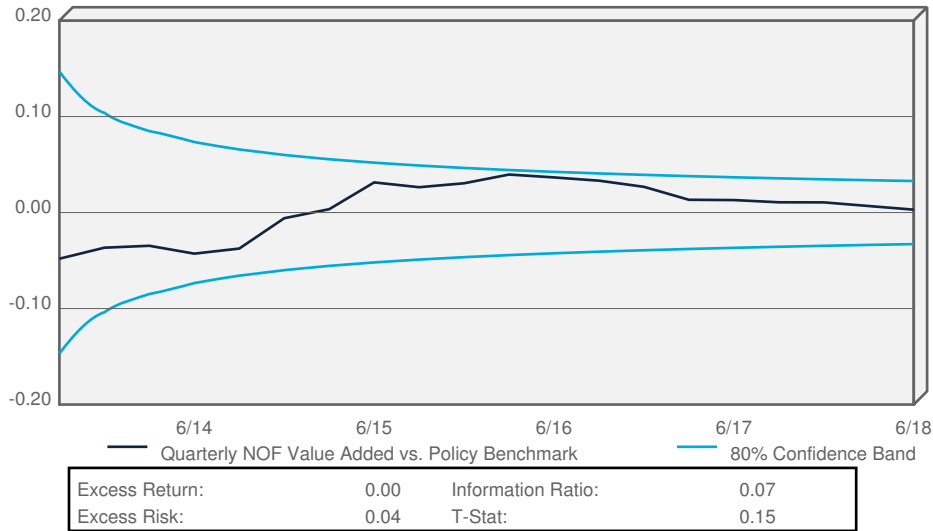
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
NTAM									
Net of Fee Return	3.42	2.62	14.34	11.91	13.43	13.25	10.11	9/30/98	7.35
Policy Benchmark	3.44	2.65	14.38	11.93	13.42	13.24	10.17	9/30/98	7.35
Value Added	-0.02	-0.03	-0.04	-0.02	0.00	0.01	-0.06	9/30/98	0.00
PIMCO Stock Plus									
Net of Fee Return	3.33	2.26	14.38	11.78	13.57	13.99	11.07	9/30/00	6.27
Standard & Poor's 500	3.44	2.65	14.38	11.93	13.42	13.24	10.17	9/30/00	5.72
Value Added	-0.11	-0.40	0.01	-0.15	0.15	0.75	0.91	9/30/00	0.55
Wellington									
Net of Fee Return	6.62	5.57	16.26	12.45	14.63	14.07	13.08	9/30/99	11.88
Russell 2000	7.75	7.66	17.57	10.96	12.46	11.83	10.60	9/30/99	8.88
Value Added	-1.13	-2.09	-1.31	1.49	2.17	2.23	2.48	9/30/99	2.99
U.S. Equity Composite									
Net of Fee Return	4.16	3.27	14.77	12.02	13.72	13.41	10.74	9/30/87	9.68
DJ Wilshire 5000	3.83	3.04	14.66	11.85	13.36	13.03	10.23	9/30/87	9.63
Value Added	0.33	0.23	0.11	0.17	0.35	0.38	0.51	9/30/87	0.05

INVESTMENT MANAGER ANALYSIS

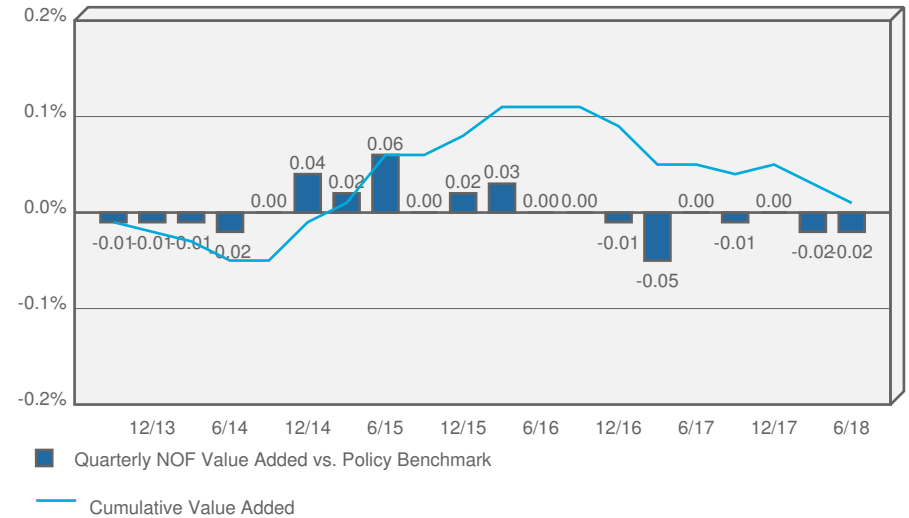
NTAM

June 30, 2018

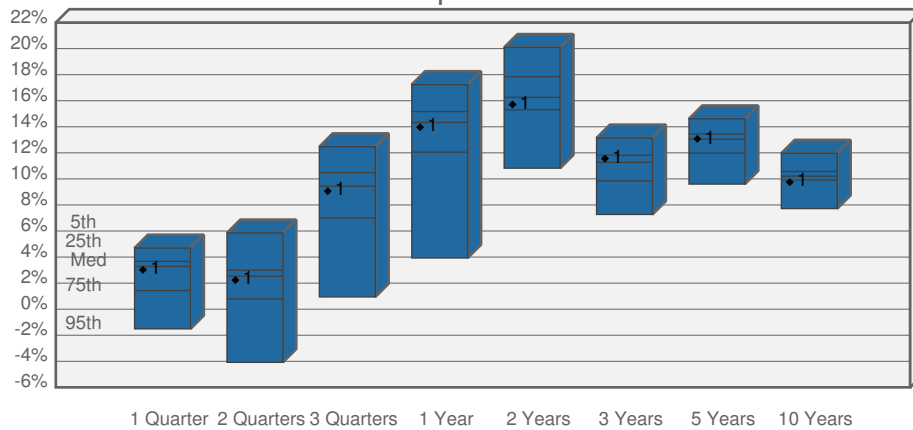
Cumulative Skill Analysis vs Benchmark



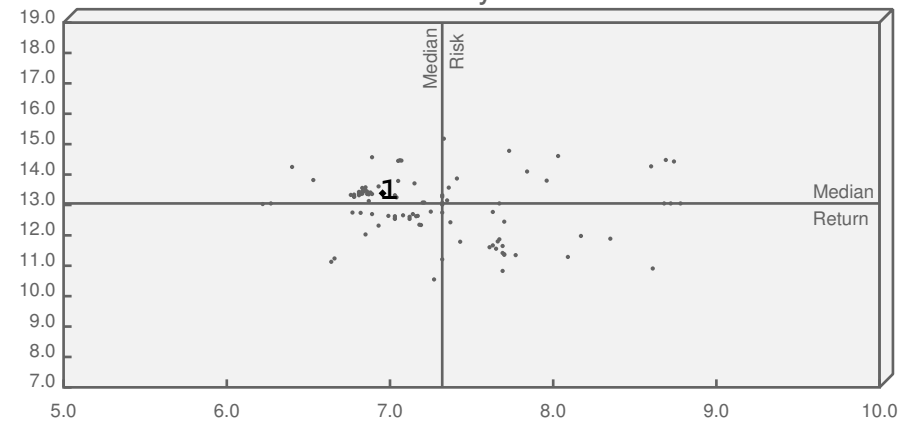
Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe*



Five Year Risk/Return Analysis vs Peer Universe*



◆ NTAM	3.43 (44)	2.64 (43)	9.47 (48)	14.38 (47)	16.12 (58)	11.97 (17)	13.48 (24)	10.16 (62)
■ Policy Benchmark	3.44 (40)	2.65 (40)	9.47 (48)	14.38 (47)	16.12 (58)	11.93 (19)	13.42 (28)	10.17 (60)
Median	3.28	2.53	9.44	14.33	16.26	11.27	13.05	10.21
Number of Funds	117	117	116	115	114	114	101	64

Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
NTAM	◆	13.48	24	7.02	72
Policy Benchmark	■	13.42	28	7.03	72
Median		13.05		7.32	

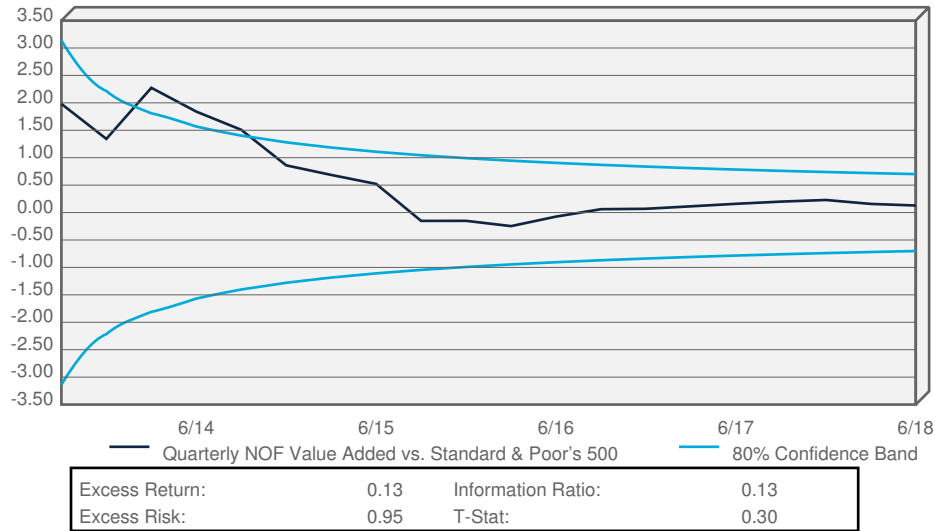
*TUCS Total Returns of Large Neutral Equity Portfolios Universe - Gross of Fees & Fire

INVESTMENT MANAGER ANALYSIS

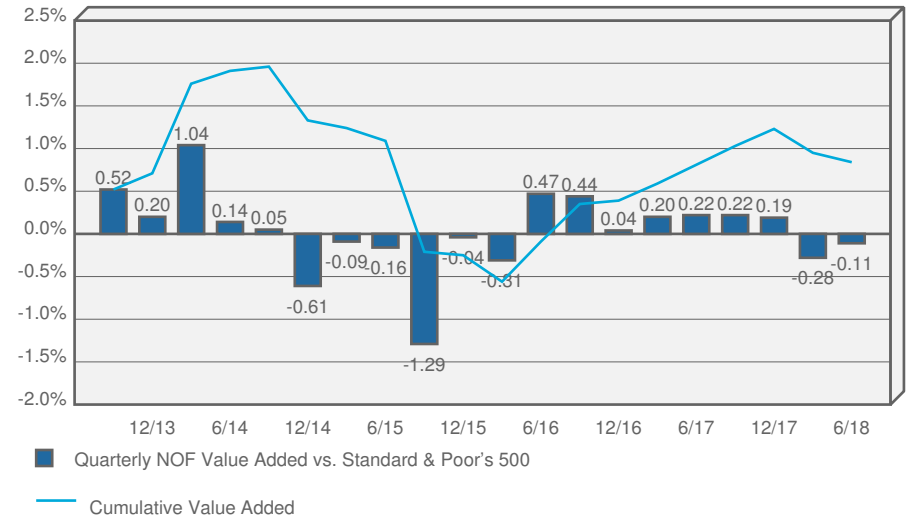
PIMCO Stock Plus

June 30, 2018

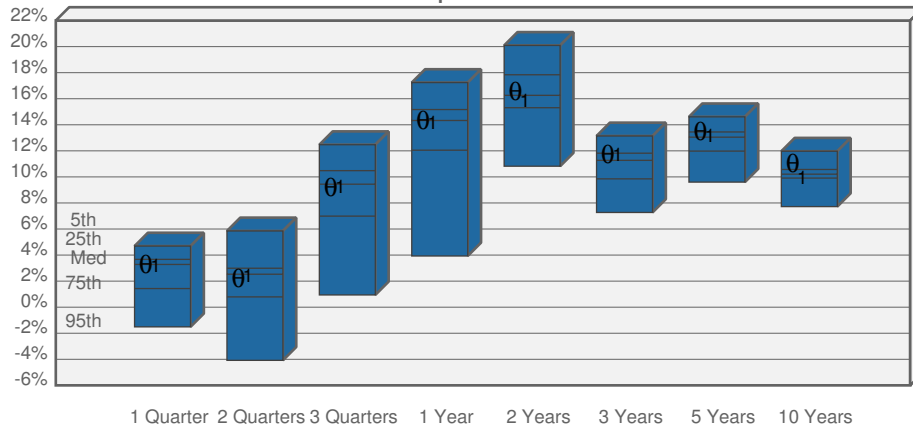
Cumulative Skill Analysis vs Benchmark



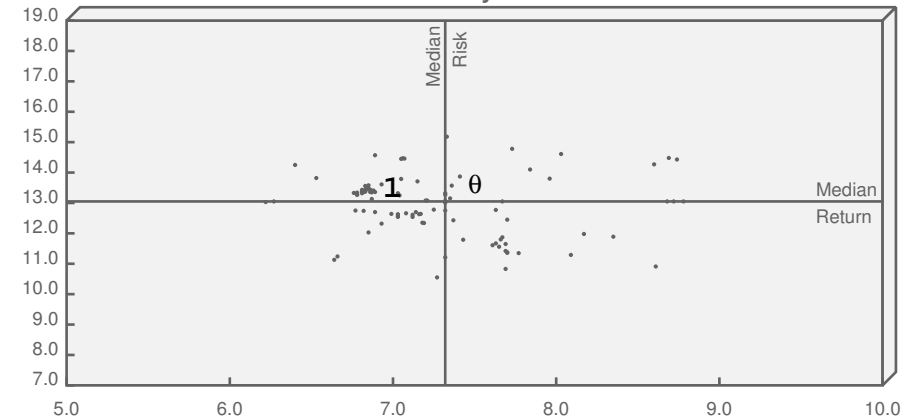
Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe*



Five Year Risk/Return Analysis vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
θ PIMCO Stock Plus	3.33 (49)	2.26 (57)	9.25 (58)	14.38 (47)	16.63 (39)	11.78 (27)	13.57 (22)	11.07 (12)
1 Standard & Poor	3.44 (40)	2.65 (40)	9.47 (48)	14.38 (47)	16.12 (58)	11.93 (19)	13.42 (28)	10.17 (60)
Median	3.28	2.53	9.44	14.33	16.26	11.27	13.05	10.21
Number of Funds	117	117	116	115	114	114	101	64

Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
PIMCO Stock Plus	θ	13.57	22	7.55	41
Standard & Poor's 500	1	13.42	28	7.03	72
Median		13.05		7.32	

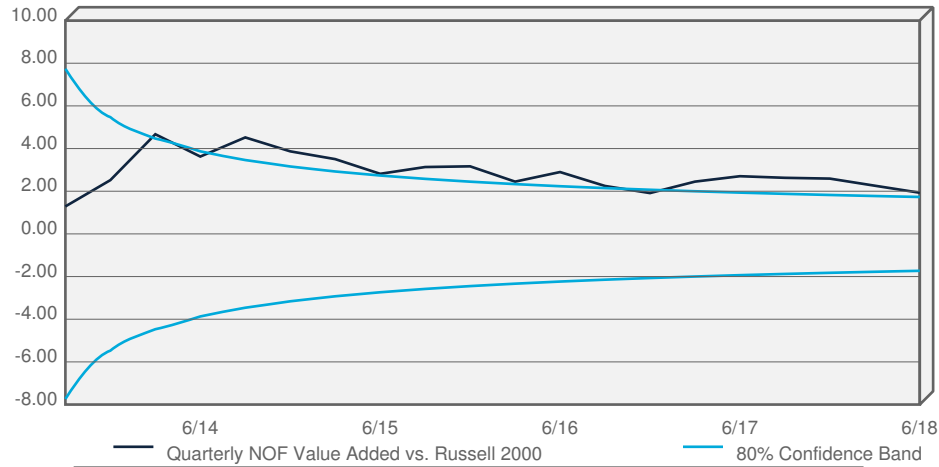
*TUCS Total Returns of Large Neutral Equity Portfolios Universe - Gross of Fees & Fire

INVESTMENT MANAGER ANALYSIS

Wellington

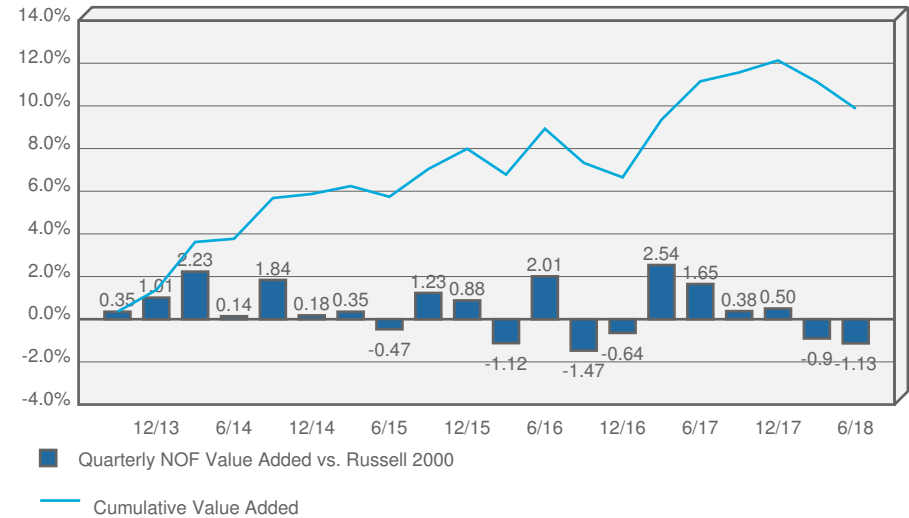
June 30, 2018

Cumulative Skill Analysis vs Benchmark

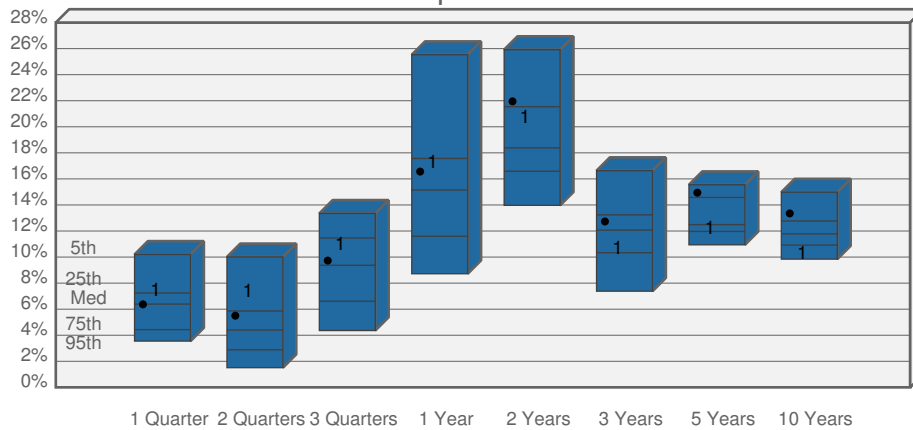


Excess Return:	1.93	Information Ratio:	0.82
Excess Risk:	2.35	T-Stat:	1.83

Value-Added Analysis vs Benchmark

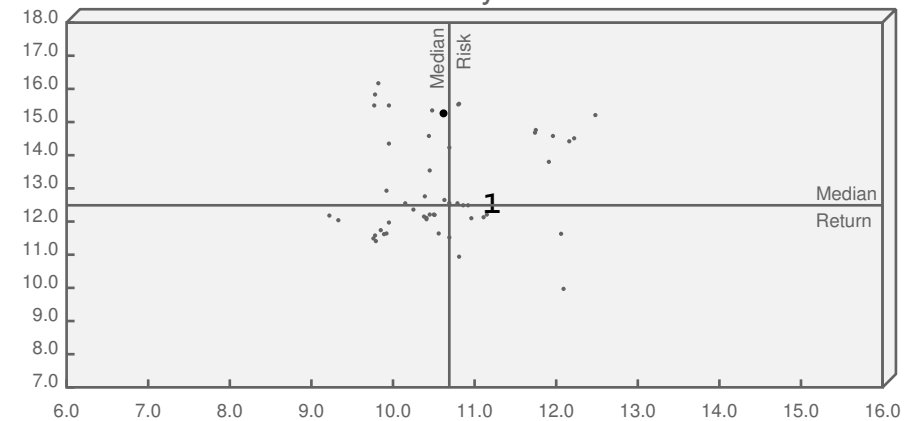


Performance Comparison vs Peer Universe*



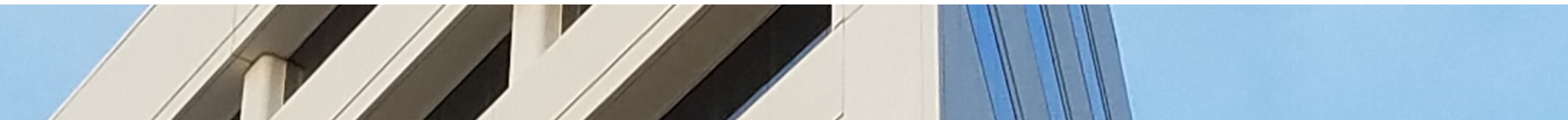
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
● Wellington	6.78 (44)	5.91 (23)	10.14 (37)	16.97 (28)	22.36 (19)	13.14 (26)	15.35 (13)	13.76 (15)
1 Russell 2000	7.75 (16)	7.66 (16)	11.26 (32)	17.57 (25)	21.03 (26)	10.96 (57)	12.46 (50)	10.60 (78)
Median	6.39	4.40	9.37	15.15	18.38	12.07	12.49	11.78
Number of Funds	58	57	57	57	57	57	52	30

Five Year Risk/Return Analysis vs Peer Universe*



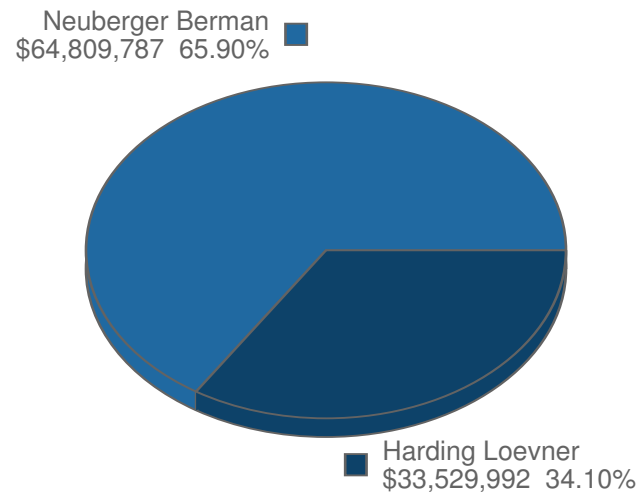
Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Wellington	●	15.35	13	10.75	45
Russell 2000	1	12.46	50	11.28	30
Median		12.49		10.69	

*TUCS Total Returns of Small Neutral Equity Portfolios Universe - Gross of Fees & Fire



NON-U.S. EQUITY

Wilshire Consulting
MANAGER ALLOCATION
Non-U.S. Equity Composite
As of June 30, 2018

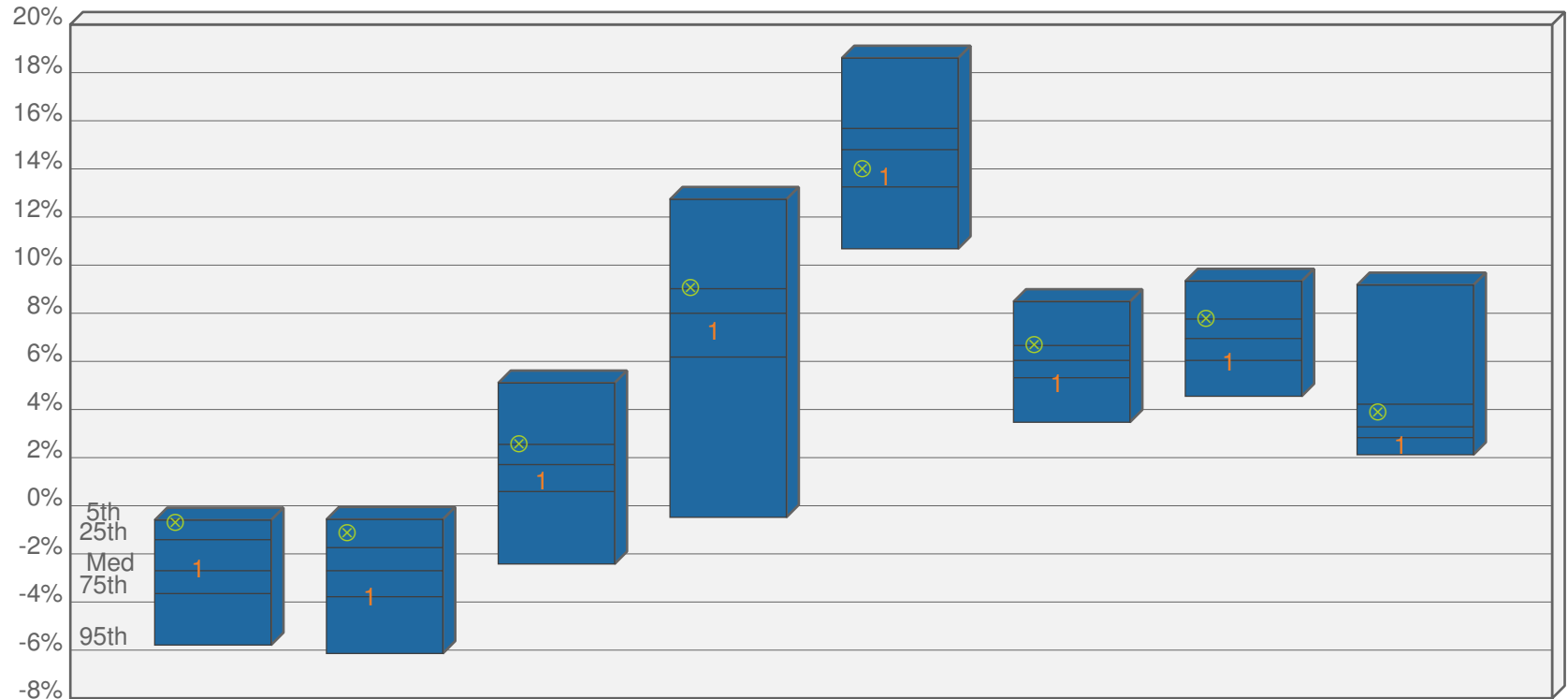


Wilshire Consulting

PERFORMANCE COMPARISON

Non-U.S. Equity Composite

Periods Ended June 30, 2018



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Non-U.S. Equity Composite	-0.65 (7)	-1.08 (15)	2.60 (23)	9.08 (23)	14.04 (60)	6.71 (23)	7.81 (19)	3.93 (30)
1 Policy Benchmark	-2.61 (48)	-3.77 (73)	1.05 (66)	7.28 (70)	13.67 (70)	5.07 (78)	5.99 (76)	2.54 (85)
5th %tile	-0.60	-0.57	5.10	12.73	18.60	8.48	9.33	9.17
25th %tile	-1.41	-1.74	2.55	9.02	15.68	6.66	7.76	4.22
Median	-2.70	-2.70	1.71	8.00	14.80	6.04	6.95	3.28
75th %tile	-3.65	-3.78	0.59	6.18	13.25	5.32	6.04	2.83
95th %tile	-5.79	-6.14	-2.42	-0.48	10.68	3.47	4.55	2.12
Number of Funds	66	64	63	62	61	60	56	41

*TUCS Total Ret of Non-US Equity Investment Pools Universe - Gross of Fees & Fire

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2018

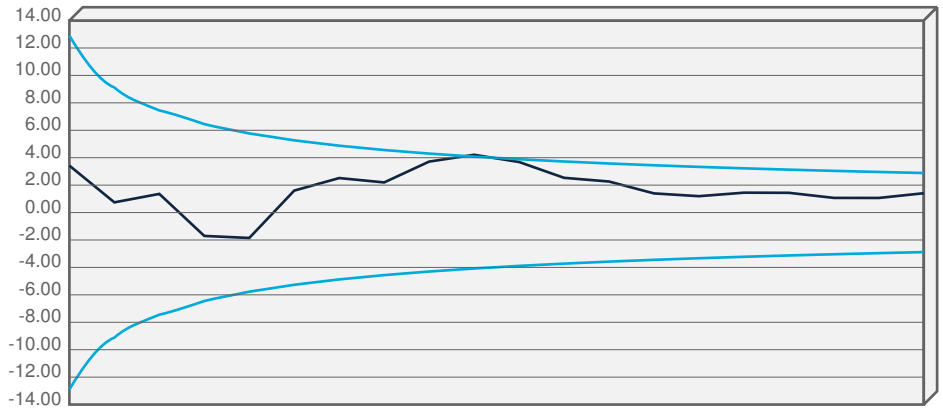
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Neuberger Berman									
Net of Fee Return	-0.68	-1.61	8.62	6.00	7.49	5.30	3.56	6/30/06	3.74
MSCI ACWI X US (N)	-2.61	-3.77	7.28	5.07	5.99	3.81	2.54	6/30/06	3.75
Value Added	1.94	2.15	1.34	0.93	1.49	1.49	1.02	6/30/06	-0.01
Harding Loevner									
Net of Fee Return	-0.70	-0.29	9.43	7.56				3/31/15	7.11
MSCI ACWI X US (N)	-2.61	-3.77	7.28	5.07				3/31/15	4.84
Value Added	1.91	3.48	2.16	2.49				3/31/15	2.27
Non-U.S. Equity Composite									
Net of Fee Return	-0.69	-1.17	8.89	6.54	7.70	5.47	3.68	12/31/89	8.23
Policy Benchmark	-2.61	-3.77	7.28	5.07	5.99	3.81	2.54	12/31/89	4.62
Value Added	1.92	2.60	1.61	1.47	1.70	1.66	1.14	12/31/89	3.62

INVESTMENT MANAGER ANALYSIS

Neuberger Berman

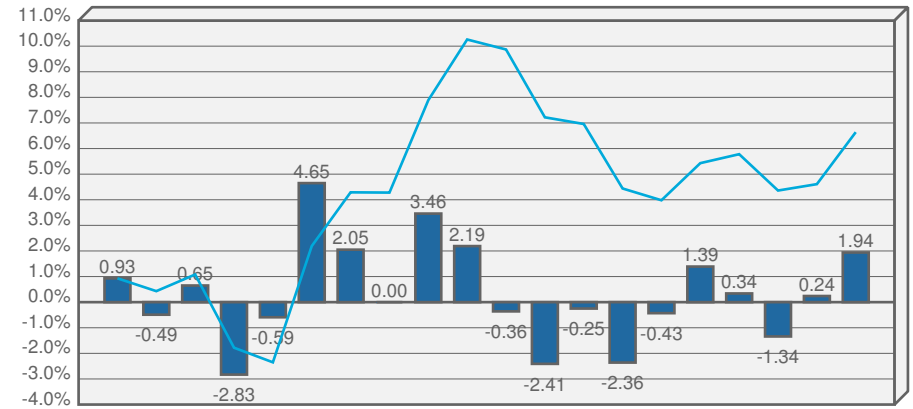
June 30, 2018

Cumulative Skill Analysis vs Benchmark



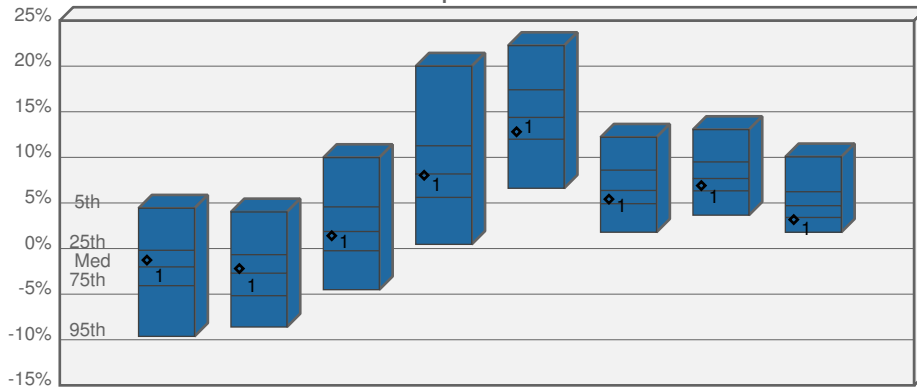
Excess Return:	1.41	Information Ratio:	0.36
Excess Risk:	3.92	T-Stat:	0.80

Value-Added Analysis vs Benchmark



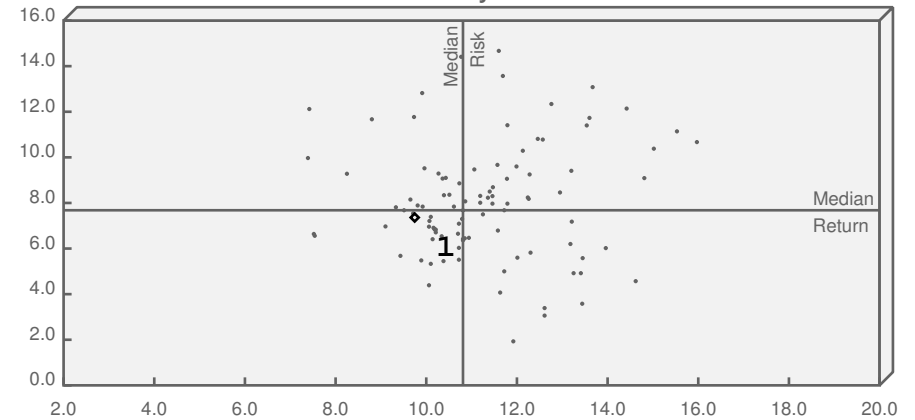
Quarterly NOF Value Added vs. MSCI ACWI X US (N)	0.93	-0.49	0.65	-2.83	-0.59	4.65	2.05	0.00	3.46	2.19	-0.36	-2.41	-2.36	1.39	0.34	-1.34	0.24	1.94	
Cumulative Value Added	[Line chart data]																		

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
◆ Neuberger Berm	-0.68 (30)	-1.61 (34)	1.99 (49)	8.62 (45)	13.39 (64)	6.00 (55)	7.49 (52)	3.76 (68)
1 MSCI ACWI X US	-2.61 (57)	-3.77 (64)	1.05 (59)	7.28 (61)	13.67 (60)	5.07 (73)	5.99 (78)	2.54 (90)
Median	-2.01	-2.70	1.87	8.18	14.38	6.37	7.68	4.70
Number of Funds	912	902	893	881	849	827	779	526

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Neuberger Berman	◆	7.49	52	9.98	75
MSCI ACWI X US (N)	1	5.99	78	10.55	56
Median		7.68		10.81	

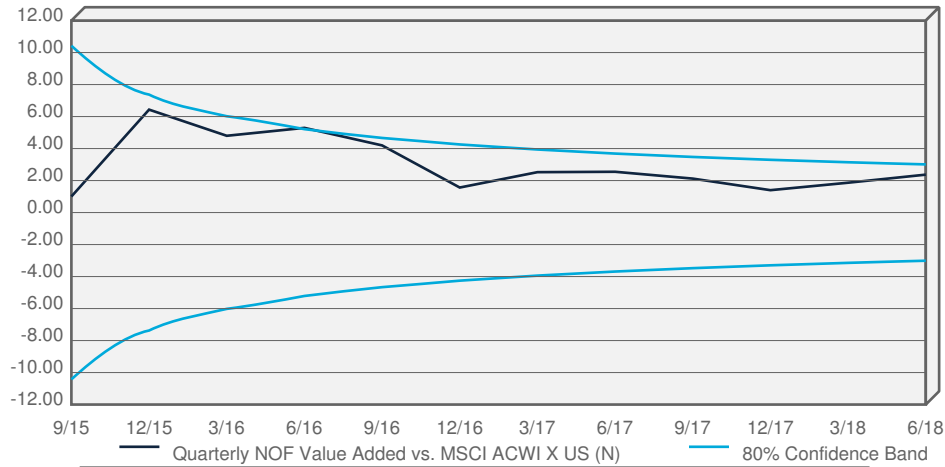
*TUCS Total Returns of International Equity Portfolios Universe - Gross of Fees & Fire

INVESTMENT MANAGER ANALYSIS

Harding Loevner

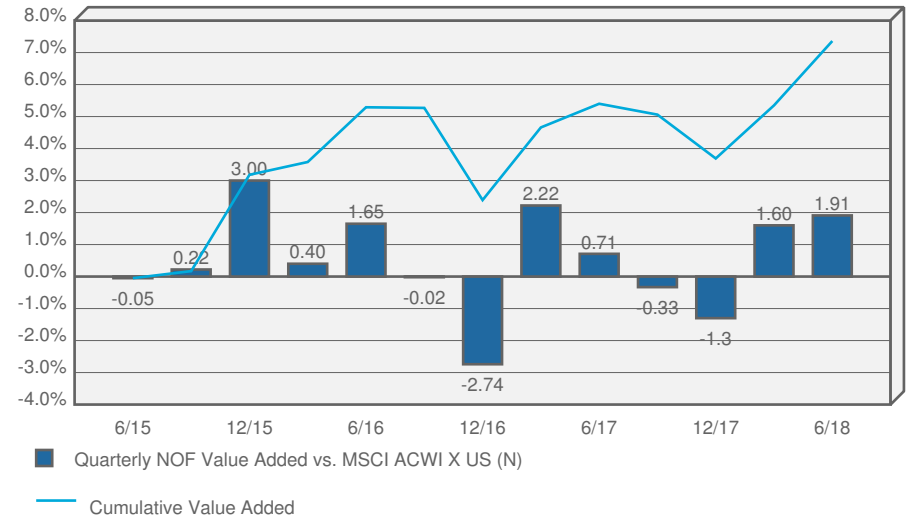
June 30, 2018

Cumulative Skill Analysis vs Benchmark

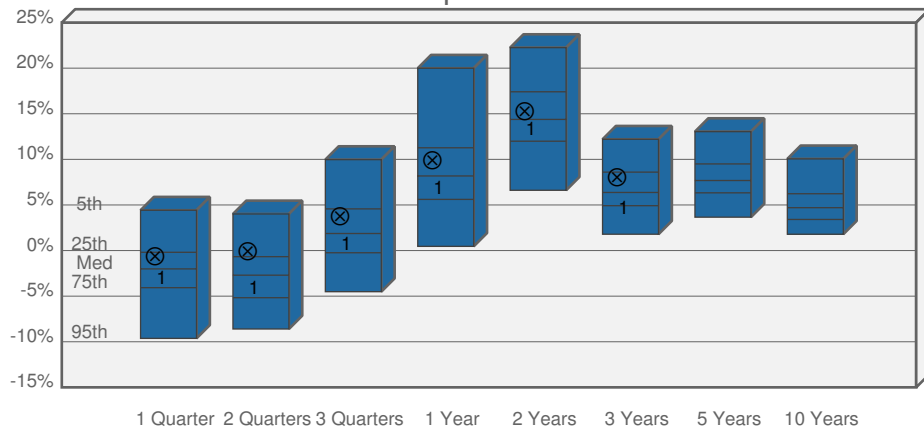


Excess Return:	2.37	Information Ratio:	0.75
Excess Risk:	3.17	T-Stat:	1.30

Value-Added Analysis vs Benchmark

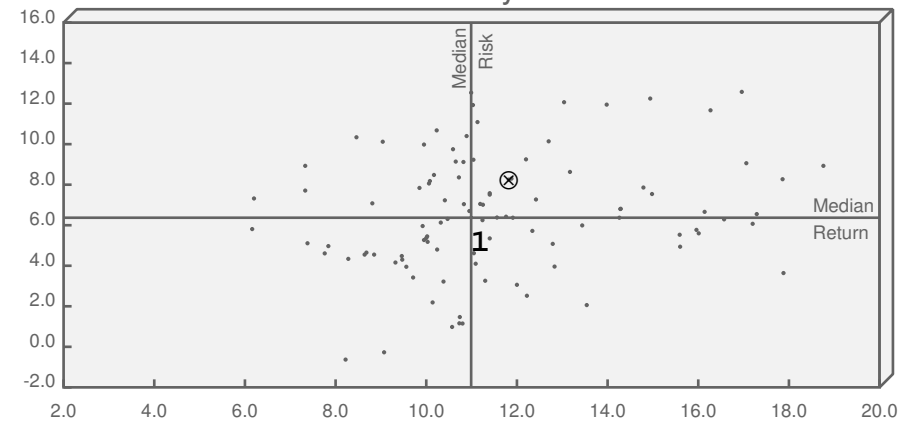


Performance Comparison vs Peer Universe*



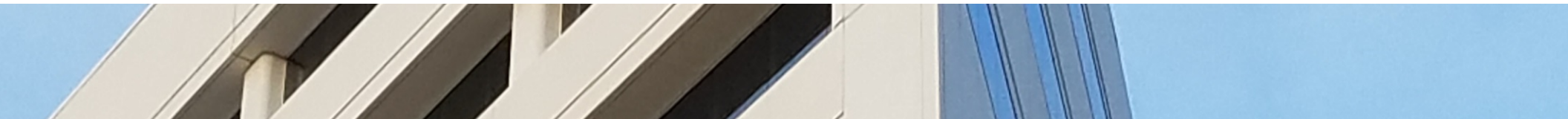
⊗ Harding Loevne	-0.57 (29)	-0.02 (20)	3.81 (30)	10.00 (33)	15.34 (43)	8.13 (28)			
1 MSCI ACWI X US	-2.61 (57)	-3.77 (64)	1.05 (59)	7.28 (61)	13.67 (60)	5.07 (73)			
Median	-2.01	-2.70	1.87	8.18	14.38	6.37	7.68	4.70	
Number of Funds	912	902	893	881	849	827	779	526	

Three Year Risk/Return Analysis vs Peer Universe*



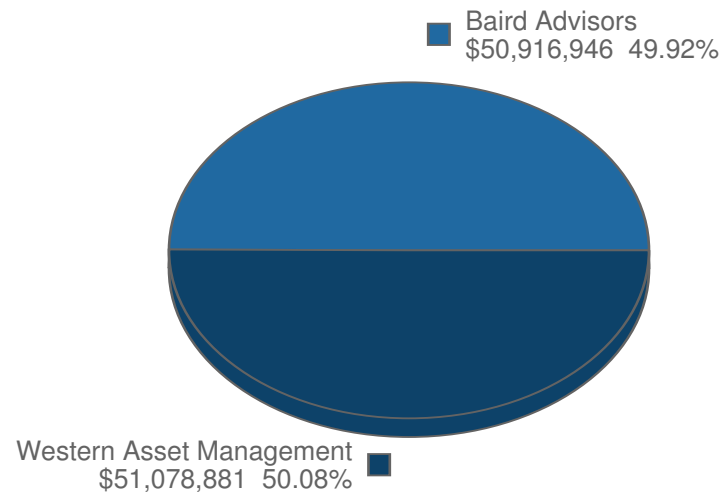
Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Harding Loevner	⊗	8.13	28	11.92	35
MSCI ACWI X US (N)	1	5.07	73	11.31	42
Median		6.37		10.99	

*TUCS Total Returns of International Equity Portfolios Universe - Gross of Fees & Fire



CORE FIXED INCOME

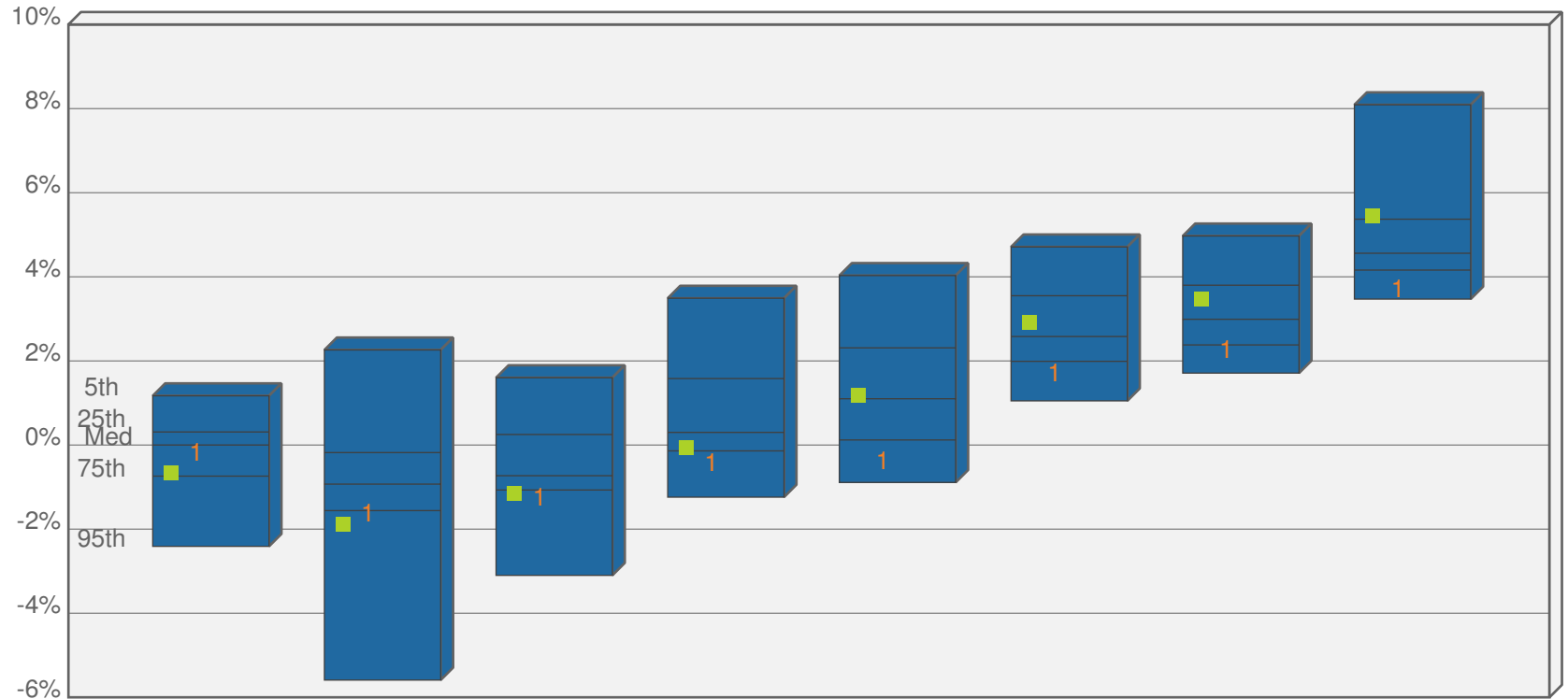
Wilshire Consulting
MANAGER ALLOCATION
Core Fixed Composite
As of June 30, 2018



PERFORMANCE COMPARISON

Core Fixed Composite

Periods Ended June 30, 2018



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ Core Fixed Composite	-0.64 (74)	-1.86 (81)	-1.13 (78)	-0.03 (61)	1.21 (46)	2.94 (42)	3.51 (33)	5.47 (19)
1 Bloomberg Aggreg	-0.16 (66)	-1.62 (78)	-1.23 (79)	-0.40 (84)	-0.36 (88)	1.72 (85)	2.27 (79)	3.72 (81)
5th %tile	1.17	2.26	1.60	3.49	4.03	4.71	4.97	8.09
25th %tile	0.31	-0.18	0.25	1.58	2.31	3.55	3.80	5.37
Median	-0.00	-0.93	-0.73	0.30	1.10	2.58	2.99	4.56
75th %tile	-0.74	-1.56	-1.07	-0.14	0.12	1.99	2.38	4.16
95th %tile	-2.41	-5.59	-3.10	-1.24	-0.89	1.05	1.71	3.47
Number of Funds	100	95	90	89	81	78	69	50

*TUCS Total Ret of Fixed Income Investment Pools Universe - Gross of Fees Police & Fire

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2018

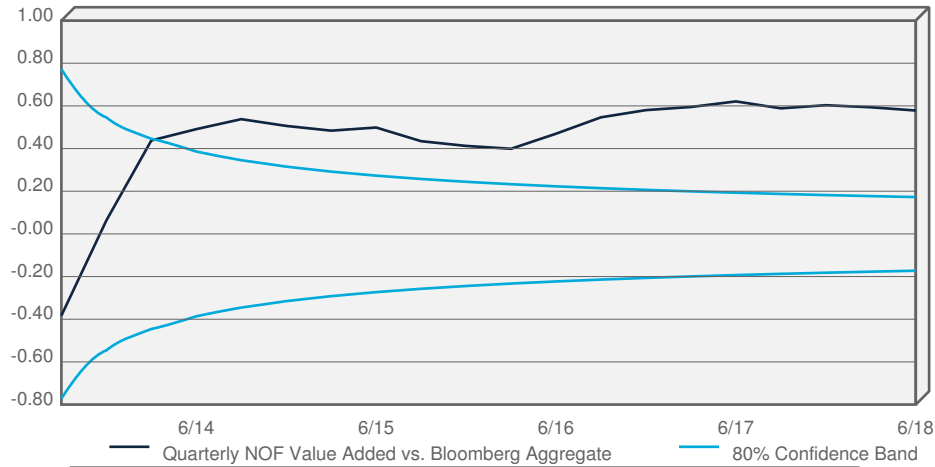
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Baird Advisors									
Net of Fee Return	-0.09	-1.44	0.01	2.36	2.86	3.34	4.36	3/31/03	4.25
Bloomberg Aggregate	-0.16	-1.62	-0.40	1.72	2.27	2.57	3.72	3/31/03	3.87
Value Added	0.07	0.17	0.41	0.64	0.59	0.78	0.64	3/31/03	0.38
Western Asset Management									
Net of Fee Return	-1.31	-2.52	-0.57	2.99	3.63	4.08	5.95	3/31/04	4.83
Bloomberg Aggregate	-0.16	-1.62	-0.40	1.72	2.27	2.57	3.72	3/31/04	3.76
Value Added	-1.15	-0.90	-0.17	1.27	1.36	1.51	2.23	3/31/04	1.06
Core Fixed Composite									
Net of Fee Return	-0.70	-1.98	-0.28	2.68	3.25	3.74	5.21	9/30/87	6.74
Bloomberg Aggregate	-0.16	-1.62	-0.40	1.72	2.27	2.57	3.72	9/30/87	6.34
Value Added	-0.54	-0.37	0.12	0.96	0.98	1.17	1.49	9/30/87	0.40

INVESTMENT MANAGER ANALYSIS

Baird Advisors

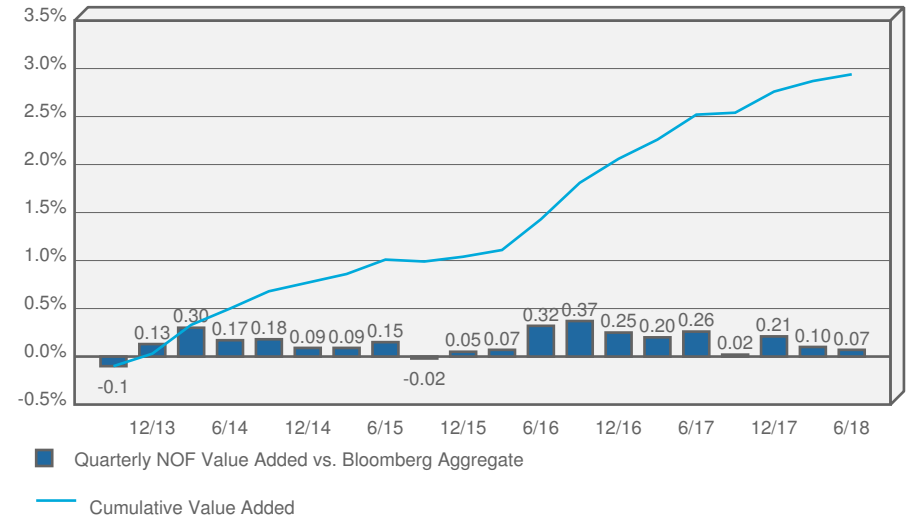
June 30, 2018

Cumulative Skill Analysis vs Benchmark

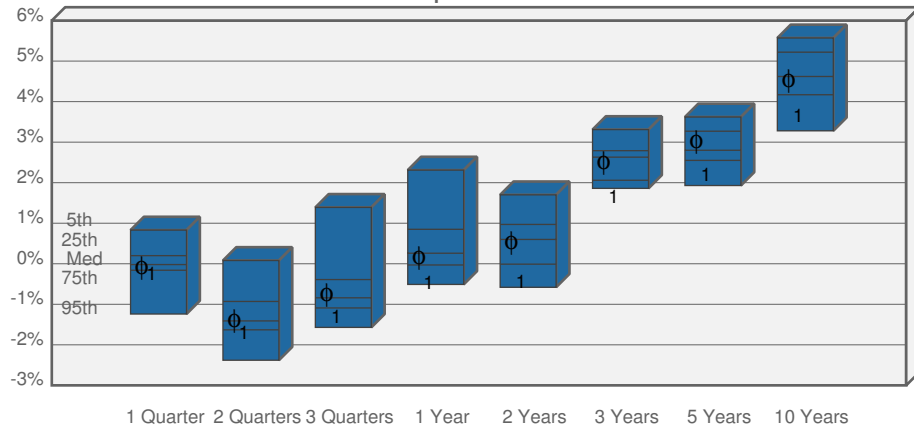


Excess Return:	0.58	Information Ratio:	2.46
Excess Risk:	0.23	T-Stat:	5.51

Value-Added Analysis vs Benchmark

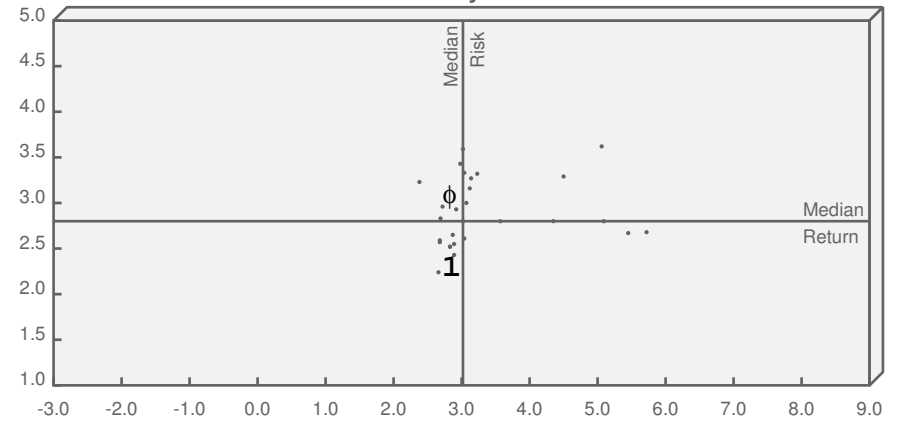


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
Φ Baird Advisors	-0.03 (52)	-1.34 (47)	-0.69 (36)	0.22 (50)	0.60 (50)	2.58 (50)	3.08 (32)	4.58 (54)
1 Bloomberg Aggr	-0.16 (75)	-1.62 (72)	-1.23 (87)	-0.40 (90)	-0.36 (87)	1.72 (99)	2.27 (87)	3.72 (88)
Median	-0.02	-1.41	-0.84	0.26	0.60	2.63	2.80	4.62
Number of Funds	37	36	35	34	34	34	29	19

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Baird Advisors	Φ	3.08	32	2.94	53
Bloomberg Aggregate	1	2.27	87	2.93	53
Median		2.80		3.02	

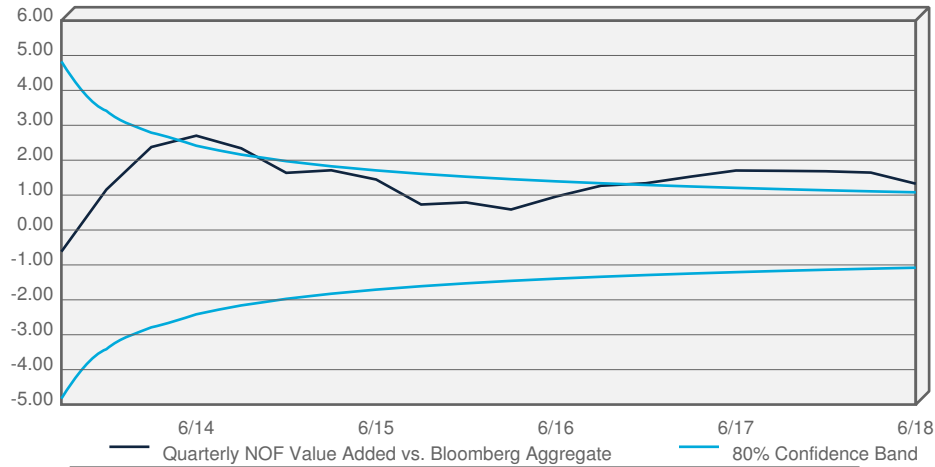
*TUCS Total Returns of Fixed Income Portfolios - Core Universe - Gross of Fees & Fire

INVESTMENT MANAGER ANALYSIS

Western Asset Management

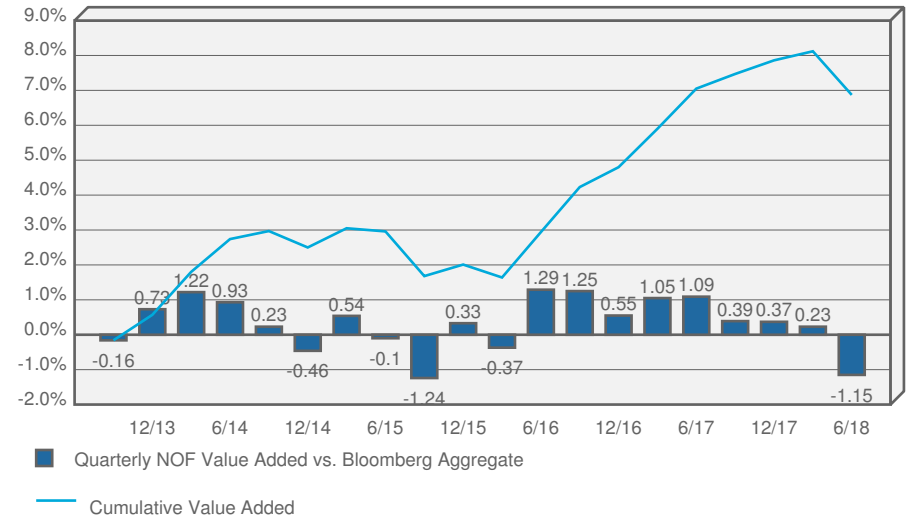
June 30, 2018

Cumulative Skill Analysis vs Benchmark

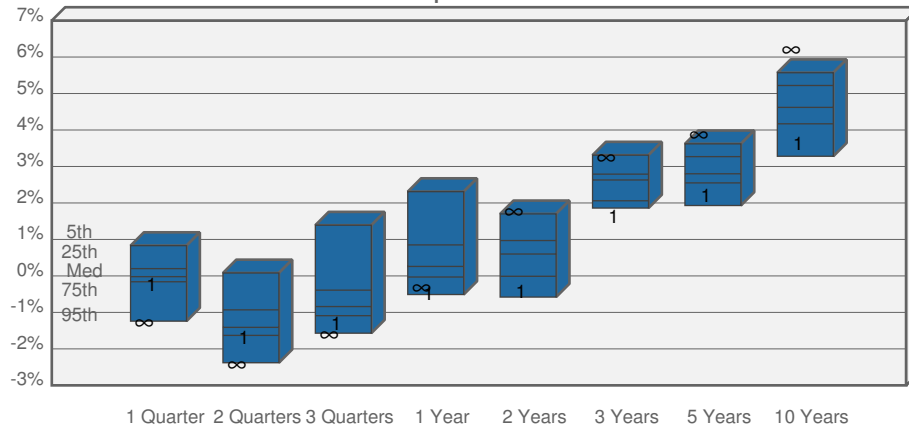


Excess Return:	1.33	Information Ratio:	0.90
Excess Risk:	1.47	T-Stat:	2.02

Value-Added Analysis vs Benchmark

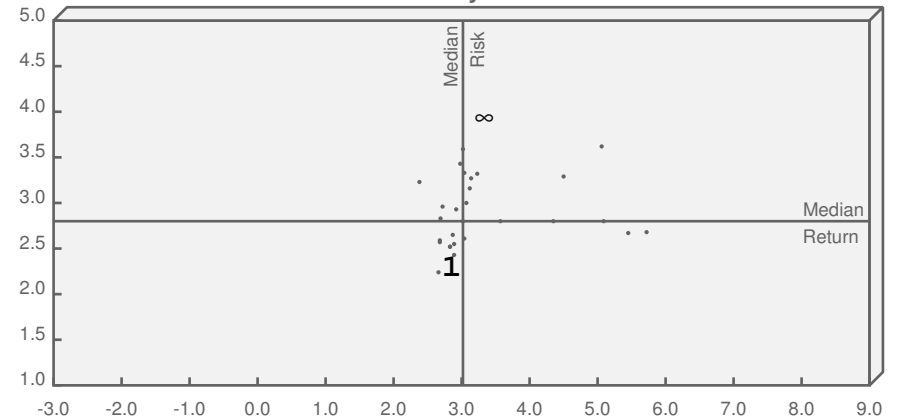


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
∞ Western Asset	-1.24 (96)	-2.38 (96)	-1.56 (93)	-0.27 (87)	1.82 (1)	3.30 (5)	3.93 (1)	6.27 (1)
1 Bloomberg Aggr	-0.16 (75)	-1.62 (72)	-1.23 (87)	-0.40 (90)	-0.36 (87)	1.72 (99)	2.27 (87)	3.72 (88)
Median	-0.02	-1.41	-0.84	0.26	0.60	2.63	2.80	4.62
Number of Funds	37	36	35	34	34	34	29	19

Five Year Risk/Return Analysis vs Peer Universe*



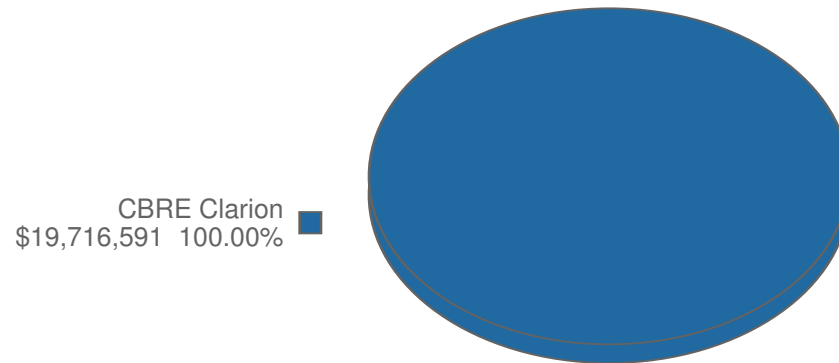
Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Western Asset Management	∞	3.93	1	3.41	25
Bloomberg Aggregate	1	2.27	87	2.93	53
Median		2.80		3.02	

*TUCS Total Returns of Fixed Income Portfolios - Core Universe - Gross of Fees & Fire

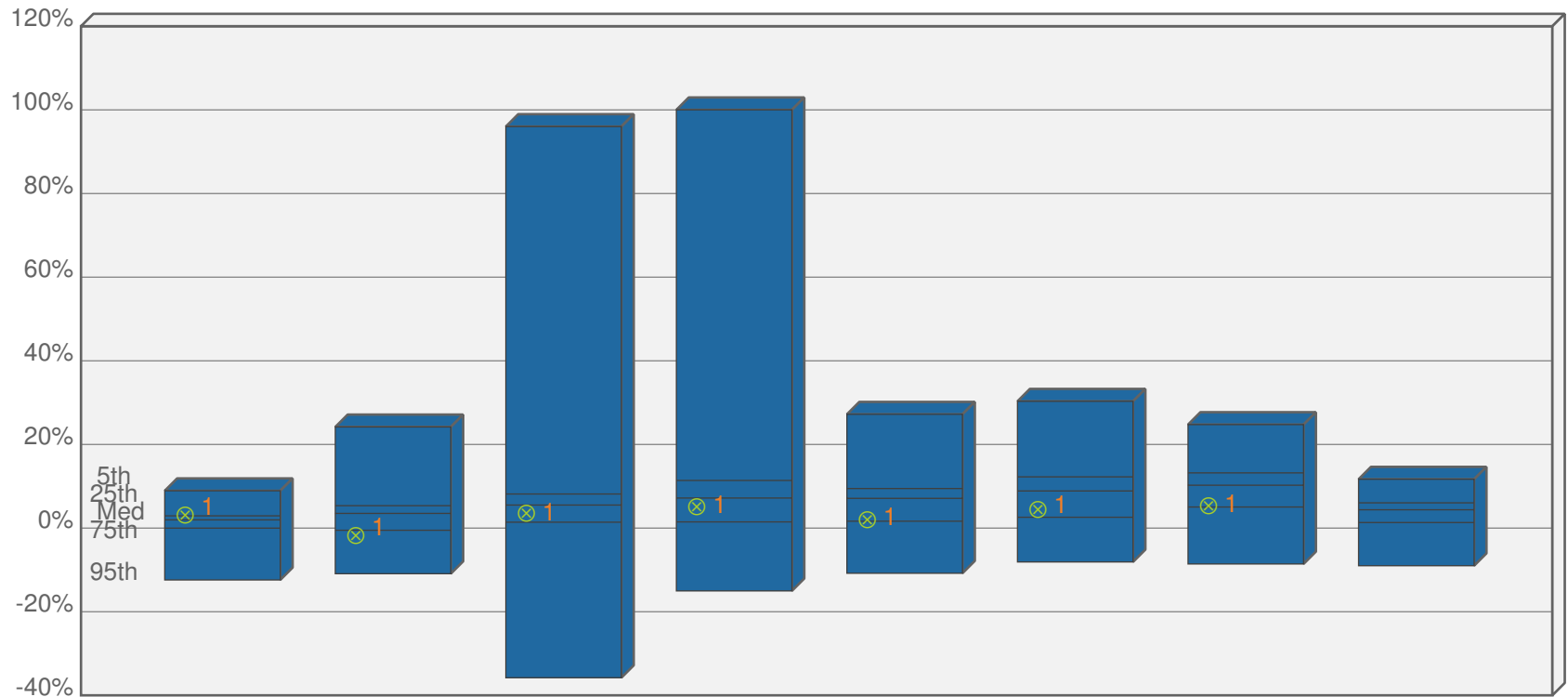


REAL ESTATE

Wilshire Consulting
MANAGER ALLOCATION
Real Estate Composite
As of June 30, 2018



Wilshire Consulting
PERFORMANCE COMPARISON
 Real Estate Composite
 Periods Ended June 30, 2018



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Real Estate Composite	3.29 (18)	-1.55 (82)	3.62 (63)	5.13 (64)	2.18 (73)	4.59 (67)	5.53 (74)	
1 FTSE EPRA/NAREIT	5.12 (12)	0.36 (69)	3.97 (60)	5.64 (61)	2.89 (72)	5.71 (65)	5.97 (73)	
5th %tile	8.91	24.17	96.00	100.00	27.20	30.31	24.74	11.67
25th %tile	2.92	5.35	8.14	11.38	9.45	12.24	13.19	6.03
Median	1.95	3.50	5.50	7.18	7.10	8.87	10.24	4.37
75th %tile	-0.02	-0.53	1.40	1.47	1.64	2.58	5.03	1.32
95th %tile	-12.41	-10.92	-35.79	-15.03	-10.81	-8.11	-8.59	-9.01
Number of Funds	119	124	124	125	117	117	102	60

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2018

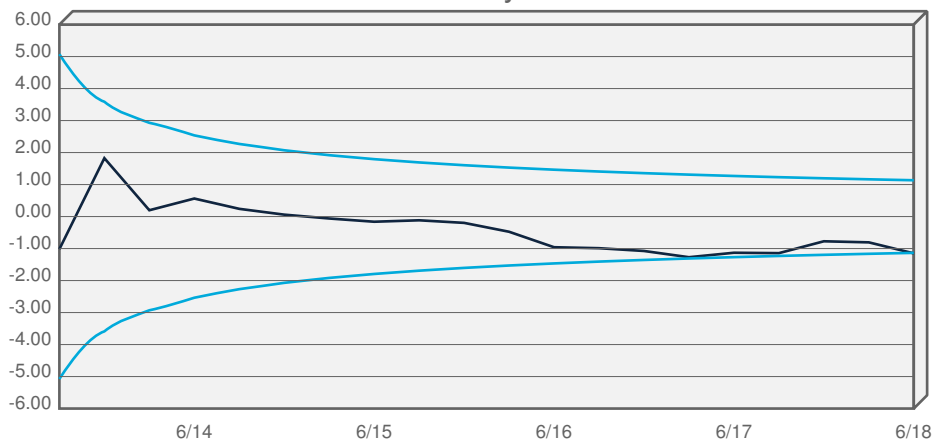
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
CBRE Clarion									
Net of Fee Return	3.10	-1.92	4.35	3.80	4.75	5.08		6/30/09	9.60
FTSE EPRA/NAREIT Dev (N)	5.12	0.36	5.64	5.71	5.97	6.38		6/30/09	10.90
Value Added	-2.02	-2.28	-1.30	-1.91	-1.22	-1.30		6/30/09	-1.30
Real Estate Composite									
Net of Fee Return	3.10	-1.92	4.35	3.80	4.74	5.07		6/30/09	9.60
FTSE EPRA/NAREIT Dev (N)	5.12	0.36	5.64	5.71	5.97	6.38		6/30/09	10.90
Value Added	-2.02	-2.28	-1.30	-1.91	-1.23	-1.30		6/30/09	-1.30

INVESTMENT MANAGER ANALYSIS

CBRE Clarion

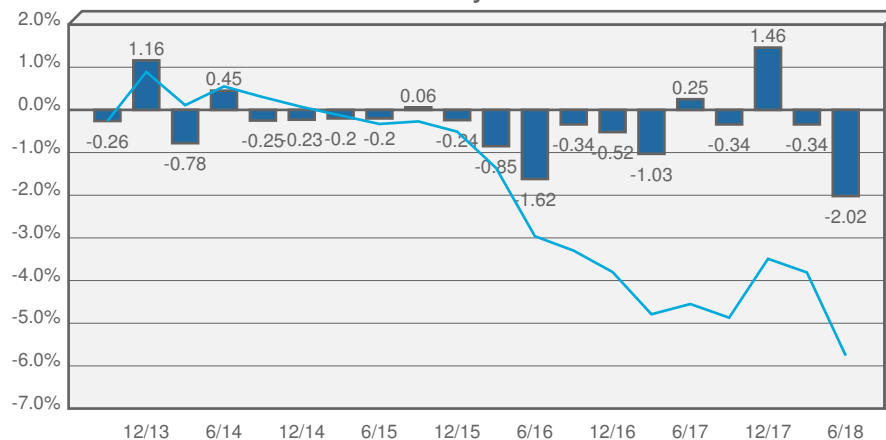
June 30, 2018

Cumulative Skill Analysis vs Benchmark



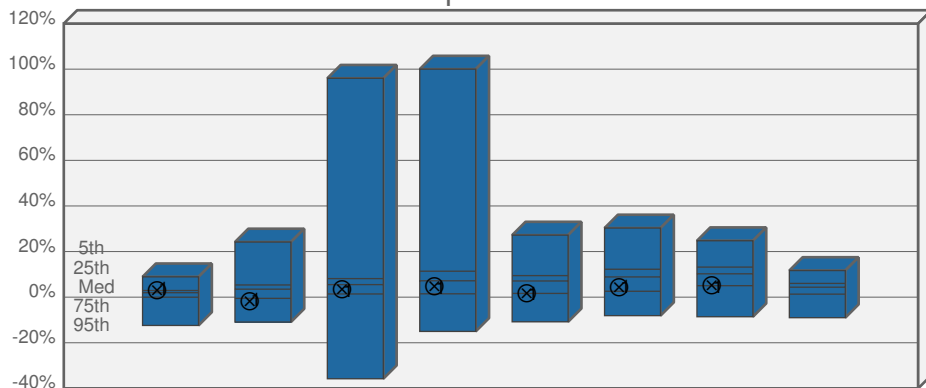
Excess Return:	-1.15	Information Ratio:	-0.75
Excess Risk:	1.54	T-Stat:	-1.67

Value-Added Analysis vs Benchmark



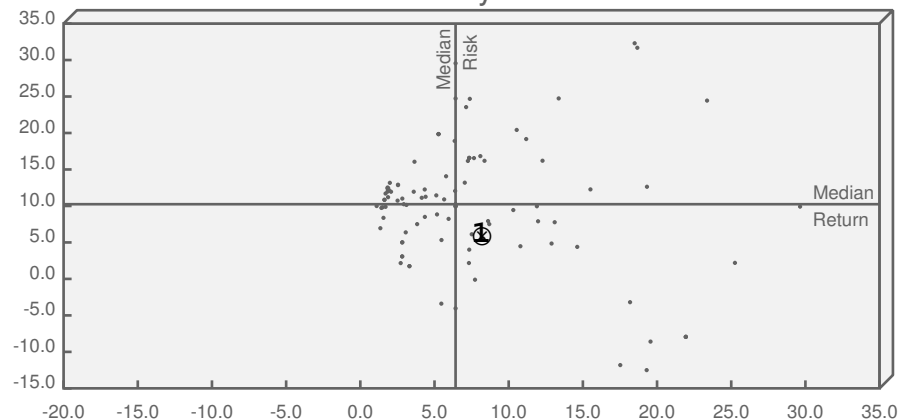
■ Quarterly NOF Value Added vs. FTSE EPRA/NAREIT Dev (N)
 — Cumulative Value Added

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ CBRE Clarion	3.29 (18)	-1.55 (82)	3.62 (63)	5.13 (64)	2.18 (73)	4.59 (67)	5.54 (74)	
1 FTSE EPRA/NAREIT Dev (N)	5.12 (12)	0.36 (69)	3.97 (60)	5.64 (61)	2.89 (72)	5.71 (65)	5.97 (73)	
Median	1.95	3.50	5.50	7.18	7.10	8.87	10.24	4.37
Number of Funds	119	124	124	125	117	117	102	60

Five Year Risk/Return Analysis vs Peer Universe*



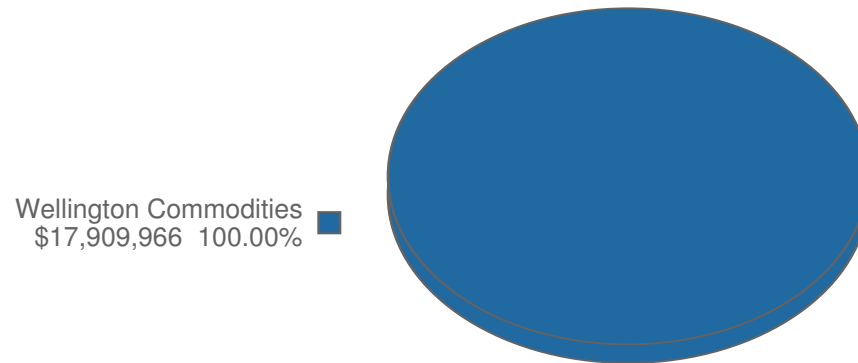
Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
CBRE Clarion	⊗	5.54	74	8.51	33
FTSE EPRA/NAREIT Dev (N)	1	5.97	73	8.50	33
Median		10.24		6.42	

*TUCS Total Returns of Real Estate Portfolios Universe - Gross of Fees Police & Fire



COMMODITIES

Wilshire Consulting
MANAGER ALLOCATION
Commodities Composite
As of June 30, 2018



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2018

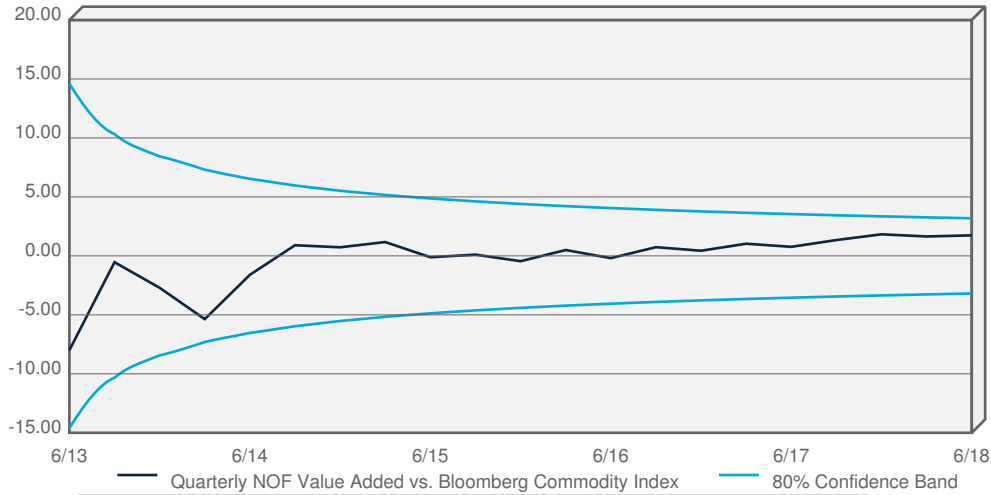
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Wellington Commodities									
Net of Fee Return	1.30	0.45	13.76	-1.52	-4.29			3/31/13	-6.26
Bloomberg Commodity Index	0.40	-0.00	7.35	-4.54	-6.40			3/31/13	-7.87
Value Added	0.90	0.45	6.42	3.01	2.11			3/31/13	1.60
Commodities Composite									
Net of Fee Return	1.30	0.45	13.76	-1.52	-4.29			3/31/13	-6.26
Bloomberg Commodity Index	0.40	-0.00	7.35	-4.54	-6.40			3/31/13	-7.87
Value Added	0.90	0.45	6.42	3.01	2.11			3/31/13	1.60

INVESTMENT MANAGER ANALYSIS

Wellington Commodities

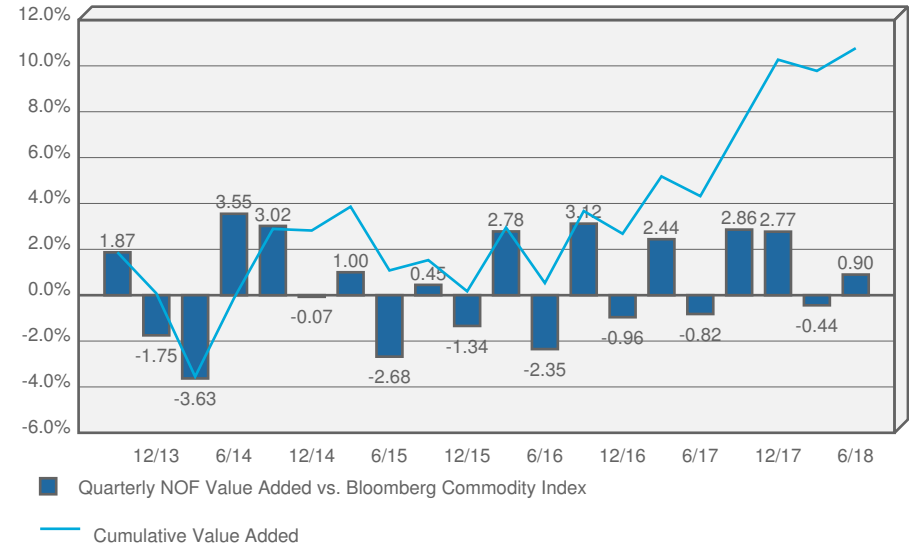
June 30, 2018

Cumulative Skill Analysis vs Benchmark



Excess Return:	1.74	Information Ratio:	0.39
Excess Risk:	4.44	T-Stat:	0.88

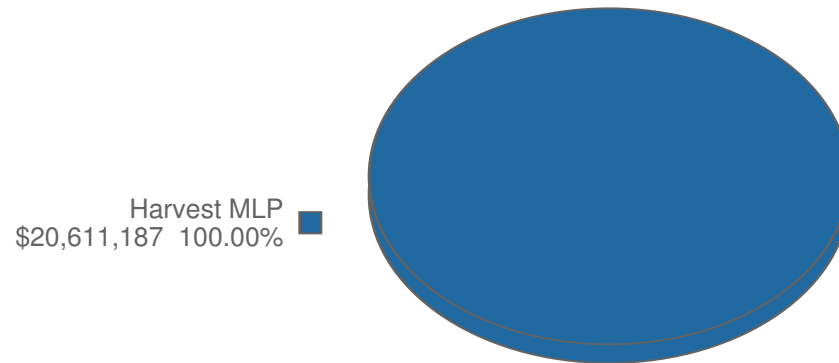
Value-Added Analysis vs Benchmark





MLP

Wilshire Consulting
MANAGER ALLOCATION
MLP Composite
As of June 30, 2018



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2018

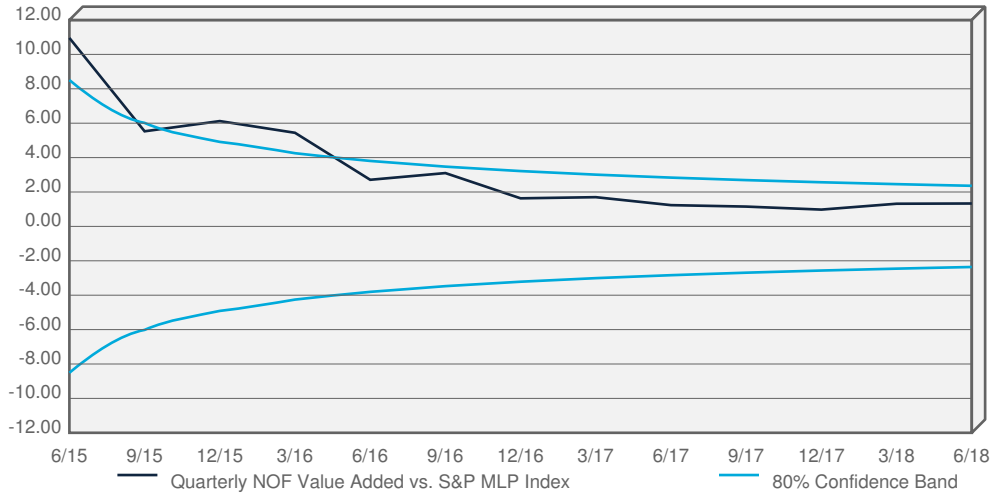
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Harvest MLP									
Net of Fee Return	13.57	2.67	-0.24	-5.79				3/31/15	-6.14
S&P MLP Index	13.15	1.01	-1.76	-6.32				3/31/15	-7.37
Value Added	0.42	1.66	1.52	0.53				3/31/15	1.23
MLP Composite									
Net of Fee Return	13.57	2.67	-0.24	-5.79				3/31/15	-6.14
S&P MLP Index	13.15	1.01	-1.76	-6.32				3/31/15	-7.37
Value Added	0.42	1.66	1.52	0.53				3/31/15	1.23

INVESTMENT MANAGER ANALYSIS

Harvest MLP

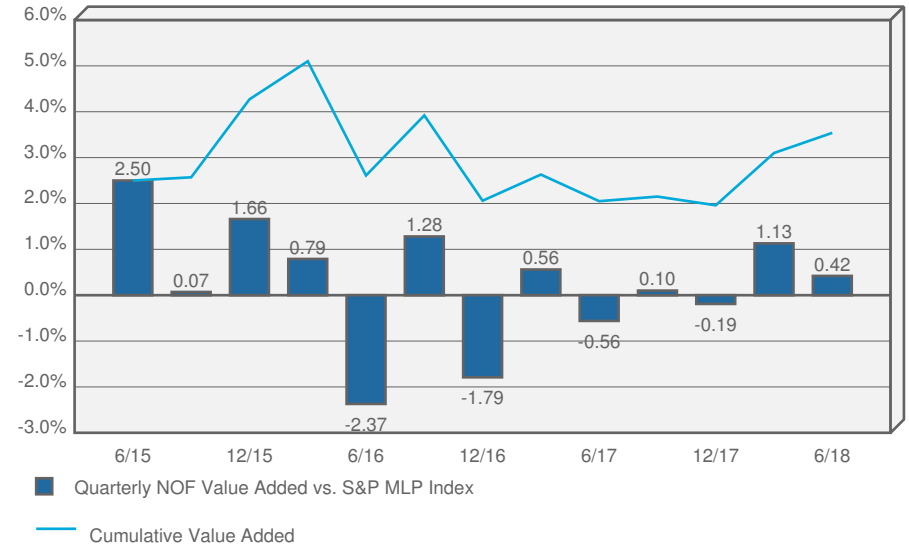
June 30, 2018

Cumulative Skill Analysis vs Benchmark



Excess Return:	1.33	Information Ratio:	0.51
Excess Risk:	2.59	T-Stat:	0.89

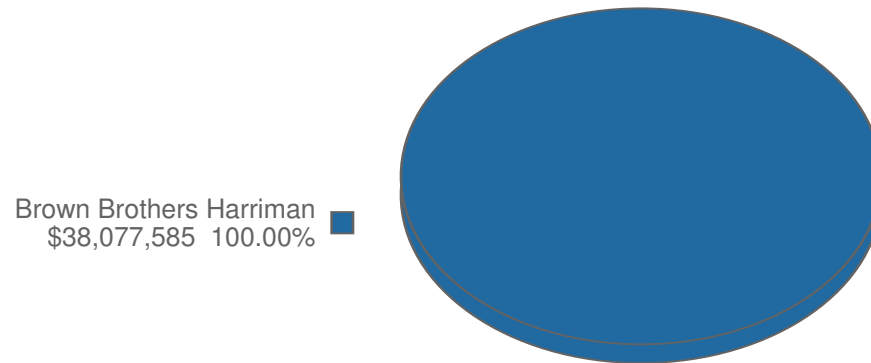
Value-Added Analysis vs Benchmark





TIPS

Wilshire Consulting
MANAGER ALLOCATION
TIPS Composite
As of June 30, 2018



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2018

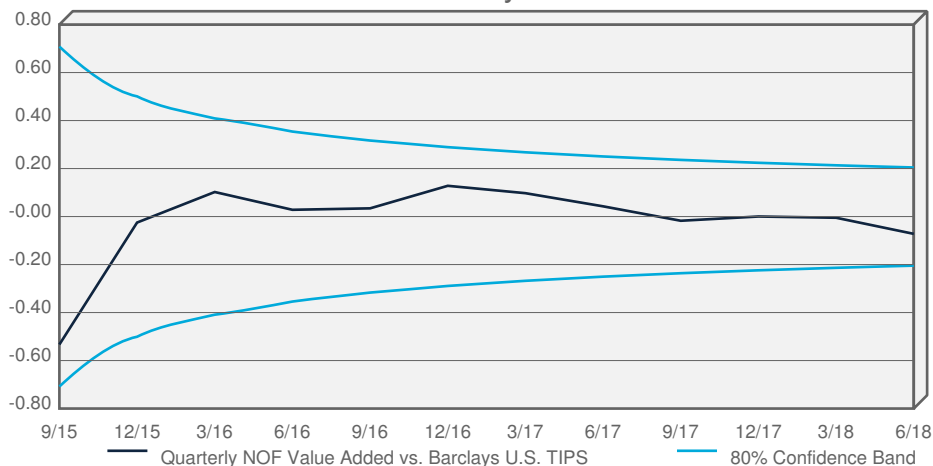
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Brown Brothers Harriman									
Net of Fee Return	0.57	-0.24	1.80	1.85				6/30/15	1.85
Barclays U.S. TIPS	0.77	-0.02	2.11	1.93				6/30/15	1.93
Value Added	-0.20	-0.22	-0.31	-0.07				6/30/15	-0.07
TIPS Composite									
Net of Fee Return	0.57	-0.24	1.80	1.85				6/30/15	1.85
Barclays U.S. TIPS	0.77	-0.02	2.11	1.93				6/30/15	1.93
Value Added	-0.20	-0.22	-0.31	-0.07				6/30/15	-0.07

INVESTMENT MANAGER ANALYSIS

Brown Brothers Harriman

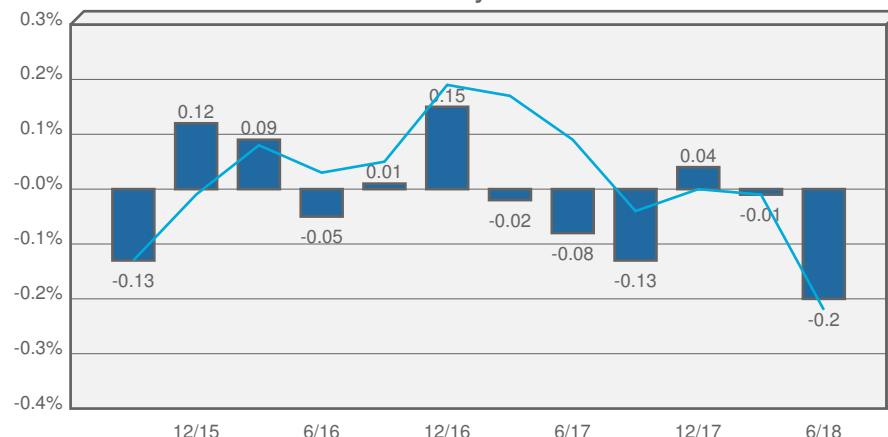
June 30, 2018

Cumulative Skill Analysis vs Benchmark



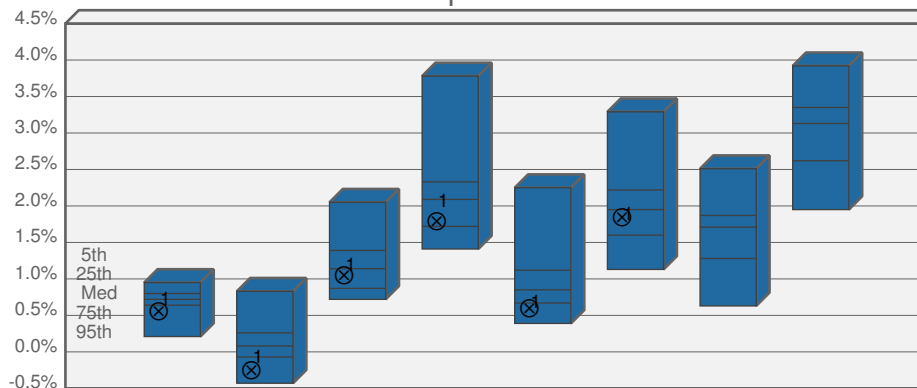
Excess Return:	-0.07	Information Ratio:	-0.34
Excess Risk:	0.22	T-Stat:	-0.58

Value-Added Analysis vs Benchmark



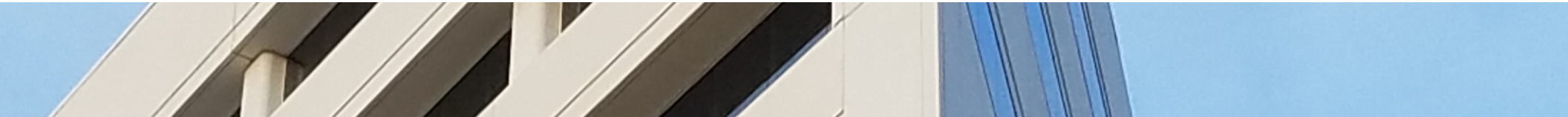
■ Quarterly NOF Value Added vs. Barclays U.S. TIPS
 — Cumulative Value Added

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Brown Brothers	0.57 (84)	-0.24 (84)	1.06 (59)	1.80 (69)	0.61 (84)	1.85 (66)		
1 Barclays U.S.	0.77 (39)	-0.02 (69)	1.24 (42)	2.11 (44)	0.73 (69)	1.93 (56)		
Median	0.72	0.08	1.14	2.09	0.85	1.95	1.71	3.13
Number of Funds	40	40	40	40	40	39	39	33

*Compass Total Returns of Active TIPS Portfolios Universe - Gross of Fees Police & Fire



PRIVATE EQUITY

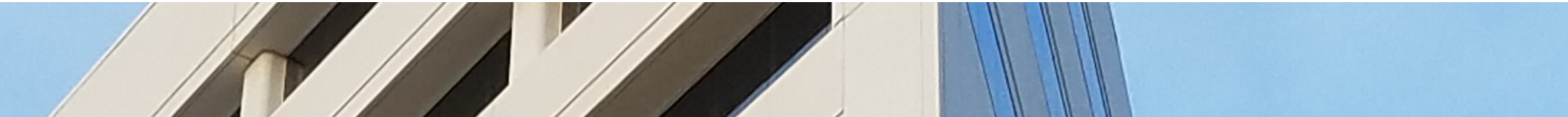
Investment Performance

Private Partnerships

As of June 30, 2018

Partnership	Commitment Value	Inception Date	Capital Called		Capital Distributed		Fair Value	Total Value / Paid-In Capital ¹	Annualized IRR
			Amount	%	Amount	%			
Adams Street Direct 2010 Fund	\$500,000	April 27, 2010	\$473,300	95%	\$478,876	96%	\$311,890	1.67	12.39%
Adams Street Non-US Dev. 2010 Fund	\$1,500,000	April 27, 2010	\$1,313,250	88%	\$768,041	51%	\$1,102,205	1.42	10.99%
Adams Street Non-US EM 2010 Fund	\$500,000	January 3, 2011	\$434,000	87%	\$108,388	22%	\$549,886	1.52	11.22%
Adams Street US 2010 Fund	\$2,500,000	April 27, 2010	\$2,202,500	88%	\$1,328,958	53%	\$2,167,022	1.59	13.64%
Adams Street 2013 Global Fund	\$5,000,000	July 3, 2013	\$3,550,000	71%	\$415,747	8%	\$4,057,310	1.26	9.04%
Aberdeen Global Partners	\$5,000,000	January 17, 2012	\$4,750,000	95%	\$1,331,168	27%	\$5,068,600	1.35	10.16%
Adams Street 2015 Global	\$6,500,000	September 30, 2015	\$2,981,368	46%	\$650,957	10%	\$3,123,605	1.27	28.44%
Adams Street 2017 Global	\$6,000,000	June 17, 2017	\$729,000	12%	\$0	0%	\$760,599	1.04	16.15%
Alternative Investments Composite	\$27,500,000	April 27, 2010	\$16,433,418	60%	\$5,082,135	18%	\$17,141,117	1.35	11.85%

¹TVPI = Fair Value + Capital Distributed / Capital Called
 ©2017 Wilshire Associates.



CAPITAL MARKET REVIEW

MARKET COMMENTARY

U.S. Equity

The U.S. stock market was up 3.8% for the second quarter. Volatility has returned this year but is approximately in line with long-term historical figures. Although there have been more up days than down during 2018, the daily losses have been more substantial. Trade and tariffs continued to help drive markets this spring as did increased anti-euro sentiment in Italy.

A common measurement of the slope of the yield curve, the 10-year minus 2-year Treasuries spread, has been on the decline since late 2013 and is currently below the long-term average at 0.38%. It should be noted that the last three times that the spread went negative (1989, 2000 and 2007) the U.S. economy entered a recession not long afterwards. Continued economic growth without upward movement in long rates could be an indication that market participants are expecting a slowdown on the horizon.

Non-U.S. Equity

Equity markets outside of the U.S. produced mixed results while currency had a major effect on U.S.-based investors. As global growth slowed and the Federal Reserve adopted a more aggressive stance on interest rates, the U.S. dollar was up approximately 5% versus a basket of currencies. The European Union faces a fresh challenge with political developments in Italy, already being rattled by the Greek financial crisis and Brexit in past years.

Fixed Income

The U.S. Treasury yield curve rose but continued to flatten during the quarter. The Federal Open Market Committee decided to increase its overnight rate by 25 basis points in June to a range of 1.75% to 2.00%. Credit spreads widened during the quarter within investment grade credit but were little changed for the high yield market.

JUNE 2018 ASSET CLASS ASSUMPTIONS

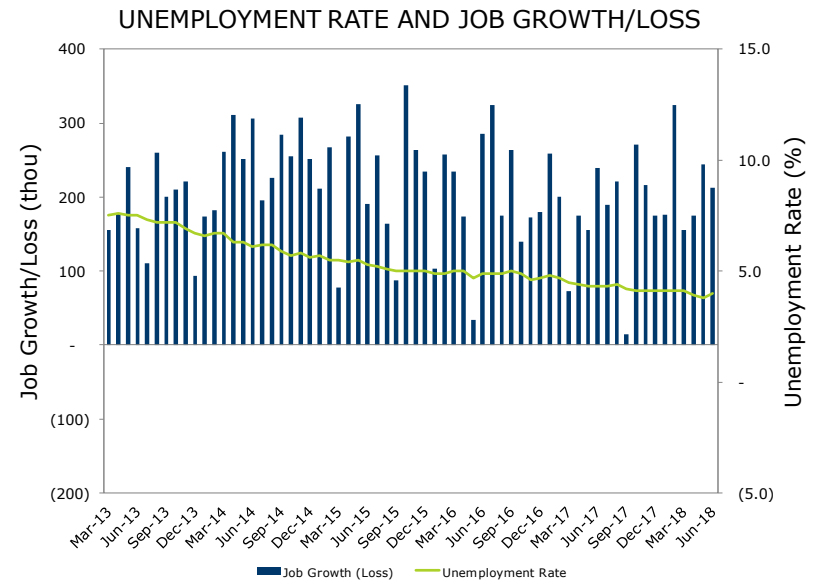
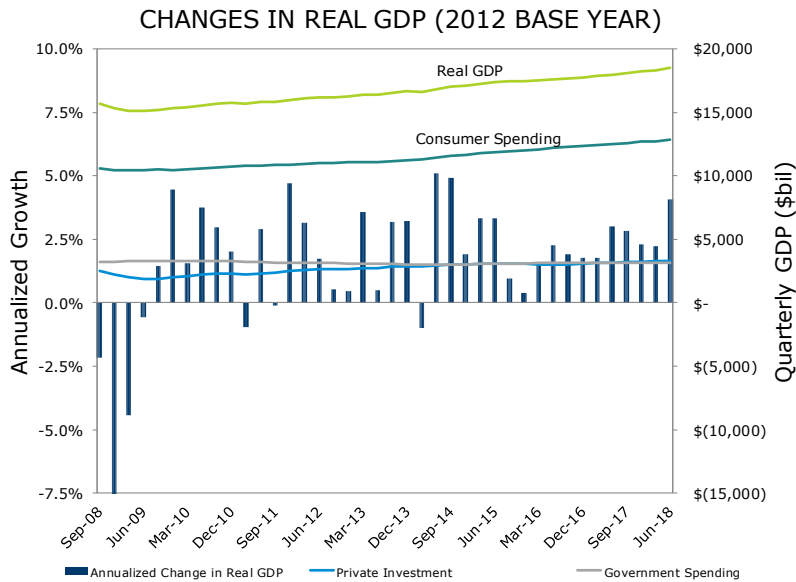
	EQUITY						FIXED INCOME						REAL ASSETS					
	US STOCK	DEV	EMG	GLOBAL		PRIVATE EQUITY	CASH	CORE BOND	LT	US TIPS	HIGH YIELD	NON-US BOND (HDG)	REAL ESTATE			COMDTY	REAL ASSETS	US CPI
		EX-US STOCK	MRKT STOCK	EX-US STOCK	GLOBAL STOCK				CORE BOND				US RES	GLOBAL RES	PRIVATE RE			
EXPECTED COMPOUND RETURN (%)	6.50	6.50	6.50	6.75	6.75	9.15	2.35	3.90	4.15	3.15	5.15	1.25	5.55	5.75	6.90	4.45	6.75	2.10
EXPECTED ARITHMETIC RETURN (%)	7.80	7.95	9.45	8.35	8.10	12.50	2.35	4.05	4.60	3.30	5.60	1.30	6.90	6.90	7.80	5.50	7.10	2.10
EXPECTED RISK (%)	17.00	18.00	26.00	18.75	17.15	28.00	1.25	5.15	9.85	6.00	10.00	3.50	17.00	15.80	14.00	15.00	8.50	1.75
CASH YIELD (%)	2.00	3.00	2.75	2.95	2.45	0.00	2.35	3.80	4.90	3.30	8.45	1.55	3.95	3.95	2.60	2.35	3.00	0.00
CORRELATIONS																		
US STOCK	1.00																	
DEV EX-US STOCK (USD)	0.81	1.00																
EMERGING MARKET STOCK	0.74	0.74	1.00															
GLOBAL EX-US STOCK	0.83	0.96	0.86	1.00														
GLOBAL STOCK	0.94	0.92	0.82	0.94	1.00													
PRIVATE EQUITY	0.74	0.64	0.62	0.67	0.74	1.00												
CASH EQUIVALENTS	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00											
CORE BOND	0.28	0.13	0.00	0.09	0.20	0.31	0.19	1.00										
LT CORE BOND	0.31	0.16	0.01	0.12	0.23	0.32	0.11	0.93	1.00									
US TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.60	0.47	1.00								
HIGH YIELD BOND	0.54	0.39	0.49	0.45	0.51	0.34	-0.10	0.25	0.32	0.05	1.00							
NON-US BOND (HDG)	0.16	0.25	-0.01	0.18	0.18	0.26	0.10	0.67	0.64	0.39	0.26	1.00						
US RE SECURITIES	0.59	0.47	0.44	0.49	0.56	0.50	-0.05	0.17	0.23	0.10	0.56	0.05	1.00					
GLOBAL RE SECURITIES	0.65	0.59	0.56	0.62	0.66	0.58	-0.05	0.17	0.22	0.11	0.62	0.03	0.94	1.00				
PRIVATE REAL ESTATE	0.54	0.44	0.44	0.47	0.52	0.51	-0.05	0.19	0.25	0.09	0.57	0.05	0.77	0.76	1.00			
COMMODITIES	0.25	0.34	0.39	0.38	0.32	0.27	0.00	-0.02	-0.02	0.25	0.29	-0.10	0.25	0.28	0.25	1.00		
REAL ASSET BASKET	0.42	0.43	0.50	0.48	0.47	0.43	0.01	0.24	0.25	0.41	0.53	0.06	0.65	0.69	0.69	0.59	1.00	
INFLATION (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	-0.08	0.05	0.03	0.05	0.44	0.26	1.00

ECONOMIC REVIEW

AS OF JUNE 30, 2018 KEY ECONOMIC INDICATORS

CPI (ALL ITEMS)	MONTHLY CHANGE		CUMULATIVE CHANGE	
SEASONALLY ADJUSTED	Jun-18	0.1	3-Mo.	0.6
	May-18	0.2	12-Mo.	2.8
	Apr-18	0.2	10-Yr. (Annual)	1.4
	10-Yr.	2.1		
BREAKEVEN INFLATION				
CONSUMER SENTIMENT	Jun-18	98.2		
U. OF MICHIGAN SURVEY	May-18	98.0		
	1-Yr. Ago	95.0	10-Yr. Avg	80.7
MANUFACTURING	Jun-18	60.2	CHANGE IN SECTOR	
INST. FOR SUPPLY MGMT	May-18	58.7	>50	Expansion
PURCHASING MNGRS' IDX	1-Yr. Avg.	59.0	<50	Contraction

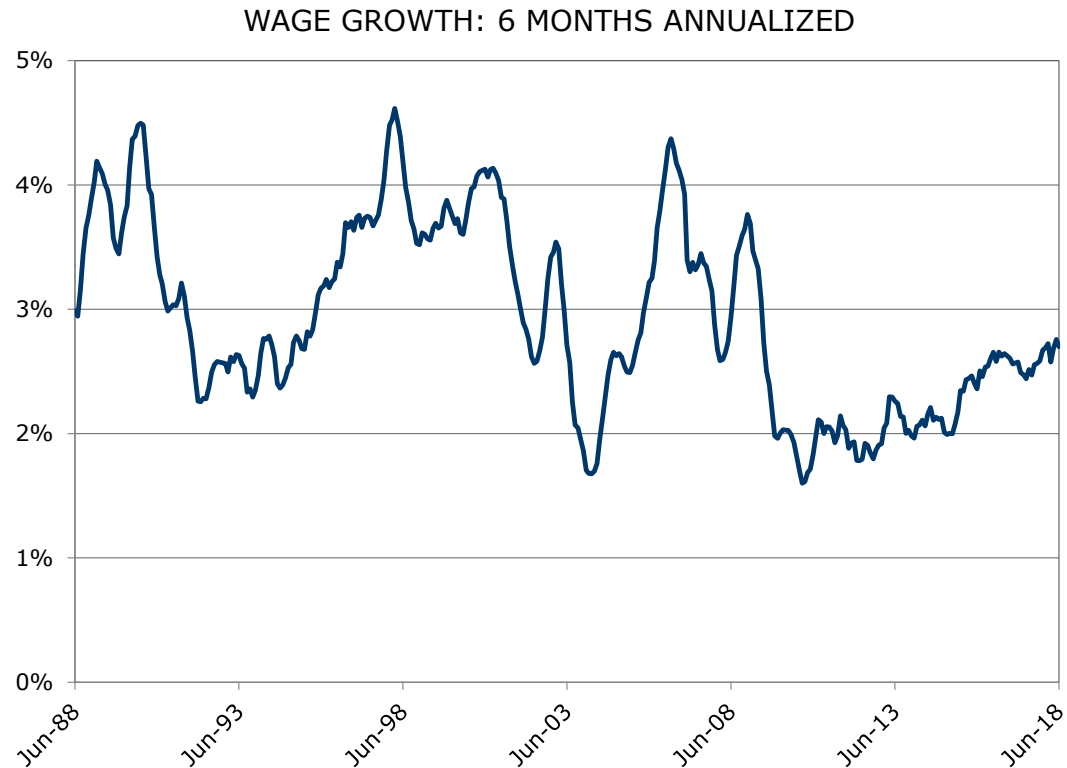
Note: Seasonally adjusted CPI data is utilized to better reflect short-term pricing activity.



Data sources: Bureau of Labor Statistics, U.S. Treasury, University of Michigan, Institute for Supply Management, Bureau of Economic Analysis

EMPLOYMENT CONDITIONS

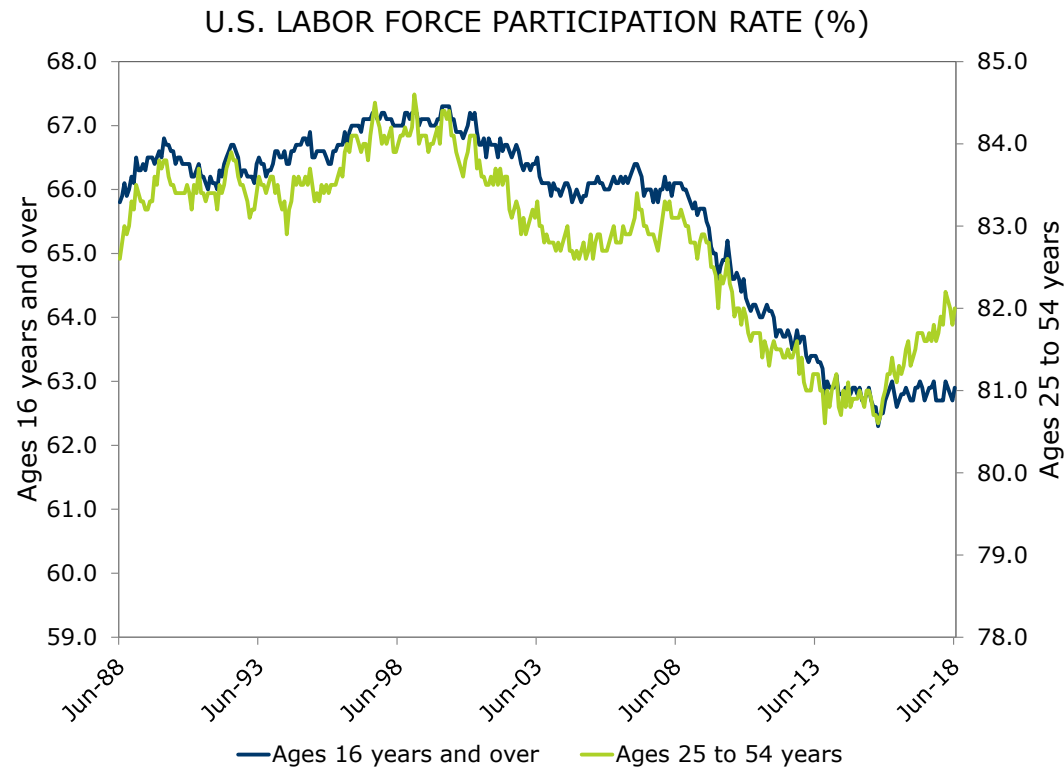
- While the U.S. has averaged 200,000 new jobs a month for the past year and the unemployment rate is at 4%, wage growth is climbing slowly
- One reason is the labor force participation rate, which has been slow to recover



Data sources: U.S. Bureau of Labor Statistics

EMPLOYMENT CONDITIONS

- Broad participation rate has stagnated; 25-54 years rate is recovering during the past 24 months
- Results, in total, suggest there may be more slack in the labor market than the unemployment rate indicates, which would decrease pressure on the Fed to raise rates much further



Data sources: U.S. Bureau of Labor Statistics

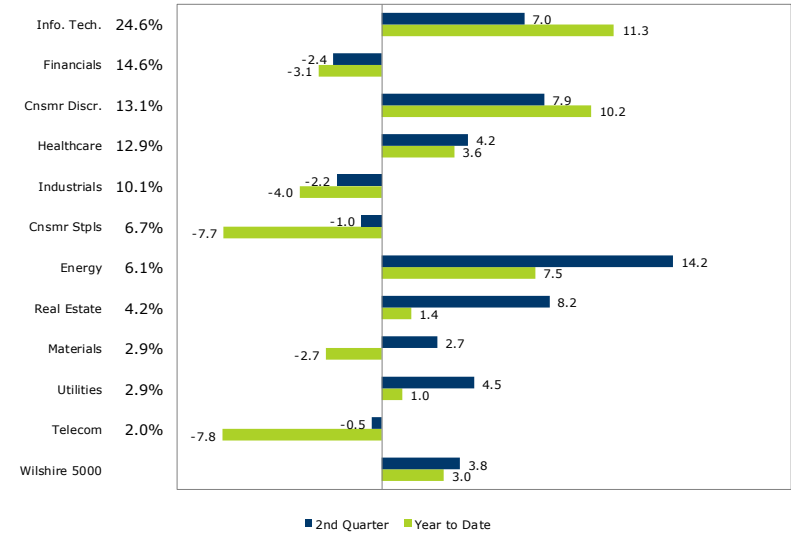
Wilshire Consulting

U.S. EQUITY MARKET

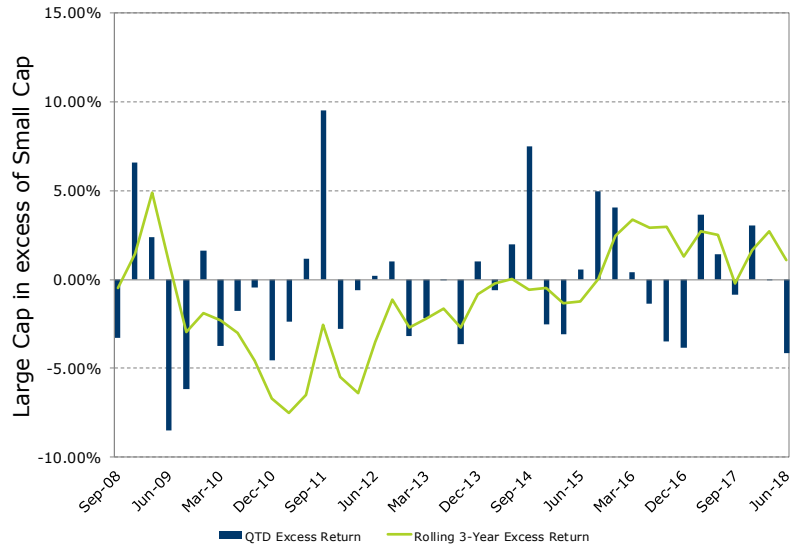


AS OF JUNE 30, 2018	QTR	YTD	1 YR	3 YR	5 YR	10 YR
WILSHIRE 5000 INDEX	3.8	3.0	14.7	11.8	13.4	10.2
WILSHIRE U.S. LARGE CAP	3.4	2.6	14.4	12.0	13.5	10.1
WILSHIRE U.S. SMALL CAP	7.9	7.1	16.9	10.8	12.6	11.7
WILSHIRE U.S. LARGE GROWTH	4.8	6.2	19.7	13.5	16.2	11.3
WILSHIRE U.S. LARGE VALUE	2.1	-0.9	9.4	10.2	10.9	8.9
WILSHIRE U.S. SMALL GROWTH	6.4	7.9	19.9	10.2	12.8	11.6
WILSHIRE U.S. SMALL VALUE	9.3	6.1	13.7	11.1	12.2	11.7
WILSHIRE REIT INDEX	9.7	1.5	3.9	7.8	8.4	7.8
MSCI USA MIN. VOL. INDEX	2.7	1.4	10.2	11.3	12.0	10.4
FTSE RAFI U.S. 1000 INDEX	2.9	0.4	11.6	10.2	11.9	11.3

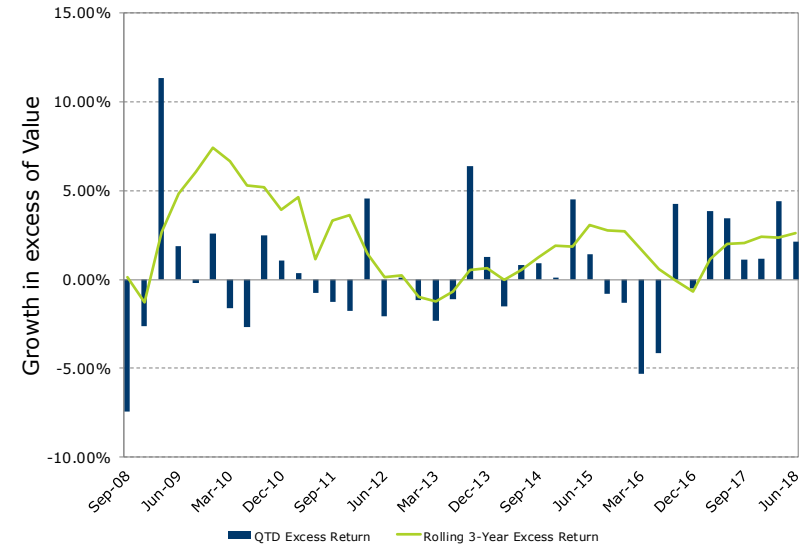
WILSHIRE 5000 SECTOR WEIGHT & RETURN (%)



LARGE CAP VS SMALL CAP



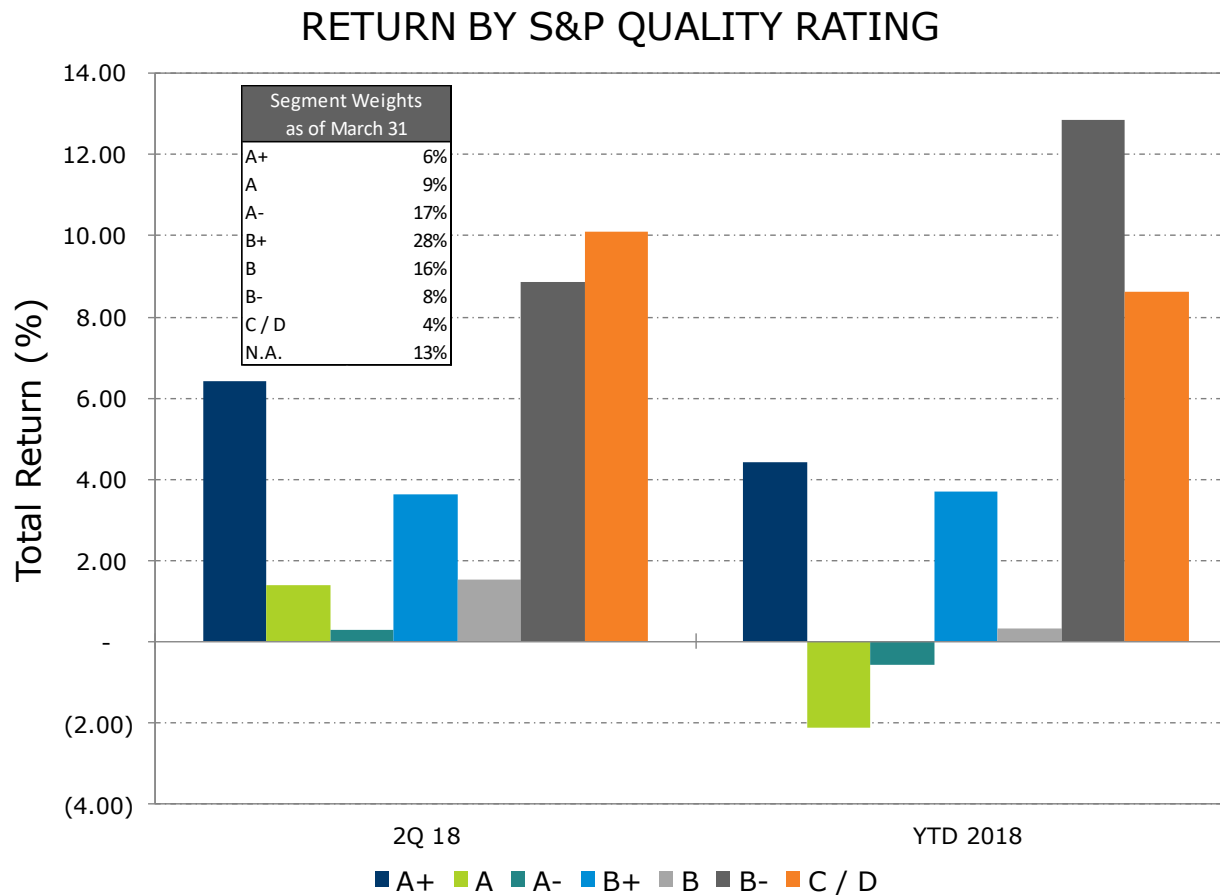
GROWTH VS VALUE



Data sources: Wilshire Compass, Wilshire Atlas

RETURNS BY QUALITY SEGMENT

Lower quality names are outperforming during 2018

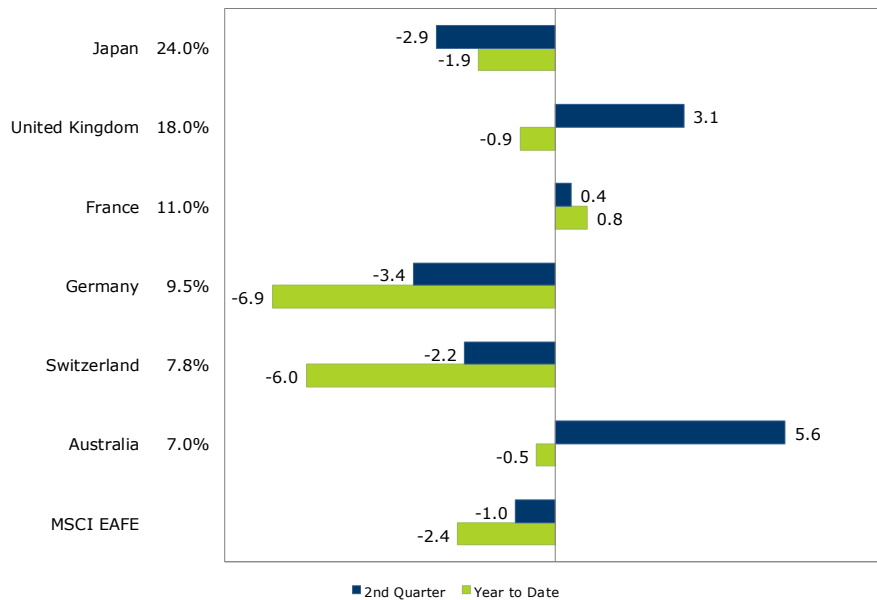


Data sources: Wilshire Atlas

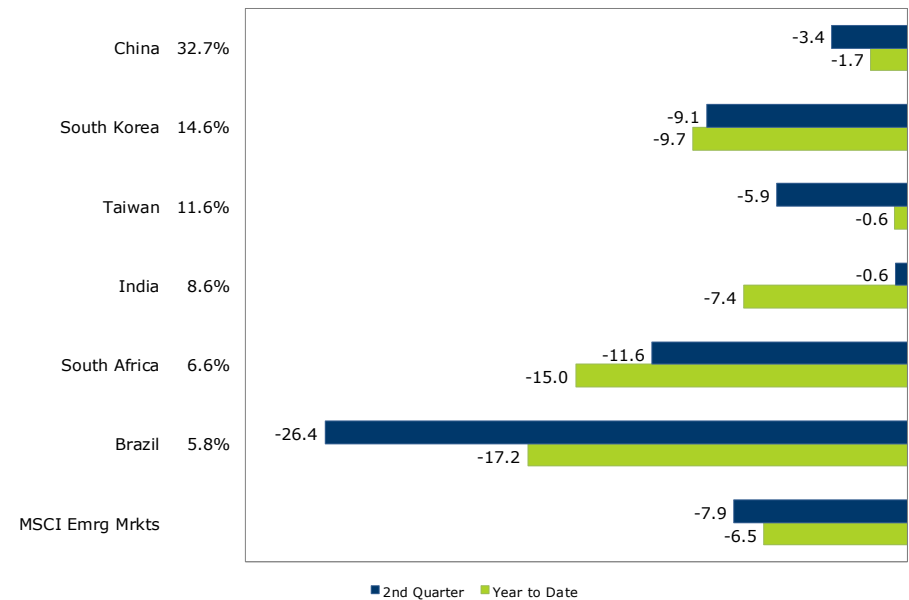
NON-U.S. EQUITY MARKET

AS OF JUNE 30, 2018	QTR	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI EX-US (\$G)	-2.4	-3.4	7.8	5.6	6.5	3.0
MSCI EAFE (\$G)	-1.0	-2.4	7.4	5.4	6.9	3.3
MSCI EMERGING MARKETS (\$G)	-7.9	-6.5	8.6	6.0	5.4	2.6
MSCI FRONTIER MARKETS (\$G)	-15.1	-10.7	2.0	2.5	4.9	-1.9
MSCI ACWI EX-US GROWTH (\$G)	-1.2	-2.0	10.3	6.9	7.6	3.4
MSCI ACWI EX-US VALUE (\$G)	-3.6	-4.9	5.3	4.1	5.3	2.6
MSCI ACWI EX-US SMALL (\$G)	-2.4	-2.7	11.0	8.5	9.5	6.2
MSCI ACWI MINIMUM VOLATILITY	0.6	0.0	8.0	9.0	9.7	8.3
MSCI EAFE MINIMUM VOLATILITY	-0.5	0.0	6.5	6.8	8.4	6.3
FTSE RAFI DEVELOPED EX-US	-1.6	-3.5	7.6	5.9	7.4	3.8
MSCI EAFE LC (G)	3.8	-0.6	6.6	5.7	9.4	5.5

MSCI EAFE: LARGEST COUNTRIES & RETURN (USD)



MSCI EM: LARGEST COUNTRIES & RETURN (USD)



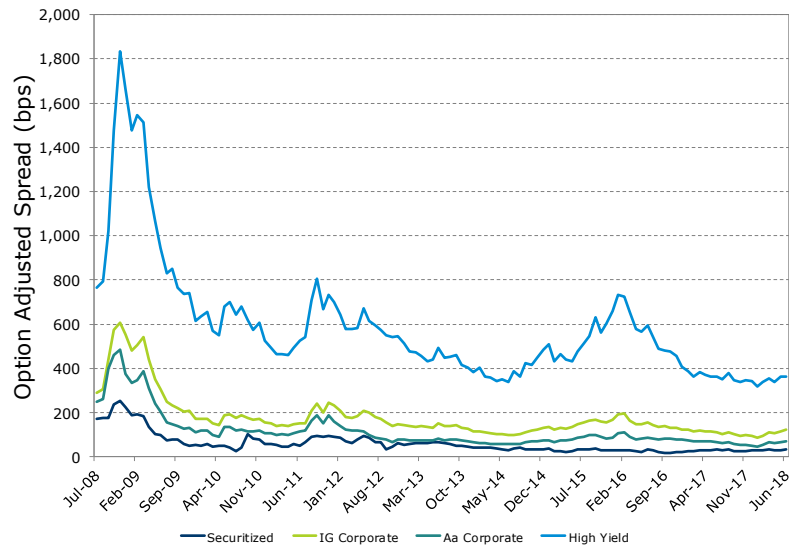
Data sources: Wilshire Compass

U.S. FIXED INCOME

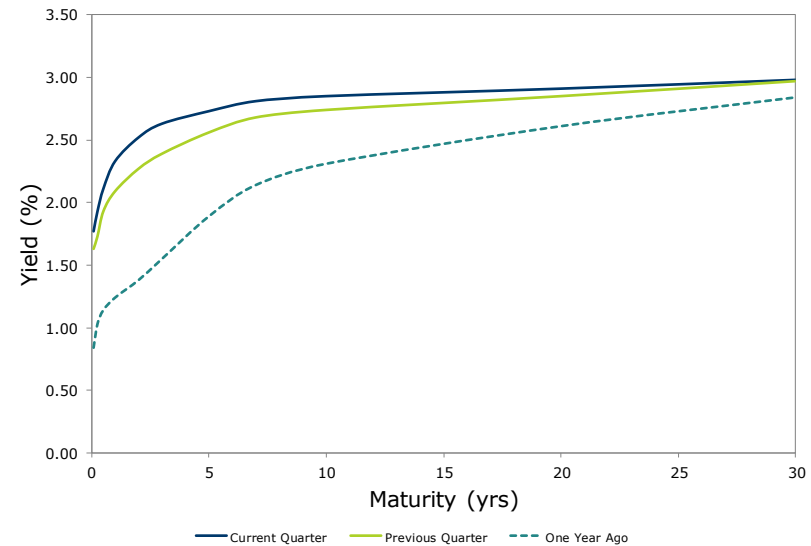
AS OF JUNE 30, 2018	YTM	DURATION	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS AGGREGATE	3.3	6.0	-0.2	-1.6	-0.4	1.7	2.3	3.7
BLOOMBERG BARCLAYS TREASURY	2.7	6.1	0.1	-1.1	-0.7	1.0	1.5	3.0
BLOOMBERG BARCLAYS GOV'T-REL.	3.3	5.3	-0.3	-1.3	0.1	1.7	2.3	3.4
BLOOMBERG BARCLAYS SECURITIZED	3.4	5.0	0.2	-1.0	0.1	1.5	2.2	3.6
BLOOMBERG BARCLAYS CORPORATE	4.0	7.3	-1.0	-3.3	-0.8	3.1	3.5	5.4
BLOOMBERG BARCLAYS LT G/C	4.0	14.9	-1.5	-5.0	-0.8	4.3	5.1	6.8
BLOOMBERG BARCLAYS LT TREASURY	3.0	17.2	0.3	-3.0	-0.1	3.4	4.5	6.1
BLOOMBERG BARCLAYS LT GOV't-REL.	4.5	12.1	-1.4	-3.7	1.2	4.3	5.4	6.6
BLOOMBERG BARCLAYS LT CORP.	4.7	13.6	-2.8	-6.8	-1.8	5.1	5.5	7.4
BLOOMBERG BARCLAYS U.S. TIPS *	2.8	7.6	0.8	0.0	2.1	1.9	1.7	3.0
BLOOMBERG BARCLAYS HIGH YIELD	6.7	3.9	1.0	0.2	2.6	5.5	5.5	8.2
TREASURY BILLS	1.9	0.25	0.5	0.8	1.4	0.7	0.4	0.4

* Yield and Duration statistics are for a proxy index based on similar maturity, the Bloomberg Barclays U.S. Treasury 7-10 Year Index

BLOOMBERG BARCLAYS FIXED INCOME INDEXES



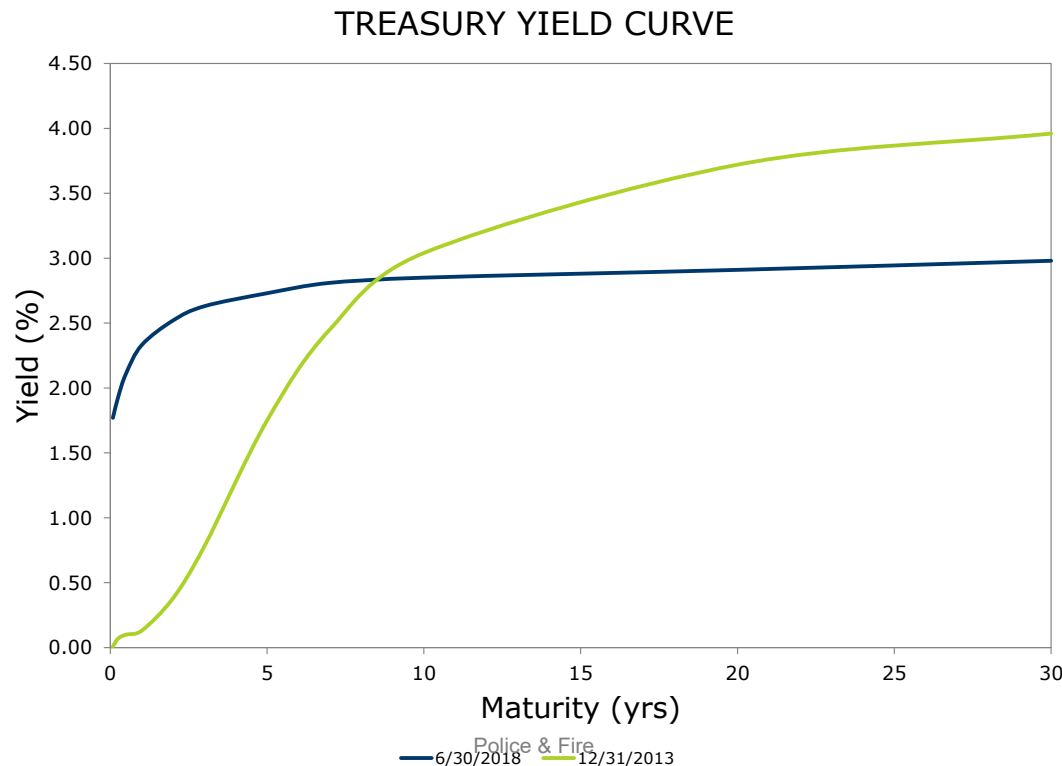
TREASURY YIELD CURVE



Data sources: Wilshire Compass, Bloomberg Barclays, U.S. Treasury

FLATTENING YIELD CURVE

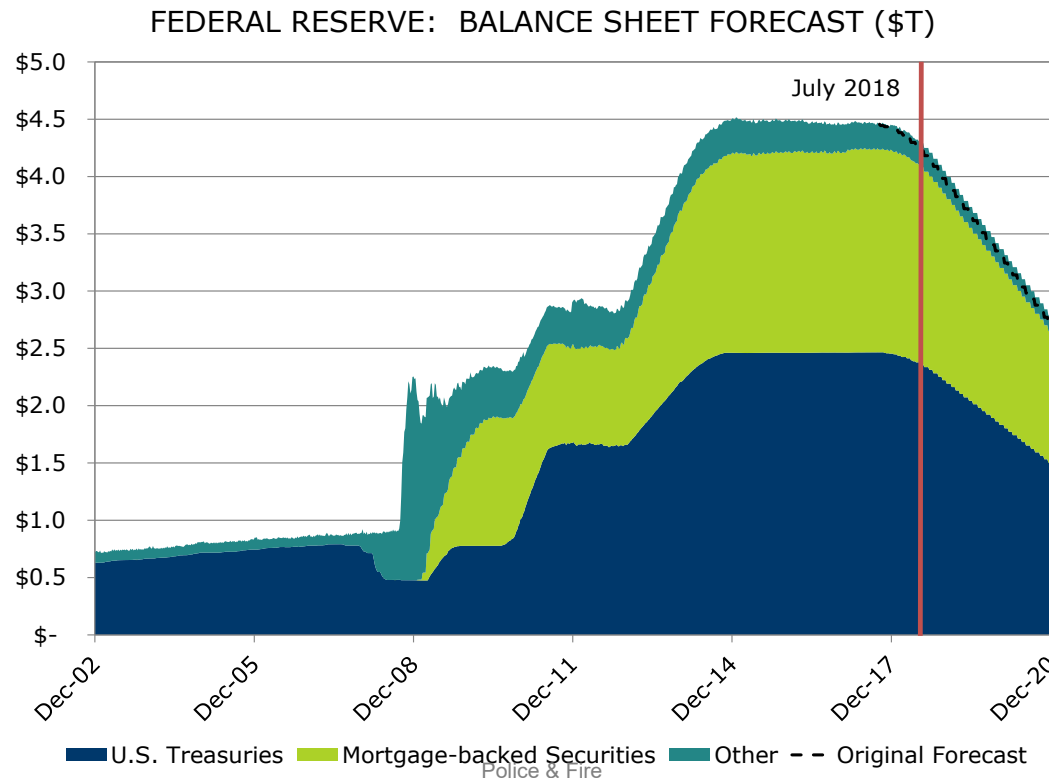
- U.S. yield curve has changed dramatically during the past 5 years
 - Last time the slope peaked was year-end 2013; 10 minus 2-Year Treasury = 2.6%
 - Currently flatter than any time in the previous decade; yield difference now at 0.4%
- Continued economic growth without upward movement in long rates could be an indication that market participants are expecting a slowdown on the horizon



Data source: Federal Reserve

FEDERAL RESERVE

- Federal Reserve began their balance sheet normalization program during October 2017; targeting \$10B in reductions per month while increasing to \$50B per month in Q4 2018
- European Central Bank has announced their intention to end their quantitative easing program this year; Bank of Japan reduced their bond purchases for the third time in June

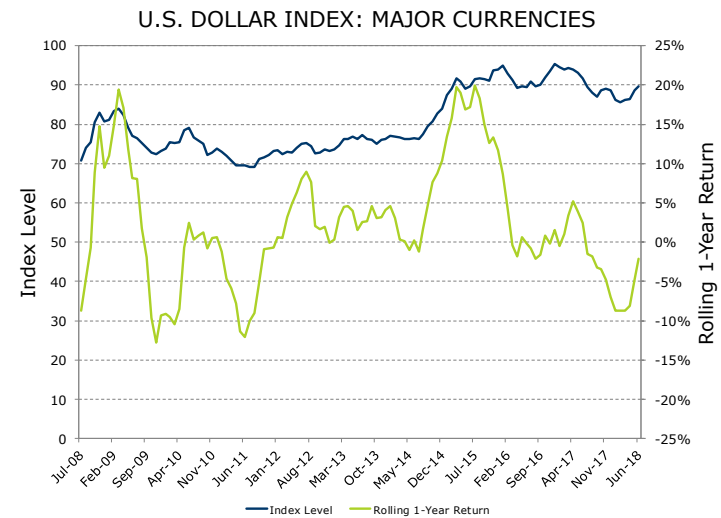
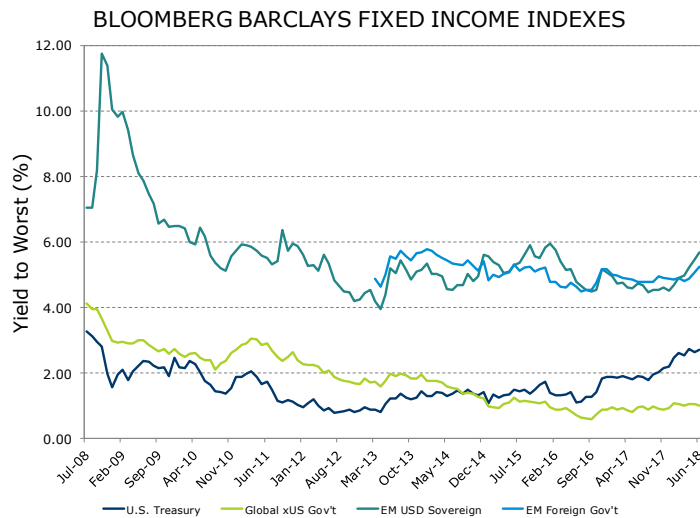


Data sources: Federal Reserve

NON-U.S. FIXED INCOME

AS OF JUNE 30, 2018	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DEVELOPED MARKETS						
BLMBRG BRCLYS GBL AGGREGATE xUS	-4.8	-1.3	2.8	3.2	0.9	1.8
BLMBRG BRCLYS GBL AGGREGATE xUS *	0.5	1.4	3.3	3.6	4.0	4.4
BLMBRG BRCLYS GLOBAL INF LNKD xUS	-5.8	-2.8	4.2	2.5	3.0	2.2
BLMBRG BRCLYS GLOBAL INF LNKD xUS *	0.0	0.7	4.3	5.9	6.2	5.6
EMERGING MARKETS (HARD CURRENCY)						
BLMBRG BRCLYS EM USD AGGREGATE	-2.4	-3.8	-1.1	4.0	4.5	6.6
EMERGING MARKETS (FOREIGN CURRENCY)						
BLMBRG BRCLYS EM LOCAL CURR. GOVT	-8.2	-5.5	-0.8	1.9	0.5	2.6
BLMBRG BRCLYS EM LOCAL CURR. GOVT *	-1.4	-0.4	0.7	2.2	2.2	3.7
EURO vs. DOLLAR	-5.1	-2.8	2.4	1.6	-2.1	-3.0
YEN vs. DOLLAR	-4.0	1.7	1.4	3.4	-2.2	-0.4
POUND vs. DOLLAR	-5.9	-2.4	1.7	-5.7	-2.7	-4.0

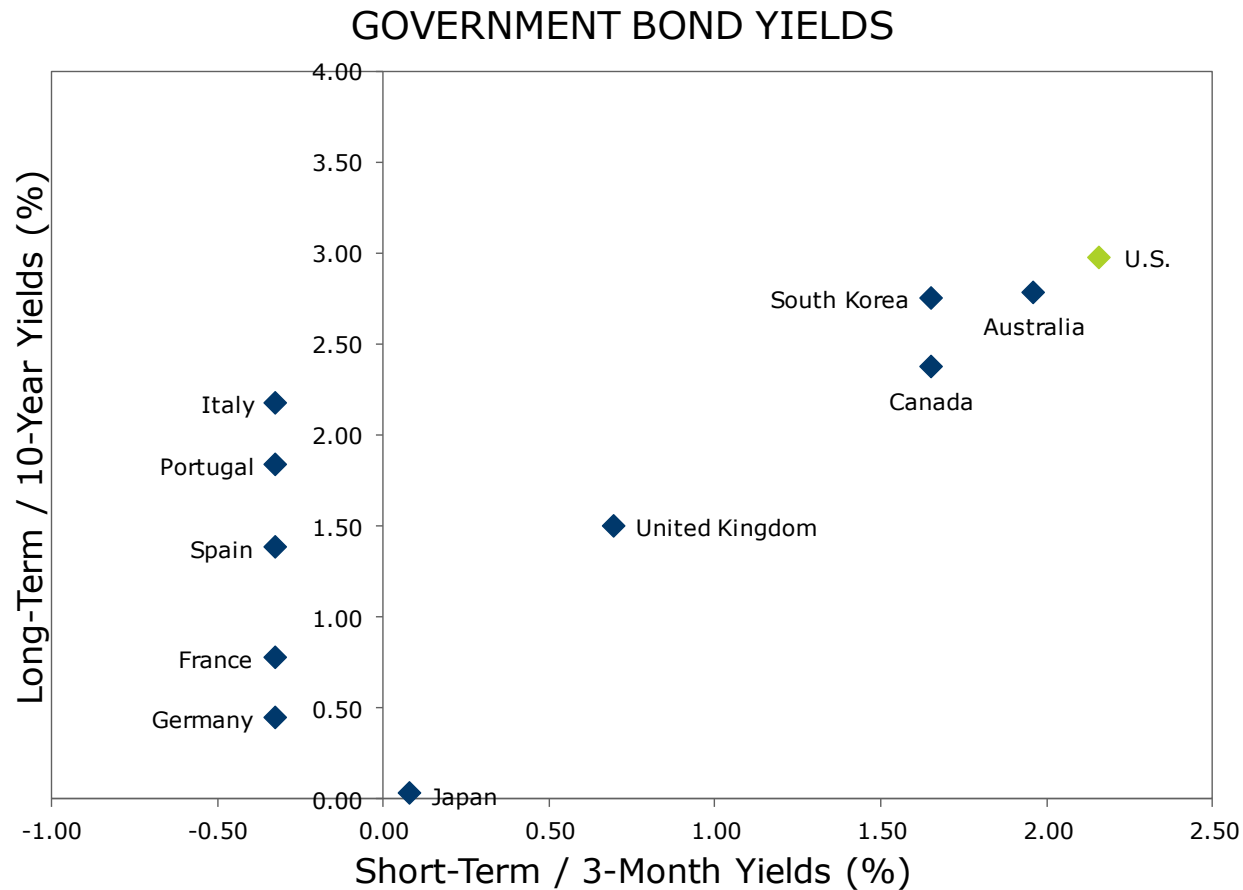
* Returns are reported in terms of local market investors, which removes currency effects.



Data sources: Wilshire Compass, Bloomberg Barclays, Federal Reserve Bank of St. Louis

GLOBAL INTEREST RATES

Negative short-term rates remain in Europe while the major economies of France and Germany also offer long-term rates below 1%

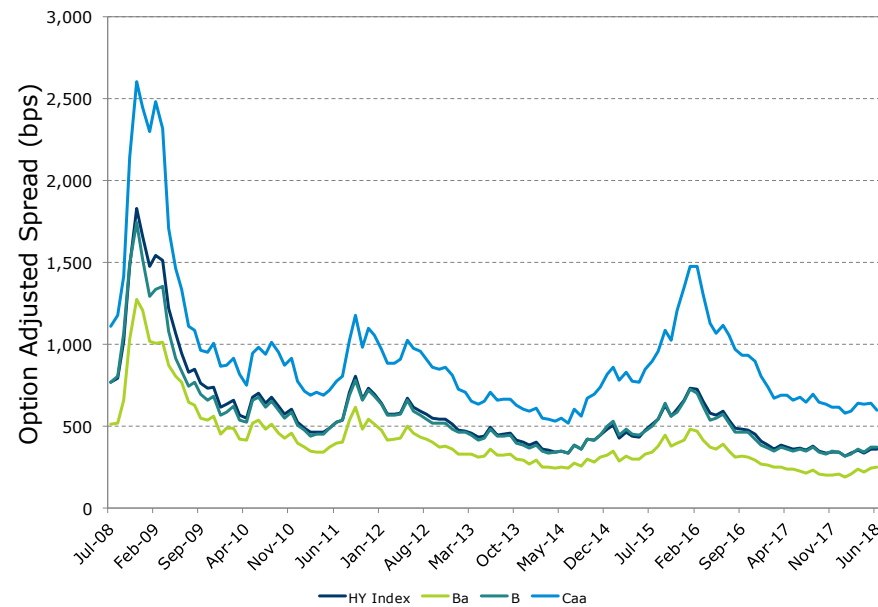


Data sources: Organization for Economic Co-operation and Development

HIGH YIELD BOND MARKET

AS OF JUNE 30, 2018		QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS HIGH YIELD		1.0	0.2	2.6	5.5	5.5	8.2
CREDIT SUISSE LEVERAGED LOAN		0.8	2.4	4.7	4.3	4.2	5.0
HIGH YIELD QUALITY DISTRIBUTION	WEIGHT						
Ba U.S. HIGH YIELD	43.2%	-0.2	-1.8	0.6	4.8	5.4	8.2
B U.S. HIGH YIELD	42.2%	1.4	0.9	3.0	4.8	5.0	6.8
Caa U.S. HIGH YIELD	13.5%	2.9	3.2	6.8	8.7	7.1	8.3
Ca to D U.S. HIGH YIELD	0.9%	18.9	21.6	24.1	12.1	-6.6	5.5
Non-Rated U.S. HIGH YIELD	0.2%	1.2	1.4	2.0	-1.3	0.8	2.0

BLOOMBERG BARCLAYS HIGH YIELD INDEXES



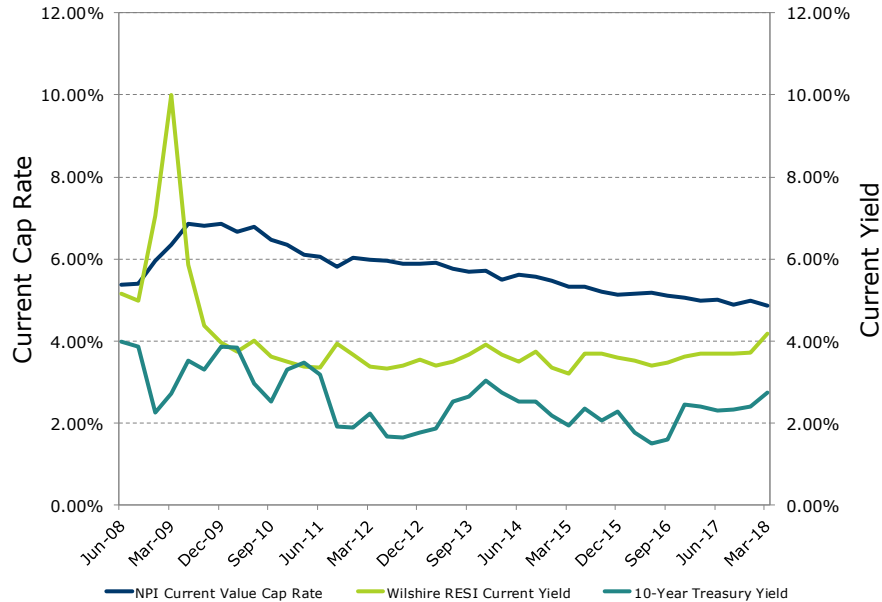
Data sources: Wilshire Compass, Bloomberg Barclays

Wilshire Consulting REAL ASSETS

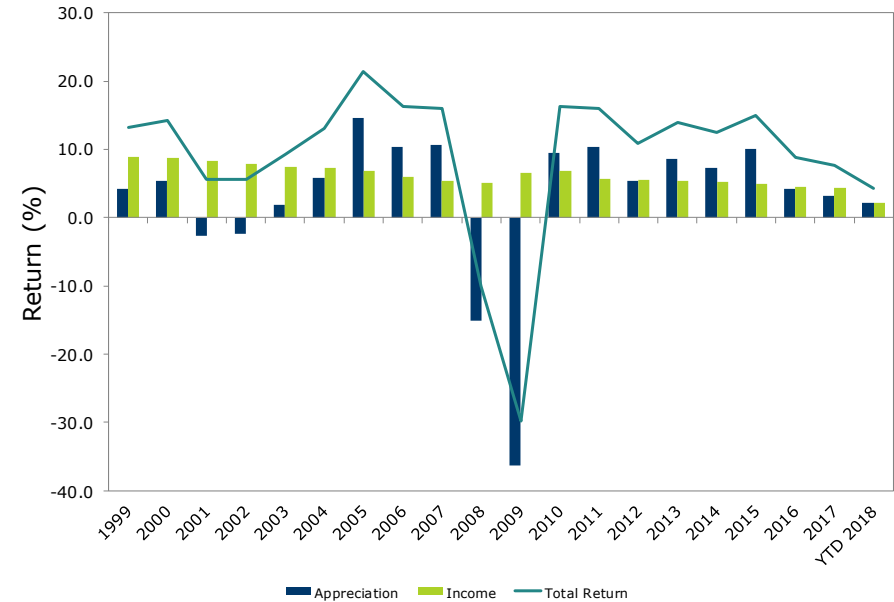


AS OF JUNE 30, 2018	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS U.S. TIPS	0.8	0.0	2.1	1.9	1.7	3.0
BLOOMBERG COMMODITY INDEX	0.4	0.0	7.3	-4.5	-6.4	-9.0
WILSHIRE GLOBAL RESI INDEX	6.0	0.5	5.1	6.8	7.5	6.6
NCREIF ODCE FUND INDEX	2.0	4.3	8.4	9.4	11.0	5.3
NCREIF TIMBERLAND INDEX	0.5	1.4	3.6	3.4	6.0	4.0
ALERIAN MLP INDEX (OIL & GAS)	11.8	-0.6	-4.6	-5.9	-4.1	6.5

REAL ESTATE VALUATION



NCREIF ODCE FUND INDEX RETURN



Data sources: Wilshire Compass, National Council of Real Estate Investment Fiduciaries

ASSET CLASS PERFORMANCE

ASSET CLASS RETURNS - BEST TO WORST						ANNUALIZED 5-YEAR AS OF 6/2018
2013	2014	2015	2016	2017	2018 YTD	
U.S. Equity 33.1%	REITs 31.8%	REITs 4.2%	MLPs 18.3%	Emrg Mrkts 37.7%	U.S. Equity 3.0%	U.S. Equity 13.4%
MLPs 27.6%	U.S. Equity 12.7%	U.S. Equity 0.7%	High Yield 17.1%	Developed 25.6%	REITs 1.5%	REITs 8.4%
Developed 23.3%	Core Bond 6.0%	Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 21.0%	T-Bills 0.8%	Developed 6.9%
High Yield 7.4%	MLPs 4.8%	T-Bills 0.1%	Commodities 11.8%	High Yield 7.5%	High Yield 0.2%	High Yield 5.5%
REITs 1.9%	U.S. TIPS 3.6%	Developed -0.4%	Emrg Mrkts 11.6%	REITs 4.2%	Commodities 0.0%	Emrg Mrkts 5.4%
T-Bills 0.1%	High Yield 2.5%	U.S. TIPS -1.4%	REITs 7.2%	Core Bond 3.6%	U.S. TIPS 0.0%	Core Bond 2.3%
Core Bond -2.0%	T-Bills 0.0%	High Yield -4.5%	U.S. TIPS 4.7%	U.S. TIPS 3.0%	MLPs -0.6%	U.S. TIPS 1.7%
Emrg Mrkts -2.3%	Emrg Mrkts -1.8%	Emrg Mrkts -14.6%	Core Bond 2.6%	Commodities 1.7%	Core Bond -1.6%	T-Bills 0.4%
U.S. TIPS -8.6%	Developed -4.5%	Commodities -24.7%	Developed 1.5%	T-Bills 0.8%	Developed -2.4%	MLPs -4.1%
Commodities -9.5%	Commodities -17.0%	MLPs -32.6%	T-Bills 0.3%	MLPs -6.5%	Emrg Mrkts -6.5%	Commodities -6.4%

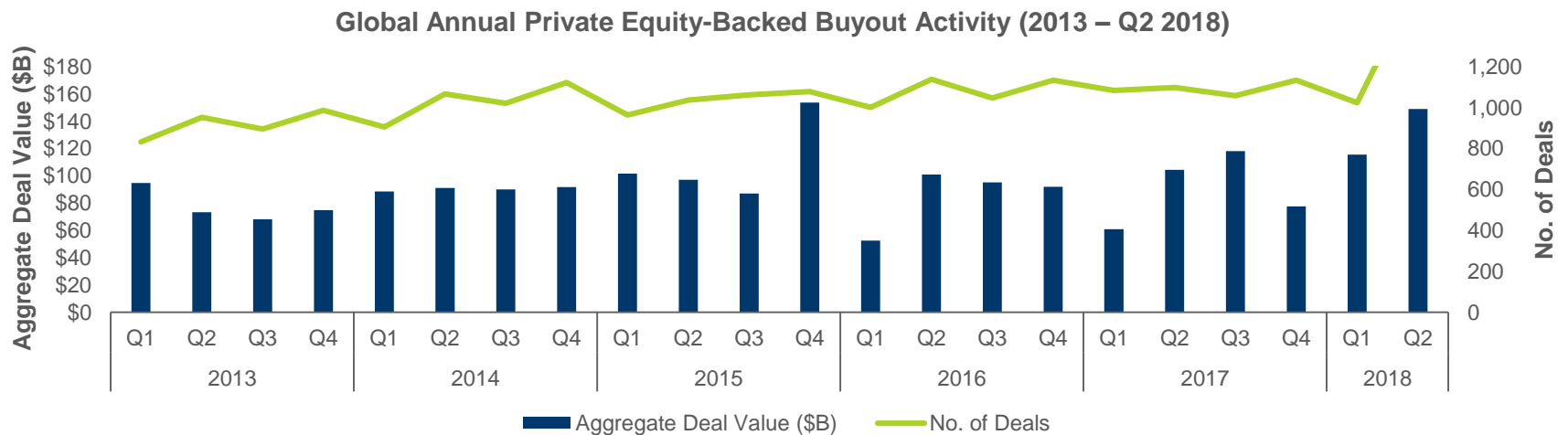
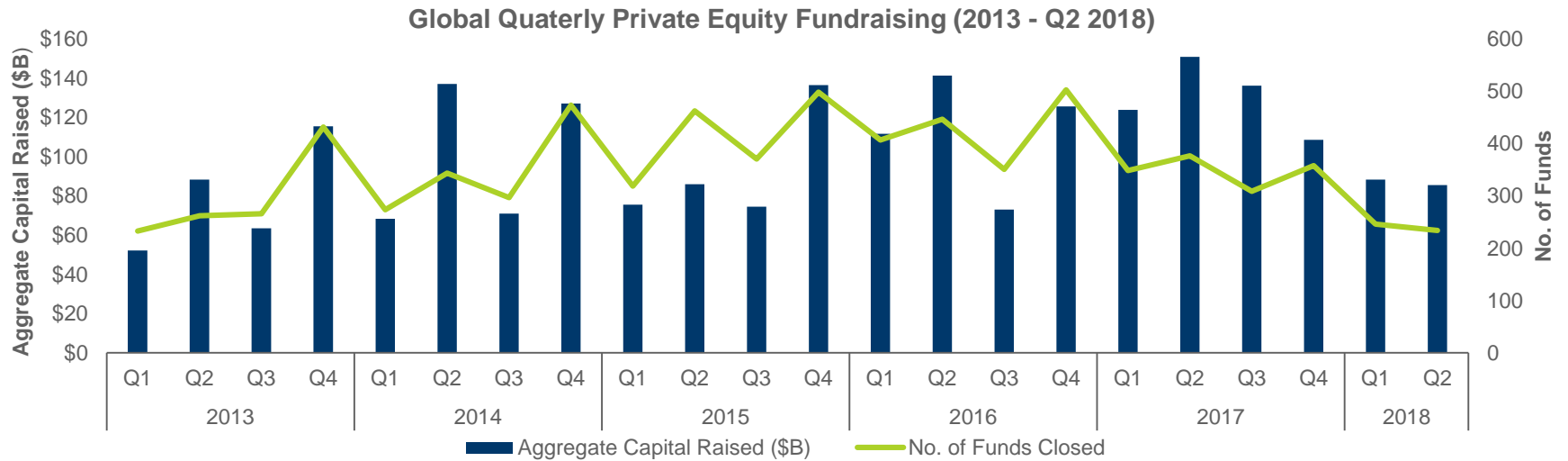
Data sources: Wilshire Compass

Note: Developed asset class is developed equity markets ex-U.S., ex-Canada



APPENDIX: PRIVATE MARKETS UPDATE

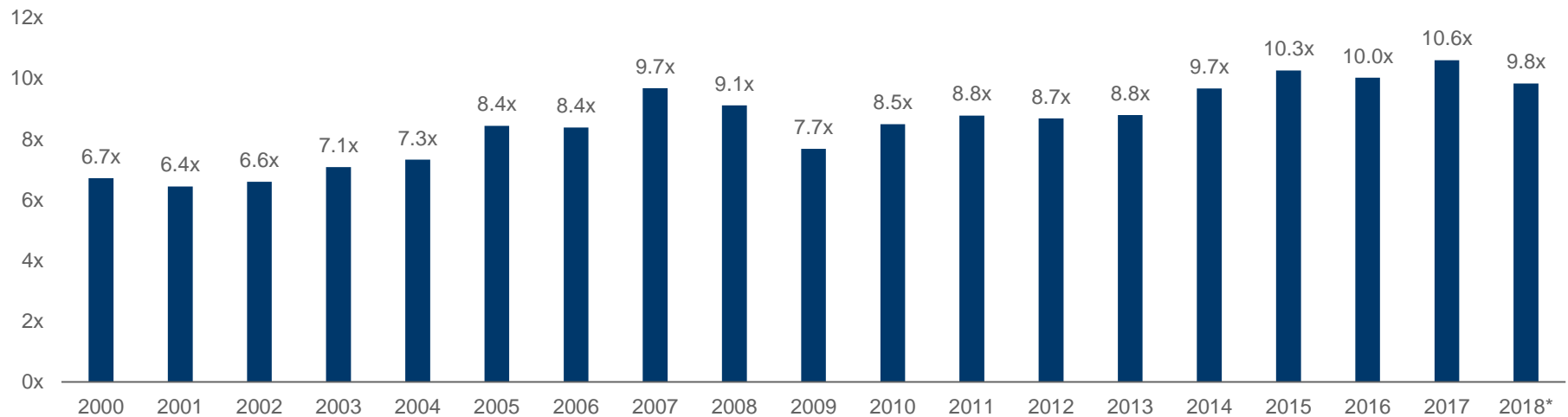
PRIVATE EQUITY – FUNDRAISING & INVESTMENT ACTIVITY



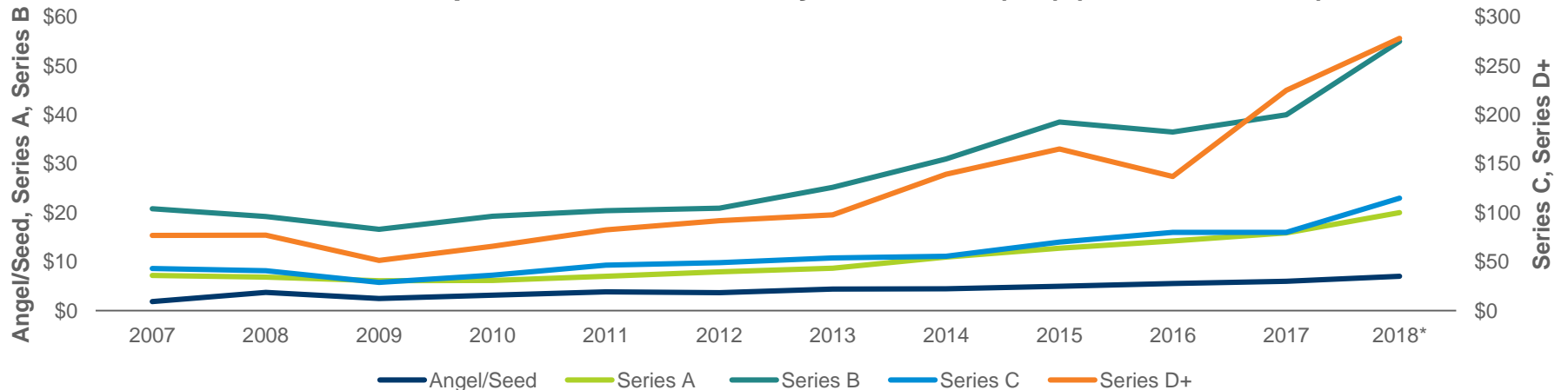
Source: Preqin, as of June 30, 2018.
©2017 Wilshire Associates.

PRIVATE EQUITY – PRICING & VALUATIONS

LBO Purchase Price Multiples (2000 – Q2 2018)



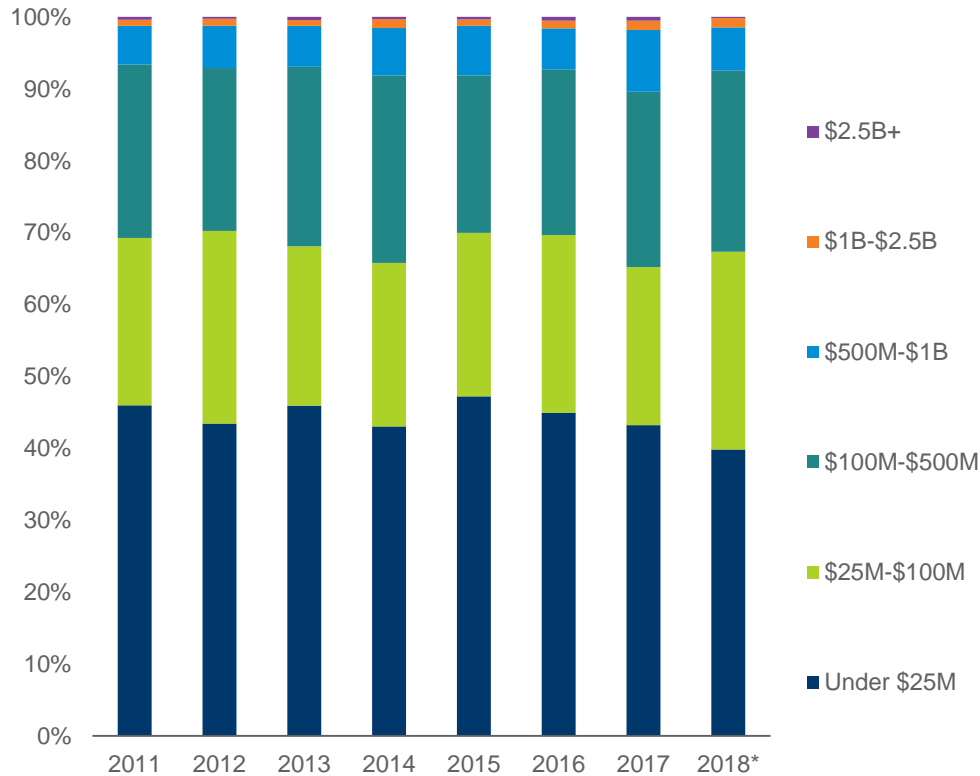
Venture Capital Median Pre-Money Valuations (\$M) (2007 – Q2 2018)



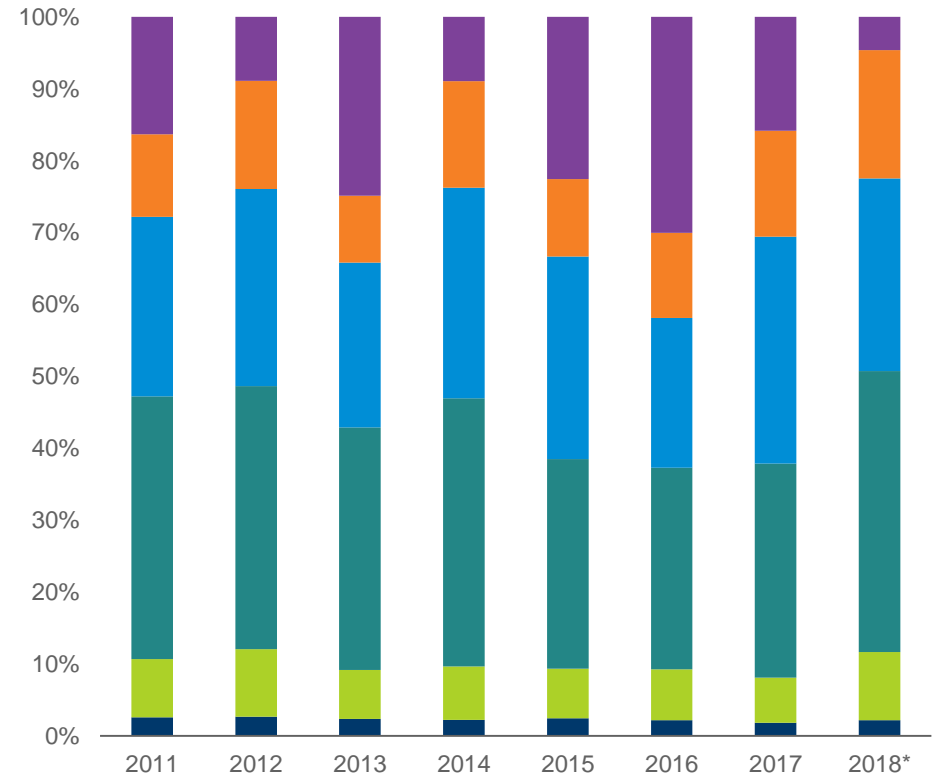
Source: S&P LBO; Pitchbook, *as of June 30, 2018.
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U.S. INVESTMENT ACTIVITY BY DEAL SIZE

Percentage of Deal Volume by Deal Size (by Count)



Percentage of Deal Volume by Deal Size (by Dollars)

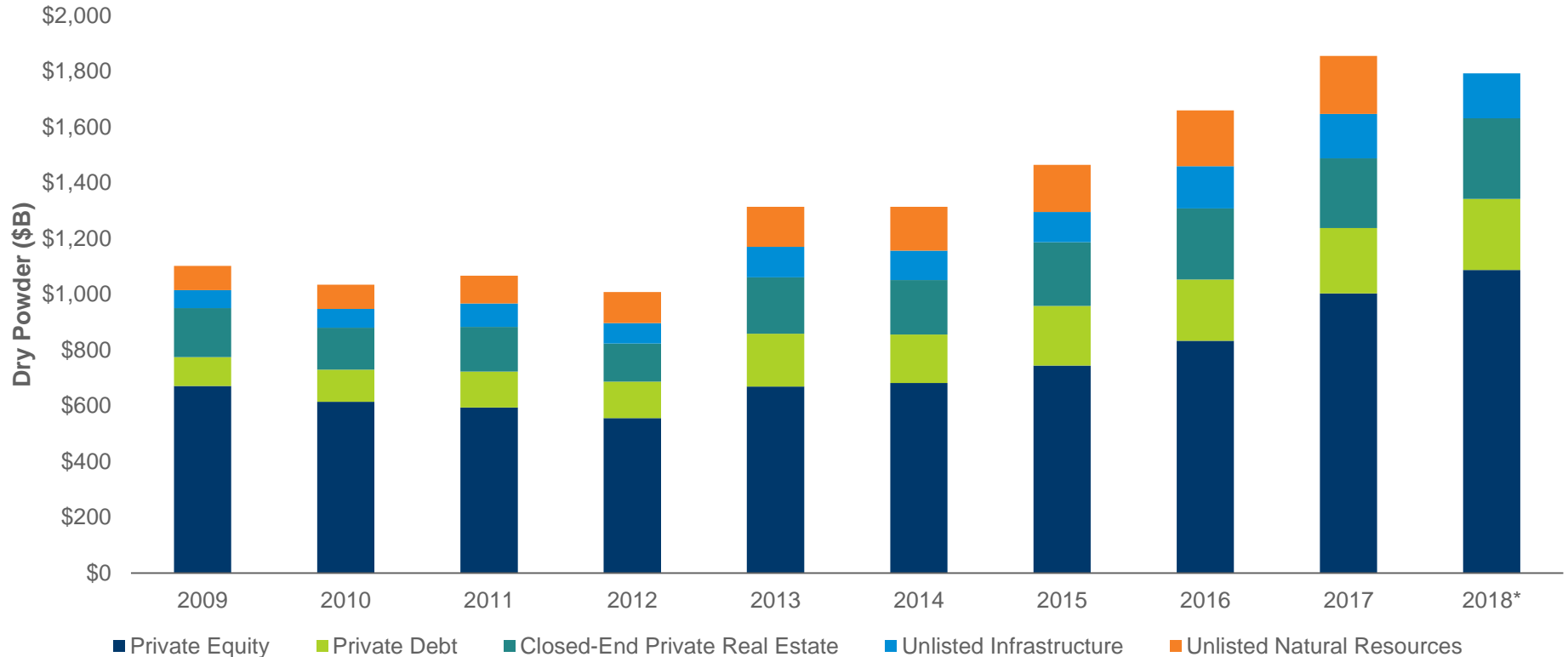


- Deal volume continues to be dominated by lower middle market deals with investments sizes below \$100 million through the second quarter of 2018
- However, deals with below \$100 million check sizes comprised only 13% of all deal volume by amount of capital invested in the second quarter of 2018

Source: PitchBook, *as of June 30, 2018.

PRIVATE CAPITAL DRY POWDER

Private Capital Dry Powder by Fund Type
(2009 - Q2 2018)

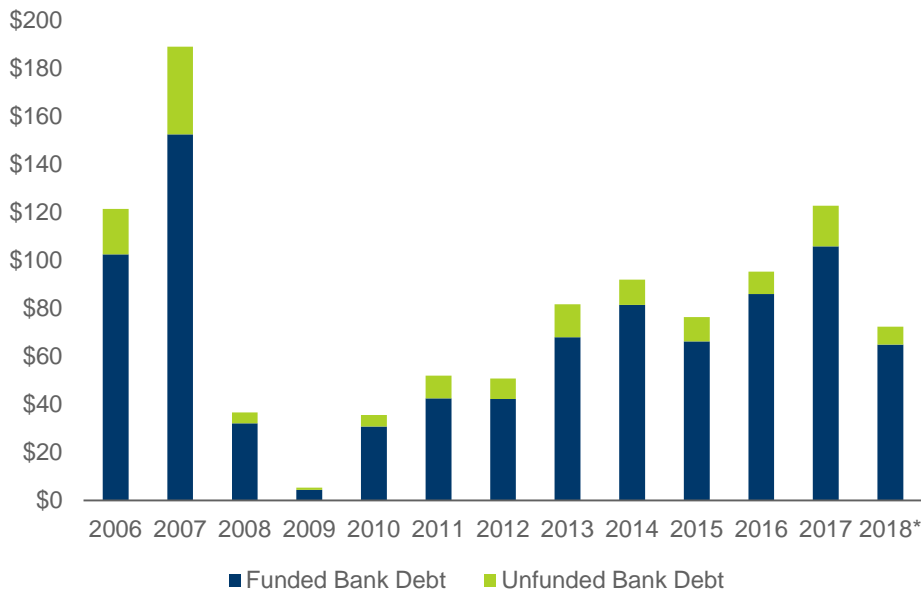


- Global private capital dry powder continues to increase, topping \$1.7 trillion across all fund types
- Private equity comprised over 60% of total dry powder in the market as of Q2 2018

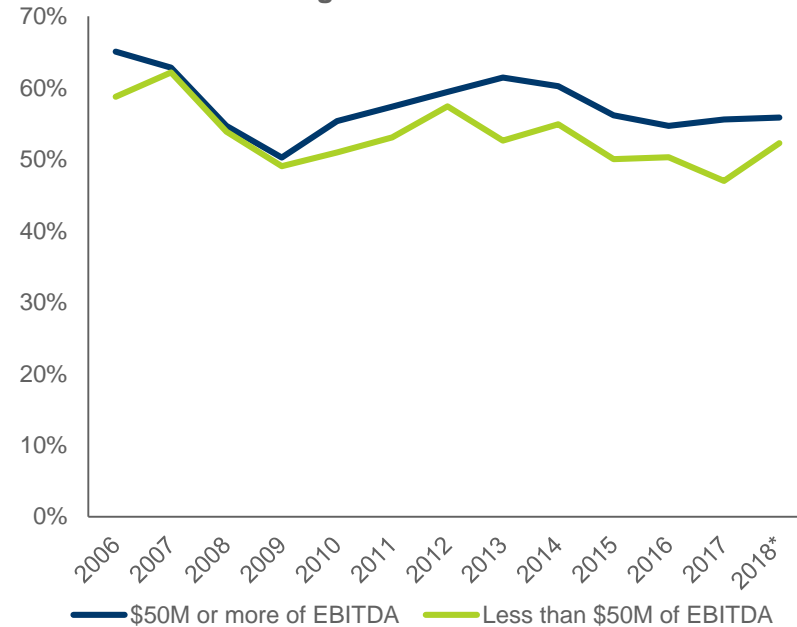
Source: Preqin, *as of June 30, 2018.

PRIVATE EQUITY - U.S. DEBT MARKETS

Total U.S. LBO Loan Volume (\$B) (2006 – Q2 2018)



Percentage of Debt Used in LBOs

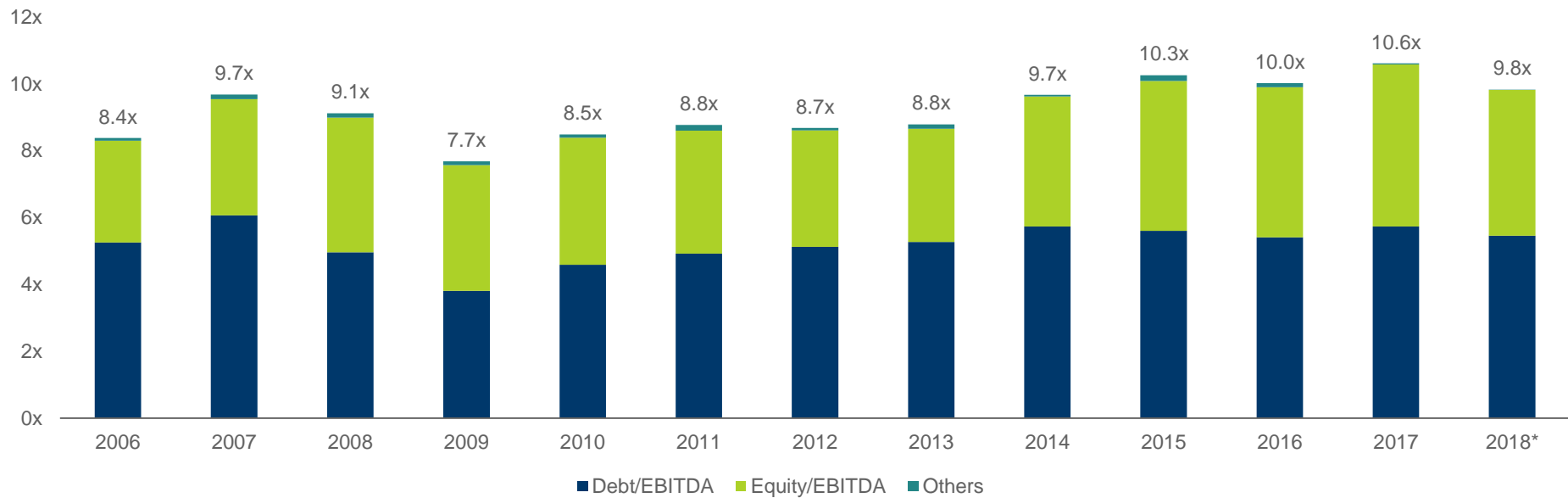


- Loan volume in 2017 increased by approximately \$27 billion from the prior year and is on pace to once again increase year-over-year through the second quarter of 2018
- Availability of debt capital has slightly driven up the percentage of debt used to finance leveraged buyouts through the second quarter of 2018

Source: S&P LBO, *as of June 30, 2018.
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PRIVATE EQUITY - U.S. LBO PURCHASE PRICE MULTIPLES

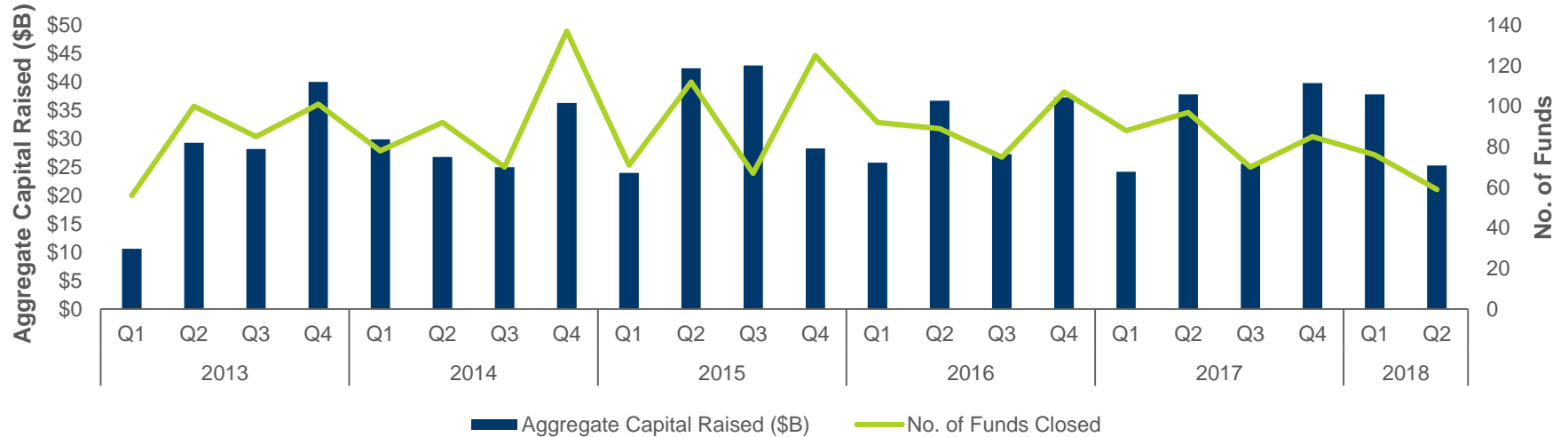
Purchase Price Multiples of U.S. LBO Transactions (2006 – Q2 2018)



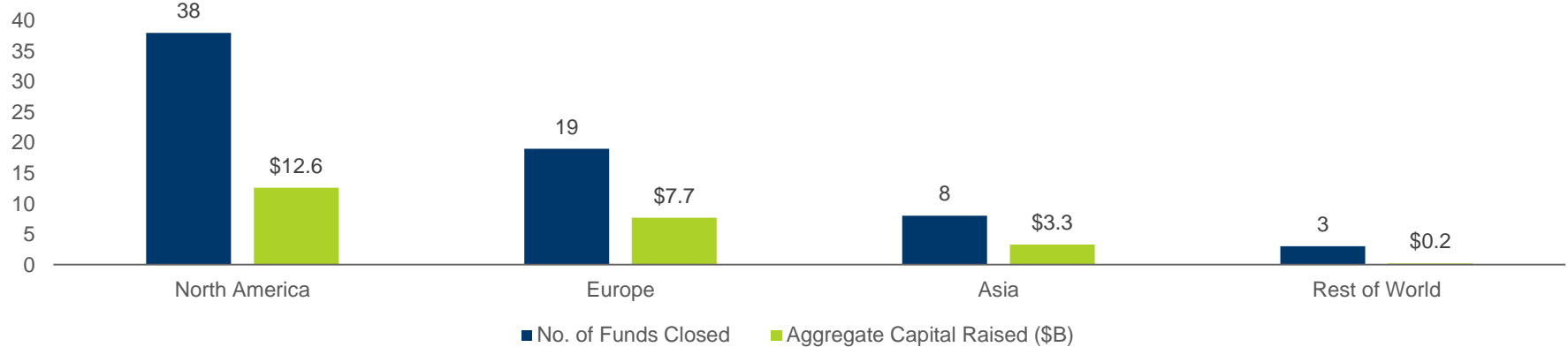
- Despite the amount of debt that is readily available, purchase price multiples for U.S. LBOs decreased slightly through Q2 2018 relative to 2017 levels

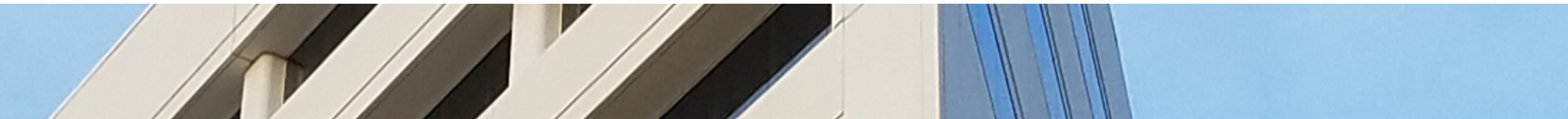
PRIVATE REAL ESTATE – FUNDRAISING ACTIVITY

Quarterly Global Closed-End Private Real Estate Fundraising (2013 - Q2 2018)



Closed-End Private Real Estate Fundraising in Q2 2018 by Primary Geographic Focus





APPENDIX

Glossary

Cumulative Skill Graph

- Graphical representation of the statistical significance of excess returns over a specified benchmark for the cumulative time period being analyzed.
- Positive cumulative excess performance is shown when the dark blue line is above the "0.00" line measured on the left Y axis.
- The light blue lines that form a channel, or the shape of a trumpet horn, represent the boundaries of the statistical significance test.
- The width of the channel is calculated based on the amount of "Excess Risk" that the manager takes over the benchmark.

