The City of Grand Rapids – General Retirement System

Executive Summary of Investment Performance

March 31, 2017

Contents

Wilshire

Investment Performance	Tab 1
Capital Market Review	Tab 2
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Total Fund

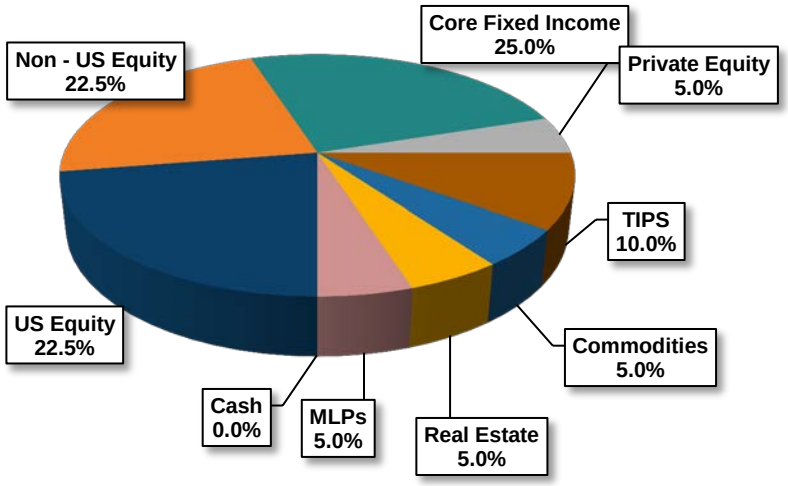
Policy Allocation vs Actual Allocation

Wilshire

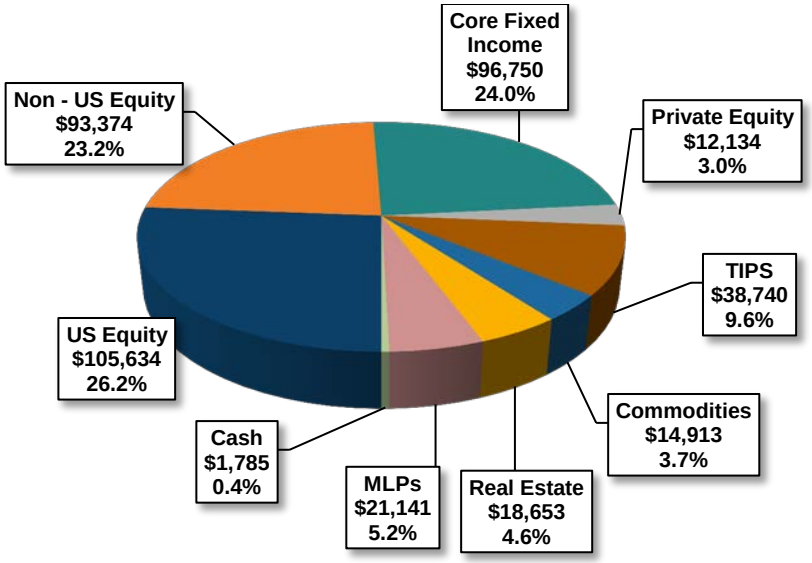
Total Fund Composite

As of March 31, 2017

Policy Allocation[1]



Actual Allocation (in $'000)



Total Assets: $403,123,339

[1] Effective date: April 1, 2015

Policy Allocation vs Actual Allocation

Wilshire

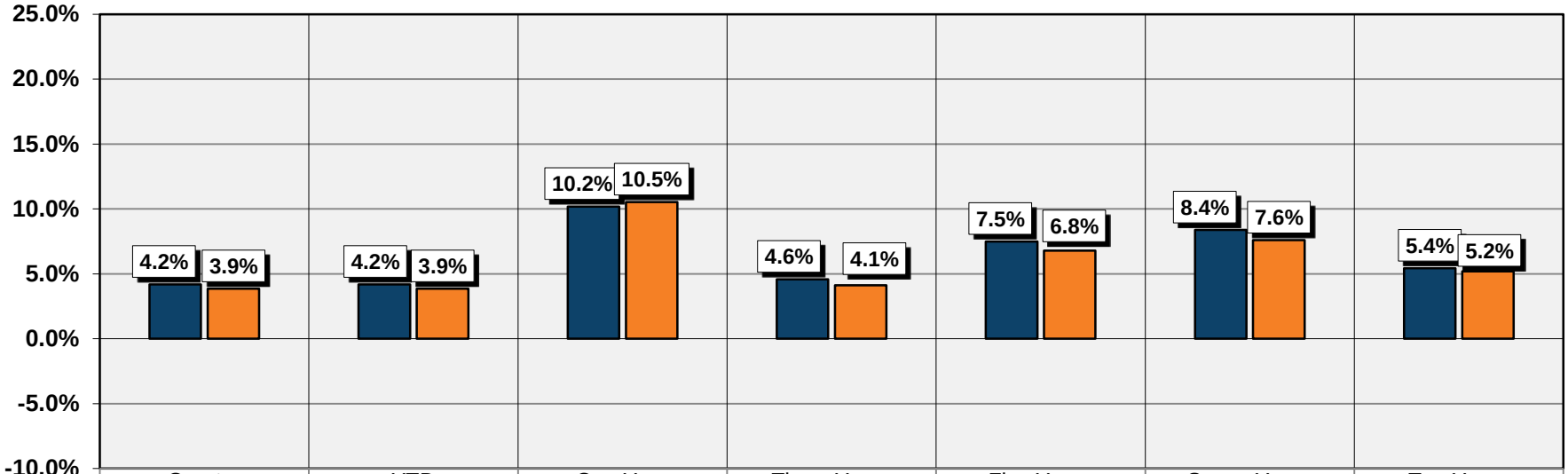
Total Fund Composite

As of March 31, 2017

	Market Value (in $'000)	Asset Allocation	
		Actual	Policy
US Equity	$105,634	26.20%	22.50%
Non - US Equity	$93,374	23.16%	22.50%
Core Fixed Income	$96,750	24.00%	25.00%
Private Equity	$12,134	3.01%	5.00%
TIPS	$38,740	9.61%	10.00%
Commodities	$14,913	3.70%	5.00%
Real Estate	$18,653	4.63%	5.00%
MLPs	$21,141	5.24%	5.00%
Cash	$1,785	0.44%	0.00%
Total Fund Composite	$403,123	100.00%	100.00%

Total Fund Composite*

Periods Ended March 31, 2017



	Quarter	YTD	One Year	Three Years	Five Years	Seven Years	Ten Years
Total Fund	4.2%	4.2%	10.2%	4.6%	7.5%	8.4%	5.4%
Total Fund Policy**	3.9%	3.9%	10.5%	4.1%	6.8%	7.6%	5.2%

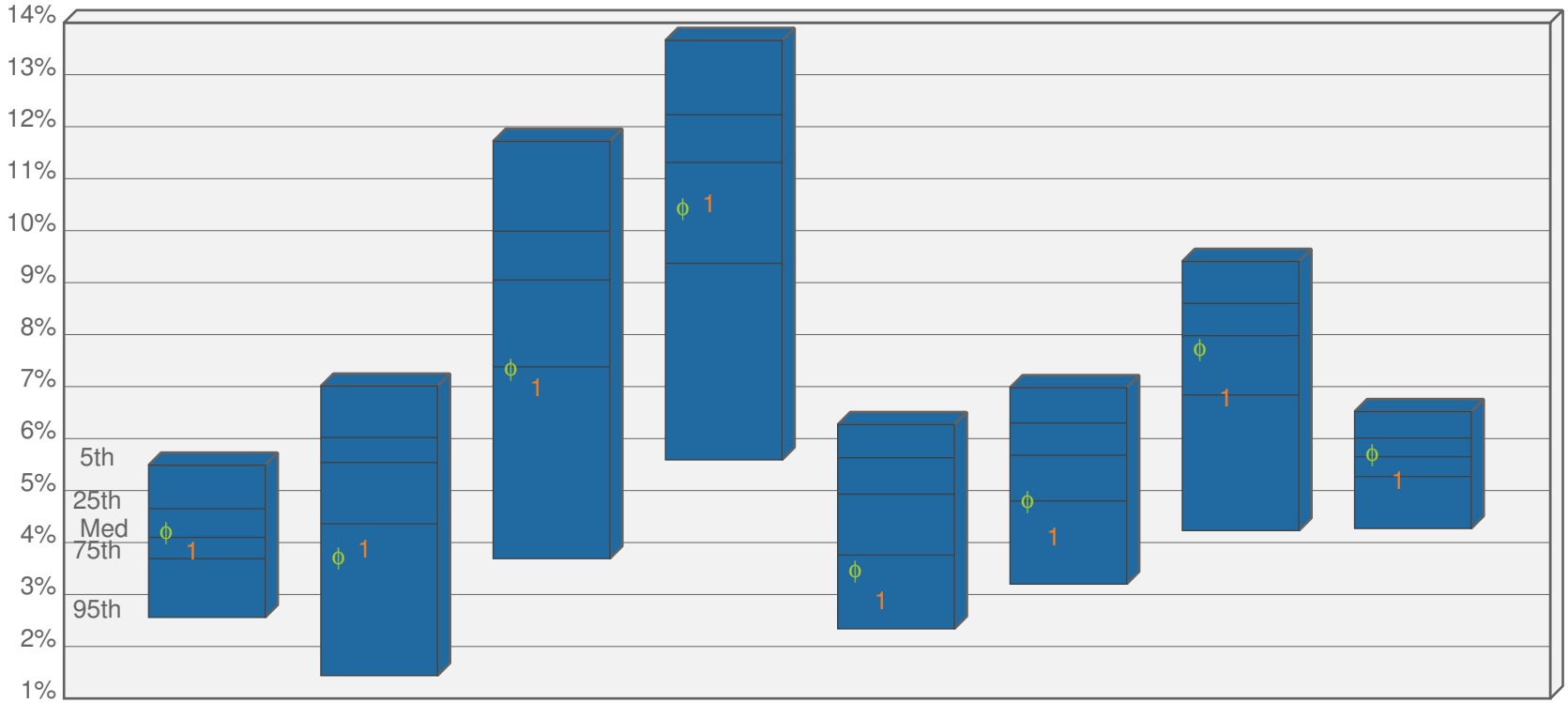
*Returns are net of fees

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

Wilshire

Total Fund Composite

Periods Ended March 31, 2017



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
ϕ Total Fund	4.25 (40)	3.75 (80)	7.38 (76)	10.47 (69)	3.51 (78)	4.84 (74)	7.76 (58)	5.74 (45)
1 Policy Index	3.85 (68)	3.88 (79)	6.99 (79)	10.53 (67)	2.89 (86)	4.11 (81)	6.79 (76)	5.20 (79)
5th %tile	5.49	7.01	11.72	13.66	6.27	6.98	9.41	6.52
25th %tile	4.65	6.02	9.99	12.23	5.63	6.30	8.60	6.01
Median	4.10	5.54	9.05	11.31	4.93	5.68	7.98	5.65
75th %tile	3.69	4.36	7.38	9.37	3.76	4.80	6.84	5.27
95th %tile	2.56	1.44	3.69	5.59	2.34	3.20	4.23	4.27
Number of Funds	163	163	162	162	157	152	149	116

*TUCS Total Ret of Master Trusts - Public Universe - Gross of Fees

Performance Comparison

Wilshire

Trailing Returns

Periods Ended March 31, 2017

	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	**5.77**	**5.77**	**20.21**	**10.10**	**13.61**	**13.47**	**8.04**	**9/30/87**	**8.42**
Wilshire 5000	5.61	5.61	18.35	10.01	13.22	12.92	7.61	9/30/87	9.44
Value Added	0.16	0.16	1.86	0.09	0.39	0.55	0.43	9/30/87	-1.02
Core Fixed Composite									
Net of Fee Return	**1.45**	**1.45**	**3.06**	**3.67**	**3.70**	**5.04**	**5.09**	**9/30/87**	**6.81**
Barclays Aggregate	0.82	0.82	0.44	2.68	2.34	3.48	4.27	9/30/87	6.58
Value Added	0.63	0.63	2.62	0.99	1.36	1.55	0.82	9/30/87	0.22
Non-U.S. Equity Composite									
Net of Fee Return	**8.30**	**8.30**	**9.43**	**2.06**	**6.19**	**6.39**	**1.38**	**6/30/95**	**7.28**
Policy Benchmark	7.86	7.86	13.13	0.56	4.36	3.82	1.35	6/30/95	4.99
Value Added	0.44	0.44	-3.71	1.50	1.84	2.57	0.03	6/30/95	2.29
Real Estate Composite									
Net of Fee Return	**1.04**	**1.04**	**-2.52**	**3.56**	**5.85**	**6.84**		**6/30/09**	**10.20**
FTSE EPRA/NAREIT Dev (N)	2.07	2.07	0.94	5.29	7.32	8.15		6/30/09	11.59
Value Added	-1.03	-1.03	-3.46	-1.73	-1.47	-1.31		6/30/09	-1.39
Commodities Composite									
Net of Fee Return	**0.11**	**0.11**	**11.60**	**-11.10**				**3/31/13**	**-10.18**
Bloomberg Commodity Index	-2.33	-2.33	8.71	-13.91				3/31/13	-11.10
Value Added	2.44	2.44	2.89	2.81				3/31/13	0.92
MLP Composite									
Net of Fee Return	**4.27**	**4.27**	**32.30**					**3/31/15**	**-6.37**
S&P MLP Index	3.70	3.70	35.01					3/31/15	-7.93
Value Added	0.57	0.57	-2.71					3/31/15	1.55

Performance Comparison

Wilshire

Trailing Returns

Periods Ended March 31, 2017

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
TIPS Composite									
Net of Fee Return	**1.24**	**1.24**	**1.58**					**6/30/15**	**2.43**
Barclays U.S. TIPS	1.26	1.26	1.48					6/30/15	2.33
Value Added	-0.02	-0.02	0.09					6/30/15	0.09
Total Real Assets Composite									
Net of Fee Return	**1.70**	**1.70**	**8.24**					**3/31/15**	**-1.57**
Policy Index	1.19	1.19	9.22					3/31/15	-1.63
Value Added	0.51	0.51	-0.98					3/31/15	0.06
Alternative Investments Composite									
Net of Fee Return	**2.99**	**2.99**	**9.16**	**10.72**	**7.73**			**6/30/10**	**7.17**
Wilshire 5000 +2.5%	6.23	6.23	20.85	12.51	15.72			6/30/10	17.94
Value Added	-3.24	-3.24	-11.69	-1.79	-7.99			6/30/10	-10.77
Total Fund									
Net of Fee Return	**4.19**	**4.19**	**10.19**	**4.58**	**7.50**	**8.38**	**5.44**	**9/30/87**	**7.69**
Policy Index	3.85	3.85	10.53	4.11	6.79	7.60	5.20	9/30/87	8.27
Value Added	0.34	0.34	-0.34	0.47	0.71	0.79	0.24	9/30/87	-0.58

Custom Benchmark Specification

Wilshire

Total Fund

March 31, 2017

	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 X US (N)
	9/09	3/10	5.00	FTSE EPRA/NAREIT Dev (N)
			15.00	MSCI ACWI X 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 X US (N)
			45.00	Wilshire 5000
	3/13	3/15	5.00	FTSE EPRA/NAREIT Dev (N)
			5.00	Bloomberg Commodity Index
			5.00	Wilshire 5000 + 2.5%
			30.00	Bloomberg Aggregate
			15.00	MSCI ACWI X US (N)

Custom Benchmark Specification

Wilshire

Total Fund

March 31, 2017

	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)			40.00	Wilshire 5000
	6/15	3/17	22.50	MSCI ACWI X US (N)
			25.00	Bloomberg Aggregate
			10.00	Bloomberg U.S. TIPS
			5.00	S&P MLP Index
			22.50	Wilshire 5000
			5.00	Wilshire 5000 + 2.5%
			5.00	Bloomberg Commodity Index
			5.00	FTSE EPRA/NAREIT Dev (N)

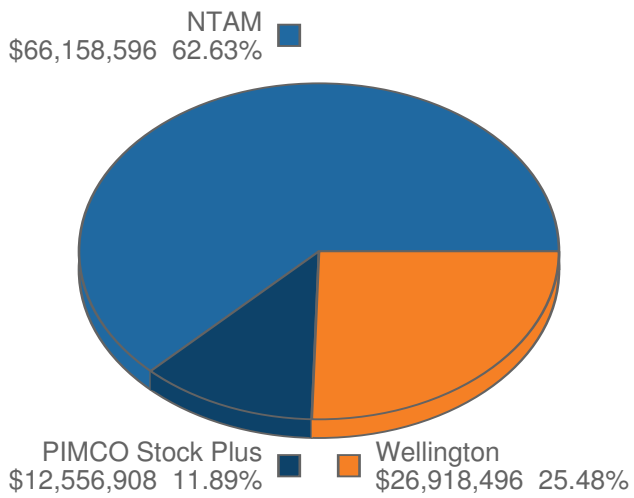
U.S. Equity

Manager Allocation

Wilshire

U.S. Equity Composite

As of March 31, 2017

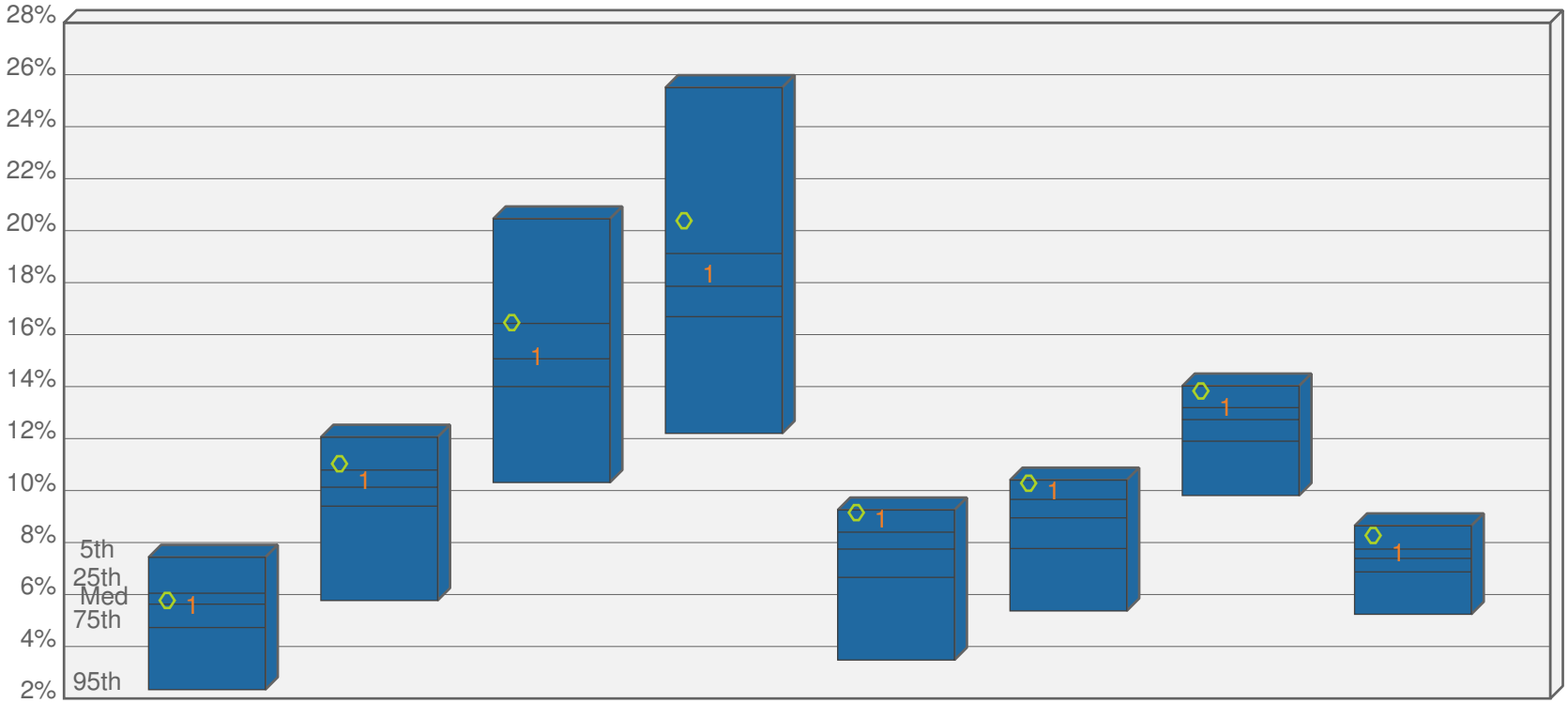


Performance Comparison

Wilshire

U.S. Equity Composite

Periods Ended March 31, 2017



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
◇ U.S. Equity Composite	5.82 (37)	11.08 (17)	16.51 (23)	20.43 (14)	9.20 (6)	10.33 (9)	13.88 (8)	8.32 (10)
1 Wilshire 5000	5.61 (50)	10.41 (33)	15.15 (43)	18.35 (35)	8.91 (12)	10.01 (14)	13.22 (24)	7.61 (39)
5th %tile	7.43	12.05	20.45	25.50	9.25	10.40	14.02	8.64
25th %tile	6.05	10.79	16.43	19.12	8.40	9.66	13.19	7.75
Median	5.63	10.13	15.07	17.86	7.75	8.95	12.73	7.39
75th %tile	4.73	9.40	14.00	16.69	6.66	7.77	11.90	6.87
95th %tile	2.34	5.77	10.31	12.20	3.48	5.37	9.81	5.24
Number of Funds	162	160	154	153	137	131	106	85

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

General

Performance Comparison

Wilshire

Trailing Returns

Periods Ended March 31, 2017

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
NTAM									
Net of Fee Return	**6.01**	**6.01**	**17.09**	**10.41**	**13.32**	**12.93**	**7.42**	**9/30/98**	**6.91**
Policy Benchmark	6.07	6.07	17.17	10.37	13.30	12.94	7.47	9/30/98	6.91
Value Added	-0.05	-0.05	-0.08	0.04	0.02	-0.01	-0.05	9/30/98	0.00
PIMCO Stock Plus									
Net of Fee Return	**6.26**	**6.26**	**18.48**	**9.91**	**14.10**	**13.97**	**8.31**	**9/30/00**	**5.68**
Standard & Poor's 500	6.07	6.07	17.17	10.37	13.30	12.94	7.51	9/30/00	5.11
Value Added	0.20	0.20	1.31	-0.46	0.80	1.03	0.80	9/30/00	0.57
Wellington									
Net of Fee Return	**5.00**	**5.00**	**29.31**	**9.22**	**14.93**	**15.21**	**10.16**	**9/30/99**	**11.56**
Russell 2000	2.47	2.47	26.22	7.22	12.35	12.27	7.12	9/30/99	8.39
Value Added	2.53	2.53	3.10	2.00	2.58	2.94	3.03	9/30/99	3.17
U.S. Equity Composite									
Net of Fee Return	**5.77**	**5.77**	**20.21**	**10.10**	**13.61**	**13.47**	**8.04**	**9/30/87**	**8.42**
Wilshire 5000	5.61	5.61	18.35	10.01	13.22	12.92	7.61	9/30/87	9.44
Value Added	0.16	0.16	1.86	0.09	0.39	0.55	0.43	9/30/87	-1.02

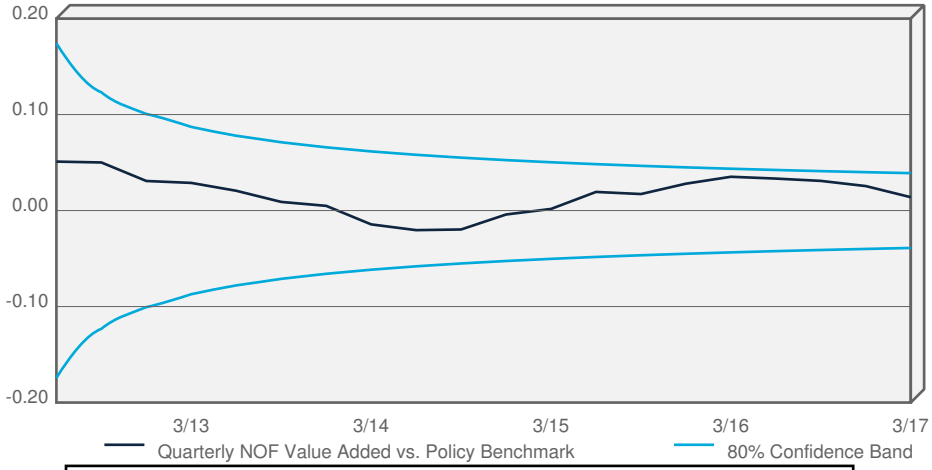
Investment Manager Analysis

Wilshire

NTAM

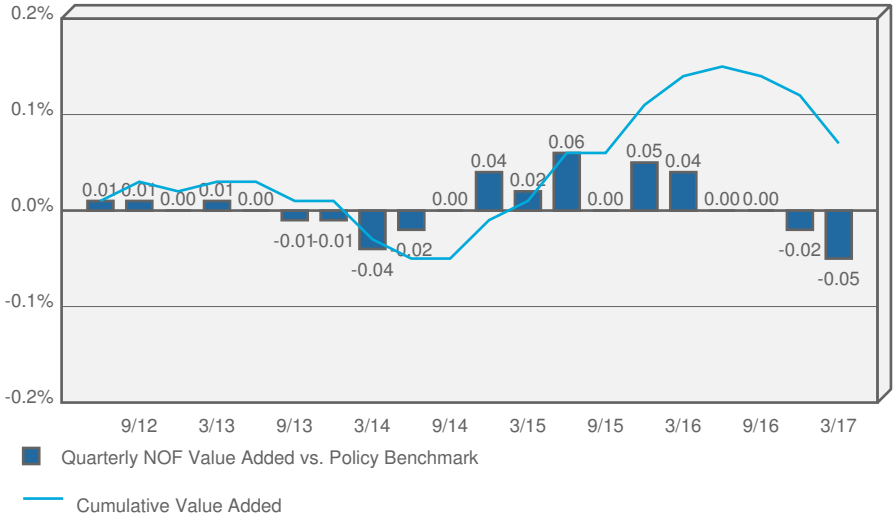
March 31, 2017

Cumulative Skill Analysis vs Benchmark

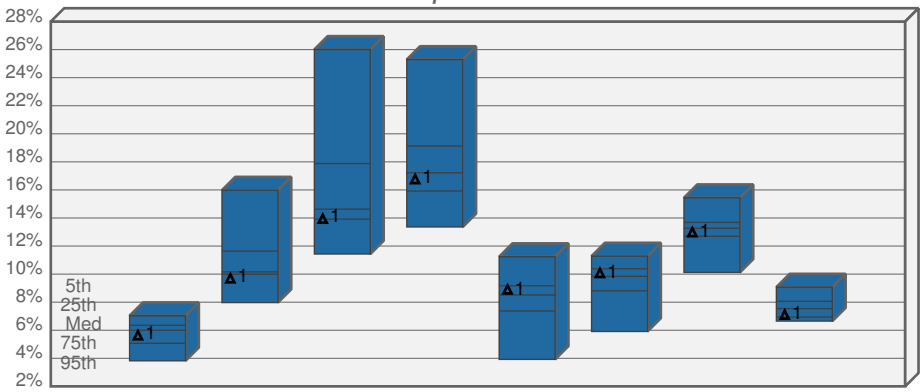


Excess Return:	**0.01**	**Information Ratio:**	**0.26**
Excess Risk:	**0.05**	**T-Stat:**	**0.59**

Value-Added Analysis vs Benchmark

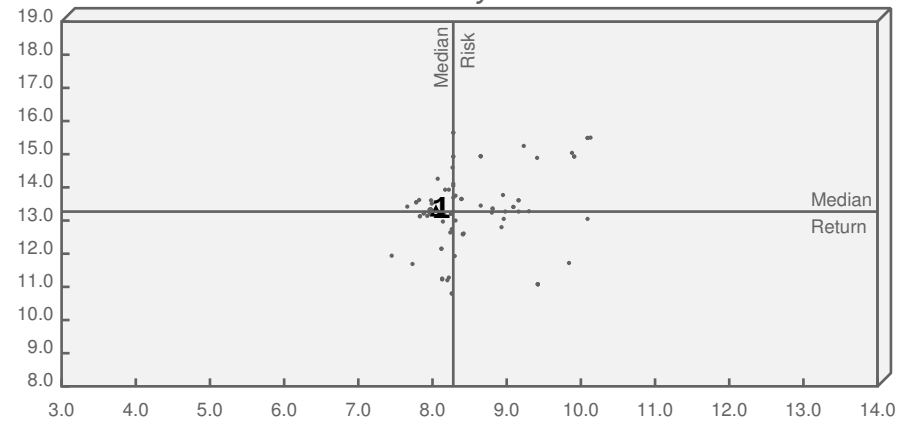


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
▲ NTAM	6.02 (48)	10.08 (71)	14.33 (70)	17.15 (57)	9.29 (16)	10.46 (16)	13.37 (37)	7.49 (54)
1 Policy Benchma	6.07 (36)	10.12 (62)	14.36 (65)	17.17 (56)	9.21 (23)	10.37 (25)	13.30 (49)	7.47 (55)
Median	6.00	10.16	14.63	17.22	8.51	9.84	13.27	7.54
Number of Funds	147	147	146	144	143	139	123	70

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
NTAM	▲	13.37	37	8.19	63
Policy Benchmark	1	13.30	49	8.19	63
Median		13.27		8.28	

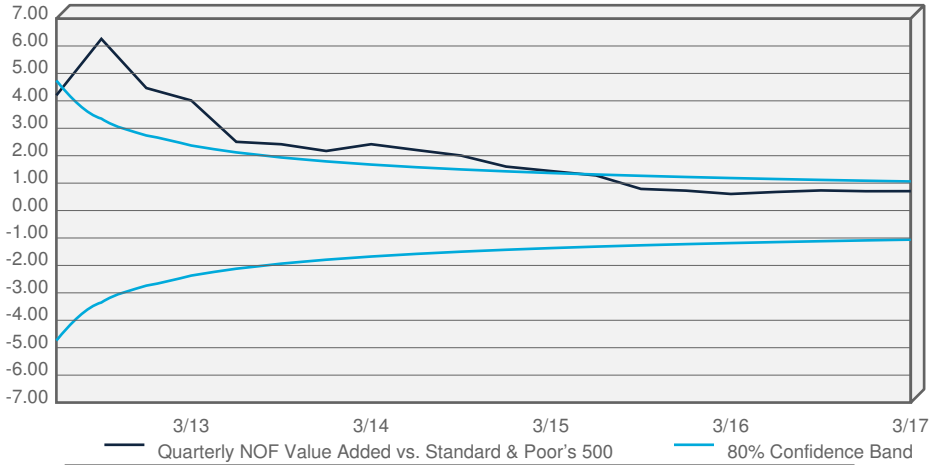
*TUCS Total Returns of Large Neutral Equity Portfolios Universe - Gross of Fees

General

PIMCO Stock Plus

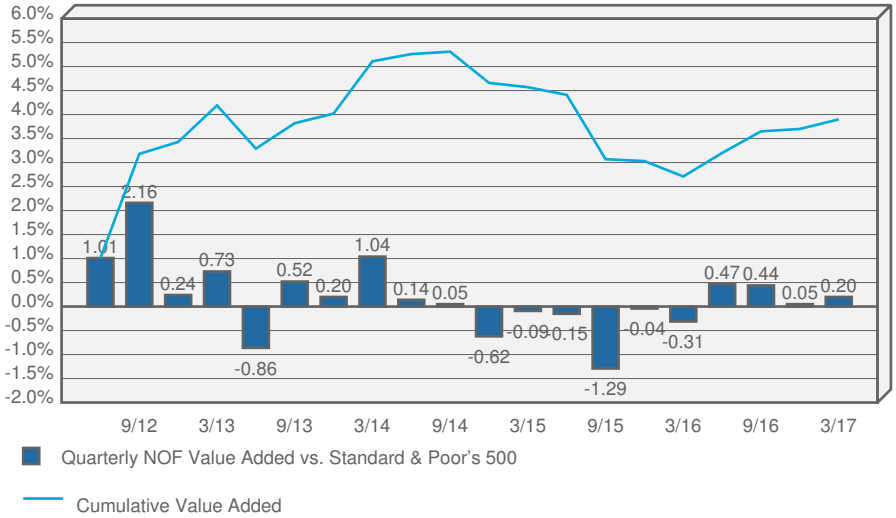
March 31, 2017

Cumulative Skill Analysis vs Benchmark

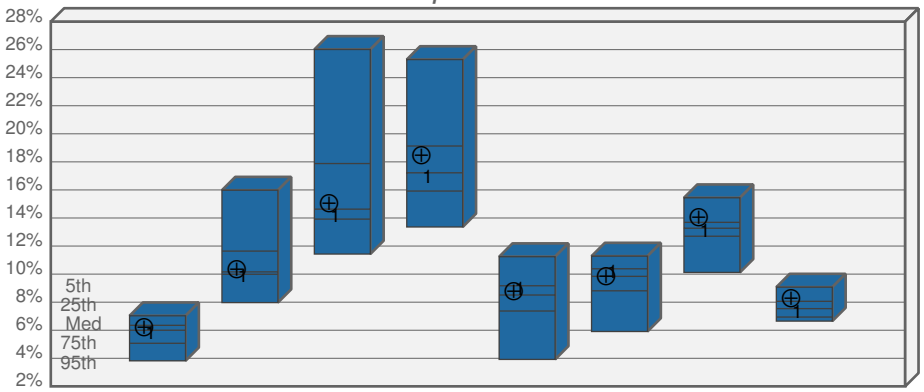


Excess Return:	**0.71**	**Information Ratio:**	**0.49**
Excess Risk:	**1.44**	**T-Stat:**	**1.10**

Value-Added Analysis vs Benchmark

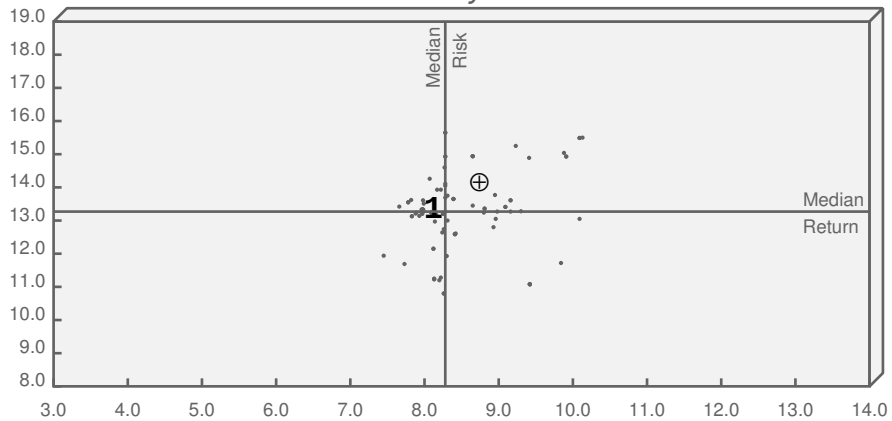


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊕ PIMCO Stock Pl	6.26 (26)	10.38 (40)	15.11 (41)	18.48 (27)	8.79 (39)	9.91 (47)	14.10 (17)	8.31 (13)
1 Standard & Poo	6.07 (36)	10.12 (62)	14.36 (65)	17.17 (56)	9.21 (23)	10.37 (25)	13.30 (49)	7.51 (54)
Median	6.00	10.16	14.63	17.22	8.51	9.84	13.27	7.54
Number of Funds	147	147	146	144	143	139	123	70

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
PIMCO Stock Plus	⊕	14.10	17	8.80	37
Standard & Poor's 500	1	13.30	49	8.19	63
Median		13.27		8.28	

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

Confidential

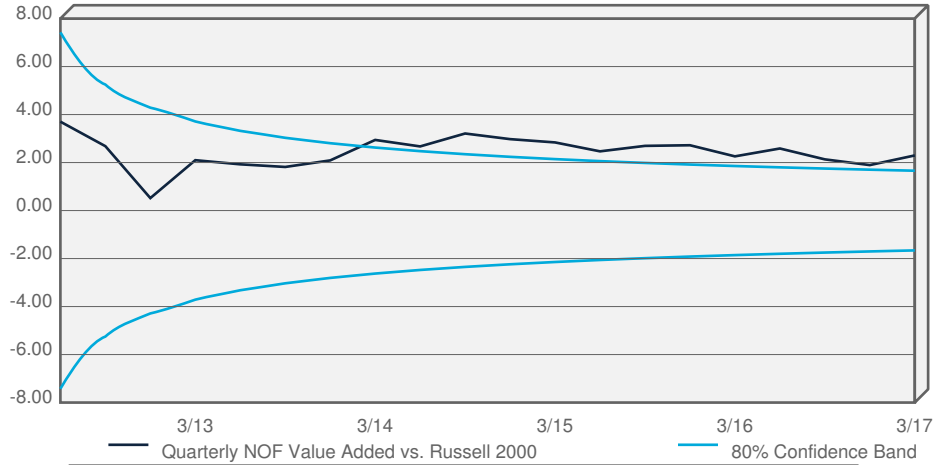
Investment Manager Analysis

Wilshire

Wellington

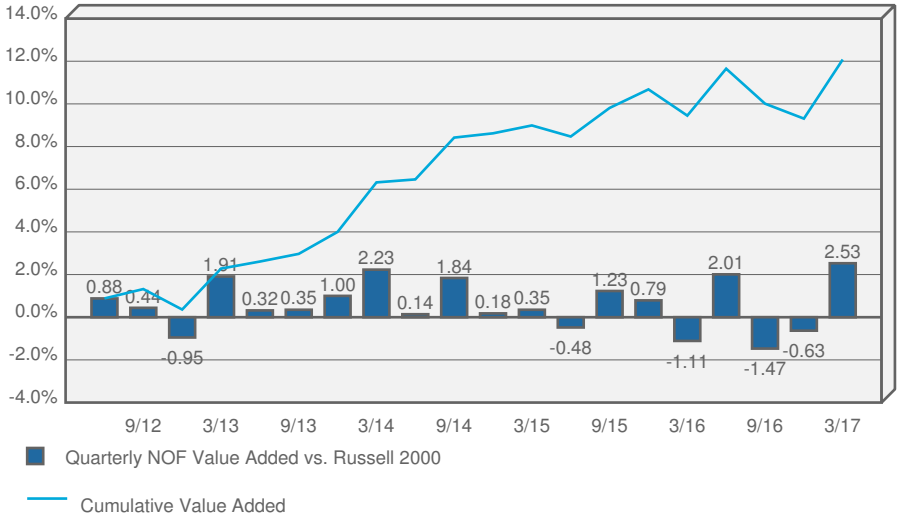
March 31, 2017

Cumulative Skill Analysis vs Benchmark

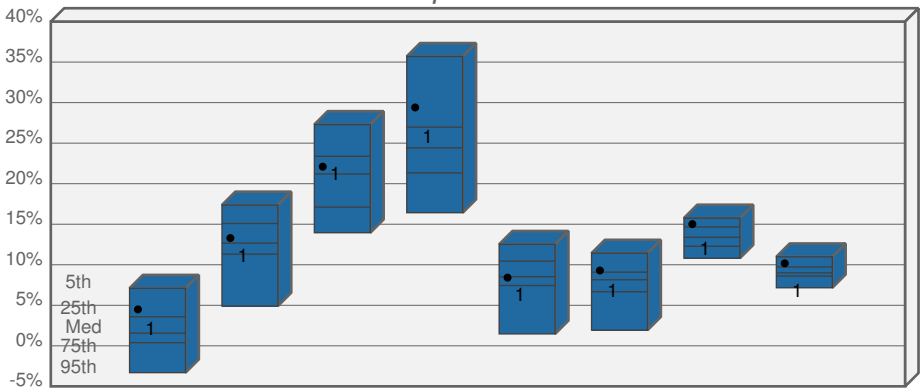


Excess Return:	**2.30**	**Information Ratio:**	**1.02**
Excess Risk:	**2.26**	**T-Stat:**	**2.28**

Value-Added Analysis vs Benchmark

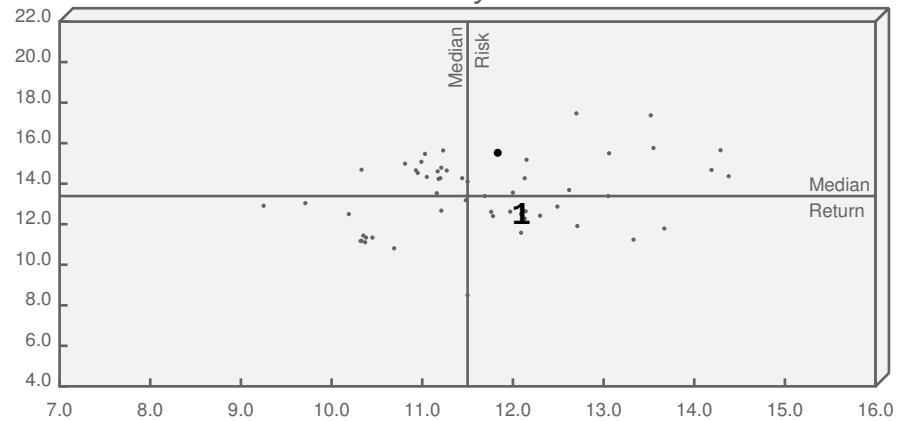


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
● Wellington	5.15 (13)	13.95 (36)	22.76 (31)	30.06 (9)	9.07 (43)	9.95 (15)	15.67 (5)	10.83 (9)
1 Russell 2000	2.47 (34)	11.52 (69)	21.60 (43)	26.22 (30)	6.72 (79)	7.22 (72)	12.35 (73)	7.12 (95)
Median	1.57	12.67	21.20	24.42	8.53	8.15	13.39	9.00
Number of Funds	76	76	76	76	74	73	55	31

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Wellington	●	15.67	5	11.95	42
Russell 2000	1	12.35	73	12.15	30
Median		13.39		11.50	

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

Confidential

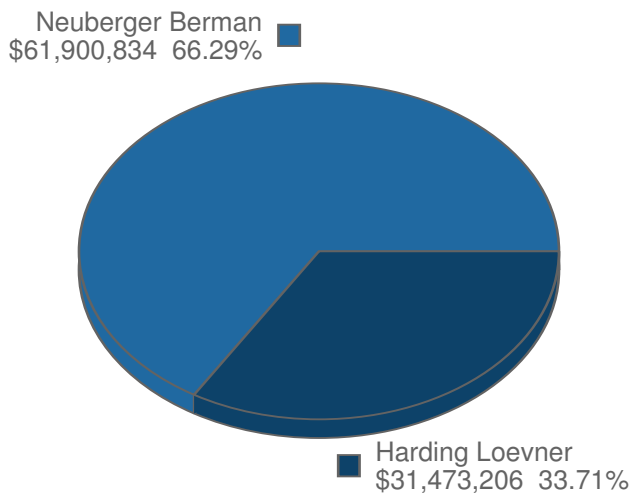
Non - U.S. Equity

Manager Allocation

Wilshire

Non-U.S. Equity Composite

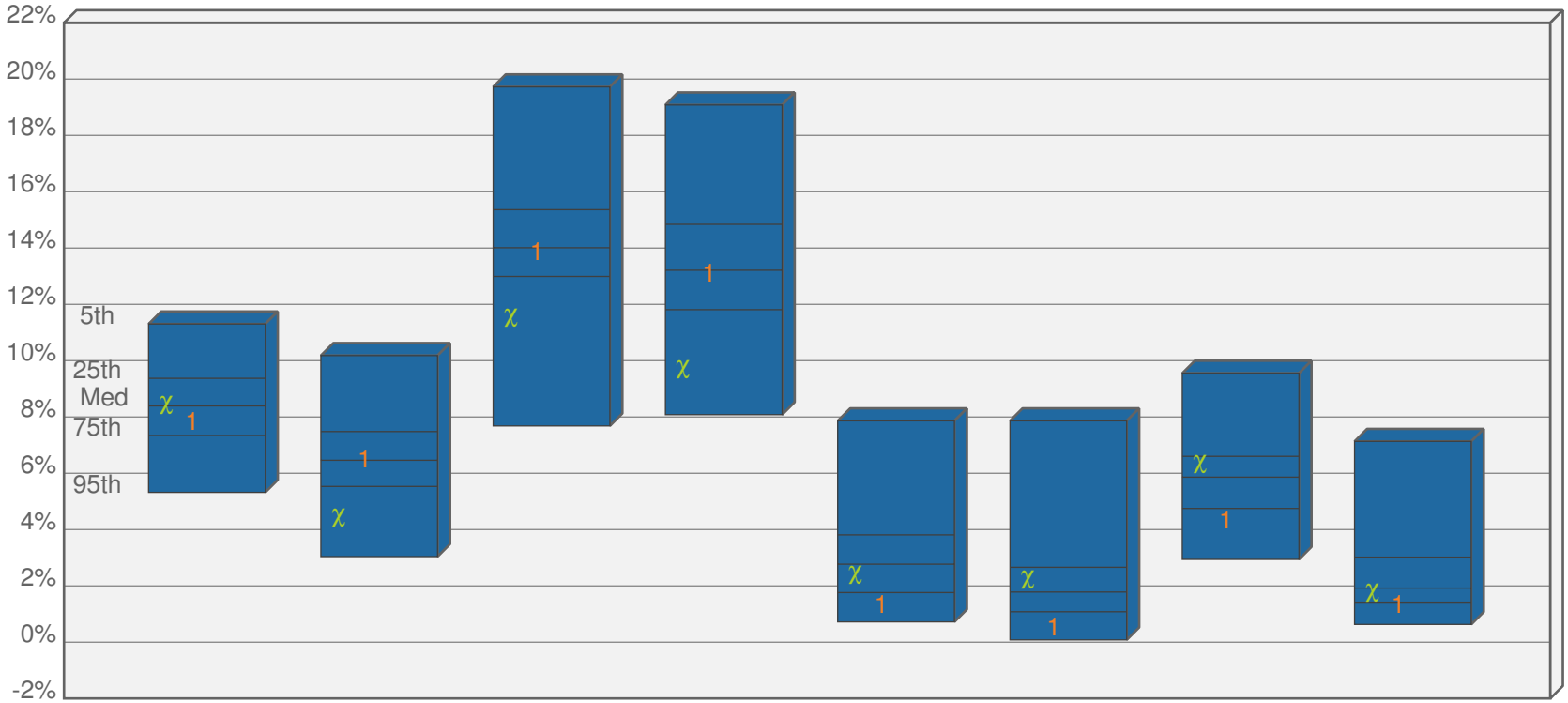
As of March 31, 2017



Wilshire

Non-U.S. Equity Composite

Periods Ended March 31, 2017



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
χ Non-U.S. Equity Composit	8.35 (51)	4.35 (89)	11.46 (84)	9.62 (92)	2.33 (61)	2.15 (37)	6.25 (36)	1.69 (57)
1 Policy Benchmark	7.86 (66)	6.51 (49)	13.87 (52)	13.13 (51)	1.36 (89)	0.56 (89)	4.36 (87)	1.35 (77)
5th %tile	11.30	10.18	19.72	19.08	7.86	7.86	9.55	7.13
25th %tile	9.37	7.48	15.36	14.84	3.81	2.66	6.60	3.02
Median	8.39	6.46	14.01	13.21	2.77	1.78	5.86	1.92
75th %tile	7.34	5.53	12.99	11.81	1.76	1.08	4.75	1.42
95th %tile	5.32	3.04	7.68	8.08	0.72	0.08	2.94	0.63
Number of Funds	128	123	120	119	104	102	87	71

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

General

Performance Comparison

Wilshire

Trailing Returns

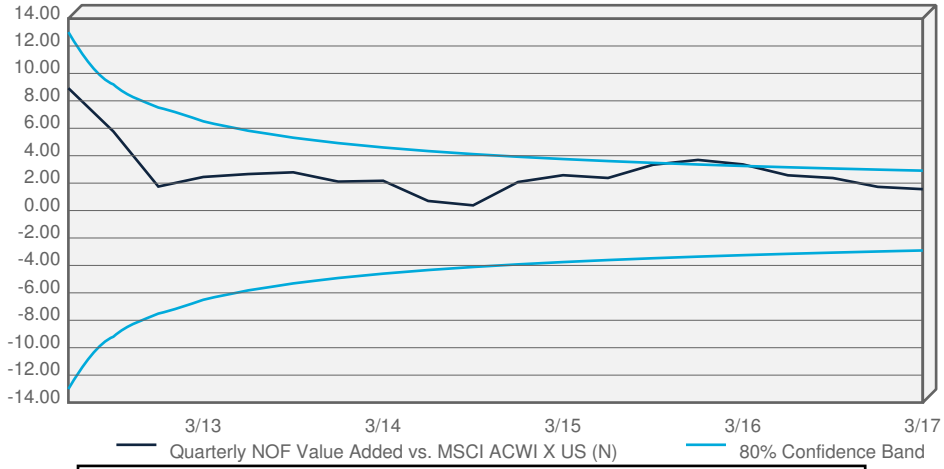
Periods Ended March 31, 2017

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Neuberger Berman									
Net of Fee Return	**7.42**	**7.42**	**7.08**	**1.72**	**5.98**	**6.24**	**1.28**	**6/30/06**	**2.73**
MSCI ACWI X US (N)	7.86	7.86	13.13	0.56	4.36	3.82	1.35	6/30/06	2.98
Value Added	-0.43	-0.43	-6.06	1.16	1.63	2.42	-0.07	6/30/06	-0.25
Harding Loevner									
Net of Fee Return	**10.07**	**10.07**	**14.18**					**3/31/15**	**3.61**
MSCI ACWI X US (N)	7.86	7.86	13.13					3/31/15	1.36
Value Added	2.21	2.21	1.05					3/31/15	2.24
Non-U.S. Equity Composite									
Net of Fee Return	**8.30**	**8.30**	**9.43**	**2.06**	**6.19**	**6.39**	**1.38**	**6/30/95**	**7.28**
Policy Benchmark	7.86	7.86	13.13	0.56	4.36	3.82	1.35	6/30/95	4.99
Value Added	0.44	0.44	-3.71	1.50	1.84	2.57	0.03	6/30/95	2.29

Neuberger Berman

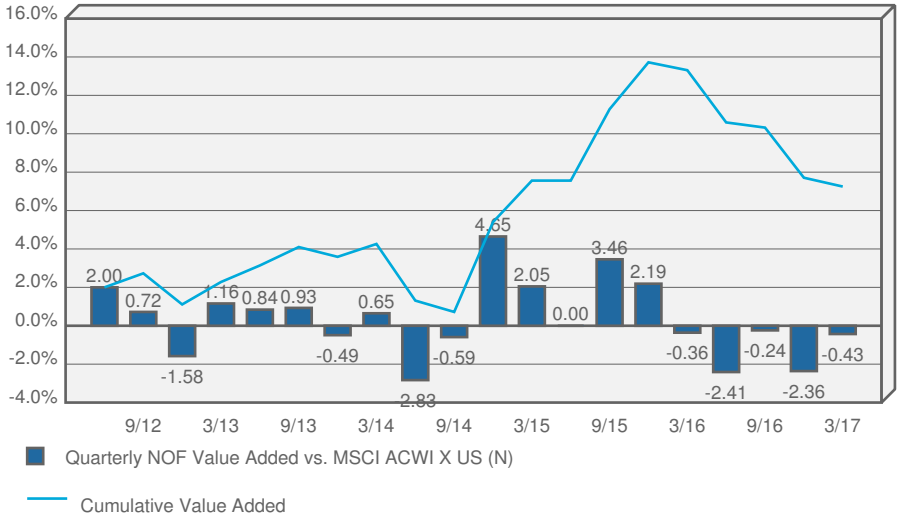
March 31, 2017

Cumulative Skill Analysis vs Benchmark

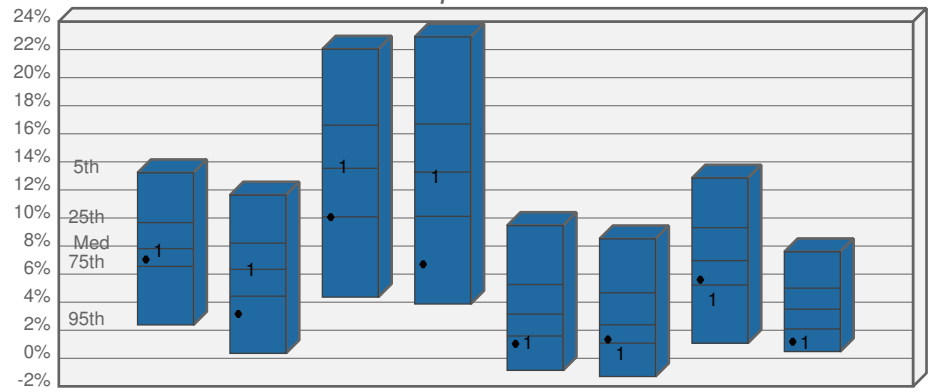


Excess Return:	**1.56**	**Information Ratio:**	**0.39**
Excess Risk:	**3.96**	**T-Stat:**	**0.88**

Value-Added Analysis vs Benchmark

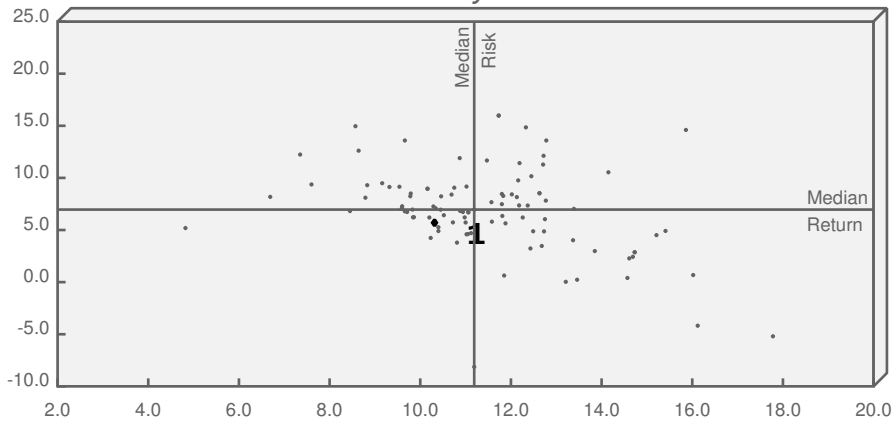


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
♦ Neuberger Berm	7.42 (59)	3.54 (80)	10.44 (73)	7.08 (86)	1.41 (78)	1.72 (61)	5.98 (66)	1.56 (85)
1 MSCI ACWI X US	7.86 (49)	6.51 (45)	13.87 (46)	13.13 (50)	1.36 (79)	0.56 (83)	4.36 (82)	1.35 (88)
Median	7.82	6.34	13.54	13.27	3.15	2.39	6.96	3.50
Number of Funds	1294	1285	1272	1259	1217	1170	1012	557

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret Value	Gross Fee Ret Rank	Standard Deviation Value	Standard Deviation Rank
Neuberger Berman	♦	5.98	66	10.55	68
MSCI ACWI X US (N)	1	4.36	82	11.35	46
Median		6.96		11.19	

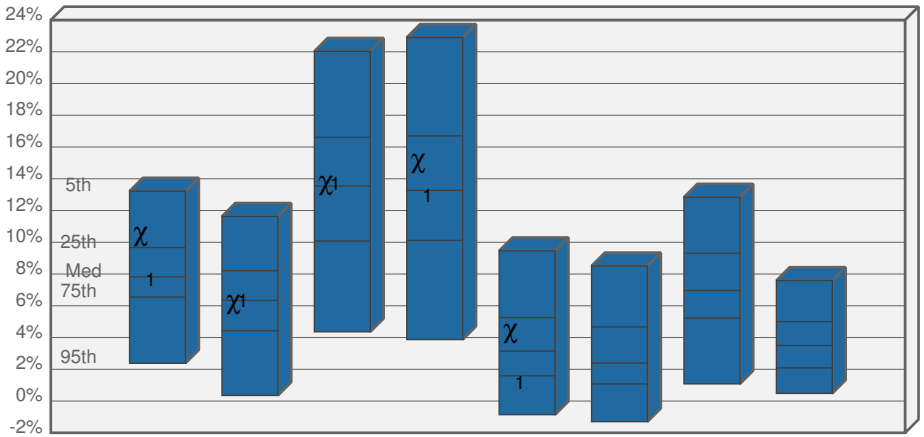
*TUCS Total Returns of International Equity Portfolios Universe - Gross of Fees

Wilshire

Harding Loevner

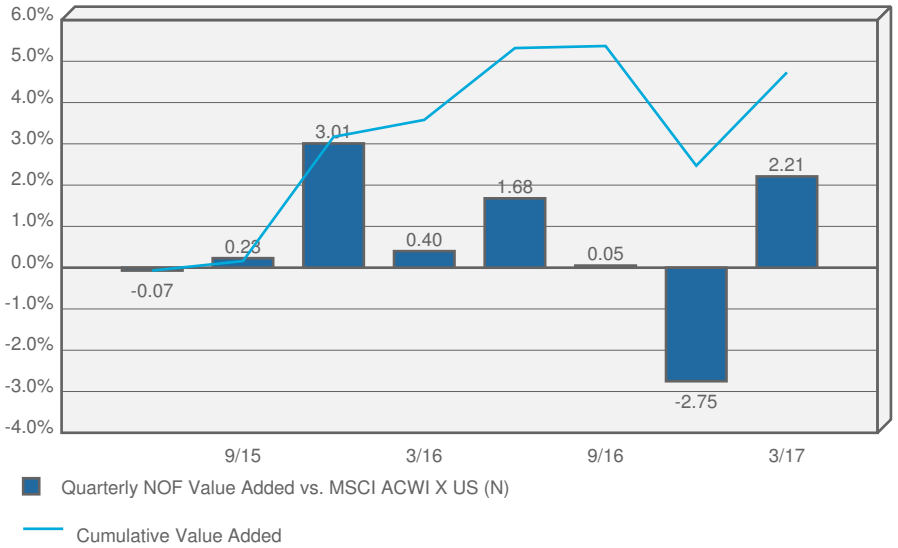
March 31, 2017

*Performance Comparison vs Peer Universe**



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
χ Harding Loevne	10.21 (18)	5.95 (55)	13.47 (50)	14.80 (36)	4.12 (37)			
1 MSCI ACWI X US	7.86 (49)	6.51 (45)	13.87 (46)	13.13 (50)	1.36 (79)			
Median	7.82	6.34	13.54	13.27	3.15	2.39	6.96	3.50
Number of Funds	1294	1285	1272	1259	1217	1170	1012	557

Value-Added Analysis vs Benchmark



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

Confidential

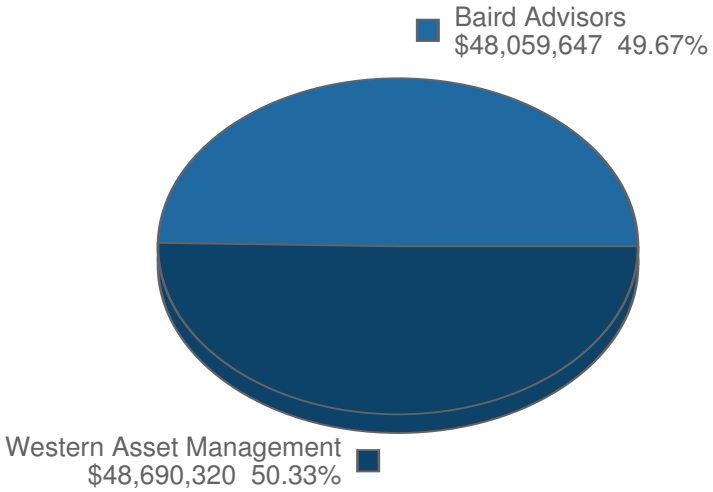
Core Fixed Income

Manager Allocation

Wilshire

Core Fixed Composite

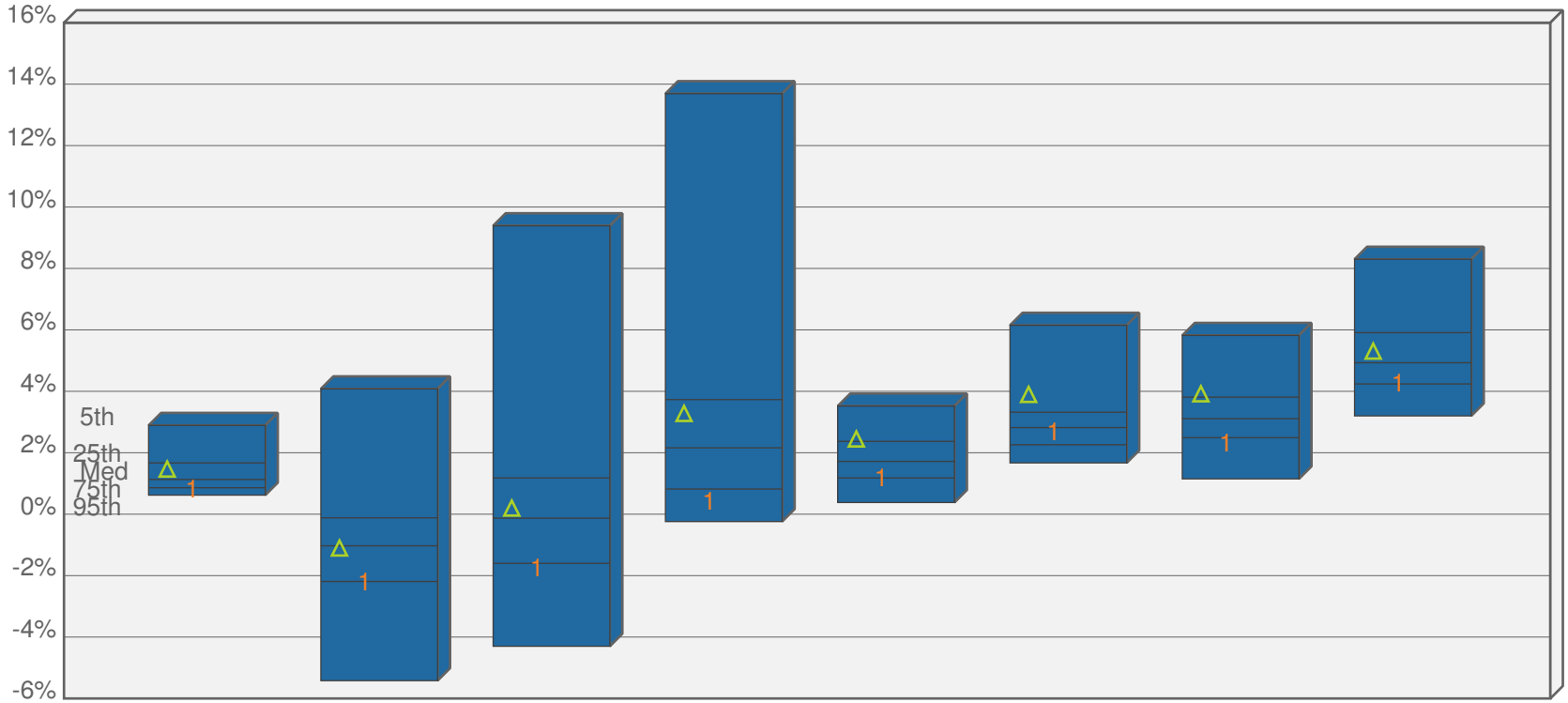
As of March 31, 2017



Wilshire

Core Fixed Composite

Periods Ended March 31, 2017



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
△ Core Fixed Composite	1.51 (31)	-1.06 (52)	0.24 (42)	3.32 (27)	2.49 (23)	3.94 (22)	3.96 (23)	5.35 (39)
1 Barclays Aggrega	0.82 (80)	-2.18 (73)	-1.73 (78)	0.44 (84)	1.20 (72)	2.68 (55)	2.34 (78)	4.27 (73)
5th %tile	2.89	4.08	9.39	13.69	3.52	6.15	5.82	8.30
25th %tile	1.67	-0.12	1.18	3.73	2.37	3.32	3.81	5.91
Median	1.13	-1.03	-0.13	2.16	1.72	2.82	3.11	4.93
75th %tile	0.86	-2.19	-1.60	0.82	1.18	2.26	2.49	4.24
95th %tile	0.62	-5.42	-4.30	-0.24	0.38	1.67	1.15	3.20
Number of Funds	136	132	126	126	115	111	89	64

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

Performance Comparison

Wilshire

Trailing Returns

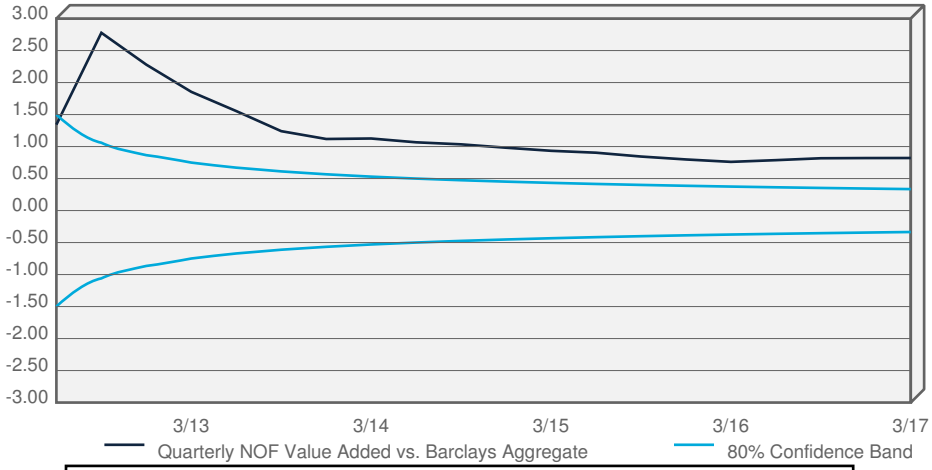
Periods Ended March 31, 2017

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Baird Advisors									
Net of Fee Return	**1.03**	**1.03**	**1.51**	**3.32**	**3.18**	**4.39**	**4.64**	**3/31/03**	**4.51**
Barclays Aggregate	0.82	0.82	0.44	2.68	2.34	3.48	4.27	3/31/03	4.15
Value Added	0.21	0.21	1.07	0.64	0.84	0.90	0.36	3/31/03	0.37
Western Asset Management									
Net of Fee Return	**1.86**	**1.86**	**4.62**	**4.03**	**4.20**	**5.65**	**5.43**	**3/31/04**	**5.17**
Barclays Aggregate	0.82	0.82	0.44	2.68	2.34	3.48	4.27	3/31/04	4.05
Value Added	1.05	1.05	4.18	1.35	1.86	2.16	1.16	3/31/04	1.12
Core Fixed Composite									
Net of Fee Return	**1.45**	**1.45**	**3.06**	**3.67**	**3.70**	**5.04**	**5.09**	**9/30/87**	**6.81**
Barclays Aggregate	0.82	0.82	0.44	2.68	2.34	3.48	4.27	9/30/87	6.58
Value Added	0.63	0.63	2.62	0.99	1.36	1.55	0.82	9/30/87	0.22

Baird Advisors

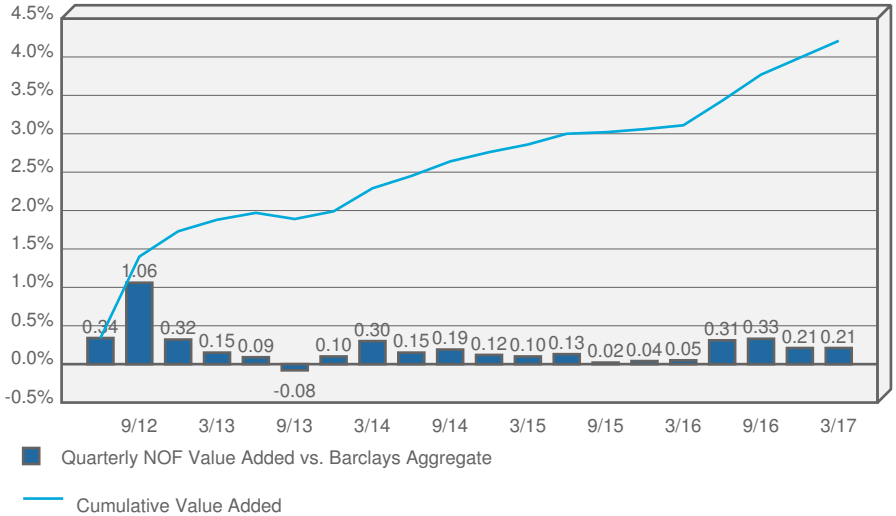
March 31, 2017

Cumulative Skill Analysis vs Benchmark

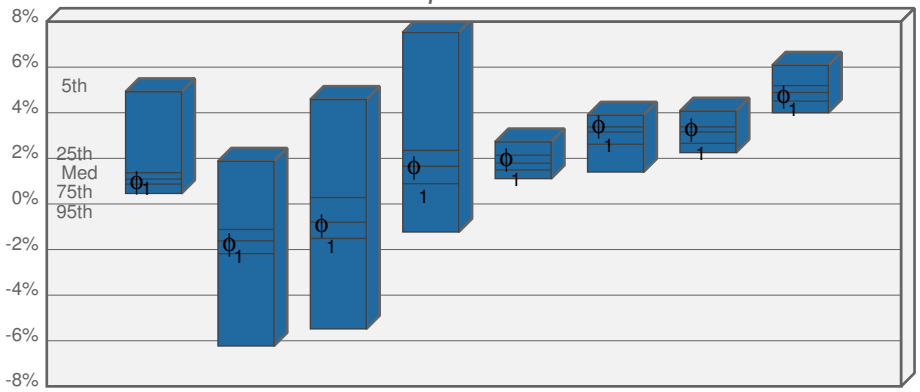


Excess Return:	**0.82**	**Information Ratio:**	**1.80**
Excess Risk:	**0.46**	**T-Stat:**	**4.03**

Value-Added Analysis vs Benchmark

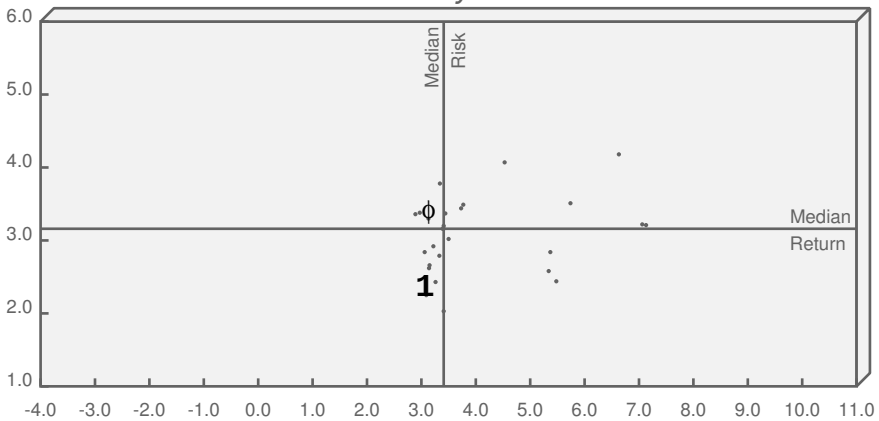


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
ϕ Baird Advisors	1.08 (50)	-1.66 (50)	-0.83 (52)	1.72 (41)	2.08 (25)	3.54 (14)	3.40 (21)	4.85 (59)
1 Barclays Aggre	0.82 (80)	-2.18 (75)	-1.73 (83)	0.44 (85)	1.20 (93)	2.68 (68)	2.34 (91)	4.27 (81)
Median	1.09	-1.62	-0.80	1.65	1.79	3.16	3.16	4.89
Number of Funds	38	38	38	38	37	33	27	17

Five Year Risk/Return Analysis vs Peer Universe*



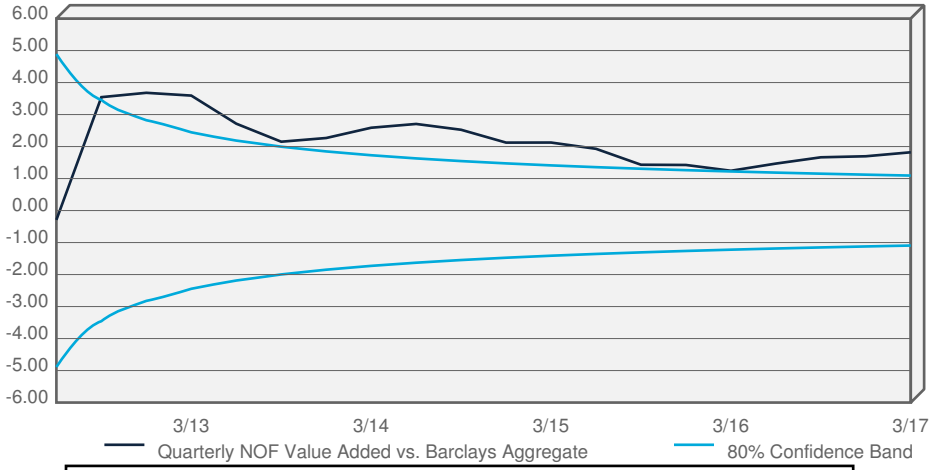
Description	Legend	Gross Fee Ret Value	Gross Fee Ret Rank	Standard Deviation Value	Standard Deviation Rank
Baird Advisors	ϕ	3.40	21	3.28	62
Barclays Aggregate	1	2.34	91	3.16	70
Median		3.16		3.41	

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

Western Asset Management

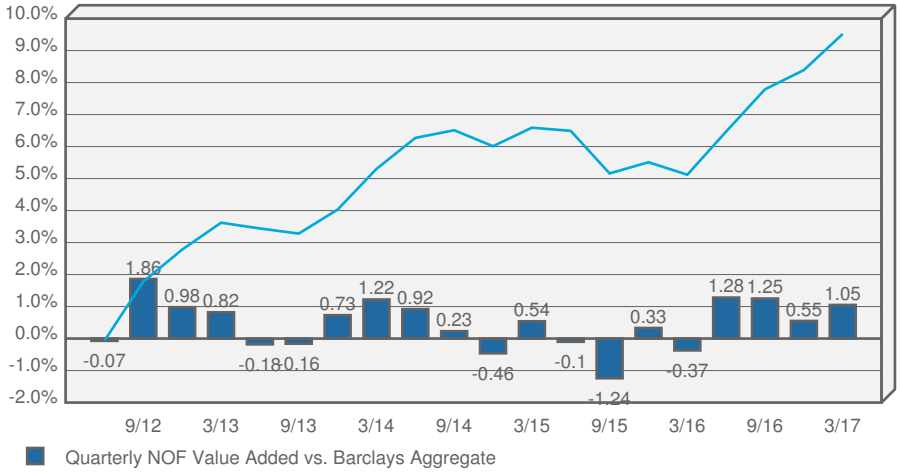
March 31, 2017

Cumulative Skill Analysis vs Benchmark

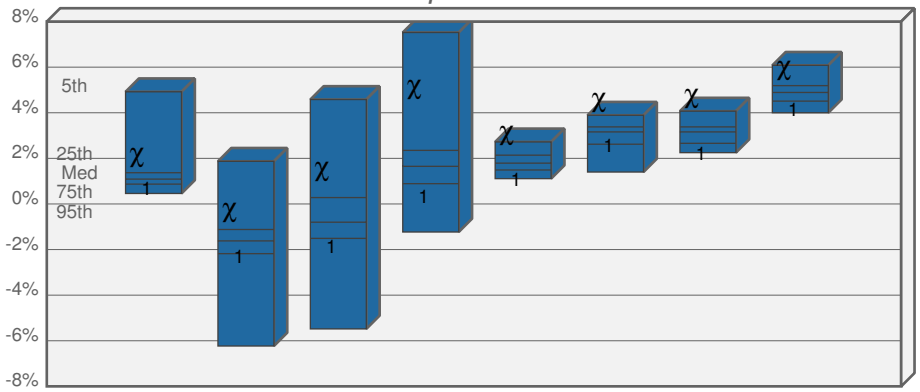


Excess Return:	**1.82**	**Information Ratio:**	**1.23**
Excess Risk:	**1.49**	**T-Stat:**	**2.74**

Value-Added Analysis vs Benchmark

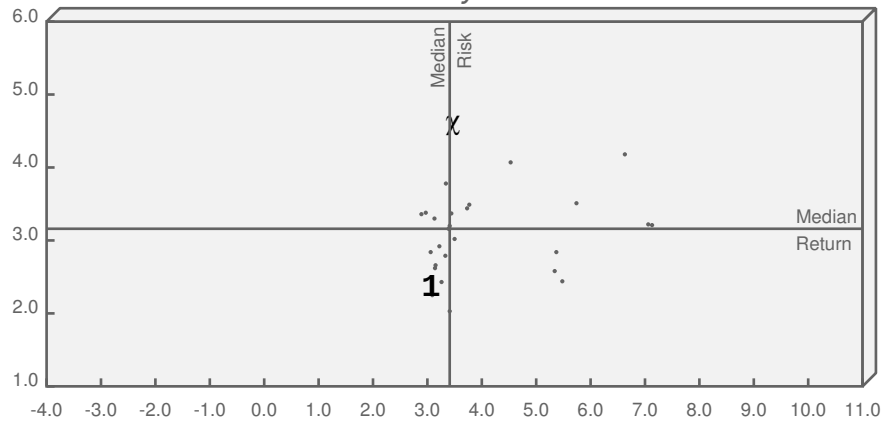


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
χ Western Asset	1.94 (13)	-0.46 (13)	1.32 (15)	4.94 (8)	2.90 (1)	4.34 (1)	4.51 (1)	5.74 (16)
1 Barclays Aggre	0.82 (80)	-2.18 (75)	-1.73 (83)	0.44 (85)	1.20 (93)	2.68 (68)	2.34 (91)	4.27 (81)
Median	1.09	-1.62	-0.80	1.65	1.79	3.16	3.16	4.89
Number of Funds	38	38	38	38	37	33	27	17

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
Western Asset Management	χ	4.51	1	3.61	39
Barclays Aggregate	1	2.34	91	3.16	70
Median		3.16		3.41	

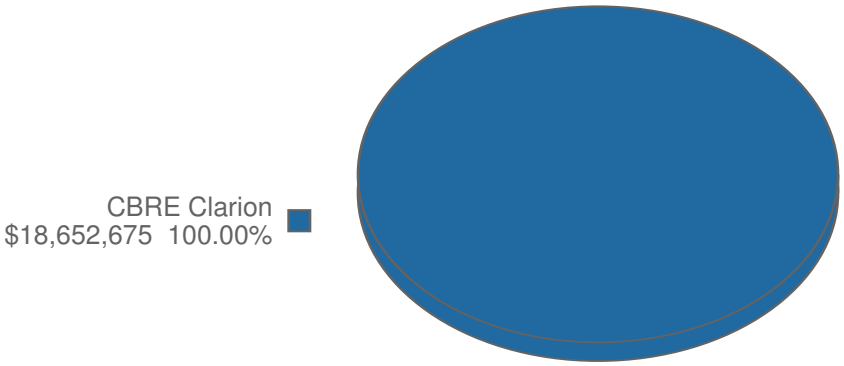
*TUCS Total Returns of Fixed Income Portfolios - Core Universe - Gross of Fees

Real Estate

Manager Allocation

Real Estate Composite

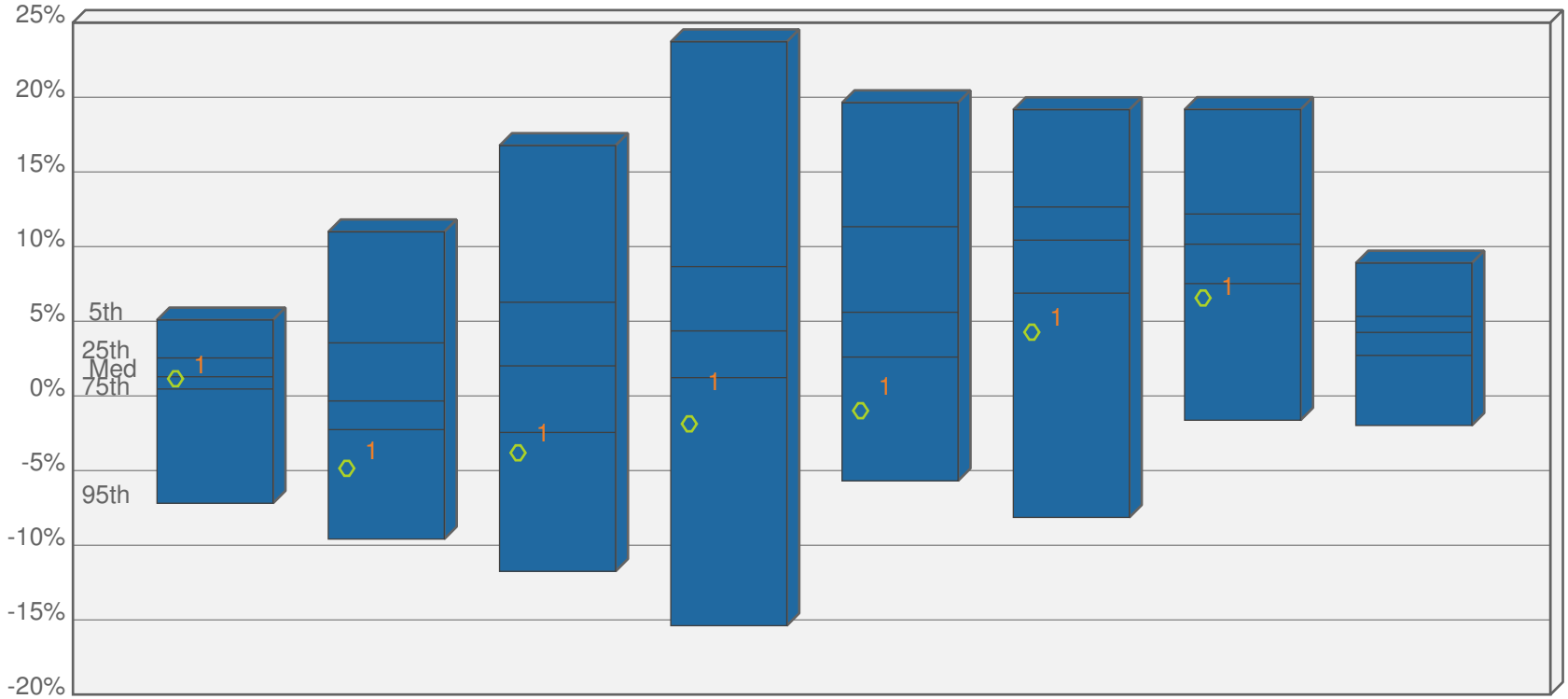
As of March 31, 2017



Wilshire

Real Estate Composite

Periods Ended March 31, 2017



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
◇ Real Estate Composite	1.23 (53)	-4.77 (90)	-3.73 (88)	-1.79 (88)	-0.91 (88)	4.35 (82)	6.64 (81)	
1 FTSE EPRA/NAREIT	2.07 (36)	-3.64 (84)	-2.44 (74)	0.94 (78)	0.67 (81)	5.29 (80)	7.32 (77)	
5th %tile	5.08	10.98	16.76	23.71	19.63	19.16	19.17	8.89
25th %tile	2.54	3.55	6.27	8.66	11.33	12.65	12.18	5.32
Median	1.28	-0.34	2.01	4.35	5.60	10.43	10.16	4.25
75th %tile	0.46	-2.26	-2.45	1.22	2.60	6.88	7.52	2.71
95th %tile	-7.19	-9.59	-11.75	-15.39	-5.69	-8.14	-1.63	-1.98
Number of Funds	244	265	268	265	246	237	177	82

*TUCS Total Ret of Real Estate Portfolios Universe - Gross of Fees

Wilshire

Trailing Returns

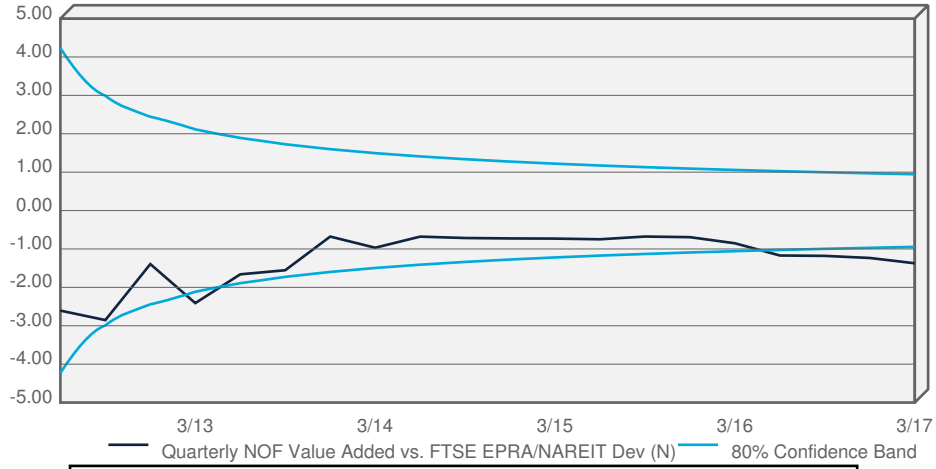
Periods Ended March 31, 2017

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
CBRE Clarion									
Net of Fee Return	**1.04**	**1.04**	**-2.52**	**3.56**	**5.85**	**6.84**		**6/30/09**	**10.20**
FTSE EPRA/NAREIT Dev (N)	2.07	2.07	0.94	5.29	7.32	8.15		6/30/09	11.59
Value Added	-1.03	-1.03	-3.46	-1.73	-1.47	-1.31		6/30/09	-1.39
Real Estate Composite									
Net of Fee Return	**1.04**	**1.04**	**-2.52**	**3.56**	**5.85**	**6.84**		**6/30/09**	**10.20**
FTSE EPRA/NAREIT Dev (N)	2.07	2.07	0.94	5.29	7.32	8.15		6/30/09	11.59
Value Added	-1.03	-1.03	-3.46	-1.73	-1.47	-1.31		6/30/09	-1.39

CBRE Clarion

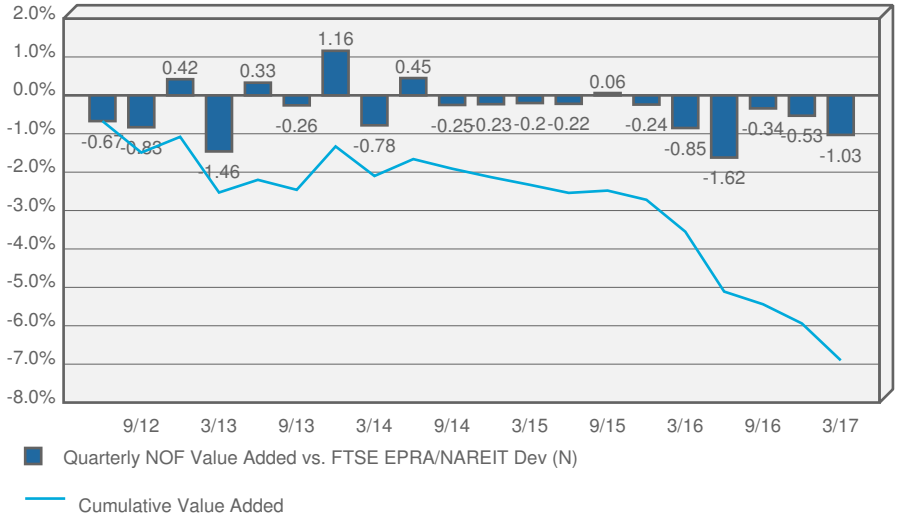
March 31, 2017

Cumulative Skill Analysis vs Benchmark

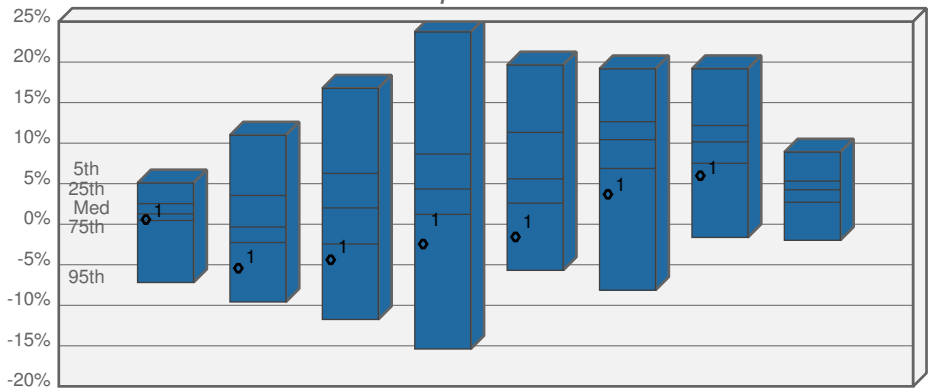


Excess Return:	**-1.37**	**Information Ratio:**	**-1.07**
Excess Risk:	**1.29**	**T-Stat:**	**-2.39**

Value-Added Analysis vs Benchmark

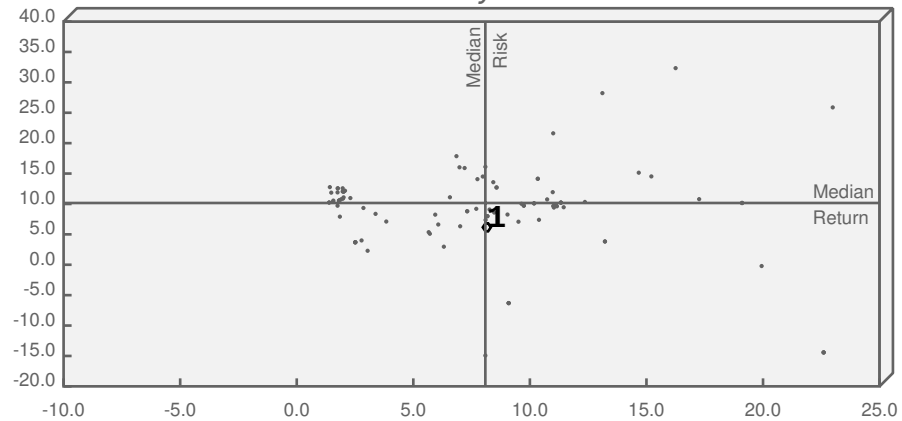


Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
◊ CBRE Clarion	1.23 (53)	-4.77 (90)	-3.73 (88)	-1.79 (88)	-0.91 (88)	4.35 (82)	6.64 (81)	
1 FTSE EPRA/NARE	2.07 (36)	-3.64 (84)	-2.44 (74)	0.94 (78)	0.67 (81)	5.29 (80)	7.32 (77)	
Median	1.28	-0.34	2.01	4.35	5.60	10.43	10.16	4.25
Number of Funds	244	265	268	265	246	237	177	82

Five Year Risk/Return Analysis vs Peer Universe*



Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
CBRE Clarion	◊	6.64	81	8.61	44
FTSE EPRA/NAREIT Dev (N)	1	7.32	77	8.79	44
Median		10.16		8.09	

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

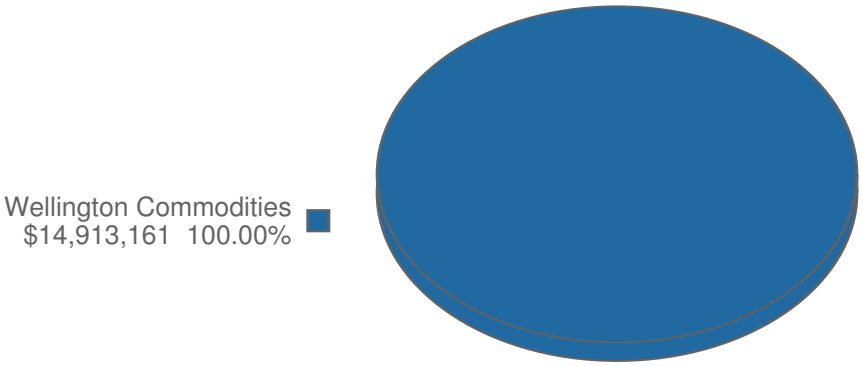
Commodities

Manager Allocation

Wilshire

Commodities Composite

As of March 31, 2017



Wilshire

Trailing Returns

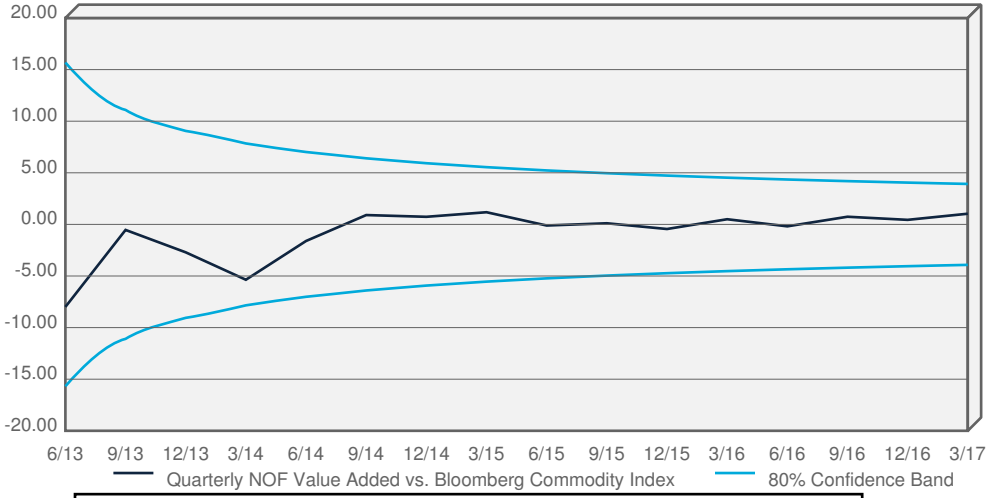
Periods Ended March 31, 2017

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Wellington Commodities									
Net of Fee Return	**0.11**	**0.11**	**11.60**	**-11.10**				**3/31/13**	**-10.18**
Bloomberg Commodity Index	-2.33	-2.33	8.71	-13.91				3/31/13	-11.10
Value Added	2.44	2.44	2.89	2.81				3/31/13	0.92
Commodities Composite									
Net of Fee Return	**0.11**	**0.11**	**11.60**	**-11.10**				**3/31/13**	**-10.18**
Bloomberg Commodity Index	-2.33	-2.33	8.71	-13.91				3/31/13	-11.10
Value Added	2.44	2.44	2.89	2.81				3/31/13	0.92

Wellington Commodities

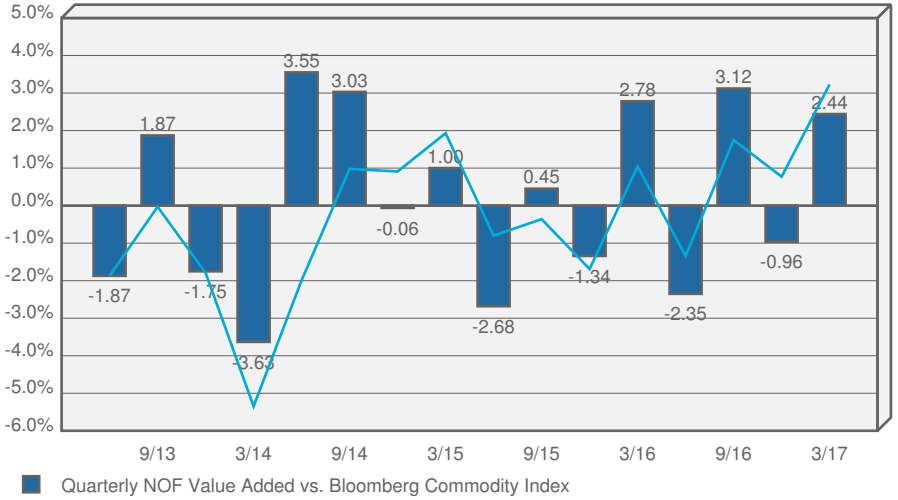
March 31, 2017

Cumulative Skill Analysis vs Benchmark



Excess Return:	**1.03**	**Information Ratio:**	**0.22**
Excess Risk:	**4.77**	**T-Stat:**	**0.43**

Value-Added Analysis vs Benchmark



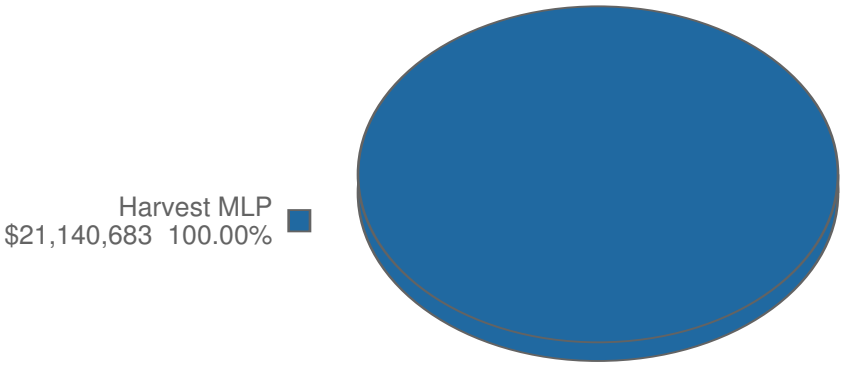
MLP

Manager Allocation

Wilshire

MLP Composite

As of March 31, 2017



Performance Comparison

Wilshire

Trailing Returns

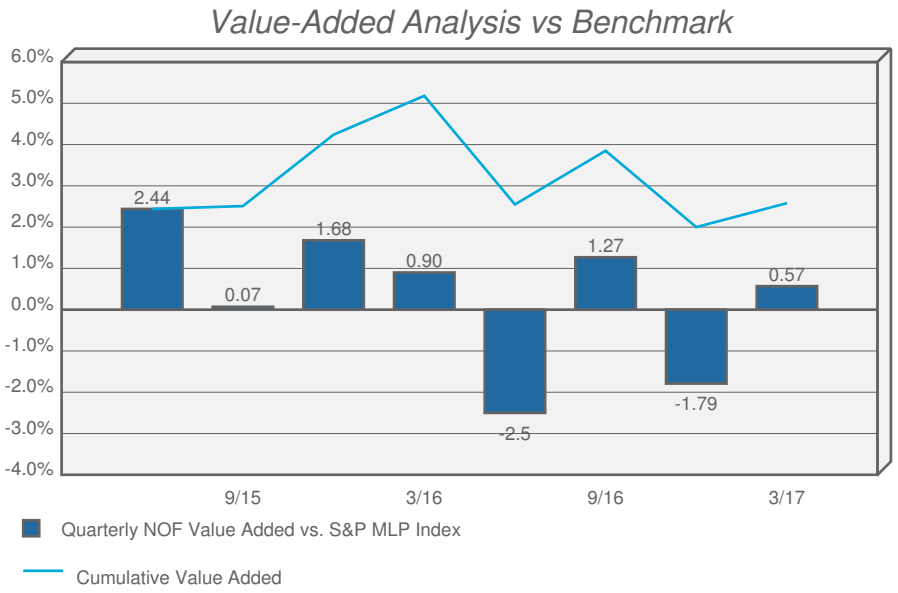
Periods Ended March 31, 2017

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Harvest MLP									
Net of Fee Return	**4.27**	**4.27**	**32.30**					**3/31/15**	**-6.37**
S&P MLP Index	3.70	3.70	35.01					3/31/15	-7.93
Value Added	0.57	0.57	-2.71					3/31/15	1.56
MLP Composite									
Net of Fee Return	**4.27**	**4.27**	**32.30**					**3/31/15**	**-6.37**
S&P MLP Index	3.70	3.70	35.01					3/31/15	-7.93
Value Added	0.57	0.57	-2.71					3/31/15	1.55

Wilshire

Harvest MLP

March 31, 2017



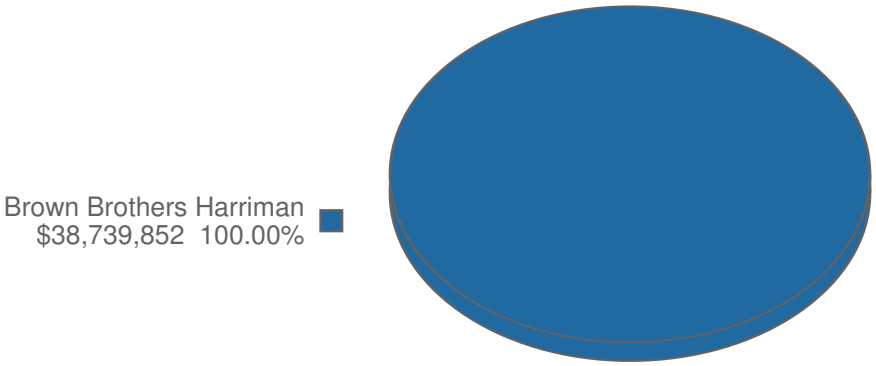
TIPS

Manager Allocation

Wilshire

TIPS Composite

As of March 31, 2017



Wilshire

Trailing Returns

Periods Ended March 31, 2017

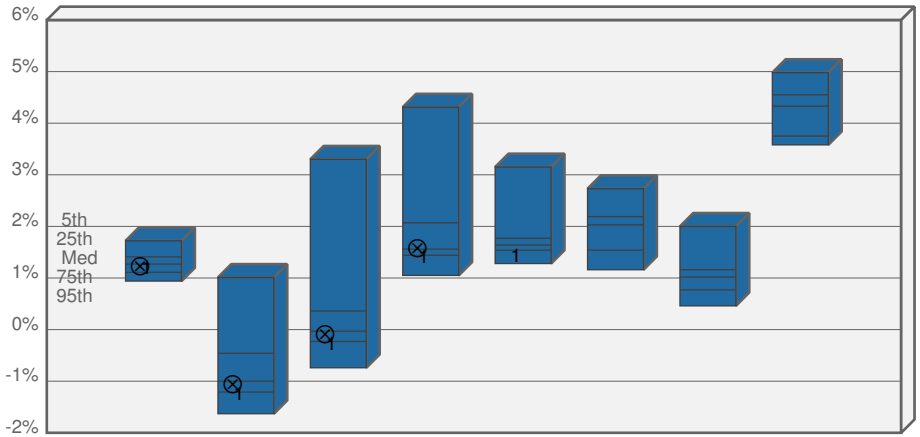
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Brown Brothers Harriman									
Net of Fee Return	**1.24**	**1.24**	**1.58**					**6/30/15**	**2.43**
Barclays U.S. TIPS	1.26	1.26	1.48					6/30/15	2.33
Value Added	-0.02	-0.02	0.09					6/30/15	0.09
TIPS Composite									
Net of Fee Return	**1.24**	**1.24**	**1.58**					**6/30/15**	**2.43**
Barclays U.S. TIPS	1.26	1.26	1.48					6/30/15	2.33
Value Added	-0.02	-0.02	0.09					6/30/15	0.09

Wilshire

Brown Brothers Harriman

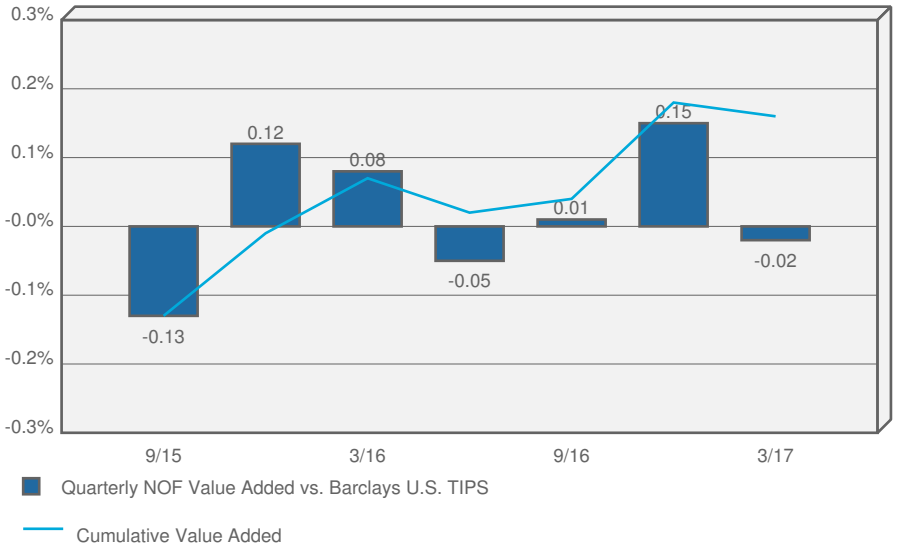
March 31, 2017

*Performance Comparison vs Peer Universe**



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Brown Brothers	1.24 (66)	-1.05 (58)	-0.08 (55)	1.58 (48)				
1 Barclays U.S.	1.26 (58)	-1.18 (71)	-0.22 (73)	1.48 (67)	1.50 (86)			
Median	1.27	-1.00	-0.03	1.56	1.64	2.03	1.02	4.33
Number of Funds	39	39	38	37	37	37	36	27

Value-Added Analysis vs Benchmark



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

General

Private Equity

Wilshire

Private Partnerships

As of March 31, 2017

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	$461,236	92%	$394,780	79%	$312,748	1.53	11.55%
Adams Street Non-US Dev. 2010 Fund	$1,500,000	April 27, 2010	$839,035	56%	$137,743	9%	$956,833	1.30	7.31%
Adams Street Non-US EM 2010 Fund	$500,000	January 3, 2011	$346,444	69%	$0	0%	$460,516	1.33	8.62%
Adams Street US 2010 Fund	$2,500,000	April 27, 2010	$1,247,912	50%	$128,878	5%	$2,039,650	1.74	13.29%
Adams Street 2013 Global Fund	$5,000,000	July 3, 2013	$2,743,455	55%	$0	0%	$3,011,966	1.10	4.80%
Aberdeen Global Partners	$5,000,000	January 17, 2012	$3,950,000	79%	$616,709	12%	$3,982,507	1.16	6.49%
Adams Street 2015 Global	$6,500,000	September 30, 2015	$1,042,864	16%	$0	0%	$1,369,997	1.31	54.84%
Alternative Investments Composite	**$21,500,000**	**April 27, 2010**	**$10,630,946**	**49%**	**$1,278,110**	**6%**	**$12,134,217**	**1.26**	**9.25%**

[1] TVPI = Fair Value + Capital Distributed / Capital Called

Capital Market Review

Market Commentary

Wilshire

U.S. Equity

The U.S. stock market was up 5.61% for the first quarter of 2017. The market has been trending upward, generally, for more than a year now, including six straight quarterly gains. Economic releases during the quarter were strong and markets took comfort in both the Federal Reserve's 0.25% increase in the overnight rate and its accompanying statement. Despite price increases that have been accelerating, the Fed's forecast for the Fed-funds rate at year-end 2017 was little changed from their December meeting.

Large capitalization stocks outperformed smaller shares while growth stocks led value. Sector performance was varied during the quarter. The best performing sector was Information Technology (+11.9%) while the main laggard was Energy (-6.9%).

There are a number of signals that point to strength in the employment market, beyond an unemployment rate below 5%. Job openings are far higher than they have been in more than a decade and "quits" (employees leaving jobs voluntarily) are back to the level that existed prior to the credit crisis. Finally, labor force participation, which has been on the decline since 2001, has moderated near 63% during the past couple of years.

Non-U.S. Equity

Equity markets outside of the U.S. produced very strong returns during the first quarter of 2017, in both developed and emerging markets. Economic releases out of Europe suggest an improving economy, including in the manufacturing industry and with consumer sentiment. Despite major events in the global political arena, emerging market equities had their best quarter since early 2012 to begin the new year. Corporate earnings in these countries have been improving, generally, and are expected to move higher going forward.

Fixed Income

The U.S. Treasury yield curve did not shift much during the quarter but did flatten with the six-month yield up 29 basis points and the ten-year down 5 basis points. The Federal Open Market Committee decided to increase their overnight rate by 0.25% at their March meeting, their third increase since 2008. Credit spreads continued lower during the quarter in both investment grade and high yield bonds. High yield spreads, which have averaged 6% during the past decade, fell below 4% during the quarter for the first time since mid-2014.

March 2017 Asset Class Assumptions

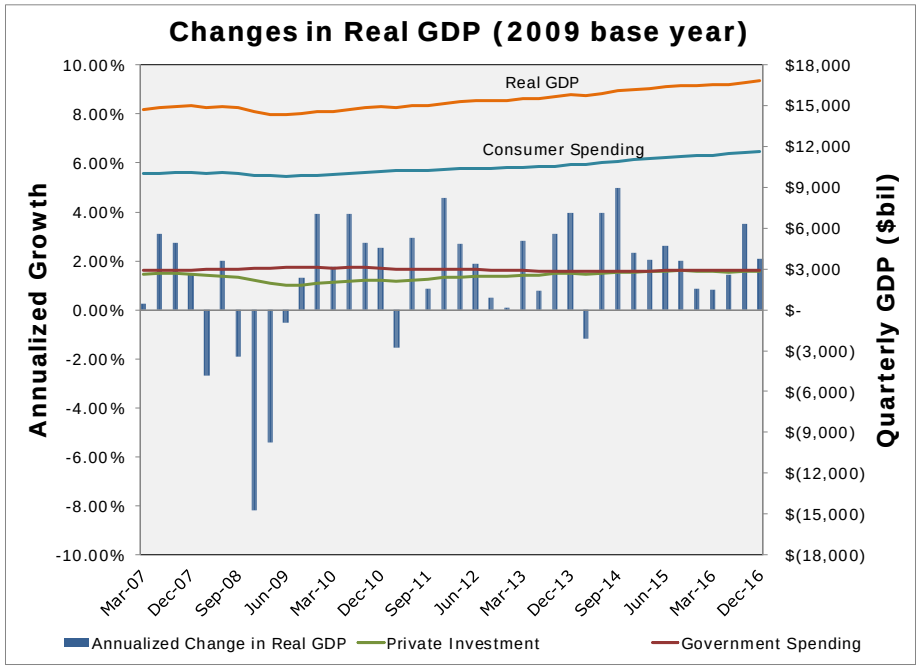
Wilshire

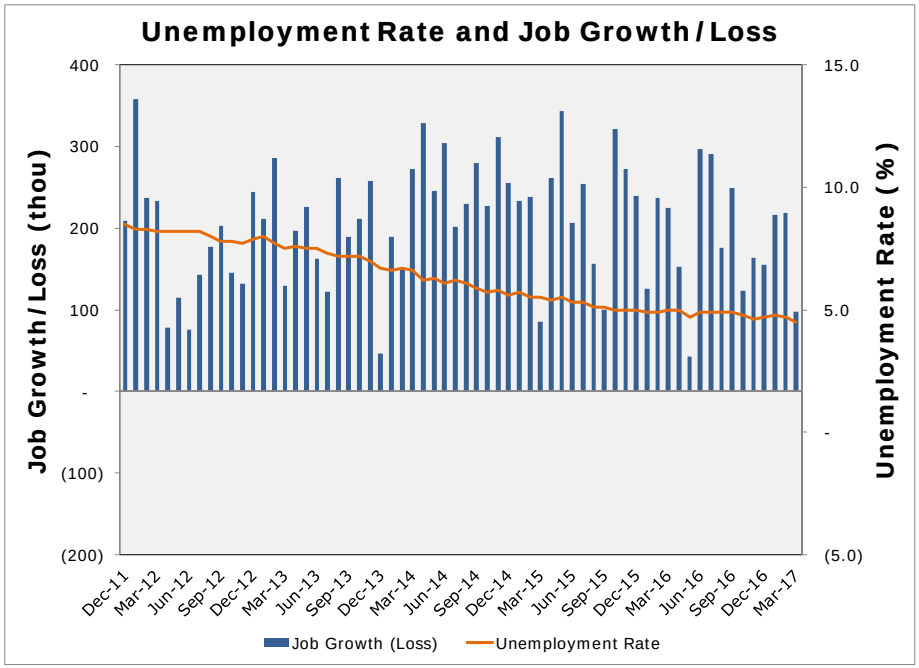
	Equity						Fixed Income						Real Assets					
													Real Estate					
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Markets	Cash	Core Bond	LT Core Bond	TIPS	High Yield	ex-US Bond (Hdg)	US RES	Global RES	Private RE	Cmdty	Real Assets	US CPI
Expected Compound Return (%)	6.50	6.50	6.50	6.70	6.70	9.10	1.55	3.60	4.05	3.00	5.10	1.40	5.30	5.50	5.75	3.50	6.25	1.95
Expected Arithmetic Return (%)	7.80	7.95	9.45	8.30	8.05	12.30	1.55	3.75	4.50	3.15	5.55	1.45	6.65	6.65	6.65	4.55	6.60	1.95
Expected Risk (%)	17.00	18.00	26.00	18.75	17.15	27.50	1.25	5.15	9.85	6.00	10.00	3.50	17.00	15.80	14.00	15.00	8.40	1.75
Cash Yield (%)	2.00	3.00	2.25	2.85	2.40	0.00	1.55	3.70	4.95	3.20	8.30	1.85	3.85	3.85	2.70	1.55	2.80	0.00
Correlations:																		
US Stock	1.00																	
Dev ex-US Stock (USD)	0.83	1.00																
Emerging Mkt Stock	0.75	0.75	1.00															
Global ex-US Stock	0.85	0.96	0.87	1.00														
Global Stock	0.96	0.94	0.84	0.96	1.00													
Private Markets	0.75	0.65	0.63	0.68	0.74	1.00												
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00											
Core Bond	0.29	0.13	0.00	0.10	0.20	0.32	0.19	1.00										
LT Core Bond	0.32	0.16	0.01	0.12	0.23	0.33	0.11	0.95	1.00									
TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.61	0.48	1.00								
High Yield Bond	0.55	0.40	0.50	0.45	0.52	0.34	-0.10	0.25	0.33	0.05	1.00							
Non-US Bond (Hdg)	0.16	0.26	-0.01	0.19	0.18	0.27	0.10	0.68	0.65	0.40	0.27	1.00						
US RE Securities	0.60	0.48	0.45	0.50	0.57	0.51	-0.05	0.17	0.23	0.10	0.57	0.05	1.00					
Global RE Securities	0.66	0.60	0.57	0.63	0.67	0.58	-0.05	0.16	0.22	0.11	0.63	0.04	0.96	1.00				
Private Real Estate	0.55	0.45	0.45	0.48	0.53	0.51	-0.05	0.19	0.26	0.09	0.58	0.05	0.79	0.77	1.00			
Commodities	0.15	0.25	0.30	0.28	0.22	0.15	0.00	-0.04	-0.05	0.20	0.20	-0.05	0.26	0.29	0.25	1.00		
Real Asset Basket	0.40	0.41	0.48	0.46	0.45	0.38	0.02	0.24	0.26	0.41	0.51	0.08	0.66	0.70	0.70	0.56	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	0.04	0.05	0.40	0.25	1.00

Economic Review

March 31, 2017	Key Economic Indicators			
CPI (all items)	Monthly Change		Cumulative Change	
Seasonally adjusted	Mar-17	-0.3	3-Month	0.4
	Feb-17	0.1	12-Month	2.4
	Jan-17	0.6	10-Yr Annual	1.7
Breakeven Inflation	10-Year	2.0		
Consumer Sentiment	Mar-17	96.9		
Unv. of Michigan Survey	Feb-17	96.3		
	1-Yr Ago	91.0	10-Yr Avg	78.1
Manufacturing	Mar-17	57.2	Change in Manufacturing Sector	
Inst. for Supply Mgmt	Feb-17	57.7	>50	Expansion
Purchasing Mngrs' Idx	1-Yr Avg	53.2	<50	Contraction

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

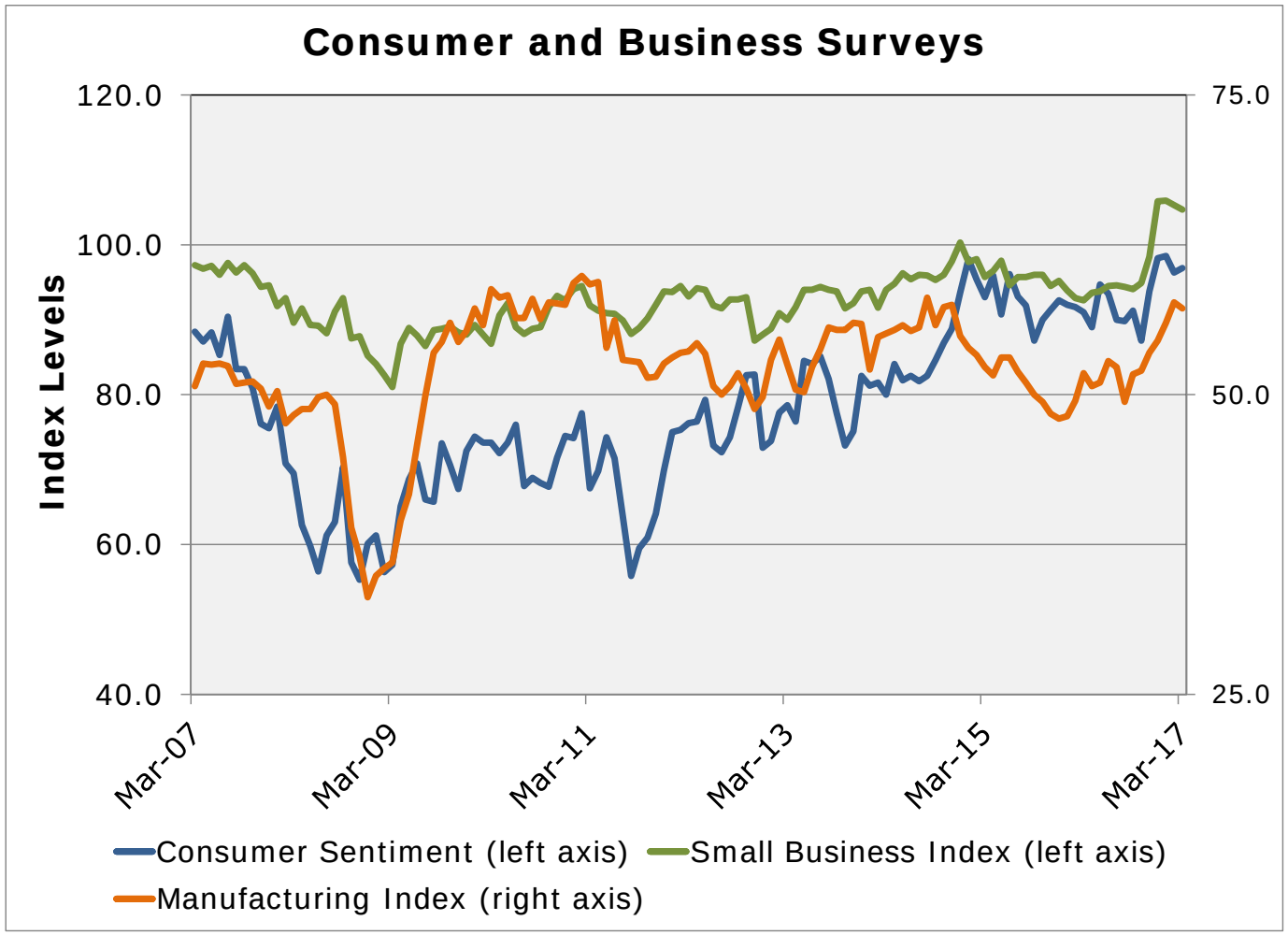




Data sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve Bank of St. Louis, Barclays Capital

Improving Sentiment

- Consumer and Small Business surveys have spiked since October, 2016
- Manufacturing index also on the rise; level above 50 indicates expansion

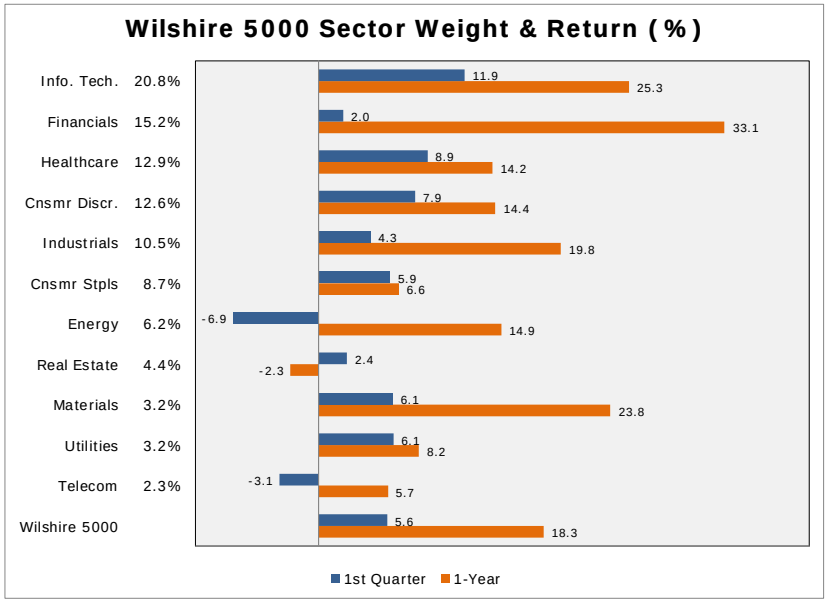


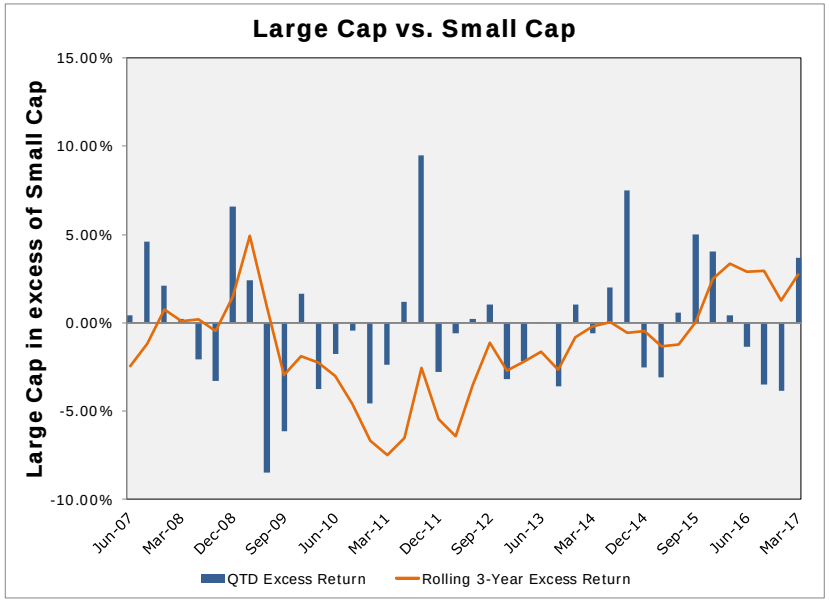
Source: University of Michigan, Institute for Supply Management, National Federation of Independent Business

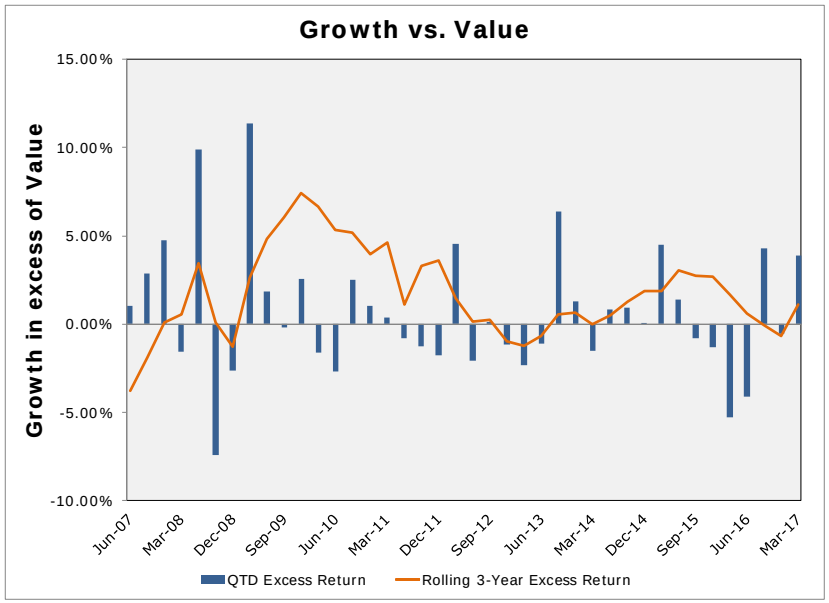
General

U.S. Equity Market

March 31, 2017	Qtr	Ytd	1 Yr	3 Yr	5 Yr	10 Yr
Wilshire 5000	5.6	5.6	18.3	10.0	13.2	7.6
Wilshire U.S. Large Cap	6.0	6.0	17.8	10.4	13.2	7.6
Wilshire U.S. Small Cap	2.3	2.3	24.1	7.4	13.1	8.5
Wilshire U.S. Large Growth	8.1	8.1	19.8	11.2	13.7	8.9
Wilshire U.S. Large Value	4.0	4.0	15.7	9.4	12.8	6.1
Wilshire U.S. Small Growth	3.7	3.7	24.7	5.4	12.2	8.7
Wilshire U.S. Small Value	0.8	0.8	23.6	9.3	13.9	8.3
Wilshire REIT Index	0.0	0.0	2.0	10.2	9.8	4.4
MSCI USA Minimum Volatility Index	5.9	5.9	10.3	11.5	12.8	8.0
FTSE RAFI U.S. 1000 Index	3.3	3.3	19.1	9.2	13.8	8.2



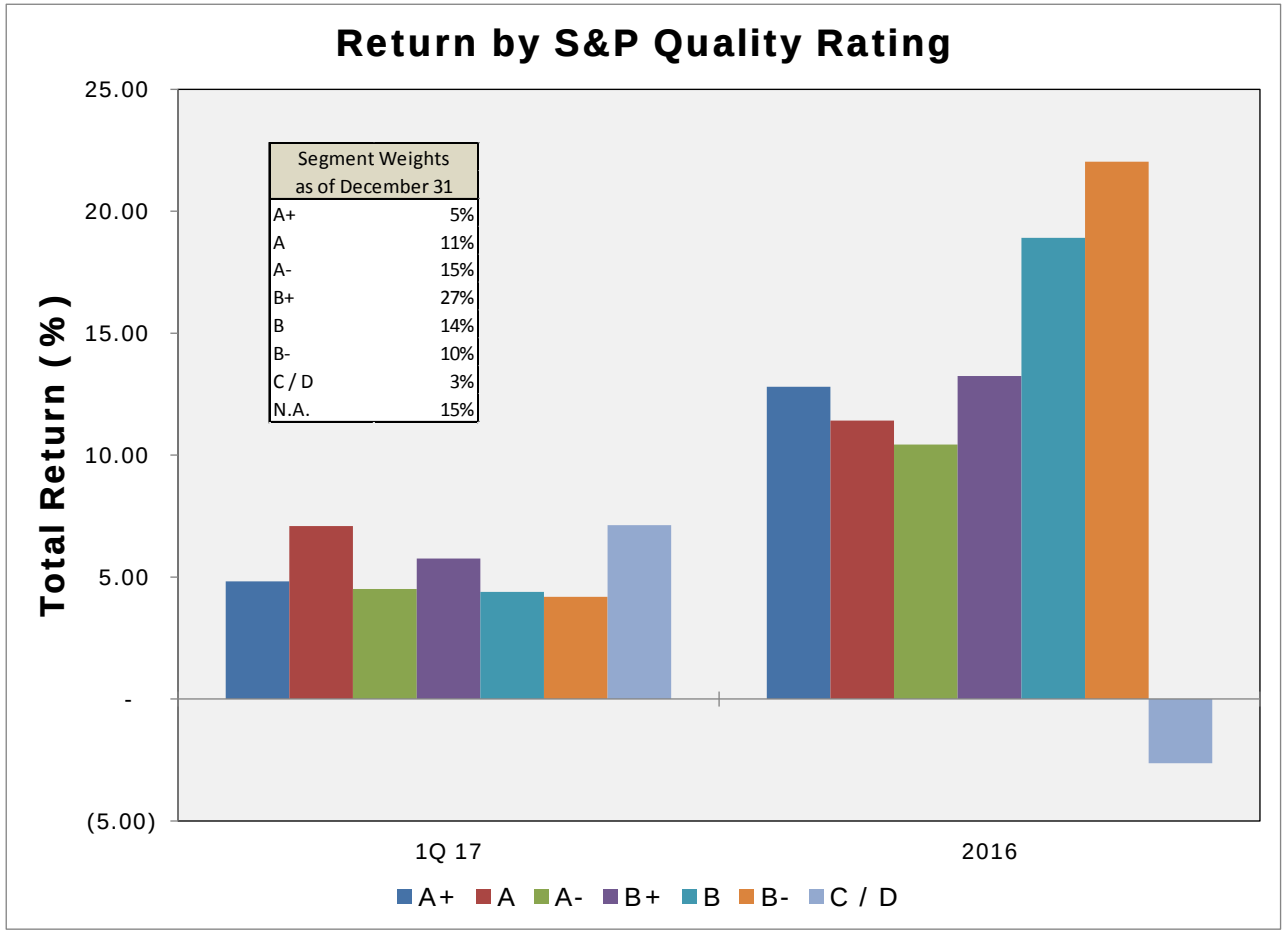




Data sources: Wilshire Compass, Wilshire Atlas

Returns by Quality Segment

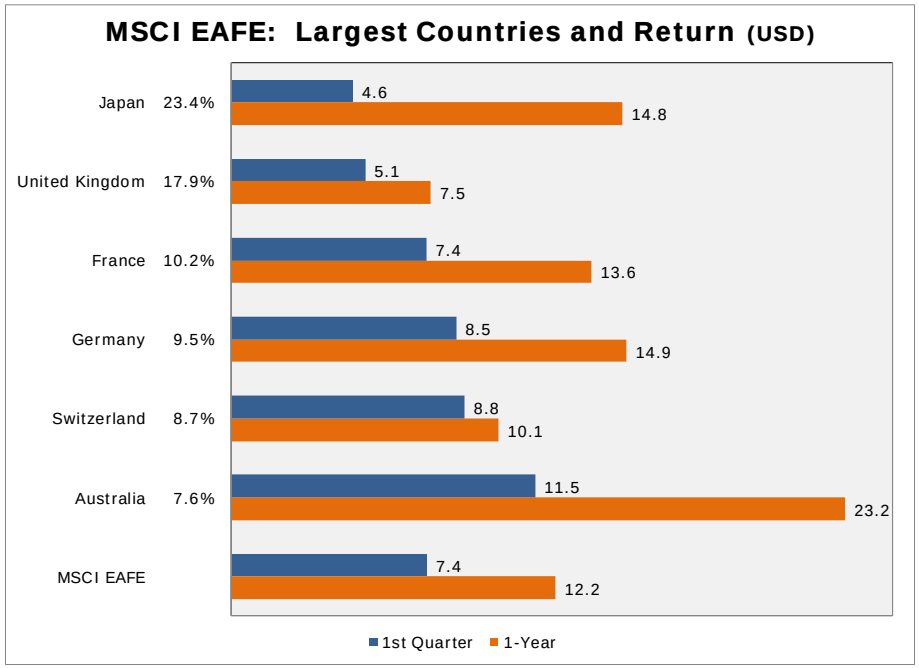
Similar performance across rating segments during the first quarter after securities in the B-range led last year

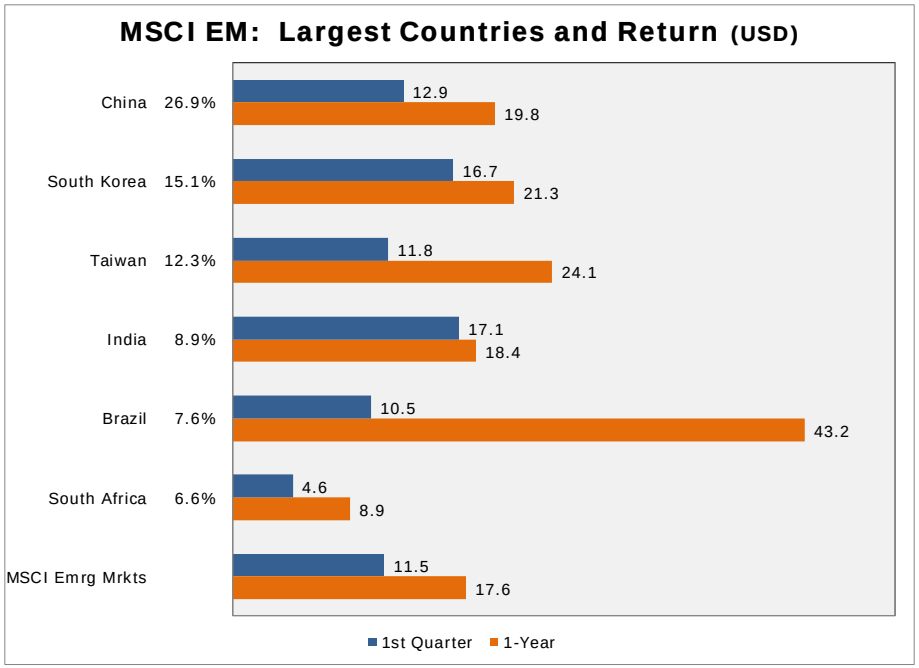


Data sources: Wilshire Atlas

Non-U.S. Equity Market

March 31, 2017	Qtr	Ytd	1 Yr	3 Yr	5 Yr	10 Yr
MSCI ACWI ex-US ($g)	8.0	8.0	13.7	1.0	4.8	1.8
MSCI EAFE ($g)	7.4	7.4	12.2	1.0	6.3	1.5
MSCI Emerging Markets ($g)	11.5	11.5	17.6	1.5	1.2	3.0
MSCI Frontier Markets ($g)	9.1	9.1	13.4	-1.2	6.3	0.1
MSCI ACWI ex-US Growth ($g)	9.2	9.2	10.0	1.9	5.2	2.3
MSCI ACWI ex-US Value ($g)	6.8	6.8	17.4	0.0	4.4	1.3
MSCI ACWI ex-US Small ($g)	8.9	8.9	13.2	3.0	7.2	3.5
MSCI EAFE Minimum Volatility Idx	7.1	7.1	3.3	5.4	8.3	4.4
FTSE RAFI Developed ex-US Index	6.8	6.8	17.5	0.7	6.4	2.1
MSCI EAFE LC (g)	4.9	4.9	18.6	7.8	11.2	2.8
MSCI Emerging Markets LC (g)	7.8	7.8	15.5	6.0	5.4	5.2



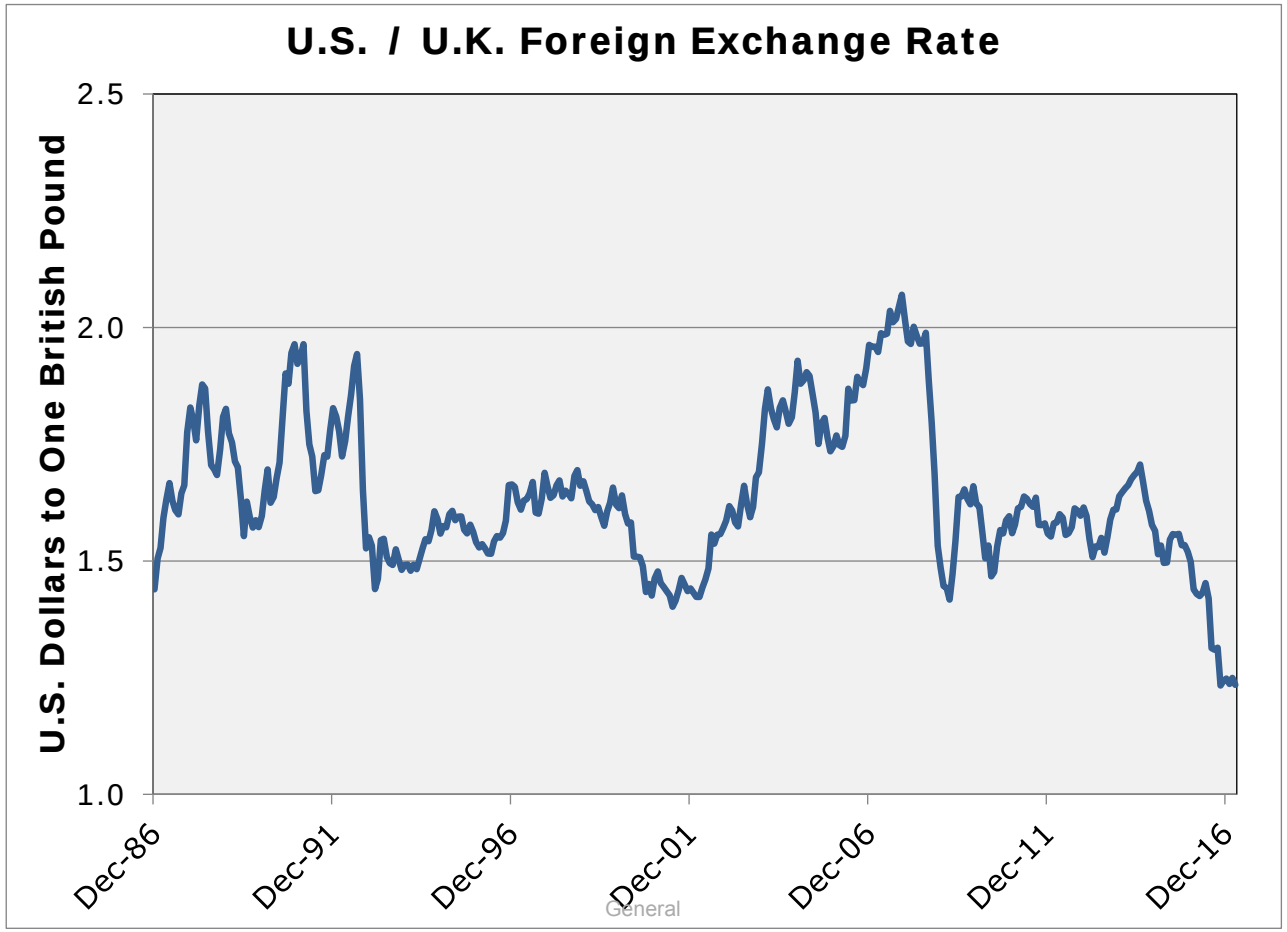


Data sources: Wilshire Compass

Brexit Update: March 29, 2017

Wilshire

- U.K. formally began 'Brexit' process with a letter to the European Council stating their intention to withdraw from the EU; beginning 2 years of negotiations
- British pound down -15% since the vote in 2016 but has moderated for the past five months; up during Q1 versus the U.S. dollar

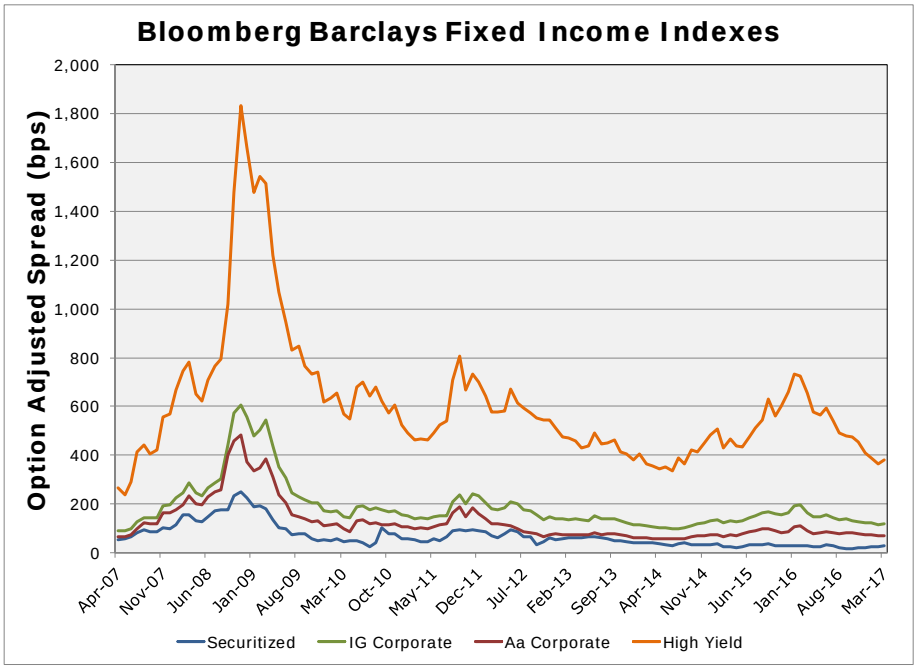


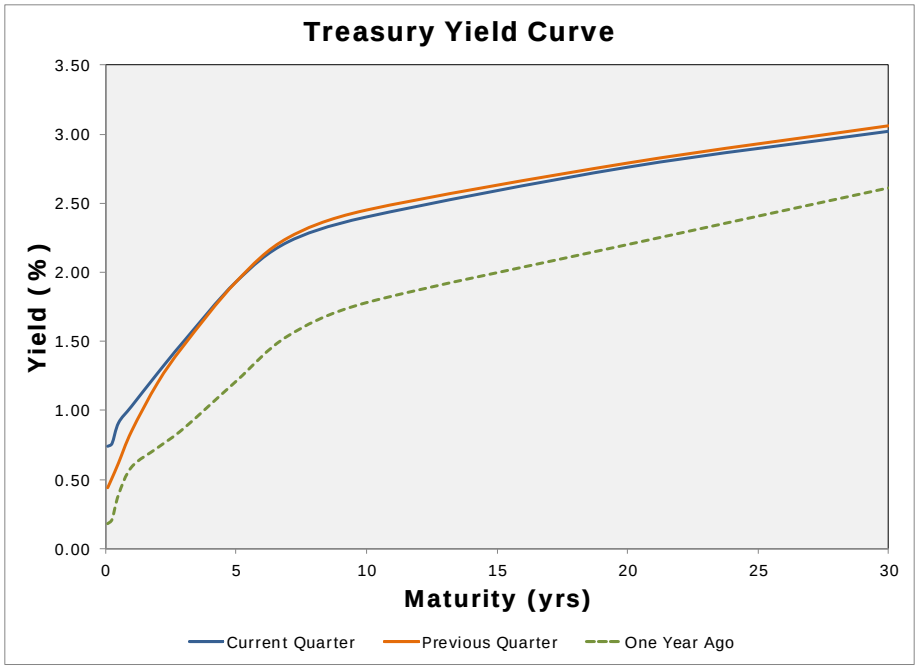
Source: Federal Reserve

General

U.S. Fixed Income Market

March 31, 2017	YTM	Duration	Qtr	Ytd	1 Yr	3 Yr	5 Yr	10 Yr
Bloomberg Barclays Aggregate	2.6	6.0	0.8	0.8	0.4	2.7	2.3	4.3
Bloomberg Barclays Treasury	1.9	6.1	0.7	0.7	-1.4	2.1	1.6	3.9
Bloomberg Barclays Govt-Related	2.5	5.3	1.4	1.4	1.0	2.5	2.2	4.1
Bloomberg Barclays Securitized	2.9	4.9	0.5	0.5	0.2	2.7	2.1	4.1
Bloomberg Barclays Corporate IG	3.3	7.3	1.2	1.2	3.3	3.7	4.0	5.4
Bloomberg Barclays LT Govt/Credit	3.9	15.1	1.6	1.6	1.0	5.5	4.8	6.9
Bloomberg Barclays LT Treasury	2.9	17.5	1.4	1.4	-5.0	5.8	4.0	6.7
Bloomberg Barclays LT Govt-Rel.	4.3	12.4	3.2	3.2	2.5	5.5	4.5	6.9
Bloomberg Barclays LT Corp. IG	4.5	13.9	1.4	1.4	5.3	5.4	5.6	7.0
Bloomberg Barclays U.S. TIPS	0.5	8.2	1.3	1.3	1.5	2.0	1.0	4.2
Bloomberg Barclays High Yield	6.2	4.0	2.7	2.7	16.4	4.6	6.8	7.5
Treasury Bills	0.8	0.25	0.1	0.1	0.4	0.2	0.1	0.7



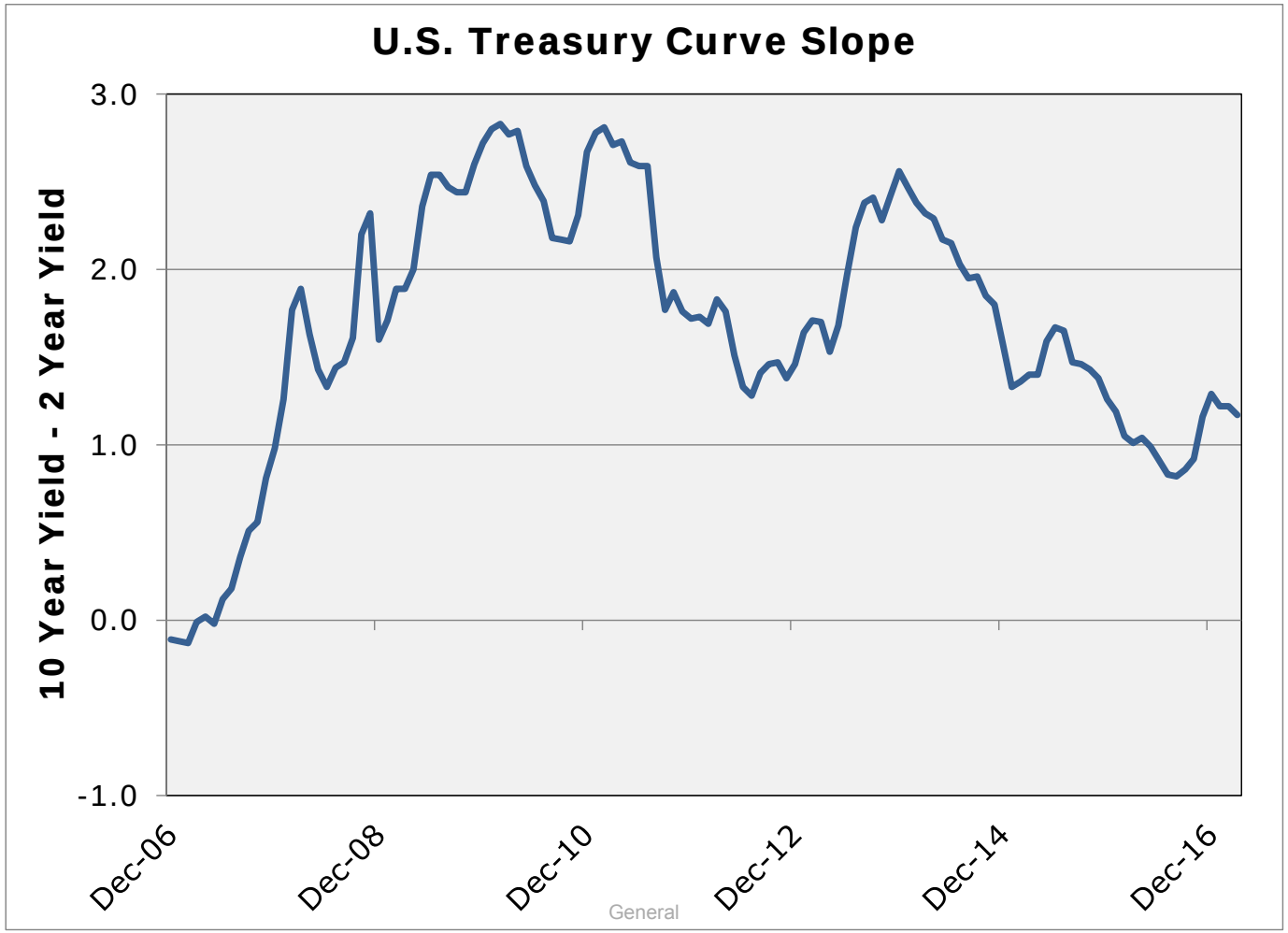


Data sources: Wilshire Compass, Bloomberg Barclays, U.S. Treasury

Shape of the Yield Curve

Wilshire

- From the perspective of the past decade, the curve seems to be flattening
- However, the average spread between the 10- & 2-Year yields is 1.0 for the past 40 years, suggesting that the shape of the curve has "normalized"



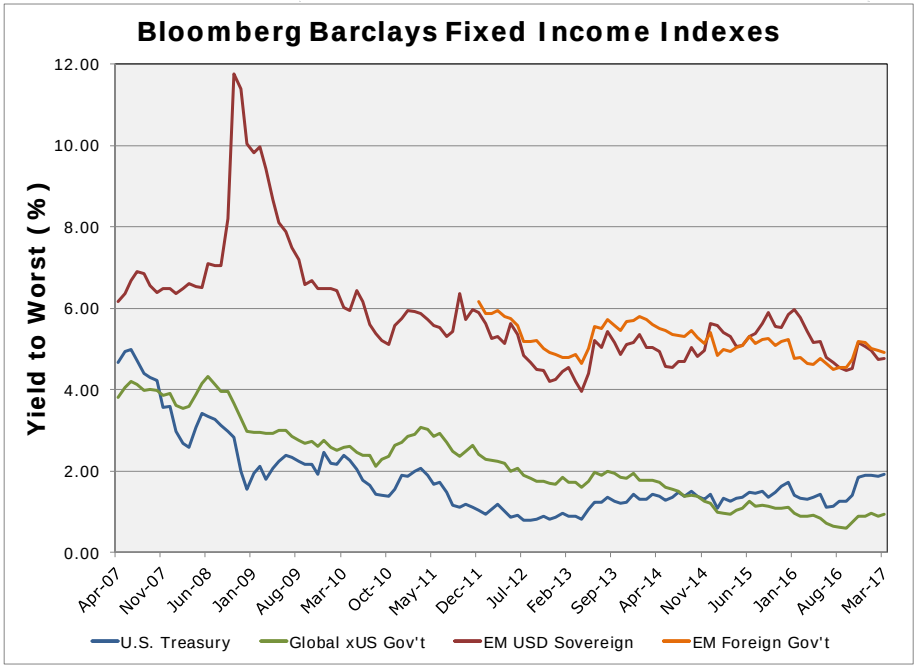
Source: Federal Reserve

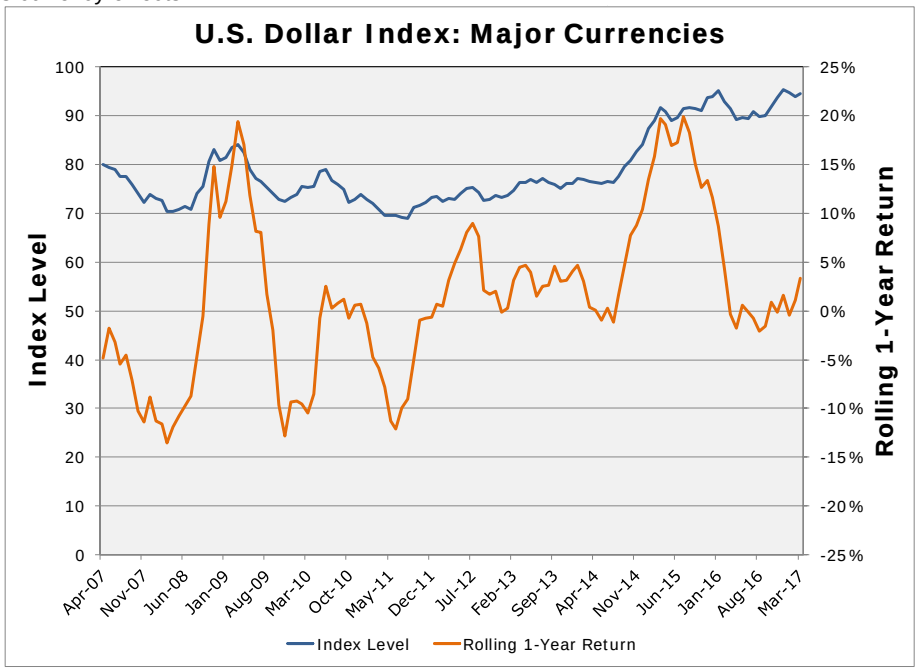
Non-U.S. Fixed Income Market

Wilshire

March 31, 2017	Qtr	Ytd	1 Yr	3 Yr	5 Yr	10 Yr
Developed Markets						
Bloomberg Barclays Global Aggregate xUS	2.5	2.5	-3.9	-2.7	-1.1	2.6
Bloomberg Barclays Global Aggregate xUS *	0.1	0.1	1.4	4.3	4.2	4.3
Bloomberg Barclays Wrld Govt xUS IL Bond	1.4	1.4	-0.1	-0.7	0.6	3.1
Bloomberg Barclays Wrld Govt xUS IL Bond *	-0.1	-0.1	10.2	8.0	5.5	5.9
Emerging Mrkts (Hard Currency)						
Bloomberg Barclays EM USD Aggregate	3.3	3.3	8.6	5.4	5.2	6.8
Emerging Mrkts (Foreign Currency)						
Bloomberg Barclays EM Local Currency Gov't	6.8	6.8	4.1	-0.7	0.6	n.a.
Bloomberg Barclays EM Local Currency Gov't *	1.5	1.5	1.6	2.9	2.6	n.a.
Euro vs. Dollar	1.4	1.4	-6.1	-8.1	-4.3	-2.2
Yen vs. Dollar	4.7	4.7	0.9	-2.6	-5.9	0.6
Pound vs. Dollar	1.2	1.2	-13.0	-9.1	-4.8	-4.4

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



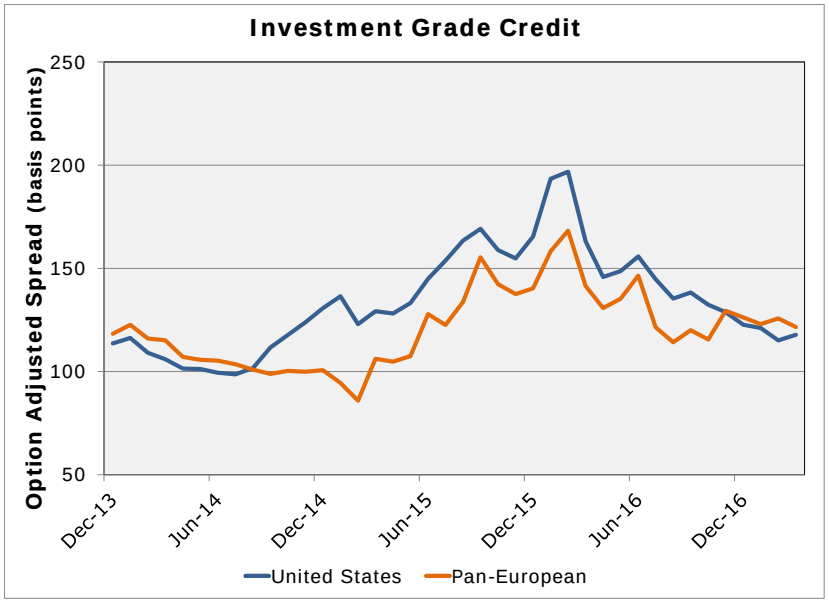


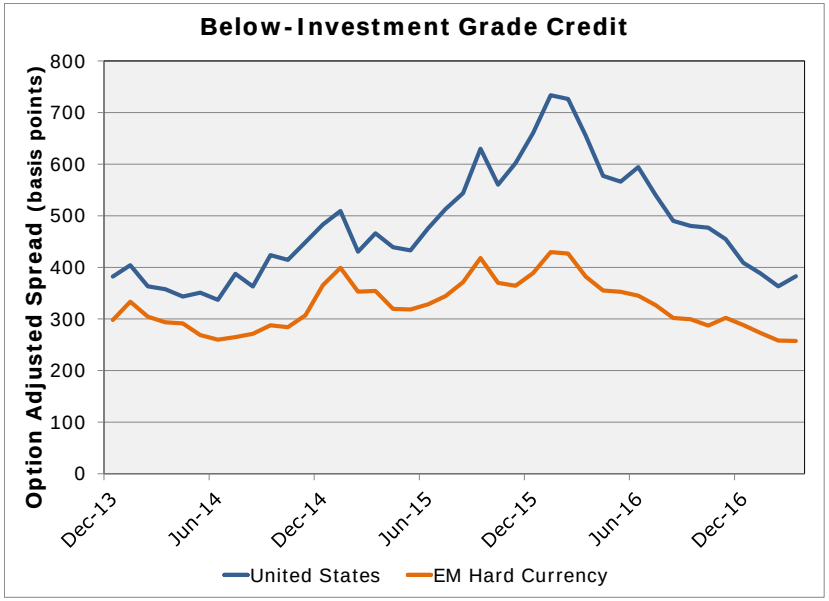
Data sources: Wilshire Compass, Bloomberg Barclays

Global Credit Spreads

- Although Pan-European spreads pushed higher during the fourth quarter on political uncertainty, investment grade spreads are down 50 to 80 basis points from a year ago

- Despite recent political surprises and a maturing economic expansion, credit spreads suggest that markets believe we are in a relatively low volatility environment



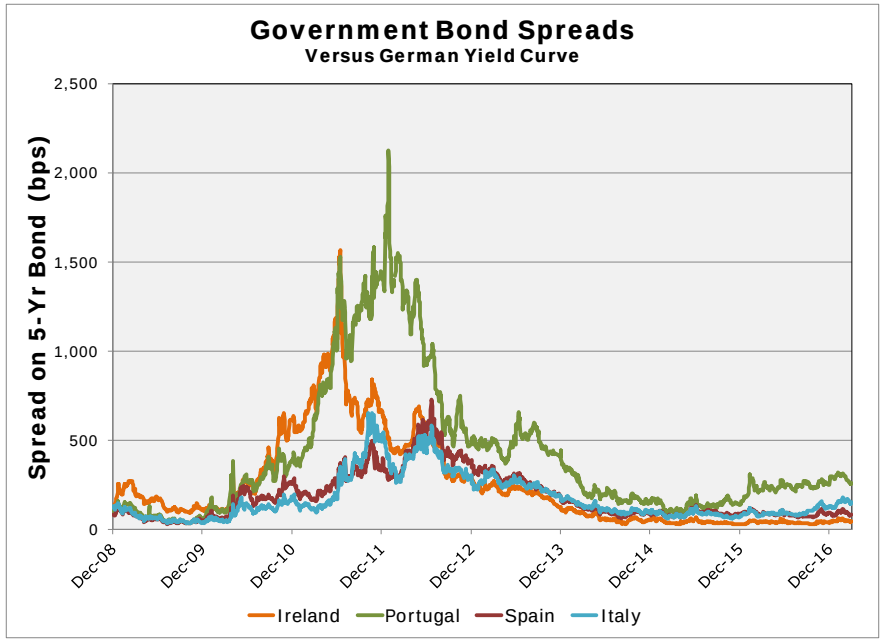


Source: Bloomberg Barclays

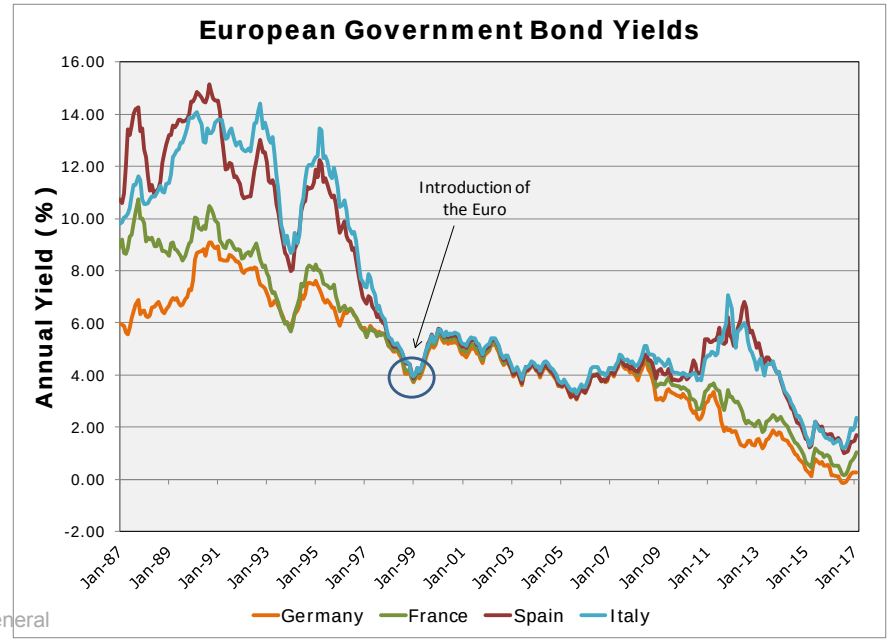
European Debt

Wilshire

- Despite an expanding economy, Portugal's government debt still retains its "junk" status due largely to a fragile banking system and elevated debt levels



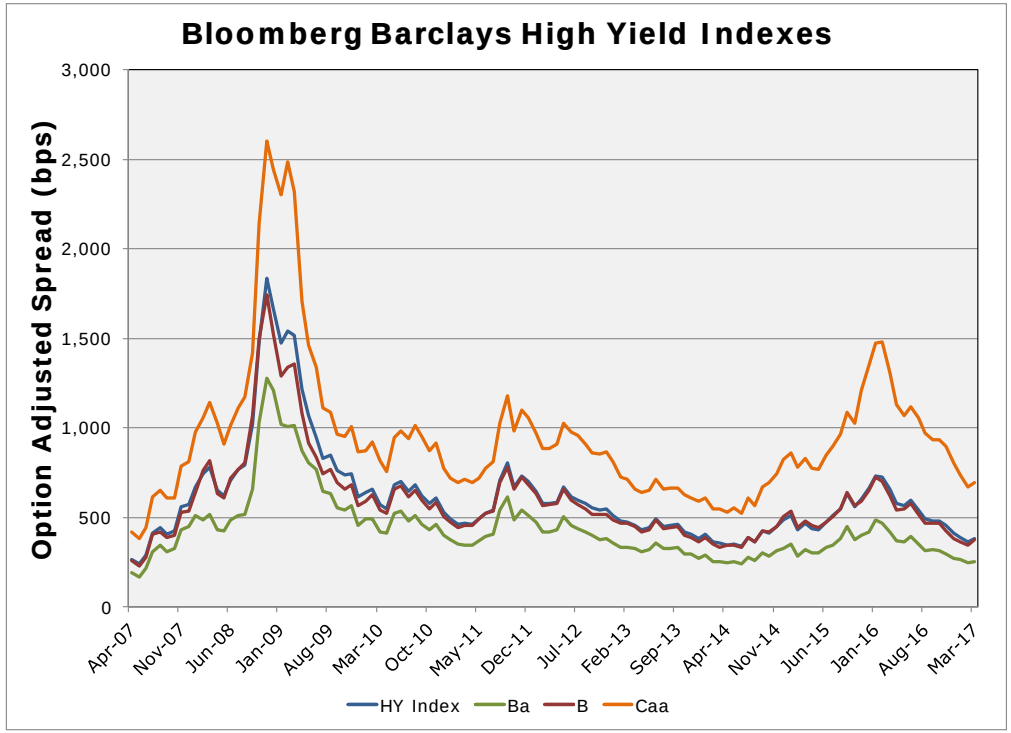
- Yields on government bonds have edged higher with German yields back above zero



Source: Bloomberg Barclays, International Monetary Fund

High Yield Bond Market

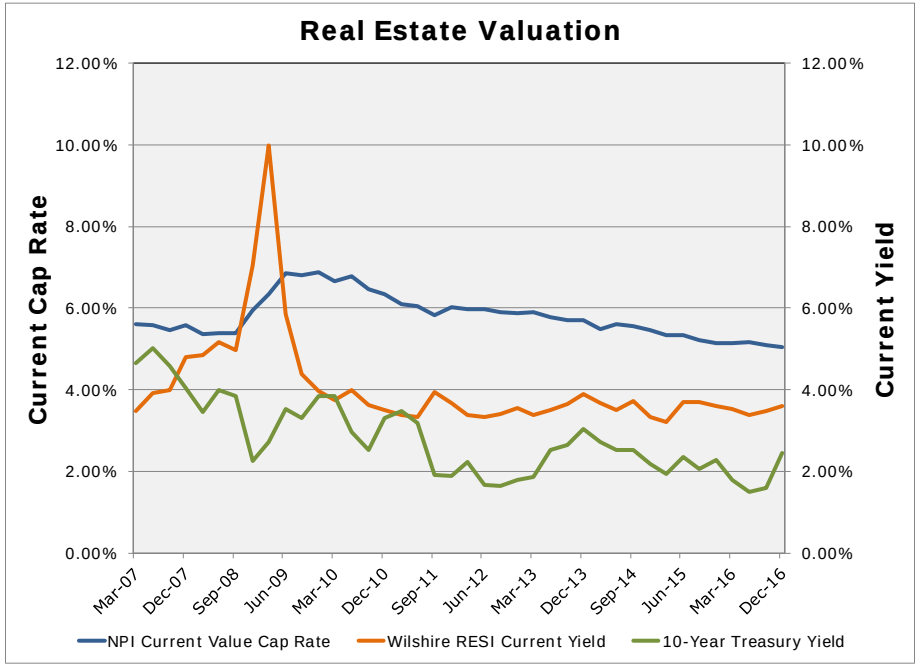
March 31, 2017	Weight	Qtr	Ytd	1 Yr	3 Yr	5 Yr	10 Yr
Bloomberg Barclays High Yield Idx	100%	2.7	2.7	16.4	4.6	6.8	7.5
Quality Distribution							
Ba U.S. High Yield	44.5%	2.1	2.1	10.8	5.2	6.7	7.9
B U.S. High Yield	39.0%	2.5	2.5	15.9	3.8	6.3	6.2
Caa U.S. High Yield	14.7%	4.7	4.7	32.6	5.0	8.3	6.8
Ca to D U.S. High Yield	1.5%	8.9	8.9	90.5	-18.4	-8.4	-2.3
Non-Rated U.S. High Yield	0.2%	5.5	5.5	15.7	-4.3	2.4	0.6

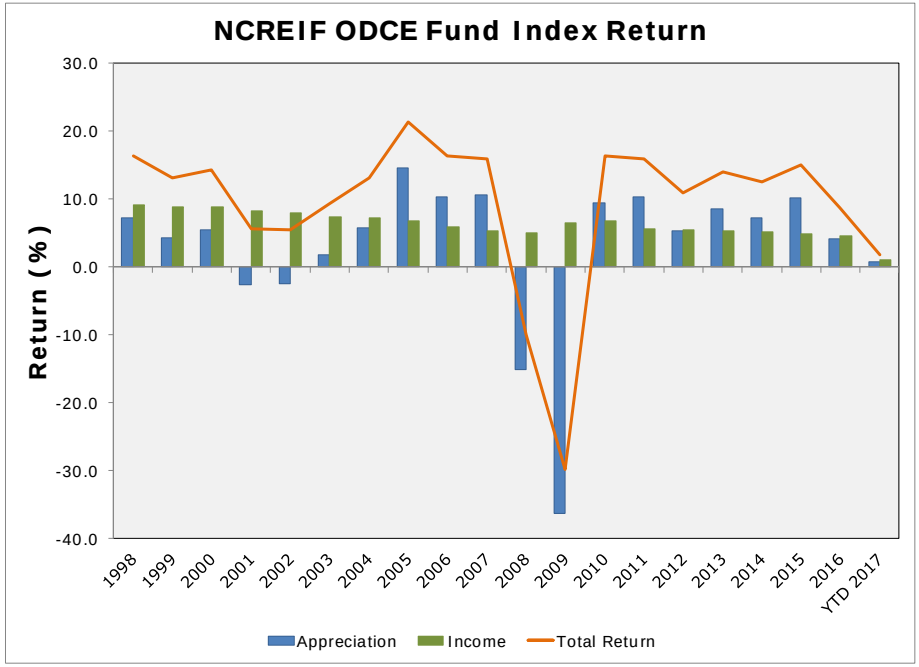


Data sources: Bloomberg Barclays

Real Assets

March 31, 2017	Qtr	Ytd	1 Yr	3 Yr	5 Yr	10 Yr
Barclays U.S. TIPS Index	1.3	1.3	1.5	2.0	1.0	4.2
Bloomberg Commodity Index	-2.3	-2.3	8.7	-13.9	-9.5	-6.2
Wilshire Global RESI Index	2.2	2.2	2.5	7.6	9.0	2.8
NCREIF ODCE Fund Index	1.8	1.8	8.3	11.8	12.0	5.6
NCREIF Timberland Index	0.8	0.8	3.6	5.7	7.1	5.7
Alerian MLP Index (Oil & Gas)	4.0	4.0	28.3	-5.2	2.6	7.2





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

Asset Class Performance

Wilshire

Annual Asset Class Returns - Best to Worst

2012	2013	2014	2015	2016	**YTD 2017**
Emrg Mrkts 18.6%	U.S. Equity 33.1%	REITs 31.8%	REITs 4.2%	MLPs 18.3%	Emrg Mrkts 11.5%
Developed 17.9%	MLPs 27.6%	U.S. Equity 12.7%	U.S. Equity 0.7%	High Yield 17.1%	Developed 7.4%
REITs 17.6%	Developed 23.3%	Core Bond 6.0%	Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 5.6%
U.S. Equity 16.1%	High Yield 7.4%	MLPs 4.8%	T-Bills 0.1%	Commodities 11.8%	MLPs 4.0%
High Yield 15.8%	REITs 1.9%	U.S. TIPS 3.6%	Developed -0.4%	Emrg Mrkts 11.6%	High Yield 2.7%
U.S. TIPS 7.0%	T-Bills 0.1%	High Yield 2.5%	U.S. TIPS -1.4%	REITs 7.2%	U.S. TIPS 1.3%
MLPs 4.8%	Core Bond -2.0%	T-Bills 0.0%	High Yield -4.5%	U.S. TIPS 4.7%	Core Bond 0.8%
Core Bond 4.2%	Emrg Mrkts -2.3%	Emrg Mrkts -1.8%	Emrg Mrkts -14.6%	Core Bond 2.6%	T-Bills 0.1%
T-Bills 0.1%	U.S. TIPS -8.6%	Developed -4.5%	Commodities -24.7%	Developed 1.5%	REITs 0.0%
Commodities -1.0%	Commodities -9.5%	Commodities -17.0%	MLPs -32.6%	T-Bills 0.3%	Commodities -2.3%

Annualized 5-Year as of Mar '17
U.S. Equity 13.2%
REITs 9.8%
High Yield 6.8%
Developed 6.3%
MLPs 2.6%
Core Bond 2.3%
Emrg Mrkts 1.2%
U.S. TIPS 1.0%
T-Bills 0.1%
Commodities -9.5%

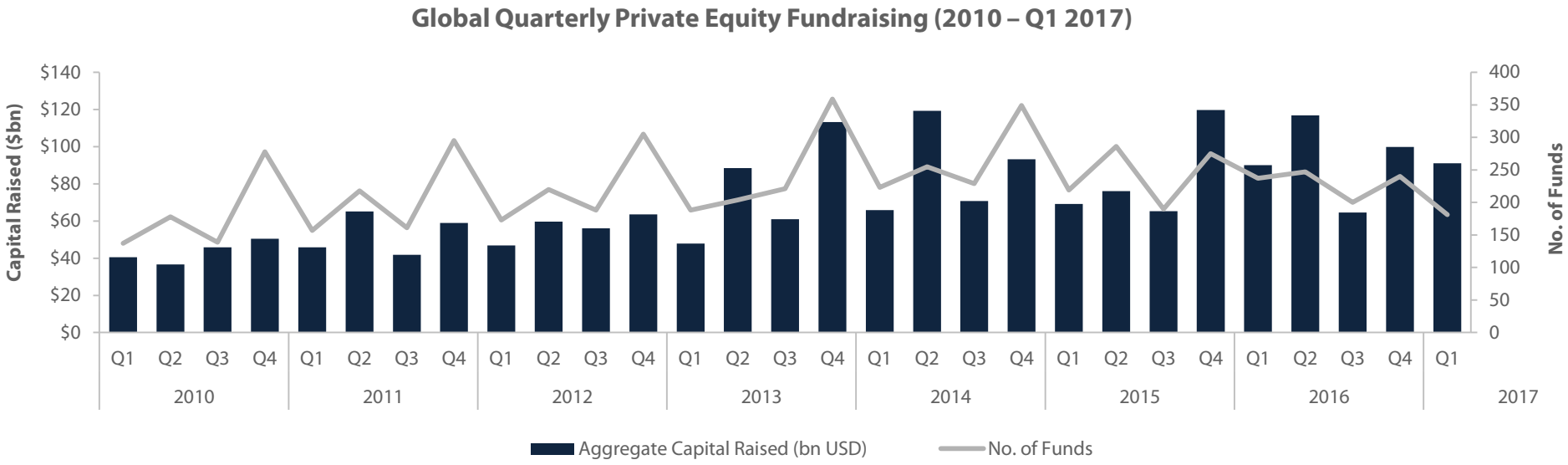
Data sources: Wilshire Compass

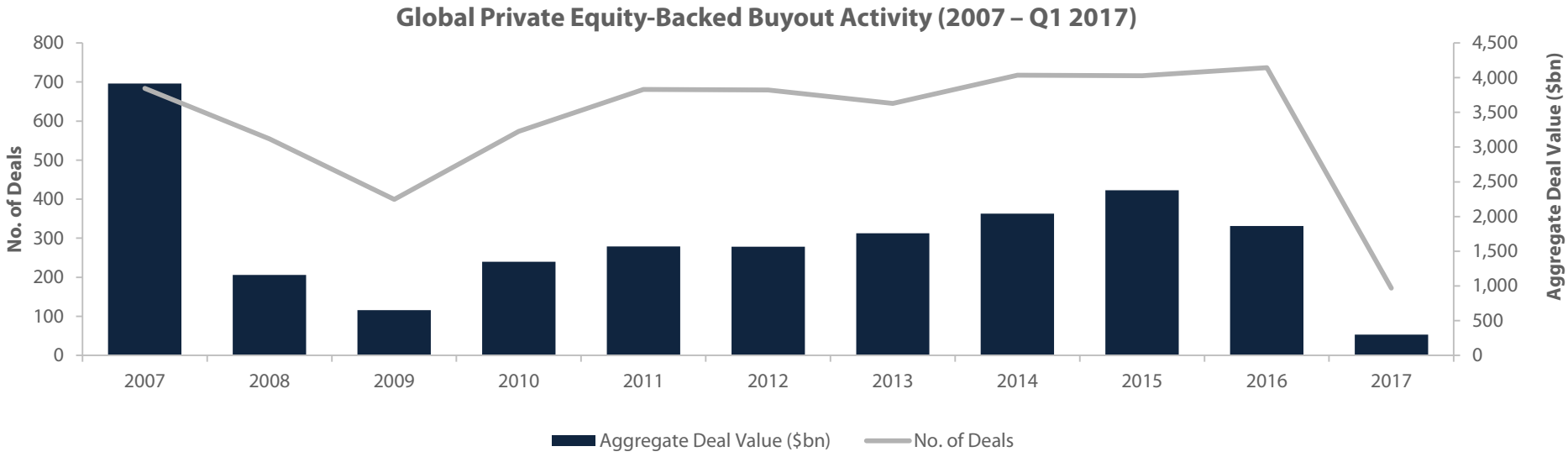
Note: Developed asset class is developed markets ex-U.S., ex-Canada.

Appendix: Private Markets Update

Private Equity – Fundraising & Investment Activity

Wilshire

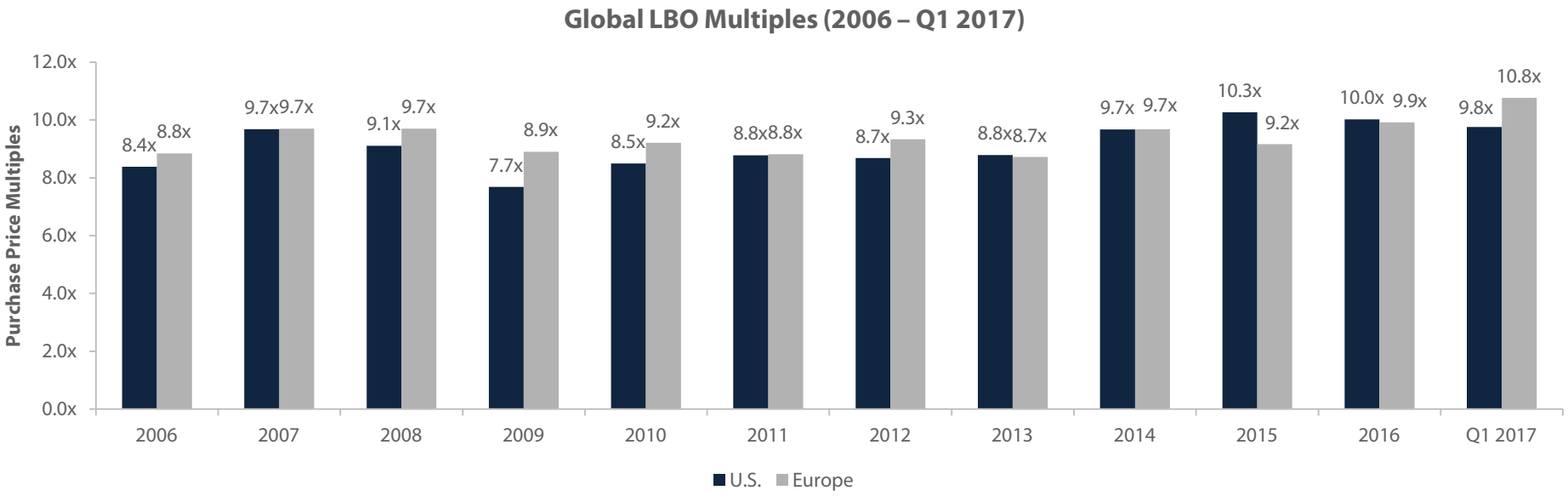


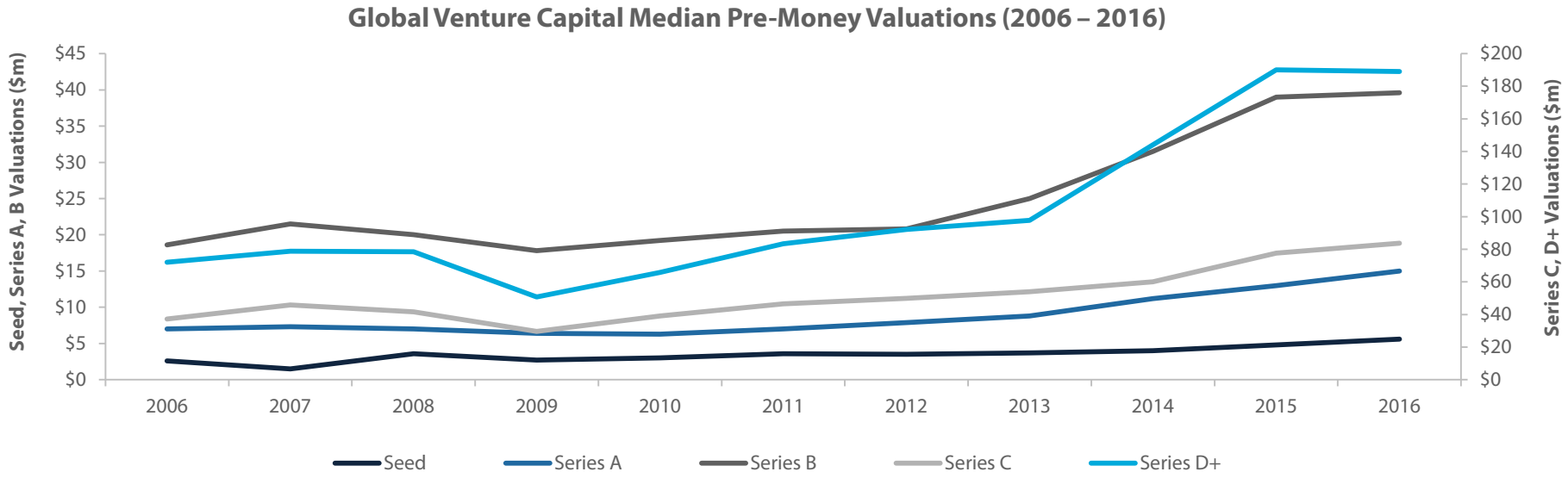


Source: Preqin, as of March 31, 2017.

Private Equity – Pricing & Valuations

Wilshire

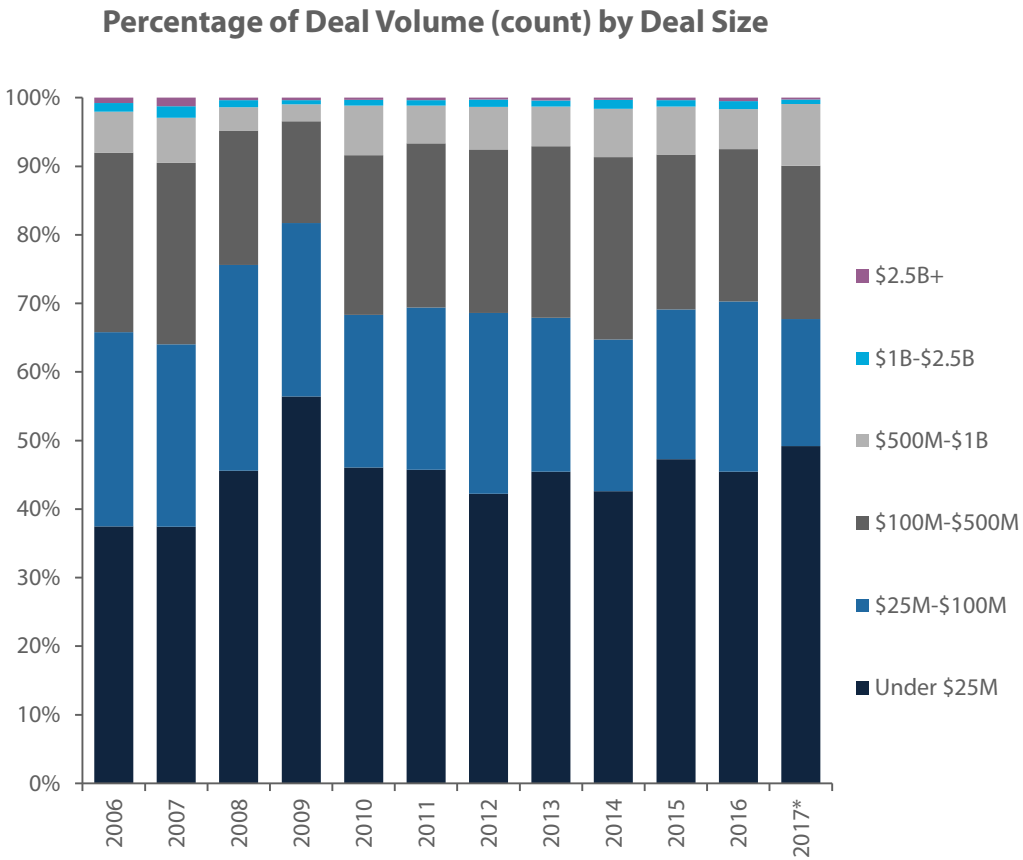


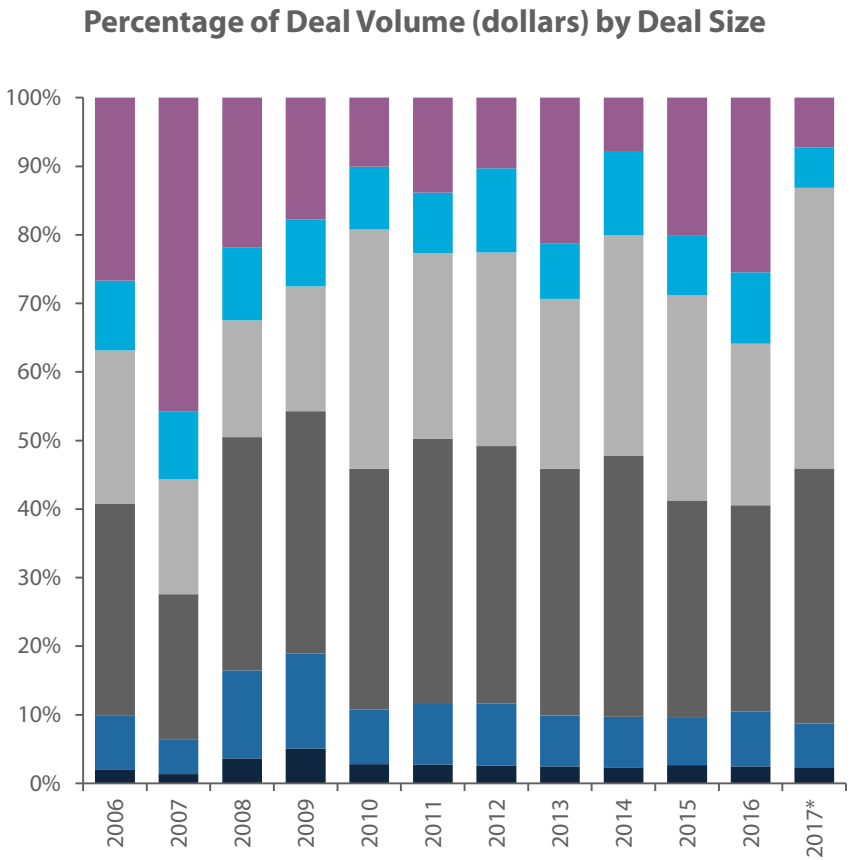


Sources: S&P LCD, as of March 31, 2017; PitchBook, as of January 12, 2017.

Private Equity – U.S. Investment Activity by Deal Size

Wilshire



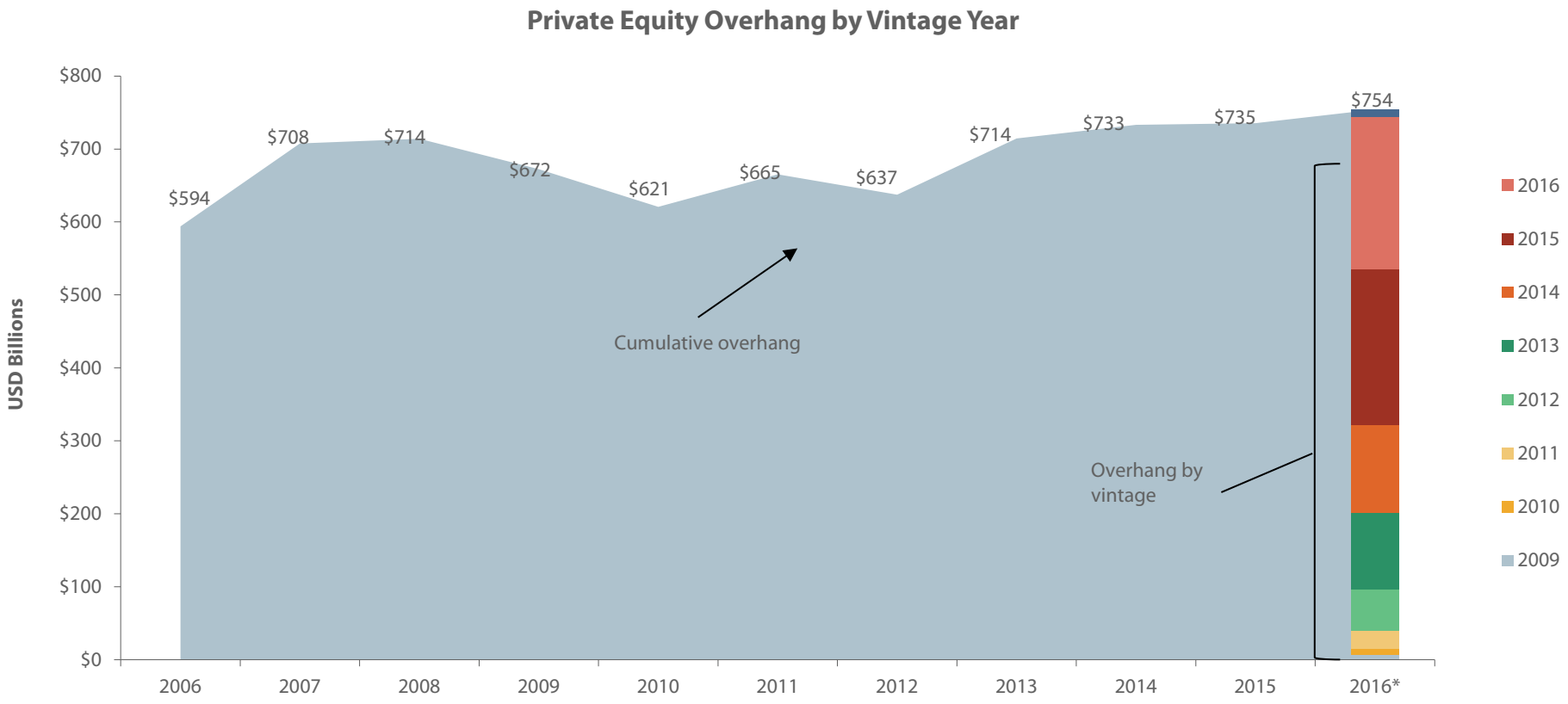


- Smaller deals continue to dominant deal activity by count
- Deals between $100 million-$1 billion continue to make up the majority of deal volume by size

Source: PitchBook, as of March 31, 2017.

Private Equity – Capital Overhang

Wilshire



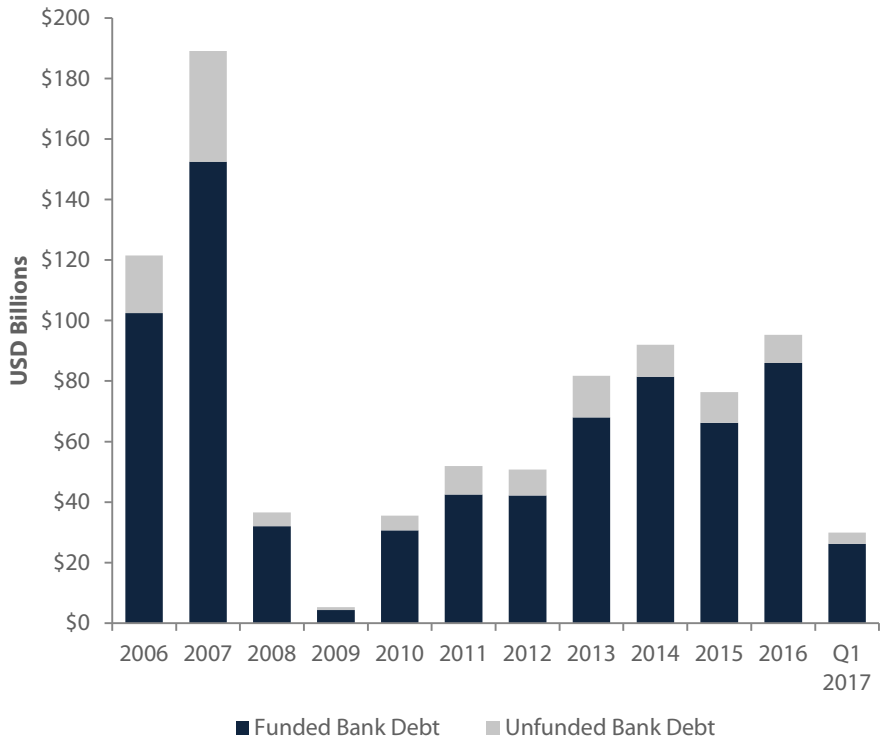
- Global private equity overhang reached a new all-time high of $754 billion in 2016
- This abundant capital will help fuel private equity deal flow over the next few years

Source: PitchBook, as of June 30, 2016.

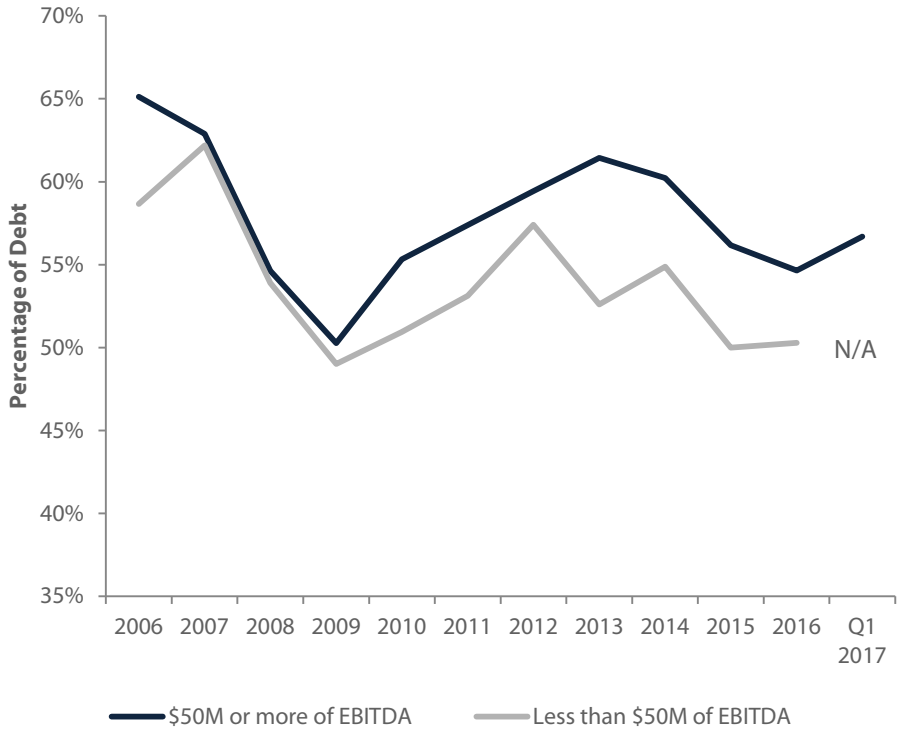
Private Equity – U.S. Debt Markets

Wilshire

Total U.S. Leveraged Buyout Loan Volume ($bn) (2006 – Q1 2017)



Percentage of Debt Used in Buyouts (2006 – Q1 2017)

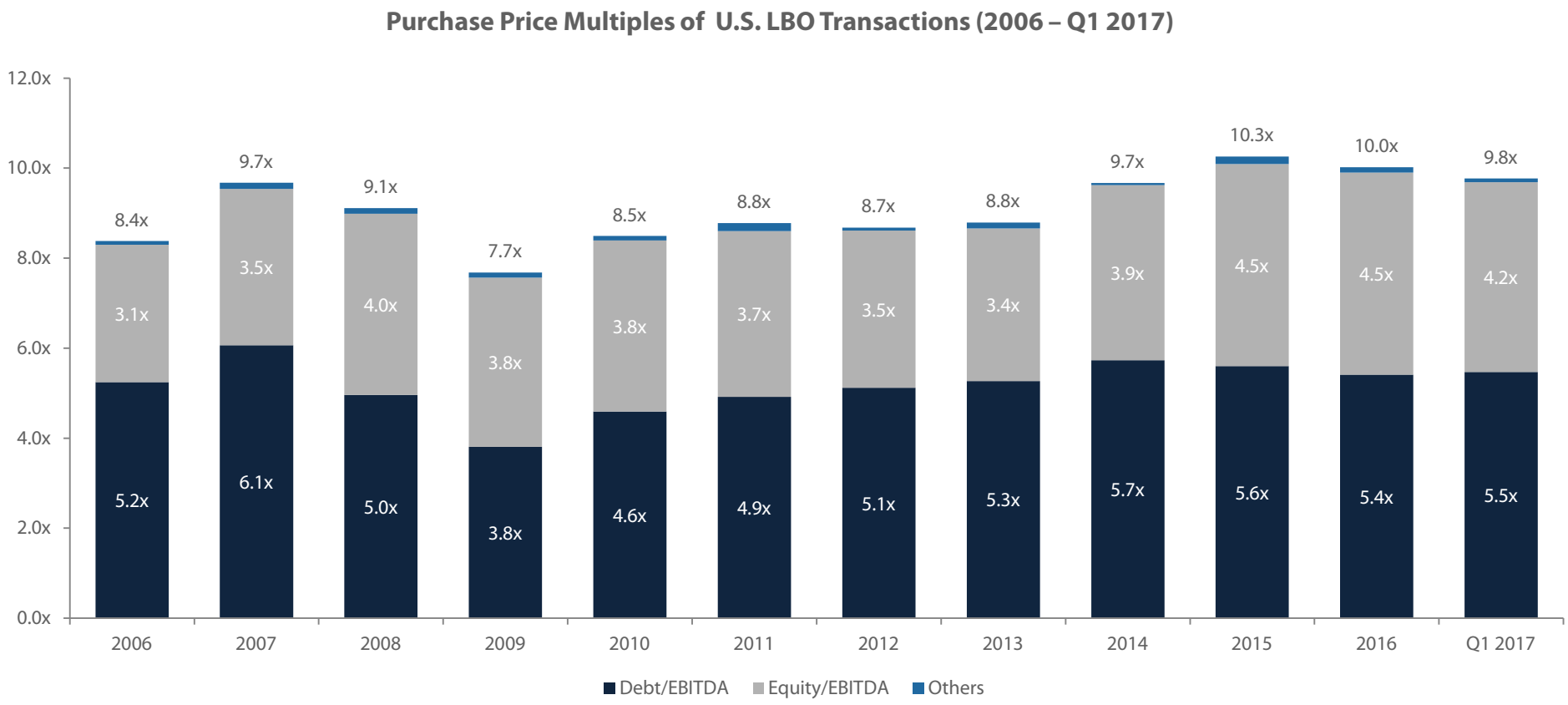


- The amount of capital available for leverage has decreased considerably since its peak volume in 2007; loan volume appears consistent in the last few years
- Historically, middle-market transactions apply less leverage than large-cap deals

Source: S&P LCD, as of March 31, 2017.

Private Equity – U.S. LBO Purchase Price Multiples

Wilshire

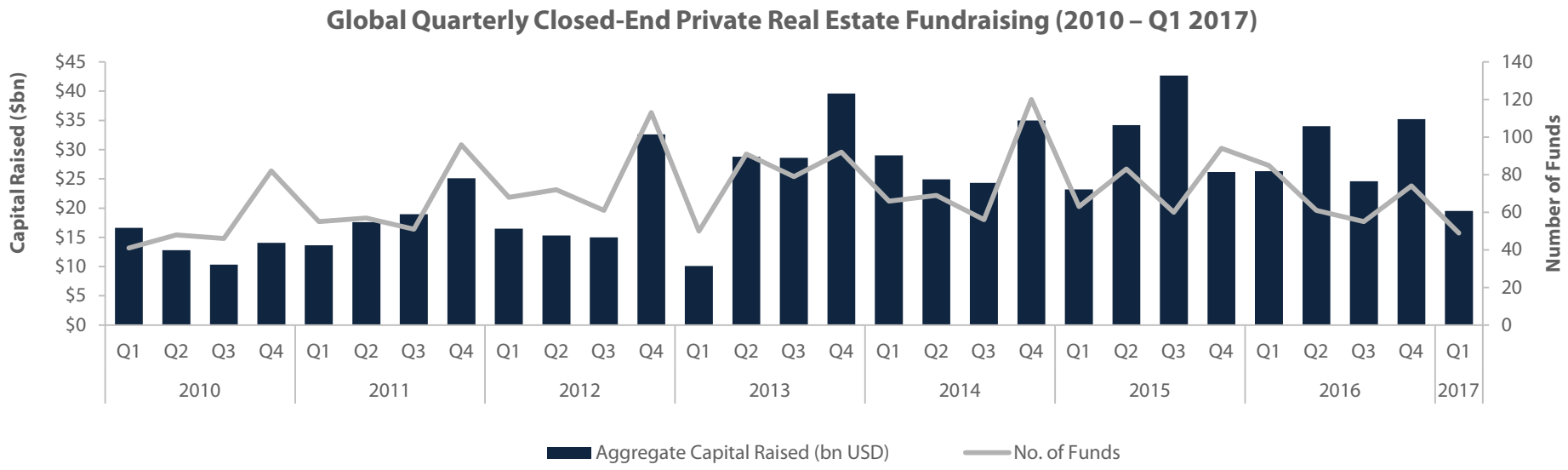


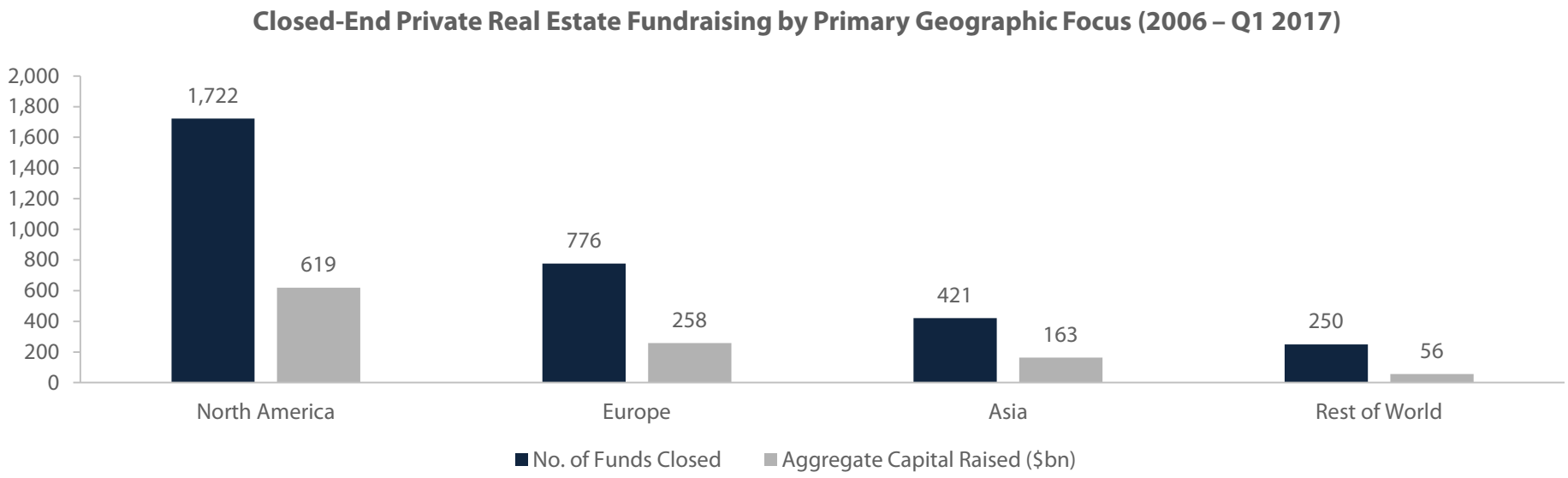
- As debt has become more readily available, purchase price multiples have increased and remained high relative to 2009's low
- Pricing in 2017 to date remains elevated but has decreased slightly from the recent high in 2015

Source: S&P LCD, as of March 31, 2017.

Private Real Estate – Fundraising Activity

Wilshire





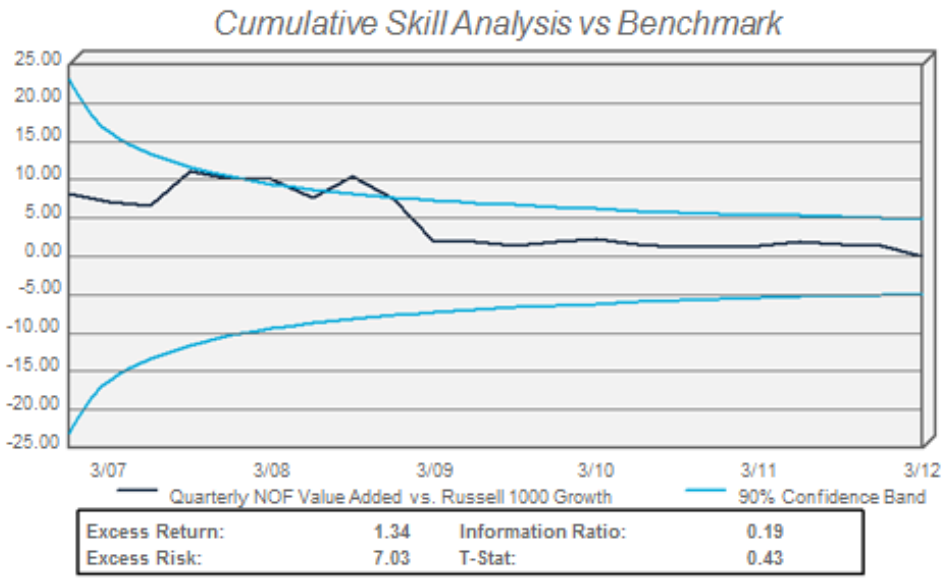
Source: Preqin, as of March 31, 2017.

Appendix

Wilshire

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.



Data sources: Wilshire Compass