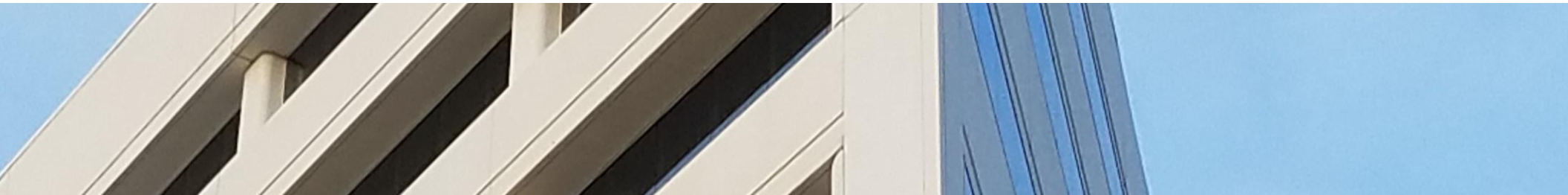




WILSHIRE ASSOCIATES

Wilshire Consulting



Police and Fire Retirement System

Executive Summary of Investment Performance

June 30, 2019

Wilshire Consulting
Contents

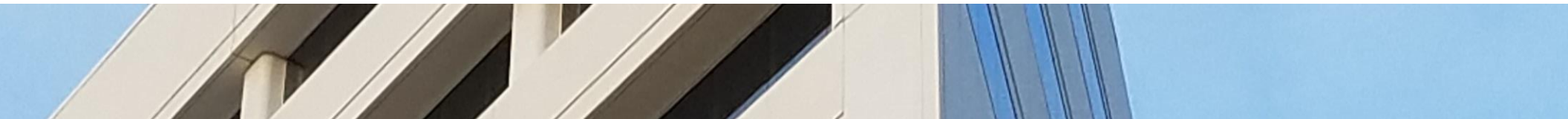
Capital Market Review

Tab 1

Investment Performance

Tab 2





CAPITAL MARKET REVIEW

MARKET COMMENTARY

U.S. Equity

The U.S. stock market was up 4.0% for the second quarter of 2019 and 18.66% for the year. This marks the strongest first half-year for U.S. equities in 24 years. Markets have been quite volatile this year as trade concerns and a possible global economic slowdown continue to sway the markets. Equity prices are also responding to actions and statements by the Federal Reserve, who has softened its monetary policy stance in the past few months.

Talk of what the Federal Open Market Committee will do at their next meeting is likely to dominate headlines during July. After three years of steady increases in the federal funds rate, the Fed appears to be at a pivotal moment. They have left the rate unchanged during 2019 and are forecasting no changes for the second half of the year. The open market, however, is currently far more aggressive on monetary policy and expects two or three 0.25% reductions.

Non-U.S. Equity

Equity markets outside of the U.S. continue to enjoy a strong 2019. Indicators out of Europe are still gloomy as recent data show that the manufacturing sector in Germany has weakened. News out of Japan is also troubling as consumption and capital spending shows little or no growth. Trade negotiations between the U.S. and China, the world's two largest economies, continue with both countries maintaining firm stances before the G20.

Fixed Income

The U.S. Treasury yield curve fell across all maturities during the quarter. The 10-year Treasury yield ended the quarter at 2.00%, down 41 basis points from March. The FOMC left its overnight rate unchanged during the quarter at a range of 2.25% to 2.50%. The committee softened some of their messaging to indicate that they are at least willing to ease should conditions deteriorate.

ASSET CLASS PERFORMANCE

ASSET CLASS RETURNS - BEST TO WORST					
2014	2015	2016	2017	2018	2019 YTD
REITs 31.8%	REITs 4.2%	MLPs 18.3%	Emrg Mrkts 37.7%	T-Bills 1.9%	U.S. Equity 18.7%
U.S. Equity 12.7%	U.S. Equity 0.7%	High Yield 17.1%	Developed 25.6%	Core Bond 0.0%	REITs 17.9%
Core Bond 6.0%	Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 21.0%	U.S. TIPS -1.3%	MLPs 17.0%
MLPs 4.8%	T-Bills 0.1%	Commodities 11.8%	High Yield 7.5%	High Yield -2.1%	Developed 14.5%
U.S. TIPS 3.6%	Developed -0.4%	Emrg Mrkts 11.6%	REITs 4.2%	REITs -4.8%	Emrg Mrkts 10.8%
High Yield 2.5%	U.S. TIPS -1.4%	REITs 7.2%	Core Bond 3.6%	U.S. Equity -5.3%	High Yield 9.9%
T-Bills 0.0%	High Yield -4.5%	U.S. TIPS 4.7%	U.S. TIPS 3.0%	Commodities -11.2%	U.S. TIPS 6.1%
Emrg Mrkts -1.8%	Emrg Mrkts -14.6%	Core Bond 2.6%	Commodities 1.7%	MLPs -12.4%	Core Bond 6.1%
Developed -4.5%	Commodities -24.7%	Developed 1.5%	T-Bills 0.8%	Developed -13.4%	Commodities 5.1%
Commodities -17.0%	MLPs -32.6%	T-Bills 0.3%	MLPs -6.5%	Emrg Mrkts -14.2%	T-Bills 1.2%

ANNUALIZED 5-YEAR AS OF 6/2019
U.S. Equity 10.3%
REITs 7.8%
High Yield 4.7%
Core Bond 3.0%
Emrg Mrkts 2.9%
Developed 2.7%
U.S. TIPS 1.8%
T-Bills 0.9%
MLPs -7.2%
Commodities -9.1%

Data sources: Wilshire Compass

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

JUNE 2019 ASSET CLASS ASSUMPTIONS

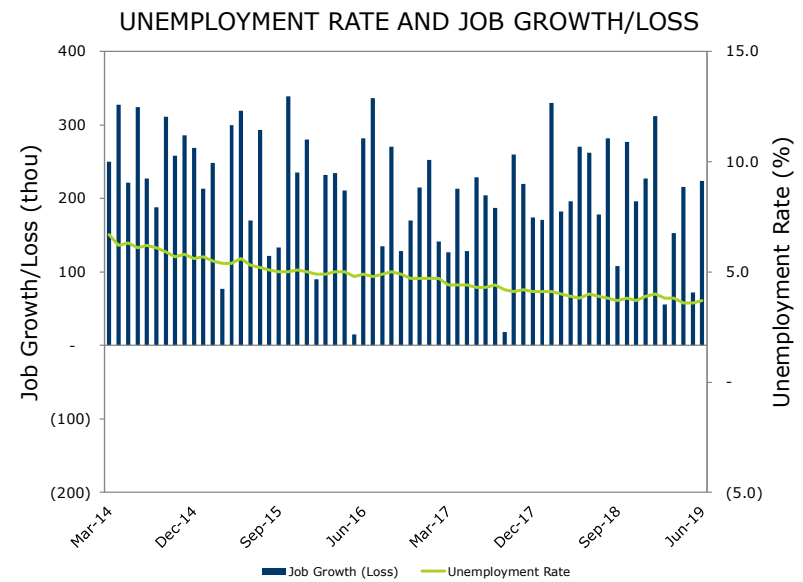
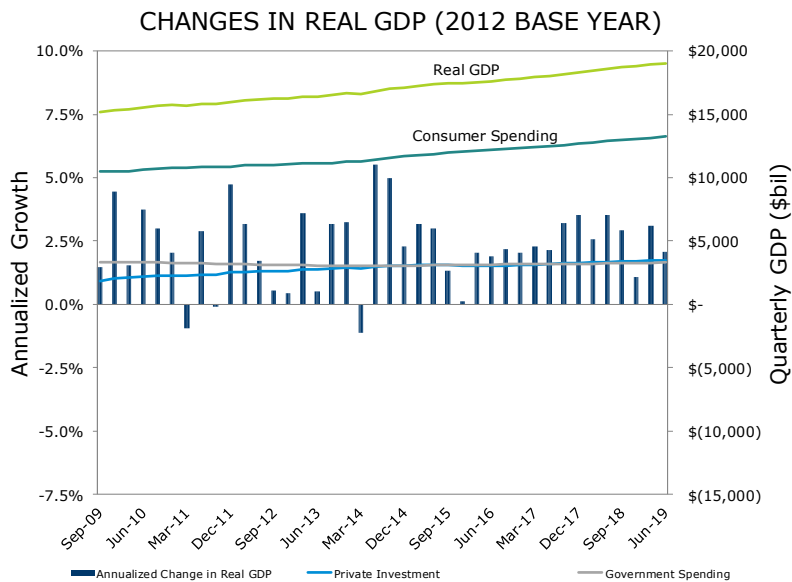
	EQUITY						FIXED INCOME						REAL ASSETS					
	US Stock	Dev	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT		High Yield	Dev ex-US Bond (Hdg)	Real Estate			Cmnty	Real Assets	US CPI
		ex-US Stock							Core Bond	TIPS			US RES	Global RES	Private RE			
COMPOUND RETURN (%)	6.00	6.50	6.50	6.75	6.45	8.35	1.90	3.05	3.45	2.00	4.30	0.90	5.05	5.25	6.55	3.60	5.80	1.70
ARITHMETIC RETURN (%)	7.30	7.95	9.45	8.35	7.75	11.70	1.90	3.20	3.90	2.20	4.75	0.95	6.40	6.40	7.45	4.65	6.15	1.70
EXPECTED RISK (%)	17.00	18.00	26.00	18.80	17.05	28.00	1.25	5.15	9.85	6.00	10.00	3.50	17.00	15.80	14.00	15.00	8.75	1.75
CASH YIELD (%)	2.00	3.50	2.50	3.25	2.55	0.00	1.90	3.30	4.50	2.80	7.55	1.60	3.75	3.75	2.55	1.90	2.50	0.00
CORRELATIONS																		
US Stock	1.00																	
Dev ex-US Stock (USD)	0.81	1.00																
Emerging Mkt 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									
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							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.18	0.18	0.26	0.10	0.67	0.66	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 Assets	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, 2019 KEY ECONOMIC INDICATORS

CPI (ALL ITEMS)	MONTHLY CHANGE		CUMULATIVE CHANGE	
SEASONALLY ADJUSTED	Jun-19	0.1	3-Mo.	0.5
	May-19	0.1	12-Mo.	1.7
	Apr-19	0.3	10-Yr. (Annual)	1.7
	10-Yr.	1.7		
BREAKEVEN INFLATION	10-Yr.	1.7		
CONSUMER SENTIMENT	Jun-19	98.2		
U. OF MICHIGAN SURVEY	May-19	100.0		
	1-Yr. Ago	98.2	10-Yr. Avg	84.2
MANUFACTURING	Jun-19	51.7	CHANGE IN SECTOR	
INST. FOR SUPPLY MGMT	May-19	52.1	>50	Expansion
PURCHASING MNGRS' IDX	1-Yr. Avg.	56.0	<50	Contraction

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

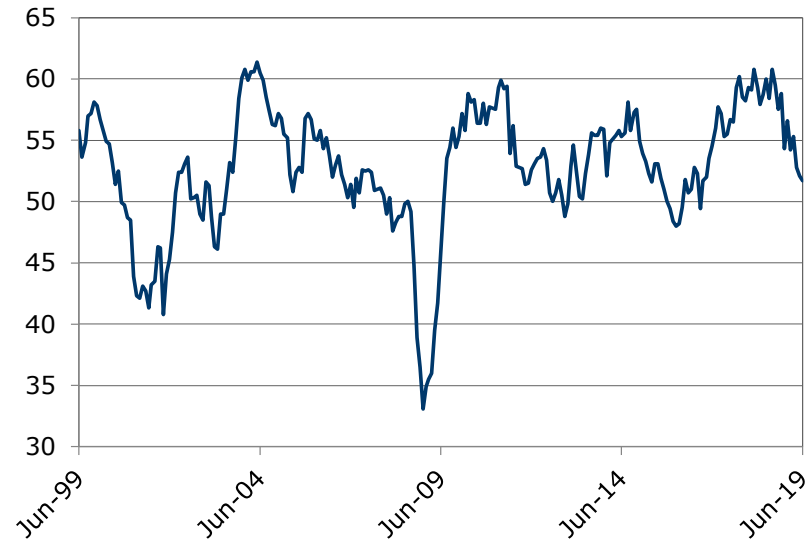


Data sources: Bureau of Labor Statistics, U.S. Treasury, University of Michigan, Institute for Supply Management, Bureau of Economic Analysis

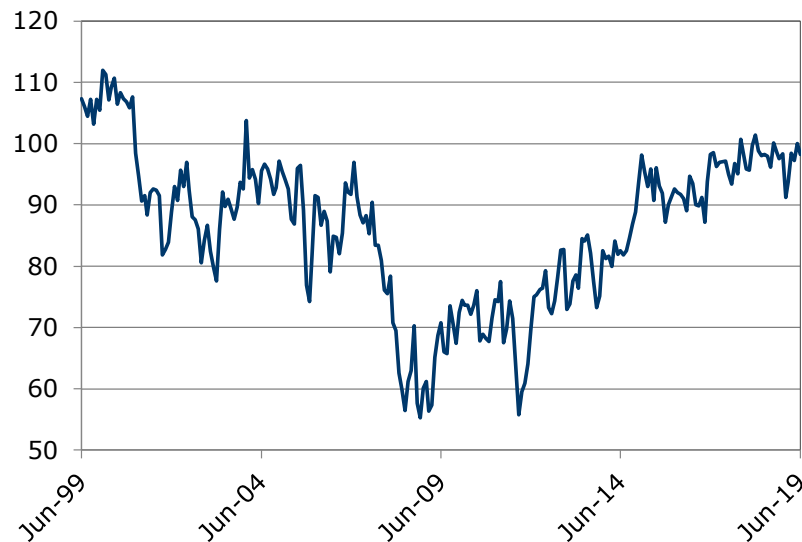
SIGNS OF SLOWING

- Surveys provide up-to-date proxy for economic activity
- Business activity continues to grow but has slowed; Consumer confidence proxies future demand
- Rate-sensitive sectors are slowing

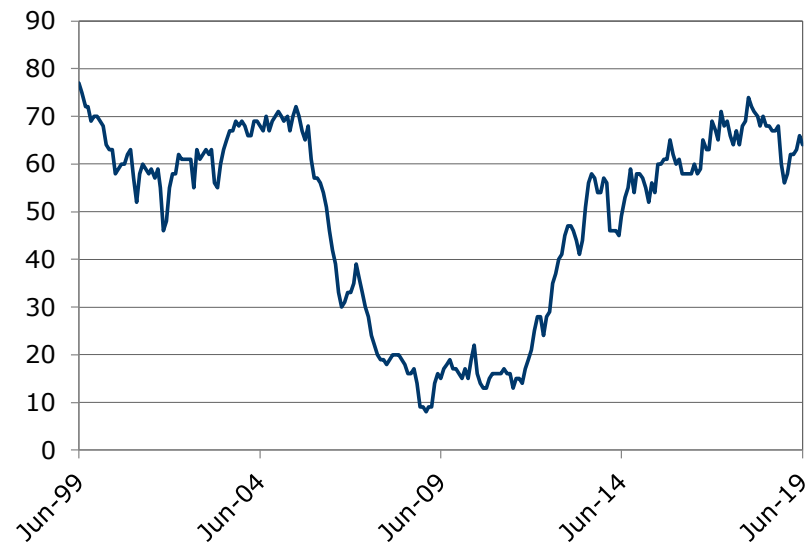
ISM MANUFACTURING INDEX



U. OF MI CONSUMER SENTIMENT INDEX

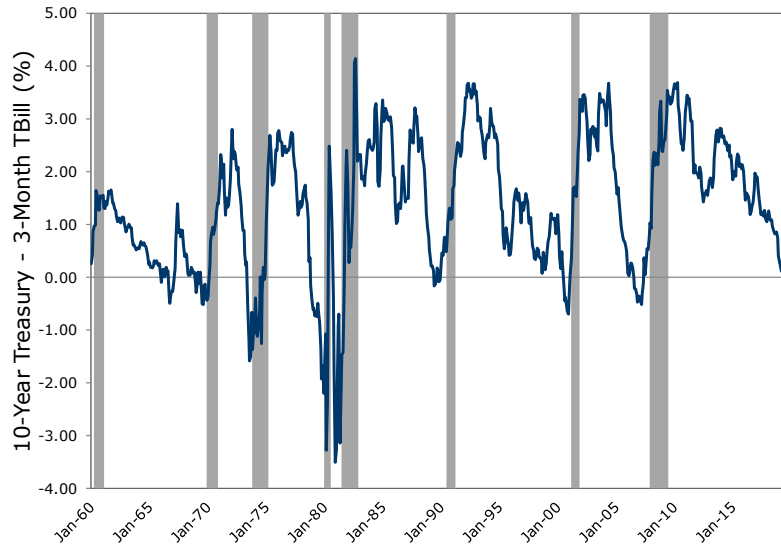


HOME BUILDERS HOME MARKET INDEX

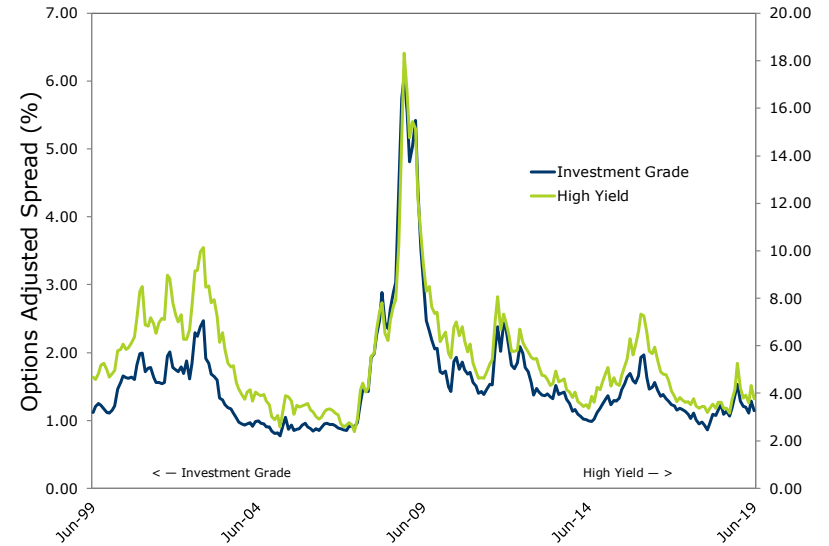


RISK MONITOR

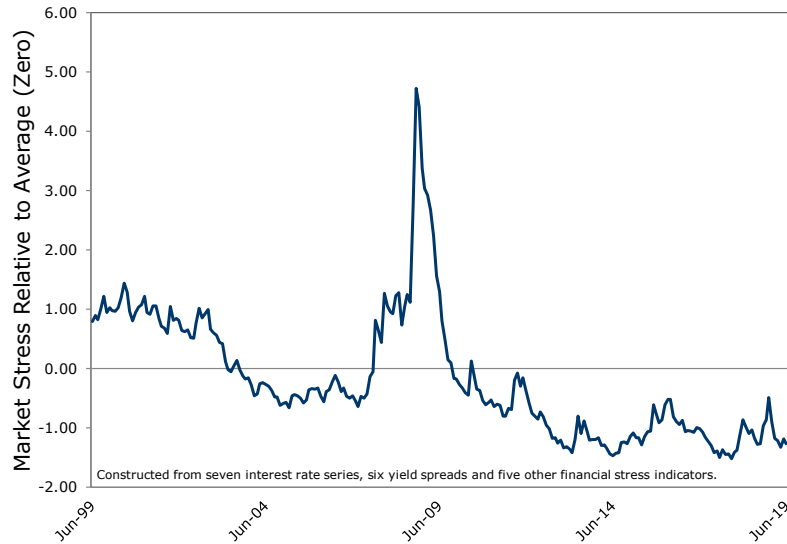
YIELD CURVE SLOPE VS RECESSIONS (IN GRAY)



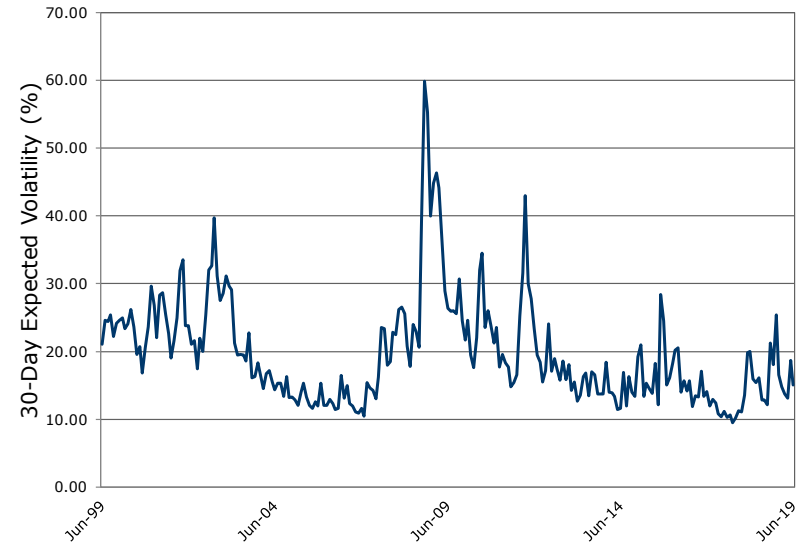
BLOOMBERG BARCLAYS CREDIT INDEXES



ST. LOUIS FED FINANCIAL STRESS INDEX



CBOE VOLATILITY INDEX

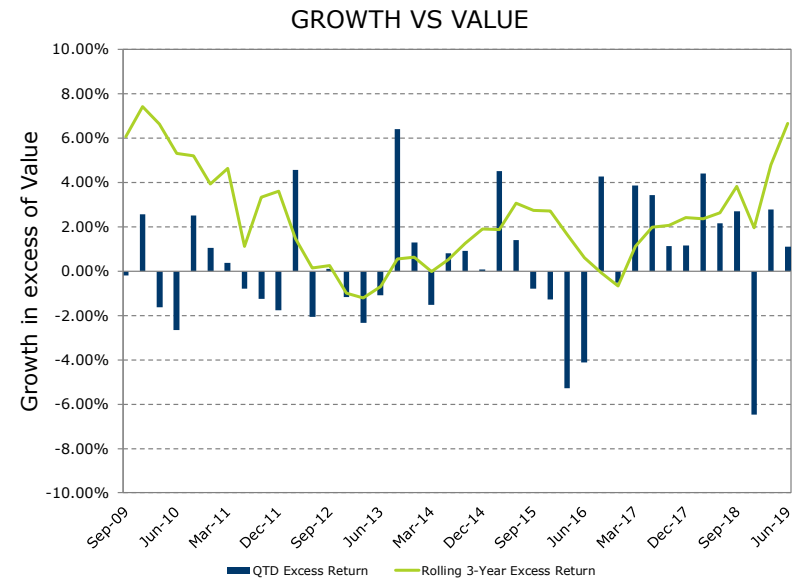
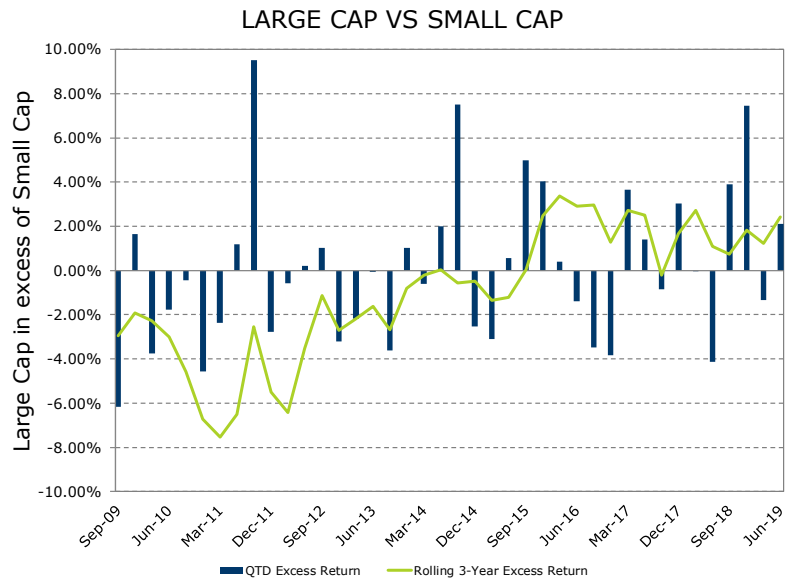
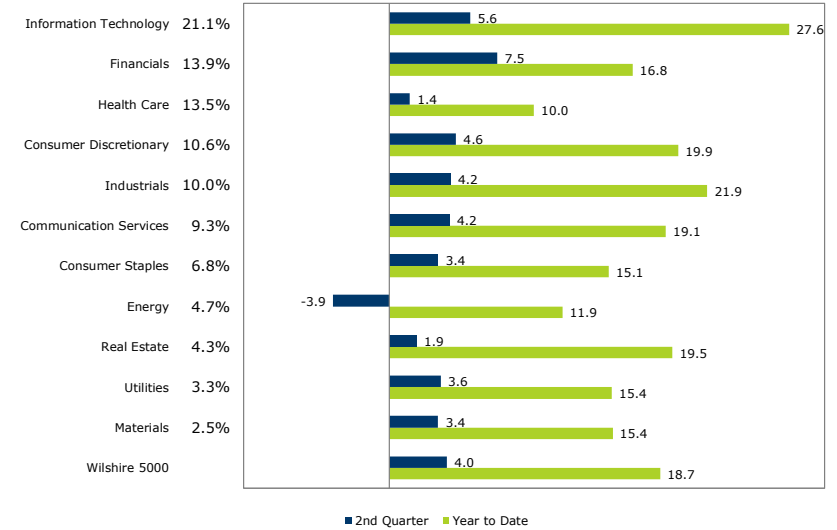


Data sources: Federal Reserve, Bloomberg Barclays

U.S. EQUITY MARKET

AS OF JUNE 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
WILSHIRE 5000 INDEX	4.0	18.7	9.1	14.0	10.3	14.7
WILSHIRE U.S. LARGE CAP	4.2	18.7	10.4	14.3	10.7	14.7
WILSHIRE U.S. SMALL CAP	2.0	17.9	-1.9	11.6	7.0	14.6
WILSHIRE U.S. LARGE GROWTH	4.7	21.1	10.0	18.1	12.4	15.7
WILSHIRE U.S. LARGE VALUE	3.8	16.7	10.7	10.7	9.0	13.6
WILSHIRE U.S. SMALL GROWTH	3.9	20.9	1.1	15.4	7.6	15.0
WILSHIRE U.S. SMALL VALUE	0.3	14.9	-4.7	7.9	6.3	14.0
WILSHIRE REIT INDEX	1.6	17.9	10.5	4.1	7.8	15.7
MSCI USA MIN. VOL. INDEX	5.5	18.6	18.0	11.8	12.3	14.6
FTSE RAFI U.S. 1000 INDEX	3.5	16.2	6.2	11.5	8.3	14.7

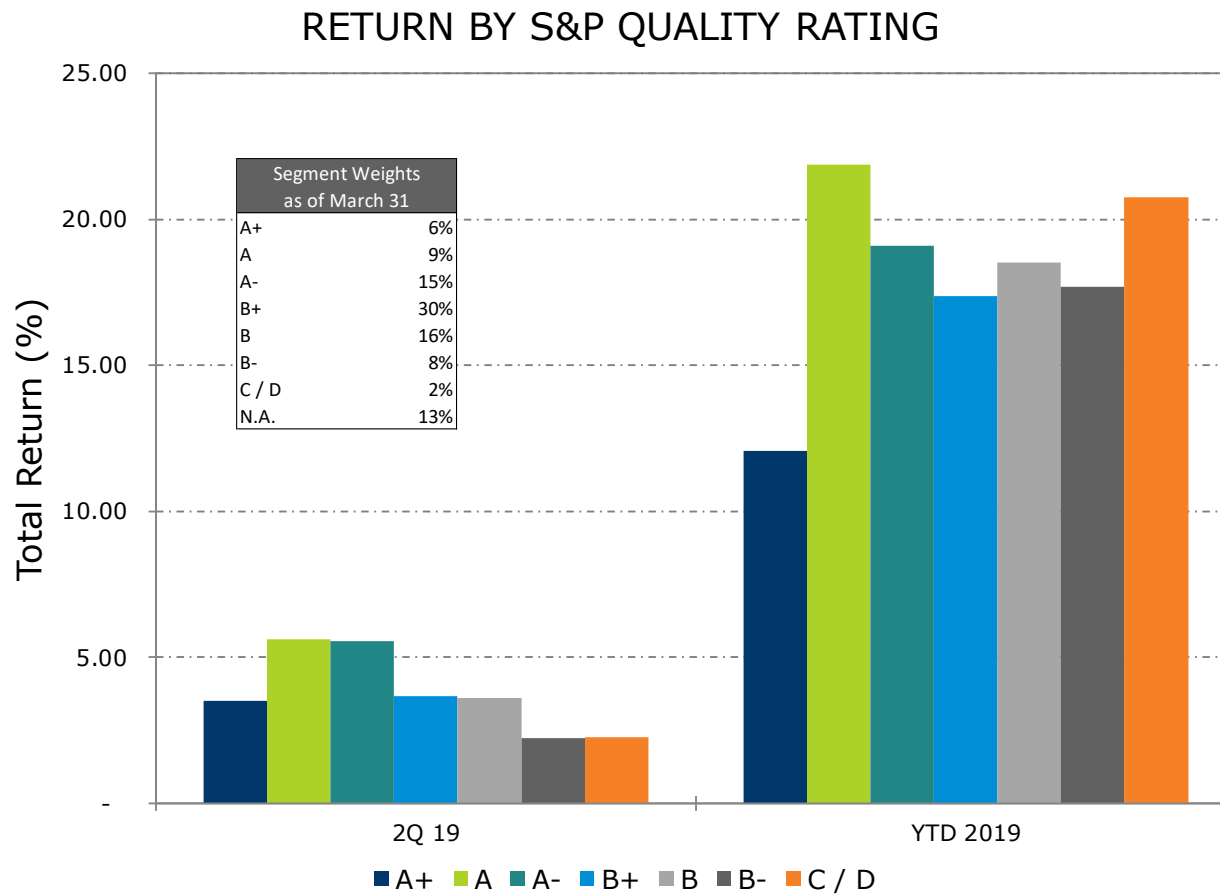
WILSHIRE 5000 SECTOR WEIGHT & RETURN (%)



Data sources: Wilshire Compass, Wilshire Atlas

RETURNS BY QUALITY SEGMENT

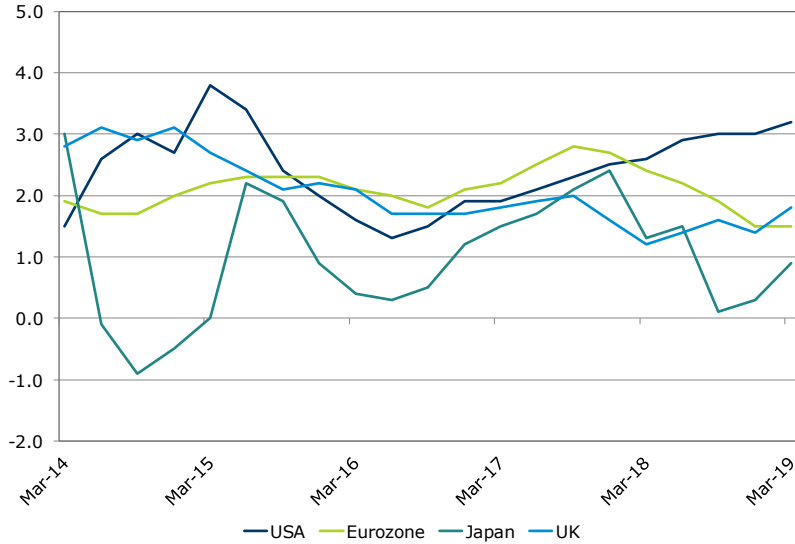
Higher quality names led the market during the second quarter



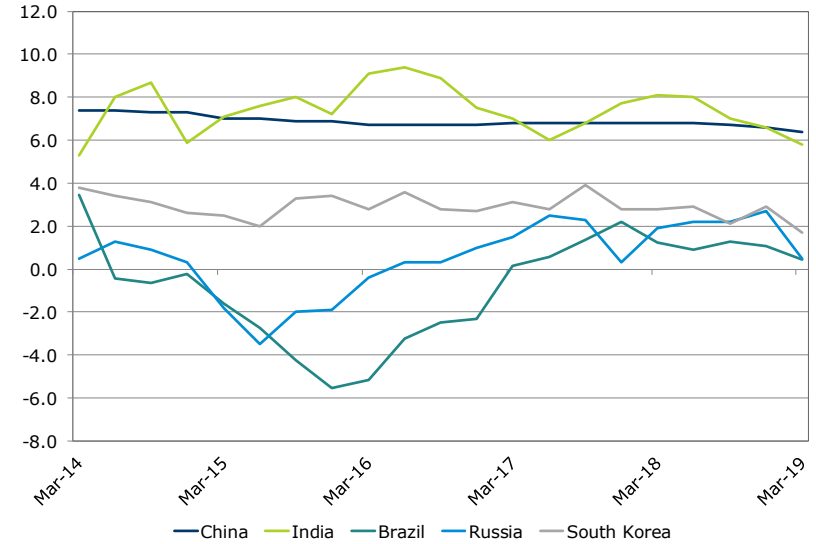
Data sources: Wilshire Atlas

NON-U.S. GROWTH AND INFLATION

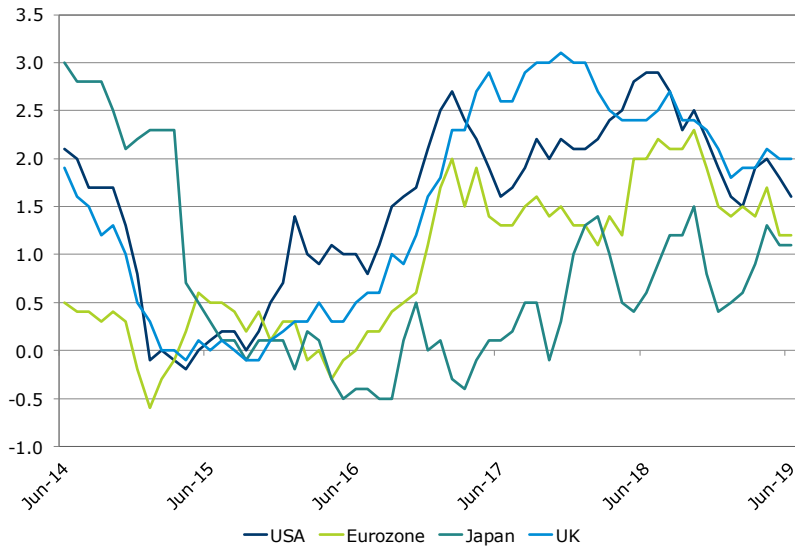
DEVELOPED MARKETS REAL GDP GROWTH YoY (%)



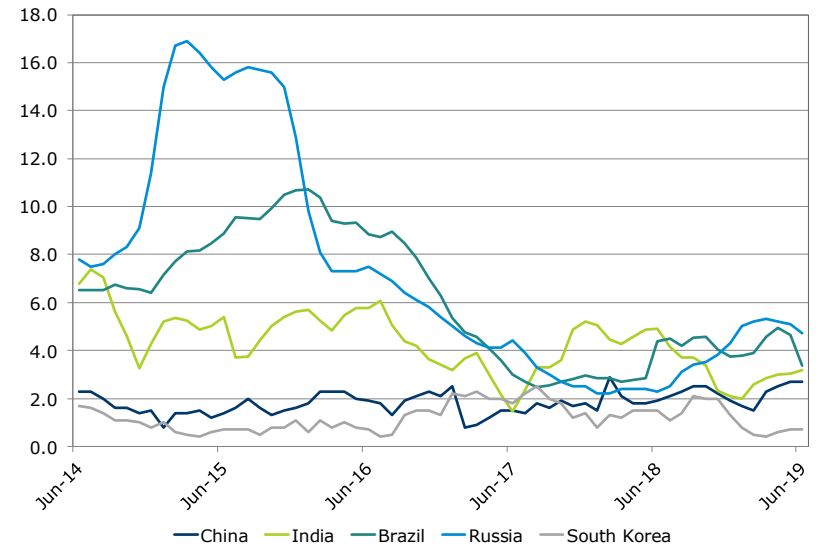
EMERGING MARKETS REAL GDP GROWTH YoY (%)



DEVELOPED MARKETS CPI GROWTH YoY (%)



EMERGING MARKETS CPI GROWTH YoY (%)



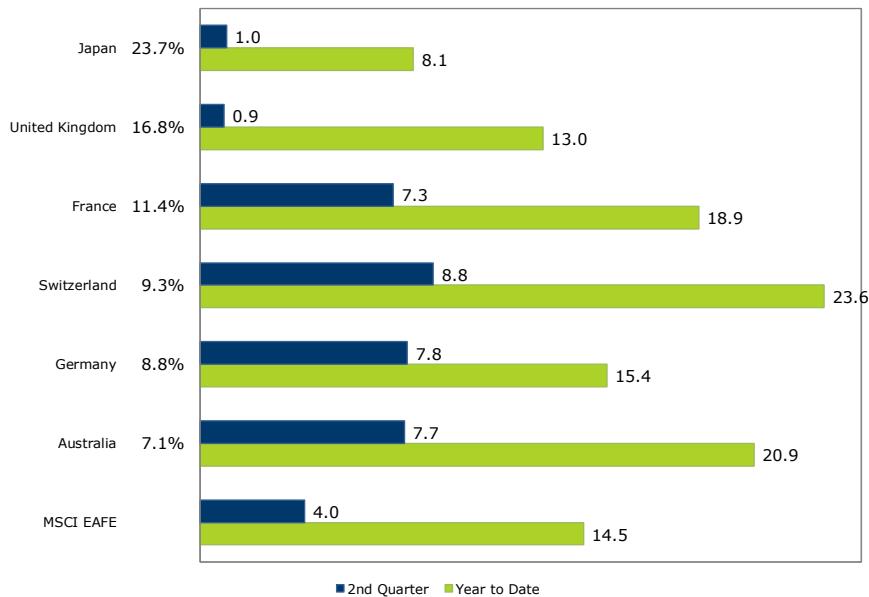
Data sources: Bloomberg

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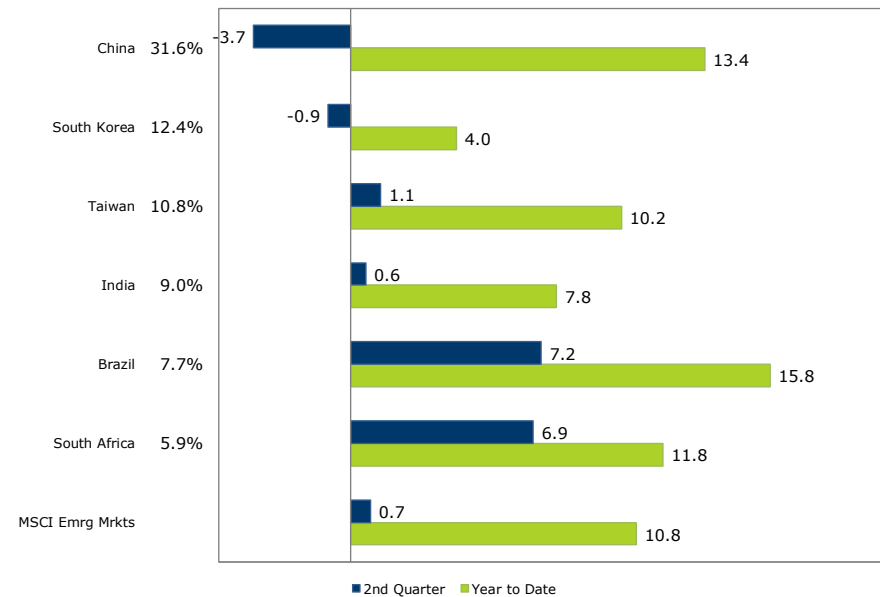
NON-U.S. EQUITY MARKET

AS OF JUNE 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI EX-US (\$G)	3.2	14.0	1.8	9.9	2.6	7.0
MSCI EAFE (\$G)	4.0	14.5	1.6	9.6	2.7	7.4
MSCI EMERGING MARKETS (\$G)	0.7	10.8	1.6	11.1	2.9	6.2
MSCI FRONTIER MARKETS (\$G)	4.9	12.1	5.2	8.7	-0.4	5.5
MSCI ACWI EX-US GROWTH (\$G)	4.6	17.5	3.0	10.2	4.4	8.0
MSCI ACWI EX-US VALUE (\$G)	1.9	10.5	0.6	9.6	0.9	6.0
MSCI ACWI EX-US SMALL (\$G)	1.4	11.9	-5.5	8.3	3.2	9.0
MSCI ACWI MINIMUM VOLATILITY	4.3	14.8	13.7	9.4	9.5	12.0
MSCI EAFE MINIMUM VOLATILITY	3.1	11.4	5.5	7.2	5.8	9.2
FTSE RAFI DEVELOPED EX-US	2.4	11.3	-1.5	10.2	1.7	6.9
MSCI EAFE LC (G)	3.1	14.2	2.7	10.3	6.4	8.8

MSCI EAFE: LARGEST COUNTRIES & RETURN (USD)



MSCI EM: LARGEST COUNTRIES & RETURN (USD)



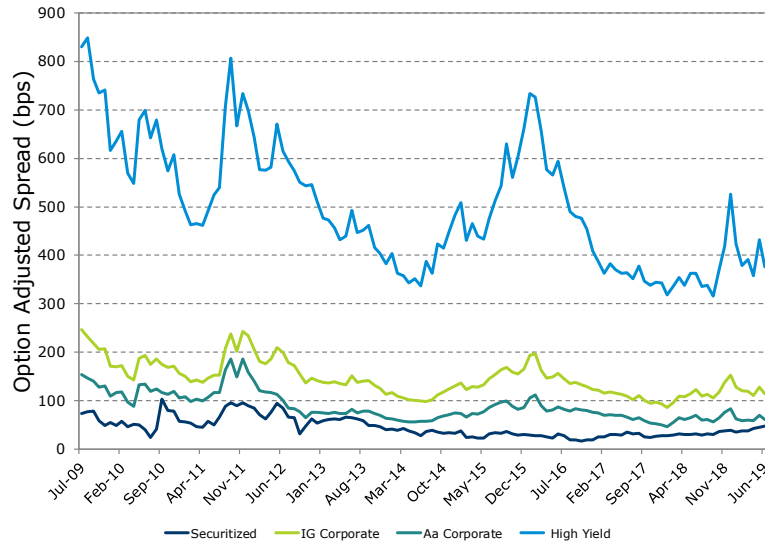
Data sources: Wilshire Compass

U.S. FIXED INCOME

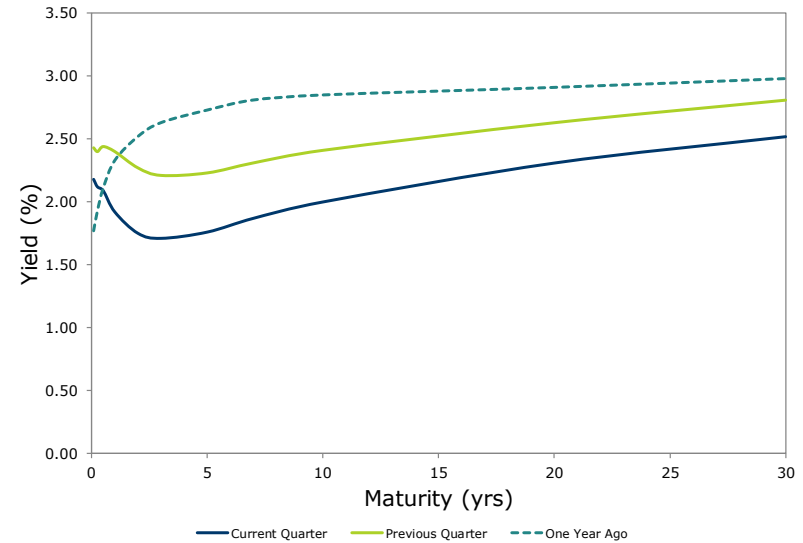
AS OF JUNE 30, 2019	YTM	DURATION	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS AGGREGATE	2.5	5.7	3.1	6.1	7.9	2.3	3.0	3.9
BLOOMBERG BARCLAYS TREASURY	1.9	6.4	3.0	5.2	7.3	1.3	2.5	3.0
BLOOMBERG BARCLAYS GOV'T-REL.	2.6	5.6	3.0	6.2	7.9	2.5	2.9	3.5
BLOOMBERG BARCLAYS SECURITIZED	2.7	3.3	2.0	4.3	6.4	2.1	2.6	3.5
BLOOMBERG BARCLAYS CORPORATE	3.2	7.6	4.5	9.9	10.7	3.9	4.1	6.1
BLOOMBERG BARCLAYS LT G/C	3.3	15.6	6.6	13.5	13.8	3.8	5.7	7.6
BLOOMBERG BARCLAYS LT TREASURY	2.5	18.0	6.0	11.0	12.3	1.3	5.7	6.5
BLOOMBERG BARCLAYS LT GOV't-REL.	3.8	12.5	5.5	12.5	13.2	4.4	5.5	7.5
BLOOMBERG BARCLAYS LT CORP.	4.0	14.2	7.2	15.8	15.2	5.5	5.8	8.5
BLOOMBERG BARCLAYS U.S. TIPS *	1.9	7.6	2.9	6.1	4.8	2.1	1.8	3.6
BLOOMBERG BARCLAYS HIGH YIELD	6.3	3.2	2.5	9.9	7.5	7.5	4.7	9.2
TREASURY BILLS	2.1	0.25	0.6	1.2	2.3	1.4	0.9	0.5

* 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



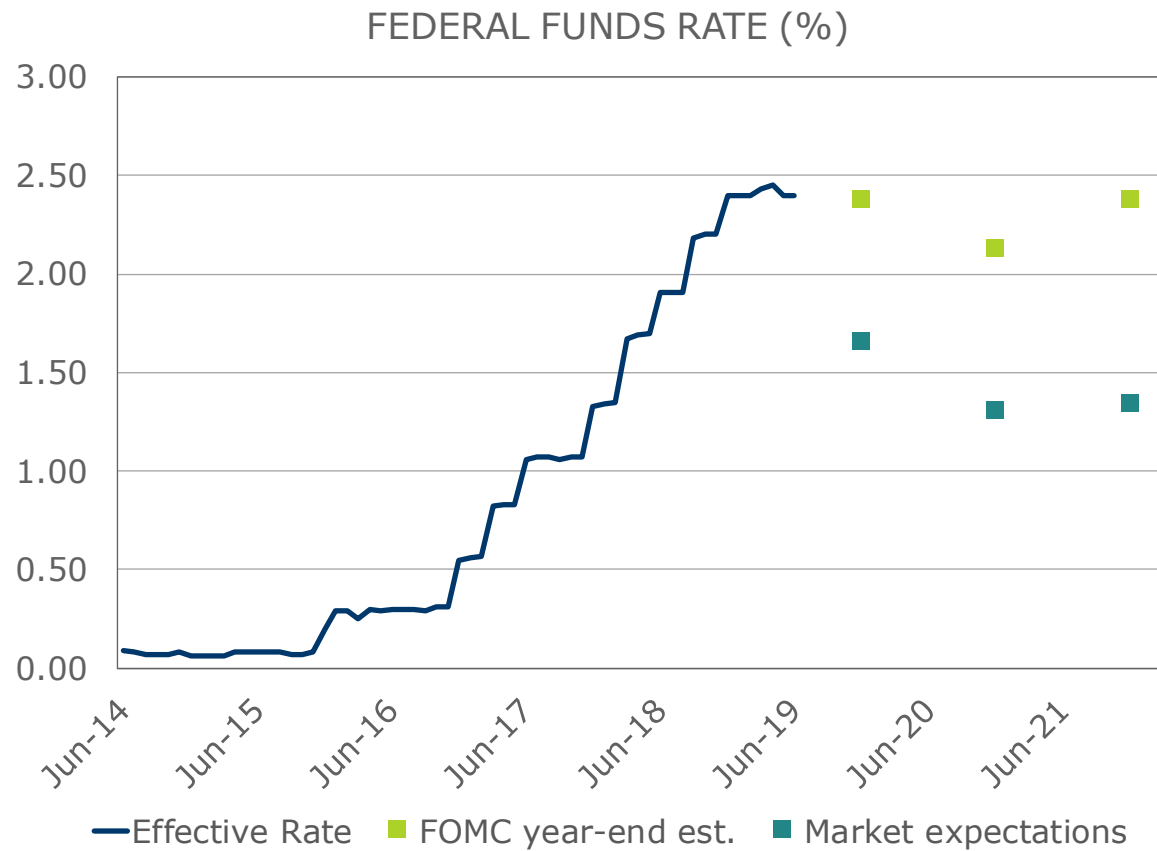
TREASURY YIELD CURVE



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

SHORT-TERM RATES

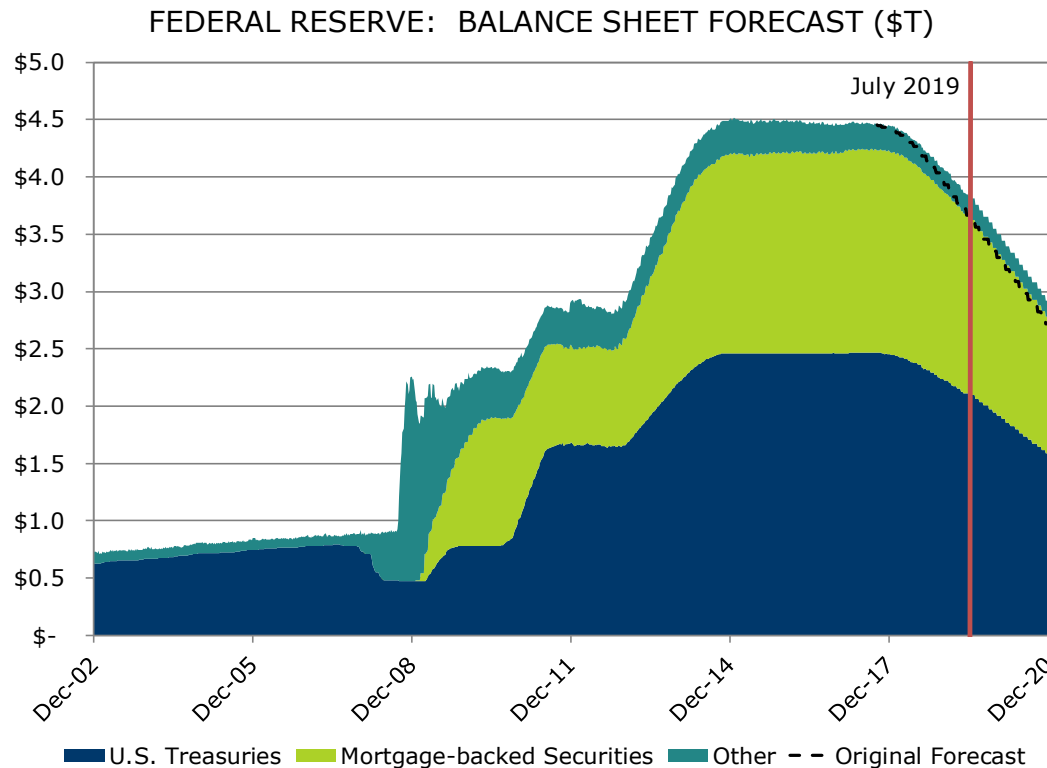
- Federal Reserve maintained their forecast for rate increases for 2019 at zero
- Markets are far more dovish, expecting rate decreases to equal ~ 0.75% in 2019



Data sources: U.S. Treasury, J.P. Morgan

FED BALANCE SHEET

- 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
- Fed stated in early January that future reductions will be data dependent; total reductions so far equal \$640 billion

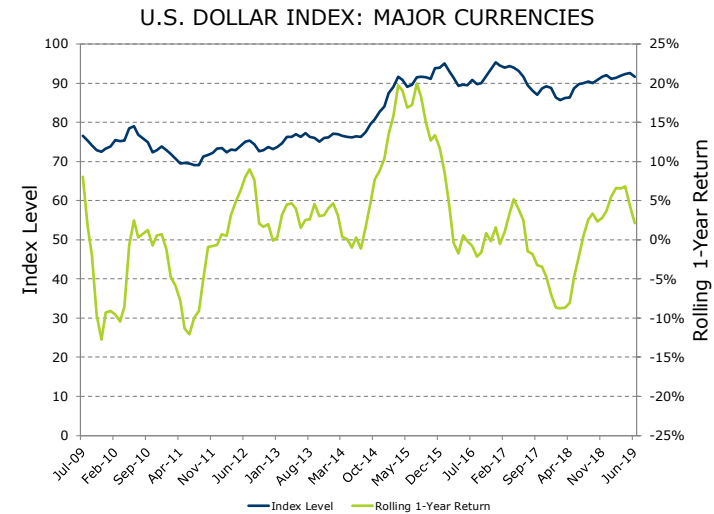
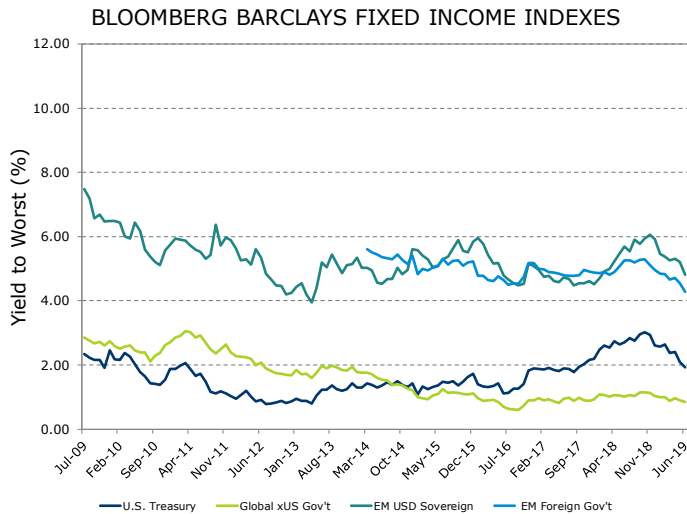


Data sources: Federal Reserve

NON-U.S. FIXED INCOME

AS OF JUNE 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DEVELOPED MARKETS						
BLMBRG BRCLYS GLBL AGGREGATE xUS	3.4	5.0	4.1	1.0	-0.1	2.1
BLMBRG BRCLYS GLBL AGGREGATE xUS *	2.8	5.8	7.6	3.3	4.4	4.4
BLMBRG BRCLYS GLOBAL INF LNKD xUS	1.8	6.2	2.9	3.0	0.8	3.7
BLMBRG BRCLYS GLOBAL INF LNKD xUS *	2.9	7.4	8.0	5.4	6.7	6.3
EMERGING MARKETS (HARD CURRENCY)						
BLMBRG BRCLYS EM USD AGGREGATE	3.8	9.4	10.9	5.0	4.6	7.7
EMERGING MARKETS (FOREIGN CURRENCY)						
BLMBRG BRCLYS EM LOCAL CURR. GOV'T	3.4	5.9	8.2	3.7	0.3	4.2
BLMBRG BRCLYS EM LOCAL CURR. GOV'T *	2.8	5.0	8.3	3.1	3.3	3.7
EURO vs. DOLLAR						
EURO vs. DOLLAR	1.4	-0.4	-2.5	0.8	-3.6	-2.1
YEN vs. DOLLAR						
YEN vs. DOLLAR	2.7	1.8	2.8	-1.6	-1.2	-1.1
POUND vs. DOLLAR						
POUND vs. DOLLAR	-2.3	-0.1	-3.6	-1.6	-5.7	-2.5

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

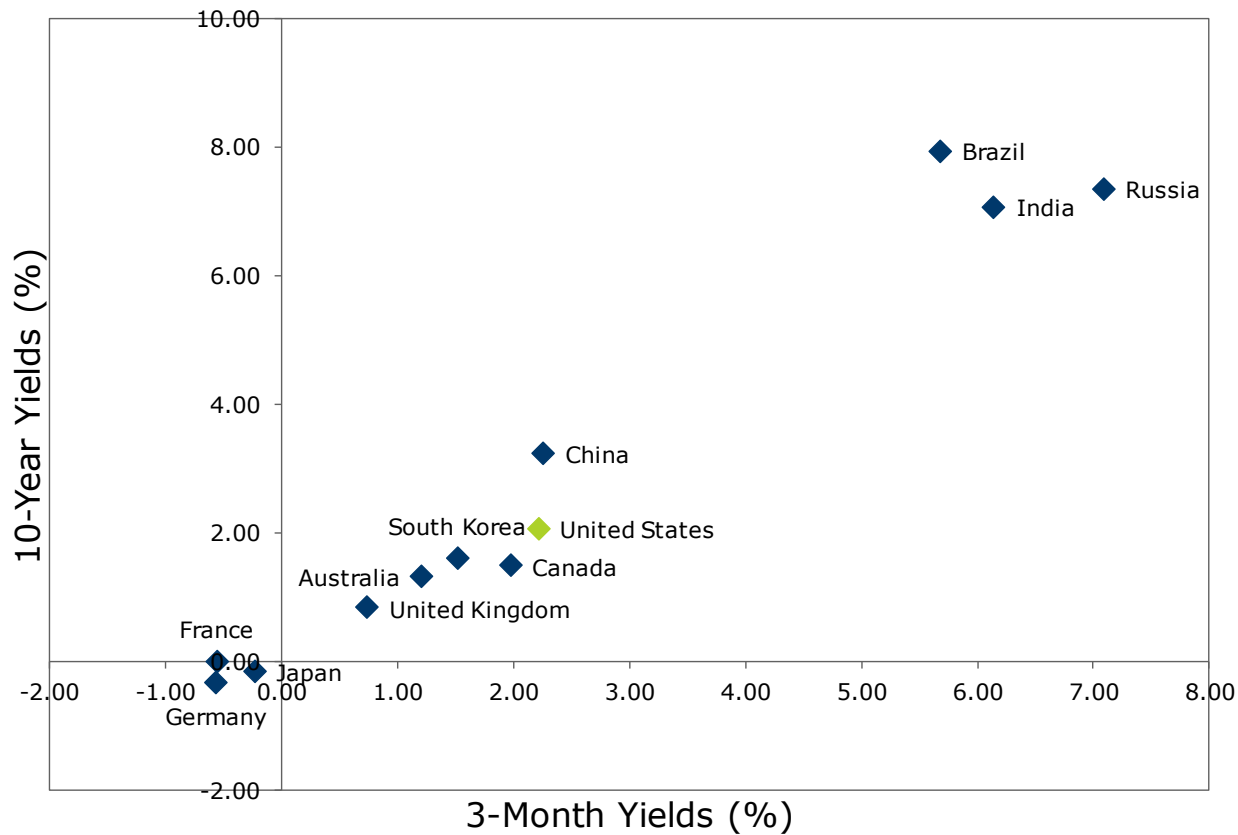


Data sources: Wilshire Compass, Bloomberg Barclays, Federal Reserve Bank of St. Louis

GLOBAL INTEREST RATES

Much of Europe and Japan exhibit negative rates; Long rates are down globally during the past six months

GOVERNMENT BOND YIELDS

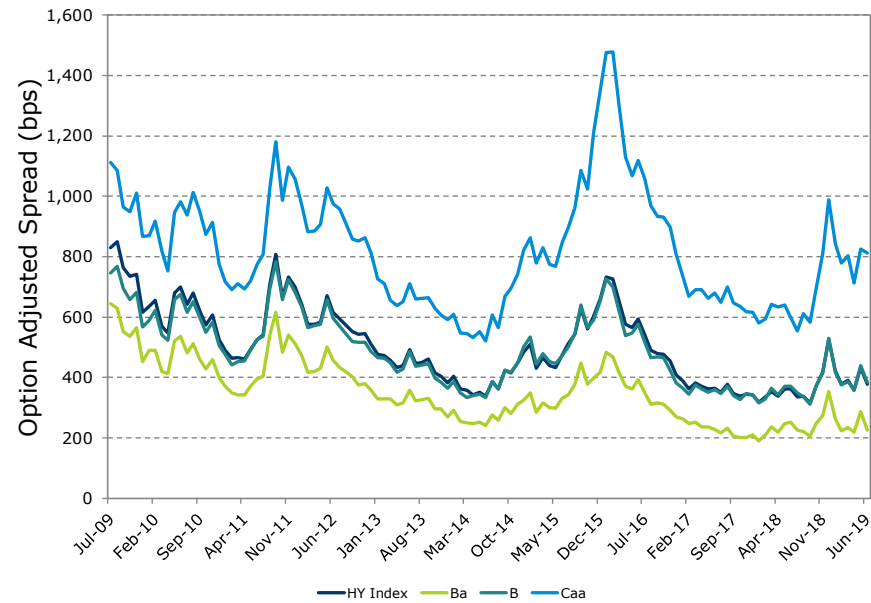


Data sources: Bloomberg

HIGH YIELD BOND MARKET

AS OF JUNE 30, 2019		QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS HIGH YIELD		2.5	9.9	7.5	7.5	4.7	9.2
CREDIT SUISSE LEVERAGED LOAN		1.6	5.4	4.1	5.4	3.9	6.3
HIGH YIELD QUALITY DISTRIBUTION	WEIGHT						
Ba U.S. HIGH YIELD	47.0%	3.1	10.5	9.8	6.6	5.2	8.8
B U.S. HIGH YIELD	39.5%	2.7	10.1	7.7	7.6	4.3	8.3
Caa U.S. HIGH YIELD	12.4%	0.3	7.5	0.1	8.9	4.3	10.5
Ca to D U.S. HIGH YIELD	0.8%	-1.8	15.4	-6.3	19.4	-8.0	4.4
Non-Rated U.S. HIGH YIELD	0.2%	1.2	4.8	4.5	4.8	-1.4	6.8

BLOOMBERG BARCLAYS HIGH YIELD INDEXES



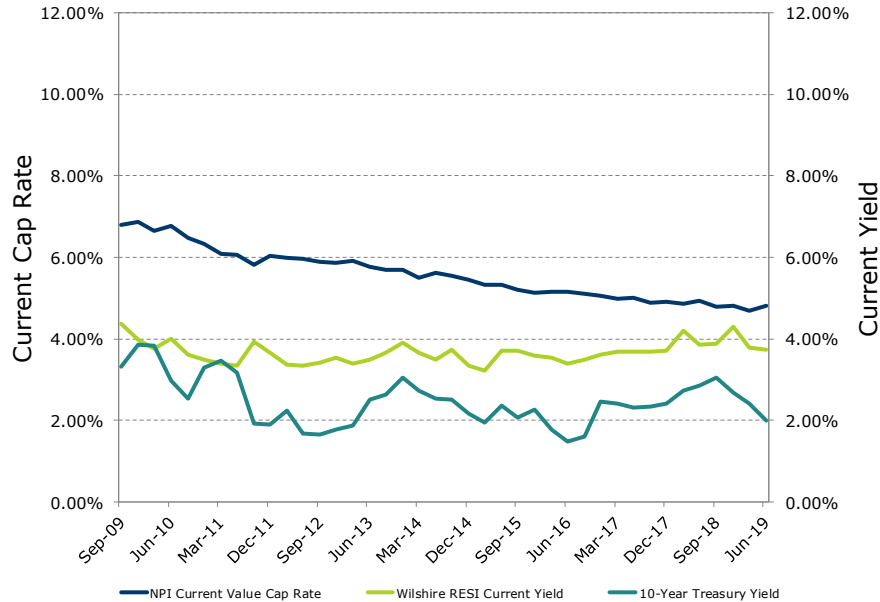
Data sources: Wilshire Compass, Bloomberg Barclays

Wilshire Consulting REAL ASSETS

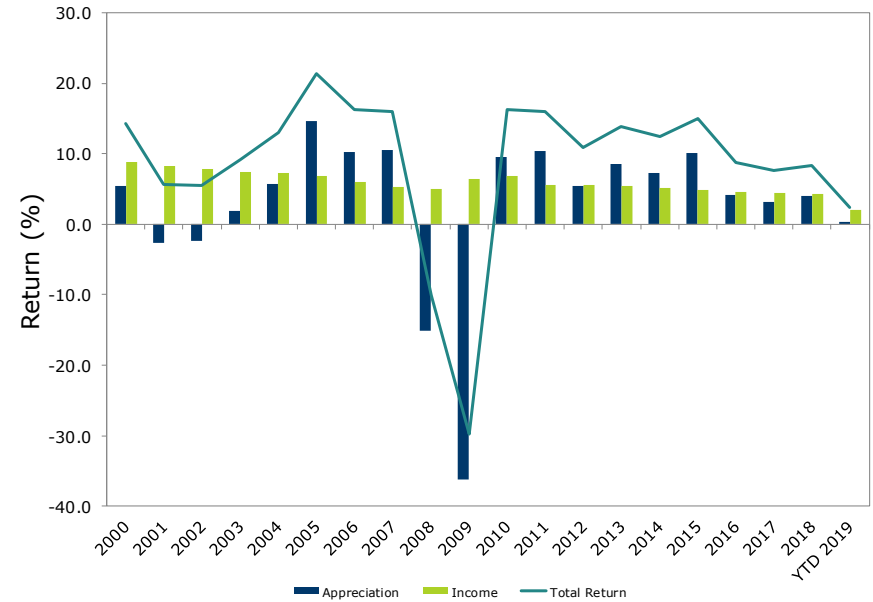


AS OF JUNE 30, 2019	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS U.S. TIPS	2.9	6.1	4.8	2.1	1.8	3.6
BLOOMBERG COMMODITY INDEX	-1.2	5.1	-6.8	-2.2	-9.1	-3.7
WILSHIRE GLOBAL RESI INDEX	1.5	16.7	9.9	5.3	6.5	13.2
NCREIF ODCE FUND INDEX	1.0	2.4	6.4	7.6	9.8	9.9
NCREIF TIMBERLAND INDEX	1.0	1.2	2.9	3.3	4.6	4.0
ALERIAN MLP INDEX (OIL & GAS)	0.1	17.0	3.1	-0.4	-7.2	8.2

REAL ESTATE VALUATION



NCREIF ODCE FUND INDEX RETURN



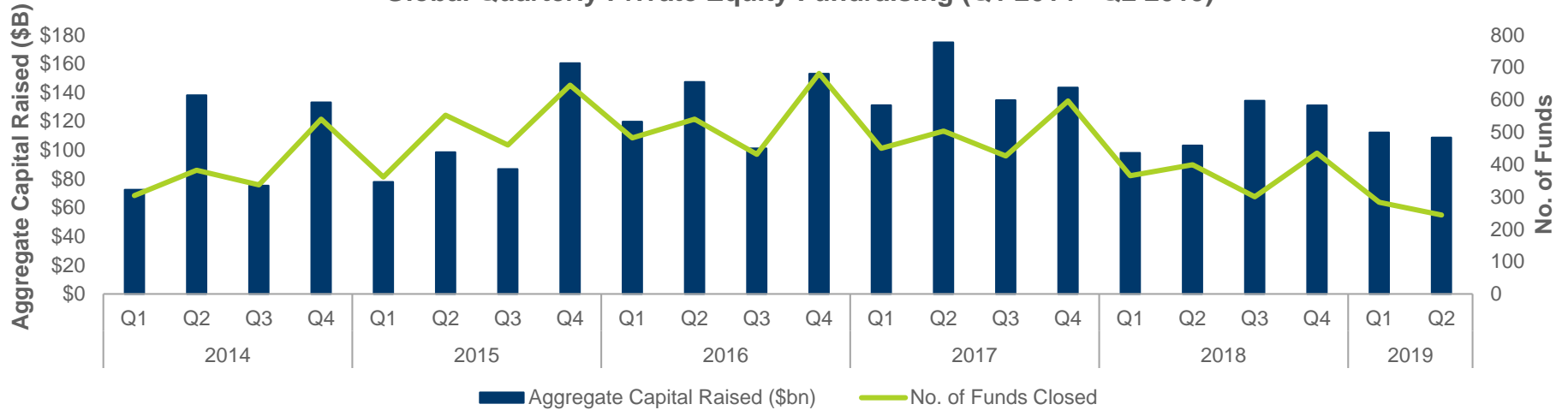
Data sources: Wilshire Compass, National Council of Real Estate Investment Fiduciaries



APPENDIX: PRIVATE
MARKETS UPDATE

PRIVATE EQUITY – FUNDRAISING & INVESTMENT ACTIVITY

Global Quarterly Private Equity Fundraising (Q1 2014 - Q2 2019)



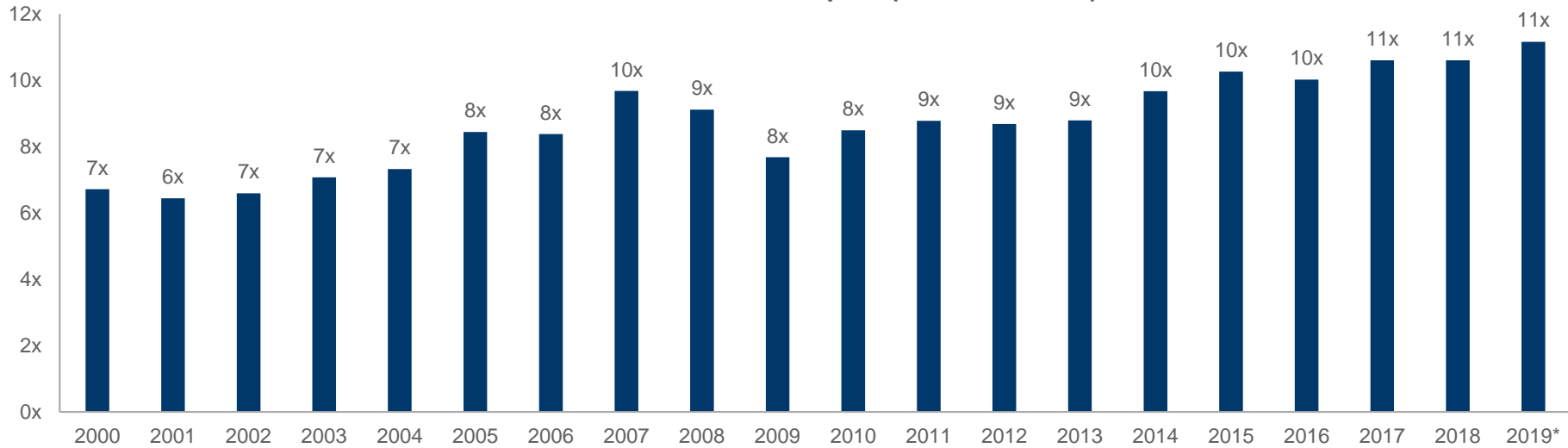
Global Quarterly Private Equity-Backed Buyout Deals (Q1 2014 - Q2 2019)



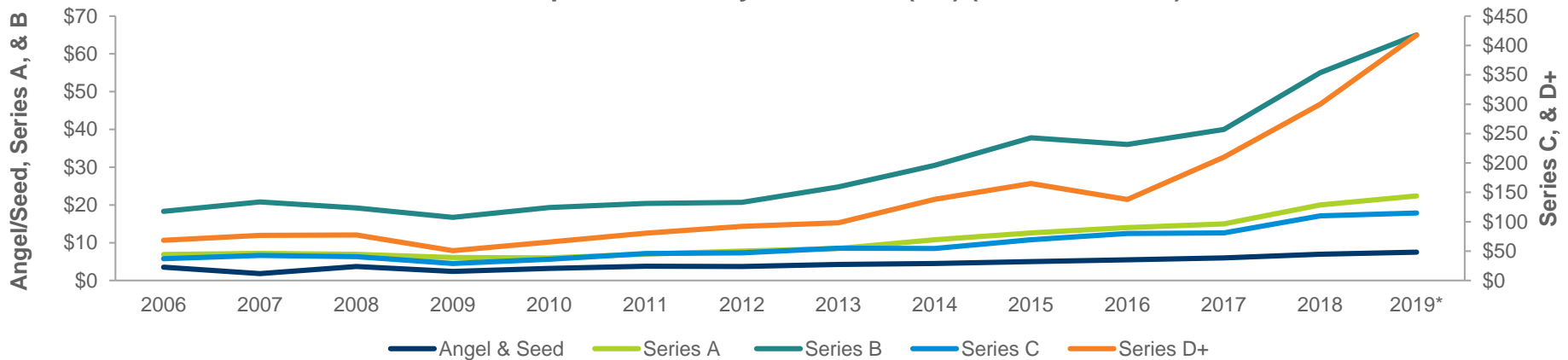
Source: Preqin, as of June 30, 2019.

PRIVATE EQUITY – PRICING & VALUATIONS

LBO Purchase Price Multiples (2000 - Q2 2019)



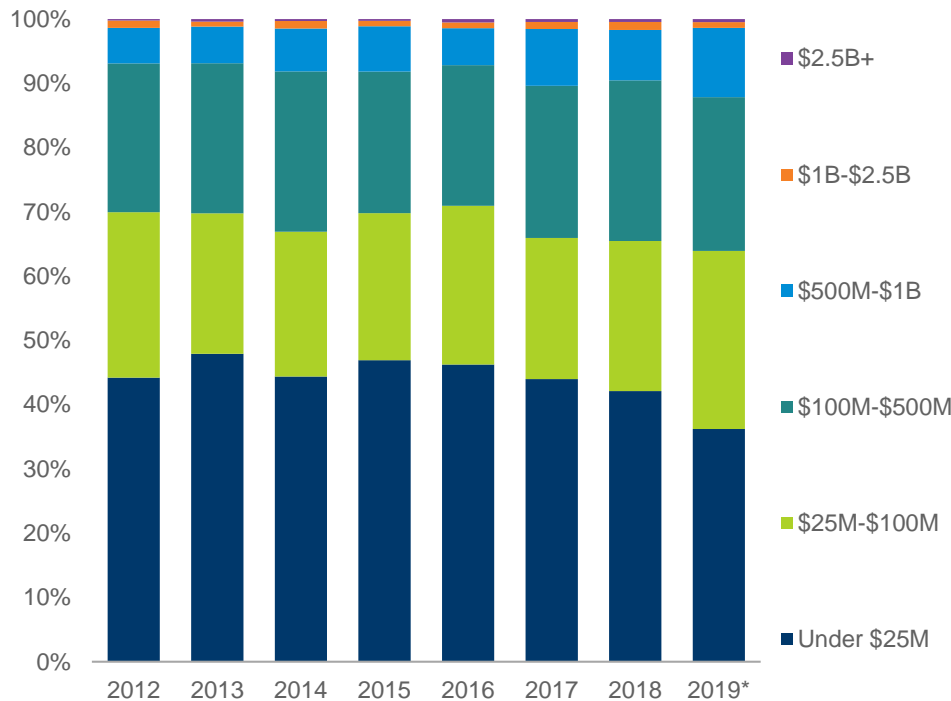
Venture Capital Pre-Money Valuations (\$M) (2006 – Q2 2019)



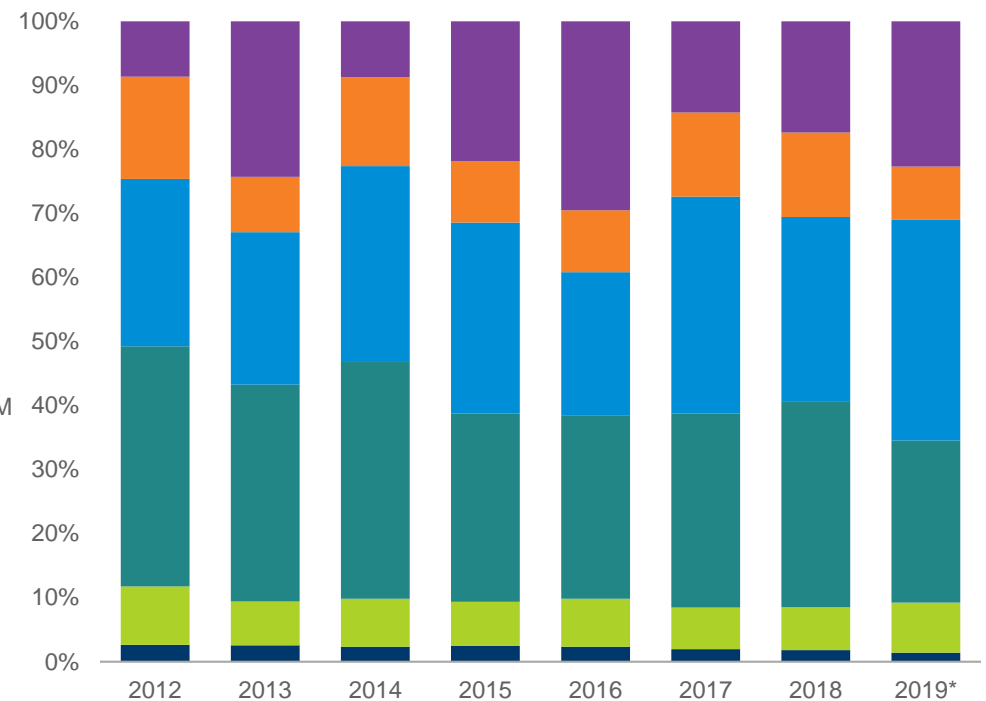
Source: S&P LBO; PitchBook, *as of June 30, 2019.

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)

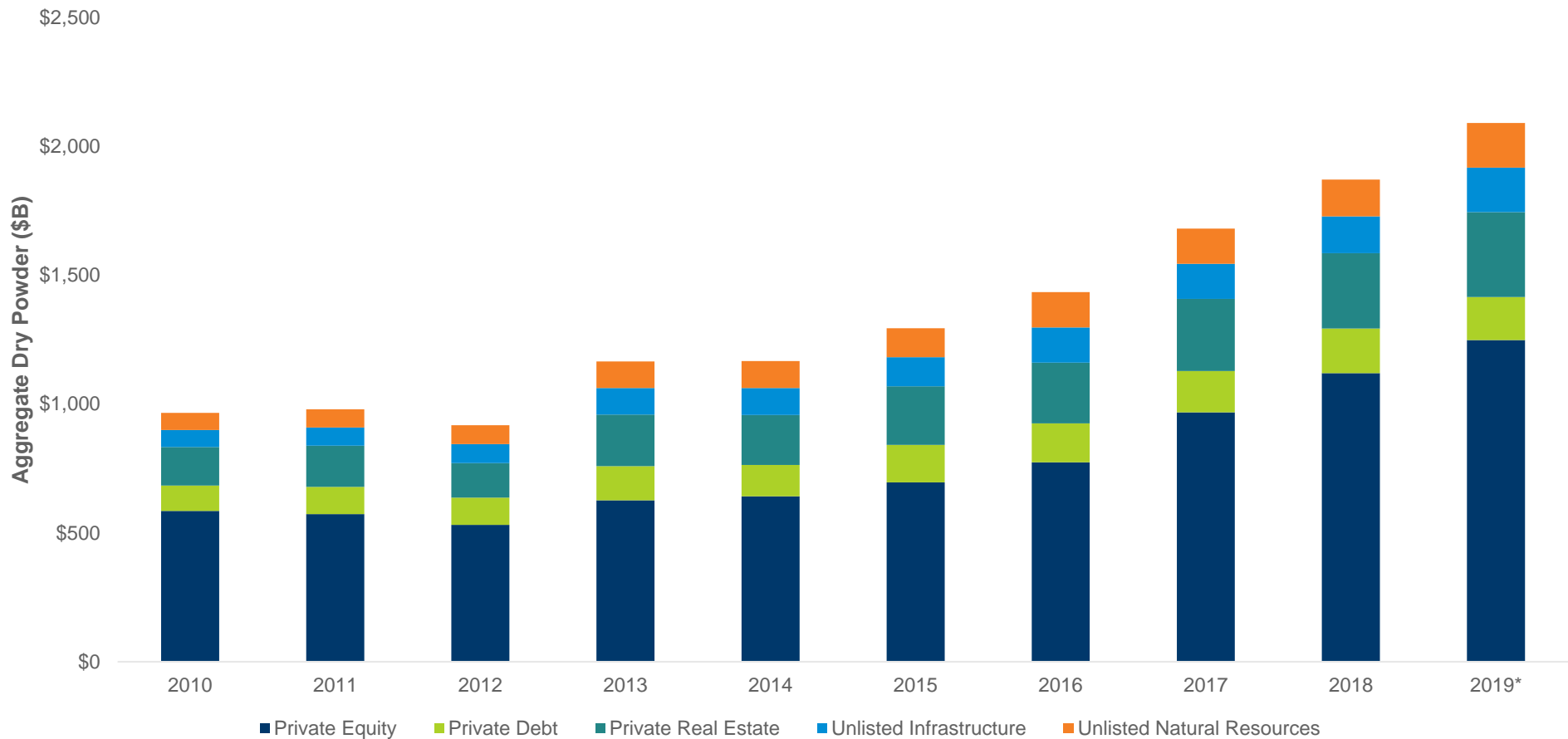


- Deal volume continues to be dominated by lower middle market deals with investment sizes below \$100 million through the second quarter of 2019
- However, deals with below \$100 million check sizes comprised only 9% of all deal volume by amount of capital invested in the second quarter of 2019

Source: PitchBook, *as of June 30, 2019.

PRIVATE CAPITAL DRY POWDER

Private Capital Dry Powder by Fund Type (2010 - Q2 2019)

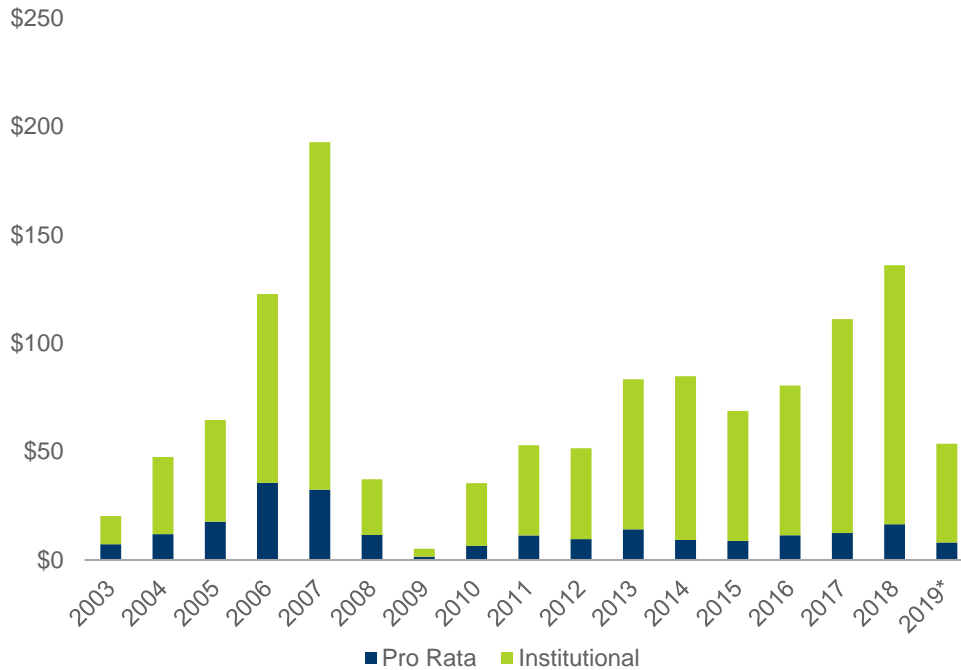


- Global private capital dry powder continues to increase, topping \$2 trillion across all fund types
- Private equity comprises just under 60% of total dry powder in the market as of Q2 2019

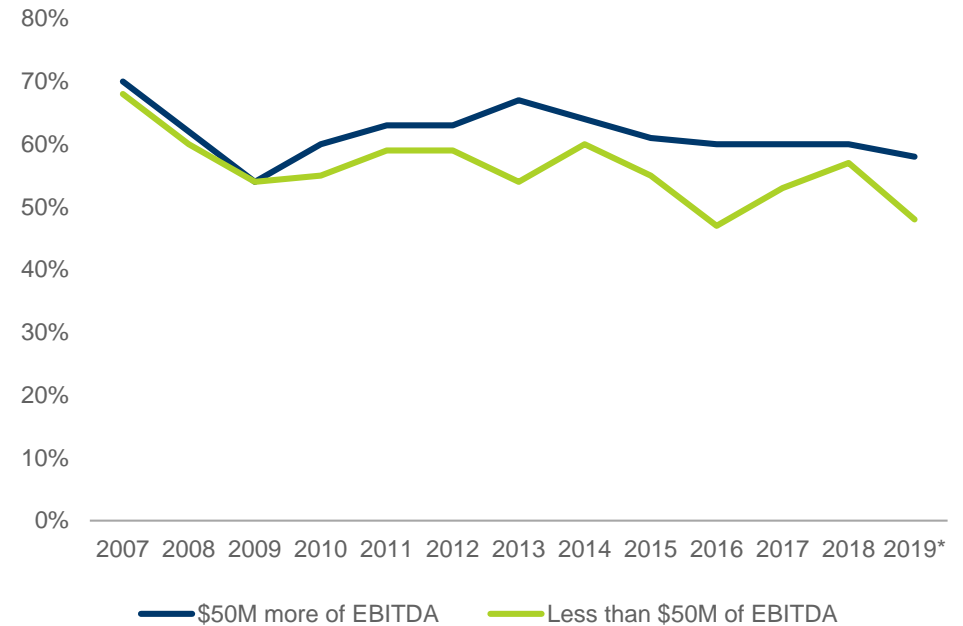
Source: Preqin, as of *July 1, 2019.

PRIVATE EQUITY - U.S. DEBT MARKETS

Total U.S. LBO Loan Volume (\$B) (2003 - Q2 2019)



Percentage of Debt Used in LBOs (2007 - Q2 2019)

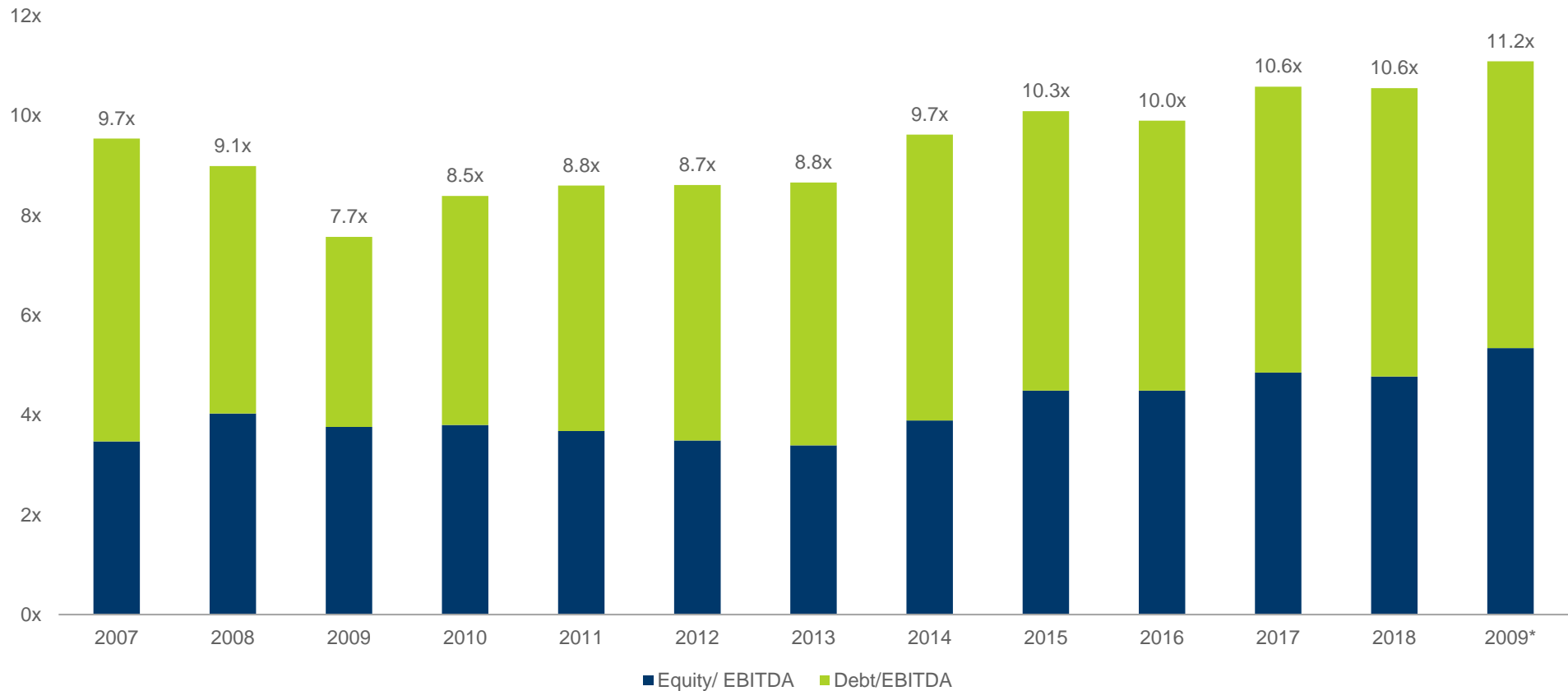


- 2019 began with approximately \$45 billion in loan volume and is on pace to once again increase year-over-year through the first quarter of 2019
- As debt capital becomes less available, the percentage of debt used to finance leveraged buyouts of less than \$50 million of EBITDA through the second quarter of 2019 has dropped from 2018 marks

Source: S&P LBO, as of *June 30, 2019.

PRIVATE EQUITY - U.S. LBO PURCHASE PRICE MULTIPLES

Purchase Price Multiples of U.S. LBO Transactions (2007 - Q2 2019)



- Due to the amount of equity that is readily available, purchase price multiples for U.S. LBOs have risen slightly through Q2 2019 relative to 2018 levels.

Source: S&P LBO, as of *June 30, 2019.



TOTAL FUND

Proposed Policy Allocation vs Actual Allocation

Total Fund Composite

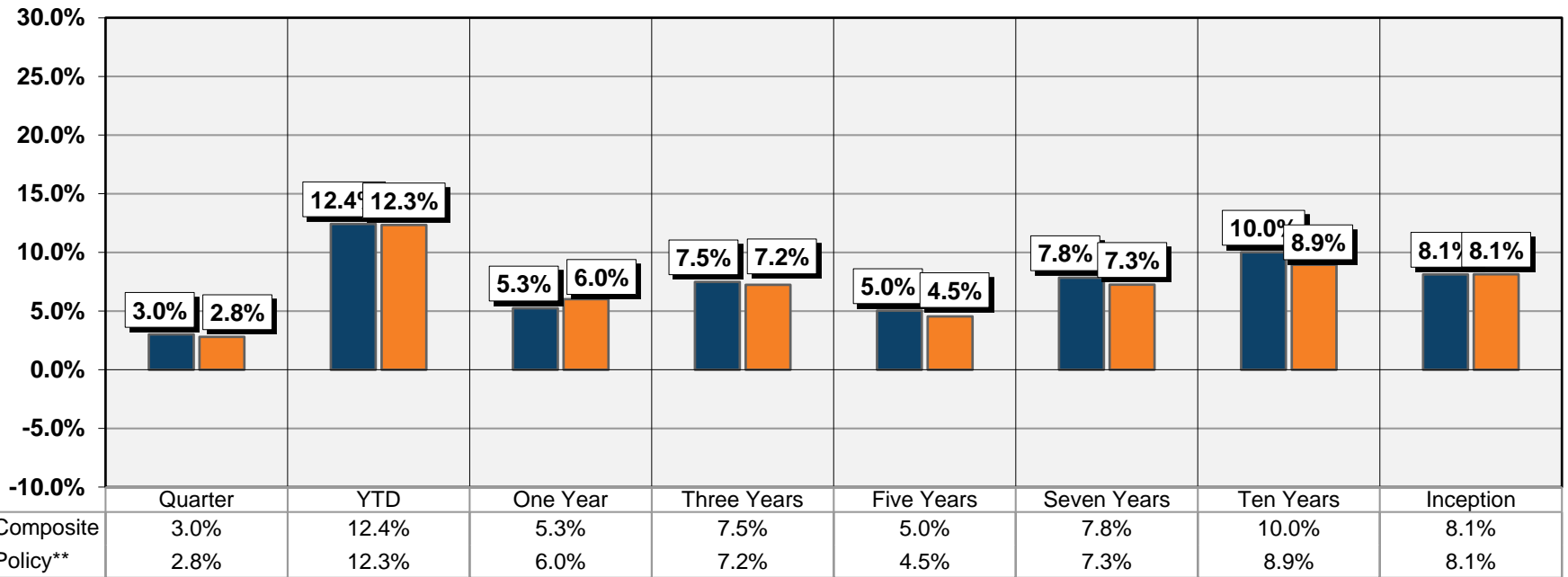
As of June 30, 2019

	Market Value (in '\$'000)	Asset Allocation			
		Actual	Prior Policy	Approved Policy	Variance *
US Equity	\$76,973	17.96%	22.50%	17.75%	0.21%
Non - US Equity	\$75,921	17.71%	22.50%	17.75%	-0.04%
Global Low Volatility Equity	\$40,790	9.52%	0.00%	10.00%	-0.48%
Private Equity	\$21,984	5.13%	5.00%	5.00%	0.13%
Private Credit	\$10,497	2.45%	0.00%	5.00%	-2.55%
Total Growth Assets	\$226,165	52.77%	50.00%	55.50%	-2.73%
Core Fixed Income	\$108,573	25.33%	25.00%	24.50%	0.83%
Cash	\$3,302	0.77%	0.00%	0.00%	0.77%
Total Diversifying Assets	\$111,875	26.10%	25.00%	24.50%	1.60%
TIPS	\$28,956	6.76%	10.00%	5.00%	1.76%
Commodities	\$19,124	4.46%	5.00%	5.00%	-0.54%
Real Estate	\$21,505	5.02%	5.00%	5.00%	0.02%
MLPs	\$20,945	4.89%	5.00%	5.00%	-0.11%
Total Inflation Hedging Assets	\$90,530	21.12%	25.00%	20.00%	1.12%
Total Fund	\$428,570	100.00%	100.00%	100.00%	0.00%

* Variance column represents Actual weight minus Approved Policy Weight

Investment Performance Total Fund Composite*

As of June 30, 2019



■ Total Fund Composite
■ Total Fund Policy**

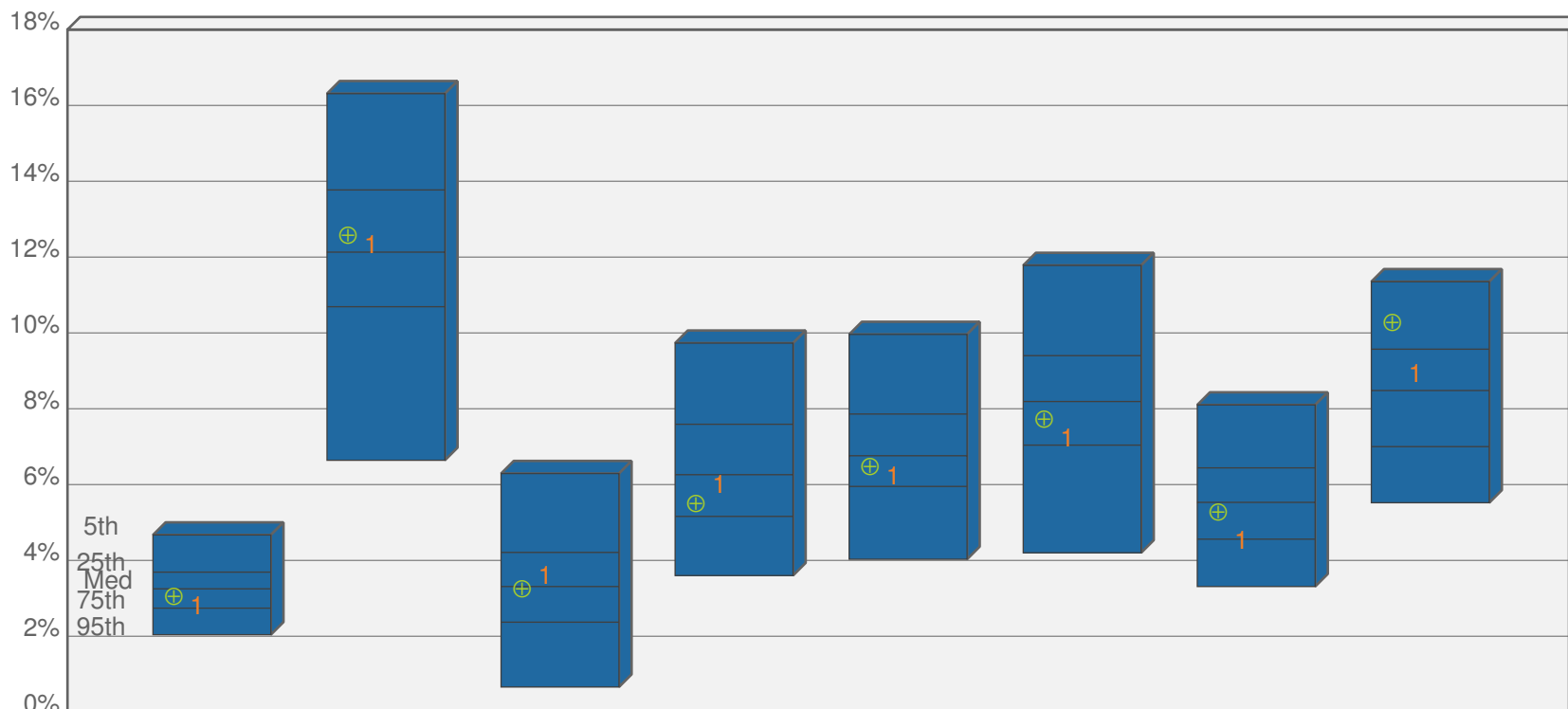
*Returns are net of fees.

**Policy index = Wilshire 5000 (17.75%), MSCI ACWI ex U.S. (17.75%), MSCI ACWI Min Vol (10.00%), Bloomberg Barclays Aggregate (24.50%), Bloomberg Barclays U.S. TIPS (5.00%), FTSE EPRA NAREIT Dev RE (5.00%), Wilshire 5000 +2.5% (5.00%), Bloomberg Commodity Index (5.00%), Alerian MLP Index (5.00%), S&P LSTA Leveraged Loan (5.00%)

PERFORMANCE COMPARISON

Total Fund Composite

Periods Ended June 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊕ Total Fund	3.07 (59)	12.58 (41)	3.27 (51)	5.52 (67)	6.50 (64)	7.75 (65)	5.29 (55)	10.30 (13)
1 Policy Index	2.81 (72)	12.34 (46)	3.62 (42)	6.02 (54)	6.24 (70)	7.24 (71)	4.54 (76)	8.94 (43)
5th %tile	4.67	16.31	6.29	9.73	9.96	11.78	8.10	11.35
25th %tile	3.69	13.77	4.21	7.59	7.86	9.40	6.44	9.57
Median	3.25	12.13	3.31	6.26	6.76	8.19	5.53	8.48
75th %tile	2.74	10.69	2.37	5.16	5.95	7.04	4.56	7.00
95th %tile	2.04	6.64	0.66	3.60	4.03	4.20	3.31	5.52
Number of Funds	182	180	175	175	162	161	158	119

*Wilcop Total Returns of Total Fund Portfolios Universe - Gross of Fees

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2019

	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	4.33	19.66	8.85	14.54	10.52	14.17	15.44	9/30/87	9.65
DJ Wilshire 5000	3.99	18.66	9.10	14.03	10.33	13.81	14.66	9/30/87	9.61
Value Added	0.34	1.00	-0.25	0.50	0.19	0.36	0.78	9/30/87	0.04
Non-U.S. Equity Composite									
Net of Fee Return	3.70	15.78	-0.50	8.84	3.79	7.48	8.29	12/31/89	7.92
Policy Benchmark	2.98	13.60	1.29	9.38	2.16	6.36	6.54	12/31/89	4.50
Value Added	0.72	2.18	-1.79	-0.54	1.63	1.12	1.75	12/31/89	3.42
Global Min Vol Equity Composite									
Net of Fee Return									
MSCI ACWI Min Vol (N)									
Private Equity Composite									
Net of Fee Return	3.37	5.82	15.35	15.62	13.31	10.41		6/30/10	9.50
Wilshire 5000 +2.5%	4.61	19.90	11.60	16.53	12.83	16.31		6/30/10	17.04
Value Added	-1.24	-14.08	3.76	-0.91	0.48	-5.90		6/30/10	-7.54
Private Credit Composite									
Net of Fee Return	0.54	1.40						9/30/18	0.87
S&P LSTA Leverage Loan Index	1.68	5.74						9/30/18	2.09
Value Added	-1.14	-4.35						9/30/18	-1.22
Core Fixed Composite									
Net of Fee Return	3.56	7.26	8.91	3.54	3.80	3.85	6.24	9/30/87	6.81
Bloomberg Aggregate	3.08	6.11	7.87	2.31	2.95	2.62	3.90	9/30/87	6.39
Value Added	0.48	1.15	1.05	1.23	0.85	1.23	2.34	9/30/87	0.42

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2019

	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Real Estate Composite									
Net of Fee Return	0.93	16.22	8.27	3.65	3.63	6.24	9.46	6/30/09	9.46
FTSE EPRA/NAREIT Dev (N)	-0.07	14.51	7.68	4.46	4.85	7.26	10.57	6/30/09	10.57
Value Added	0.99	1.71	0.60	-0.81	-1.22	-1.02	-1.11	6/30/09	-1.11
Commodities Composite									
Net of Fee Return	0.90	8.51	-5.48	1.48	-6.86			3/31/13	-6.14
Bloomberg Commodity Index	-1.19	5.06	-6.75	-2.18	-9.15			3/31/13	-7.69
Value Added	2.09	3.45	1.27	3.66	2.29			3/31/13	1.55
MLP Composite									
Net of Fee Return	-0.45	20.14	0.87	1.08				3/31/15	-4.54
Alerian MLP Index	0.12	16.96	3.09	1.49				3/31/15	-5.01
Value Added	-0.58	3.18	-2.22	-0.41				3/31/15	0.48
TIPS Composite									
Net of Fee Return	2.93	6.22	4.74	1.97				6/30/15	2.57
Barclays U.S. TIPS	2.86	6.15	4.84	2.08				6/30/15	2.65
Value Added	0.07	0.07	-0.09	-0.11				6/30/15	-0.08
Total Real Assets Composite									
Net of Fee Return	1.29	11.89	2.76	2.04				3/31/15	0.33
Policy Index	0.78	10.06	3.13	1.86				3/31/15	0.36
Value Added	0.52	1.83	-0.37	0.18				3/31/15	-0.02
Total Fund									
Net of Fee Return	3.01	12.43	5.25	7.49	5.03	7.84	10.01	9/30/87	8.13
Policy Index	2.81	12.34	6.02	7.24	4.54	7.26	8.94	9/30/87	8.14
Value Added	0.20	0.09	-0.76	0.24	0.49	0.58	1.07	9/30/87	-0.02

CUSTOM BENCHMARK SPECIFICATION

Total Fund

June 30, 2019

	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

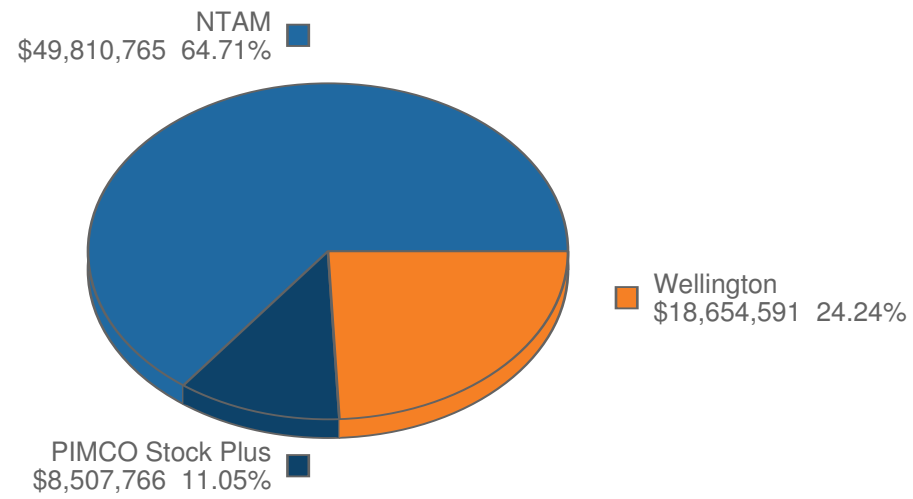
June 30, 2019

	Quarter Start	Quarter End	Percent	Description
Policy Index (cont.)			5.00	Bloomberg Commodity Index
	6/15	3/19	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
	6/19	6/19	10.00	MSCI ACWI Min Vol (N)
			5.00	Wilshire 5000 + 2.5%
			5.00	S&P LSTA Leverage Loan Index
			24.50	Bloomberg Aggregate
			5.00	Bloomberg U.S. TIPS
			5.00	FTSE EPRA/NAREIT Dev (N)
5.00			Bloomberg Commodity Index	
5.00			Alerian MLP Index	
		17.75	Wilshire 5000	
		17.75	MSCI ACWI ex US (N)	

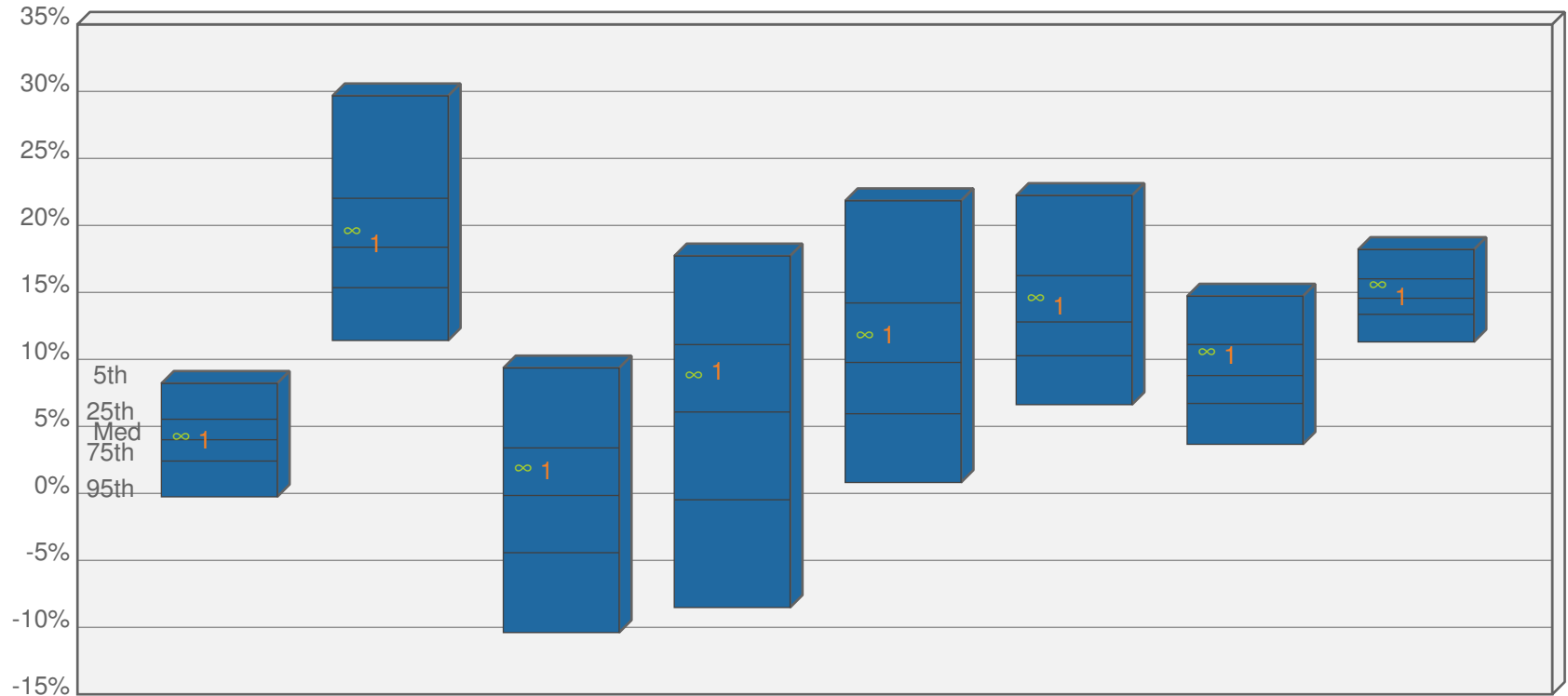


U.S. EQUITY

Wilshire Consulting
MANAGER ALLOCATION
U.S. Equity Composite
As of June 30, 2019



Wilshire Consulting
PERFORMANCE COMPARISON
 U.S. Equity Composite
 Periods Ended June 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
∞ U.S. Equity Composite	4.39 (44)	19.79 (39)	2.04 (34)	9.01 (34)	11.96 (36)	14.73 (33)	10.72 (29)	15.71 (29)
1 DJ Wilshire 5000	3.99 (50)	18.66 (47)	1.70 (36)	9.10 (34)	11.84 (37)	14.03 (39)	10.33 (34)	14.66 (48)
5th %tile	8.20	29.66	9.35	17.71	21.83	22.22	14.71	18.19
25th %tile	5.53	22.02	3.39	11.10	14.21	16.25	11.11	16.01
Median	4.00	18.37	-0.16	6.07	9.77	12.79	8.79	14.56
75th %tile	2.41	15.35	-4.43	-0.48	5.94	10.27	6.71	13.36
95th %tile	-0.26	11.41	-10.39	-8.52	0.81	6.62	3.66	11.30
Number of Funds	1517	1517	1515	1515	1509	1488	1443	1271

*Compass Total Returns of Equity Portfolios Universe - Gross of Fees

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2019

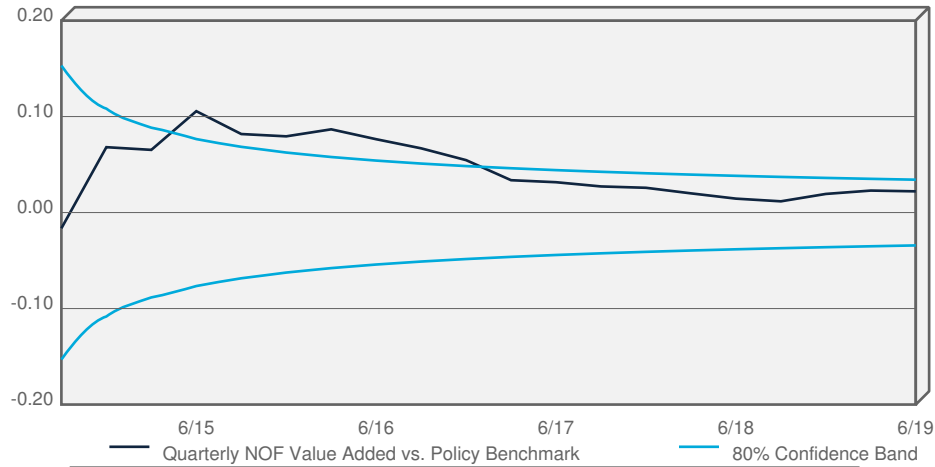
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
NTAM									
Net of Fee Return	4.31	18.57	10.48	14.17	10.74	14.00	14.72	9/30/98	7.50
Policy Benchmark	4.30	18.54	10.42	14.19	10.71	13.98	14.70	9/30/98	7.50
Value Added	0.00	0.03	0.06	-0.02	0.02	0.02	0.02	9/30/98	0.01
PIMCO Stock Plus									
Net of Fee Return	4.53	19.55	10.69	14.61	10.51	14.46	16.05	9/30/00	6.50
Standard & Poor's 500	4.30	18.54	10.42	14.19	10.71	13.98	14.70	9/30/00	5.96
Value Added	0.22	1.01	0.27	0.42	-0.21	0.48	1.35	9/30/00	0.54
Wellington									
Net of Fee Return	4.29	22.61	4.12	15.49	9.97	14.61	17.47	9/30/99	11.47
Russell 2000	2.10	16.98	-3.31	12.30	7.06	11.63	13.45	9/30/99	8.23
Value Added	2.20	5.62	7.43	3.18	2.91	2.98	4.02	9/30/99	3.24
U.S. Equity Composite									
Net of Fee Return	4.33	19.66	8.85	14.54	10.52	14.17	15.44	9/30/87	9.65
DJ Wilshire 5000	3.99	18.66	9.10	14.03	10.33	13.81	14.66	9/30/87	9.61
Value Added	0.34	1.00	-0.25	0.50	0.19	0.36	0.78	9/30/87	0.04

INVESTMENT MANAGER ANALYSIS

NTAM

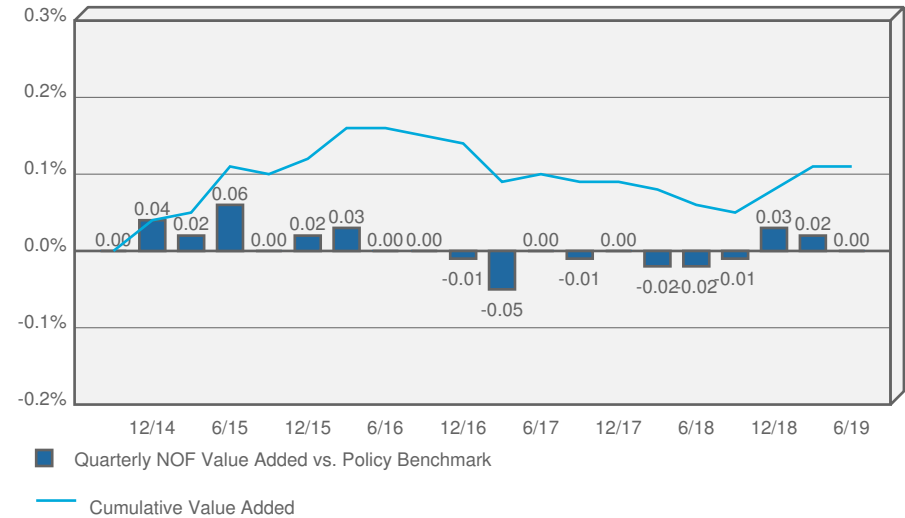
June 30, 2019

Cumulative Skill Analysis vs Benchmark

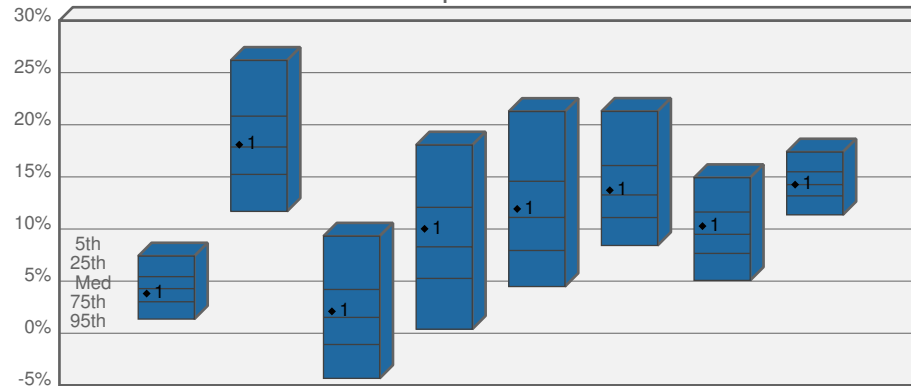


Excess Return:	0.02	Information Ratio:	0.47
Excess Risk:	0.05	T-Stat:	1.06

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	4.32 (49)	18.60 (43)	2.61 (37)	10.53 (35)	12.44 (39)	14.23 (38)	10.79 (33)	14.77 (38)
■ Policy Benchmark	4.30 (49)	18.54 (43)	2.51 (39)	10.42 (36)	12.38 (40)	14.19 (39)	10.71 (34)	14.70 (40)
Median	4.28	17.87	1.52	8.29	11.11	13.27	9.49	14.26
Number of Funds	533	533	533	533	531	526	515	463

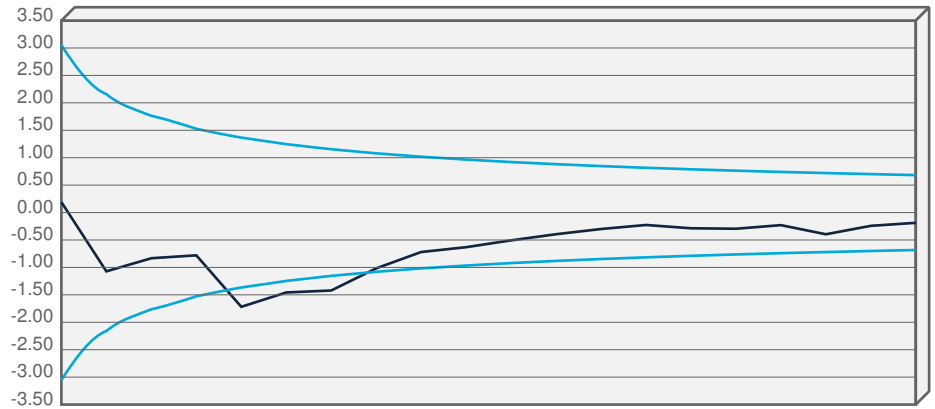
*Compass Total Returns of Active Large Cap Equity Portfolios Universe - Gross of Fees

INVESTMENT MANAGER ANALYSIS

PIMCO Stock Plus

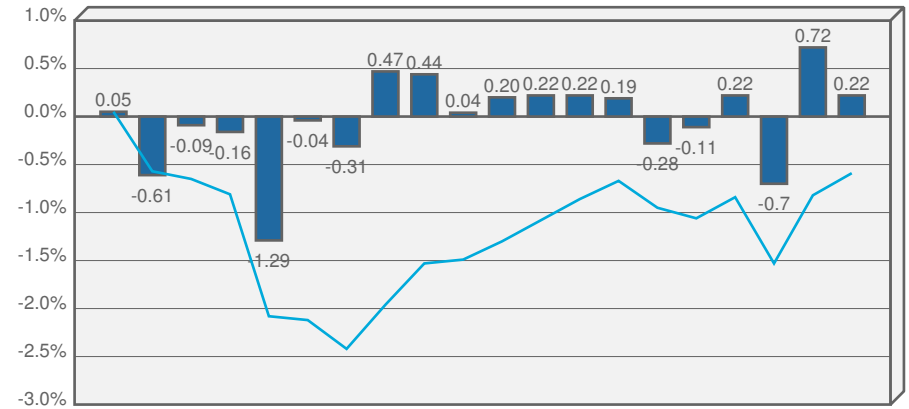
June 30, 2019

Cumulative Skill Analysis vs Benchmark



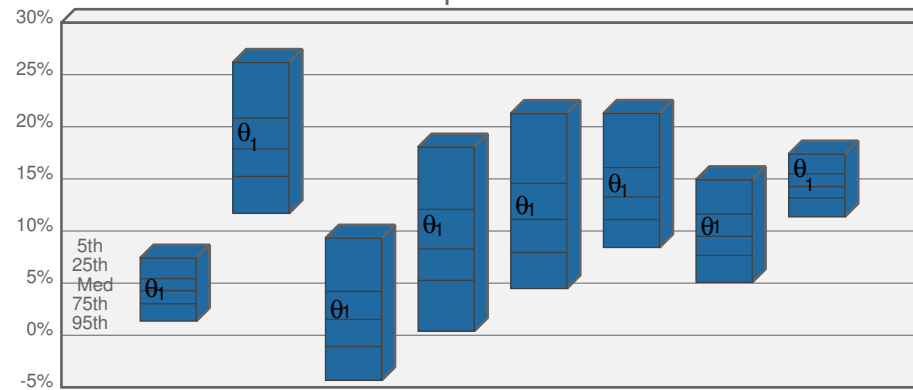
Quarterly NOF Value Added vs. Standard & Poor's 500		80% Confidence Band
Excess Return:	-0.19	Information Ratio: -0.20
Excess Risk:	0.93	T-Stat: -0.45

Value-Added Analysis vs Benchmark



Quarterly NOF Value Added vs. Standard & Poor's 500	Cumulative Value Added
0.05	-0.61
-0.09	-1.29
0.16	-0.04
-0.31	0.47
0.44	0.44
0.04	0.20
0.22	0.22
0.22	0.19
0.19	-0.28
-0.11	-0.11
0.22	-0.7
0.72	0.72
0.22	0.22

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
θ PIMCO Stock PI	4.53 (43)	19.55 (36)	2.55 (38)	10.69 (33)	12.52 (38)	14.61 (35)	10.51 (38)	16.05 (19)
θ Standard & Poo	4.30 (49)	18.54 (43)	2.51 (39)	10.42 (36)	12.38 (40)	14.19 (39)	10.71 (34)	14.70 (40)
Median	4.28	17.87	1.52	8.29	11.11	13.27	9.49	14.26
Number of Funds	533	533	533	533	531	526	515	463

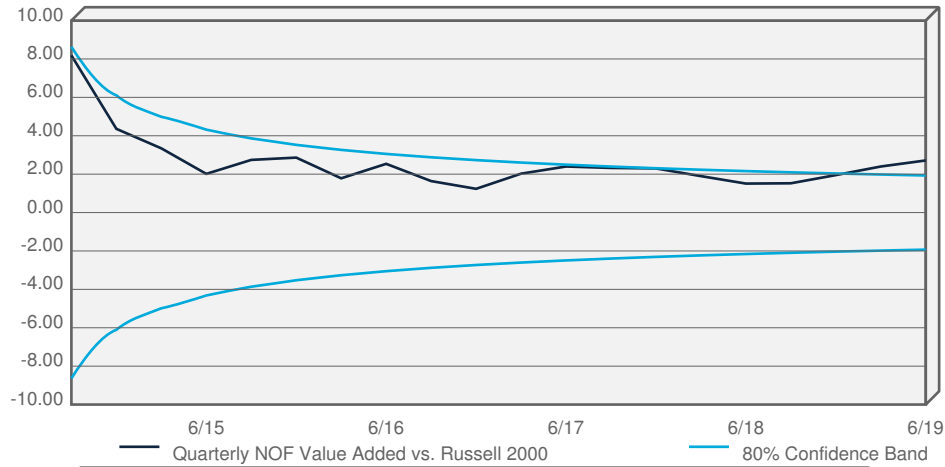
*Compass Total Returns of Active Large Cap Equity Portfolios Universe - Gross of Fees

INVESTMENT MANAGER ANALYSIS

Wellington

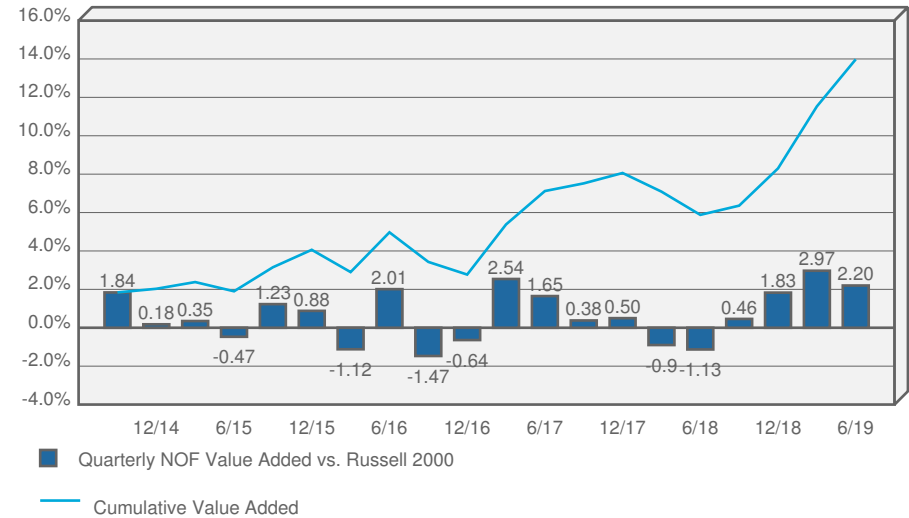
June 30, 2019

Cumulative Skill Analysis vs Benchmark

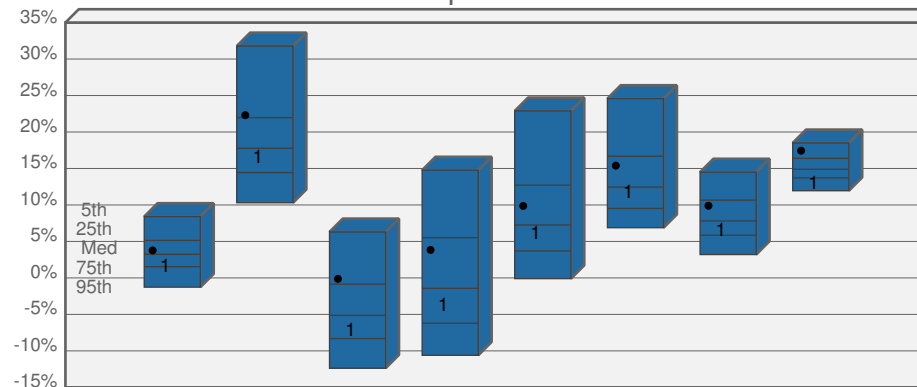


Excess Return:	2.71	Information Ratio:	1.03
Excess Risk:	2.63	T-Stat:	2.31

Value-Added Analysis vs Benchmark

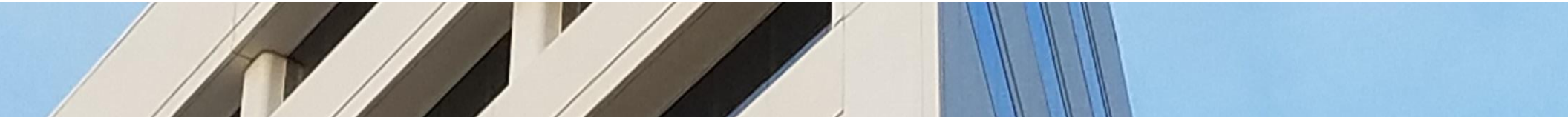


Performance Comparison vs Peer Universe*



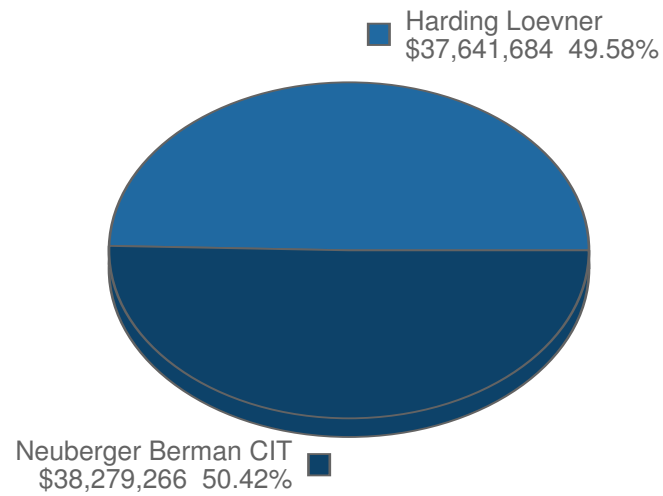
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
● Wellington	4.50 (32)	23.04 (21)	0.60 (16)	4.57 (28)	10.60 (32)	16.12 (27)	10.62 (25)	18.17 (7)
1 Russell 2000	2.10 (67)	16.98 (55)	-6.65 (62)	-3.31 (59)	6.62 (53)	12.30 (50)	7.06 (60)	13.45 (78)
Median	3.23	17.77	-5.13	-1.43	7.26	12.45	7.81	14.89
Number of Funds	420	420	419	419	418	414	405	367

*Compass Total Returns of Active Small Cap Equity Portfolios Universe - Gross of Fees



NON-U.S. EQUITY

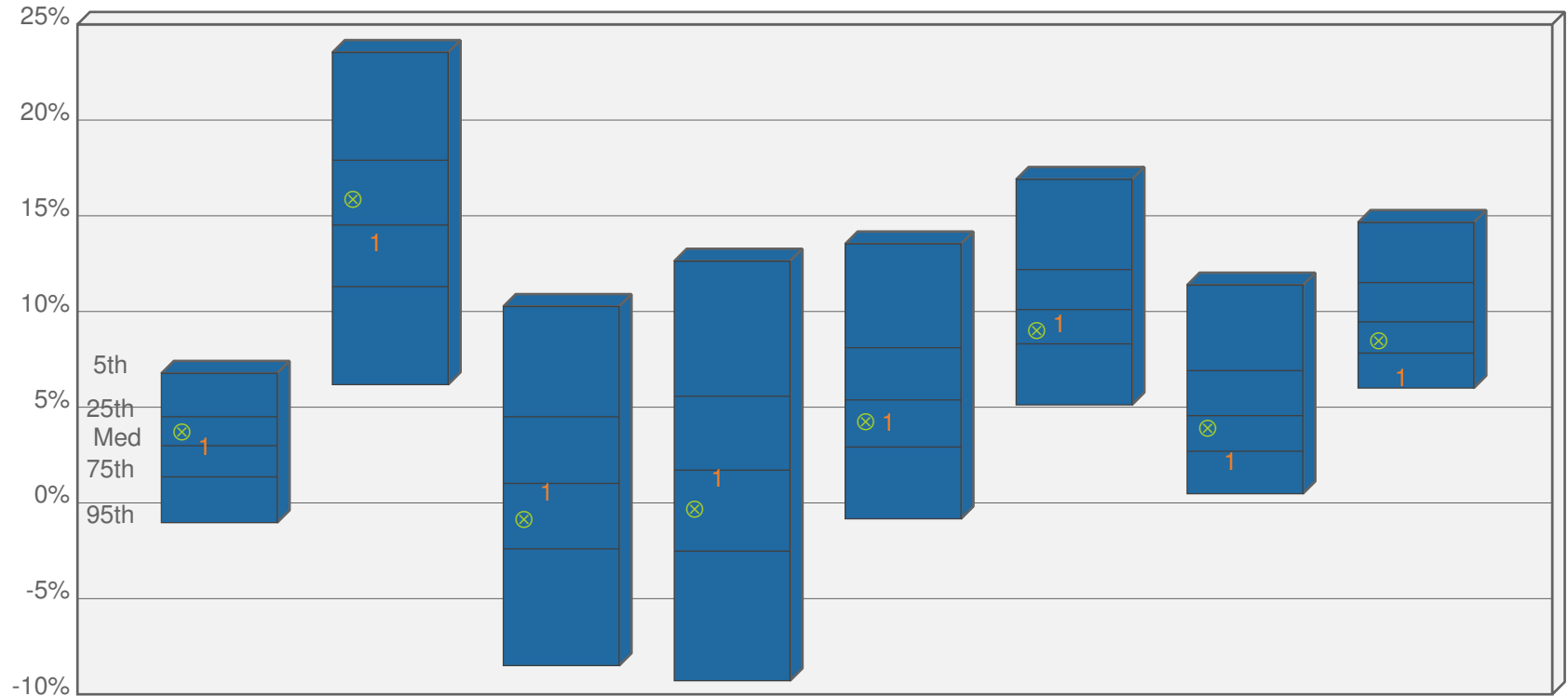
Wilshire Consulting
MANAGER ALLOCATION
Non-U.S. Equity Composite
As of June 30, 2019



PERFORMANCE COMPARISON

Non-U.S. Equity Composite

Periods Ended June 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Non-U.S. Equity Composite	3.75 (36)	15.89 (38)	-0.84 (65)	-0.32 (64)	4.27 (60)	9.04 (64)	3.93 (58)	8.50 (64)
1 Policy Benchmark	2.98 (50)	13.60 (58)	0.58 (53)	1.29 (53)	4.24 (61)	9.38 (60)	2.16 (83)	6.54 (91)
5th %tile	6.77	23.53	10.26	12.63	13.53	16.90	11.38	14.65
25th %tile	4.50	17.90	4.50	5.57	8.11	12.19	6.91	11.51
Median	2.99	14.52	1.02	1.71	5.38	10.10	4.56	9.46
75th %tile	1.36	11.30	-2.40	-2.52	2.92	8.31	2.70	7.83
95th %tile	-1.03	6.18	-8.50	-9.29	-0.83	5.12	0.48	6.00
Number of Funds	1563	1560	1551	1536	1498	1465	1320	889

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

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2019

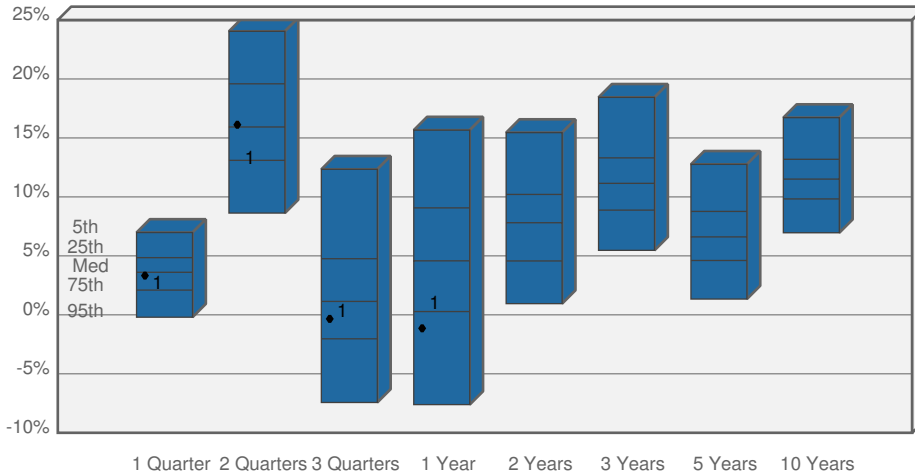
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Neuberger Berman CIT									
Net of Fee Return	3.78	16.57	-0.69					6/30/18	-0.69
MSCI ACWI ex US (N)	2.98	13.60	1.29					6/30/18	1.29
Value Added	0.79	2.96	-1.97					6/30/18	-1.97
Neuberger Berman Composite									
Net of Fee Return	3.78	16.57	-0.10	8.70	3.68	7.37	8.22	6/30/06	3.44
MSCI ACWI ex US (N)	2.98	13.60	1.29	9.38	2.16	6.36	6.54	6/30/06	3.56
Value Added	0.79	2.96	-1.38	-0.68	1.51	1.01	1.67	6/30/06	-0.12
Harding Loevner									
Net of Fee Return	4.05	14.85	-0.83	9.29				3/31/15	5.19
MSCI ACWI X US (N)	2.98	13.60	1.29	9.38				3/31/15	3.99
Value Added	1.07	1.24	-2.12	-0.09				3/31/15	1.20
Non-U.S. Equity Composite									
Net of Fee Return	3.70	15.78	-0.50	8.84	3.79	7.48	8.29	12/31/89	7.92
Policy Benchmark	2.98	13.60	1.29	9.38	2.16	6.36	6.54	12/31/89	4.50
Value Added	0.72	2.18	-1.79	-0.54	1.63	1.12	1.75	12/31/89	3.42

INVESTMENT MANAGER ANALYSIS

Neuberger Berman CIT

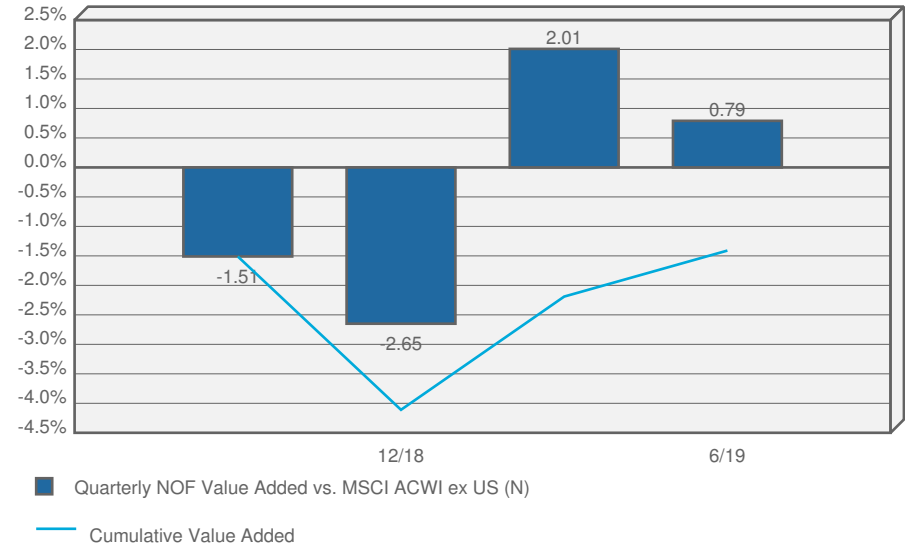
June 30, 2019

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
● Neuberger Berm	3.78 (47)	16.57 (44)	0.11 (60)	-0.69 (78)				
I MSCI ACWI ex U	2.98 (62)	13.60 (70)	0.58 (54)	1.29 (69)				
Median	3.61	15.93	1.14	4.58	7.81	11.15	6.61	11.51
Number of Funds	462	461	459	457	448	440	403	274

Value-Added Analysis vs Benchmark



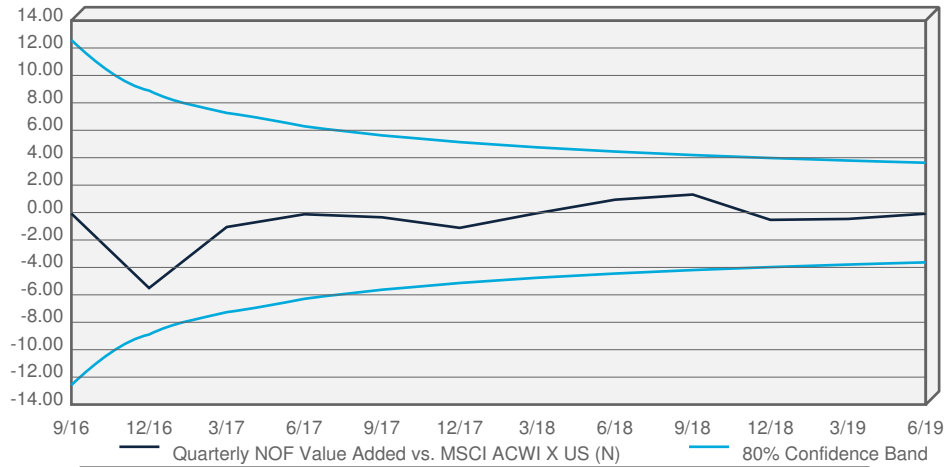
*Compass Total Returns of Active Global International Equity Portfolios Universe - Gross of Fees

INVESTMENT MANAGER ANALYSIS

Harding Loevner

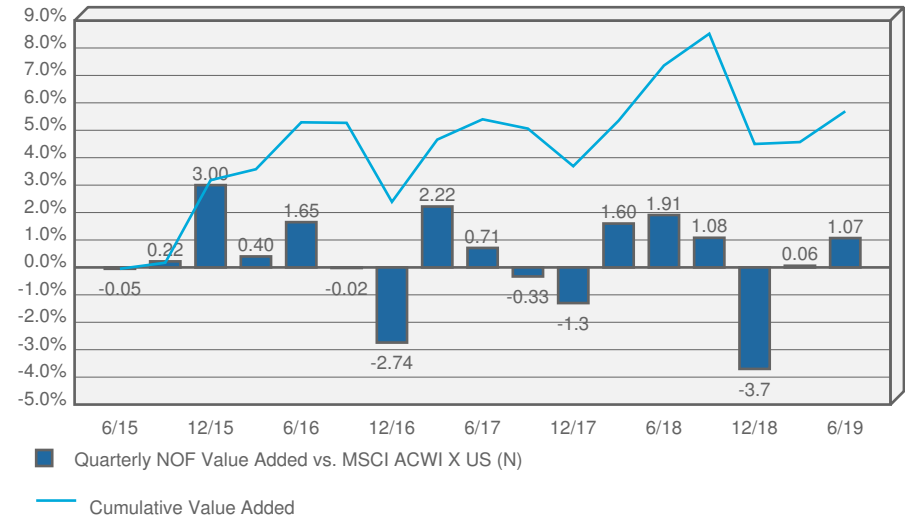
June 30, 2019

Cumulative Skill Analysis vs Benchmark

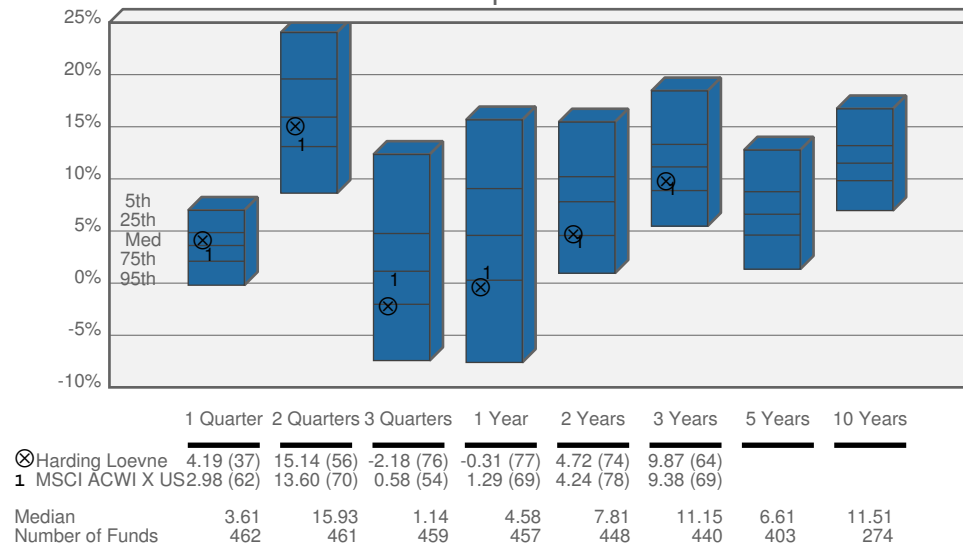


Excess Return:	-0.08	Information Ratio:	-0.02
Excess Risk:	3.82	T-Stat:	-0.04

Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe*



*Compass Total Returns of Active Global International Equity Portfolios Universe - Gross of Fees



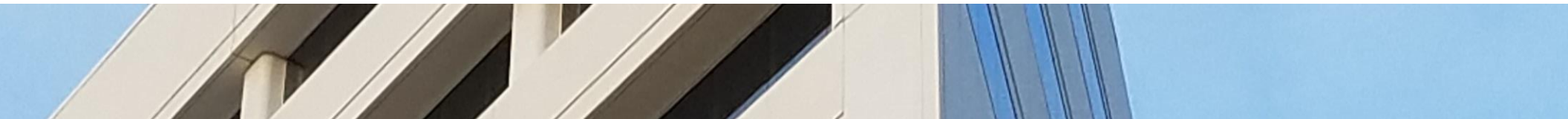
ALTERNATIVE INVESTMENTS

Investment Performance Private Partnerships

As of June 30, 2019

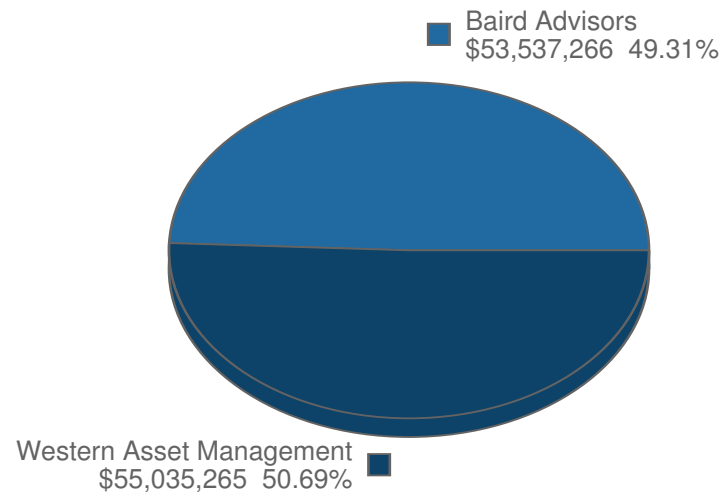
Partnership	Commitment Value	Inception Date	Capital Called		Capital Distributed		Fair Value	Total Value / Paid-In Capital ¹	Annualized IRR
			Amount	%	Amount	%			
Private Equity Program									
Adams Street Direct 2010 Fund	\$500,000	April 27, 2010	\$474,500	95%	\$561,555	112%	\$276,965	1.77	12.71%
Adams Street Non-US Dev. 2010 Fund	\$1,500,000	April 27, 2010	\$1,313,250	88%	\$998,109	67%	\$958,608	1.49	10.76%
Adams Street US 2010 Fund	\$2,500,000	April 27, 2010	\$2,202,500	88%	\$1,621,880	65%	\$2,235,142	1.75	14.14%
Adams Street Non-US EM 2010 Fund	\$500,000	January 3, 2011	\$449,000	90%	\$129,006	26%	\$600,912	1.63	11.07%
Adams Street 2013 Global Fund	\$5,000,000	July 3, 2013	\$4,090,000	82%	\$773,189	15%	\$4,962,388	1.40	11.06%
Aberdeen Global Partners	\$5,000,000	January 17, 2012	\$4,900,000	98%	\$1,711,516	34%	\$5,657,137	1.50	11.34%
Adams Street 2015 Global	\$6,500,000	September 30, 2015	\$4,222,868	65%	\$825,449	13%	\$4,801,389	1.33	22.08%
Adams Street 2017 Global	\$6,000,000	June 17, 2017	\$2,360,455	39%	\$0	0%	\$2,491,384	1.06	7.89%
Private Equity Composite	\$27,500,000	April 27, 2010	\$20,012,573	73%	\$6,620,704	24%	\$21,983,925	1.43	12.59%
Private Credit Managers									
Grosvenor Opportunistic Credit V	\$14,000,000	September 17, 2018	\$8,482,249	61%	\$0	\$0	\$8,687,113	1.02	-
50 South Sponsor Backed Credit	\$7,000,000	October 4, 2018	\$1,928,113	28%	\$0	\$0	\$1,810,172	0.94	-
Private Credit Composite	\$21,000,000	September 17, 2018	\$10,410,362	50%	\$0	0%	\$10,497,285	1.01	-

¹TVPI = Fair Value + Capital Distributed / Capital Called

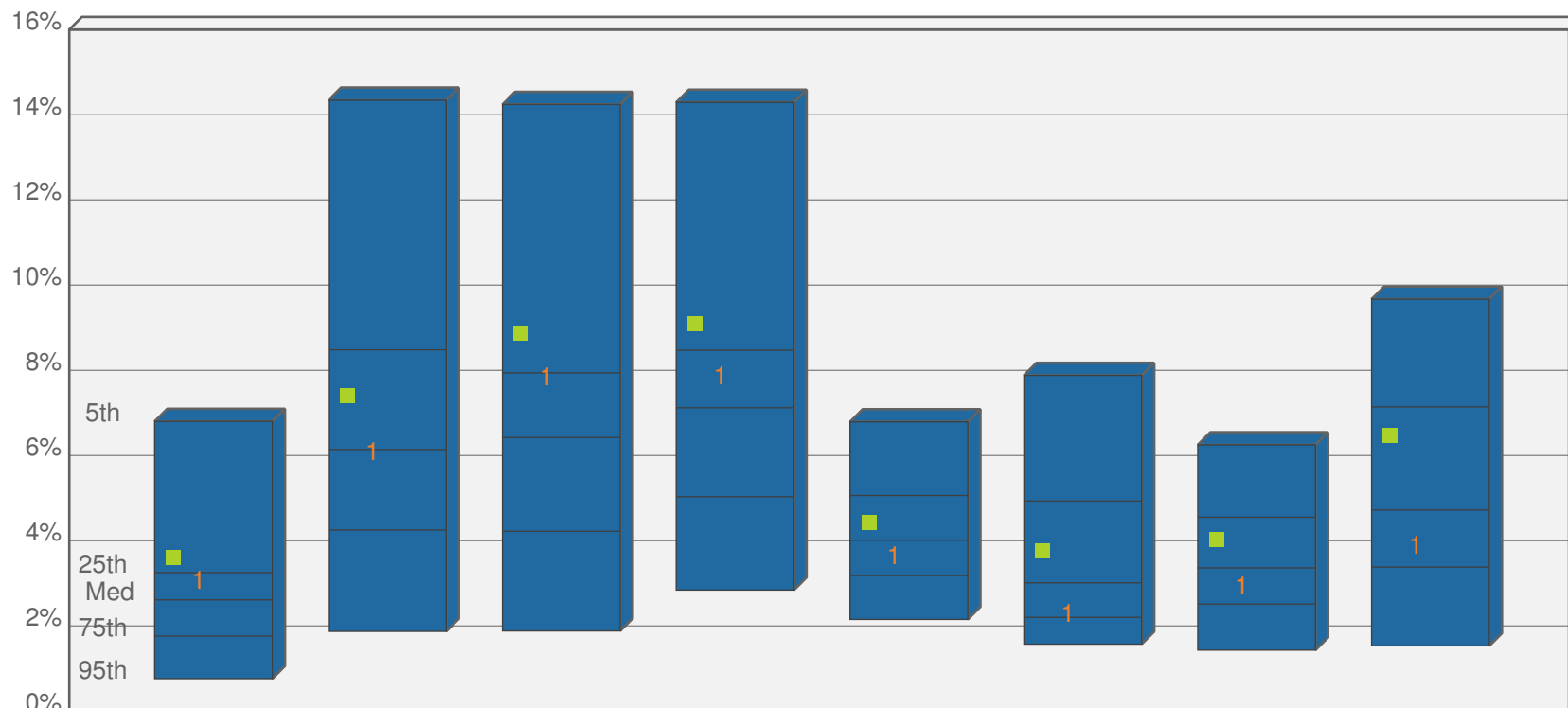


CORE FIXED INCOME

Wilshire Consulting
MANAGER ALLOCATION
Core Fixed Composite
As of June 30, 2019



Wilshire Consulting
PERFORMANCE COMPARISON
 Core Fixed Composite
 Periods Ended June 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
■ Core Fixed Composite	3.63 (16)	7.43 (30)	8.91 (15)	9.12 (18)	4.45 (35)	3.78 (39)	4.05 (33)	6.49 (29)
┆ Bloomberg Aggreg	3.08 (33)	6.11 (50)	7.85 (28)	7.87 (38)	3.65 (62)	2.31 (71)	2.95 (62)	3.90 (65)
5th %tile	6.80	14.34	14.24	14.29	6.79	7.88	6.25	9.67
25th %tile	3.25	8.48	7.94	8.47	5.06	4.93	4.55	7.14
Median	2.61	6.14	6.42	7.12	4.01	3.01	3.36	4.72
75th %tile	1.76	4.25	4.22	5.03	3.18	2.20	2.51	3.38
95th %tile	0.76	1.87	1.88	2.84	2.15	1.57	1.43	1.53
Number of Funds	1414	1410	1407	1403	1377	1346	1283	1022

*Compass Total Returns of Fixed Income Portfolios Universe - Gross of Fees

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2019

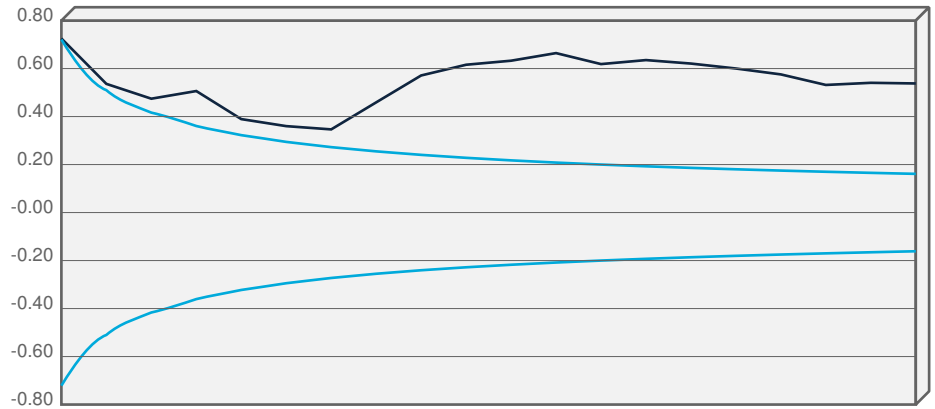
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Baird Advisors									
Net of Fee Return	3.20	6.43	8.18	2.92	3.50	3.34	5.17	3/31/03	4.49
Bloomberg Aggregate	3.08	6.11	7.87	2.31	2.95	2.62	3.90	3/31/03	4.11
Value Added	0.13	0.31	0.31	0.60	0.55	0.72	1.27	3/31/03	0.38
Western Asset Management									
Net of Fee Return	3.91	8.09	9.51	4.11	4.07	4.32	7.22	3/31/04	5.13
Bloomberg Aggregate	3.08	6.11	7.87	2.31	2.95	2.62	3.90	3/31/04	4.03
Value Added	0.83	1.98	1.64	1.80	1.12	1.70	3.32	3/31/04	1.10
Core Fixed Composite									
Net of Fee Return	3.56	7.26	8.91	3.54	3.80	3.85	6.24	9/30/87	6.81
Bloomberg Aggregate	3.08	6.11	7.87	2.31	2.95	2.62	3.90	9/30/87	6.39
Value Added	0.48	1.15	1.05	1.23	0.85	1.23	2.34	9/30/87	0.42

INVESTMENT MANAGER ANALYSIS

Baird Advisors

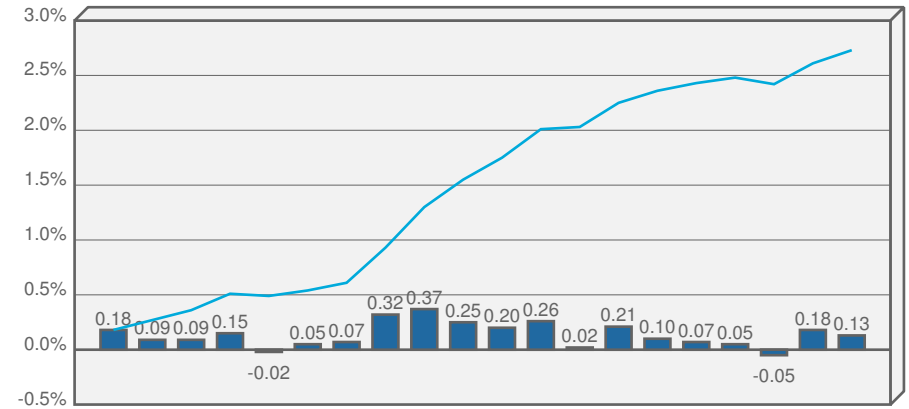
June 30, 2019

Cumulative Skill Analysis vs Benchmark



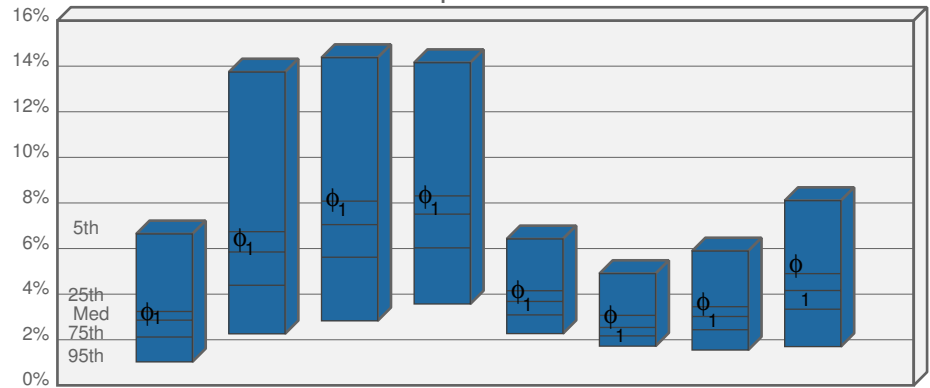
Excess Return:	0.54	Information Ratio:	2.45
Excess Risk:	0.22	T-Stat:	5.49

Value-Added Analysis vs Benchmark



Quarterly NOF Value Added vs. Bloomberg Aggregate
Cumulative Value Added

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
ϕ Baird Advisors	3.26 (23)	6.54 (29)	8.28 (18)	8.41 (21)	4.23 (21)	3.14 (23)	3.72 (17)	5.39 (16)
$\bar{1}$ Bloomberg Aggr	3.08 (37)	6.11 (45)	7.85 (35)	7.87 (41)	3.65 (52)	2.31 (66)	2.95 (52)	3.90 (59)
Median	2.86	5.85	7.05	7.51	3.68	2.54	3.02	4.16
Number of Funds	435	434	434	434	428	421	409	352

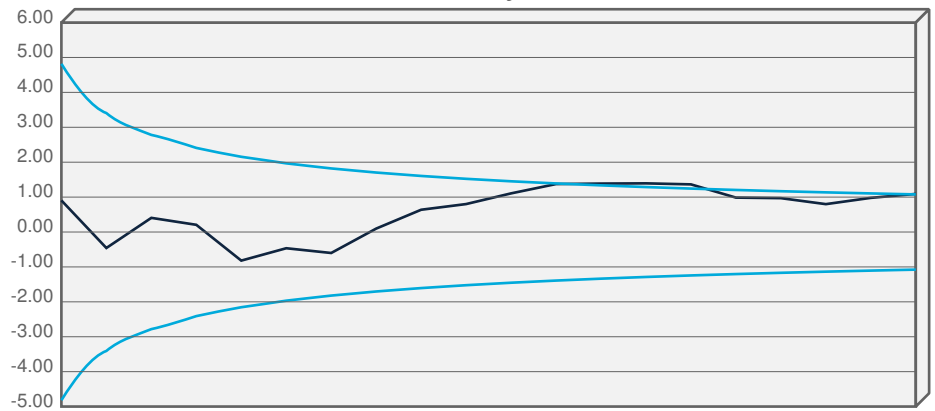
*Compass Total Returns of Active Core Fixed Income Portfolios Universe - Gross of Fees

INVESTMENT MANAGER ANALYSIS

Western Asset Management

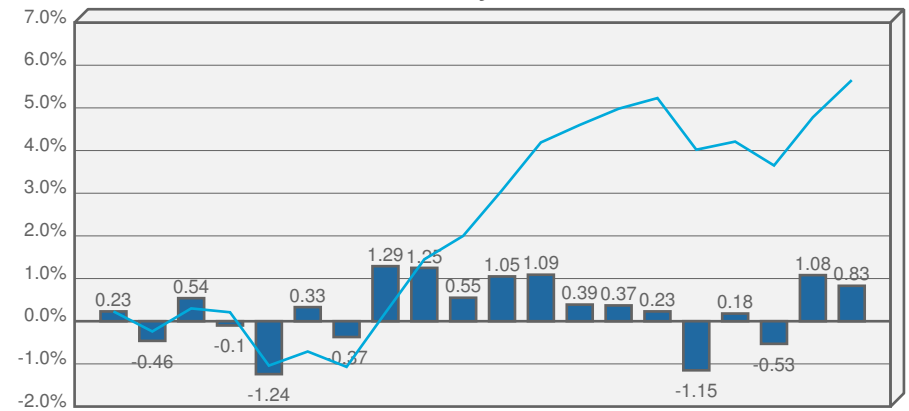
June 30, 2019

Cumulative Skill Analysis vs Benchmark



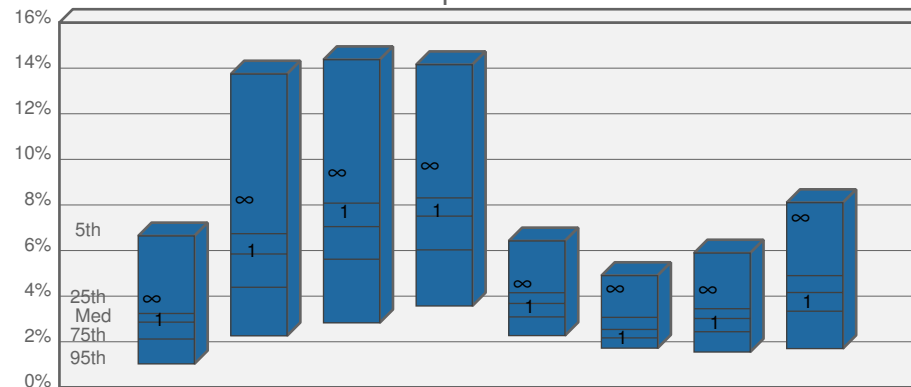
Excess Return:	1.09	Information Ratio:	0.75
Excess Risk:	1.46	T-Stat:	1.67

Value-Added Analysis vs Benchmark



Quarterly NOF Value Added vs. Bloomberg Aggregate
Cumulative Value Added

Performance Comparison vs Peer Universe*



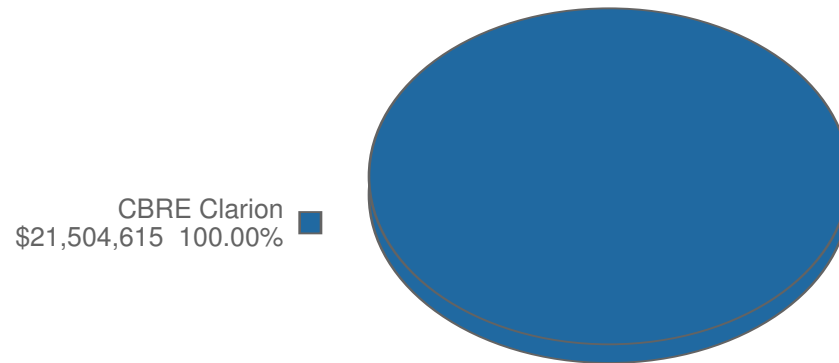
	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
∞ Western Asset	3.98 (10)	8.32 (10)	9.52 (9)	9.82 (10)	4.65 (12)	4.42 (8)	4.38 (12)	7.54 (7)
1 Bloomberg Aggr	3.08 (37)	6.11 (45)	7.85 (35)	7.87 (41)	3.65 (52)	2.31 (66)	2.95 (52)	3.90 (59)
Median	2.86	5.85	7.05	7.51	3.68	2.54	3.02	4.16
Number of Funds	435	434	434	434	428	421	409	352

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

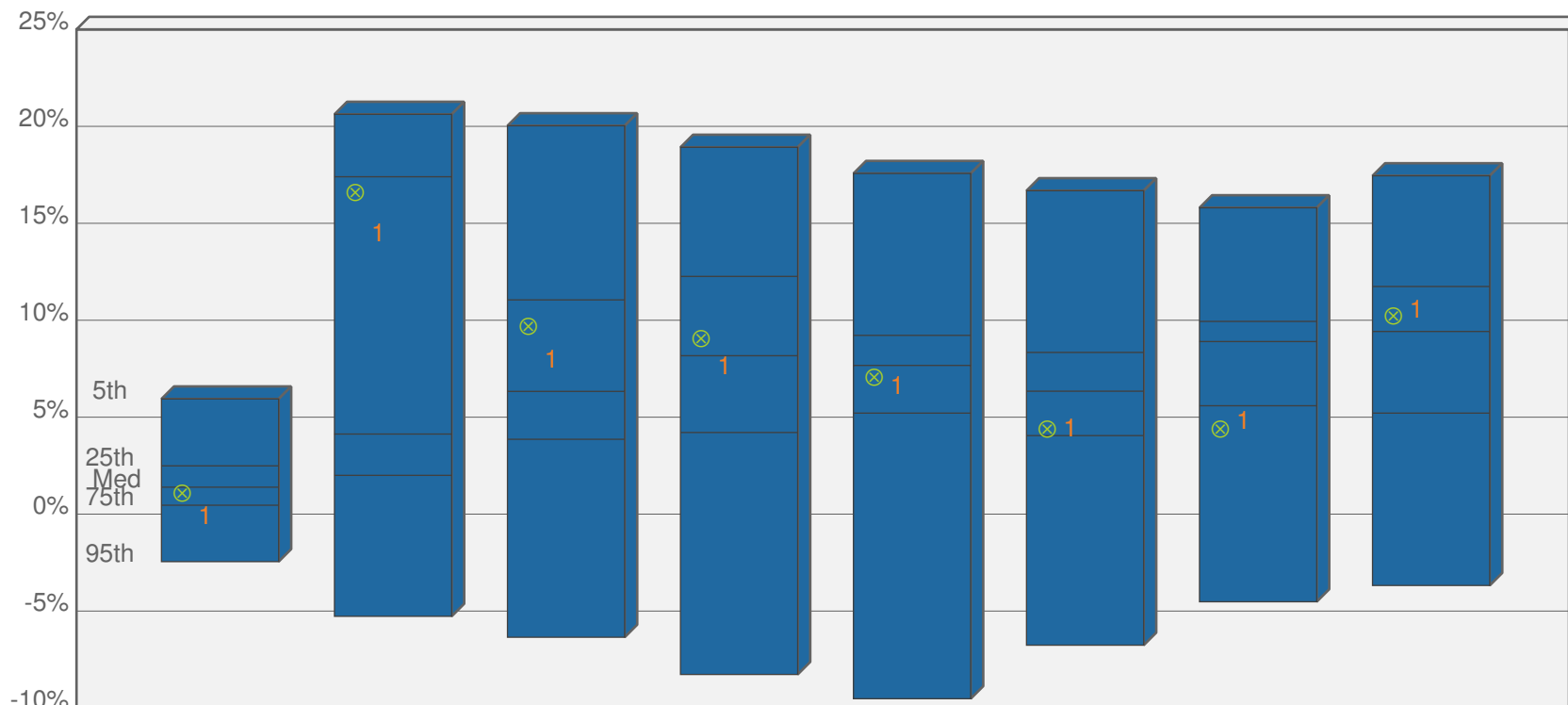


REAL ESTATE

Wilshire Consulting
MANAGER ALLOCATION
Real Estate Composite
As of June 30, 2019



Wilshire Consulting
PERFORMANCE COMPARISON
 Real Estate Composite
 Periods Ended June 30, 2019



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ Real Estate Composite	1.10 (64)	16.63 (25)	9.69 (36)	9.07 (44)	7.08 (61)	4.42 (73)	4.41 (81)	10.26 (36)
1 FTSE EPRA/NAREIT	-0.07 (84)	14.51 (32)	8.00 (43)	7.68 (56)	6.66 (67)	4.46 (73)	4.85 (78)	10.57 (32)
5th %tile	5.94	20.62	20.03	18.92	17.57	16.68	15.80	17.45
25th %tile	2.49	17.40	11.05	12.26	9.22	8.34	9.94	11.74
Median	1.39	4.13	6.33	8.17	7.67	6.34	8.90	9.42
75th %tile	0.46	2.00	3.86	4.21	5.21	4.05	5.59	5.21
95th %tile	-2.45	-5.27	-6.35	-8.27	-9.52	-6.76	-4.52	-3.68
Number of Funds	180	176	175	172	172	169	160	96

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

PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2019

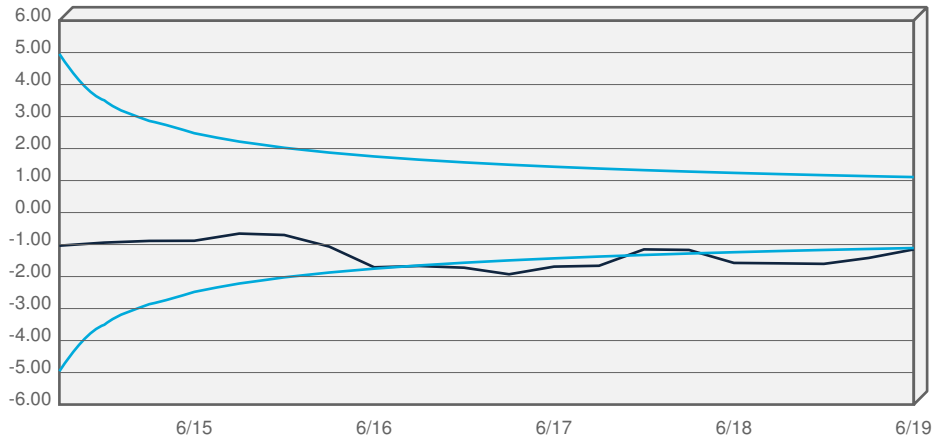
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
CBRE Clarion									
Net of Fee Return	0.93	16.22	8.27	3.65	3.64	6.24	9.47	6/30/09	9.47
FTSE EPRA/NAREIT Dev (N)	-0.07	14.51	7.68	4.46	4.85	7.26	10.57	6/30/09	10.57
Value Added	0.99	1.71	0.60	-0.81	-1.21	-1.02	-1.11	6/30/09	-1.11
Real Estate Composite									
Net of Fee Return	0.93	16.22	8.27	3.65	3.63	6.24	9.46	6/30/09	9.46
FTSE EPRA/NAREIT Dev (N)	-0.07	14.51	7.68	4.46	4.85	7.26	10.57	6/30/09	10.57
Value Added	0.99	1.71	0.60	-0.81	-1.22	-1.02	-1.11	6/30/09	-1.11

INVESTMENT MANAGER ANALYSIS

CBRE Clarion

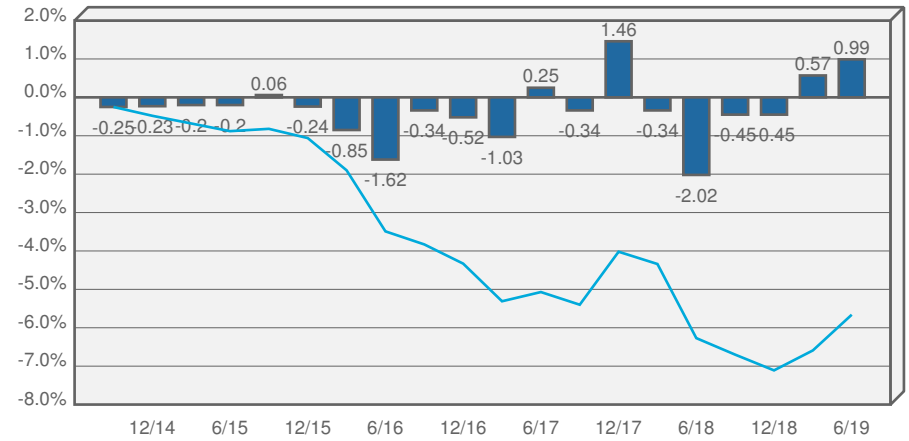
June 30, 2019

Cumulative Skill Analysis vs Benchmark



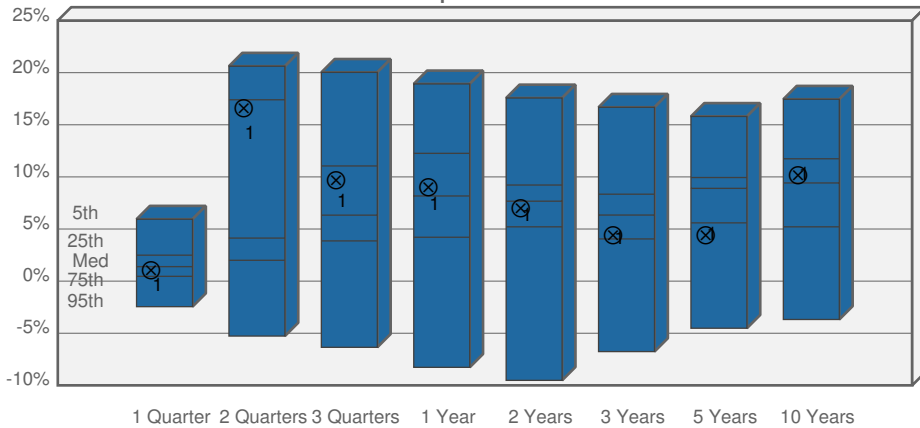
Excess Return:	-1.15	Information Ratio:	-0.76
Excess Risk:	1.51	T-Stat:	-1.71

Value-Added Analysis vs Benchmark



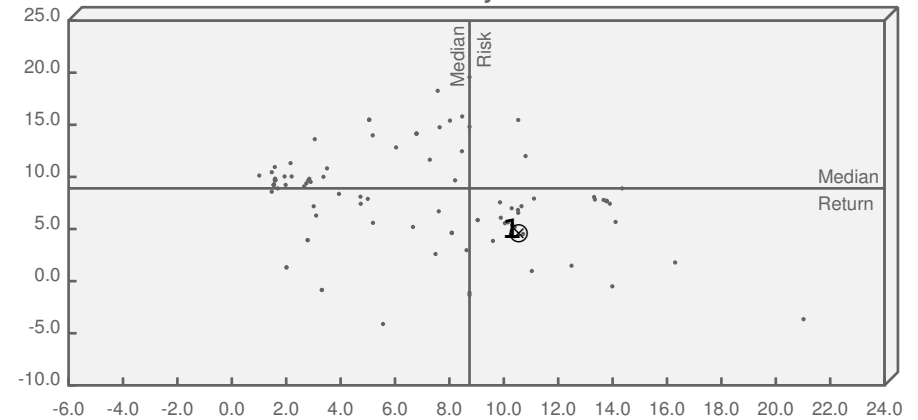
■ Quarterly NOF Value Added vs. FTSE EPRA/NAREIT Dev (N)
 — Cumulative Value Added

Performance Comparison vs Peer Universe*



	1 Quarter	2 Quarters	3 Quarters	1 Year	2 Years	3 Years	5 Years	10 Years
⊗ CBRE Clarion	1.10 (64)	16.63 (25)	9.69 (36)	9.07 (44)	7.08 (61)	4.42 (73)	4.42 (81)	10.26 (36)
1 FTSE EPRA/NAREIT Dev (N)	0.07 (84)	14.51 (32)	8.00 (43)	7.68 (56)	6.66 (67)	4.46 (73)	4.85 (78)	10.57 (32)
Median	1.39	4.13	6.33	8.17	7.67	6.34	8.90	9.42
Number of Funds	180	176	175	172	172	169	160	96

Five Year Risk/Return Analysis vs Peer Universe*



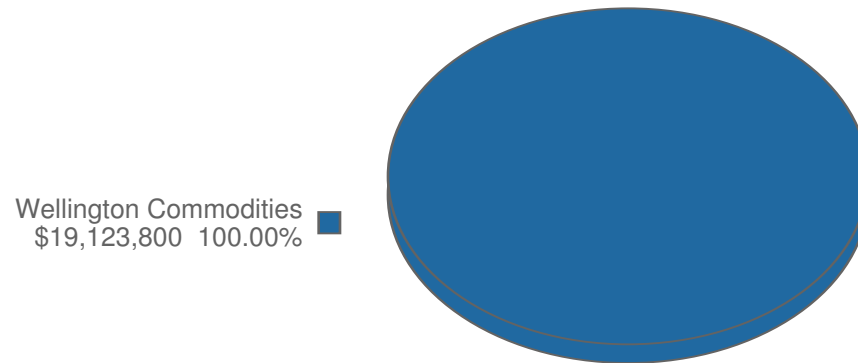
Description	Legend	Gross Fee Ret		Standard Deviation	
		Value	Rank	Value	Rank
CBRE Clarion	⊗	4.42	81	10.71	38
FTSE EPRA/NAREIT Dev (N)	1	4.85	78	10.50	40
Median		8.90		8.74	

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



COMMODITIES

Wilshire Consulting
MANAGER ALLOCATION
Commodities Composite
As of June 30, 2019



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2019

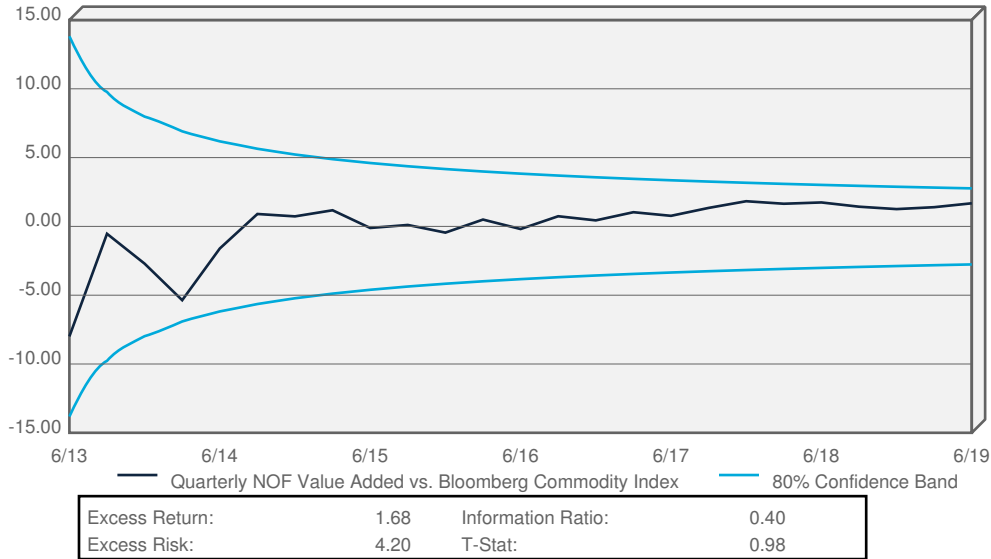
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Wellington Commodities									
Net of Fee Return	0.90	8.51	-5.48	1.48	-6.86			3/31/13	-6.14
Bloomberg Commodity Index	-1.19	5.06	-6.75	-2.18	-9.15			3/31/13	-7.69
Value Added	2.09	3.45	1.27	3.66	2.29			3/31/13	1.55
Commodities Composite									
Net of Fee Return	0.90	8.51	-5.48	1.48	-6.86			3/31/13	-6.14
Bloomberg Commodity Index	-1.19	5.06	-6.75	-2.18	-9.15			3/31/13	-7.69
Value Added	2.09	3.45	1.27	3.66	2.29			3/31/13	1.55

INVESTMENT MANAGER ANALYSIS

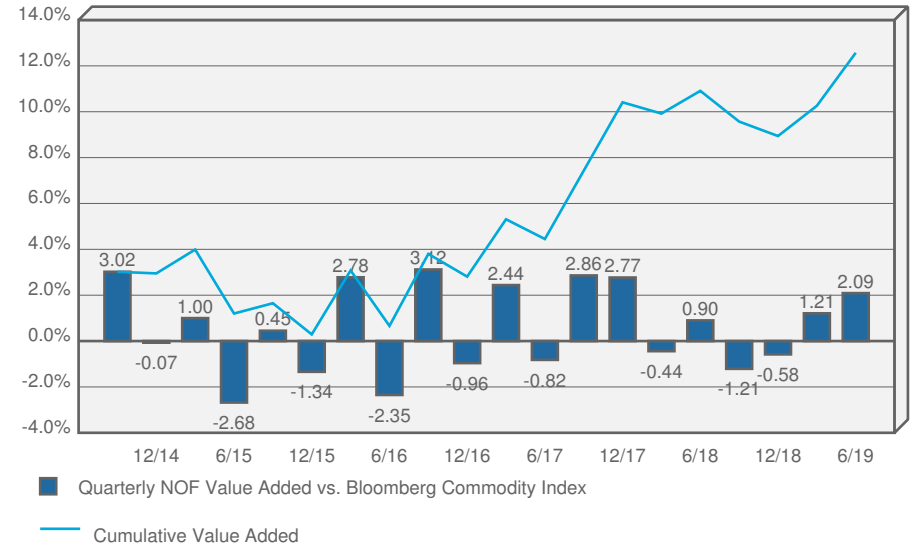
Wellington Commodities

June 30, 2019

Cumulative Skill Analysis vs Benchmark



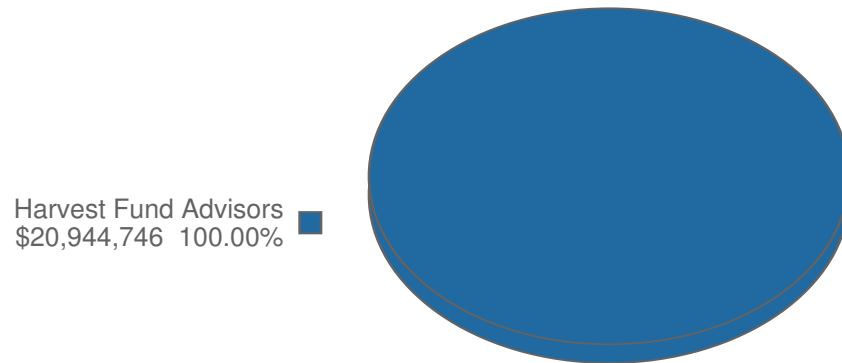
Value-Added Analysis vs Benchmark





MLP

Wilshire Consulting
MANAGER ALLOCATION
MLP Composite
As of June 30, 2019



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2019

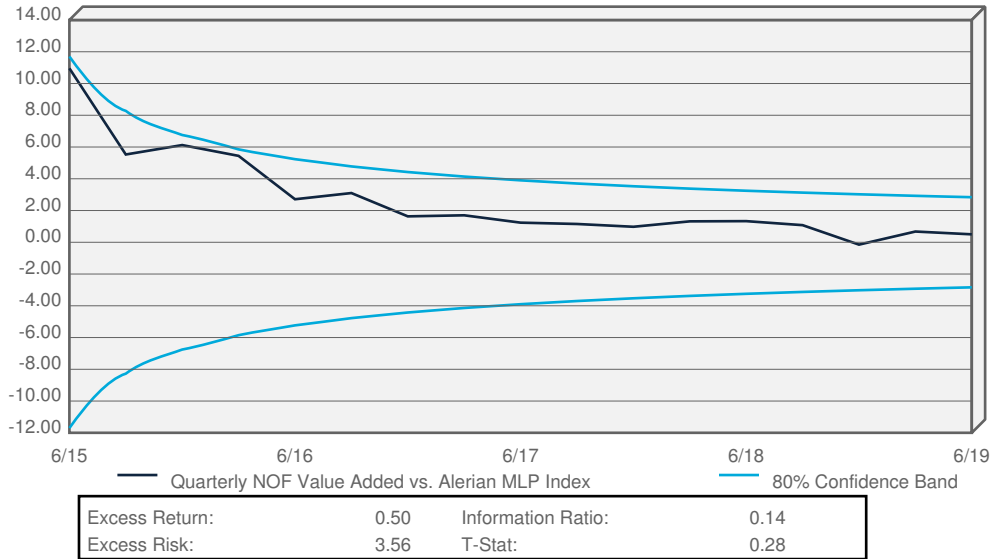
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Harvest Fund Advisors									
Net of Fee Return	-0.45	20.14	0.87	1.08				3/31/15	-4.54
Alerian MLP Index	0.12	16.96	3.09	1.49				3/31/15	-5.01
Value Added	-0.58	3.18	-2.22	-0.41				3/31/15	0.48
MLP Composite									
Net of Fee Return	-0.45	20.14	0.87	1.08				3/31/15	-4.54
Alerian MLP Index	0.12	16.96	3.09	1.49				3/31/15	-5.01
Value Added	-0.58	3.18	-2.22	-0.41				3/31/15	0.48

INVESTMENT MANAGER ANALYSIS

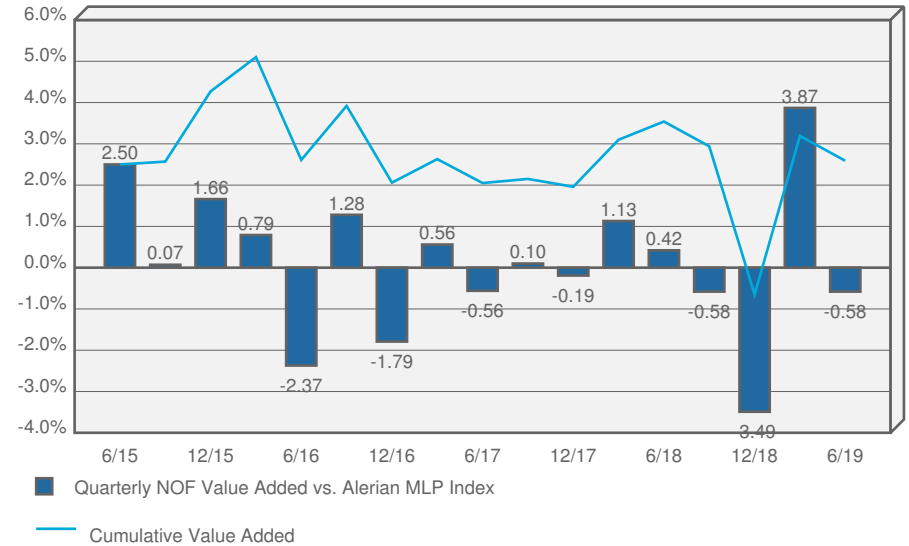
Harvest Fund Advisors

June 30, 2019

Cumulative Skill Analysis vs Benchmark



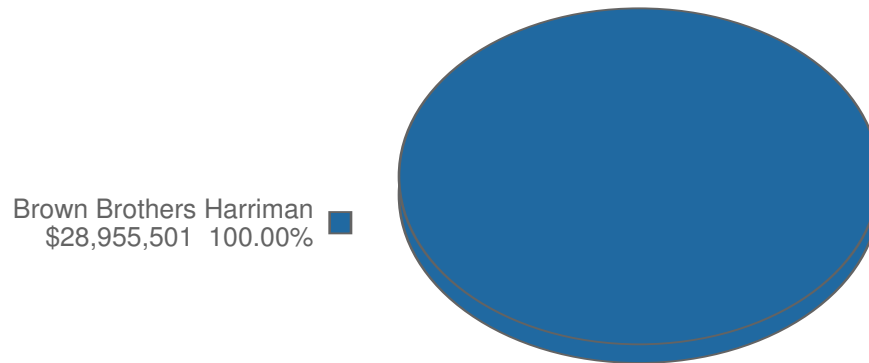
Value-Added Analysis vs Benchmark





TIPS

Wilshire Consulting
MANAGER ALLOCATION
TIPS Composite
As of June 30, 2019



PERFORMANCE COMPARISON

Trailing Returns

Periods Ended June 30, 2019

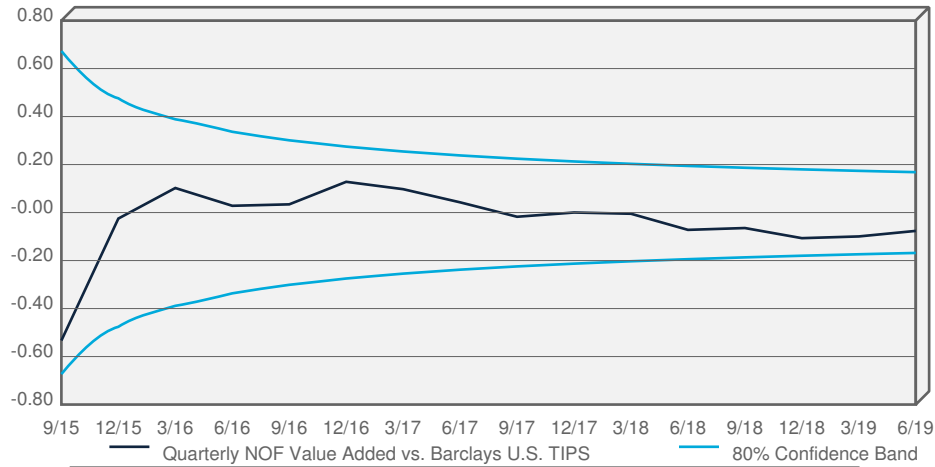
	1 Qtr	YTD	1 Year	3 Yrs	5 Yrs	7 Yrs	10 Yrs	Incept Date	Incept Ret
Brown Brothers Harriman									
Net of Fee Return	2.93	6.22	4.74	1.97				6/30/15	2.57
Barclays U.S. TIPS	2.86	6.15	4.84	2.08				6/30/15	2.65
Value Added	0.07	0.07	-0.09	-0.11				6/30/15	-0.08
TIPS Composite									
Net of Fee Return	2.93	6.22	4.74	1.97				6/30/15	2.57
Barclays U.S. TIPS	2.86	6.15	4.84	2.08				6/30/15	2.65
Value Added	0.07	0.07	-0.09	-0.11				6/30/15	-0.08

INVESTMENT MANAGER ANALYSIS

Brown Brothers Harriman

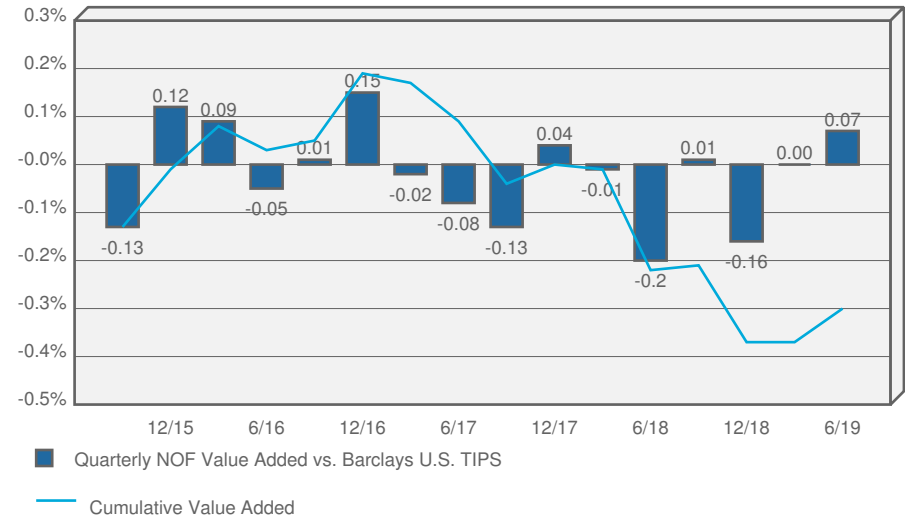
June 30, 2019

Cumulative Skill Analysis vs Benchmark

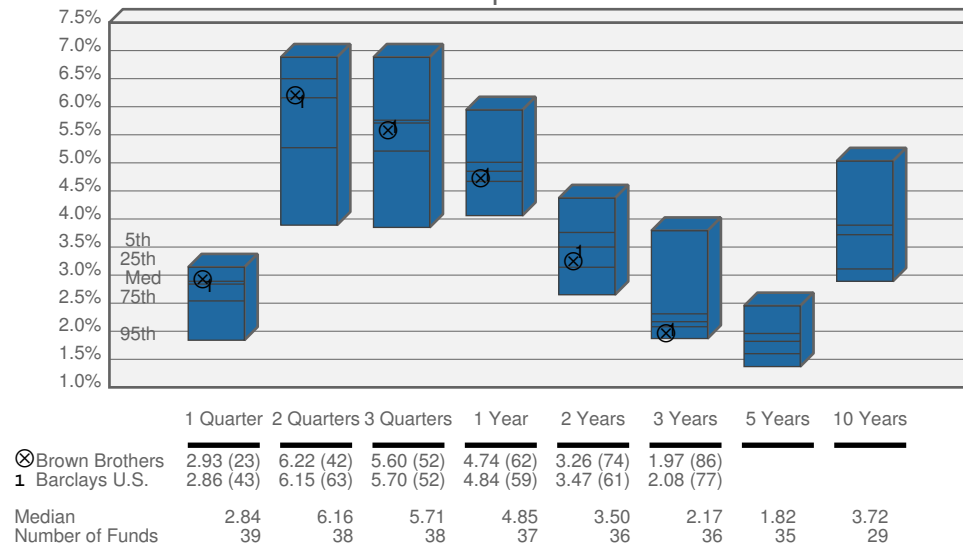


Excess Return:	-0.08	Information Ratio:	-0.37
Excess Risk:	0.20	T-Stat:	-0.75

Value-Added Analysis vs Benchmark



Performance Comparison vs Peer Universe*



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