Wilshire

WILSHIRE ASSOCIATES

Wilshire Consulting

Numbers in Context

Third Quarter 2018

Wilshire Consulting

ASSET CLASS PERFORMANCE

Wilshire

Annual Asset Class Returns - Best to Worst										Annualized 5-Year
2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 YTD	as of Sept 17'
Emrg Mrkts 79.0%	MLPs 35.9%	MLPs 13.9%	Emrg Mrkts 18.6	U.S. Equity 33.1%	REITs 31.8%	REITs 4.2%	MLPs 18.3%	Emrg Mrkts 37.7%	U.S. Equity 10.5%	U.S. Equity 13.6%
MLPs 76.4%	REITs 28.6%	U.S. TIPS 13.6%	Developed 17.9%	MLPs 27.6%	U.S. Equity 12.7%	U.S. Equity 0.7%	High Yield 17.1%	Developed 25.6%	MLPs 5.9%	REITs 9.3%
High Yield 58.2%	Emrg Mrkts 19.2%	REITs 9.2%	REITs 17.6%	Developed 23.3%	Core Bond 6.0%	Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 21.0%	High Yield 2.6%	High Yield 5.5%
Developed 32.5%	U.S. Equity 17.2%	Core Bond 7.8%	U.S. Equity 16.1%	High Yield 7.4%	MLPs 4.8%	T-Bills 0.1%	Commodities 11.8%	High Yield 7.5%	REITs 2.3%	Developed 4.9%
REITs 28.6%	Commodities 16.8%	High Yield 5.0%	High Yield 15.8%	REITs 1.9%	U.S. TIPS 3.6%	Developed -0.4%	Emrg Mrkts 11.6%	REITs 4.2%	T-Bills 1.3%	Emrg Mrkts 4.0%
U.S. Equity 28.3%	High Yield 15.1%	U.S. Equity 1.0%	U.S. TIPS 7.0%	T-Bills 0.1%	High Yield 2.5%	U.S. TIPS -1.4%	REITs 7.2%	Core Bond 3.6%	U.S. TIPS -0.8%	Core Bond 2.2%
Commodities 18.9%	Developed 8.2%	T-Bills 0.1%	MLPs 4.8%	Core Bond -2.0%	T-Bills 0.0%	High Yield -4.5%	U.S. TIPS 4.7%	U.S. TIPS 3.0%	Developed -1.0%	U.S. TIPS 1.4%
U.S. TIPS 11.4%	Core Bond 6.5%	Developed -11.7%	Core Bond 4.2%	Emrg Mrkts -2.3%	Emrg Mrkts -1.8%	Emrg Mrkts -14.6%	Core Bond 2.6%	Commodities 1.7%	Core Bond -1.6%	T-Bills 0.5%
Core Bond 5.9%	U.S. TIPS 6.3%	Commodities -13.3%	T-Bills 0.1%	U.S. TIPS -8.6%	Developed -4.5%	Commodities -24.7%	Developed 1.5%	T-Bills 0.8%	Commodities -2.0%	MLPs -2.7%
T-Bills 0.2%	T-Bills 0.1%	Emrg Mrkts -18.2%	Commodities -1.0%	Commodities -9.5%	Commodities -17.0%	MLPs -32.6%	T-Bills 0.3%	MLPs --6.5%	Emrg Mrkts -7.4%	Commodities -7.2%

Data sources: Wilshire Compass

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

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MARKET COMMENTARY

U.S. Equity

The U.S. stock market was up 7.3% for the third quarter of 2018, the strongest quarter in nearly five years. Economic data continues to be strong including the largest increase in real GDP in four years at 4.2% during the second quarter. Third quarter growth was strong, as well, at 3.5%. The U.S. made positive strides on trade with a preliminary, renegotiated trade deal with the European Commission and a finalized deal with South Korea.

The U.S. trade deficit has had a major effect on real GDP during the past six months. A shrinking deficit during the second quarter contributed more to real GDP growth than in any quarter during the past five years. However, the success was short lived as the deficit grew during the third quarter. One specific example of tariff-driven effects is China discontinuing purchases of U.S. soybeans in retaliation for U.S. tariffs.

Non-U.S. Equity

Equity markets outside of the U.S. produced mixed results and trailed the U.S. equity market. Trade tensions weighed heavy on foreign markets while political turmoil in Italy was cause for concern just as the quarter ended. Emerging markets continue to underperform and, in fact, entered a technical bear market during the quarter, down -20% since late January. China's central bank communicated a lack of desire to offer monetary stimulus and liquidity issues have led to a number of corporate bond defaults.

Fixed Income

The U.S. Treasury yield curve rose across all maturities and the bellwether 10-year Treasury yield ended the quarter at 3.05%. The FOMC decided to increase its overnight rate by 25 basis points in September while Fed chair Jerome Powell said it was a "particularly bright moment" for the U.S. economy.

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SEPTEMBER 2018 ASSET CLASS ASSUMPTIONS

	EQUITY						FIXED INCOME						REAL ASSETS					
													REAL ESTATE					
	US STOCK	DEV EX-US STOCK	EMG MRKT STOCK	GLOBAL EX-US STOCK	GLOBAL STOCK	PRIVATE EQUITY	CASH	CORE BOND	LT CORE BOND	US TIPS	HIGH YIELD	NON-US BOND (HDG)	US RES	GLOBAL RES	PRIVATE RE	CMDTY	REAL ASSETS	US CPI
EXPECTED COMPOUND RETURN (%)	6.25	6.25	6.25	6.50	6.50	9.15	2.80	4.00	4.20	3.40	5.15	1.35	5.60	5.80	6.95	4.95	6.65	2.15
EXPECTED ARITHMETIC RETURN (%)	7.55	7.70	9.20	8.10	7.85	12.50	2.80	4.15	4.65	3.55	5.60	1.40	6.95	6.95	7.85	6.00	7.00	2.15
EXPECTED RISK (%)	17.00	18.00	26.00	18.75	17.10	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 (%)	1.75	3.00	2.50	2.90	2.30	0.00	2.80	4.10	5.20	3.55	8.60	1.75	4.00	4.00	2.70	2.80	3.15	0.00
CORRELATIONS																		
US STOCK	1.00																	
DEV EX-US STOCK (USD)	0.81	1.00																
EMERGING MARKET STOCK	0.74	0.74	1.00															
GLOBAL EX-US STOCK	0.83	0.96	0.86	1.00														
GLOBAL STOCK	0.94	0.92	0.82	0.94	1.00													
PRIVATE EQUITY	0.74	0.64	0.62	0.67	0.74	1.00												
CASH EQUIVALENTS	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00											
CORE BOND	0.28	0.13	0.00	0.09	0.20	0.31	0.19	1.00										
LT CORE BOND	0.31	0.16	0.01	0.12	0.23	0.32	0.11	0.93	1.00									
US TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.60	0.47	1.00								
HIGH YIELD BOND	0.54	0.39	0.49	0.45	0.51	0.34	-0.10	0.25	0.32	0.05	1.00							
NON-US BOND (HDG)	0.16	0.25	-0.01	0.18	0.18	0.26	0.10	0.67	0.64	0.39	0.26	1.00						
US RE SECURITIES	0.59	0.47	0.44	0.49	0.56	0.50	-0.05	0.17	0.23	0.10	0.56	0.05	1.00					
GLOBAL RE SECURITIES	0.65	0.59	0.56	0.62	0.66	0.58	-0.05	0.17	0.22	0.11	0.62	0.03	0.94	1.00				
PRIVATE REAL ESTATE	0.54	0.44	0.44	0.47	0.52	0.51	-0.05	0.19	0.25	0.09	0.57	0.05	0.77	0.76	1.00			
COMMODITIES	0.25	0.34	0.39	0.38	0.32	0.27	0.00	-0.02	-0.02	0.25	0.29	-0.10	0.25	0.28	0.25	1.00		
REAL ASSET BASKET	0.42	0.43	0.50	0.48	0.47	0.43	0.01	0.24	0.25	0.41	0.53	0.06	0.65	0.69	0.69	0.59	1.00	
INFLATION (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	-0.08	0.05	0.03	0.05	0.44	0.26	1.00

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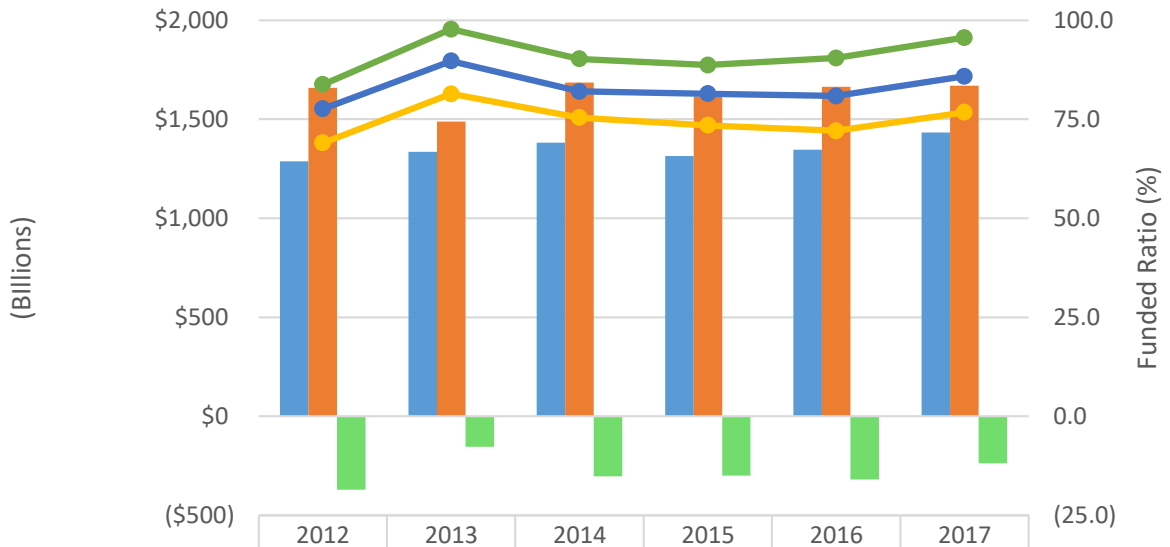
2018 CORPORATE FUNDING STUDY

- Aggregate funding ratio of S&P 500 company pensions increased in fiscal 2017, according to our latest survey of 267 companies in the S&P 500 Index that maintain defined benefit plans
- Aggregate funding ratio increased by 4.9 percentage points year-over-year from 80.9% to 85.8%



	2012	2013	2014	2015	2016	2017
Assets	1,288.0	1,335.6	1,382.2	1,313.9	1,346.1	1,433.1
Liability	1,659.2	1,489.0	1,685.0	1,613.6	1,664.4	1,669.6
Deficit	(371.2)	(153.4)	(302.8)	(299.7)	(318.3)	(236.5)
25th Percentile	69.0	81.4	75.4	73.4	72.1	76.7
Aggregate	77.6	89.7	82.0	81.4	80.9	85.8
75th Percentile	83.7	97.7	90.2	88.7	90.5	95.6

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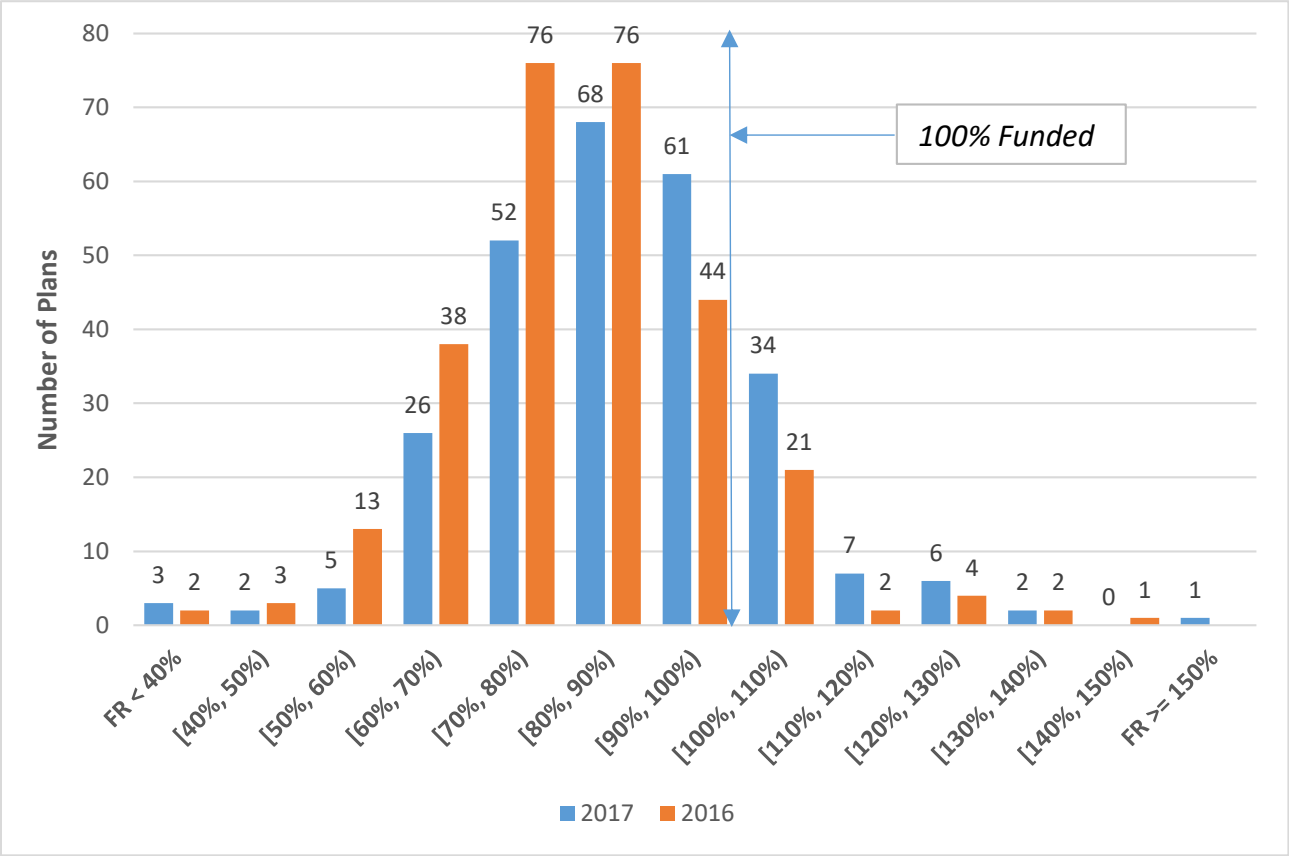
2018 CORPORATE FUNDING STUDY

- Aggregate figures can mask considerable differences among individual corporate plans
- 50 of the 267 corporations, or 17.7%, have pension assets that equal or exceed liabilities as of fiscal year-end 2017 compared to 30 (of 282 plans), or 10.6%, at year-end 2016



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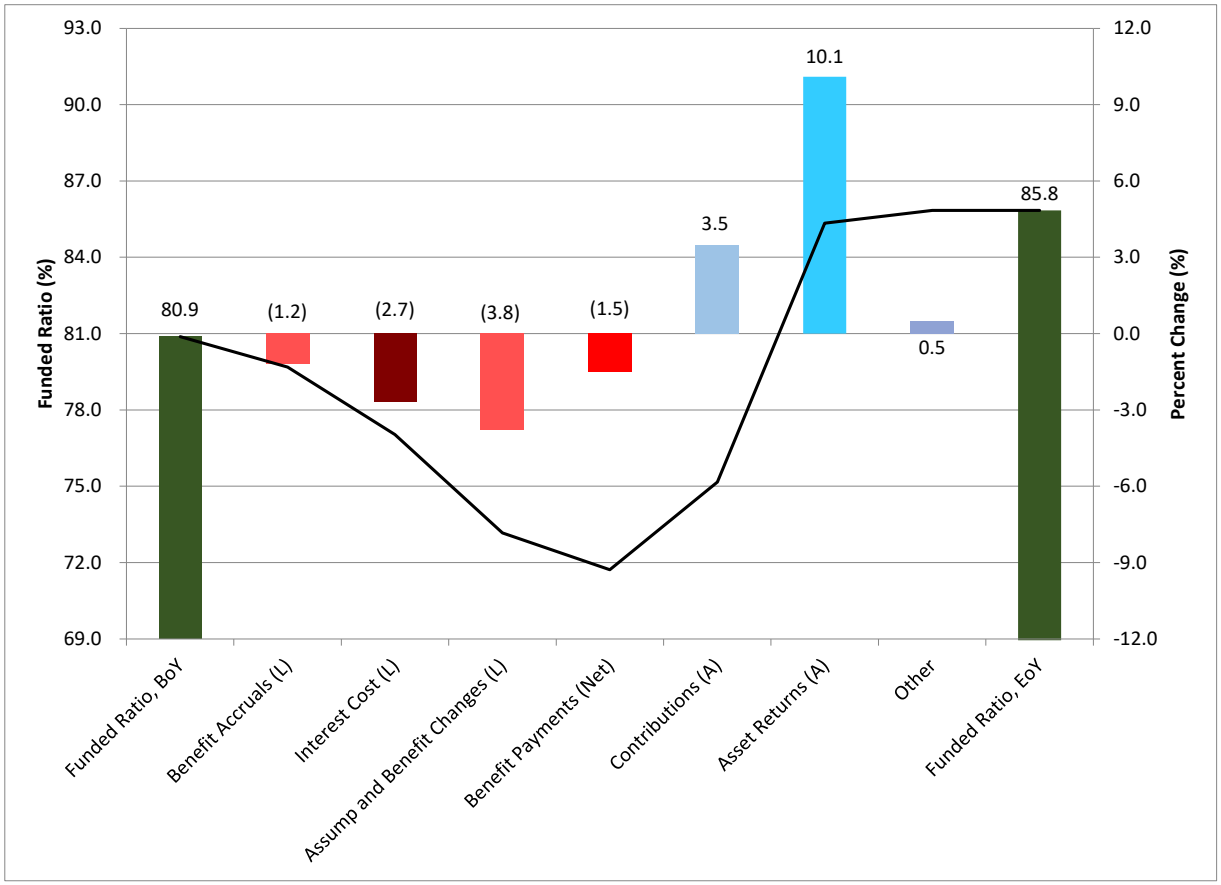
2018 CORPORATE FUNDING STUDY

- Wilshire estimates that aggregate assets increased to $1.43 trillion as of fiscal year-end 2017, an increase of nearly 6.5% from $1.35 trillion as of fiscal year-end 2016
- Following exhibit shows a breakout of the components responsible for the changes in funded ratio year-over-year



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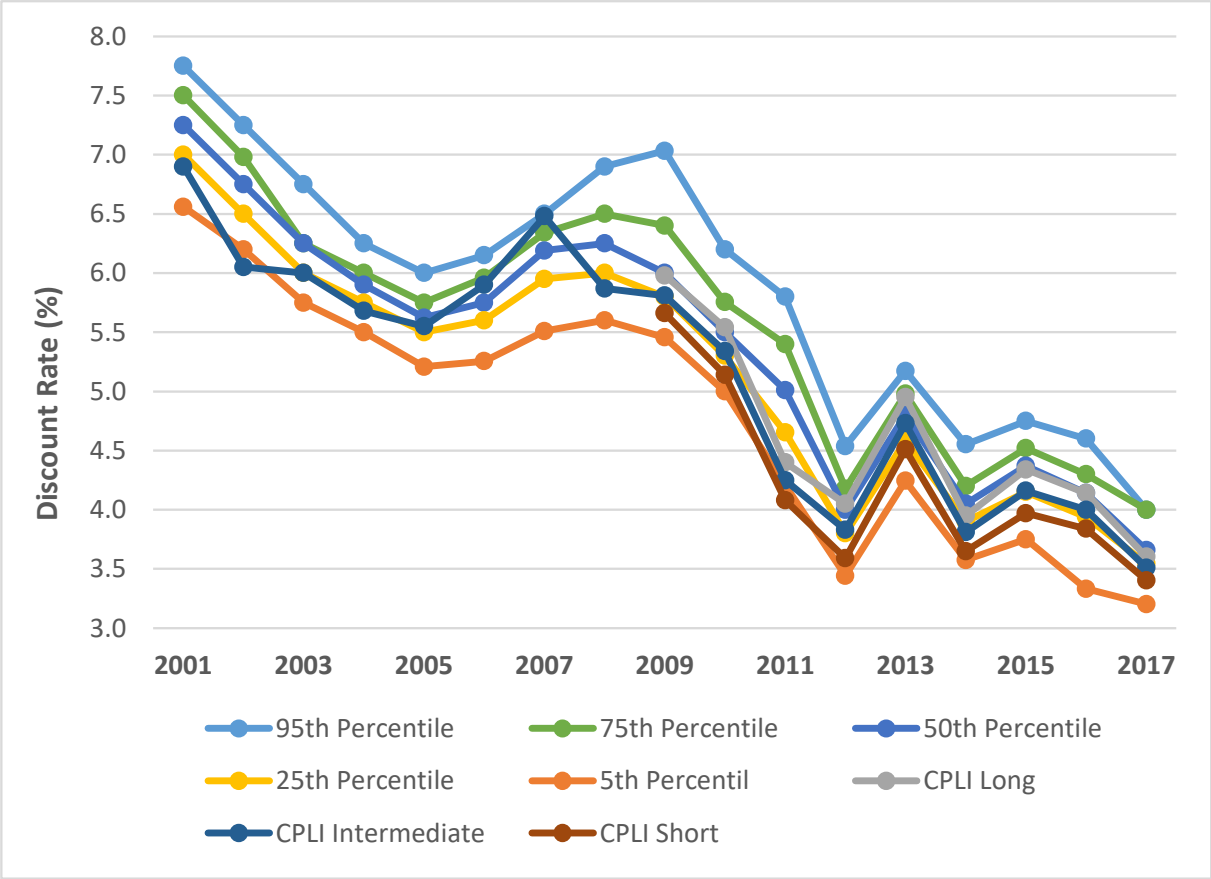
2018 CORPORATE FUNDING STUDY

- The Citigroup Pension Liability Indices (CPLI) provide reasonable estimates for corporate defined benefit pension plan effective discount rates
- As interest rates fall, companies are forced to lower their discount rates, thereby increasing the accounting value of total pension liabilities



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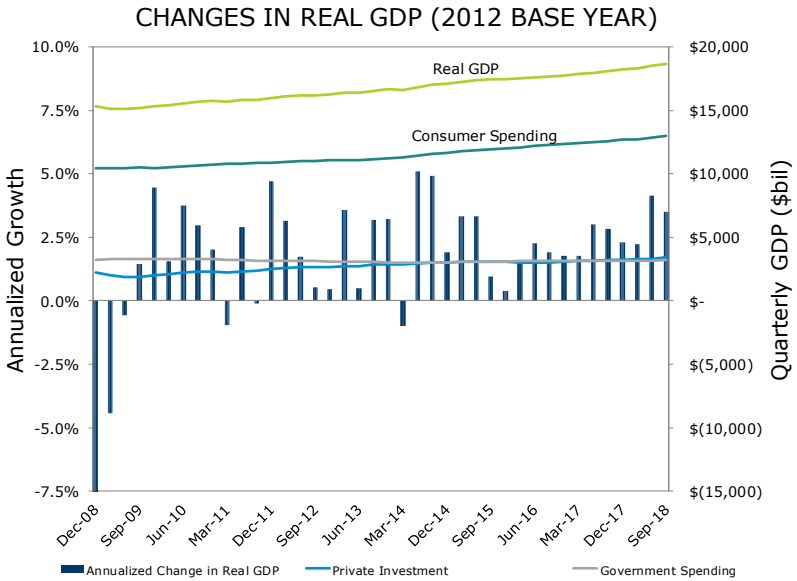
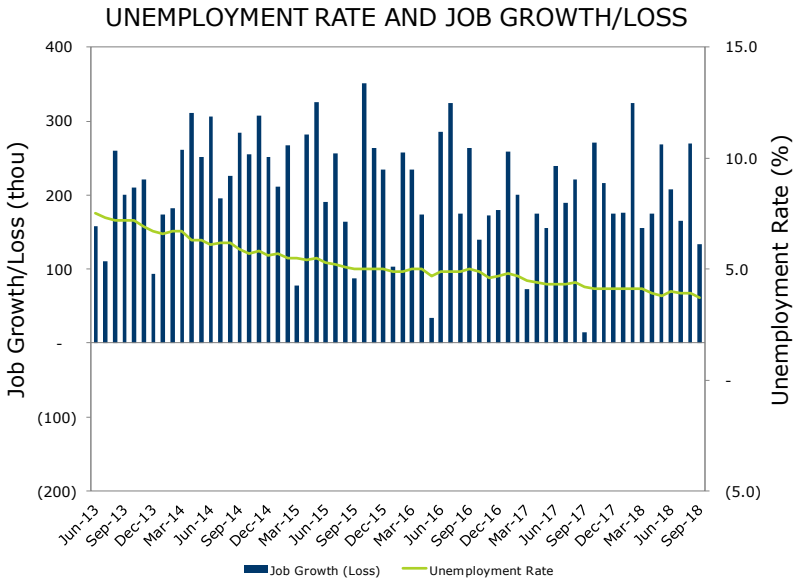
ECONOMIC REVIEW

AS OF SEPT. 30, 2018	KEY ECONOMIC INDICATORS			
CPI (ALL ITEMS)	MONTHLY CHANGE		CUMULATIVE CHANGE	
SEASONALLY ADJUSTED	Sep-18	0.1	3-Mo.	0.5
	Aug-18	0.2	12-Mo.	2.3
	Jul-18	0.2	10-Yr. (Annual)	1.4
BREAKEVEN INFLATION	10-Yr.	2.2		
CONSUMER SENTIMENT	Sep-18	100.1		
U. OF MICHIGAN SURVEY	Aug-18	96.2		
	1-Yr. Ago	95.1	10-Yr. Avg	81.5
MANUFACTURING	Sep-18	59.8	CHANGE IN SECTOR	
INST. FOR SUPPLY MGMT	Aug-18	61.3	>50	Expansion
PURCHASING MNGRS' IDX	1-Yr. Avg.	59.2	<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

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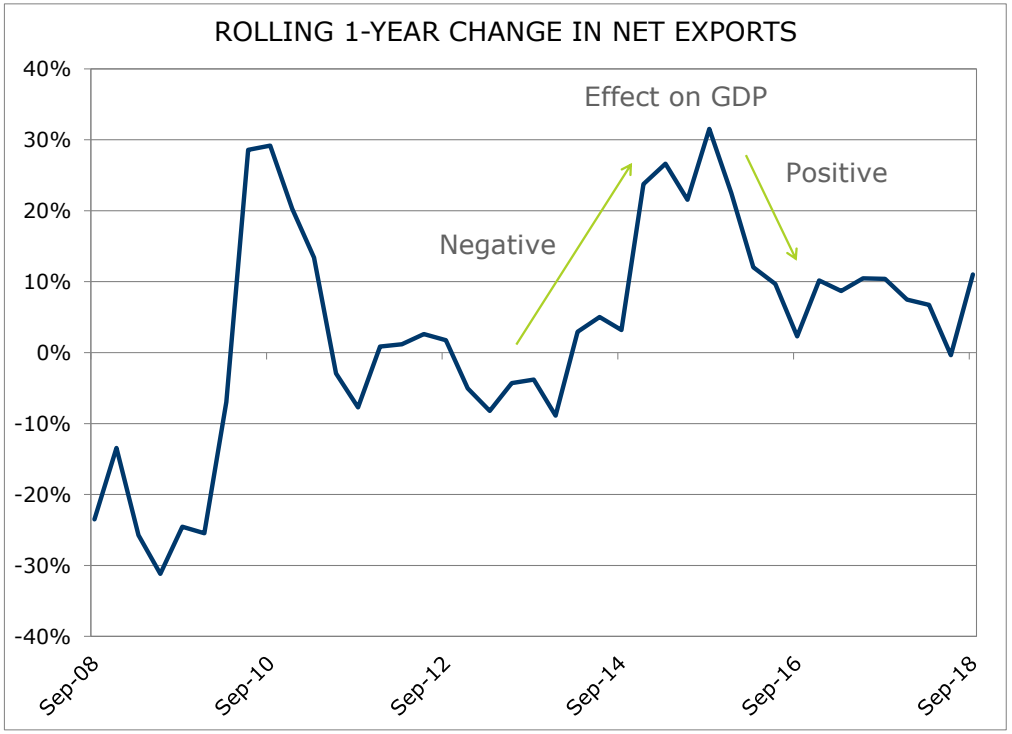
TRADE AND GROWTH

- U.S. began running a sizeable trade deficit during the late 1990s
  - An increase in net exports under those conditions is a drag on economic growth
  - Decreasing exports and/or increasing imports means less consumption of U.S. goods
- Changes in net exports contributed more than 1% to growth during Q2, but detracted 2.5% during Q3



Data sources: U.S. Bureau of Economic Analysis

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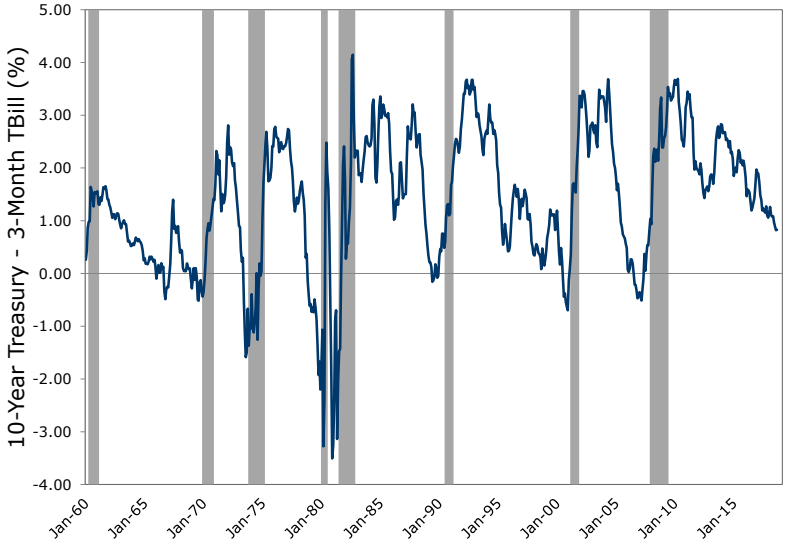
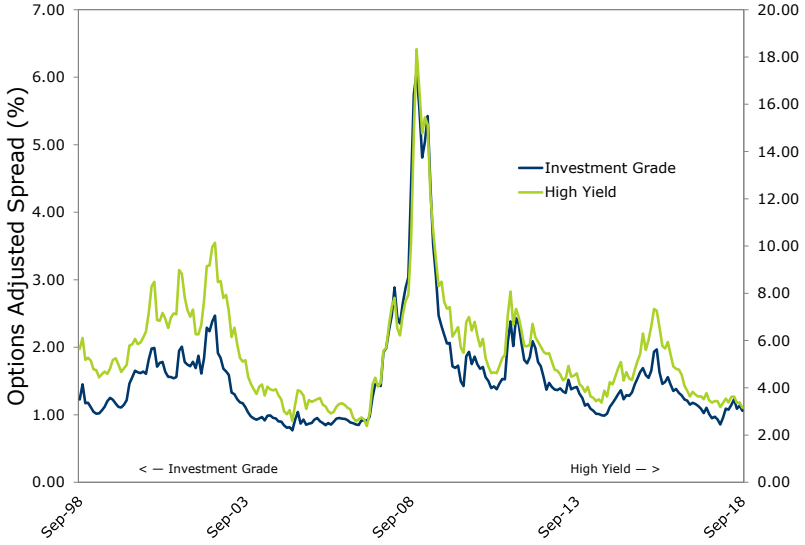
RISK MONITOR

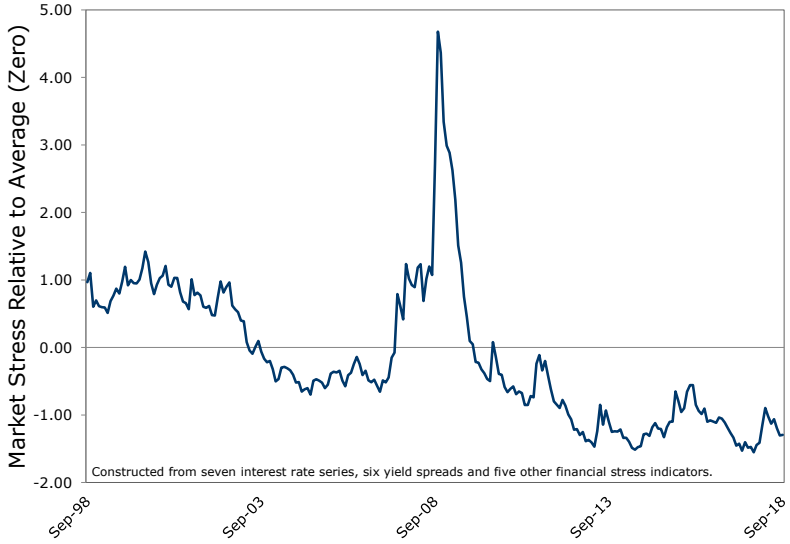
YIELD CURVE SLOPE VS RECESSIONS (IN GRAY)



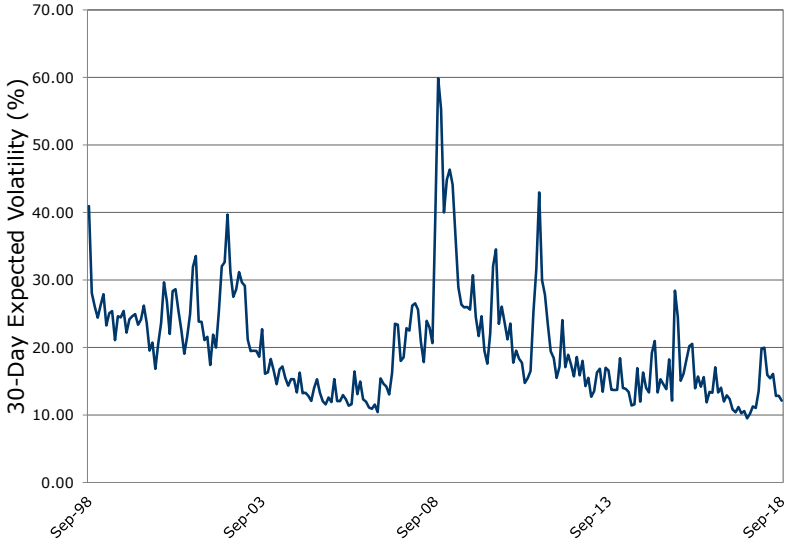
BLOOMBERG BARCLAYS CREDIT INDEXES



ST. LOUIS FED FINANCIAL STRESS INDEX



CBOE VOLATILITY INDEX



Data sources: Federal Reserve, Bloomberg Barclays

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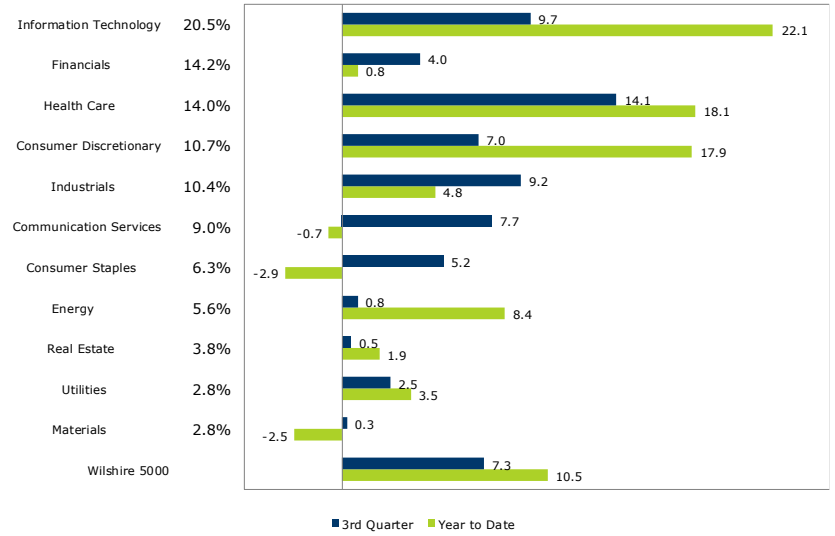
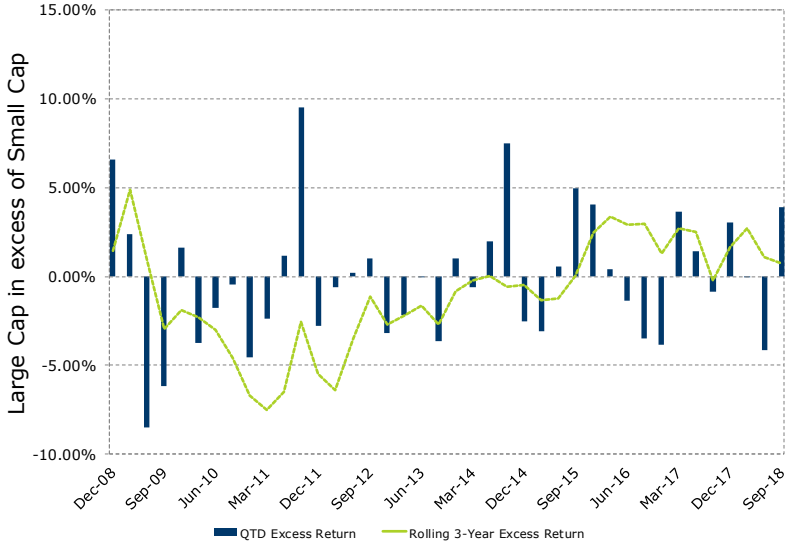
U.S. EQUITY MARKET

AS OF SEPTEMBER 30, 2018	QTR	YTD	1 YR	3 YR	5 YR	10 YR
WILSHIRE 5000 INDEX	7.3	10.5	17.6	17.3	13.6	12.0
WILSHIRE U.S. LARGE CAP	7.7	10.5	17.9	17.4	13.9	11.9
WILSHIRE U.S. SMALL CAP	3.7	11.0	14.9	16.5	11.3	12.8
WILSHIRE U.S. LARGE GROWTH	9.2	15.9	24.4	19.6	16.2	13.7
WILSHIRE U.S. LARGE VALUE	6.3	5.4	11.8	15.0	11.7	10.2
WILSHIRE U.S. SMALL GROWTH	5.3	13.7	18.4	17.4	11.3	13.5
WILSHIRE U.S. SMALL VALUE	2.0	8.2	11.4	15.4	11.2	12.0
WILSHIRE REIT INDEX	0.7	2.3	4.0	7.1	9.2	7.4
MSCI USA MIN. VOL. INDEX	7.7	9.2	14.9	14.7	13.1	11.1
FTSE RAFI U.S. 1000 INDEX	6.1	6.5	13.4	15.5	12.1	12.6

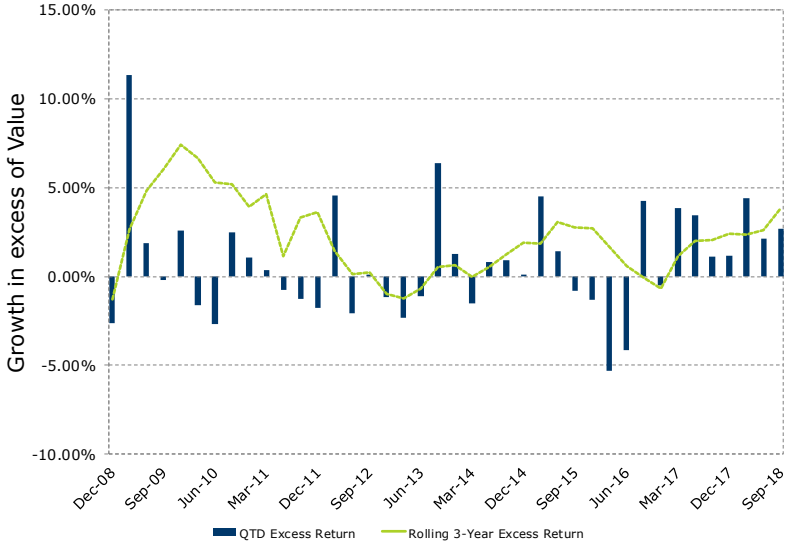
WILSHIRE 5000 SECTOR WEIGHT & RETURN (%)



LARGE CAP VS SMALL CAP



GROWTH VS VALUE



Data sources: Wilshire Compass, Wilshire Atlas

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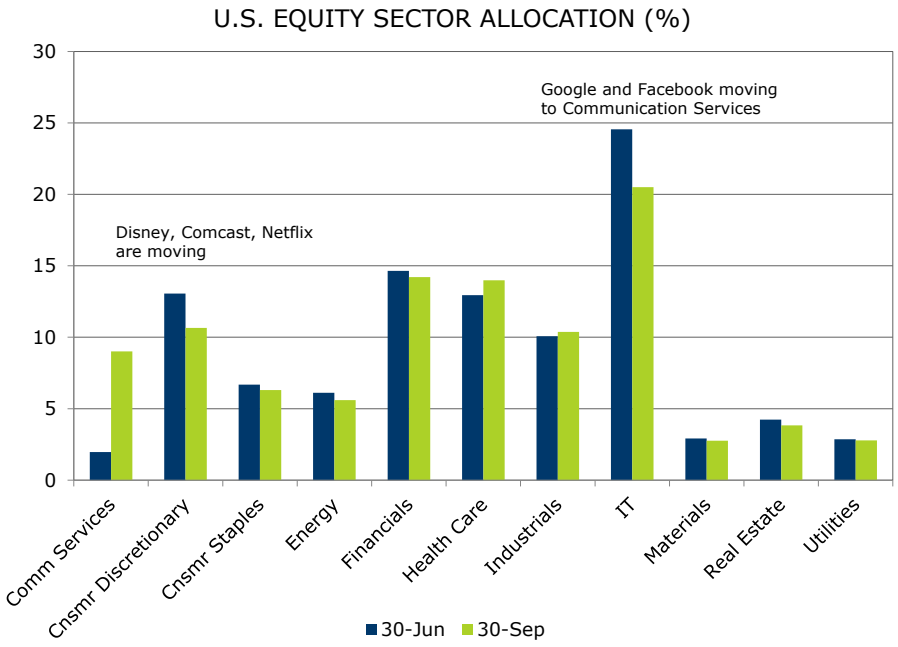
SECTOR ACTIVITY

Communications Services replaces Telecoms, better reflects media and content distribution



Apple and Amazon became the first $Trillion Public Companies

LARGEST U.S. CORPORATIONS AS % OF MARKET VALUE		
Sep-18	Apple Inc	3.9
	Amazon Com Inc	3.1
		6.9
Sep-08	Exxon Mobil Corp	3.2
	General Elec Co	2.0
		5.2
Sep-98	Microsoft Corp	2.6
	General Elec Co	2.5
		5.1
Sep-88	IBM	2.6
	Exxon Mobil Corp	2.3
		4.9
Sep-78	IBM	4.2
	AT&T Corp	4.1
		8.3

Growth stocks have been driving the market for the past 2 years, particularly Technology

WILSHIRE 5000 INDEX AS OF SEPTEMBER 30, 2018	
2-Year Total Return	18%
Cyclical Stocks	14%
IT	6%
Financials	3%
Defensive Stocks	3%
Health Care	2%

Data sources: Wilshire Atlas

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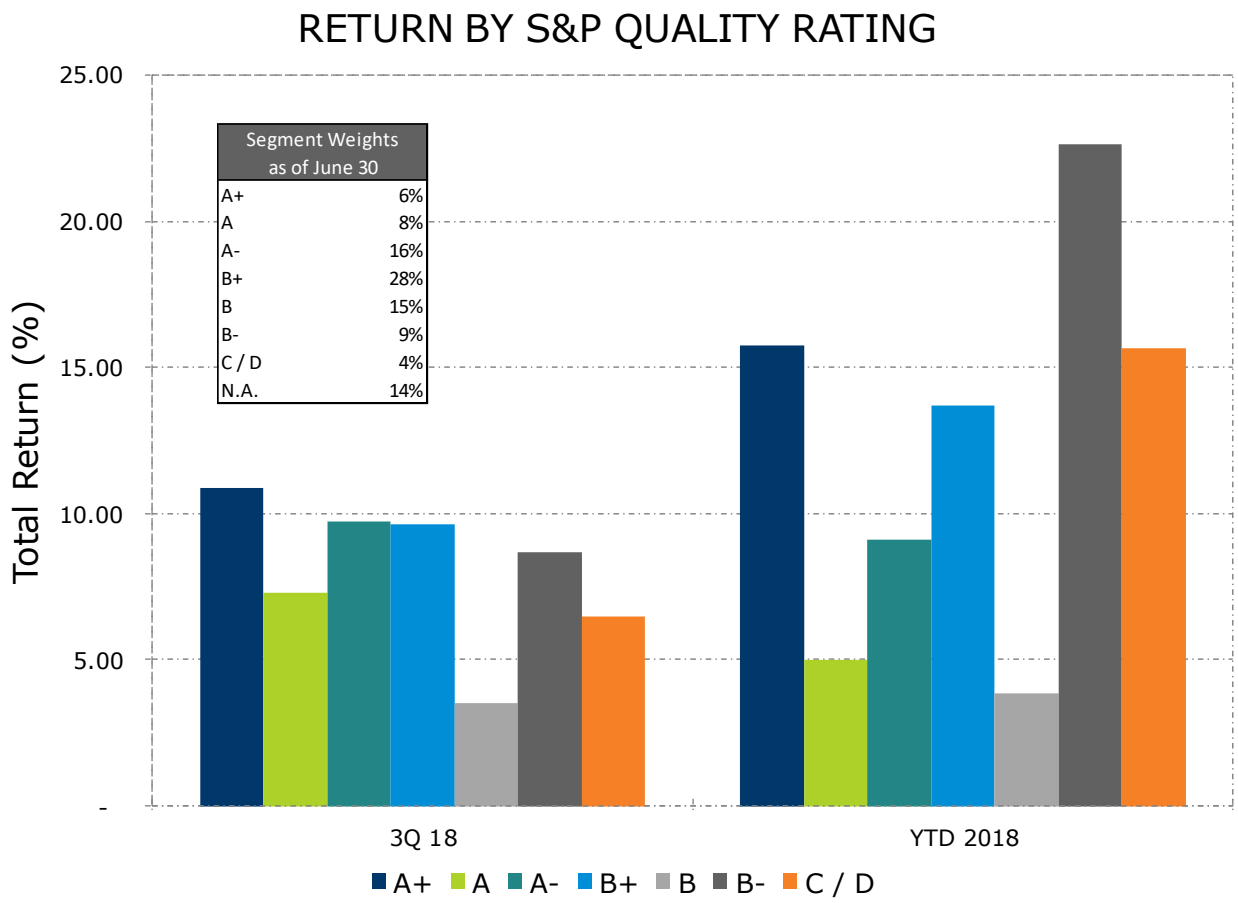
RETURNS BY QUALITY SEGMENT

Returns by quality are mixed during 2018 with both the highest and lowest ranked names leading the market



Data sources: Wilshire Atlas

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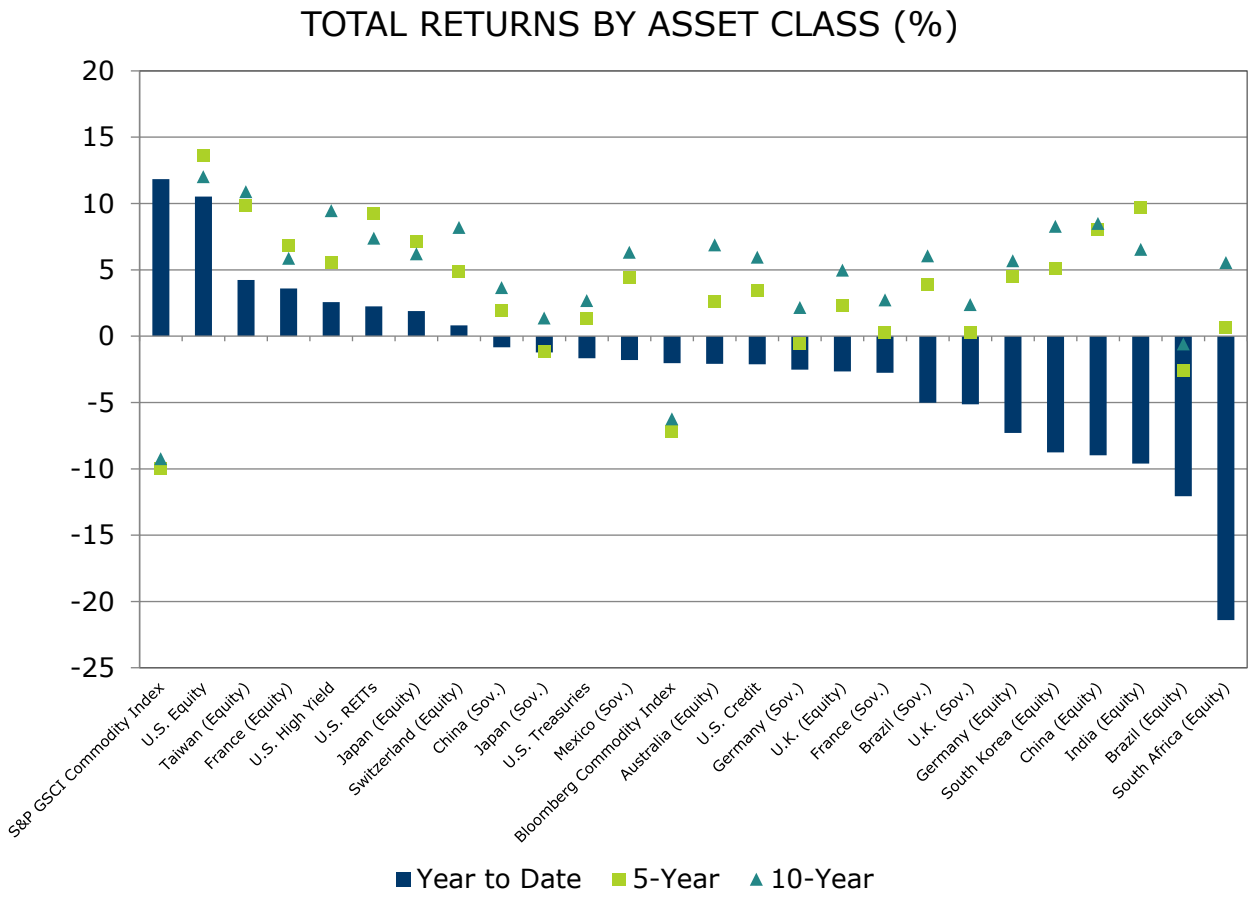
MARKET BREADTH

- Several asset classes produced strong returns during the past decade
- This year, many are either negative or well behind the recent history



Data sources: Wilshire Compass, Bloomberg Barclays

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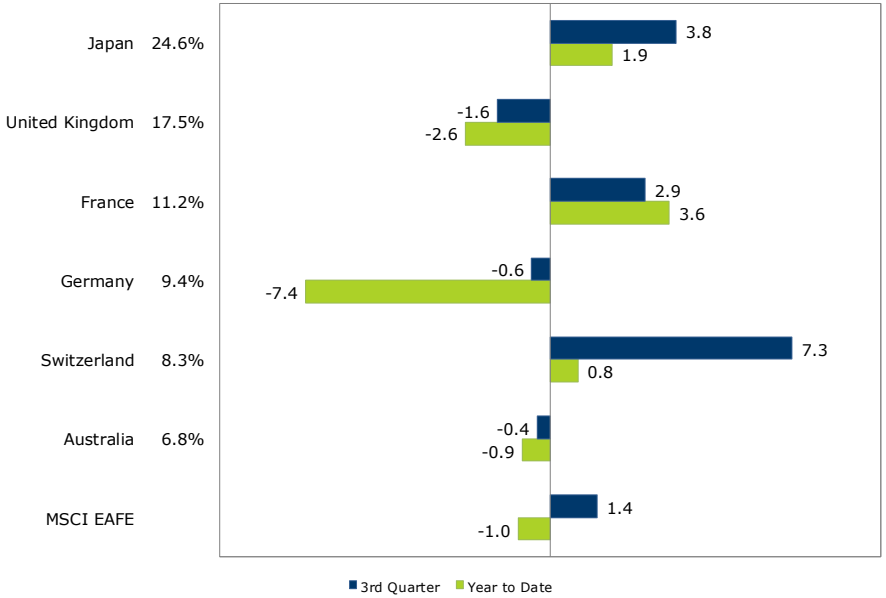
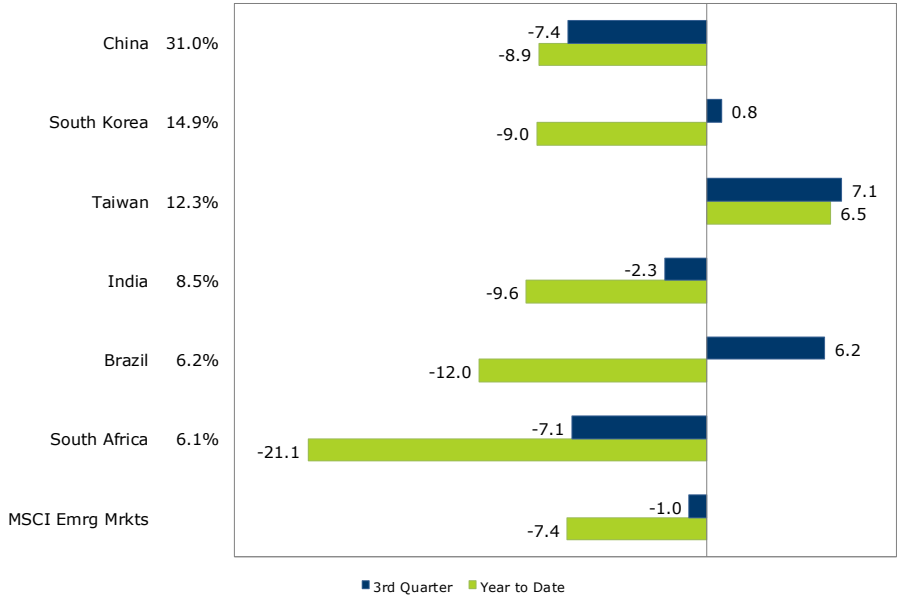
NON-U.S. EQUITY MARKET

AS OF SEPTEMBER 30, 2018	QTR	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI EX-US ($G)	0.8	-2.7	2.3	10.5	4.6	5.7
MSCI EAFE ($G)	1.4	-1.0	3.2	9.8	4.9	5.9
MSCI EMERGING MARKETS ($G)	-1.0	-7.4	-0.4	12.8	4.0	5.8
MSCI FRONTIER MARKETS ($G)	-1.9	-12.4	-7.5	5.7	3.3	0.5
MSCI ACWI EX-US GROWTH ($G)	-0.2	-2.2	3.5	11.0	5.7	6.2
MSCI ACWI EX-US VALUE ($G)	1.9	-3.1	1.0	9.9	3.5	5.1
MSCI ACWI EX-US SMALL ($G)	-1.4	-4.1	2.2	11.8	6.6	9.2
MSCI ACWI MINIMUM VOLATILITY	5.9	5.9	11.1	12.7	10.2	9.6
MSCI EAFE MINIMUM VOLATILITY	2.3	2.3	5.9	9.3	7.5	7.8
FTSE RAFI DEVELOPED EX-US	1.6	-2.0	2.6	11.0	5.0	6.2
MSCI EAFE LC (G)	2.4	1.8	5.6	9.9	8.4	7.2

MSCI EAFE: LARGEST COUNTRIES & RETURN (USD)



MSCI EM: LARGEST COUNTRIES & RETURN (USD)



Data sources: Wilshire Compass

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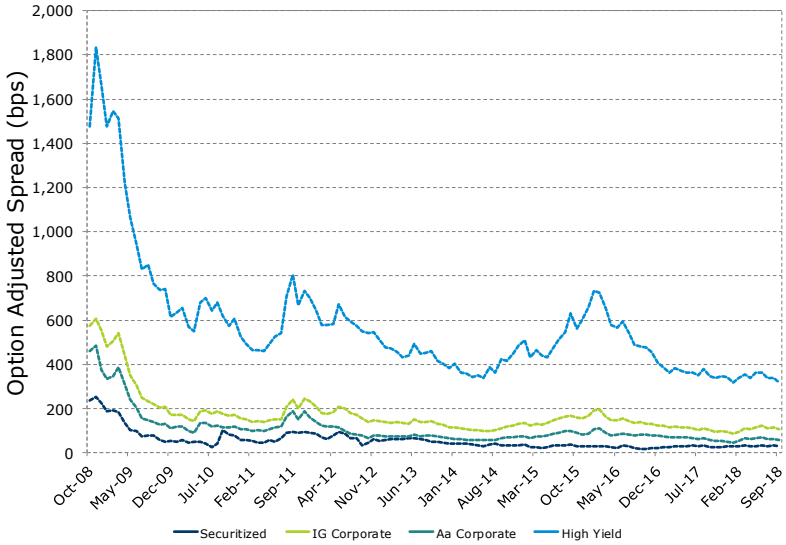
U.S. FIXED INCOME

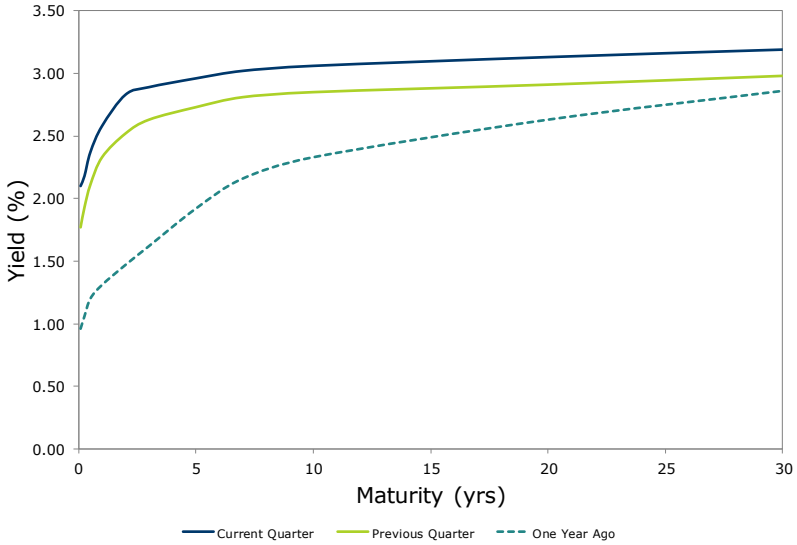
AS OF SEPTEMBER 30, 2018	YTM	DURATION	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS AGGREGATE	3.5	6.0	0.0	-1.6	-1.2	1.3	2.2	3.8
BLOOMBERG BARCLAYS TREASURY	2.9	6.0	-0.6	-1.7	-1.6	0.2	1.3	2.7
BLOOMBERG BARCLAYS GOV'T-REL.	3.5	5.3	0.4	-0.9	-0.6	1.8	2.3	3.3
BLOOMBERG BARCLAYS SECURITIZED	3.6	5.2	-0.1	-1.0	-0.9	1.0	2.0	3.5
BLOOMBERG BARCLAYS CORPORATE	4.1	7.2	1.0	-2.3	-1.2	3.1	3.5	6.4
BLOOMBERG BARCLAYS LT G/C	4.1	14.8	-0.5	-5.4	-2.7	3.4	5.2	7.1
BLOOMBERG BARCLAYS LT TREASURY	3.2	17.0	-2.9	-5.8	-3.6	0.7	4.4	5.4
BLOOMBERG BARCLAYS LT GOV't-REL.	4.5	12.0	0.6	-3.2	-1.2	4.8	5.6	6.7
BLOOMBERG BARCLAYS LT CORP.	4.7	13.6	1.3	-5.5	-2.4	5.2	5.7	8.7
BLOOMBERG BARCLAYS U.S. TIPS *	3.0	7.6	-0.8	-0.8	0.4	2.0	1.4	3.3
BLOOMBERG BARCLAYS HIGH YIELD	6.5	3.8	2.4	2.6	3.0	8.1	5.5	9.5
TREASURY BILLS	2.2	0.25	0.5	1.3	1.6	0.8	0.5	0.3

* 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

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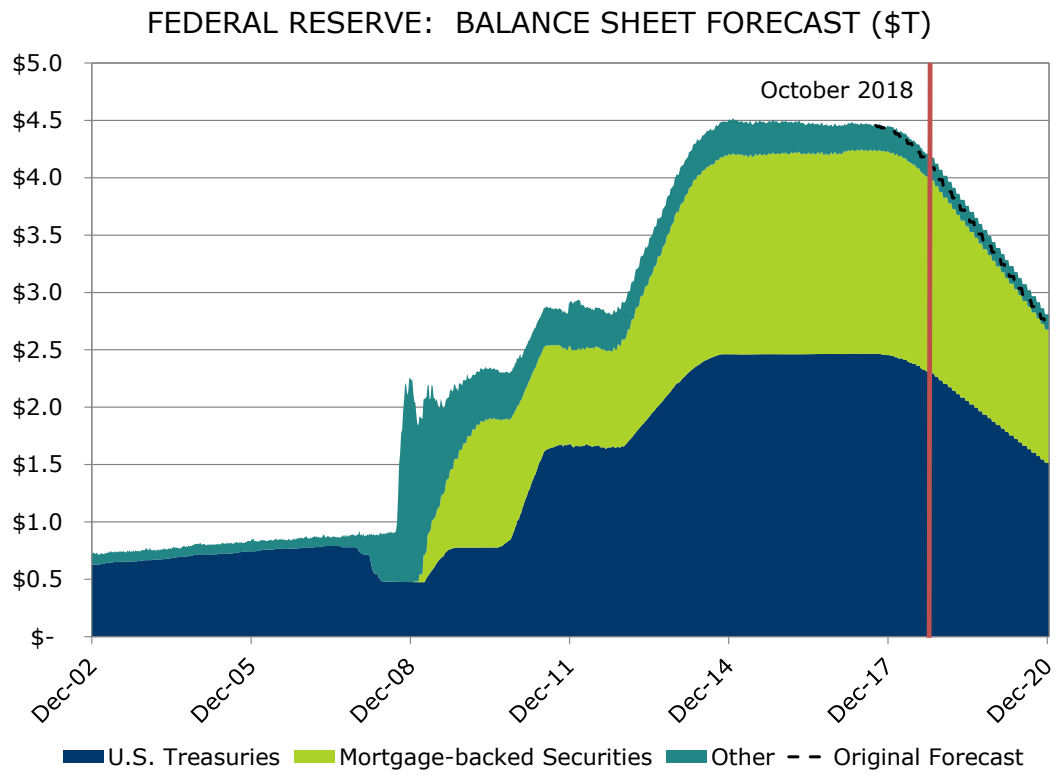
FEDERAL RESERVE

- Federal Reserve began their balance sheet normalization program during October 2017; targeting $10B in reductions per month while increasing to $50B per month in Q4 2018

- Generally on pace with their initial plan, the Federal Reserve has reduced their total assets by $280 billion through September 2018



Data sources: Federal Reserve

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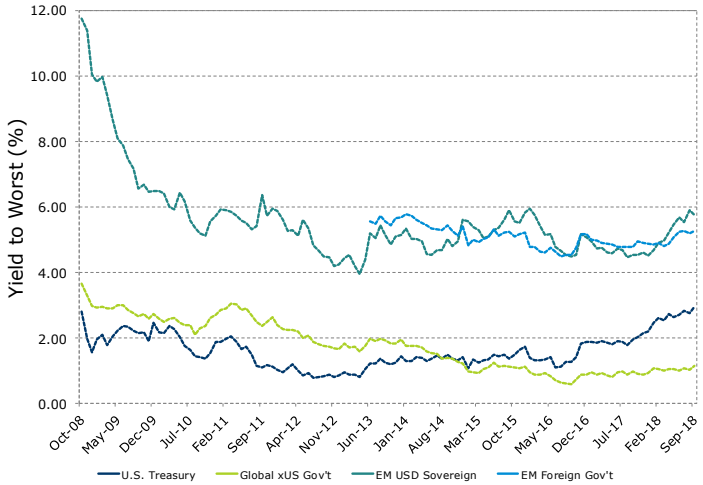
NON-U.S. FIXED INCOME

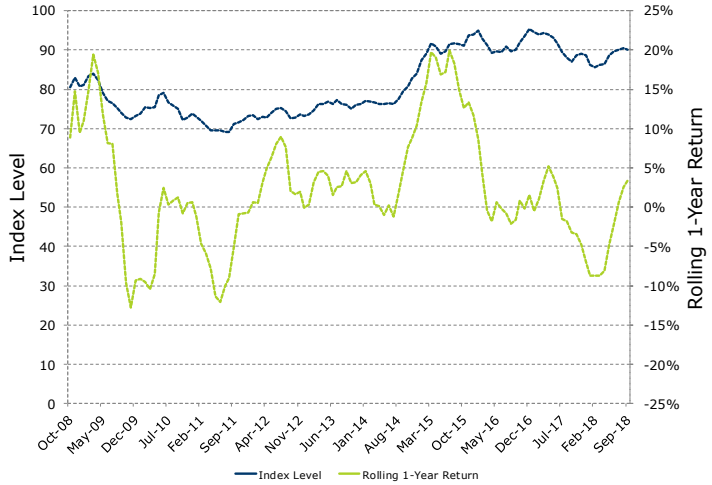
AS OF SEPTEMBER 30, 2018	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DEVELOPED MARKETS						
BLMBRG BRCLYS GLBL AGGREGATE xUS	-1.7	-3.0	-1.4	2.4	-0.3	2.2
BLMBRG BRCLYS GLBL AGGREGATE xUS *	-0.2	1.3	2.4	3.1	3.8	4.2
BLMBRG BRCLYS GLOBAL INF LNKD xUS	-2.2	-4.9	-1.2	2.2	1.4	3.1
BLMBRG BRCLYS GLOBAL INF LNKD xUS *	-0.8	0.0	3.3	5.3	5.9	5.6
EMERGING MARKETS (HARD CURRENCY)						
BLMBRG BRCLYS EM USD AGGREGATE	1.6	-2.3	-1.7	5.4	4.5	7.4
EMERGING MARKETS (FOREIGN CURRENCY)						
BLMBRG BRCLYS EM LOCAL CURR. GOV'T	-0.3	-5.8	-3.7	4.8	0.0	3.3
BLMBRG BRCLYS EM LOCAL CURR. GOV'T *	0.5	0.2	0.2	2.5	2.3	3.5
EURO vs. DOLLAR	-0.5	-3.3	-1.8	1.3	-3.0	-1.9
YEN vs. DOLLAR	-2.5	-0.8	-0.9	1.8	-2.9	-0.7
POUND vs. DOLLAR	-1.2	-3.6	-2.8	-4.9	-4.2	-3.1

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

BLOOMBERG BARCLAYS FIXED INCOME INDEXES



U.S. DOLLAR INDEX: MAJOR CURRENCIES



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

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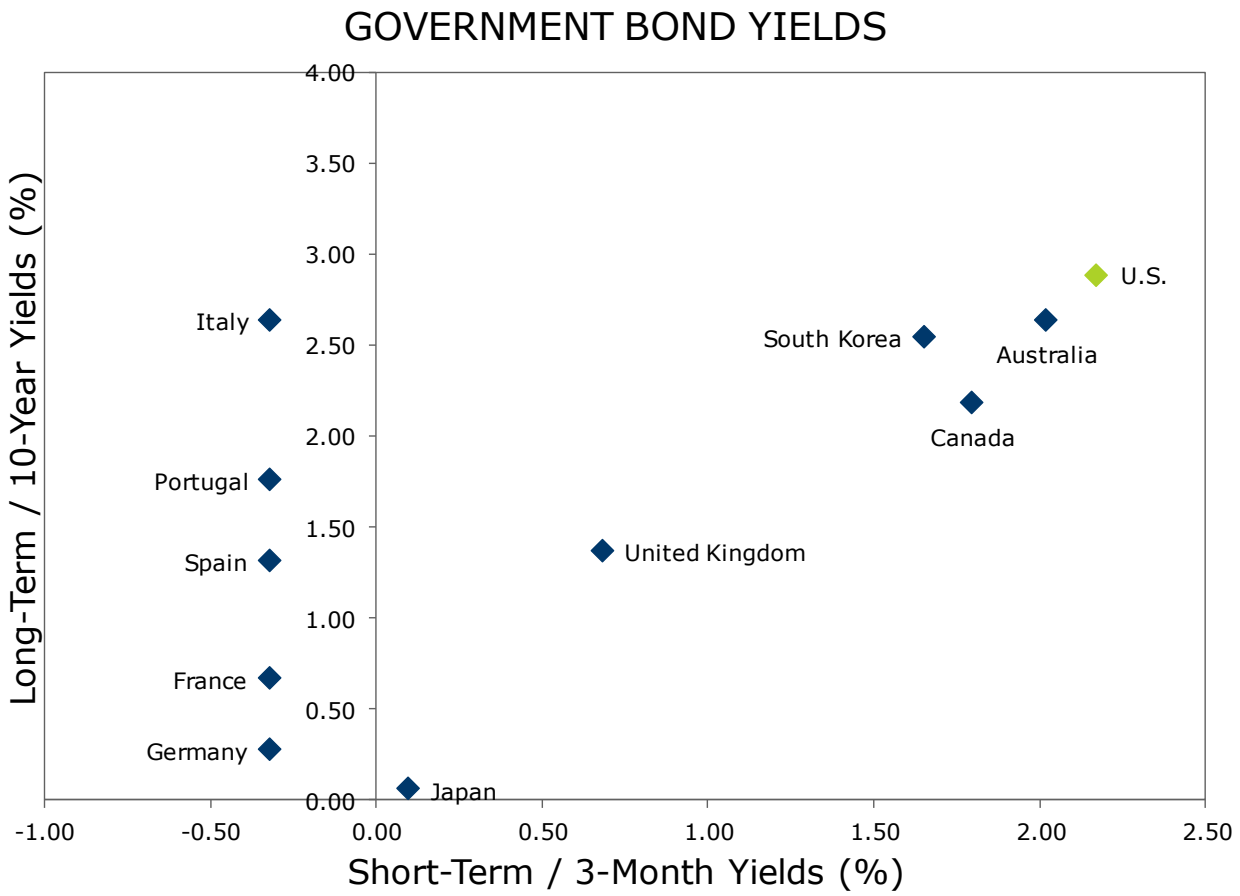
GLOBAL INTEREST RATES

Negative short-term rates remain in Europe; Long rates jumped in Italy during the quarter



Data sources: Organization for Economic Co-operation and Development

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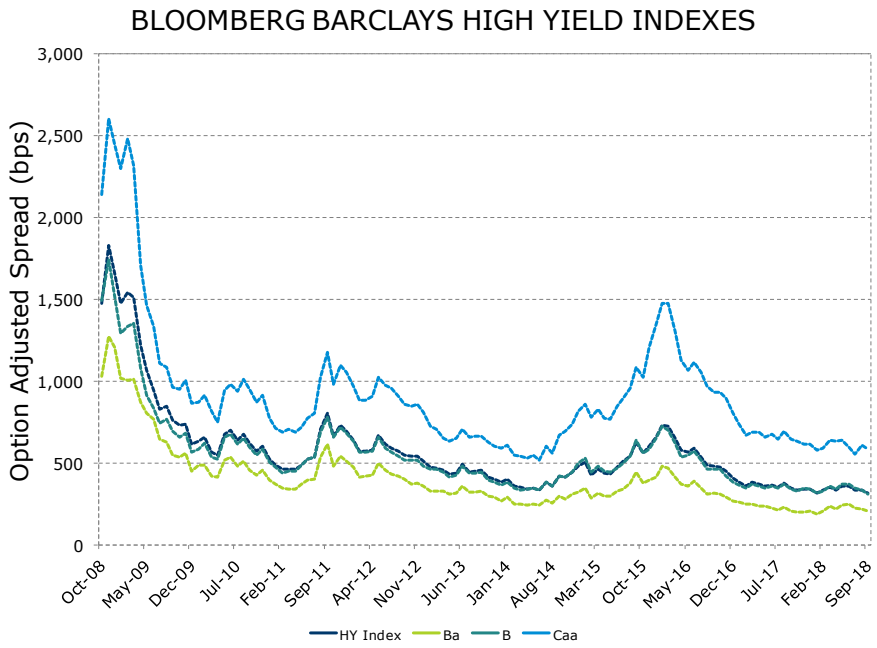
HIGH YIELD BOND MARKET

AS OF SEPTEMBER 30, 2018		QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS HIGH YIELD		2.4	2.6	3.0	8.1	5.5	9.5
CREDIT SUISSE LEVERAGED LOAN		1.9	4.3	5.6	5.4	4.4	5.8
HIGH YIELD QUALITY DISTRIBUTION	WEIGHT						
Ba U.S. HIGH YIELD	42.8%	2.3	0.5	0.9	6.7	5.5	9.0
B U.S. HIGH YIELD	41.9%	2.3	3.2	3.5	7.6	5.0	8.1
Caa U.S. HIGH YIELD	14.3%	2.7	6.0	7.1	12.5	6.9	10.2
Ca to D U.S. HIGH YIELD	0.8%	7.0	30.1	31.1	28.3	-4.4	9.4
Non-Rated U.S. HIGH YIELD	0.2%	1.5	2.9	0.9	1.8	0.6	3.2



Data sources: Wilshire Compass, Bloomberg Barclays

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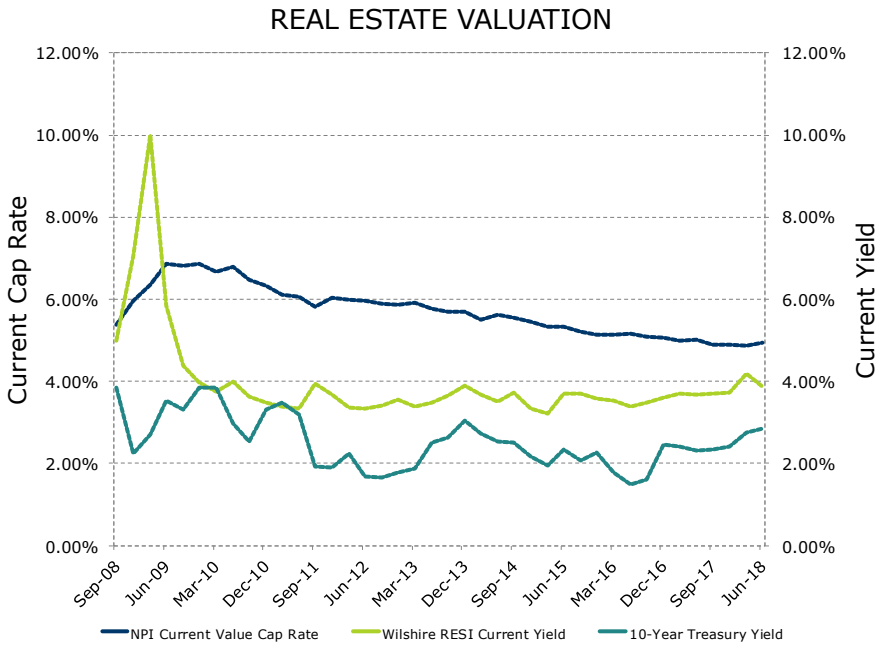
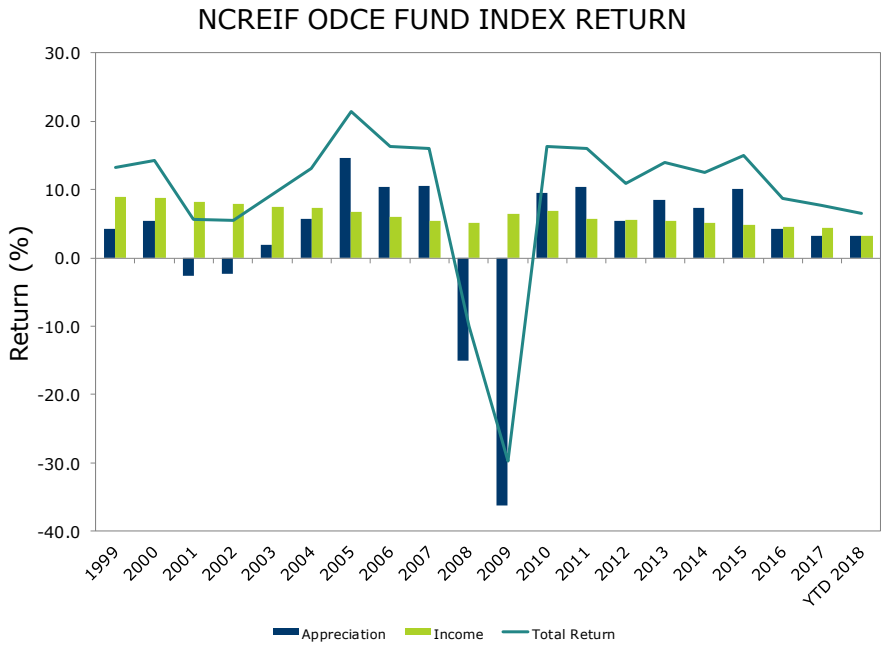
REAL ASSETS

AS OF SEPTEMBER 30, 2018	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS U.S. TIPS	-0.8	-0.8	0.4	2.0	1.4	3.3
BLOOMBERG COMMODITY INDEX	-2.0	-2.0	2.6	-0.1	-7.2	-6.2
WILSHIRE GLOBAL RESI INDEX	0.3	0.8	4.0	7.2	7.3	7.6
NCREIF ODCE FUND INDEX	2.1	6.5	8.7	8.8	10.7	5.6
NCREIF TIMBERLAND INDEX	1.0	2.4	4.0	3.5	6.0	4.0
ALERIAN MLP INDEX (OIL & GAS)	6.6	5.9	4.9	4.4	-2.7	9.2





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

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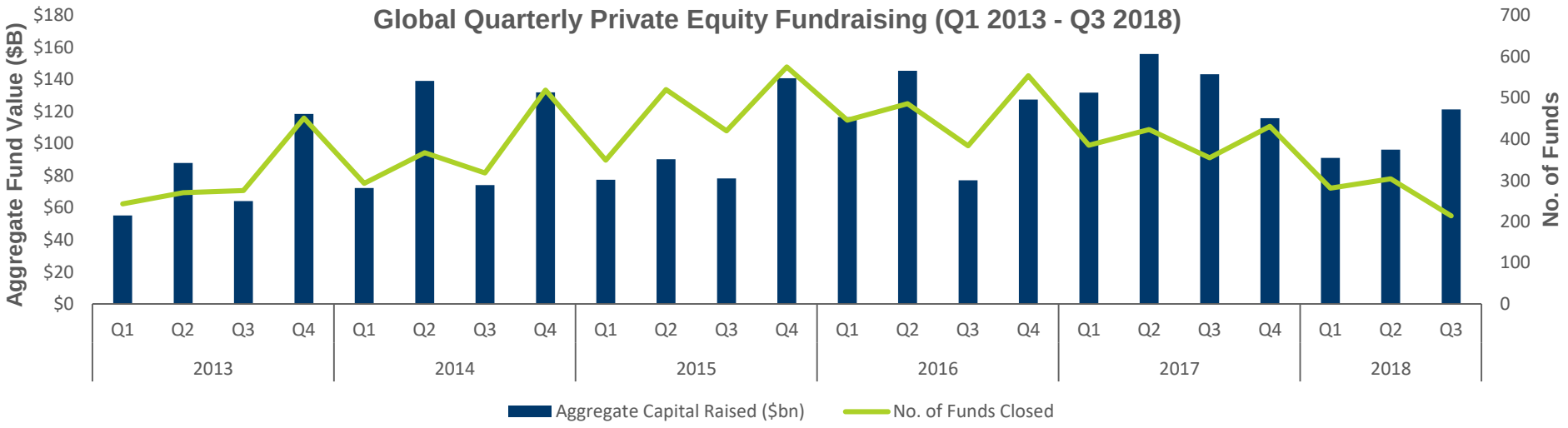
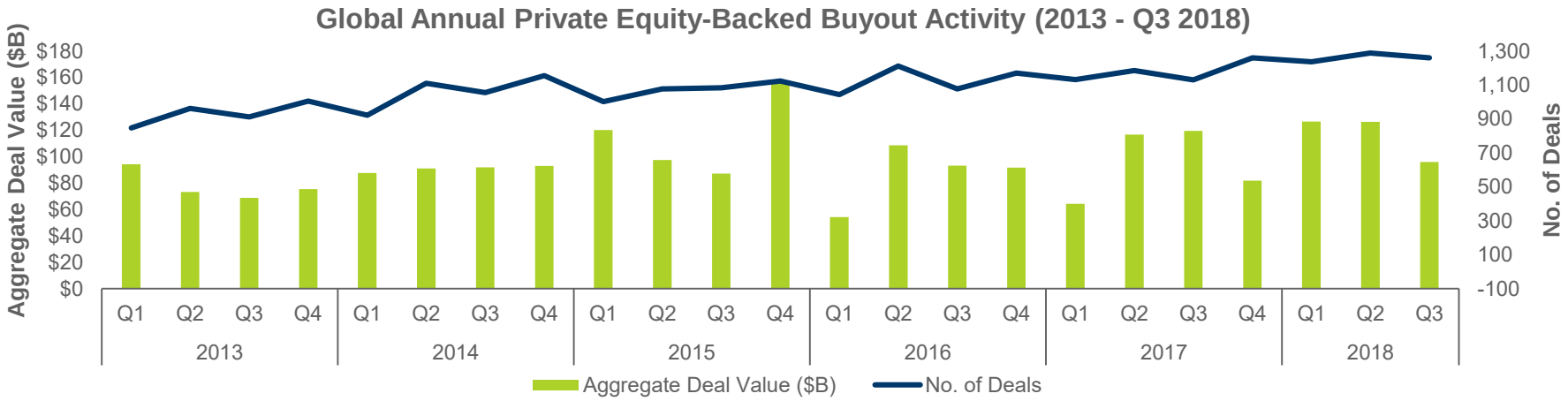
APPENDIX: PRIVATE MARKETS UPDATE

PRIVATE EQUITY – FUNDRAISING & INVESTMENT ACTIVITY





Source: Preqin, as of September 30, 2018.

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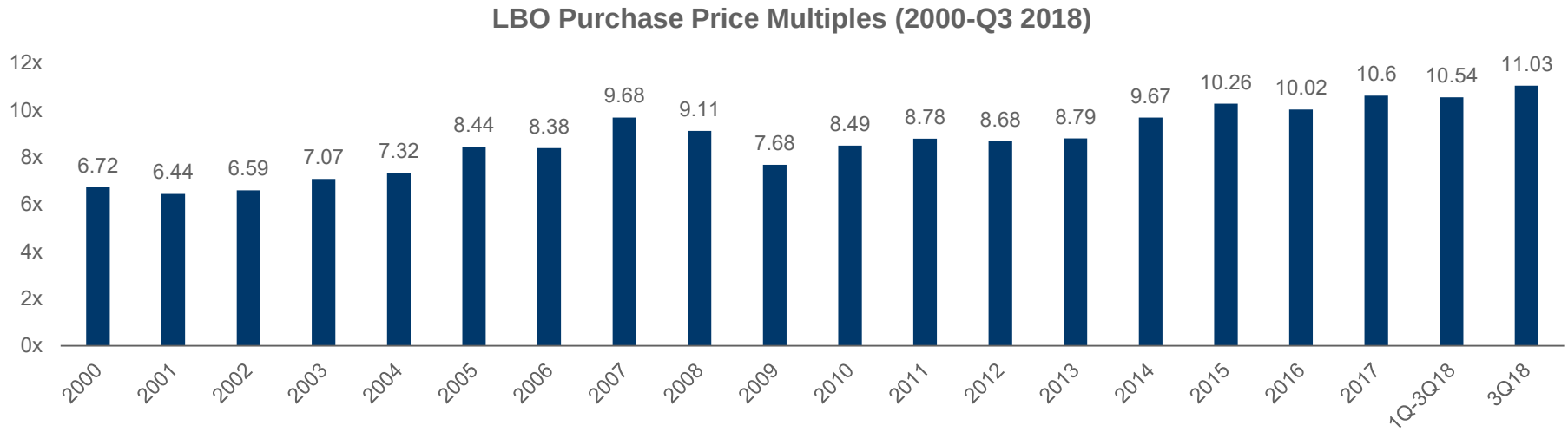
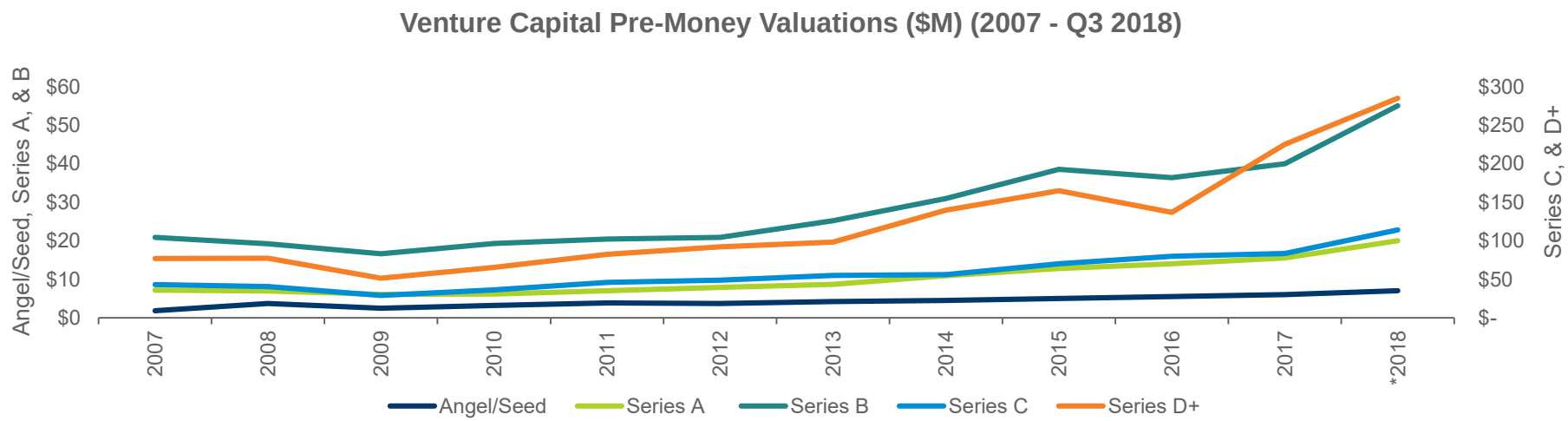
PRIVATE EQUITY – PRICING & VALUATIONS





Source: S&P LBO; Pitchbook, *as of September 30, 2018.

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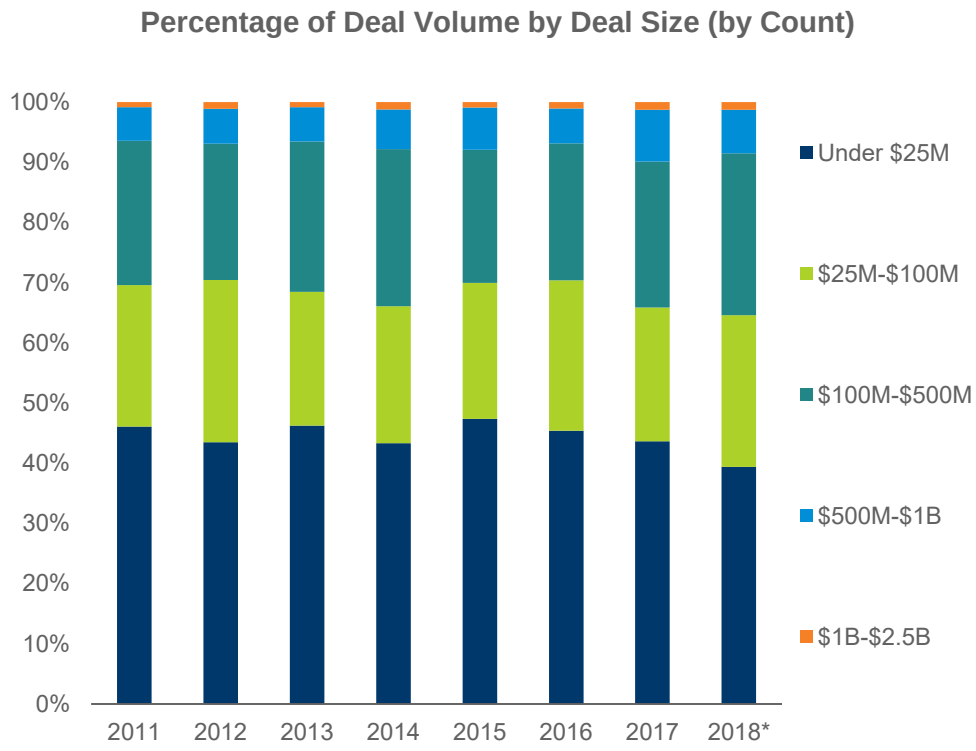
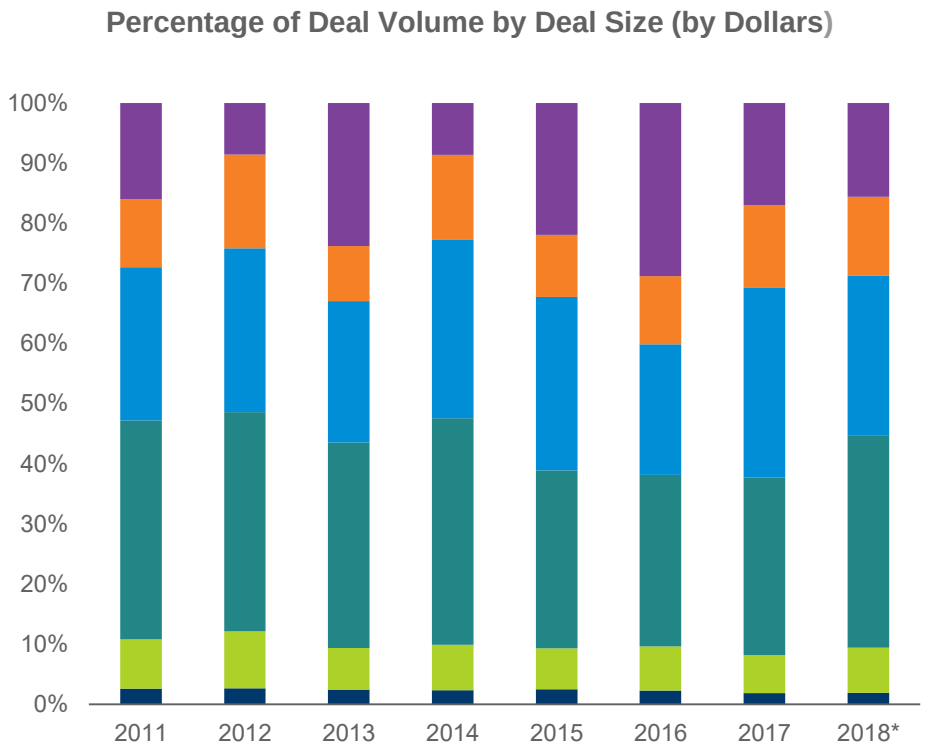
U.S. INVESTMENT ACTIVITY BY DEAL SIZE





- Deal volume continues to be dominated by lower middle market deals with investment sizes below $100 million through the third quarter of 2018
- However, deals with below $100 million check sizes comprised only 9% of all deal volume by amount of capital invested in the third quarter of 2018

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

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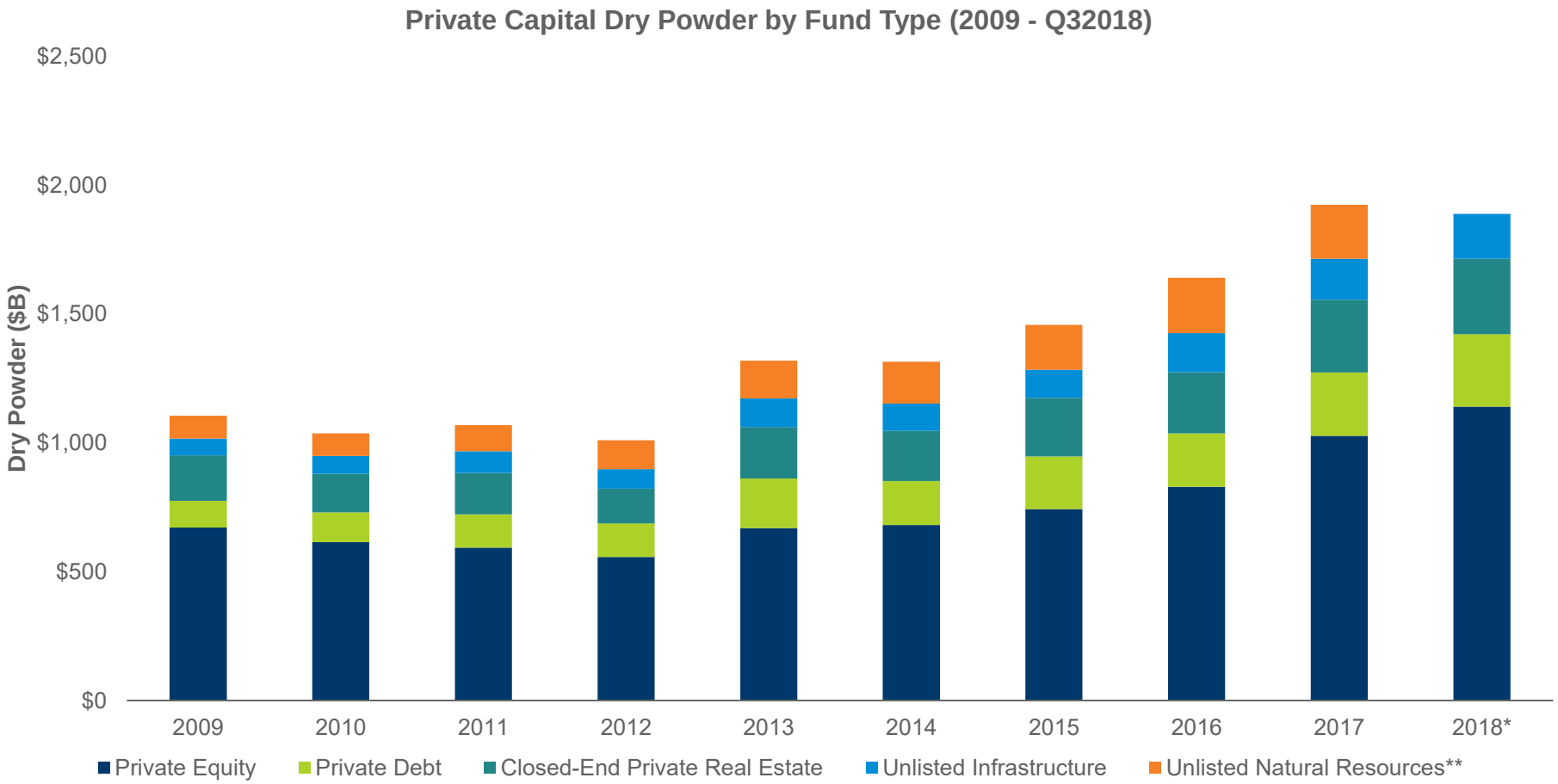
PRIVATE CAPITAL DRY POWDER



- Global private capital dry powder continues to increase, topping $1.8 trillion across all fund types
- Private equity comprises over 60% of total dry powder in the market as of Q3 2018

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

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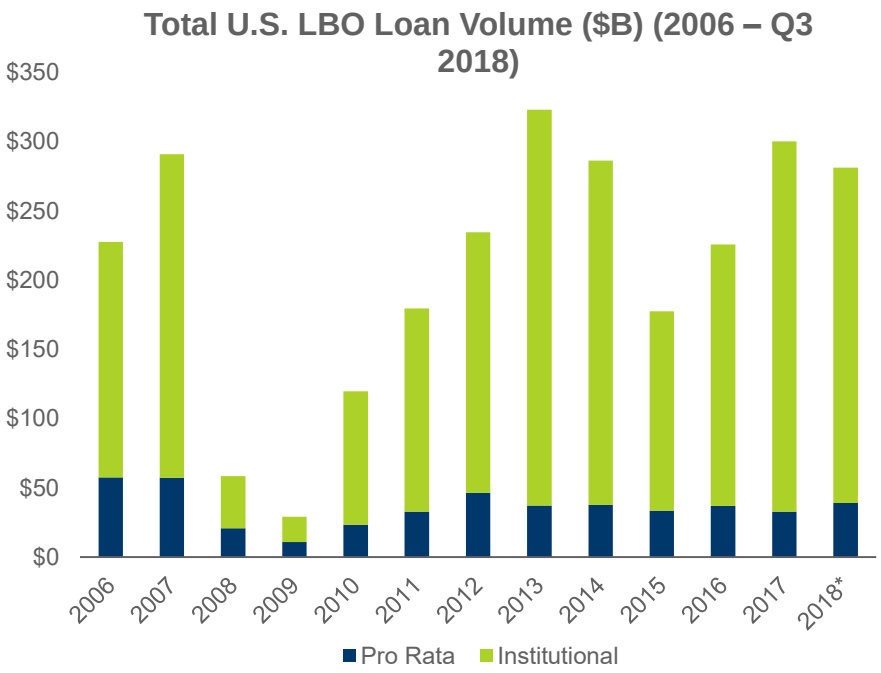
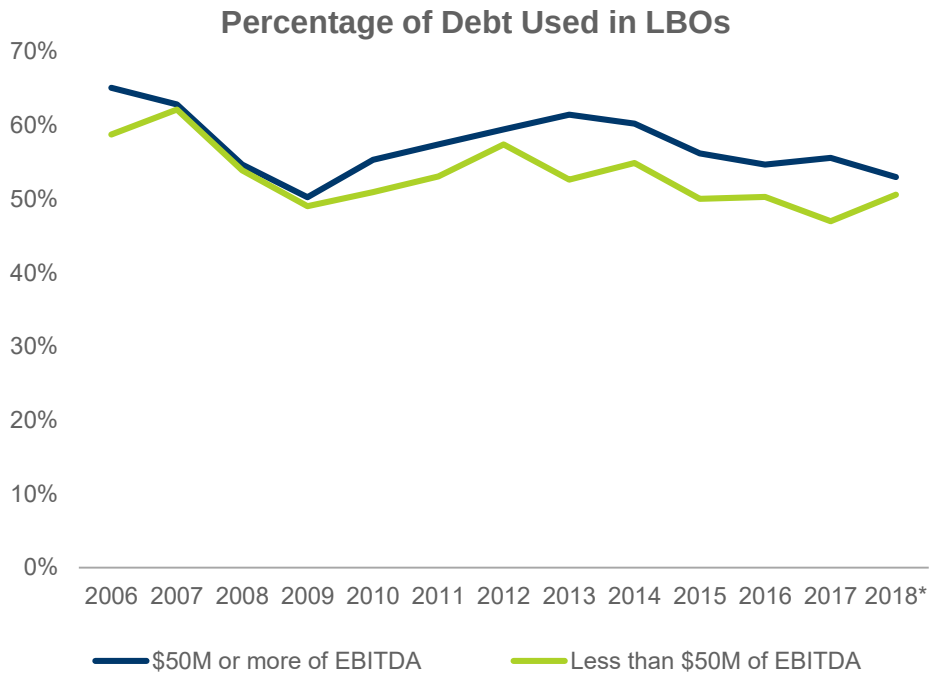
PRIVATE EQUITY - U.S. DEBT MARKETS





- Loan volume in 2017 increased by approximately $27 billion from the prior year and is on pace to once again increase year-over-year through the third quarter of 2018
- Availability of debt capital has slightly driven up the percentage of debt used to finance leveraged buyouts of less than $50 million of EBITDA through the third quarter of 2018

Source: S&P LBO, *as of September 30, 2018.

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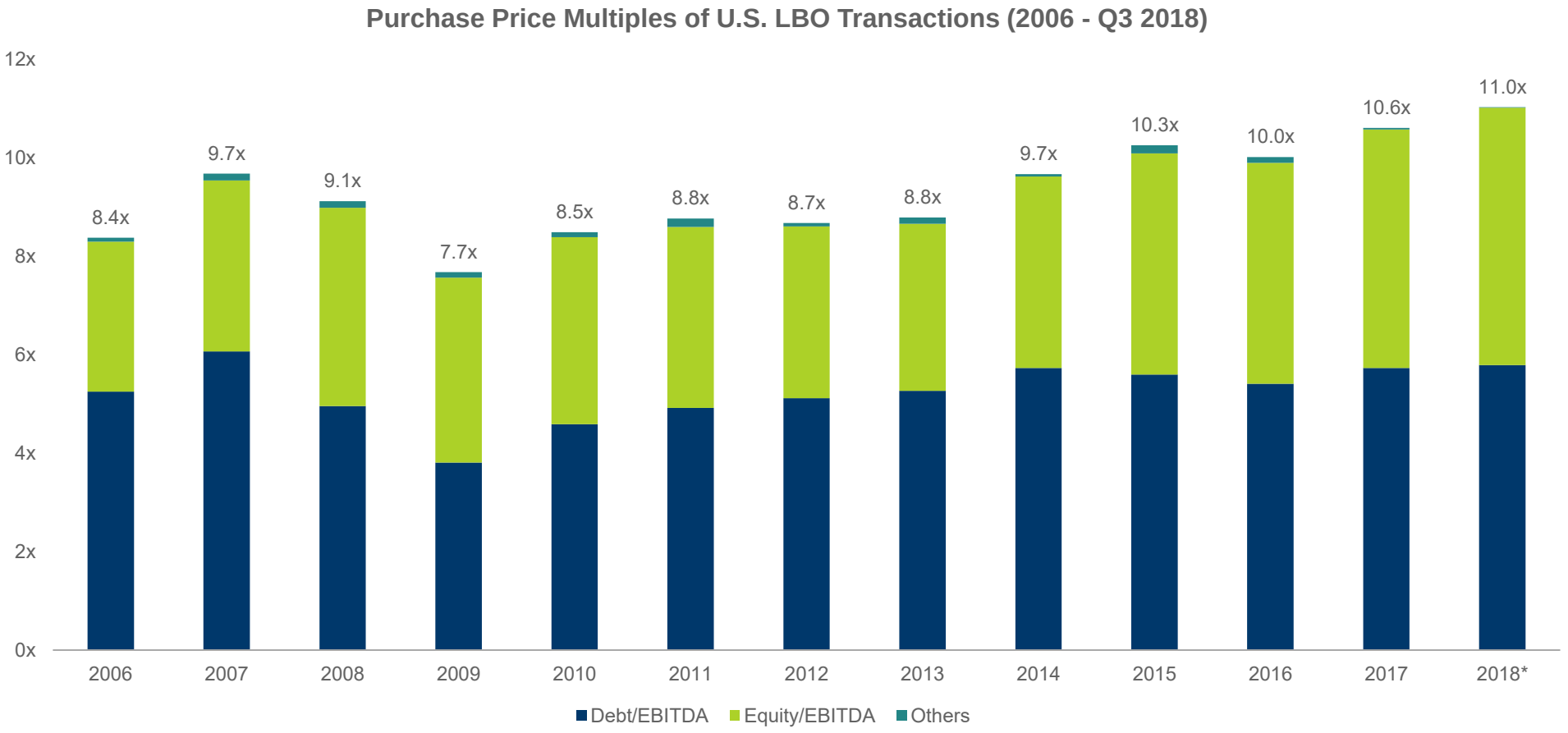
PRIVATE EQUITY - U.S. LBO PURCHASE PRICE MULTIPLES



- Due to the amount of debt that is readily available, purchase price multiples for U.S. LBOs have increased slightly through Q3 2018 relative to 2017 levels

Source: S&P LBO, *as of September 30, 2018.

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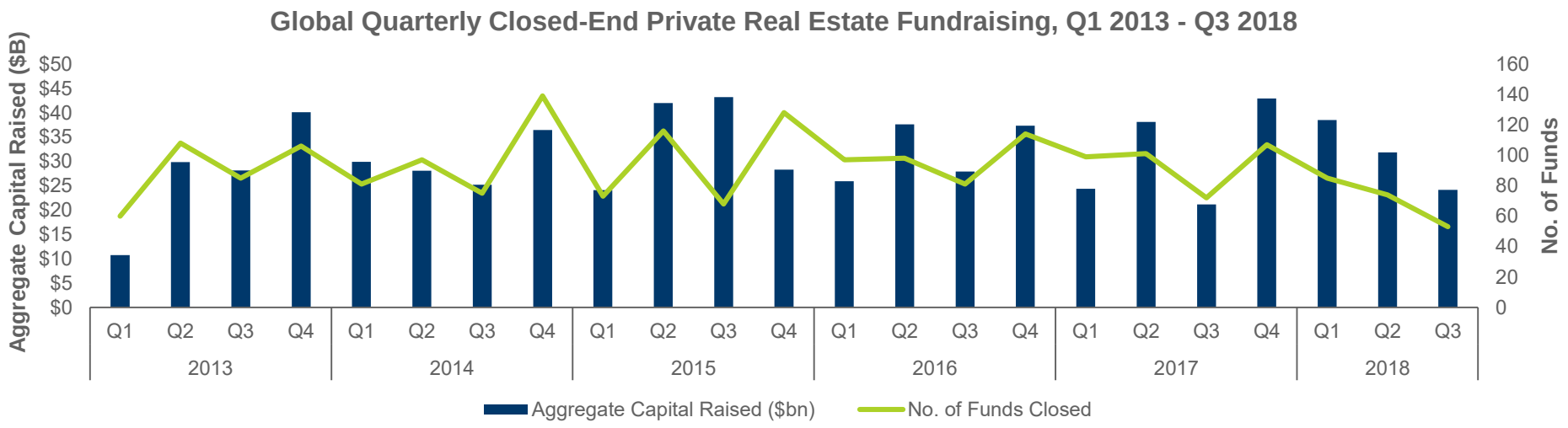
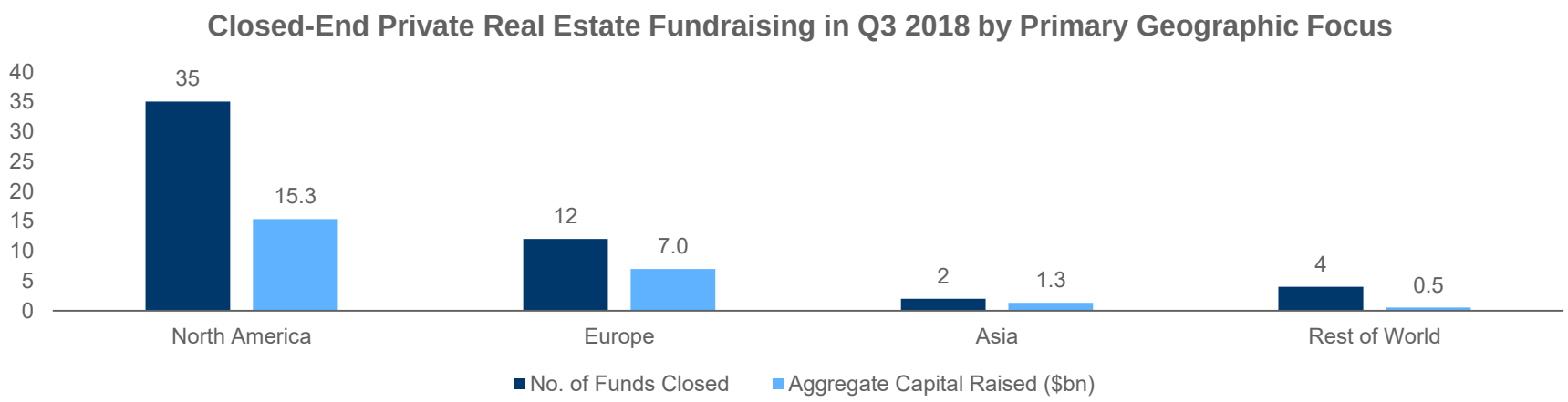
PRIVATE REAL ESTATE – FUNDRAISING ACTIVITY





Source: Preqin, as of October 2, 2018.

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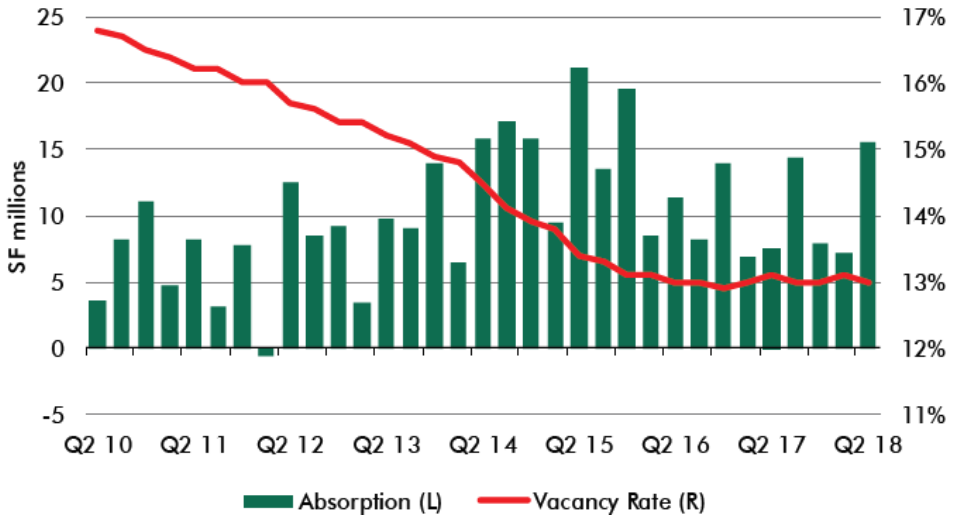
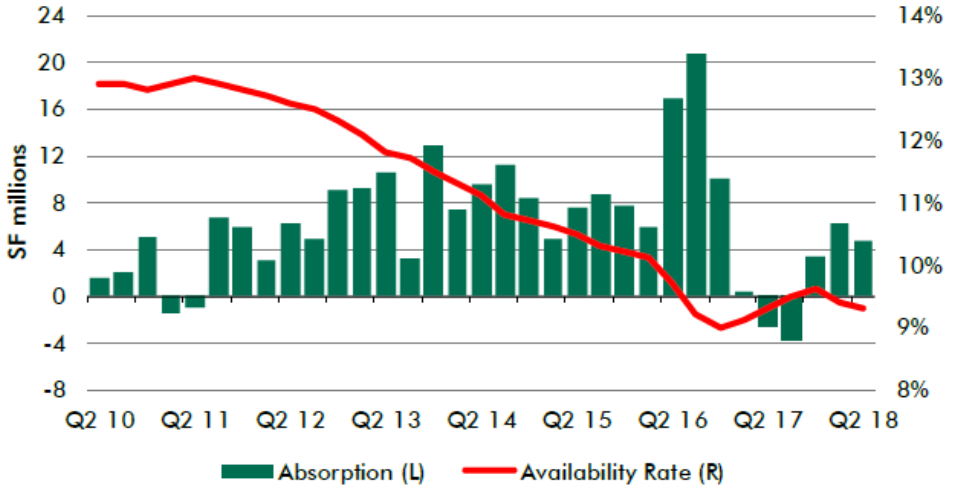
COMMERCIAL PROPERTY

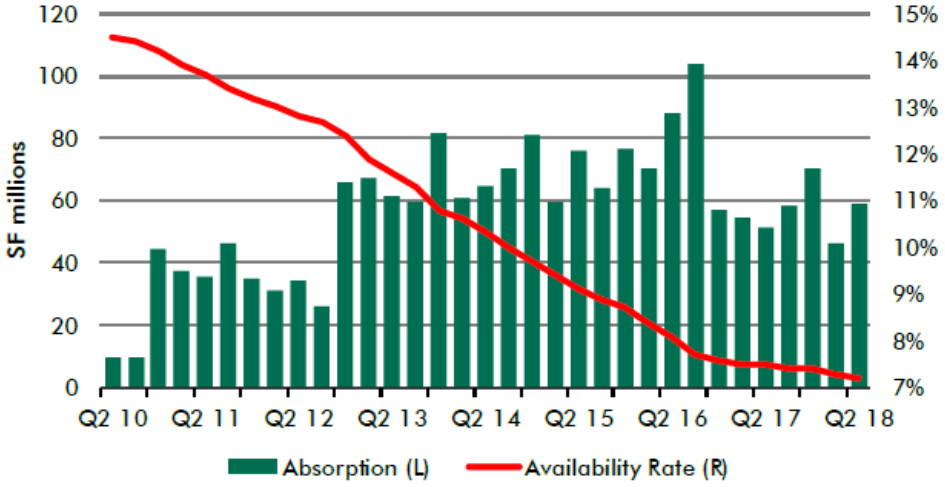
OFFICE



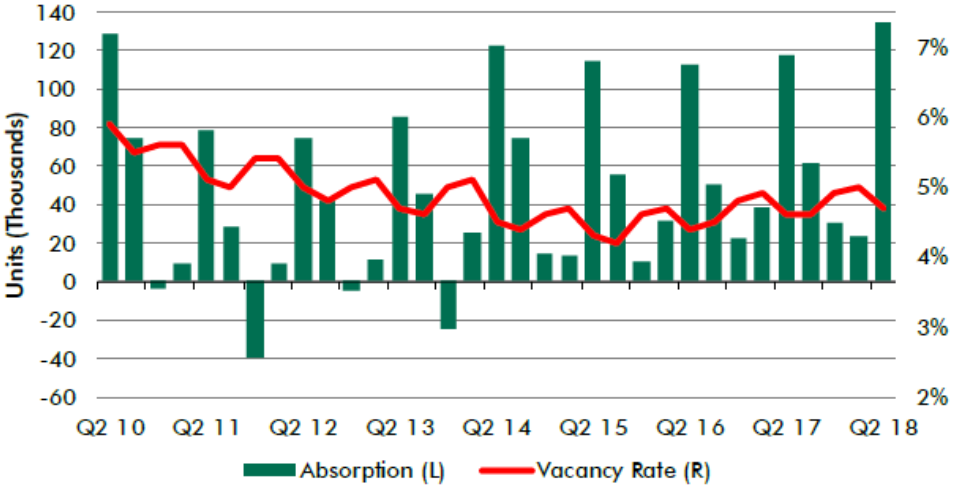
RETAIL



INDUSTRIAL



APARTMENTS



Data sources: CB Richard Ellis

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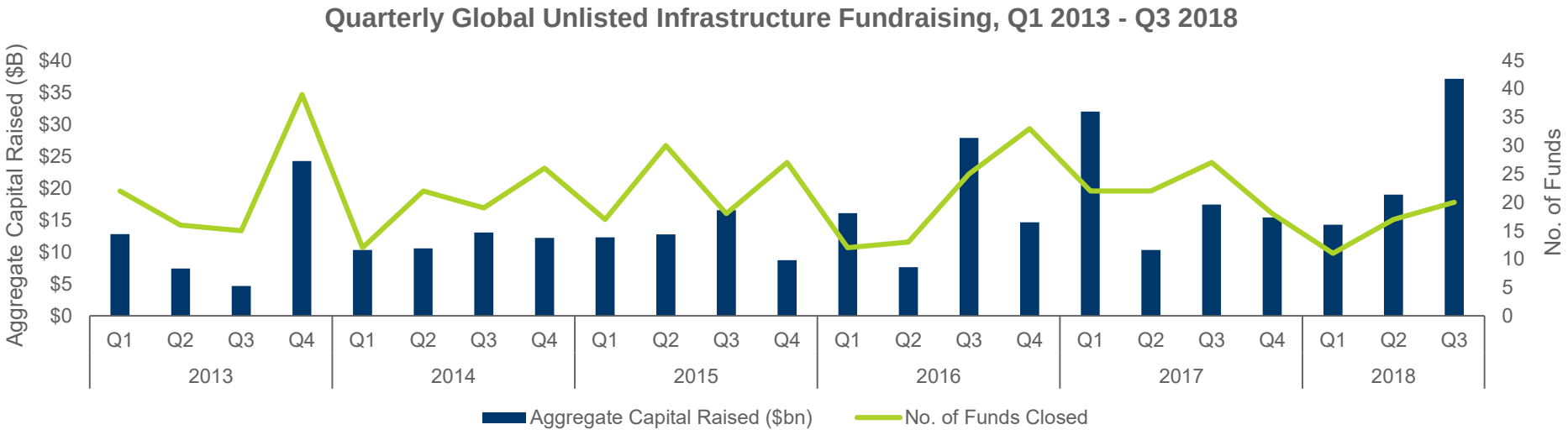
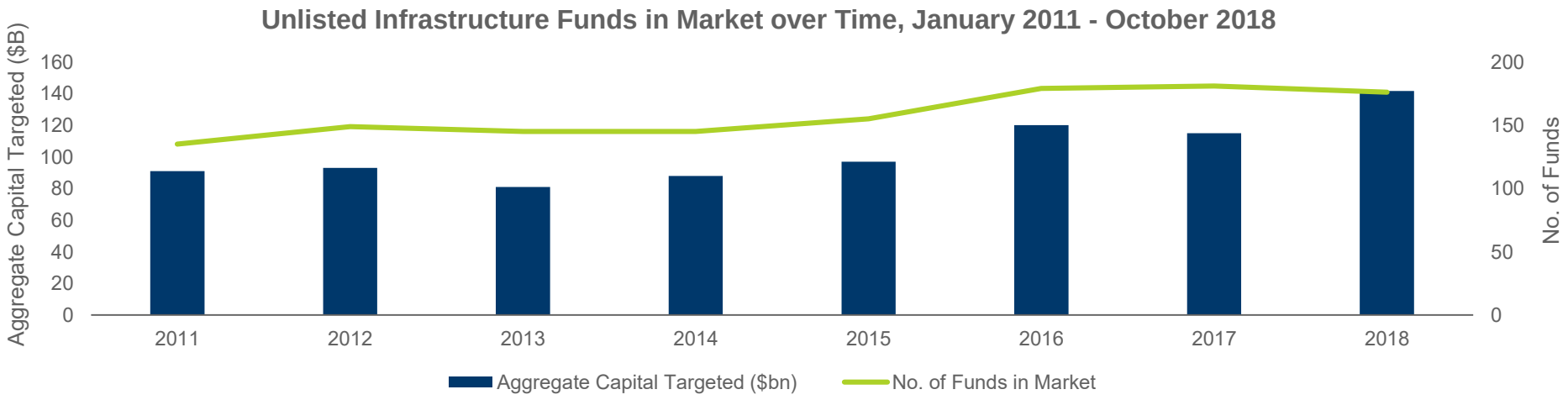
UNLISTED INFRASTRUCTURE – FUNDRAISING & INVESTMENT ACTIVITY





Source: Preqin, as of October 2, 2018.

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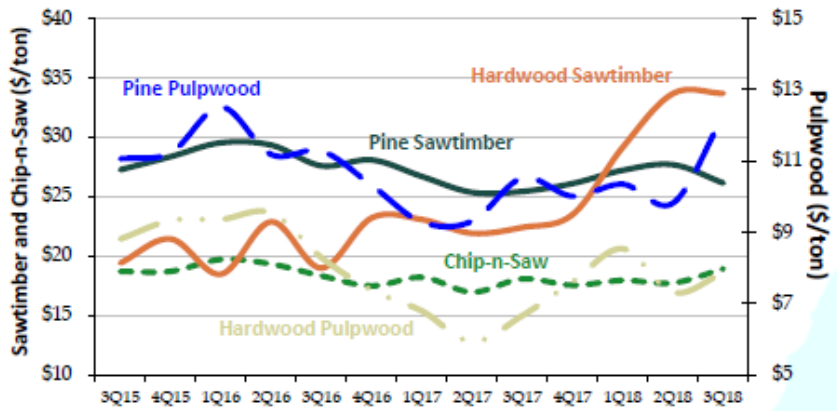
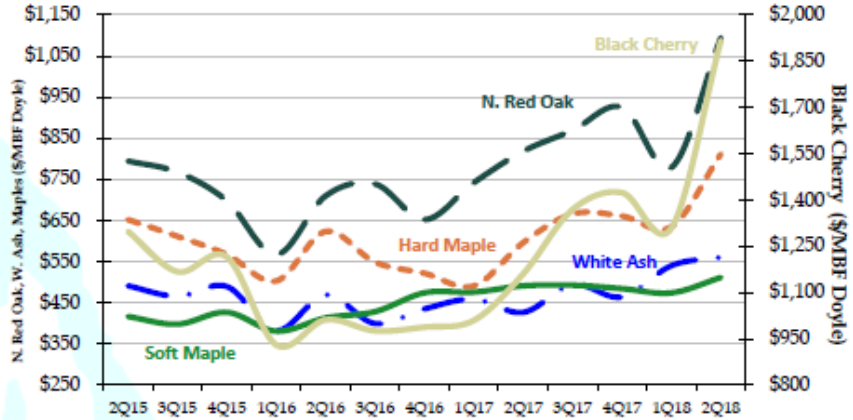
TIMBER

Southeastern Timber Prices



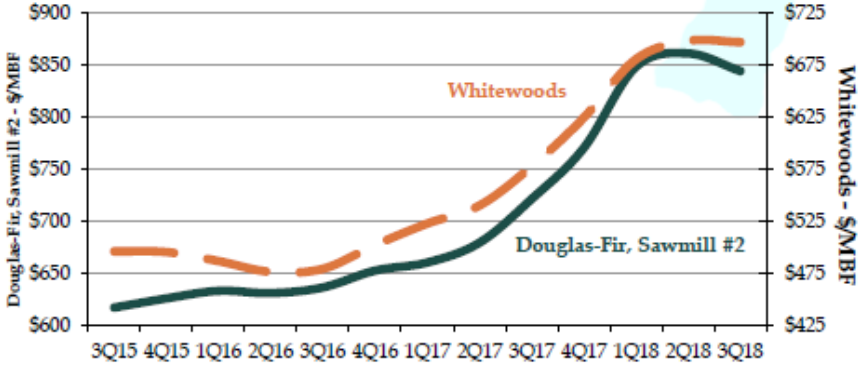
Source: Forest2Market®

Northeastern Hardwood Timber Prices



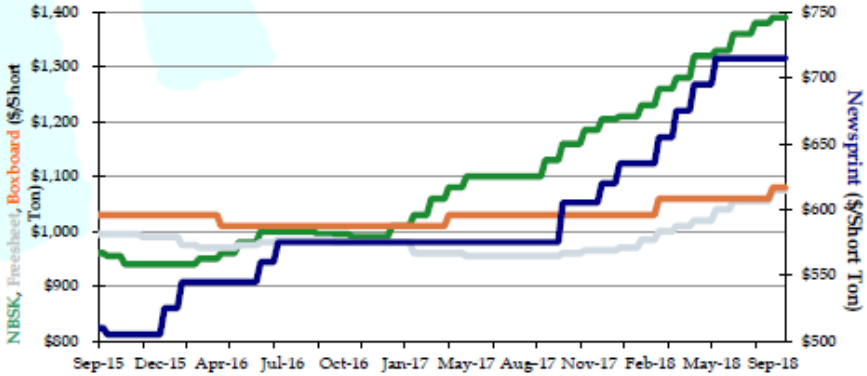
Source: Pennsylvania Woodlands Timber Market Report - Northwest Region

Pacific Northwest Timber Prices



Source: Log Lines®

Pulp and Paper



Source: FOEX Indexes, Ltd., RISI Pulp & Paper Week

Data sources: Forest Investment Associates

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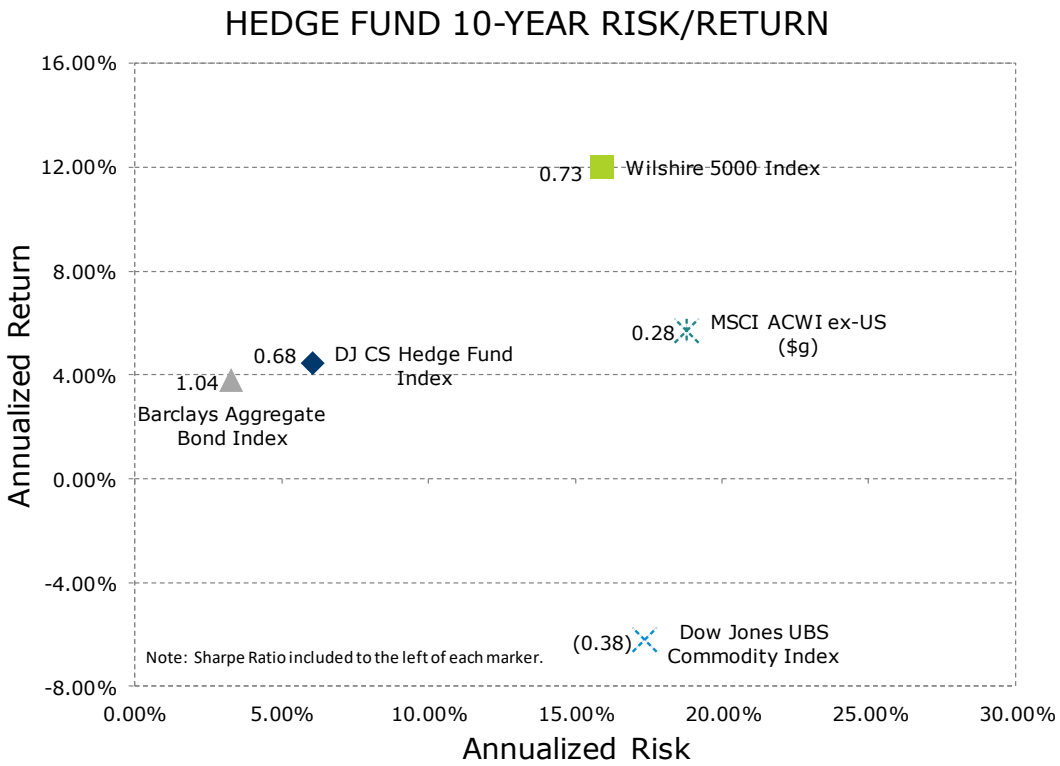
HEDGE FUND PERFORMANCE

AS OF SEPTEMBER 30, 2018	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DJ CS HEDGE FUND INDEX	0.6	1.2	3.5	3.1	3.4	4.4
EVENT DRIVEN	1.0	2.4	3.9	3.0	2.2	4.3
GLOBAL MACRO	-0.2	1.7	3.6	2.7	2.7	4.7
LONG/SHORT EQUITY	1.5	2.2	5.5	4.4	5.4	5.7
MULTI-STRATEGY	1.0	2.8	3.1	4.8	5.7	6.6
WILSHIRE 5000	7.3	10.5	17.6	17.3	13.6	12.0
MSCI ACWI EX-US ($G)	0.8	-2.7	2.3	10.5	4.6	5.7
BLOOMBERG BARCLAYS AGGREGATE	0.0	-1.6	-1.2	1.3	2.2	3.8
DOW JONES UBS COMMODITY	-2.0	-2.0	2.6	-0.1	-7.2	-6.2



Data sources: Wilshire Compass

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