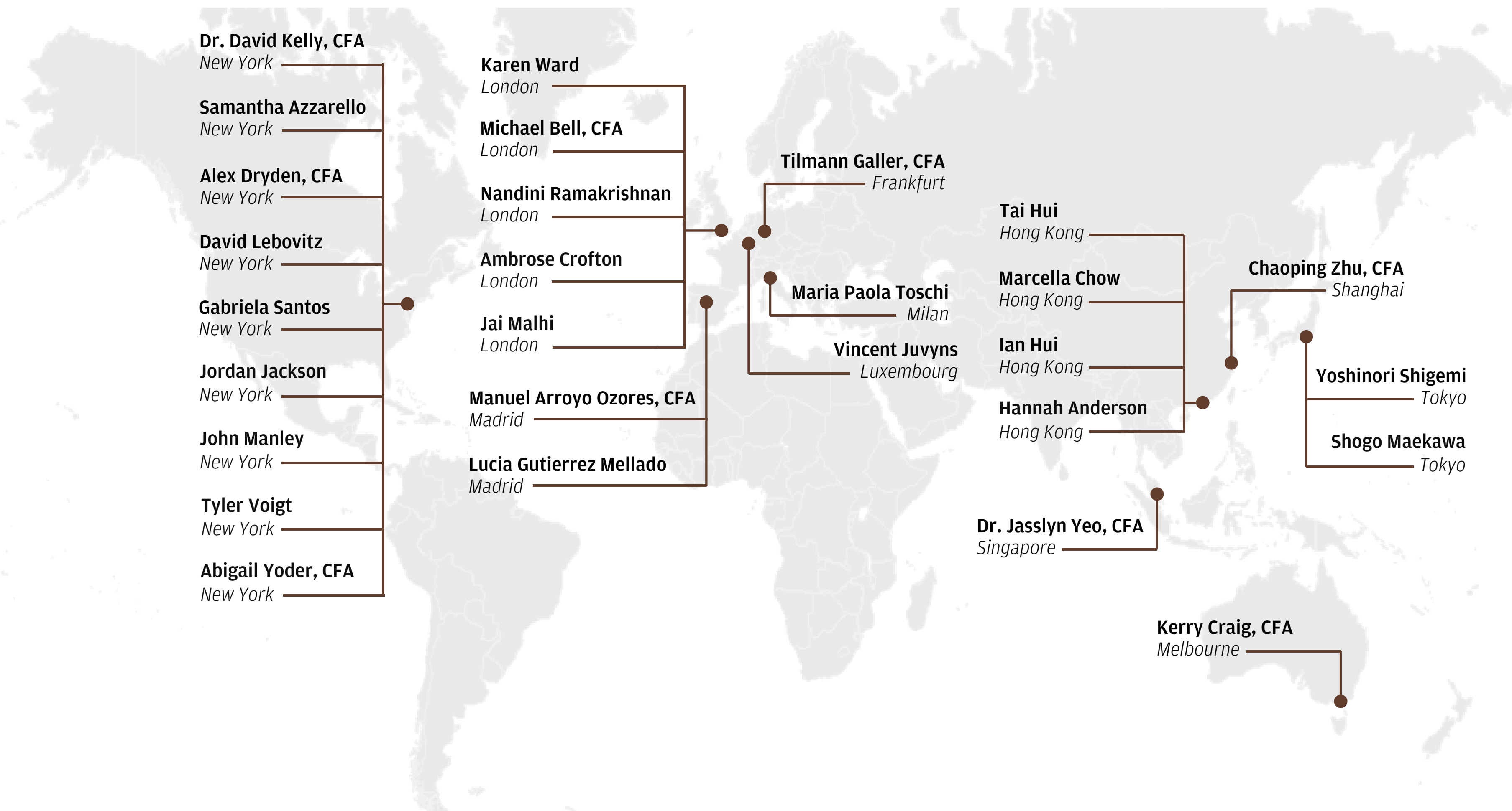
MARKET INSIGHTS

Guide to the Markets®

U.S. | 1Q 2018 | As of December 31, 2017

J.P.Morgan Asset Management

Global Market Insights Strategy Team



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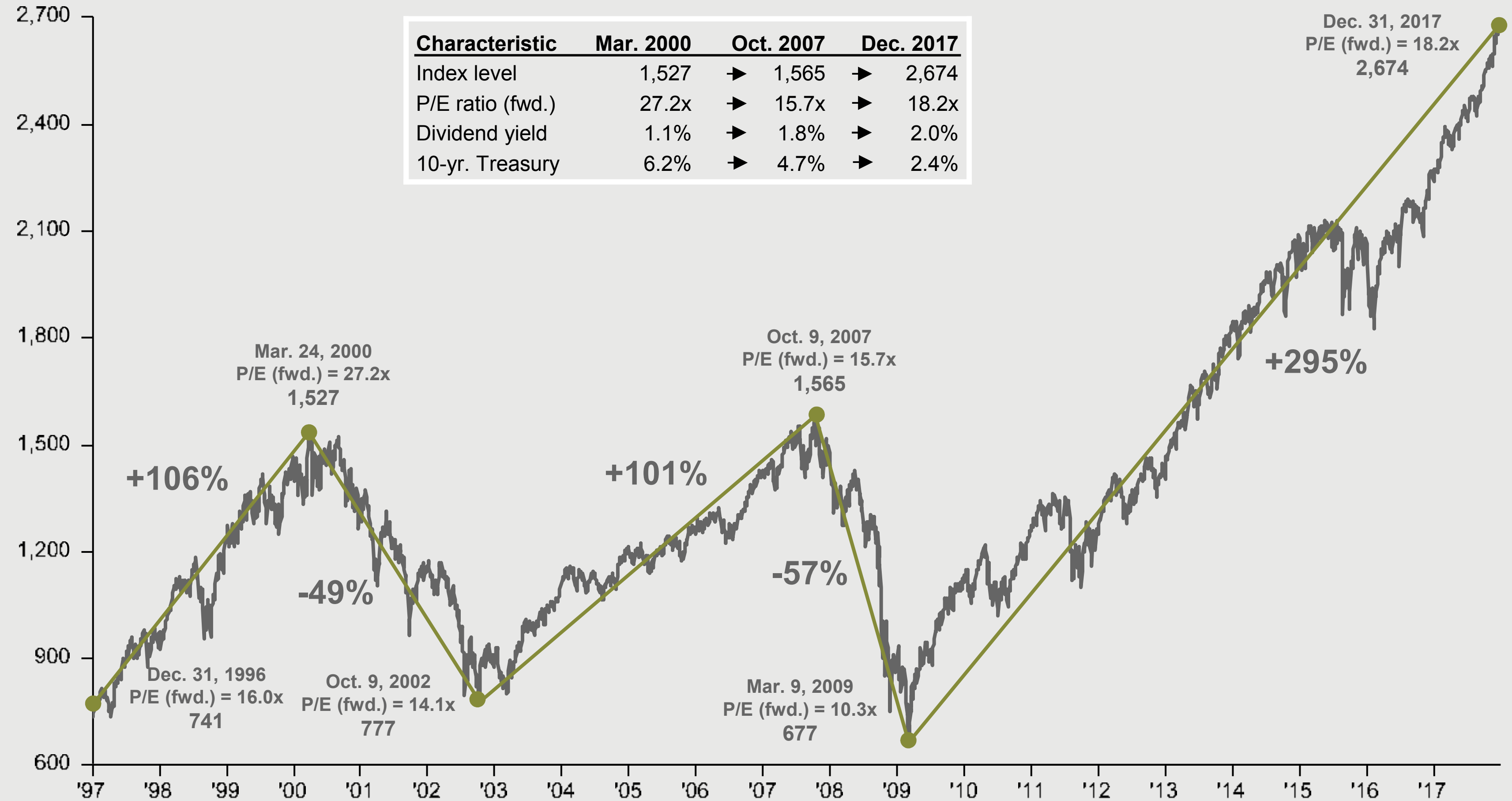
S&P 500 Index at inflection points

S&P 500 Price Index

Characteristic	Mar. 2000		Oct. 2007		Dec. 2017
Index level	1,527	→	1,565	→	2,674
P/E ratio (fwd.)	27.2x	→	15.7x	→	18.2x
Dividend yield	1.1%	→	1.8%	→	2.0%
10-yr. Treasury	6.2%	→	4.7%	→	2.4%



Source: Compustat, FactSet, Thomson Reuters, Federal Reserve, Standard & Poor's, J.P. Morgan Asset Management.
Dividend yield is calculated as consensus estimates of dividends for the next 12 months, divided by most recent price, as provided by Compustat. Forward price to earnings ratio is a bottom-up calculation based on the most recent S&P 500 Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates. Returns are cumulative and based on S&P 500 Index price movement only, and do not include the reinvestment of dividends. Past performance is not indicative of future returns.
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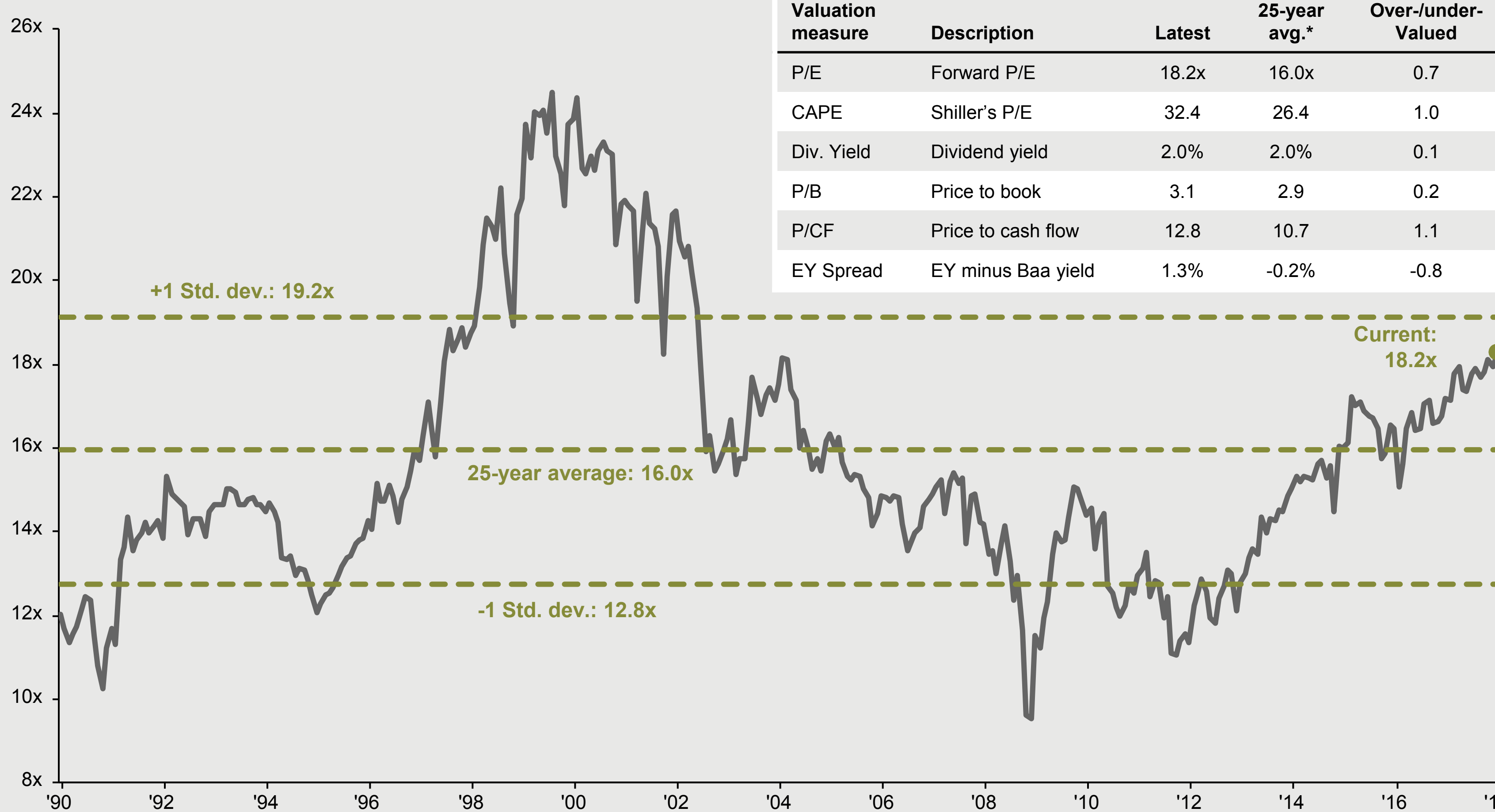
S&P 500 valuation measures

Equities

S&P 500 Index: Forward P/E ratio



Valuation measure	Description	Latest	25-year avg.*	Std. dev. Over-/under-Valued
P/E	Forward P/E	18.2x	16.0x	0.7
CAPE	Shiller's P/E	32.4	26.4	1.0
Div. Yield	Dividend yield	2.0%	2.0%	0.1
P/B	Price to book	3.1	2.9	0.2
P/CF	Price to cash flow	12.8	10.7	1.1
EY Spread	EY minus Baa yield	1.3%	-0.2%	-0.8

Source: FactSet, FRB, Thomson Reuters, Robert Shiller, Standard & Poor's, J.P. Morgan Asset Management.
Price to earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since December 1989, and FactSet for December 31, 2017. Average P/E and standard deviations are calculated using 25 years of FactSet history. Shiller's P/E uses trailing 10-years of inflation-adjusted earnings as reported by companies. Dividend yield is calculated as the next 12-month consensus dividend divided by most recent price. Price to book ratio is the price divided by book value per share. Price to cash flow is price divided by NTM cash flow. EY minus Baa yield is the forward earnings yield (consensus analyst estimates of EPS over the next 12 months divided by price) minus the Moody's Baa seasoned corporate bond yield. Std. dev. over-/under-valued is calculated using the average and standard deviation over 25 years for each measure.
*P/CF is a 20-year average due to cash flow data availability.
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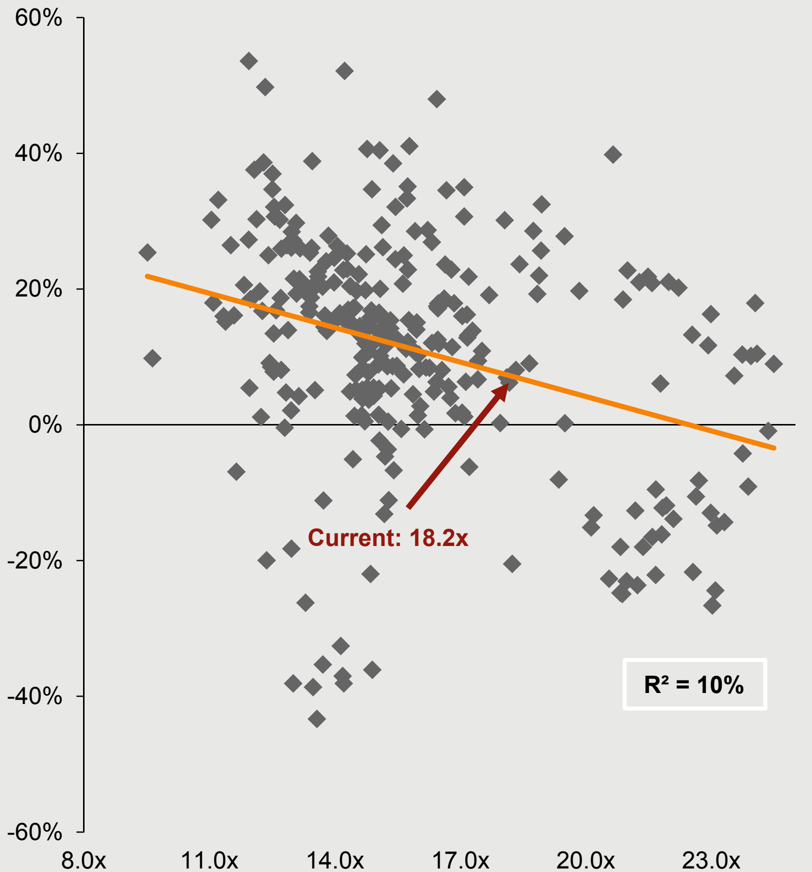
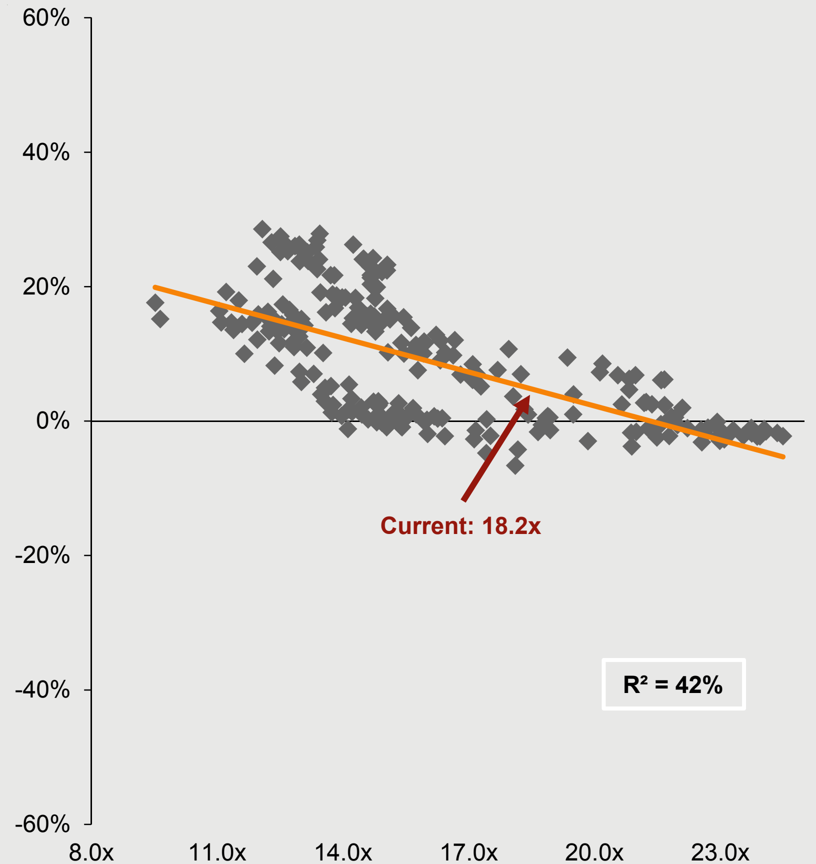
Equities

Forward P/E and subsequent 1-yr. returns
S&P 500 Total Return Index



Forward P/E and subsequent 5-yr. annualized returns
S&P 500 Total Return Index



Source: FactSet, Thomson Reuters, Standard & Poor's, J.P. Morgan Asset Management.
Returns are 12-month and 60-month annualized total returns, measured monthly, beginning December 31, 1992. R^2 represents the percent of total variation in total returns that can be explained by forward P/E ratios.
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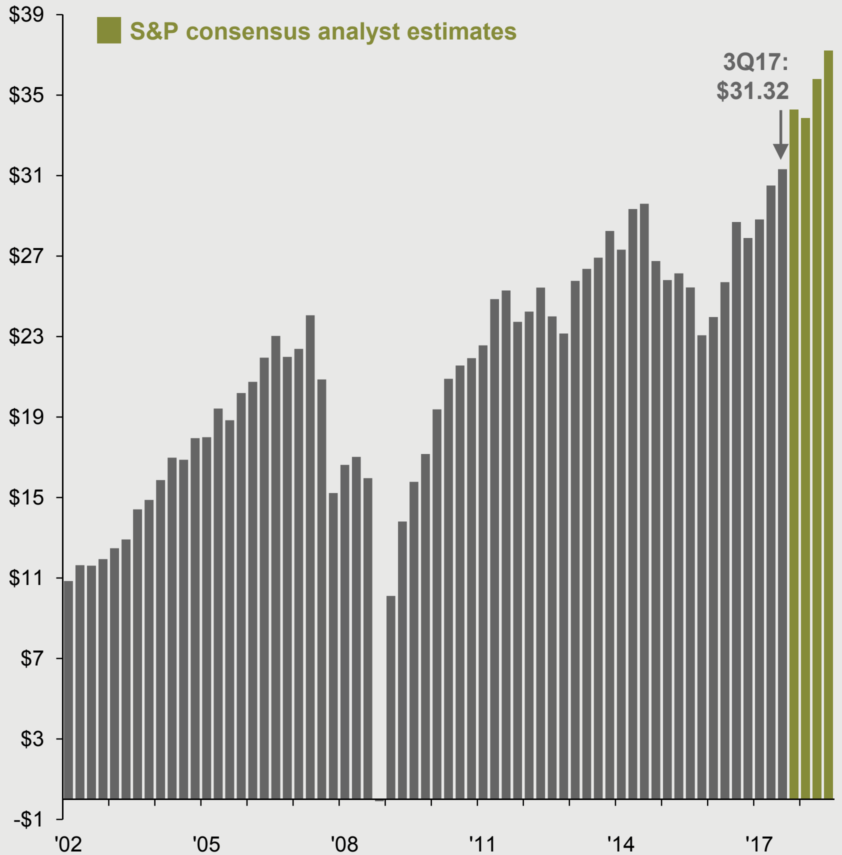
Equities

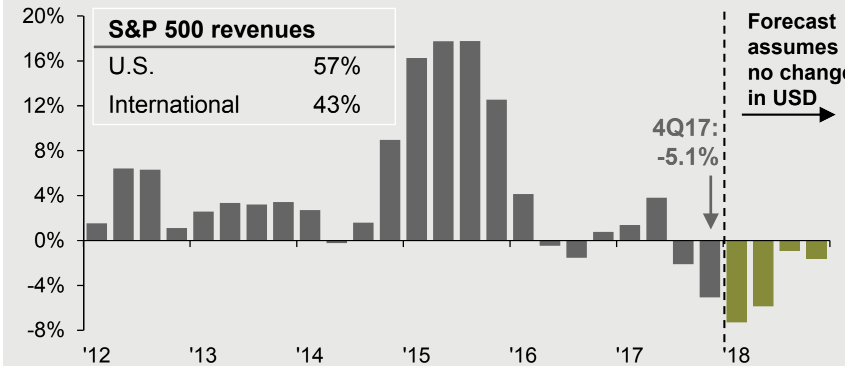
S&P 500 earnings per share

Index quarterly operating earnings



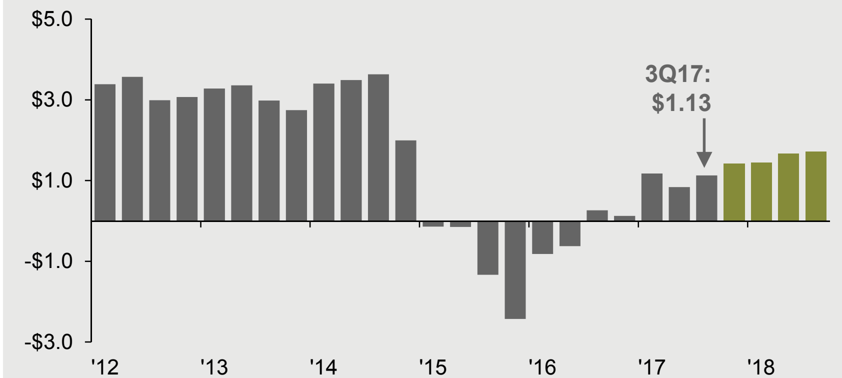
U.S. dollar

Year-over-year % change**, quarterly, USD major currencies index



Energy sector earnings

Energy sector contribution to S&P 500 EPS, quarterly



Source: Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management; (Top right) Federal Reserve, S&P 500 individual company 10k filings, S&P Index Alert.

EPS levels are based on operating earnings per share. Earnings estimates are Standard & Poor's consensus analyst expectations. Past performance is not indicative of future returns. Currencies in the Trade Weighted U.S. Dollar Major Currencies Index are: British pound, euro, Swedish krona, Australian dollar, Canadian dollar, Japanese yen and Swiss franc. **Year-over-year change is calculated using the quarterly average for each period. USD forecast assumes no change in the U.S. dollar from its December 31, 2017 level. S&P 500 revenue breakdown comes from Standard & Poor's S&P 500 2016: Global Sales report as of June 2017.

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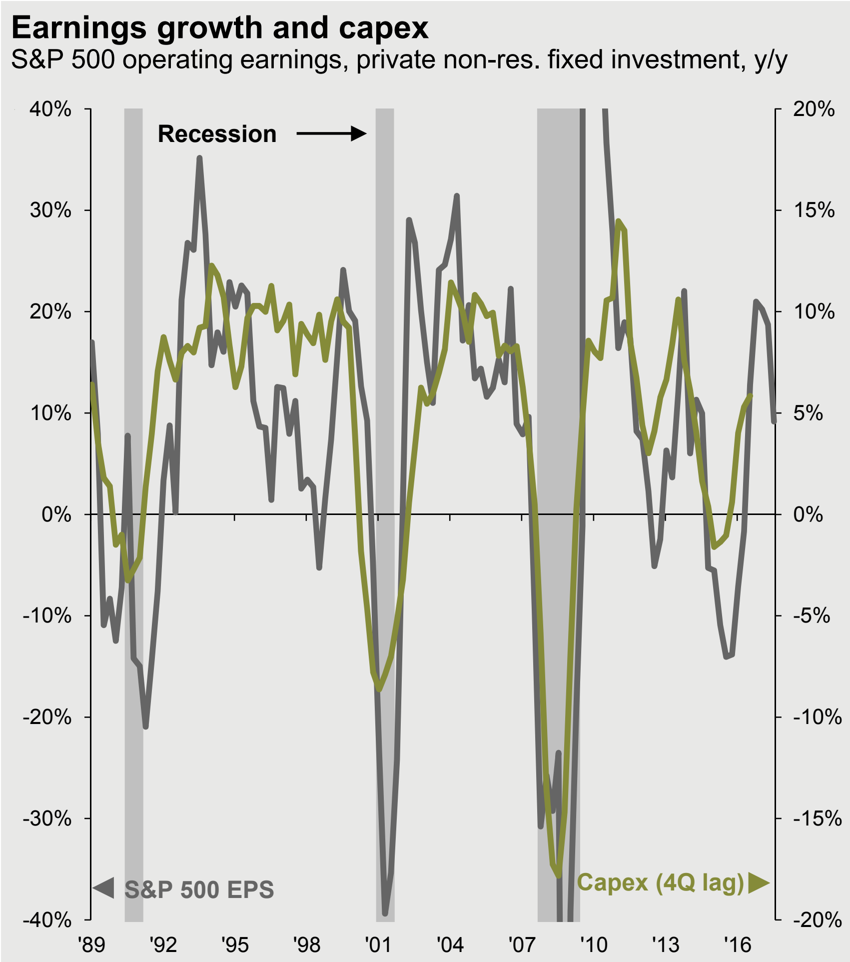
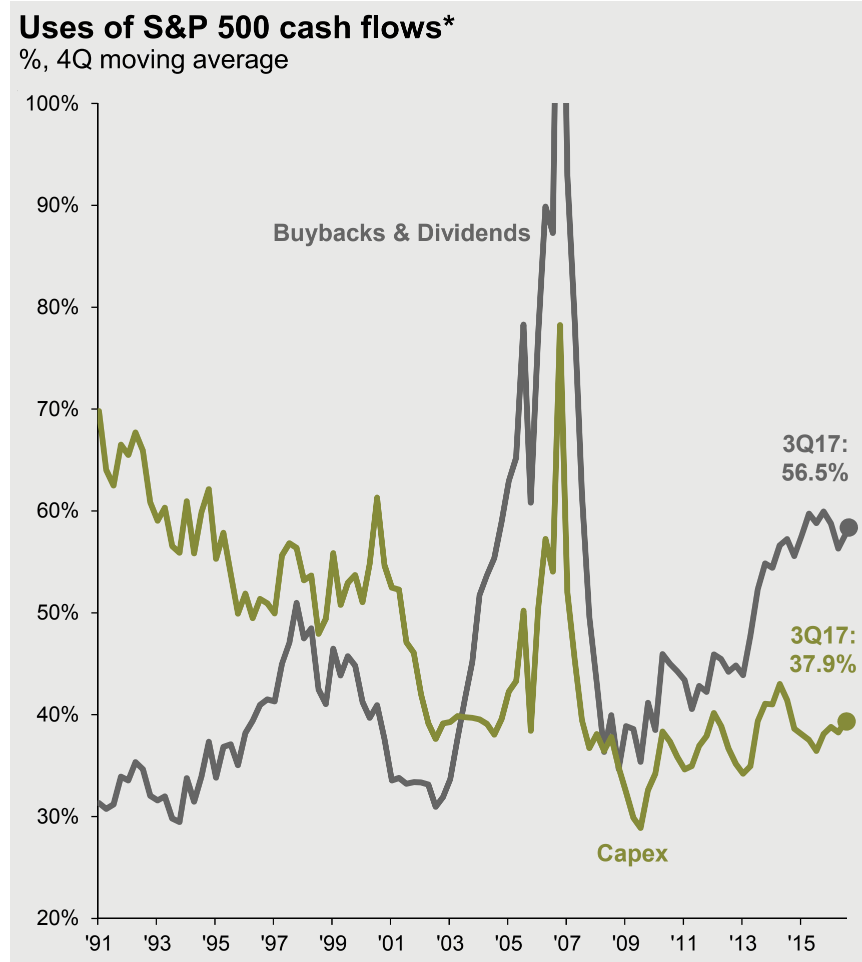
Equities





Source: BEA, Compustat, Standard & Poor's, FactSet, J.P. Morgan Asset Management.
Buybacks & dividends and capex are shown as a percentage of cash flows from operations, and may not sum to 100%.
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Returns and valuations by style

Equities

4Q 2017

	Value	Blend	Growth
Large	5.3%	6.6%	7.9%
Mid	5.5%	6.1%	6.8%
Small	2.0%	3.3%	4.6%

2017

	Value	Blend	Growth
Large	13.7%	21.8%	30.2%
Mid	13.3%	18.5%	25.3%
Small	7.8%	14.6%	22.2%

Since market peak (October 2007)

	Value	Blend	Growth
Large	82.3%	113.0%	150.6%
Mid	118.2%	123.7%	127.5%
Small	94.7%	109.5%	123.5%

Since market low (March 2009)

	Value	Blend	Growth
Large	354.6%	376.0%	411.0%
Mid	457.1%	439.9%	426.0%
Small	381.4%	405.1%	427.5%

Current P/E vs. 15-year avg. P/E*

	Value	Blend	Growth
Large	16.2 / 13.2	18.2 / 14.5	21.1 / 16.7
Mid	16.7 / 14.2	18.5 / 15.7	21.4 / 18.0
Small	18.6 / 16.8	24.3 / 20.2	33.7 / 25.4

Current P/E as % of 15-year avg. P/E*

	Value	Blend	Growth
Large	123.0%	125.6%	126.7%
Mid	117.6%	117.3%	118.6%
Small	110.9%	120.6%	132.6%

Source: FactSet, Russell Investment Group, Standard & Poor's, J.P. Morgan Asset Management.
All calculations are cumulative total return, including dividends reinvested for the stated period. Since Market Peak represents period 10/9/07 – 12/31/17, illustrating market returns since the S&P 500 Index high on 10/9/07. Since Market Low represents period 3/9/09 – 12/31/17, illustrating market returns since the S&P 500 Index low on 3/9/09. Returns are cumulative returns, not annualized. For all time periods, total return is based on Russell style indexes with the exception of the large blend category, which is based on the S&P 500 Index. Past performance is not indicative of future returns. *Timeframe of average valuation decreased from 20 to 15 years because of a discontinued data series. The new data series is bottom-up calculation based on the most recent S&P 500 Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates.
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Returns and valuations by sector

	Financials	Real Estate	Materials	Industrials	Cons. Discr.	Technology	Energy	Health Care	Telecom	Cons. Staples	Utilities	S&P 500 Index	
S&P weight	**14.8%**	**2.9%**	**3.0%**	**10.3%**	**12.2%**	**23.8%**	**6.1%**	**13.8%**	**2.1%**	**8.2%**	**2.9%**	**100.0%**	Weight
Russell Growth weight	3.4%	2.5%	3.7%	12.8%	18.1%	37.9%	0.9%	12.8%	1.0%	6.8%	0.0%	100.0%	Weight
Russell Value weight	26.6%	4.7%	3.0%	8.4%	6.8%	8.5%	11.0%	13.5%	3.0%	8.6%	5.9%	100.0%	Weight
QTD	8.6	3.2	6.9	6.1	9.9	9.0	6.0	1.5	3.6	6.5	0.2	6.6	Return (%)
YTD	22.2	10.8	23.8	21.0	23.0	38.8	-1.0	22.1	-1.3	13.5	12.1	21.8	Return (%)
Since market peak (October 2007)	18.7	67.4	76.7	113.7	209.8	199.0	16.3	177.7	54.4	170.6	91.0	113.0	Return (%)
Since market low (March 2009)	548.2	520.7	320.9	487.3	617.1	526.5	112.9	347.7	195.0	279.5	234.2	376.0	Return (%)
Beta to S&P 500	1.44	1.29	1.28	1.21	1.11	1.09	0.98	0.73	0.59	0.58	0.46	1.00	β
Correl. to Treas. yields	0.83	-0.28	0.43	0.49	0.37	0.09	0.46	0.10	-0.22	-0.49	-0.60	0.38	ρ
Foreign % of sales	30.8	-	53.0	44.9	35.1	57.2	58.9	37.4	17.4	33.7	46.3	43.2	%
NTM Earnings Growth	12.5%	3.7%	13.5%	7.9%	3.4%	18.7%	24.0%	3.3%	-0.9%	7.3%	6.7%	10.1%	EPS
20-yr avg.	**5.2%**	**2.6%***	**8.4%**	**6.4%**	**9.2%**	**9.1%**	**10.3%**	**9.0%**	**2.7%**	**5.6%**	**2.4%**	**5.8%**	EPS
Forward P/E ratio	14.9x	17.9x	18.4x	19.6x	21.2x	18.6x	25.7x	16.6x	13.3x	19.9x	17.4x	18.2x	P/E
20-yr avg.	**12.9x**	**15.3x**	**13.9x**	**16.3x**	**18.0x**	**20.9x**	**17.6x**	**17.5x**	**16.5x**	**17.1x**	**14.1x**	**16.0x**	P/E
Trailing P/E ratio	17.6x	36.6x	27.6x	23.7x	24.8x	24.3x	36.3x	23.7x	16.1x	21.7x	21.0x	23.1x	P/E
20-yr avg.	**15.5x**	**35.6x**	**18.9x**	**20.0x**	**19.2x**	**25.7x**	**17.7x**	**24.1x**	**20.0x**	**20.9x**	**16.0x**	**19.6x**	P/E
Dividend yield	1.8%	3.5%	1.9%	1.9%	1.4%	1.3%	2.8%	1.7%	5.1%	2.8%	3.7%	2.0%	Div
20-yr avg.	**2.3%**	**4.4%**	**2.6%**	**2.1%**	**1.4%**	**0.9%**	**2.3%**	**1.8%**	**4.1%**	**2.6%**	**4.0%**	**2.0%**	Div

Source: FactSet, Russell Investment Group, Standard & Poor's, J.P. Morgan Asset Management. All calculations are cumulative total return, not annualized, including dividends for the stated period. Since market peak represents period 10/9/07 – 12/31/17. Since market low represents period 3/9/09 – 12/31/17. Correlation to Treasury yields are trailing 2-year monthly correlations between S&P 500 sector price returns and 10-year Treasury yield movements. Foreign percent of sales is from Standard & Poor's, S&P 500 2016: Global Sales report as of June 2017. Real Estate foreign sales not included due to lack of availability. NTM Earnings Growth is consensus estimates for earnings in the next 12 months compared to the consensus estimate 1yr ago. Forward P/E ratio is a bottom-up calculation based on the most recent S&P 500 Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates. Trailing P/E ratios are bottom-up values defined as month-end price divided by the last 12 months of available reported earnings. Historical data can change as new information becomes available. Note that P/E ratios for the S&P 500 may differ from estimates elsewhere in this book due to the use of a bottom-up calculation of constituent earnings (as described) rather than a top-down calculation. This methodology is used to allow proper comparison of sector level data to broad index level data. Dividend yield is calculated as the next 12-month consensus dividend divided by most recent price. Beta calculations are based on 10-years of monthly price returns for the S&P 500 and its sub-indices. *Real estate NTM earnings growth 20-yr average starts in 11/30/2002 due to data availability. Past performance is not indicative of future returns.

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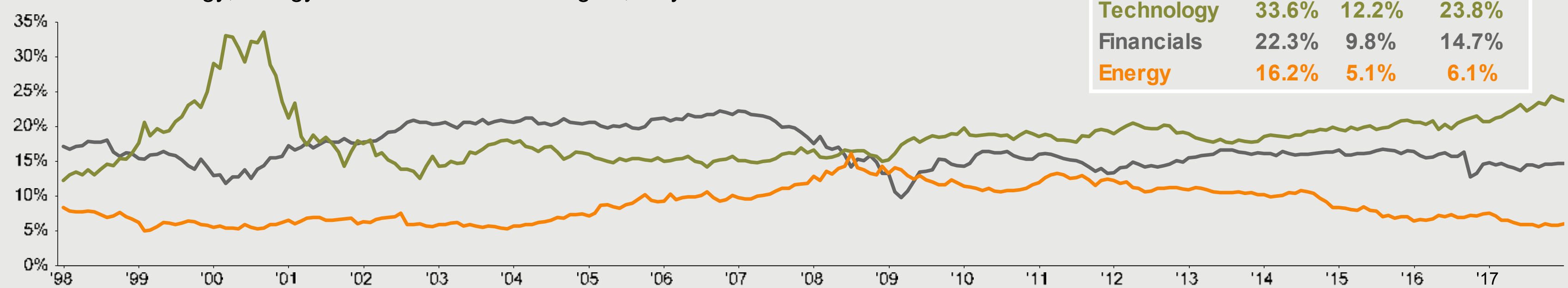
Factor performance and sector weights

															2003 - 2017	
2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Ann.	Vol.
Small Cap 47.3%	Multi-Factor 21.1%	Momen. 19.3%	High Div. 21.1%	Momen. 17.8%	Min. Vol. -25.7%	Cyclical 36.9%	Small Cap 26.9%	High Div. 14.3%	Cyclical 20.1%	Small Cap 38.8%	Min. Vol. 16.5%	Momen. 9.3%	Small Cap 21.3%	Momen. 37.8%	Multi-Factor 12.3%	Small Cap 18.8%
Cyclical 37.2%	Small Cap 18.3%	Multi-Factor 15.7%	Small Cap 18.4%	Defens. 17.7%	Defens. -26.7%	Quality 32.0%	Multi-Factor 18.3%	Min. Vol. 12.9%	Small Cap 16.3%	Multi-Factor 37.4%	High Div. 14.9%	Quality 7.0%	High Div. 16.3%	Cyclical 27.3%	Momen. 12.2%	Cyclical 17.5%
Multi-Factor 31.6%	Momen. 16.9%	Defens. 11.1%	Multi-Factor 16.6%	Quality 10.6%	High Div. -27.6%	Multi-Factor 29.8%	Momen. 18.2%	Defens. 10.1%	Multi-Factor 15.7%	Cyclical 35.0%	Multi-Factor 14.8%	Min. Vol. 5.6%	Cyclical 14.0%	Quality 26.0%	Small Cap 11.2%	Momen. 15.7%
Momen. 26.2%	Min. Vol. 14.5%	Min. Vol. 6.6%	Defens. 15.9%	Multi-Factor 5.5%	Quality -30.2%	Small Cap 27.2%	Cyclical 17.9%	Quality 8.4%	Momen. 15.1%	Momen. 34.8%	Momen. 14.7%	Cyclical 2.6%	Multi-Factor 13.7%	Multi-Factor 21.5%	Quality 10.8%	Multi-Factor 15.3%
High Div. 24.3%	Defens. 11.9%	Small Cap 4.6%	Cyclical 15.0%	Min. Vol. 4.3%	Small Cap -33.8%	High Div. 18.4%	High Div. 15.9%	Multi-Factor 7.3%	Quality 14.0%	Quality 33.5%	Cyclical 13.6%	High Div. 0.7%	Min. Vol. 10.7%	High Div. 19.5%	High Div. 10.6%	High Div. 13.6%
Quality 20.2%	High Div. 11.8%	High Div. 3.7%	Min. Vol. 15.0%	High Div. 0.0%	Multi-Factor -39.3%	Min. Vol. 18.4%	Min. Vol. 14.7%	Momen. 6.1%	Min. Vol. 11.2%	High Div. 28.9%	Defens. 13.0%	Multi-Factor 0.4%	Quality 8.0%	Min. Vol. 19.2%	Min. Vol. 10.6%	Quality 12.6%
Min. Vol. 20.0%	Quality 10.2%	Cyclical 2.5%	Quality 12.0%	Cyclical -0.8%	Momen. -40.9%	Momen. 17.6%	Quality 12.6%	Cyclical -3.4%	Defens. 10.7%	Defens. 28.9%	Quality 11.8%	Defens. -0.9%	Defens. 7.7%	Small Cap 14.6%	Cyclical 10.0%	Defens. 12.0%
Defens. 17.3%	Cyclical 10.0%	Quality 2.5%	Momen. 10.7%	Small Cap -1.6%	Cyclical -44.8%	Defens. 16.5%	Defens. 12.0%	Small Cap -4.2%	High Div. 10.6%	Min. Vol. 25.3%	Small Cap 4.9%	Small Cap -4.4%	Momen. 5.1%	Defens. 12.3%	Defens. 9.8%	Min. Vol. 11.7%

Sector weights over time

S&P 500 technology, energy and financial sector weights, 20 years



	Max	Min	Current
Technology	33.6%	12.2%	23.8%
Financials	22.3%	9.8%	14.7%
Energy	16.2%	5.1%	6.1%

Source: Standard & Poor's, FactSet, J.P. Morgan Asset Management; (Top) MSCI, Russell; (Bottom) MSCI. The MSCI High Dividend Yield Index aims to offer a higher than average dividend yield relative to the parent index and that pass dividend sustainability and persistence screens. The MSCI Minimum Volatility Index optimizes the MSCI USA Index using an estimated security co-variance matrix to produce low absolute volatility for a given set of constraints. The MSCI Defensive Sectors Index includes: Consumer Staples, Energy, Health Care, Telecommunication Services and Utilities. The MSCI Cyclical Sectors Index contains: Consumer Discretionary, Financials, Industrials, Information Technology and Materials. Securities in the MSCI Momentum Index are selected based on a momentum value on 12-month and 6-month price performance. Constituents of the MSCI Quality Index are selected based on three main variables: high return on equity, stable year-over-year earnings growth and low financial leverage. The Russell 2000 is used for small cap. The MSCI USA Diversified Multiple Factor Index aims to maximize exposure to four factors – Value, Momentum, Quality and Size.
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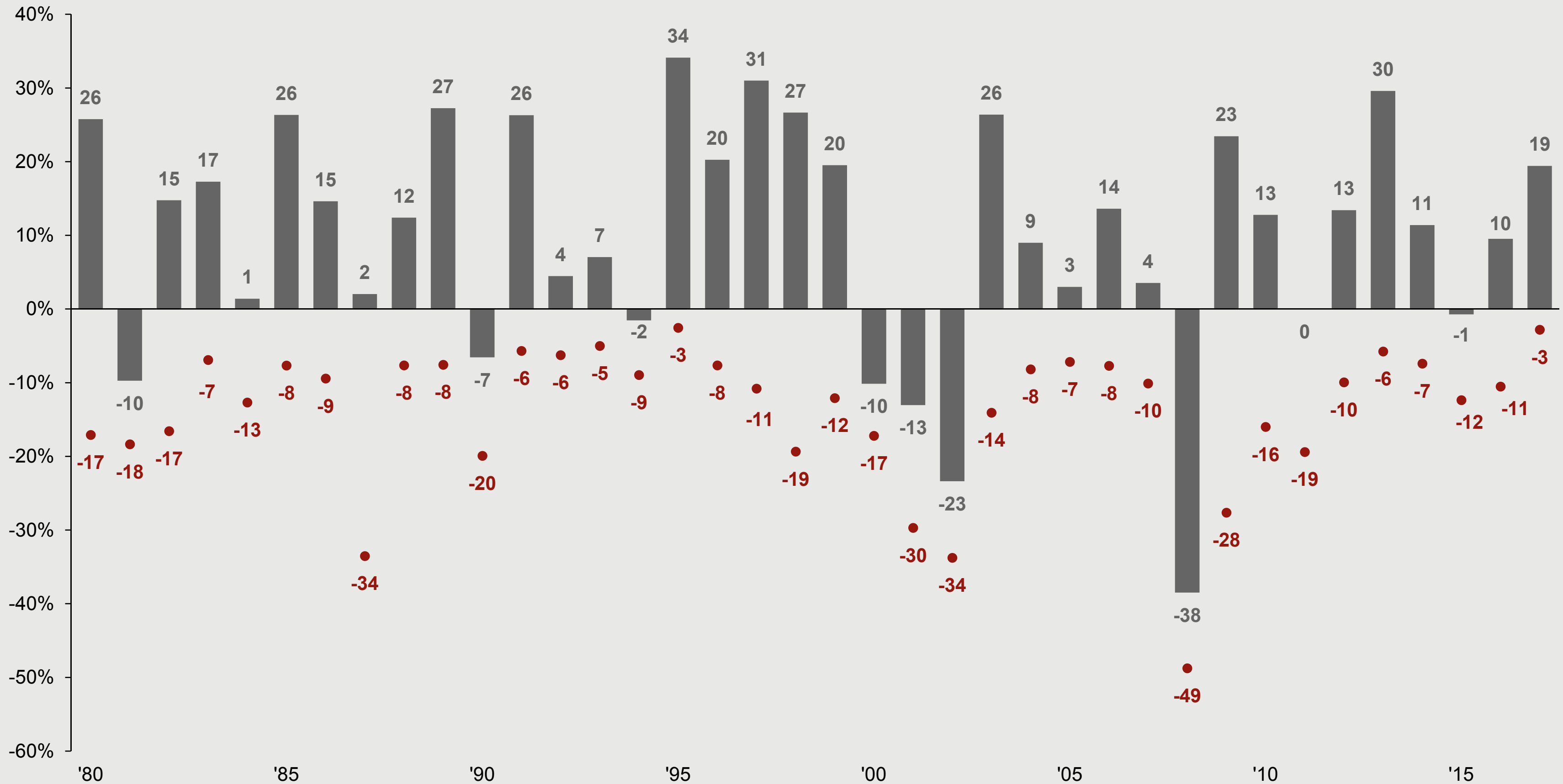
Annual returns and intra-year declines

S&P 500 intra-year declines vs. calendar year returns

Despite average intra-year drops of 13.8%, annual returns positive in 29 of 38 years



Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management.
Returns are based on price index only and do not include dividends. Intra-year drops refers to the largest market drops from a peak to a trough during the year. For illustrative purposes only. Returns shown are calendar year returns from 1980 to 2017, over which time period the average annual return was 8.8%.
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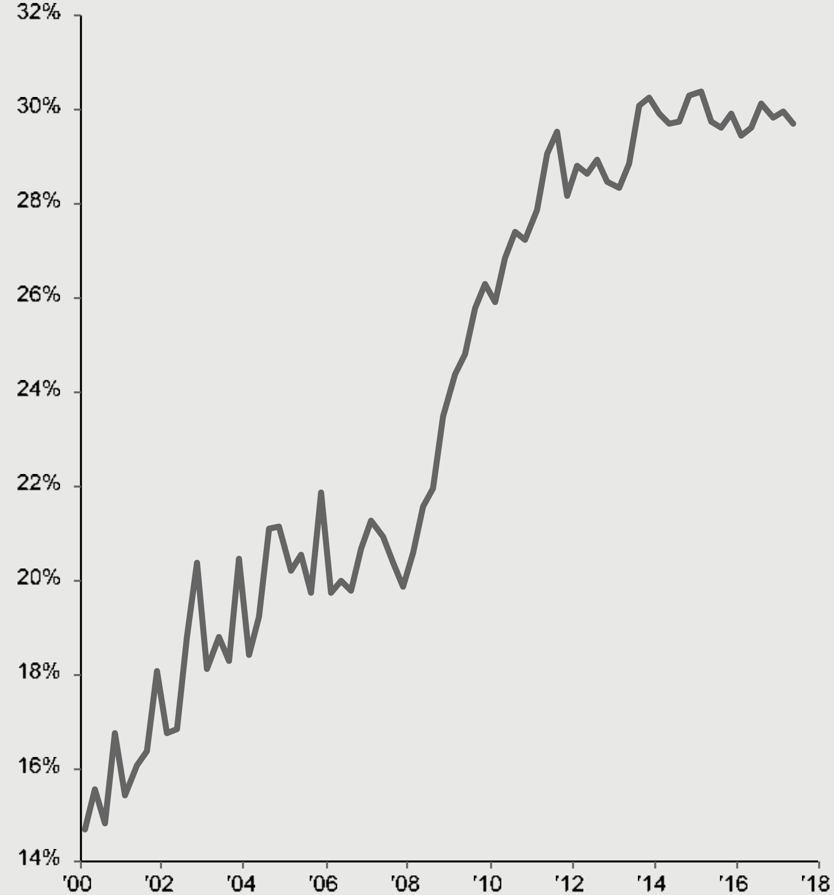
Equities

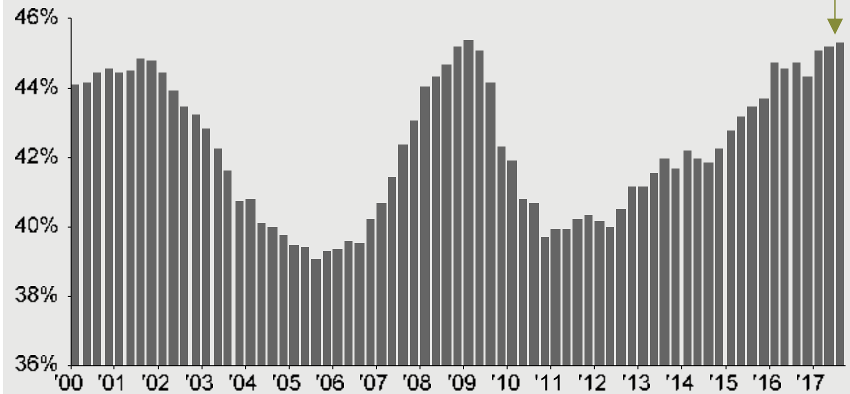
Corporate cash as a % of current assets

S&P 500 companies – cash and cash equivalents, quarterly



Non-financial corporate debt

U.S. non-financial corporations, % of GDP



S&P 500 interest coverage ratio

EBIT/interest expense on debt, monthly, LTM

Source: FactSet, Standard & Poor's, BEA, Federal Reserve, J.P. Morgan Asset Management.
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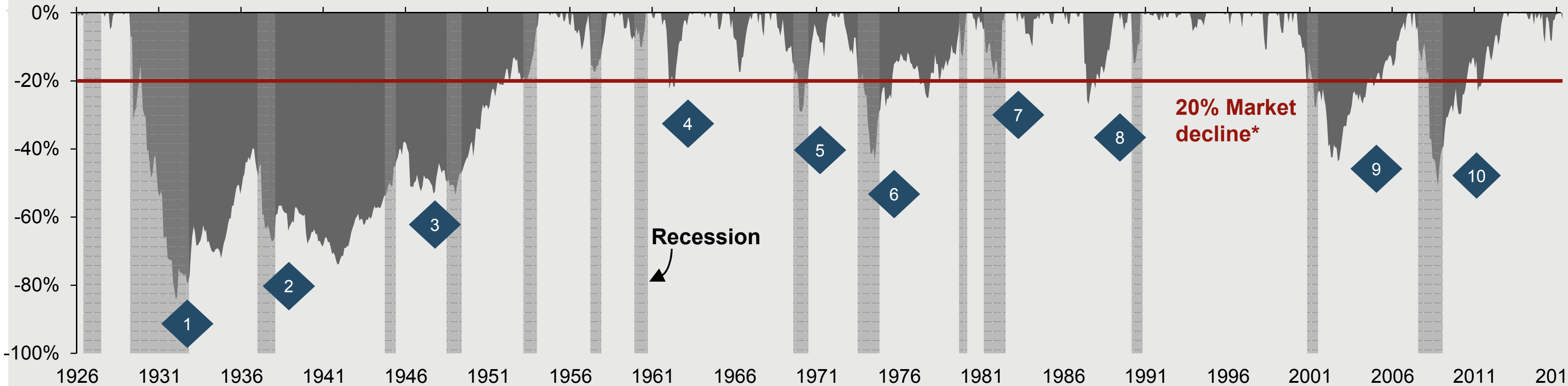
Equities

S&P 500 composite declines from all-time highs



Characteristics of bull and bear markets

Market Corrections	Bear markets: Market peak	Bear markets: Bear return*	Bear markets: Duration (months)*	Macro environment: Recession	Macro environment: Commodity spike	Macro environment: Aggressive Fed	Macro environment: Extreme valuations	Bull markets: Bull begin date	Bull markets: Bull return	Bull markets: Duration (months)
1 Crash of 1929 - Excessive leverage, irrational exuberance	Sep 1929	-86%	32	◆			◆	Jul 1926	152%	37
2 1937 Fed Tightening - Premature policy tightening	Mar 1937	-60%	61	◆		◆		Mar 1935	129%	23
3 Post WWII Crash - Post-war demobilization, recession fears	May 1946	-30%	36	◆			◆	Apr 1942	158%	49
4 Flash Crash of 1962 - Flash crash, Cuban Missile Crisis	Dec 1961	-28%	6				◆	Oct 1960	39%	13
5 Tech Crash of 1970 - Economic overheating, civil unrest	Nov 1968	-36%	17	◆	◆	◆		Oct 1962	103%	73
6 Stagflation - OPEC oil embargo	Jan 1973	-48%	20	◆	◆			May 1970	74%	31
7 Volcker Tightening - Whip Inflation Now	Nov 1980	-27%	20	◆	◆	◆		Mar 1978	62%	32
8 1987 Crash - Program trading, overheating markets	Aug 1987	-34%	3				◆	Aug 1982	229%	60
9 Tech Bubble - Extreme valuations, .com boom/bust	Mar 2000	-49%	30	◆			◆	Oct 1990	417%	113
10 Global Financial Crisis - Leverage/housing, Lehman collapse	Oct 2007	-57%	17	◆	◆	◆		Oct 2002	101%	60
Current Cycle								Mar 2009	295%	105
Averages	-	**-45%**	**24**					-	**160%**	**54**

Source: FactSet, NBER, Robert Shiller, Standard & Poor's, J.P. Morgan Asset Management.
*A bear market is defined as a 20% or more decline from the previous market high. The bear return is the peak to trough return over the cycle. Periods of "Recession" are defined using NBER business cycle dates. "Commodity spikes" are defined as significant rapid upward moves in oil prices. Periods of "Extreme valuations" are those where S&P 500 last 12 months' P/E levels were approximately two standard deviations above long-run averages, or time periods where equity market valuations appeared expensive given the broader macroeconomic environment. "Aggressive Fed Tightening" is defined as Federal Reserve monetary tightening that was unexpected and/or significant in magnitude. Bear and Bull returns are price returns.
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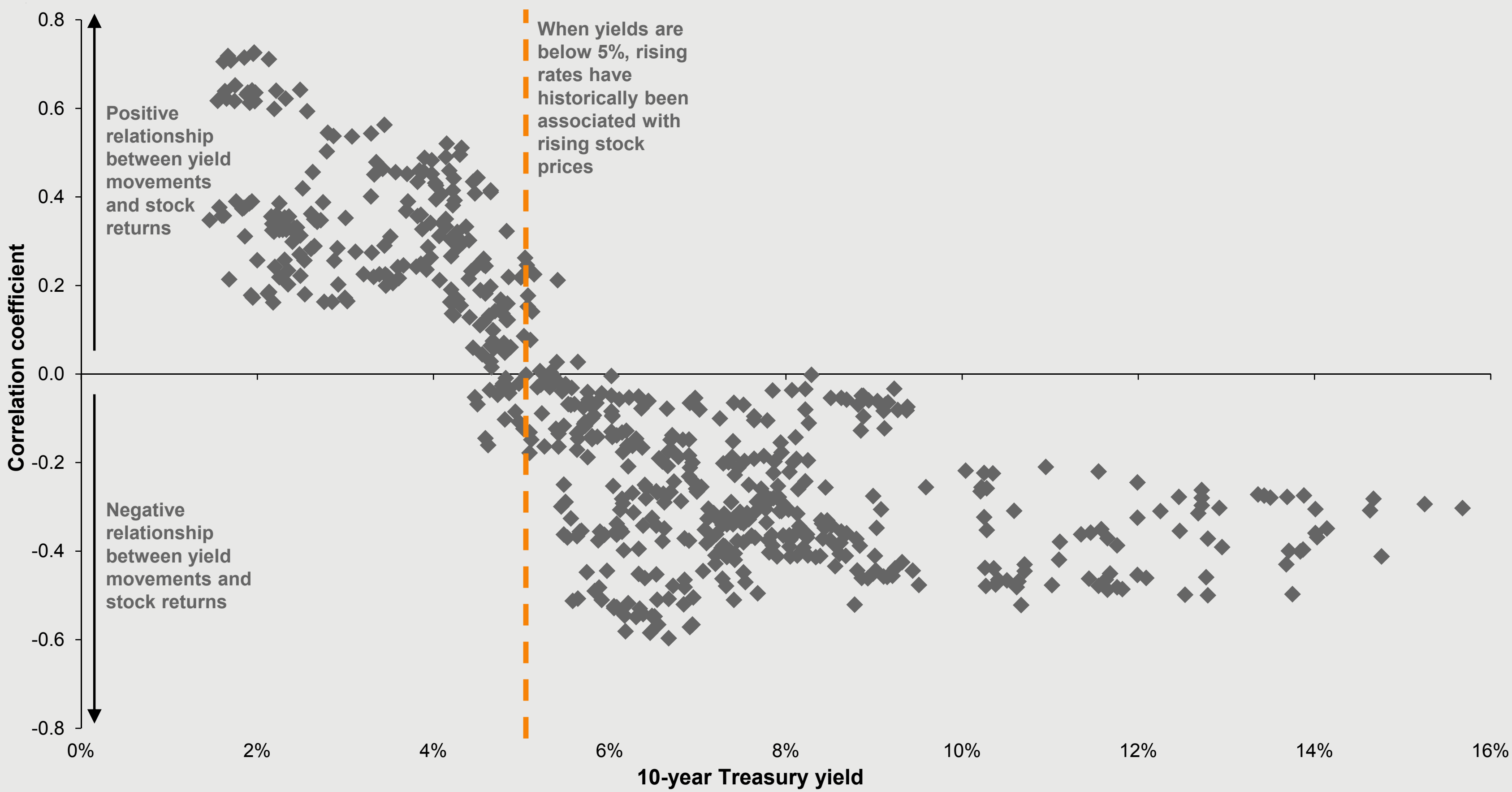
Equities

Correlations between weekly stock returns and interest rate movements
Weekly S&P 500 returns, 10-year Treasury yield, rolling 2-year correlation, May 1963 – December 2017



Source: FactSet, Standard & Poor's, FRB, J.P. Morgan Asset Management.
Returns are based on price index only and do not include dividends. Markers represent monthly 2-year correlations only.
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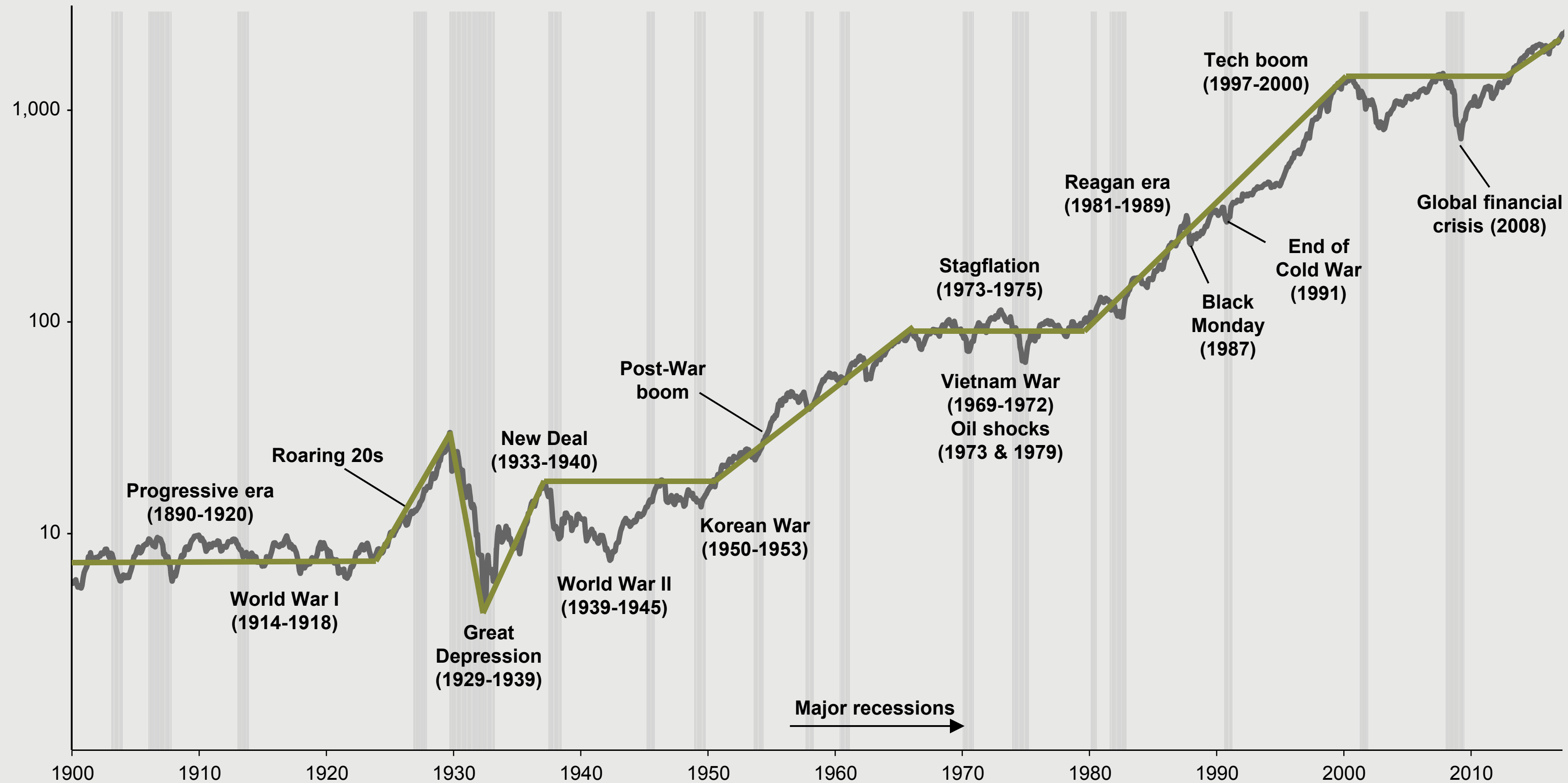
J.P.Morgan Asset Management

S&P Composite Index

Log scale, annual



Source: FactSet, NBER, Robert Shiller, J.P. Morgan Asset Management.
Data shown in log scale to best illustrate long-term index patterns.
Past performance is not indicative of future returns. Chart is for illustrative purposes only.
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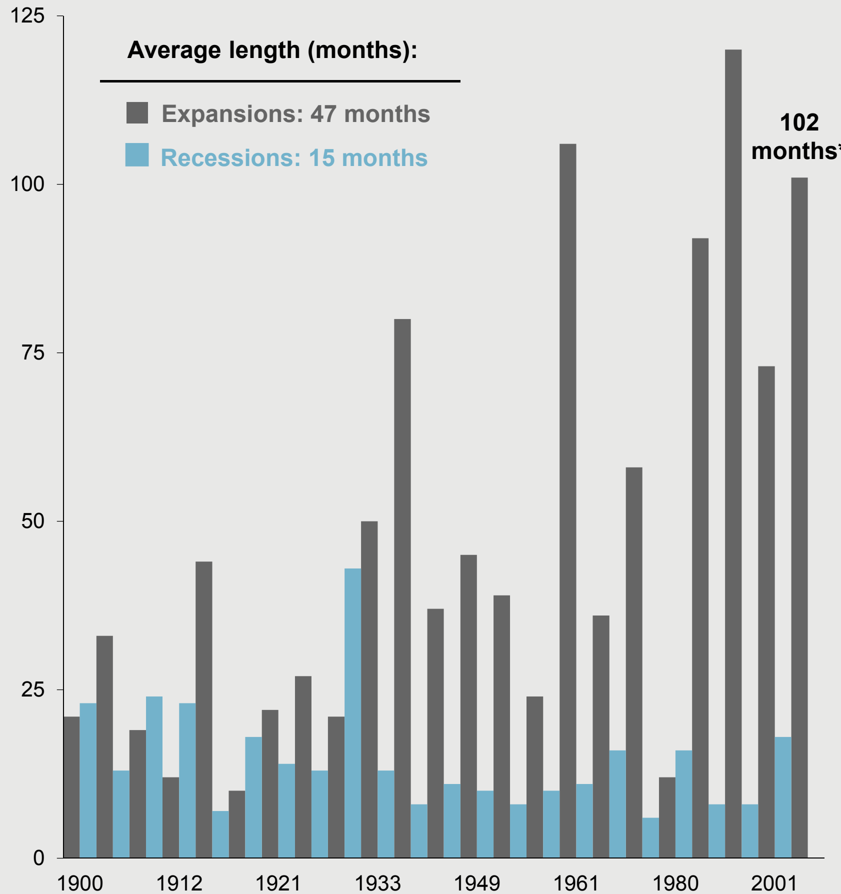
J.P.Morgan Asset Management

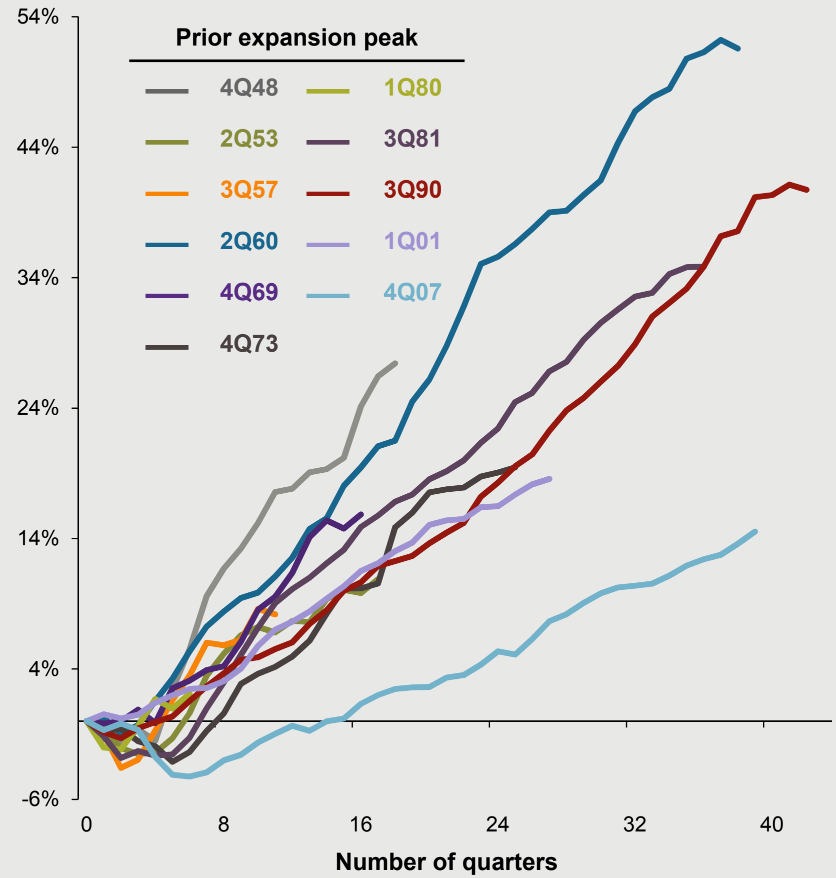
Economy

Length of economic expansions and recessions



Strength of economic expansions

Cumulative real GDP growth since prior peak, percent



Source: BEA, NBER, J.P. Morgan Asset Management. *Chart assumes current expansion started in July 2009 and continued through December 2017, lasting 102 months so far. Data for length of economic expansions and recessions obtained from the National Bureau of Economic Research (NBER). These data can be found at www.nber.org/cycles/ and reflect information through December 2017. Past performance is not a reliable indicator of current and future results.
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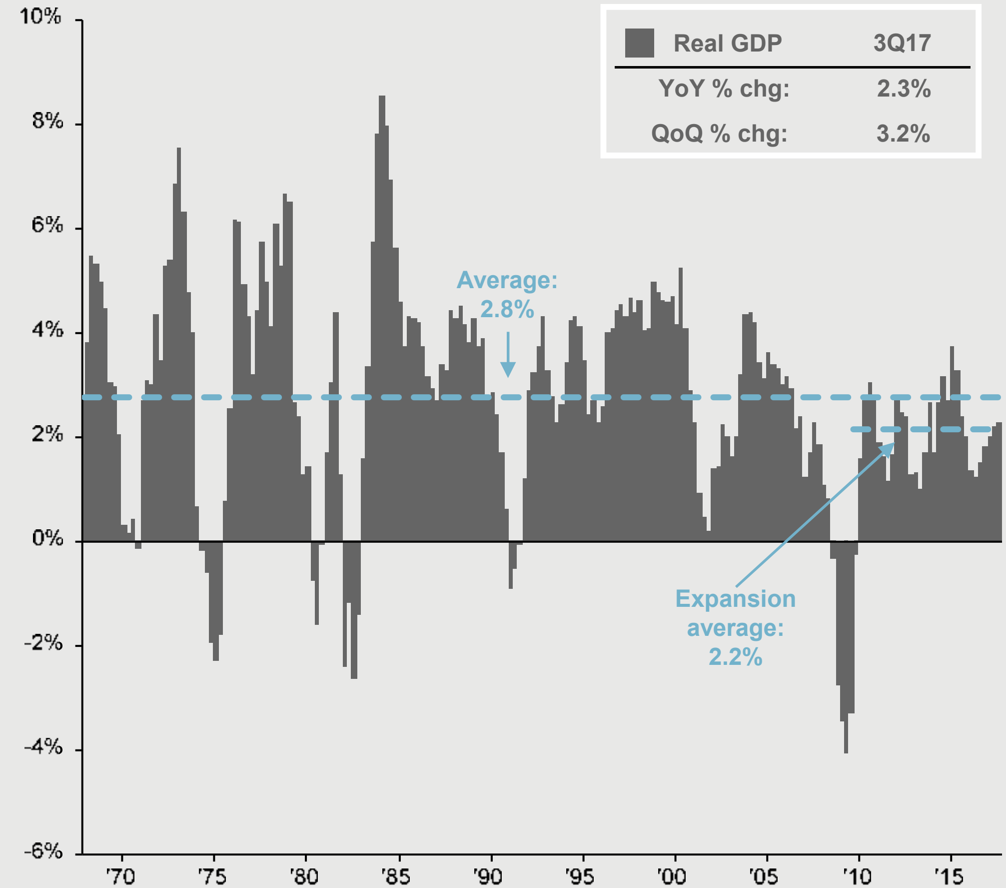
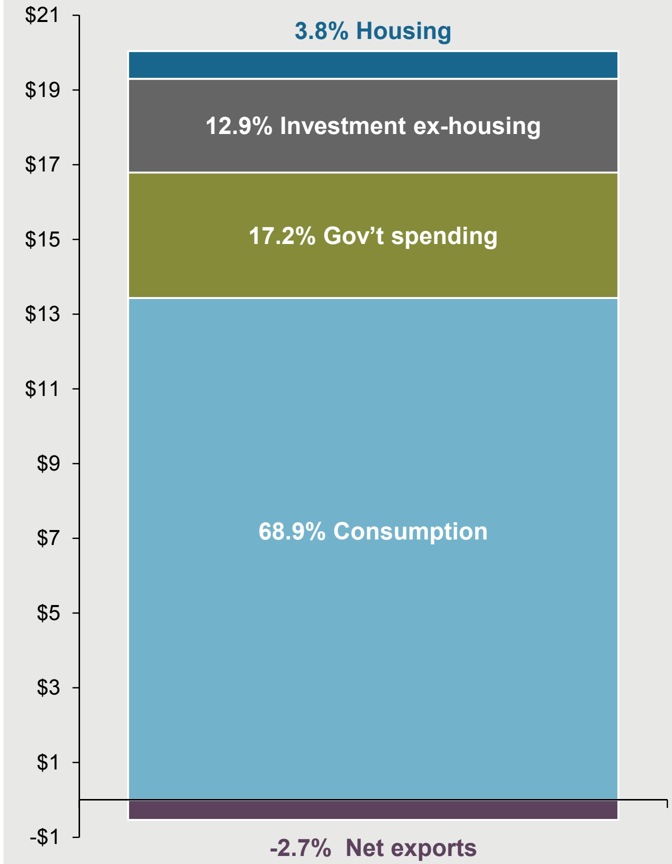
J.P.Morgan Asset Management

Economic growth and the composition of GDP

Real GDP
Year-over-year % change



Components of GDP
3Q17 nominal GDP, USD trillions



Source: BEA, FactSet, J.P. Morgan Asset Management.
Values may not sum to 100% due to rounding. Quarter-over-quarter percent changes are at an annualized rate. Average represents the annualized growth rate for the full period. Expansion average refers to the period starting in the second quarter of 2009. Past performance is not a reliable indicator of current and future results.
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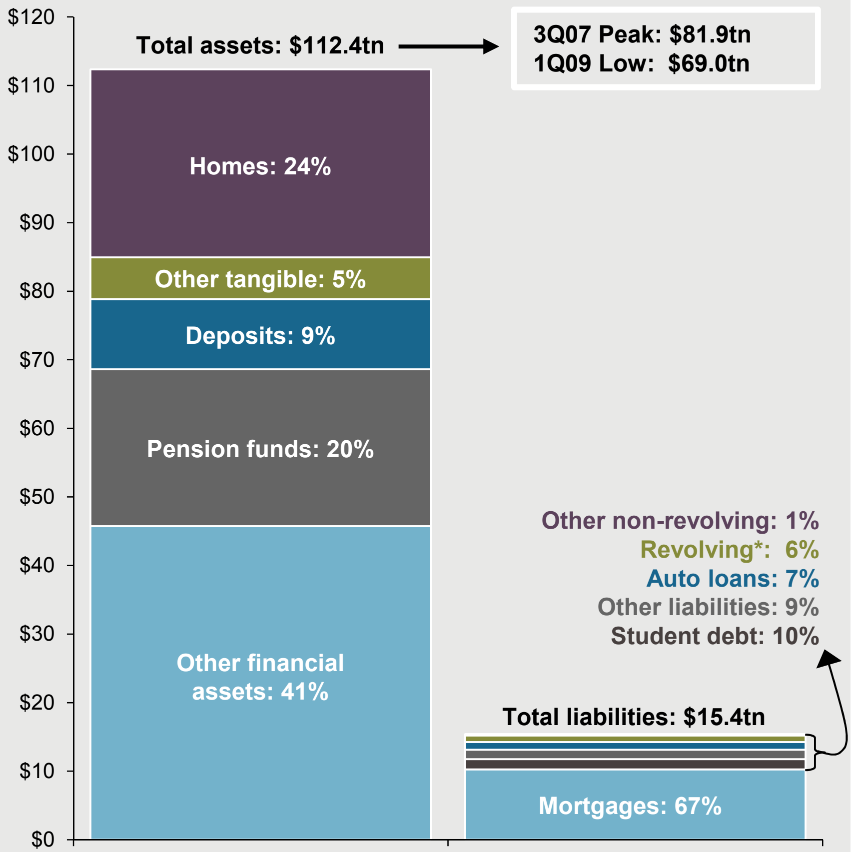
J.P. Morgan Asset Management

Economy

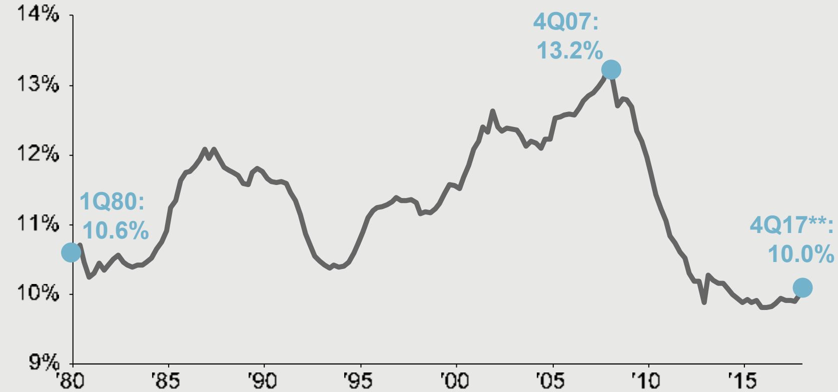
Consumer balance sheet

3Q17, trillions of dollars outstanding, not seasonally adjusted



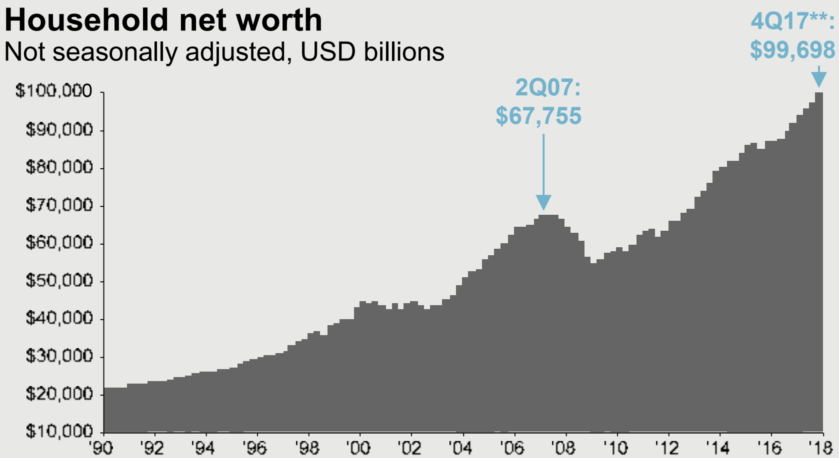
Household debt service ratio

Debt payments as % of disposable personal income, SA



Household net worth

Not seasonally adjusted, USD billions

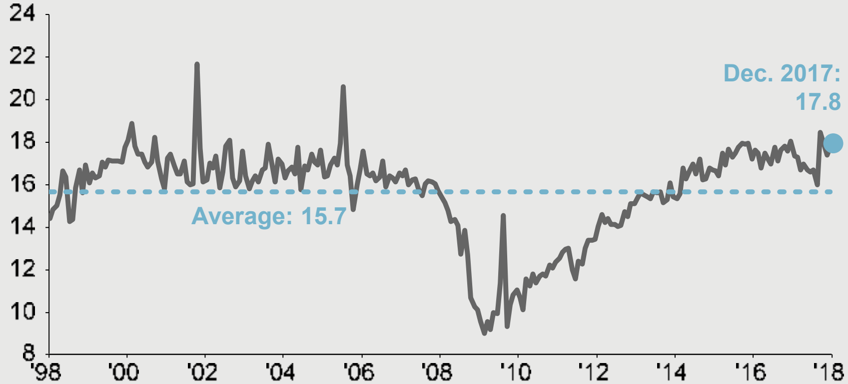


Source: FactSet, FRB, J.P. Morgan Asset Management; (Top and bottom right) BEA.
Data include households and nonprofit organizations. SA – seasonally adjusted.
*Revolving includes credit cards. Values may not sum to 100% due to rounding. **3Q17 and 4Q17 figures for debt service and 4Q17 figure for net worth are J.P. Morgan Asset Management estimates. Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

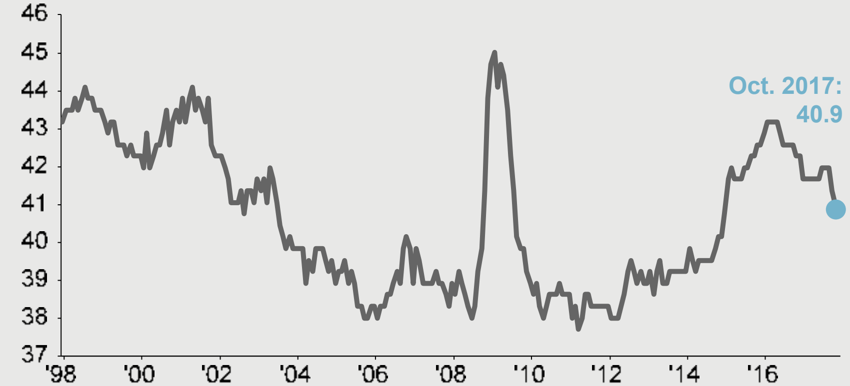
J.P.Morgan Asset Management

Economy

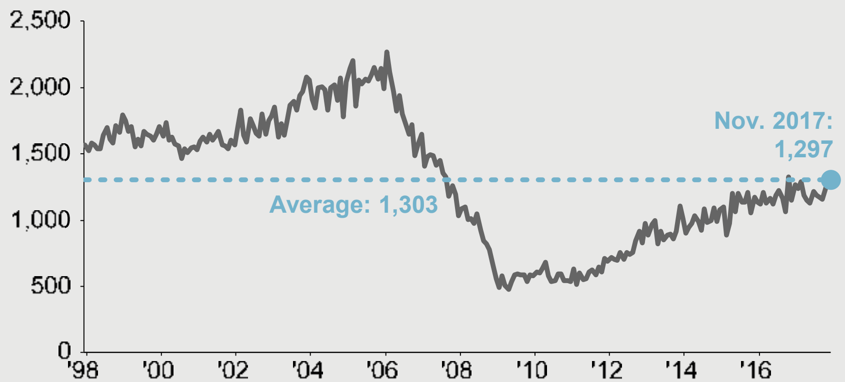
Light vehicle sales
Millions, seasonally adjusted annual rate



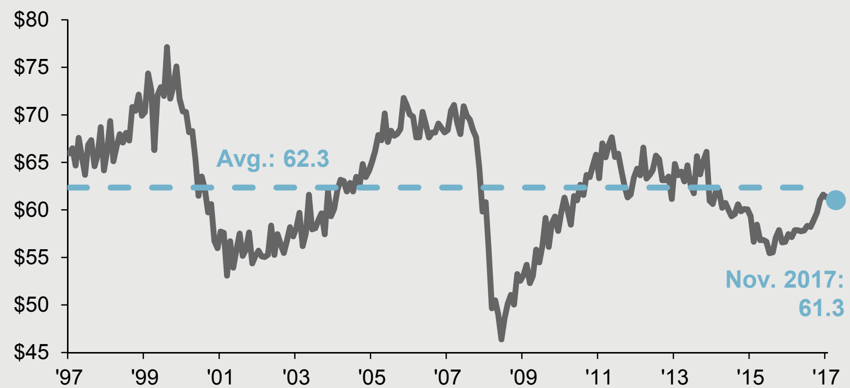
Manufacturing and trade inventories
Days of sales, seasonally adjusted



Housing starts
Thousands, seasonally adjusted annual rate



Real capital goods orders
Non-defense capital goods orders ex-aircraft, USD billions, SA



Source: J.P. Morgan Asset Management; (Top left) BEA; (Top and bottom right, bottom left) Census Bureau, FactSet.
Capital goods orders deflated using the producer price index for capital goods with a base year of 2009.
SA – seasonally adjusted. Past performance is not a reliable indicator of current and future results.
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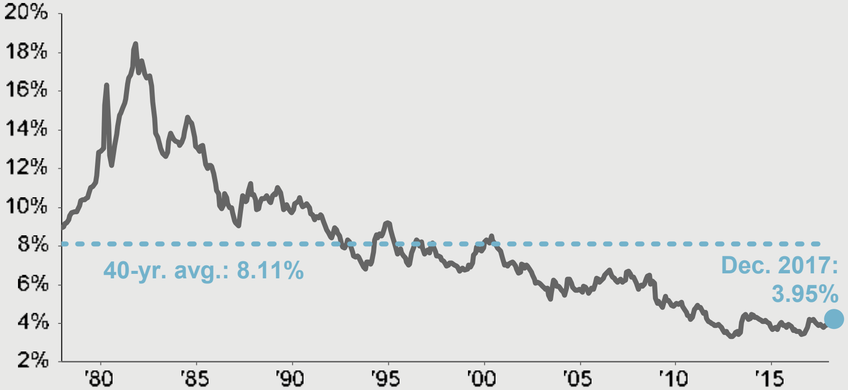
J.P.Morgan Asset Management

Economy

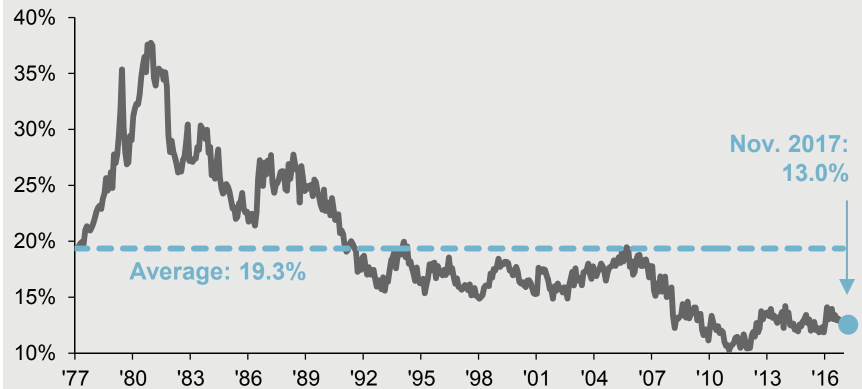
Average interest rate on a U.S. mortgage

30-year fixed-rate mortgage



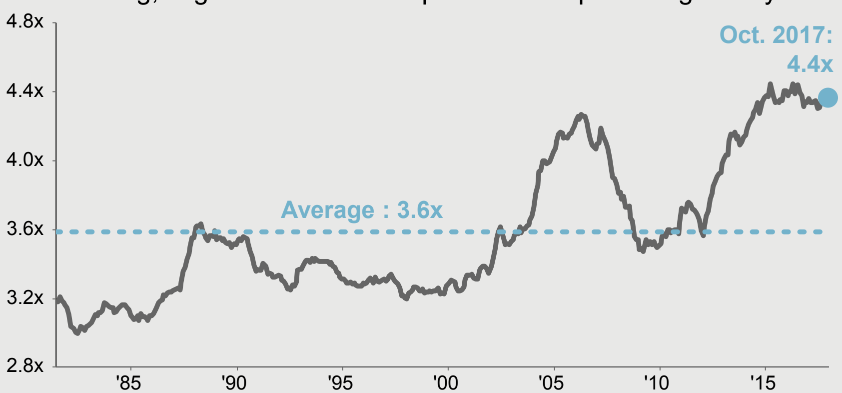
Housing Affordability Index

Avg. mortgage payment as a % of household income



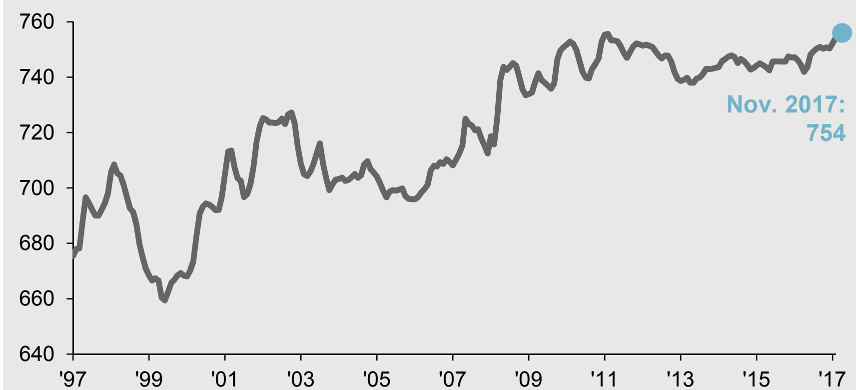
Home prices relative to income

6-mo. rolling, avg. new home sales price as multiple of avg. family inc.



Lending standards for approved mortgage loans

Average FICO score based on origination date



Source: J.P. Morgan Asset Management; (Top left, bottom left and top right) FactSet; (Top left) Freddie Mac; (Top right, bottom left) National Association of Realtors, Census Bureau; (Top right) BEA; (Bottom right) McDash, J.P. Morgan Securitized Product Research.
Monthly mortgage payment assumes the prevailing 30-year fixed-rate mortgage rates and average new home prices excluding a 20% down payment.
Past performance is not a reliable indicator of current and future results.
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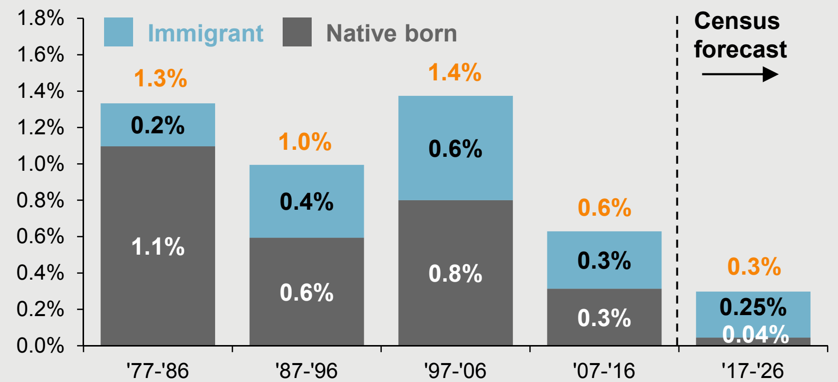
J.P.Morgan Asset Management

Long-term drivers of economic growth

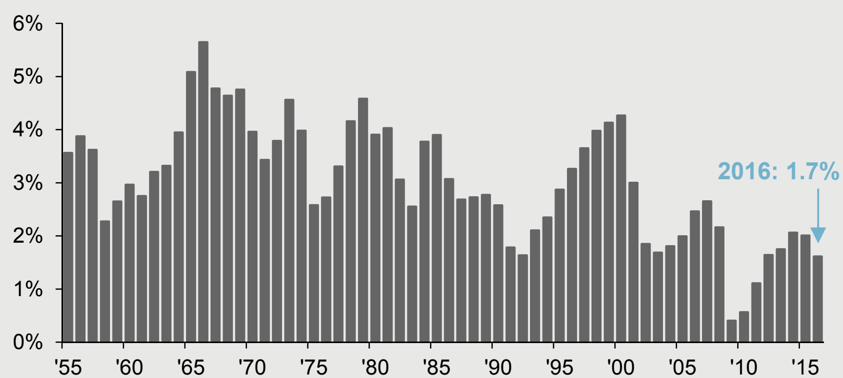
Growth in working-age population

Percent increase in civilian non-institutional population ages 16-64



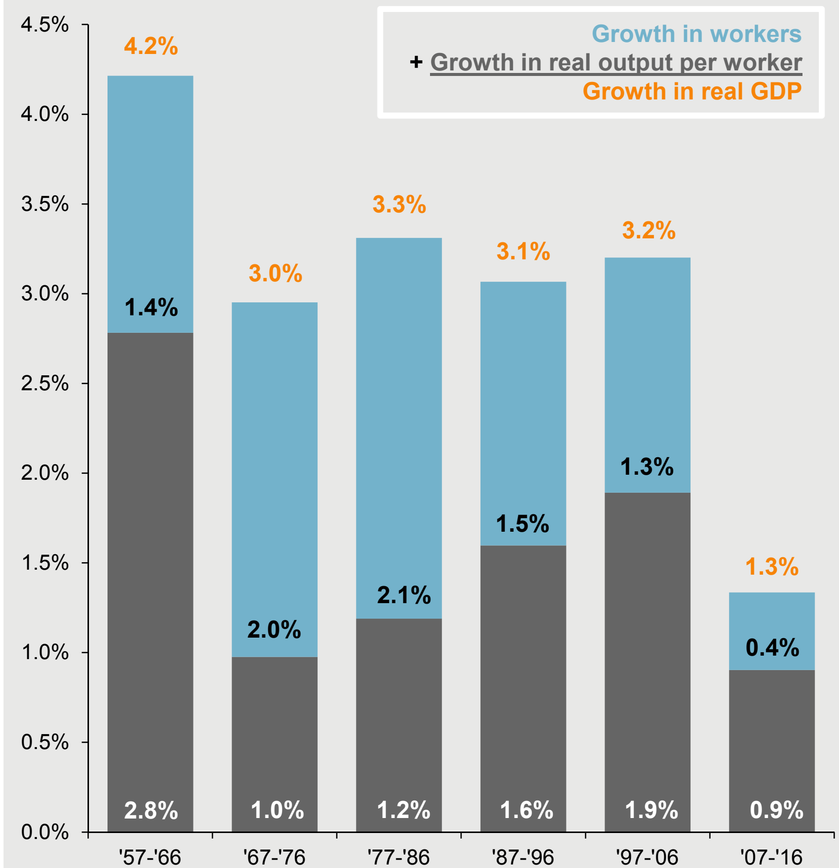
Growth in private non-residential capital stock

Non-residential fixed assets, year-over-year % change



Drivers of GDP growth

Average year-over-year percent change



Source: J.P. Morgan Asset Management; (Top left) Census Bureau, DOD, DOJ; (Top left and right) BLS; (Right and bottom left) BEA.
GDP drivers are calculated as the average annualized growth between 4Q of the first and last year. Future working age population is calculated as the total estimated number of Americans from the Census Bureau, controlled for military enrollment, growth in institutionalized population and demographic trends. Growth in working age population does not include illegal immigration; DOD Troop Readiness reports used to estimate percent of population enlisted. Past performance is not a reliable indicator of current and future results.
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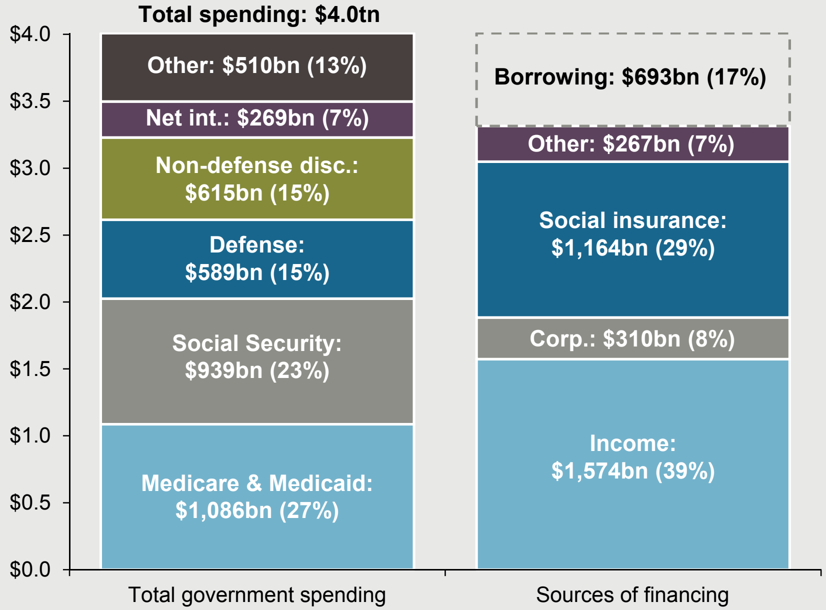
J.P.Morgan Asset Management

The 2017 federal budget

CBO Baseline forecast, USD trillions

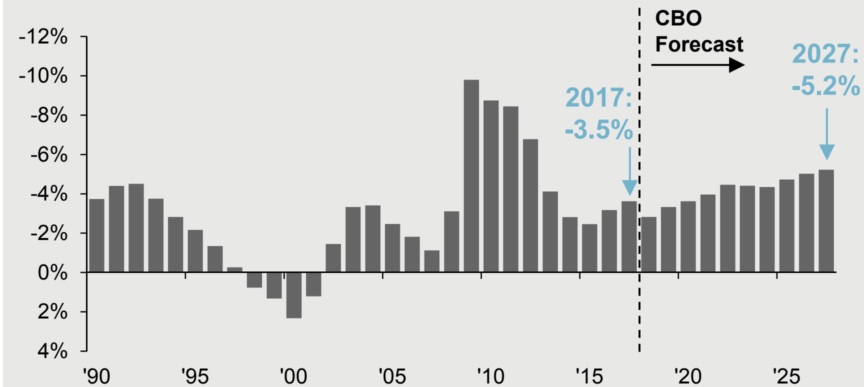


CBO's Baseline assumptions

	2017	'18-'19	'20-'21	'22-'27
Real GDP growth	2.1%	2.0%	1.5%	1.9%
10-year Treasury	2.3%	2.9%	3.5%	3.7%
Headline inflation (CPI)	2.2%	2.2%	2.4%	2.4%
Unemployment	4.5%	4.2%	4.8%	4.9%

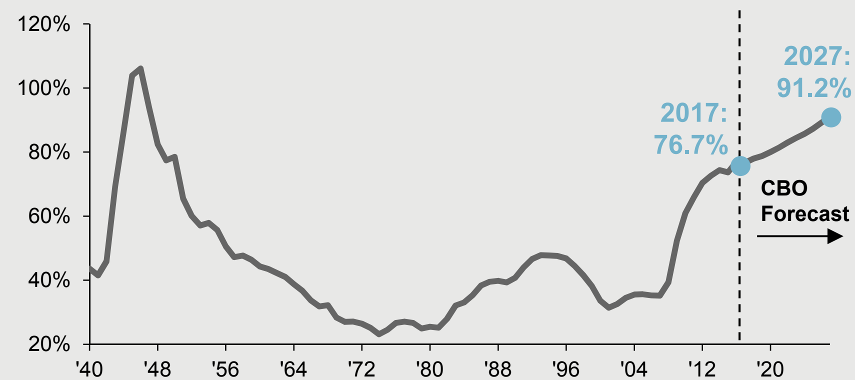
Federal budget surplus/deficit

% of GDP, 1990 – 2027, 2017 CBO Baseline



Federal net debt (accumulated deficits)

% of GDP, 1940 – 2027, 2017 CBO Baseline, end of fiscal year



Source: CBO, J.P. Morgan Asset Management; (Top and bottom right) BEA, Treasury Department.
2017 Federal Budget is based on the Congressional Budget Office (CBO) June 2017 Baseline Budget Forecast. Other spending includes, but is not limited to, health insurance subsidies, income security and federal civilian and military retirement. Please note that these estimates do not include the impacts of the Tax Cuts and Jobs Act of 2017.
Note: Years shown are fiscal years (Oct. 1 through Sep. 30). Past performance is not a reliable indicator of current and future results.
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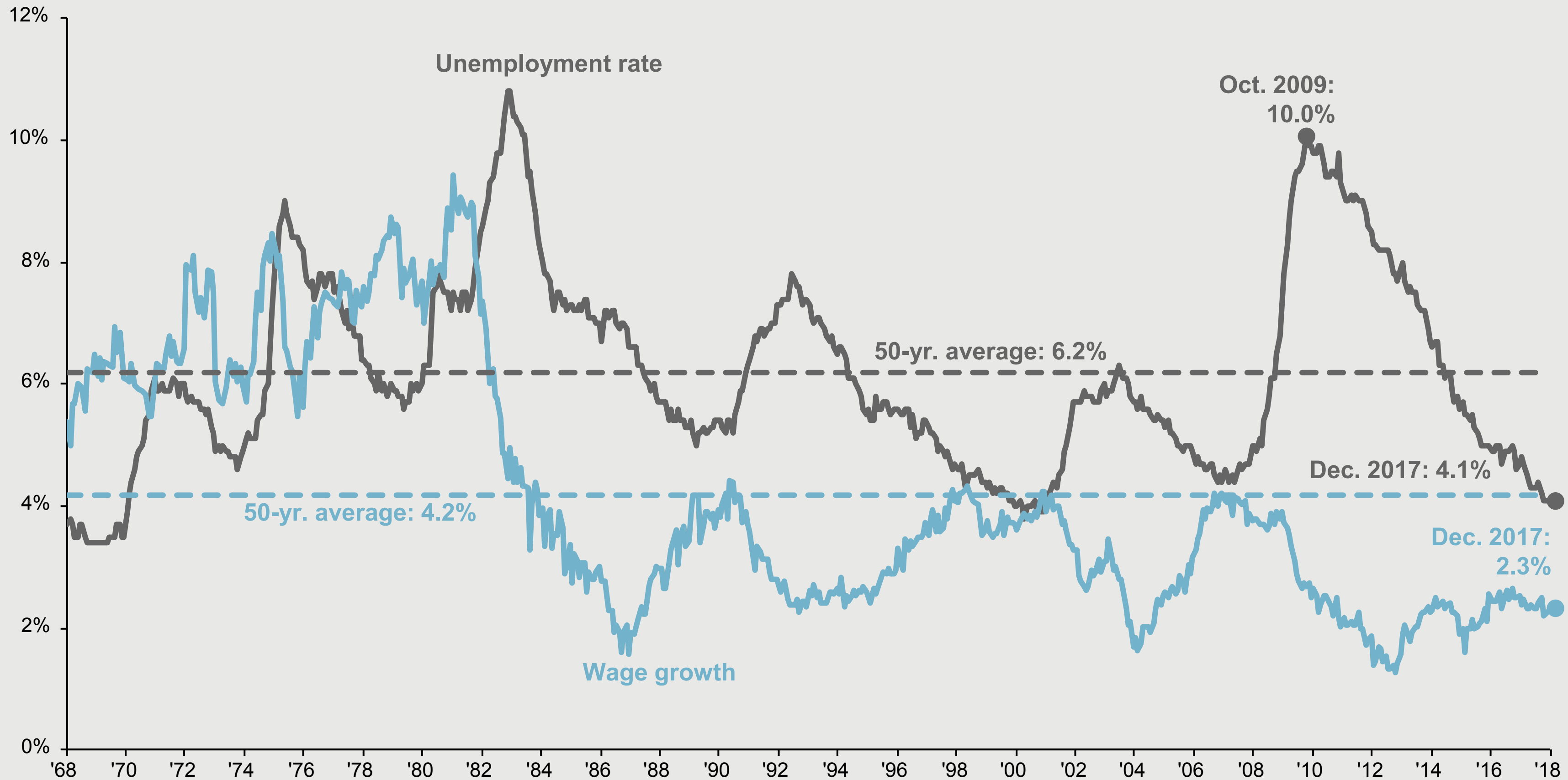
Economy

Civilian unemployment rate and year-over-year wage growth for private production and non-supervisory workers
Seasonally adjusted, percent



Source: BLS, FactSet, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results.
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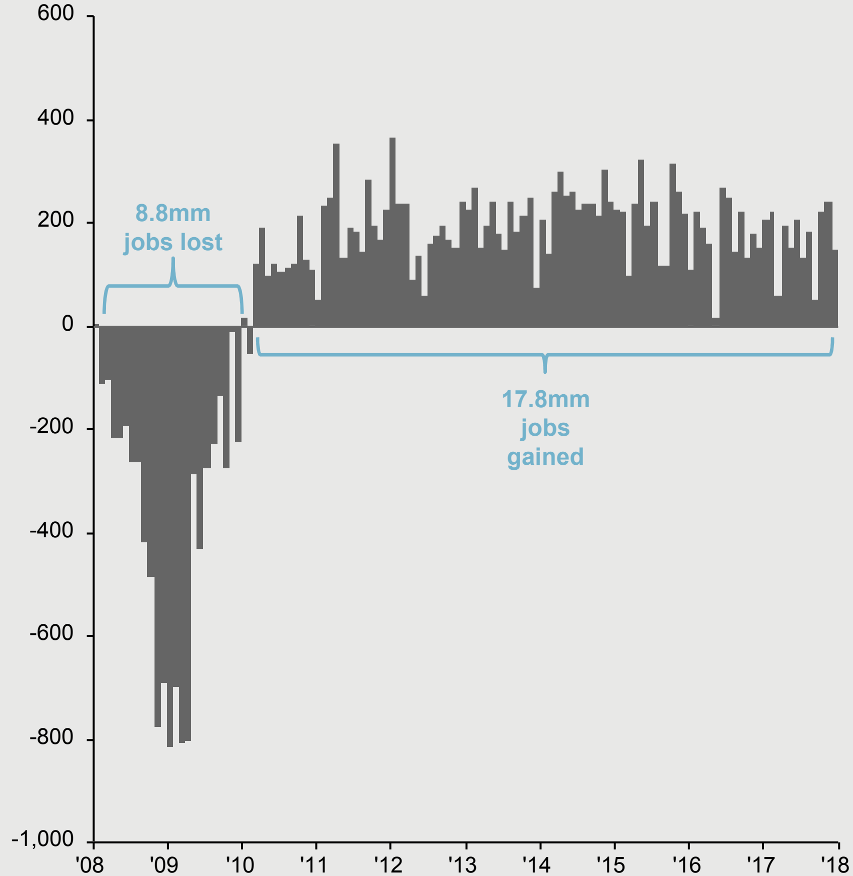
J.P.Morgan Asset Management

Economy

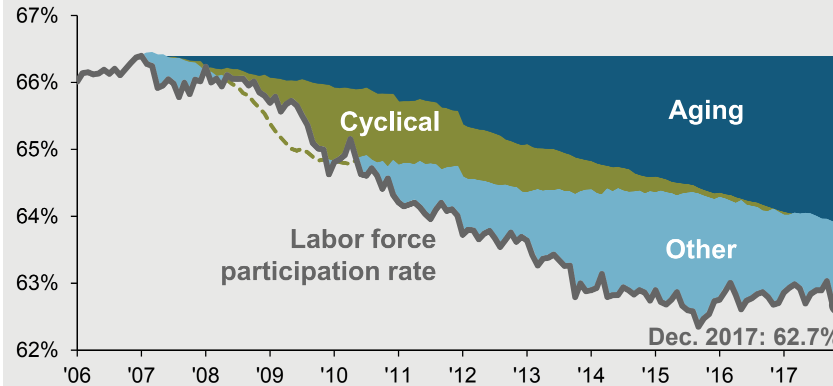
Employment – Total private payroll

Total job gain/loss, thousands



Labor force participation rate decline since 2007 peak*

Population employed or looking for work as a % of total, ages 16+



Net job creation since February 2010

Millions of jobs

Source: BLS, FactSet, J.P. Morgan Asset Management. (Bottom right) Info. fin. & bus. svcs. = Information, financial activities and professional and business services; Mfg. trade & trans. = Manufacturing, trade, transportation and utilities; Leisure, hospt. & other svcs. = Leisure, hospitality and other services; Educ. & health svcs. = Education & health services; Mining and construct = Natural resources mining & construction; Gov't = Government.
*Aging effect on the labor force participation rate is the estimated number of people who are no longer employed or looking for work because they are retired. Cyclical effect is the estimated number of people who lose their jobs and stop looking for work or do not look for work because of the economic conditions. Other represents the drop in labor force participation from the prior expansion peak that cannot be explained by age or cyclical effects. Estimates for reason of decline in labor force participation rate are made by J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results.
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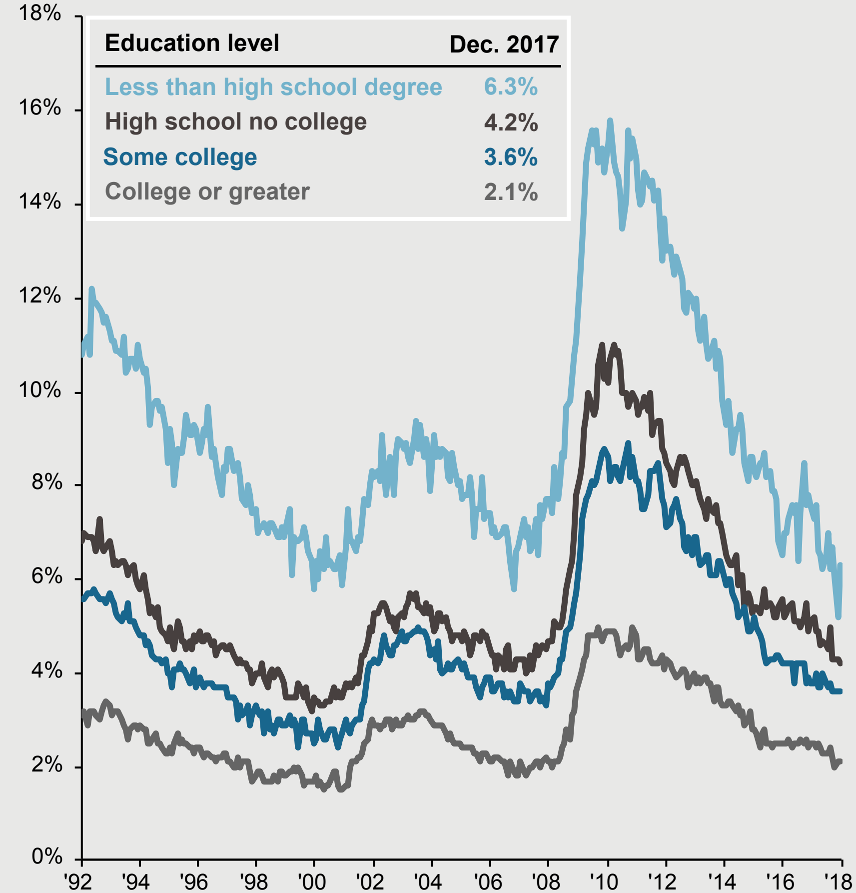
J.P.Morgan Asset Management

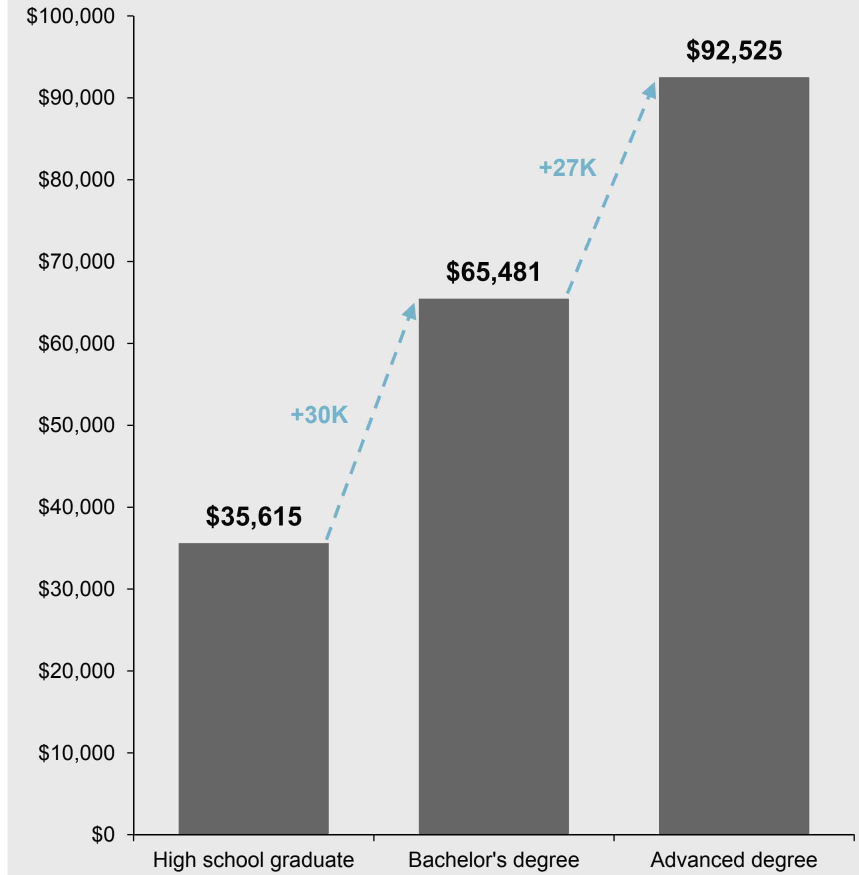
Employment and income by educational attainment

Unemployment rate by education level



Average annual earnings by highest degree earned

Workers aged 18 and older, 2015



Source: J.P. Morgan Asset Management; (Left) BLS, FactSet; (Right) Census Bureau.
Unemployment rates shown are for civilians aged 25 and older. Earnings by educational attainment comes from the Current Population Survey and is published under historical income tables by person by the Census Bureau. Past performance is not a reliable indicator of current and future results.
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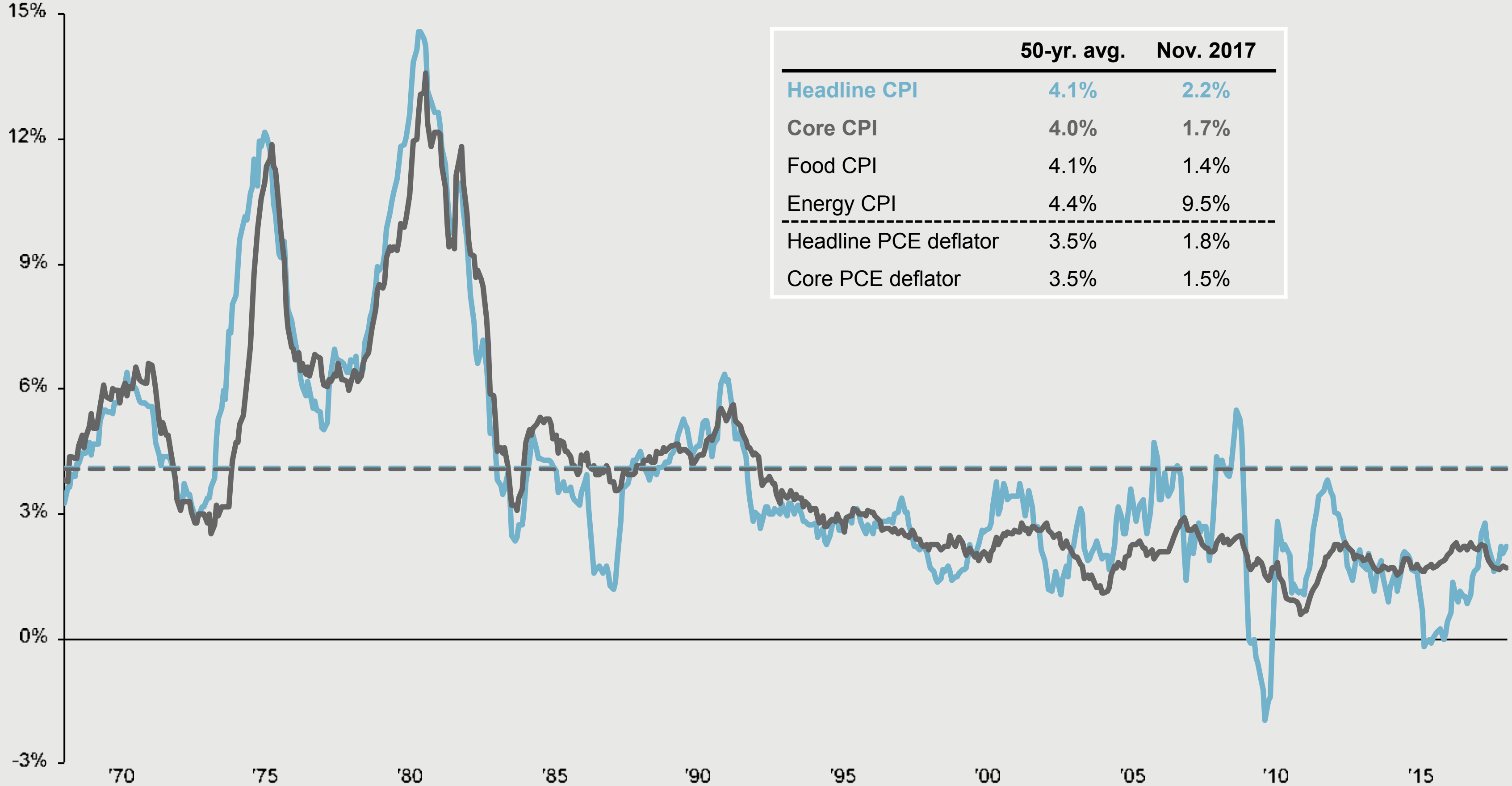
J.P.Morgan Asset Management

Economy

CPI and core CPI

% change vs. prior year, seasonally adjusted



	50-yr. avg.	Nov. 2017
Headline CPI	4.1%	2.2%
Core CPI	4.0%	1.7%
Food CPI	4.1%	1.4%
Energy CPI	4.4%	9.5%
Headline PCE deflator	3.5%	1.8%
Core PCE deflator	3.5%	1.5%

Source: BLS, FactSet, J.P. Morgan Asset Management.
CPI used is CPI-U and values shown are % change vs. one year ago. Core CPI is defined as CPI excluding food and energy prices. The Personal Consumption Expenditure (PCE) deflator employs an evolving chain-weighted basket of consumer expenditures instead of the fixed-weight basket used in CPI calculations. Past performance is not a reliable indicator of current and future results.
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J.P.Morgan Asset Management

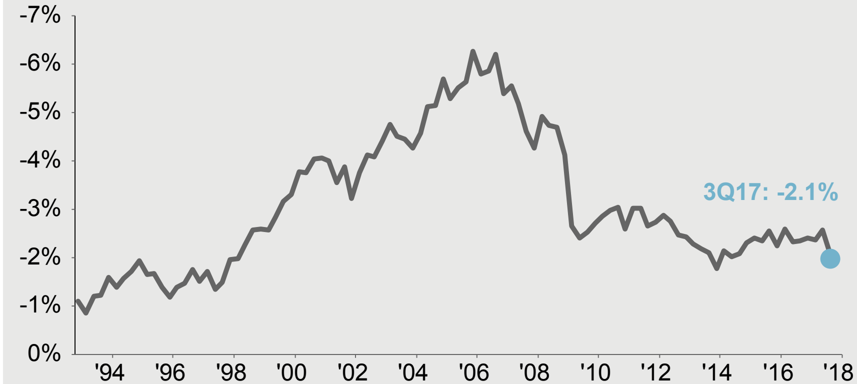
Economy

The U.S. dollar

Monthly average of major currencies nominal trade-weighted index

The U.S. trade balance

Current account balance, % of GDP



Developed markets interest rate differentials

Difference between U.S. and international 10-year yields*

Source: J.P. Morgan Asset Management; (Left) FactSet, Federal Reserve; (Top right) FactSet, Bureau of Economic Analysis, (Bottom right) Tullett Prebon.
Currencies in the Trade Weighted U.S. Dollar Major Currencies Index are: British pound, euro, Swedish kroner, Australian dollar, Canadian dollar, Japanese yen and Swiss franc. *Interest rate differential is the difference between the 10-year U.S. Treasury yield and a basket of the 10-year yields of each major trading partner (Europe, Canada, Japan, UK, Switzerland, Australia and Sweden). Weights on the basket are calculated using the 10 year average of total government bonds outstanding in each region. Europe is defined as the 19 countries in the Euro area. Past performance is not a reliable indicator of current and future results.
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J.P.Morgan Asset Management

Economy

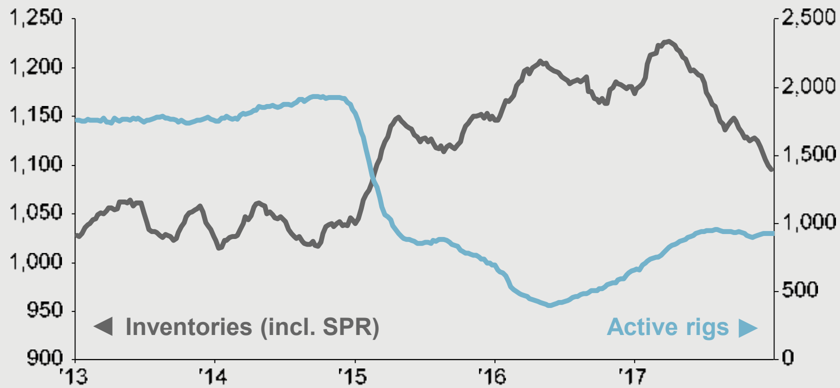
Change in production and consumption of liquid fuels

Production, consumption and inventories, millions of barrels per day

	2014	2015	2016	2017*	2018*	Growth since 2014
Production						
U.S.	14.1	15.1	14.9	15.4	16.7	18.3%
OPEC	36.9	38.2	39.2	39.3	39.7	7.5%
Global	**93.8**	**96.7**	**97.2**	**98.0**	**100.0**	**6.6%**
Consumption						
U.S.	19.1	19.5	19.7	19.9	20.3	6.1%
China	11.6	12.4	12.8	13.2	13.6	16.5%
Global	**93.6**	**95.4**	**97.0**	**98.3**	**100.0**	**6.8%**
Inventory Change	0.2	1.4	0.3	-0.4	0.1	

U.S. crude oil inventories and rig count**

Million barrels, number of active rigs



Price of oil

Brent crude, nominal prices, USD/barrel

Source: J.P. Morgan Asset Management; (Top and bottom left) EIA; (Right) FactSet; (Bottom left) Baker Hughes.
*Forecasts are from the December 2017 EIA Short-Term Energy Outlook and start in 2017.
**U.S. crude oil inventories include the Strategic Petroleum Reserve (SPR). Active rig count includes both natural gas and oil rigs.
Brent crude prices are monthly averages in USD using global spot ICE prices. Past performance is not a reliable indicator of current and future results.
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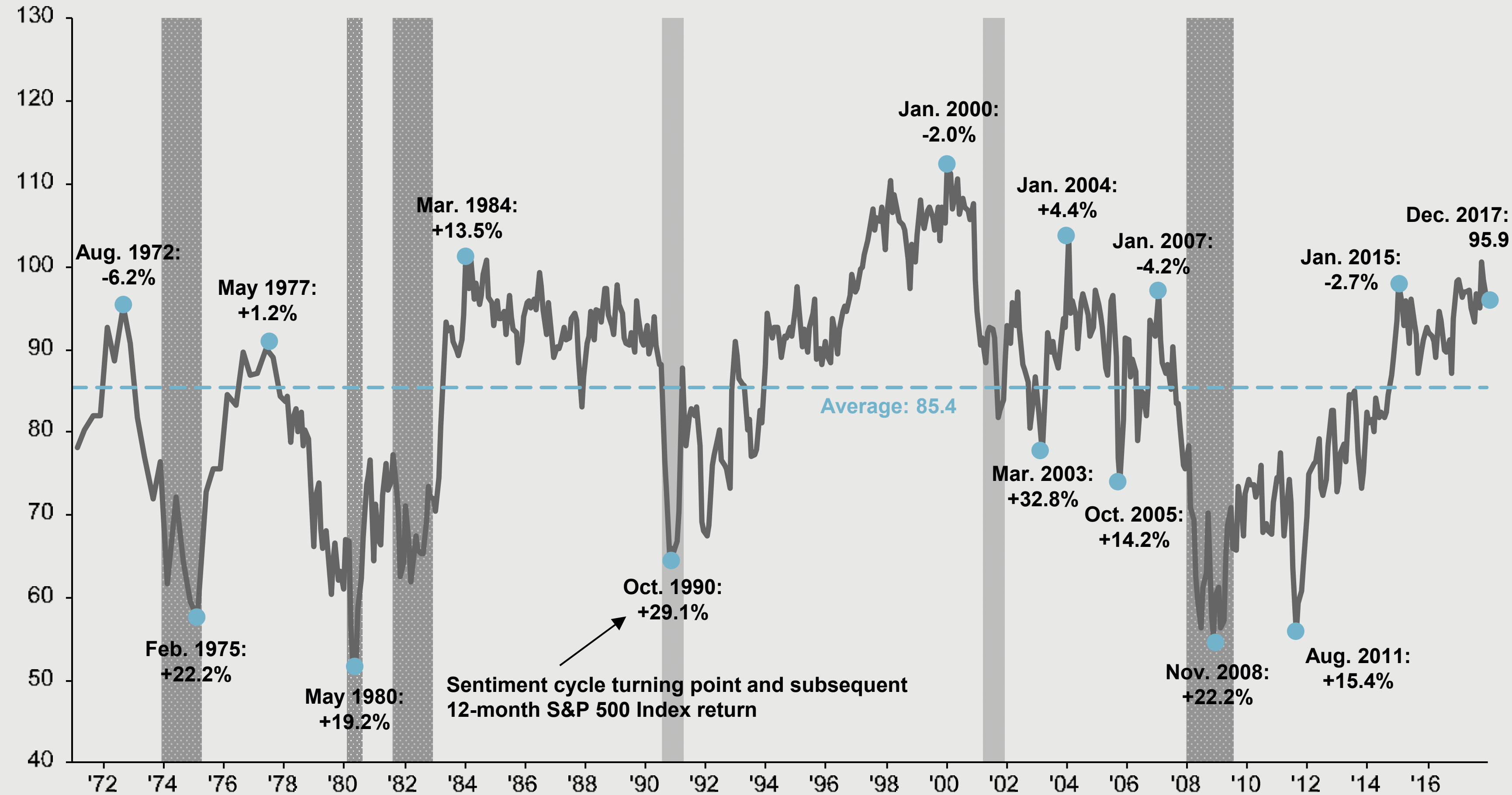
J.P.Morgan Asset Management

Economy

Consumer Sentiment Index – University of Michigan



Source: Standard & Poor's, University of Michigan, FactSet, J.P. Morgan Asset Management.
Peak is defined as the highest index value before a series of lower lows, while a trough is defined as the lowest index value before a series of higher highs. Subsequent 12-month S&P 500 returns are price returns only, which excludes dividends. Past performance is not a reliable indicator of current and future results.
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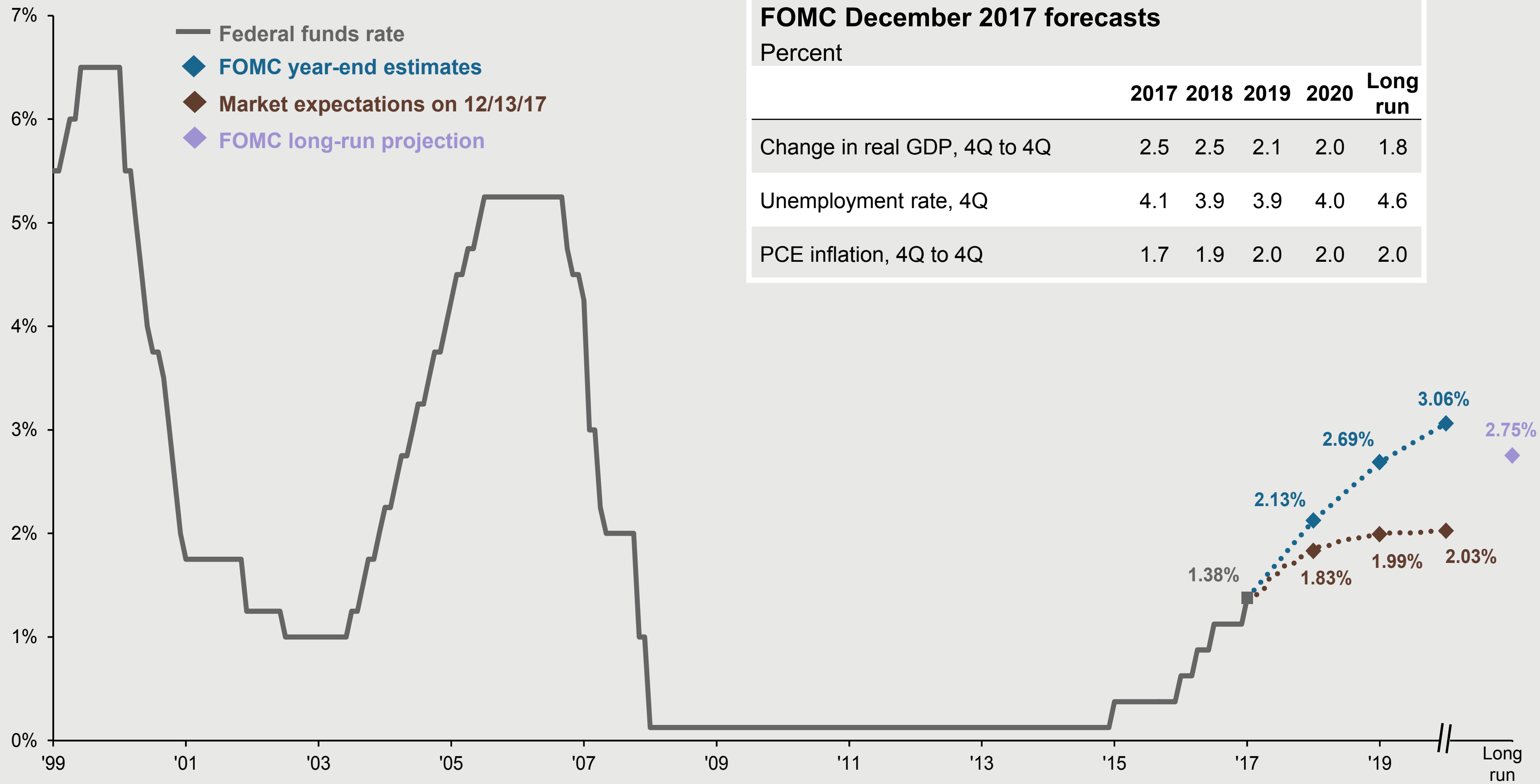
J.P.Morgan Asset Management

Fixed income

Federal funds rate expectations

FOMC and market expectations for the fed funds rate



FOMC December 2017 forecasts

Percent

	2017	2018	2019	2020	Long run
Change in real GDP, 4Q to 4Q	2.5	2.5	2.1	2.0	1.8
Unemployment rate, 4Q	4.1	3.9	3.9	4.0	4.6
PCE inflation, 4Q to 4Q	1.7	1.9	2.0	2.0	2.0

Source: FactSet, Federal Reserve, Bloomberg, J.P. Morgan Asset Management.
Market expectations are the federal funds rates priced into the fed futures market as of the date of the December 2017 FOMC meeting.
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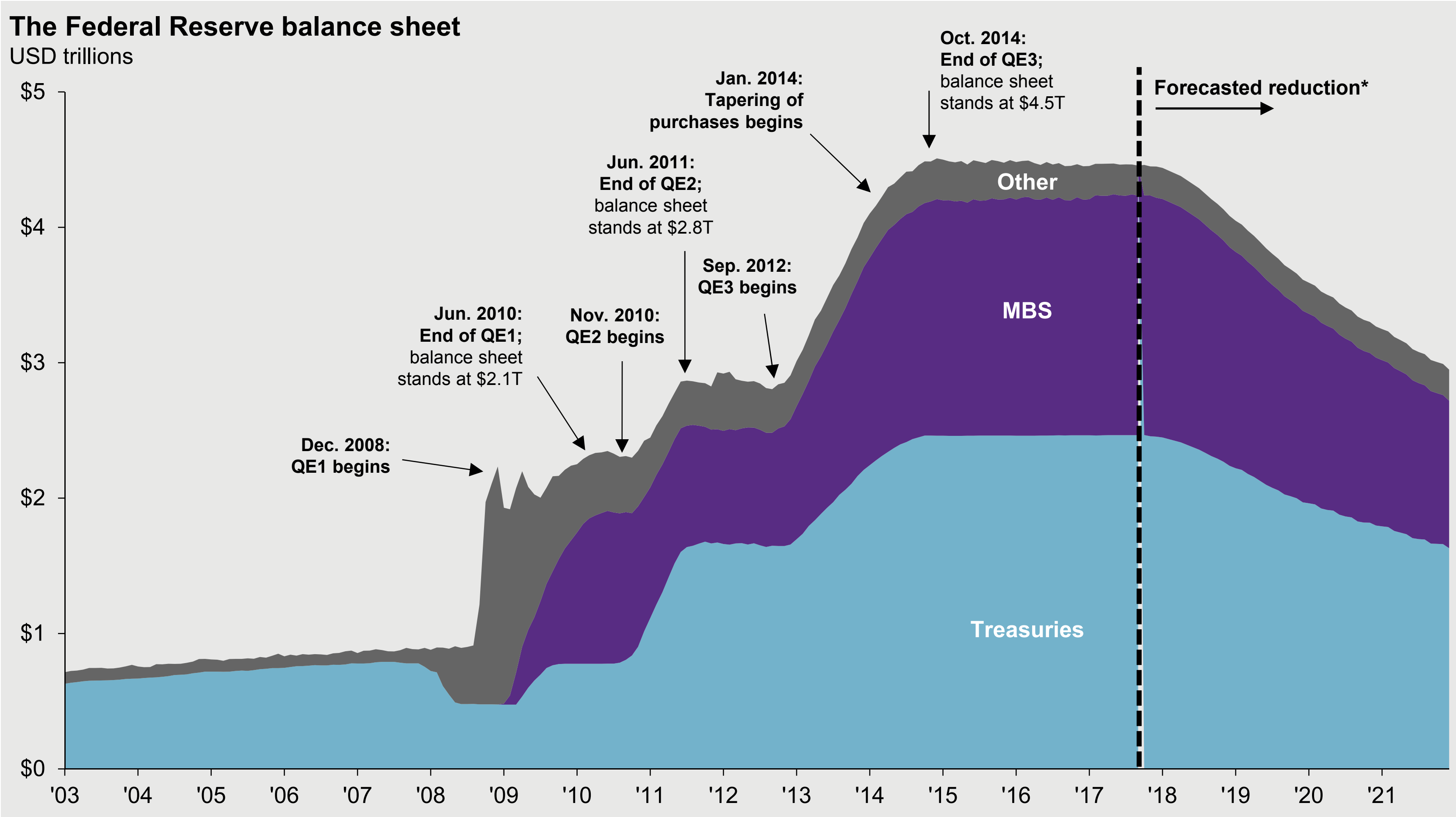
J.P.Morgan Asset Management

Fixed income



Source: Federal Reserve, FactSet, J.P. Morgan Asset Management.
Currently, the balance sheet contains $2.5 trillion in Treasuries and $1.8 trillion in MBS. The end balance forecast is $1.6 trillion in Treasuries and $1.1 trillion in MBS.*Balance sheet reduction assumes reduction from current level, beginning October 2017 until December 2021. Reduction of Treasuries and MBS is per FOMC guidelines from the September 2017 meeting minutes: the cap on Treasury securities will begin at $6 billion per month initially and reduction rate will increase in steps of $6 billion at three-month intervals over 12 months until reaching $30 billion per month; the MBS cap will begin at $4 billion per month initially and will increase in steps of $4 billion at three-month intervals over 12 months until reaching $20 billion per month; Other assets are reduced in proportion. In those months where the amount of maturing assets do not exceed the stated cap then the balance sheet will be reduced by the total amount of maturing assets.
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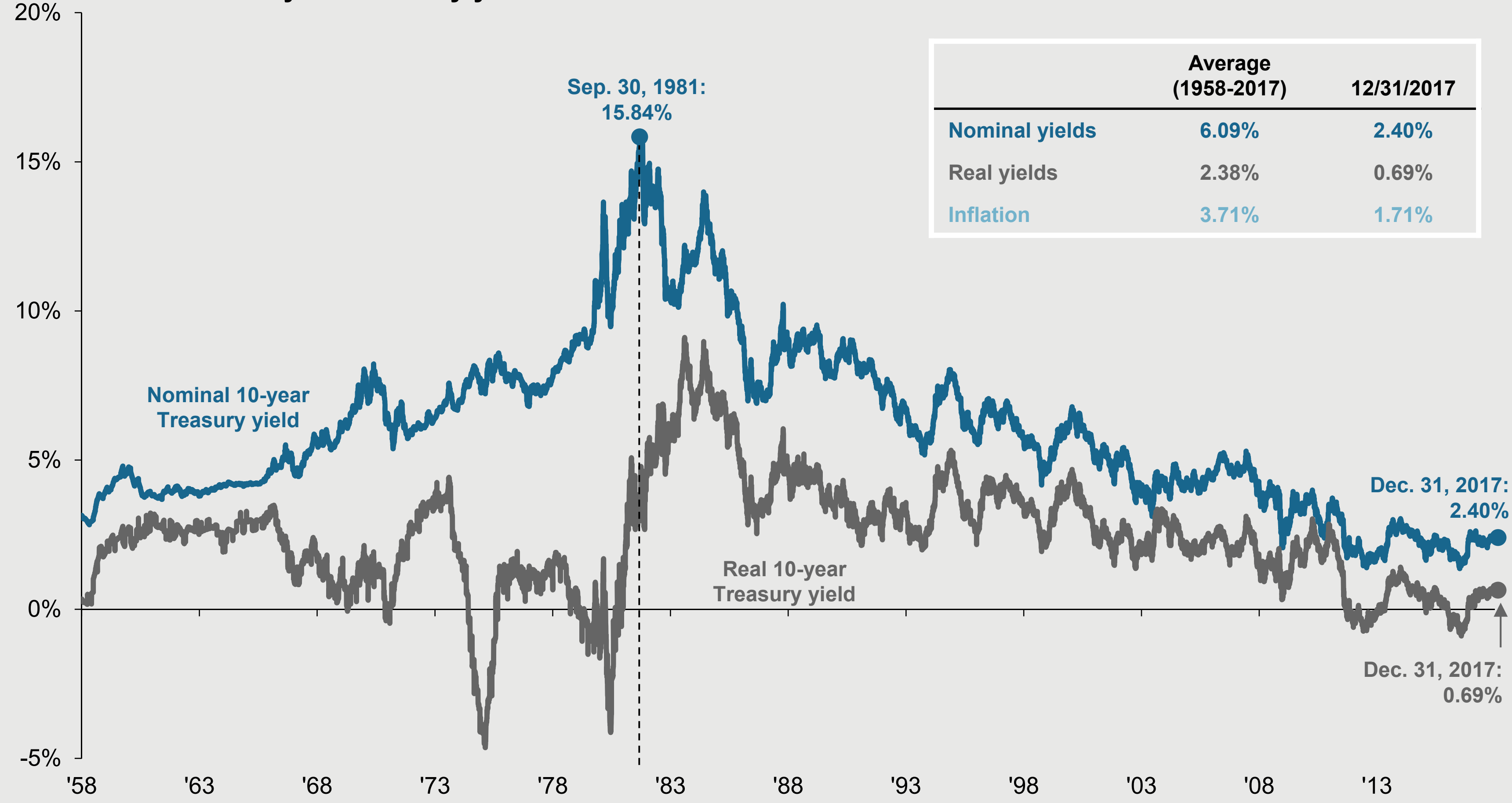
J.P.Morgan Asset Management

Fixed income

Nominal and real 10-year Treasury yields



	Average (1958-2017)	12/31/2017
Nominal yields	6.09%	2.40%
Real yields	2.38%	0.69%
Inflation	3.71%	1.71%

Source: BLS, Federal Reserve, FactSet, J.P. Morgan Asset Management.
Real 10-year Treasury yields are calculated as the daily Treasury yield less year-over-year core CPI inflation for that month except for December 2017, where real yields are calculated by subtracting out November 2017 year-over-year core inflation.
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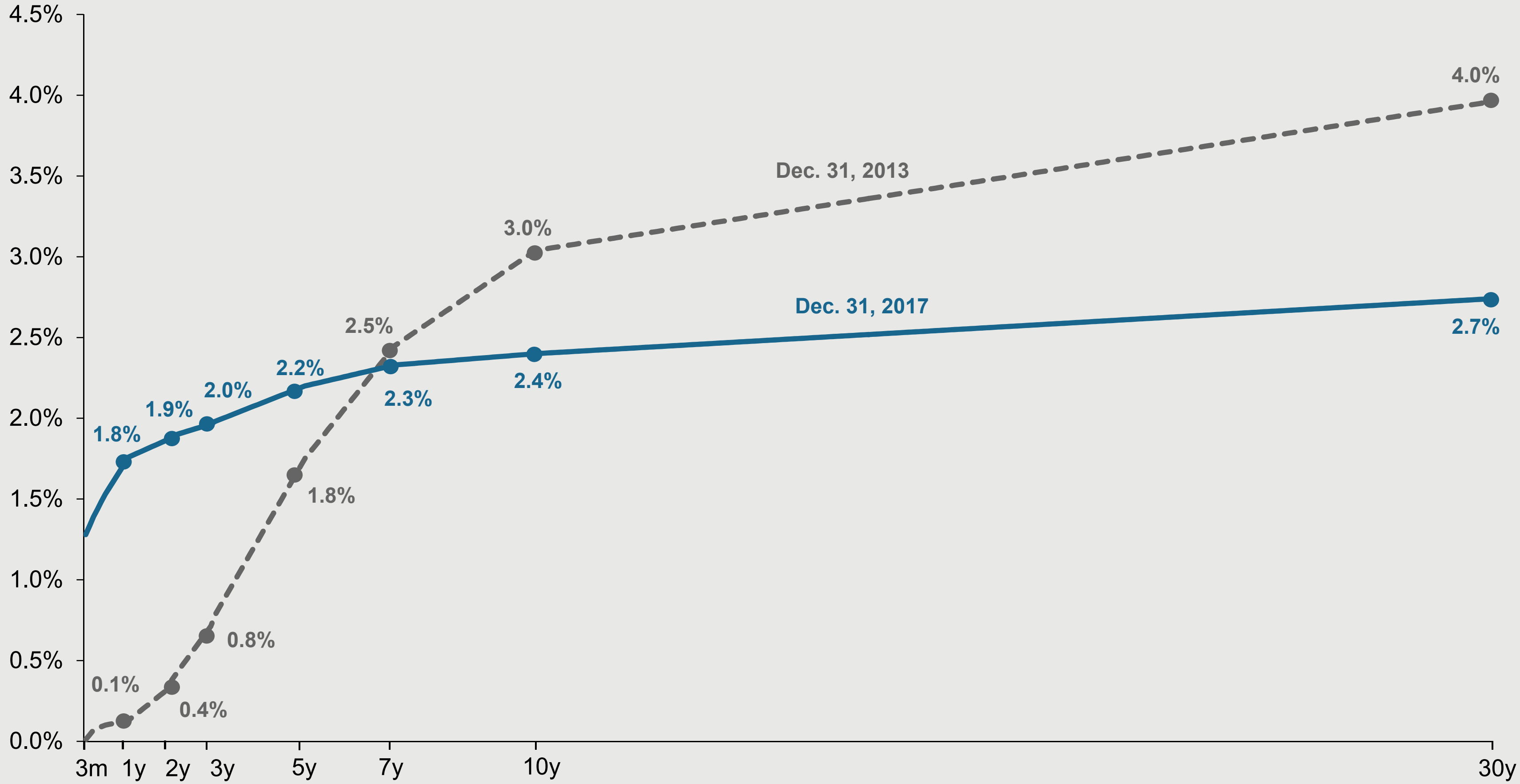
J.P.Morgan Asset Management

Fixed income

Yield curve

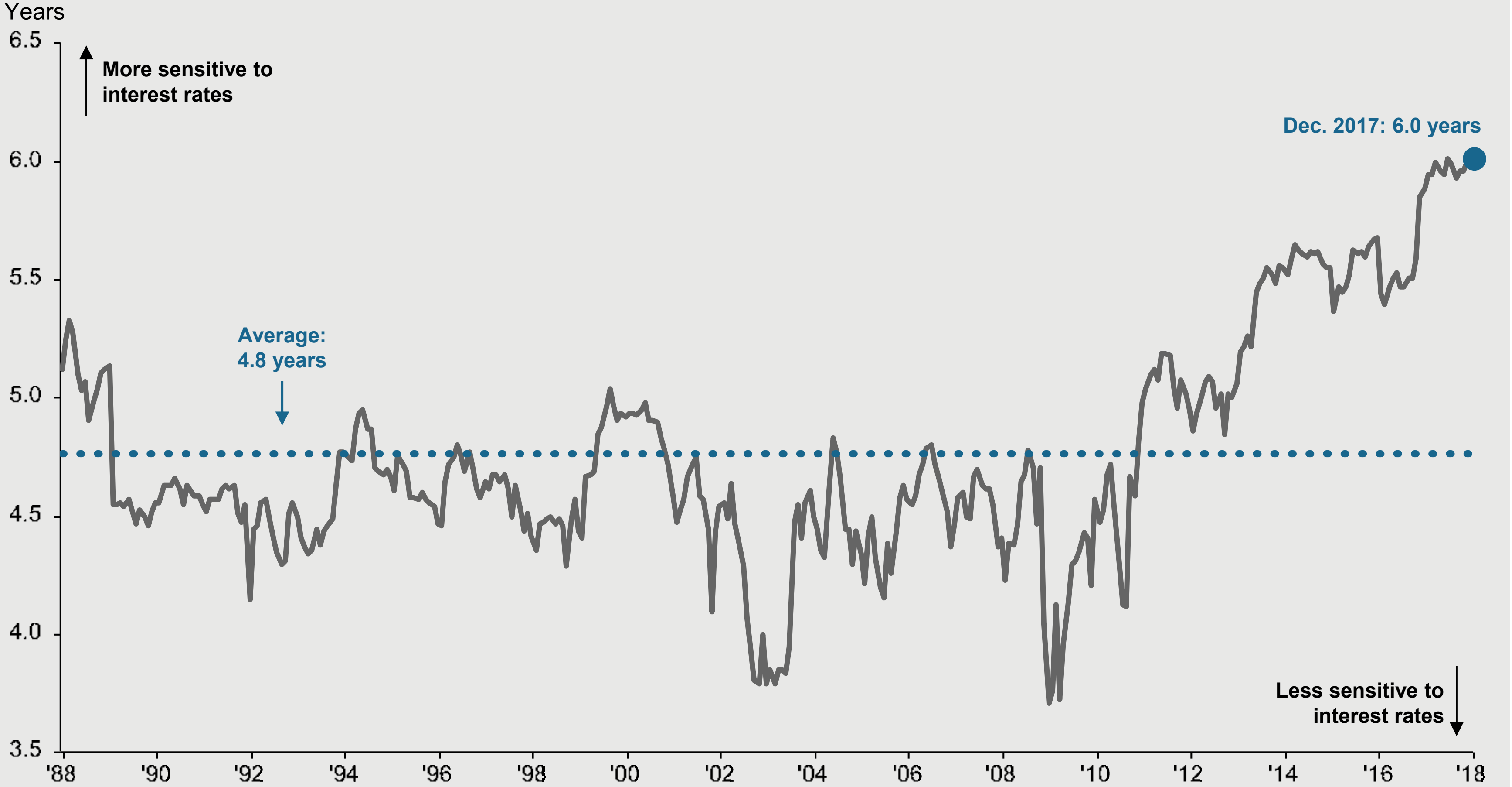
U.S. Treasury yield curve



Source: FactSet, Federal Reserve, J.P. Morgan Asset Management.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

Duration of the Barclays U.S. Aggregate



Source: FactSet, J.P. Morgan Asset Management
Duration measures the sensitivity of the price of a bond to a change in interest rates. The higher the duration the greater the sensitivity bond is to movements in the interest rate.
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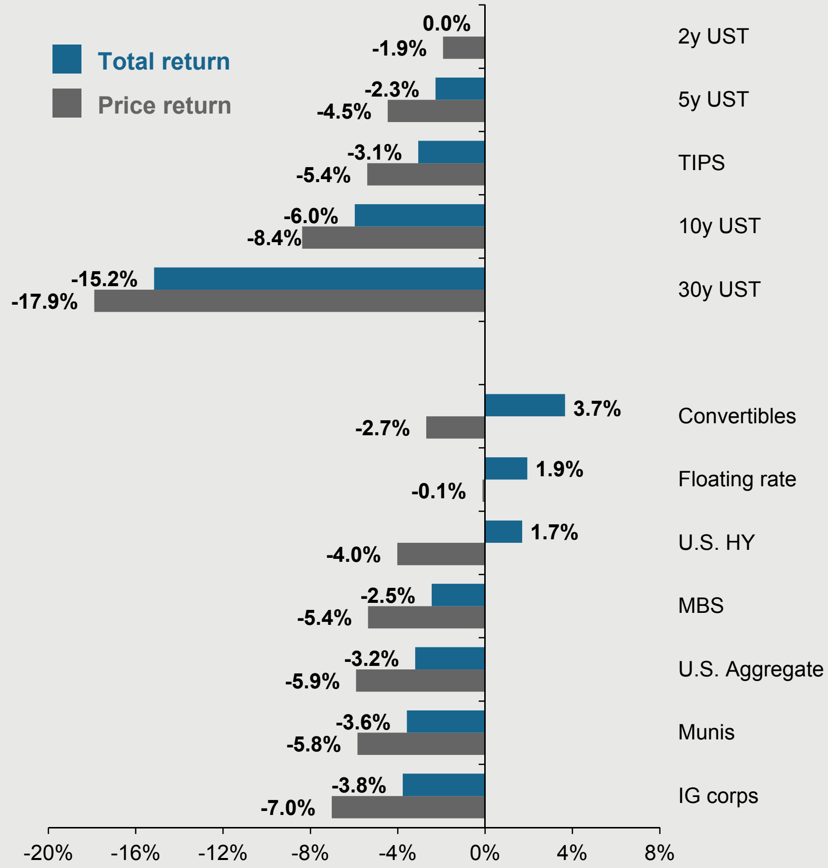
Fixed income yields and returns

Fixed income

	Yield		Return			
U.S. Treasuries	12/31/2017	9/30/2017	2017	Avg. Maturity	Correlation to 10-year	Correlation to S&P 500
2-Year	1.89%	1.47%	0.25%	2 years	0.63	-0.38
5-Year	2.20%	1.92%	0.67%	5	0.91	-0.32
TIPS	0.44%	0.49%	3.01%	10	0.55	0.21
10-Year	2.40%	2.33%	2.14%	10	1.00	-0.31
30-Year	2.74%	2.86%	9.14%	30	0.92	-0.32
Sector						
Convertibles	6.35%	5.58%	16.84%	-	-0.29	0.88
Floating Rate	2.05%	1.96%	3.15%	3.2	-0.20	0.38
High Yield	5.72%	5.45%	7.50%	6.3	-0.23	0.72
MBS	2.91%	2.81%	2.47%	6.8	0.80	-0.12
Broad Market	2.71%	2.55%	3.54%	8.3	0.85	0.04
Municipals	2.26%	2.15%	5.83%	10.0	0.47	0.00
Corporates	3.25%	3.16%	6.42%	11.0	0.45	0.35

Impact of a 1% rise in interest rates

Assumes a parallel shift in the yield curve and steady spreads



Source: Barclays, Bloomberg, U.S. Treasury, Standard and Poor's, FactSet, J.P. Morgan Asset Management. Sectors shown above are provided by Barclays and are represented by – Broad Market: U.S. Aggregate; MBS: U.S. Aggregate Securitized - MBS; Corporate: U.S. Corporates; Municipals: Muni Bond 10-year; High Yield: Corporate High Yield; TIPS: Treasury Inflation Protection Securities (TIPS). Floating Rate: FRN (BBB); Convertibles: U.S. Convertibles Composite. Yield and return information based on bellwethers for Treasury securities. Sector yields reflect yield to worst. Convertibles yield is based on US portion of Bloomberg Barclays Global Convertibles. Correlations are based on 10-years of monthly returns for all sectors. Change in bond price is calculated using both duration and convexity according to the following formula: New Price = (Price + (Price * -Duration * Change in Interest Rates))+(0.5 * Price * Convexity * (Change in Interest Rates)^2). Chart is for illustrative purposes only. Past performance is not indicative of future results.

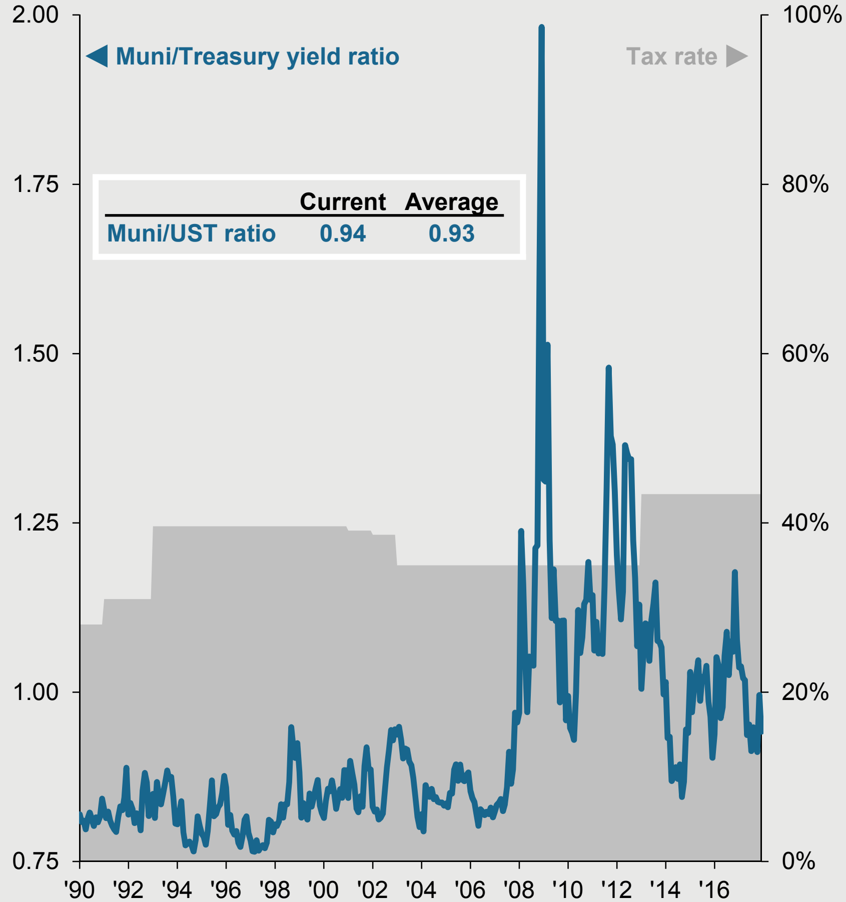
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

Municipal finance

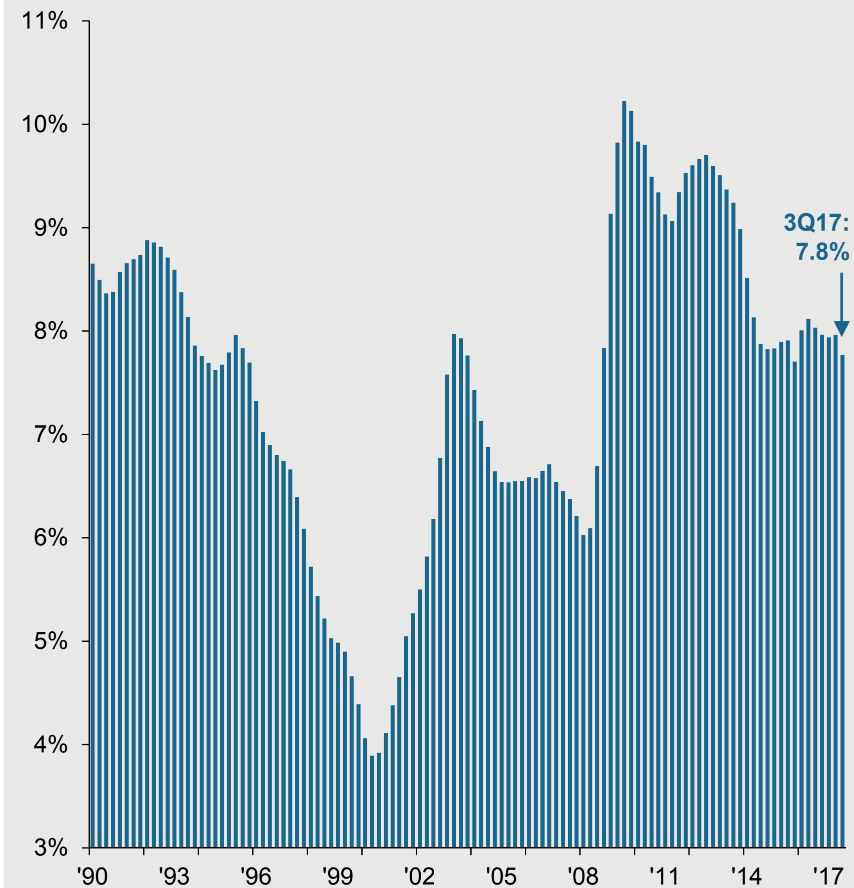
Fixed income

Municipal and Treasury bond yields and the tax rate



State and local government debt service

Debt service as % of state and local revenue



Source: J.P. Morgan Asset Management; (Left) FactSet, Barclays, FRB; (Right) BEA.
Guide to the Markets – U.S. Data are as of December 31, 2017.

Default rate and spread to worst

Percent

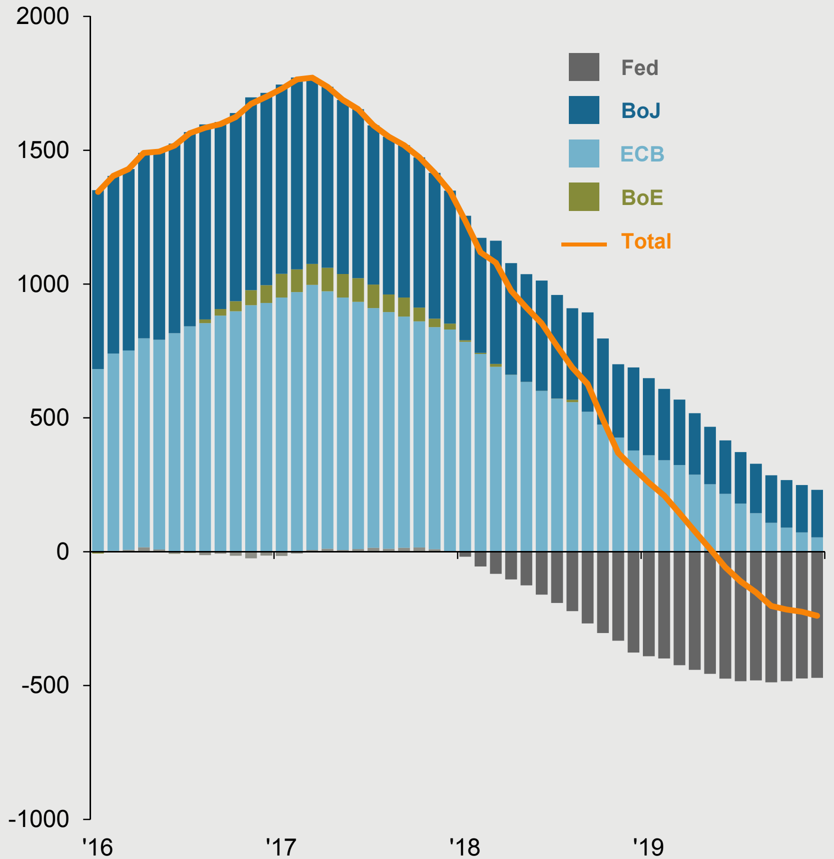
	30-yr. avg.	Latest
Default rate	3.8%	1.3%
Spread to worst	5.8%	4.0%

Source: J.P. Morgan Global Economic Research, J.P. Morgan Asset Management.
Default rates are defined as the par value percentage of the total market trading at or below 50% of par value and include any Chapter 11 filing, prepackaged filing or missed interest payments. Spreads indicated are benchmark yield to worst less comparable maturity Treasury yields. Yield to worst is defined as the lowest potential yield that can be received on a bond without the issuer actually defaulting and reflects the possibility of the bond being called at an unfavorable time for the holder. High yield is represented by the J.P. Morgan Domestic High Yield Index.
Guide to the Markets – U.S. Data are as of December 31, 2017.

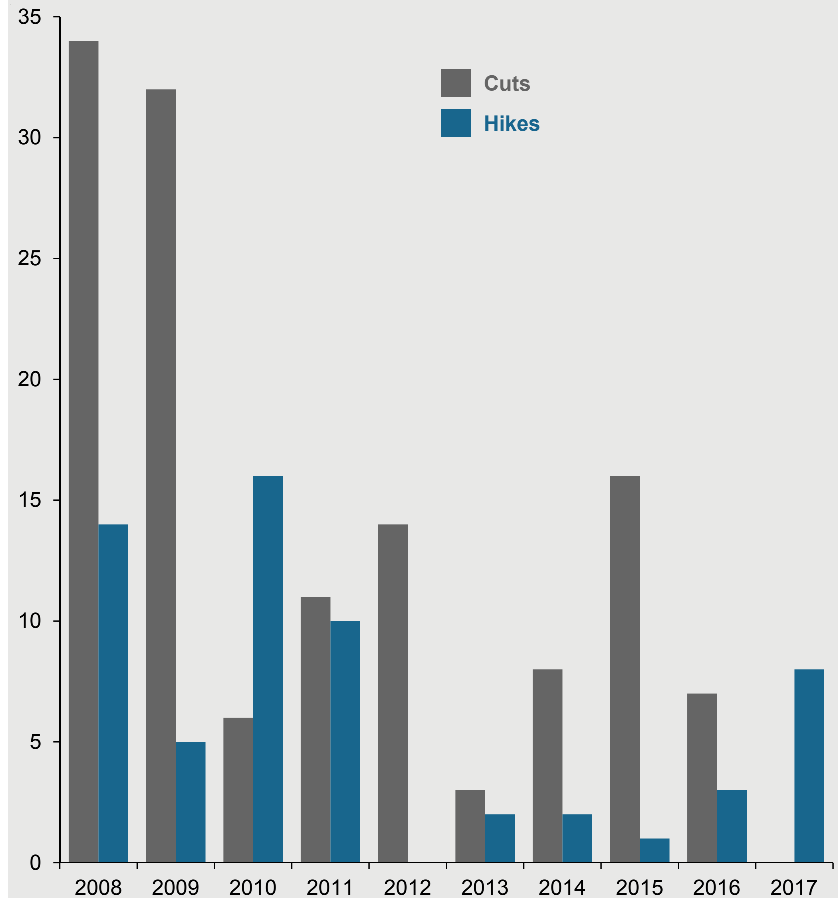
J.P.Morgan Asset Management

Global central bank balance sheet expansion*

USD billions, 12 month rolling flow



Number of rate changes by top-10 DM central banks**



Source: J.P. Morgan Asset Management; (Left) Bank of England, Bank of Japan, European Central Bank, FactSet, Federal Reserve System, J.P. Morgan Global Economic Research; (Right) Bloomberg. *Includes the Bank of Japan (BoJ), Bank of England (BoE), European Central Bank (ECB) and Federal Reserve. Balance sheet expansion assumes no more quantitative easing (QE) from BoE; tapering of ECB QE to 30bn EUR in January 2018 and 0 in October 2018; tapering of BoJ QE to 50trn JPY ann. in 1Q18, 40trn JPY ann. in 2Q18, 30trn JPY ann. in 4Q18, and 20trn JPY ann. in 2019; and tapering of Fed QE per the September FOMC statement, incorporating a maturity schedule. **Including: U.S., Eurozone, Japan, UK, Canada, Australia, Sweden, Norway, Denmark and Switzerland.

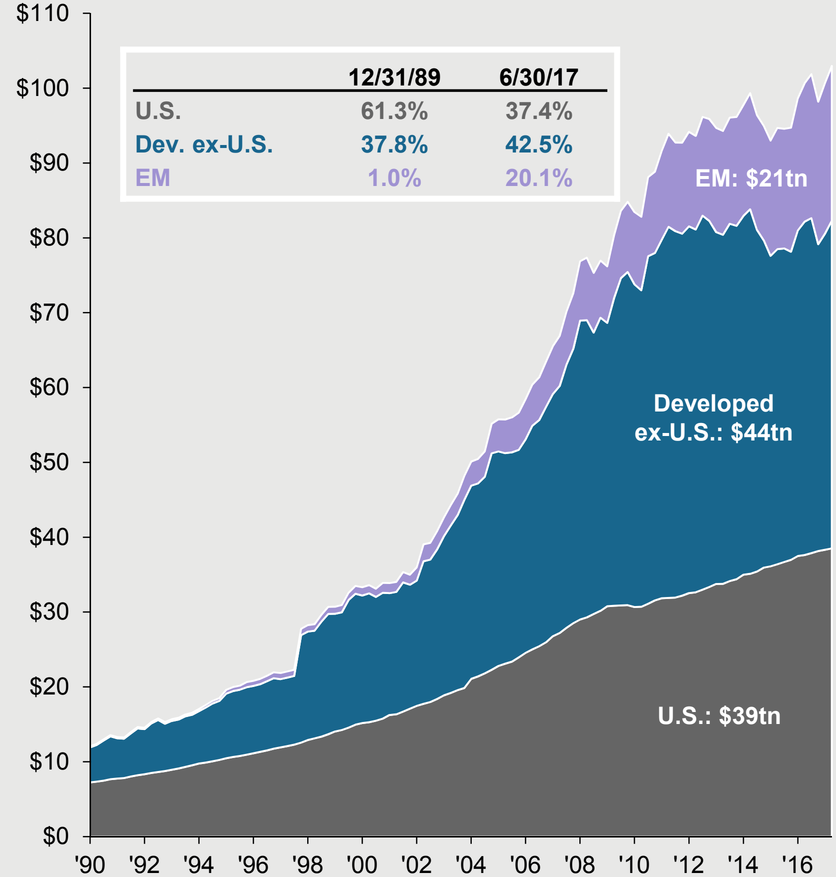
Guide to the Markets – U.S. Data are as of December 31, 2017.

Global fixed income

	Yield		2017 Return			
Aggregates	**12/31/2017**	**9/30/2017**	**Local**	**USD**	**Duration**	**Correl to 10-year**
U.S.	2.71%	2.55%	3.54%	3.54%	6.0 years	0.85
Gbl. ex-U.S.	1.03%	1.05%	-	9.80%	7.6	0.38
Japan	0.20%	0.21%	0.20%	3.74%	9.1	0.51
Germany	0.46%	0.42%	-1.57%	12.06%	6.2	0.24
UK	1.49%	1.59%	2.19%	11.88%	10.1	0.16
Italy	1.25%	1.27%	0.90%	14.88%	6.6	0.08
Spain	0.90%	0.89%	1.23%	15.25%	6.6	0.11
Sector						
Euro Corp.	0.75%	0.78%	2.41%	16.59%	5.2 years	0.17
Euro HY	3.32%	3.28%	6.24%	20.95%	4.4	-0.36
EMD ($)	5.26%	5.19%	-	10.26%	6.8	0.23
EMD (LCL)	6.14%	5.99%	8.91%	15.21%	5.1	0.12
EM Corp.	4.53%	4.43%	-	7.96%	5.8	-0.21

Global bond market

USD trillions



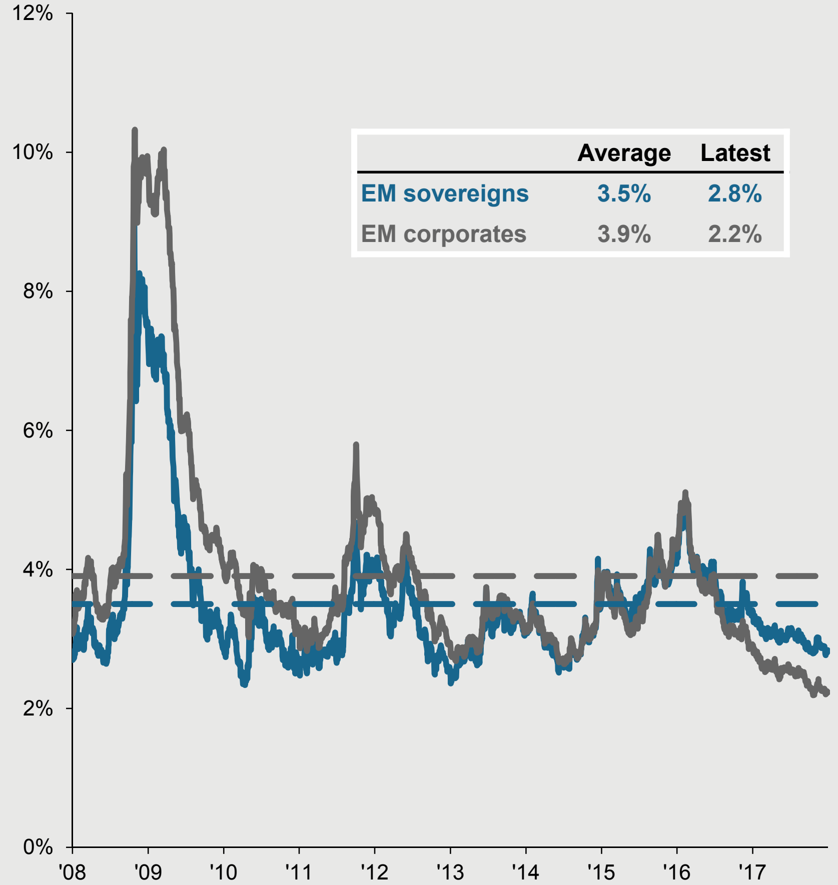
Source: J.P. Morgan Asset Management; (Left) FactSet, Barclays, Bloomberg; (Right) BIS.
Fixed income sectors shown above are provided by Barclays and are represented by the global aggregate for each country except where noted. EMD sectors are represented by the J.P. Morgan EMBIG Diversified Index (USD), the J.P. Morgan GBI EM Global Diversified Index (LCL) and the J.P. Morgan CEMBI Broad Diversified Index (Corp). European Corporates are represented by the Barclays Euro Aggregate Corporate Index and the Barclays Pan-European High Yield index. Sector yields reflect yield to worst. Correlations are based on 10 years of monthly returns for all sectors. Past performance is not indicative of future results. Global bond market regional breakdown may not sum to 100% due to rounding.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

Emerging market debt

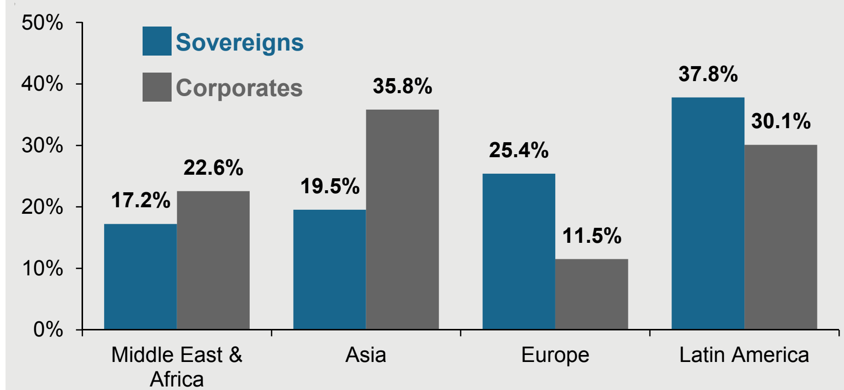
Corporate and sovereign EMD spreads

USD-denominated debt, percentage points over Treasury



Regional weights in EMD indices

USD-denominated corporate and sovereign regional weightings



Headline inflation

YoY % change, Lat Am* and EM Asia aggregates

Source: J.P. Morgan Global Economic Research, J.P. Morgan Asset Management.
EM sovereigns: J.P. Morgan EMBIG Diversified Index; EM corporates: J.P. Morgan CEMBI Broad Diversified Index. *Lat Am index excludes Argentina, Ecuador and Venezuela.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan
Asset Management

Fixed income sector returns

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2008 - 2017 Ann.	2008 - 2017 Vol.
Treas. 13.7%	High Yield 58.2%	EMD LCL. 15.7%	TIPS 13.6%	EMD USD 17.4%	High Yield 7.4%	Muni 8.7%	Muni 3.8%	High Yield 17.1%	EMD LCL. 15.2%	High Yield 8.0%	High Yield 21.2%
MBS 8.3%	EMD USD 29.8%	High Yield 15.1%	Muni 12.3%	EMD LCL. 16.8%	MBS -1.4%	Corp. 7.5%	MBS 1.5%	EMD USD 10.2%	EMD USD 10.3%	EMD USD 7.3%	EMD LCL. 13.0%
Barclays Agg 5.2%	EMD LCL. 22.0%	EMD USD 12.2%	Treas. 9.8%	High Yield 15.8%	Corp. -1.5%	EMD USD 7.4%	EMD USD 1.2%	EMD LCL. 9.9%	High Yield 7.5%	Corp. 5.7%	EMD USD 11.6%
Muni 1.5%	Corp. 18.7%	Corp. 9.0%	Corp. 8.1%	Corp. 9.8%	Asset Alloc. -1.9%	MBS 6.1%	Treas. 0.8%	Corp. 6.1%	Corp. 6.4%	Asset Alloc. 5.0%	Corp. 6.8%
Asset Alloc. 0.1%	Asset Alloc. 14.7%	Asset Alloc. 7.9%	Asset Alloc. 8.1%	Asset Alloc. 7.4%	Barclays Agg -2.0%	Barclays Agg 6.0%	Barclays Agg 0.5%	Asset Alloc. 4.7%	Muni 5.8%	Muni 4.9%	TIPS 6.6%
TIPS -2.4%	TIPS 11.4%	Barclays Agg 6.5%	Barclays Agg 7.8%	TIPS 7.0%	Muni -2.2%	Asset Alloc. 5.5%	Asset Alloc. -0.3%	TIPS 4.7%	Asset Alloc. 5.3%	Barclays Agg 4.0%	Treas. 5.4%
Corp. -4.9%	Muni 9.9%	TIPS 6.3%	EMD USD 7.3%	Muni 5.7%	Treas. -2.7%	Treas. 5.1%	Corp. -0.7%	Barclays Agg 2.6%	Barclays Agg 3.5%	MBS 3.8%	Asset Alloc. 4.9%
EMD LCL. -5.2%	Barclays Agg 5.9%	Treas. 5.9%	MBS 6.2%	Barclays Agg 4.2%	EMD USD -5.3%	TIPS 3.6%	TIPS -1.4%	MBS 1.7%	TIPS 3.0%	EMD LCL. 3.6%	Muni 4.5%
EMD USD -12.0%	MBS 5.9%	MBS 5.4%	High Yield 5.0%	MBS 2.6%	TIPS -8.6%	High Yield 2.5%	High Yield -4.5%	Treas. 1.0%	MBS 2.5%	TIPS 3.5%	Barclays Agg 3.0%
High Yield -26.2%	Treas. -3.6%	Muni 4.0%	EMD LCL. -1.8%	Treas. 2.0%	EMD LCL. -9.0%	EMD LCL. -5.7%	EMD LCL. -14.9%	Muni -0.1%	Treas. 2.3%	Treas. 3.3%	MBS 3.0%

Source: Barclays, Bloomberg, FactSet, J.P. Morgan Global Economic Research, J.P. Morgan Asset Management.
Past performance is not indicative of future returns. Fixed income sectors shown above are provided by Barclays unless otherwise noted and are represented by Broad Market: Bloomberg Barclays U.S. Aggregate Index; MBS: Bloomberg Barclays US Aggregate Securitized - MBS Index; Corporate: Bloomberg Barclays U.S. Aggregate Credit – Corporates – Investment Grade; Municipals: Bloomberg Barclays Munipal Bond 10-Year Index; High Yield: Bloomberg Barclays U.S. Aggregate Credit - Corporate - High Yield Index; Treasuries: Bloomberg Barclays Global U.S. Treasury; TIPS: Bloomberg Barclays Global Inflation-Linked - U.S. TIPs; Emerging Debt USD: J.P. Morgan EMBIG Diversified Index; Emerging Debt LCL: J.P. Morgan EM Global Index. The “Asset Allocation” portfolio assumes the following weights: 20% in MBS, 20% in Corporate,15% in Municipals, 5% in Emerging Debt USD, 5% in Emerging Debt LCL, 10% in High Yield, 20% in Treasuries, 5% in TIPS. Asset allocation portfolio assumes annual rebalancing.
Guide to the Markets – U.S. Data are as of December 31, 2017.

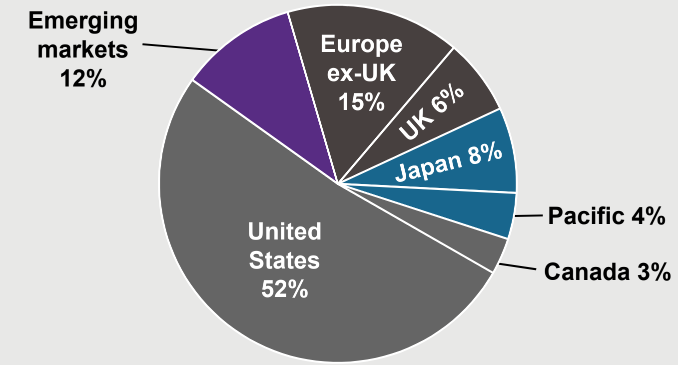
J.P.Morgan Asset Management

Global equity markets

Country / Region	Returns 2017	Returns 2016	Returns 15-year ann.	15-year realized volatility
Regions / Broad Indexes				
AC World ex-U.S.	27.8	5.0	9.2	18.9
U.S. (S&P 500)	21.8	12.0	9.9	14.5
EAFE	25.6	1.5	8.6	18.4
Europe ex-UK	27.8	0.3	9.4	21.2
Emerging markets	37.8	11.6	12.7	23.0
MSCI: Selected Countries				
United Kingdom	22.4	0.0	7.1	18.5
France	29.9	6.0	8.8	21.7
Germany	28.5	3.5	11.5	25.1
Japan	24.4	2.7	7.2	17.4
China	54.3	1.1	16.2	27.2
India	38.8	-1.4	14.9	30.8
Brazil	24.5	66.7	15.8	34.9
Russia	6.1	55.9	8.8	37.3

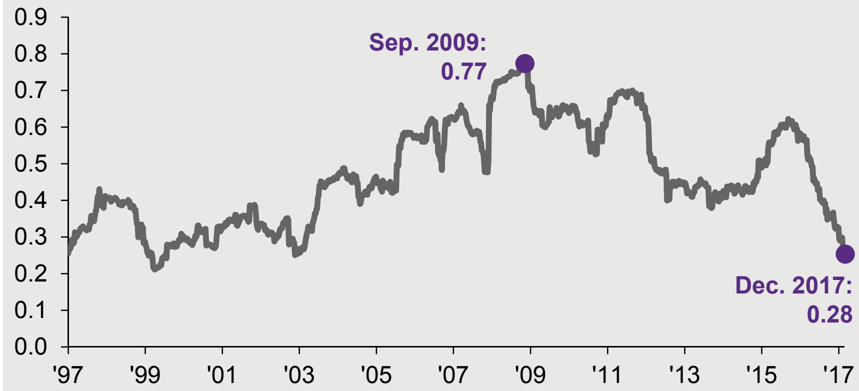
Weights in MSCI All Country World Index

% global market capitalization, float adjusted



Global equity market correlations

Rolling 1-year correlations, 30 countries



Source: FactSet, MSCI, Standard & Poor's, J.P. Morgan Asset Management.
All return values are MSCI Gross Index (official) data and are in U.S. dollars. Volatility values are also based on U.S. dollar returns and are calculated based on the annualized quarterly standard deviation. 15-year return and volatility figures are calculated for the time period 12/31/02-12/31/17. Chart is for illustrative purposes only. Please see disclosure page for index definitions. Countries included in global correlations include Argentina, South Africa, Japan, UK, Canada, France, Germany, Italy, Australia, Austria, Brazil, China, Colombia, Denmark, Finland, Hong Kong, India, Malaysia, Mexico, Netherlands, New Zealand, Peru, Philippines, Portugal, Korea, Spain, Taiwan, Thailand, Turkey, United States. Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

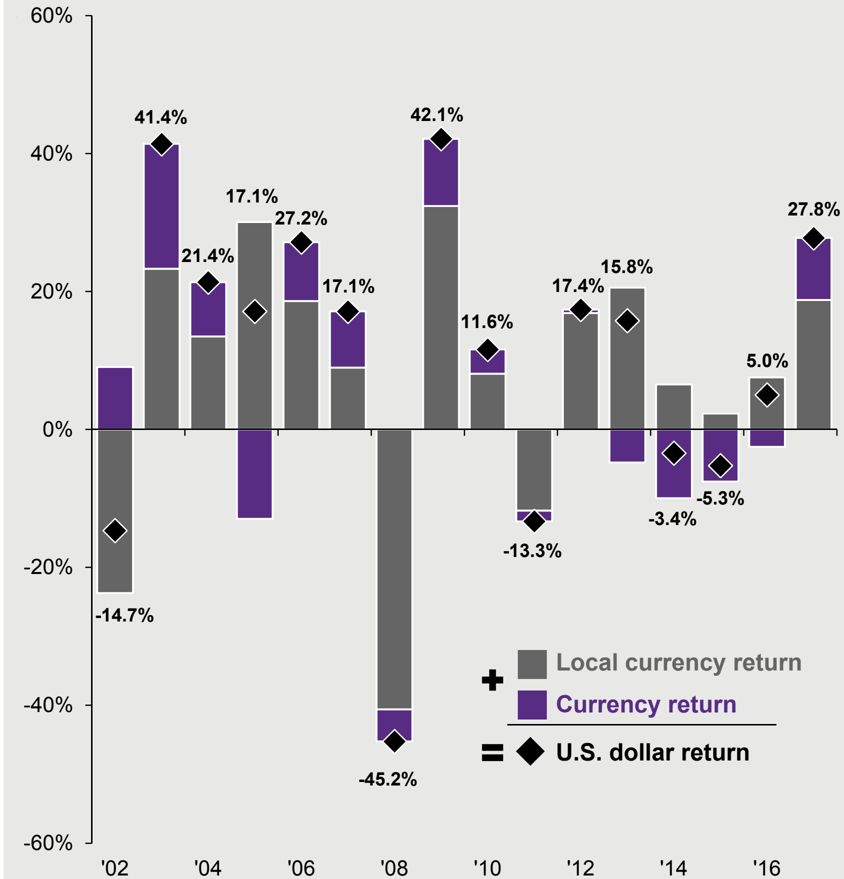
International

U.S. dollar in historical perspective

Index level, nom. major trade-weighted exchange rate, Mar. 1973=100

Currency impact on international returns

MSCI All Country World ex-U.S. index, total return



Source: FactSet, J.P. Morgan Asset Management; (Left) Federal Reserve; (Right) MSCI.
Currencies in the nominal major trade-weighted U.S. dollar index are: British pound, euro, Swedish krona, Australian dollar, Canadian dollar, Japanese yen and Swiss franc. Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

International

MSCI All Country World ex-U.S. and S&P 500 Index

Dec. 1996 = 100, U.S. dollar, price return

	P/E	20 yr. avg.	Div. Yield	20 yr. avg.
S&P 500	18.2x	16.0x	2.0%	2.0%
ACWI ex-U.S.	14.3x	14.5x	3.1%	3.0%

Source: MSCI, Standard & Poor's, FactSet, J.P. Morgan Asset Management.
Forward price to earnings ratio is a bottom-up calculation based on the most recent index price, divided by consensus estimates for earnings in the next twelve months (NTM), and is provided by FactSet Market Aggregates. Returns are cumulative and based on price movement only, and do not include the reinvestment of dividends. Dividend yield is calculated as consensus estimates of dividends for the next twelve months, divided by most recent price, as provided by FactSet Market Aggregates. Past performance is not a reliable indicator of current and future results.
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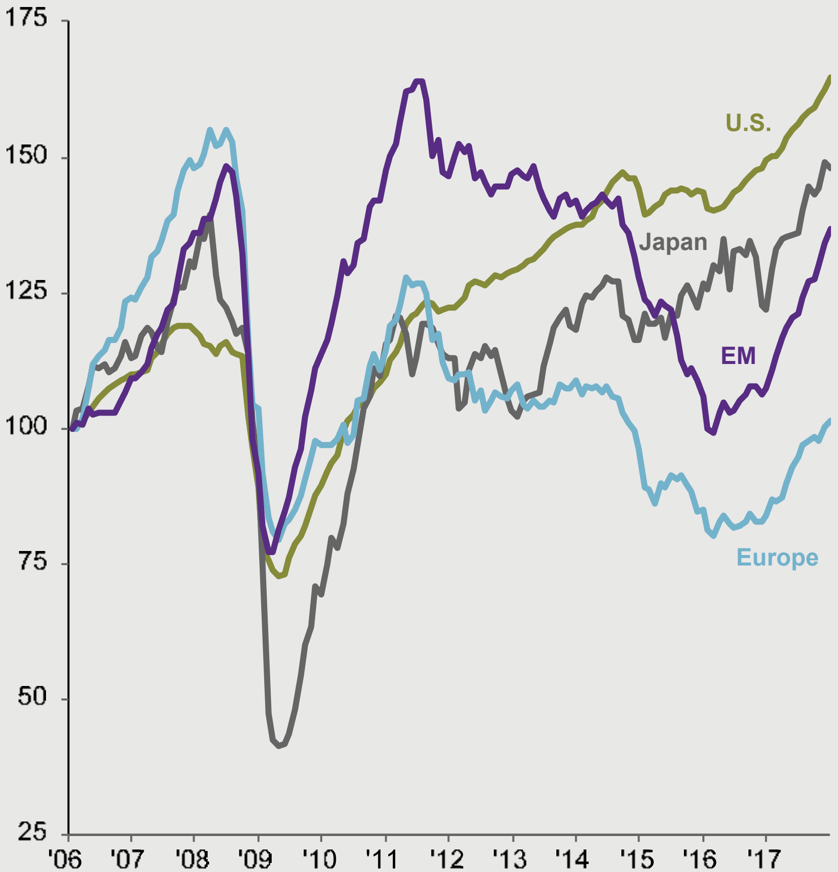
J.P.Morgan Asset Management

International

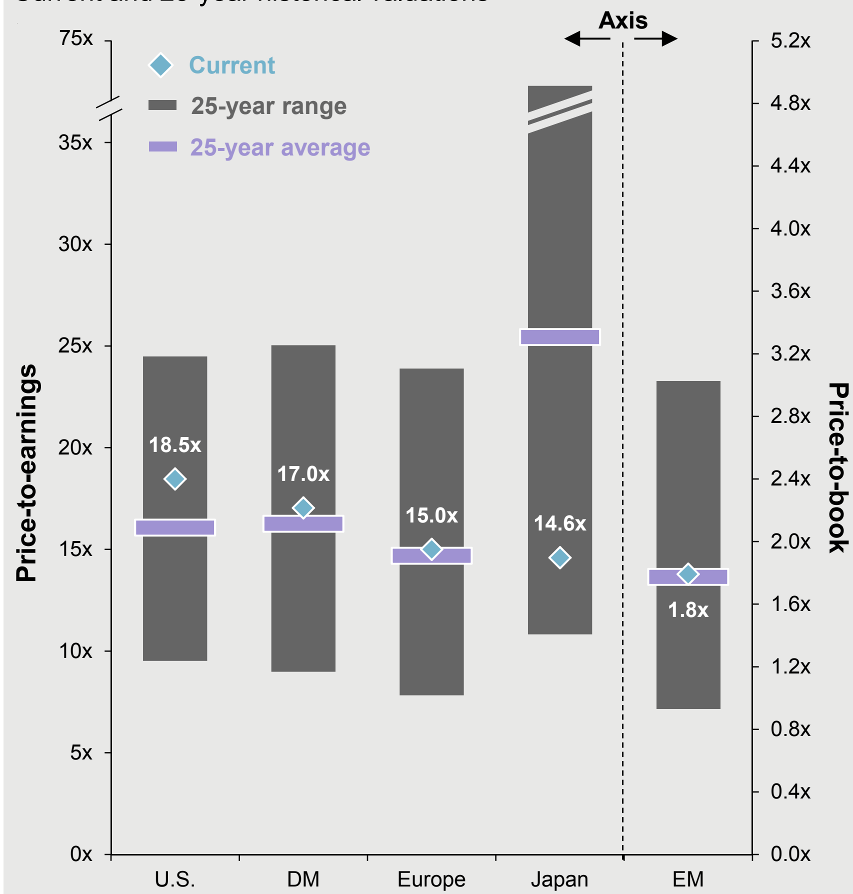
Global earnings

EPS, U.S. dollar, NTMA, Jan. 2006 = 100



Global valuations

Current and 25-year historical valuations*



Source: FactSet, MSCI, Thomson Reuters, Standard & Poor's, J.P. Morgan Asset Management.
*Valuations refer to NTMA P/E for Europe, U.S., Japan and Developed Markets and P/B for emerging markets. Valuation and earnings charts use MSCI indices for all regions/countries, except for the U.S., which is the S&P 500. All indices use IBES aggregate earnings estimates, which may differ from earnings estimates used elsewhere in the book. MSCI Europe includes the Eurozone as well as countries not in the currency bloc, such as the U.K., Switzerland, Sweden and Norway (which collectively make up 49% of the overall index). Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

International

Global Purchasing Managers' Index for manufacturing

		2016												2017											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Global	50.9	50.0	50.6	50.2	50.1	50.4	51.0	50.8	51.1	52.0	52.1	52.7	52.8	53.0	53.0	52.7	52.6	52.6	52.8	53.2	53.3	53.5	54.1	54.5
	Developed Markets	52.1	50.8	50.9	50.5	50.4	51.2	51.5	51.2	51.5	52.6	53.0	53.8	54.2	54.1	53.9	54.1	54.1	53.9	54.0	54.2	54.6	55.2	55.8	56.3
	Emerging Markets	49.4	48.9	50.2	49.5	49.5	49.3	50.3	50.1	50.3	51.0	50.8	51.0	50.8	51.3	51.6	50.9	50.6	50.8	51.0	51.7	51.4	51.2	51.7	52.2
Developed	U.S.	52.4	51.3	51.5	50.8	50.7	51.3	52.9	52.0	51.5	53.4	54.1	54.3	55.0	54.2	53.3	52.8	52.7	52.0	53.3	52.8	53.1	54.6	53.9	55.1
	Canada	49.3	49.4	51.5	52.2	52.1	51.8	51.9	51.1	50.3	51.1	51.5	51.8	53.5	54.7	55.5	55.9	55.1	54.7	55.5	54.6	55.0	54.3	54.4	54.7
	Japan	52.3	50.1	49.1	48.2	47.7	48.1	49.3	49.5	50.4	51.4	51.3	52.4	52.7	53.3	52.4	52.7	53.1	52.4	52.1	52.2	52.9	52.8	53.6	54.0
	UK	52.3	50.9	51.3	49.6	50.5	53.0	48.5	53.1	55.7	54.0	53.1	55.9	55.4	54.6	54.3	57.1	56.4	54.2	55.3	56.8	56.1	56.3	58.2	56.3
	Euro Area	52.3	51.2	51.6	51.7	51.5	52.8	52.0	51.7	52.6	53.5	53.7	54.9	55.2	55.4	56.2	56.7	57.0	57.4	56.6	57.4	58.1	58.5	60.1	60.6
	Germany	52.3	50.5	50.7	51.8	52.1	54.5	53.8	53.6	54.3	55.0	54.3	55.6	56.4	56.8	58.3	58.2	59.5	59.6	58.1	59.3	60.6	60.6	62.5	63.3
	France	50.0	50.2	49.6	48.0	48.4	48.3	48.6	48.3	49.7	51.8	51.7	53.5	53.6	52.2	53.3	55.1	53.8	54.8	54.9	55.8	56.1	56.1	57.7	58.8
	Italy	53.2	52.2	53.5	53.9	52.4	53.5	51.2	49.8	51.0	50.9	52.2	53.2	53.0	55.0	55.7	56.2	55.1	55.2	55.1	56.3	56.3	57.8	58.3	57.4
	Spain	55.4	54.1	53.4	53.5	51.8	52.2	51.0	51.0	52.3	53.3	54.5	55.3	55.6	54.8	53.9	54.5	55.4	54.7	54.0	52.4	54.3	55.8	56.1	55.8
	Greece	50.0	48.4	49.0	49.7	48.4	50.4	48.7	50.4	49.2	48.6	48.3	49.3	46.6	47.7	46.7	48.2	49.6	50.5	50.5	52.2	52.8	52.1	52.2	53.1
Emerging	China	48.4	48.0	49.7	49.4	49.2	48.6	50.6	50.0	50.1	51.2	50.9	51.9	51.0	51.7	51.2	50.3	49.6	50.4	51.1	51.6	51.0	51.0	50.8	51.5
	Indonesia	48.9	48.7	50.6	50.9	50.6	51.9	48.4	50.4	50.9	48.7	49.7	49.0	50.4	49.3	50.5	51.2	50.6	49.5	48.6	50.7	50.4	50.1	50.4	49.3
	Korea	49.5	48.7	49.5	50.0	50.1	50.5	50.1	48.6	47.6	48.0	48.0	49.4	49.0	49.2	48.4	49.4	49.2	50.1	49.1	49.9	50.6	50.2	51.2	49.9
	Taiwan	50.6	49.4	51.1	49.7	48.5	50.5	51.0	51.8	52.2	52.7	54.7	56.2	55.6	54.5	56.2	54.4	53.1	53.3	53.6	54.3	54.2	53.6	56.3	56.6
	India	51.1	51.1	52.4	50.5	50.7	51.7	51.8	52.6	52.1	54.4	52.3	49.6	50.4	50.7	52.5	52.5	51.6	50.9	47.9	51.2	51.2	50.3	52.6	54.7
	Brazil	47.4	44.5	46.0	42.6	41.6	43.2	46.0	45.7	46.0	46.3	46.2	45.2	44.0	46.9	49.6	50.1	52.0	50.5	50.0	50.9	50.9	51.2	53.5	52.4
	Mexico	52.2	53.1	53.2	52.4	53.6	51.1	50.6	50.9	51.9	51.8	51.1	50.2	50.8	50.6	51.5	50.7	51.2	52.3	51.2	52.2	52.8	49.2	52.4	51.7
	Russia	49.8	49.3	48.3	48.0	49.6	51.5	49.5	50.8	51.1	52.4	53.6	53.7	54.7	52.5	52.4	50.8	52.4	50.3	52.7	51.6	51.9	51.1	51.5	52.0

Source: Markit, J.P. Morgan Asset Management.
Heatmap colors are based on PMI relative to the 50 level, which indicates acceleration or deceleration of the sector, for the time period shown. Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

International

Year-over-year headline inflation by country and region

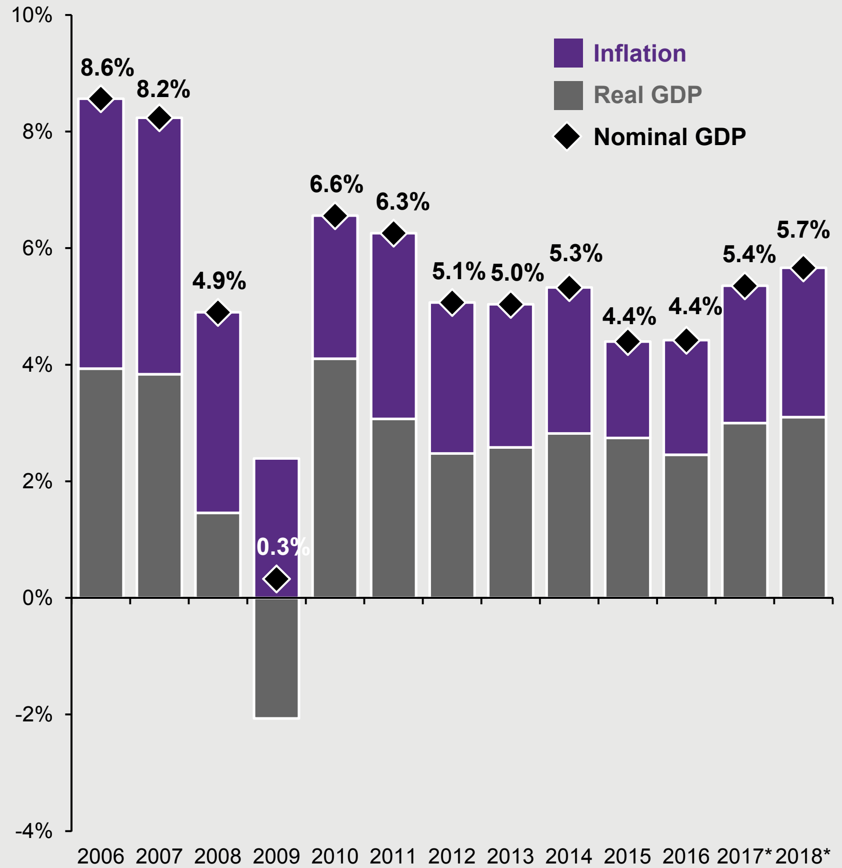
		2015	2016												2017										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Global	1.6%	1.8%	1.7%	1.6%	1.6%	1.5%	1.6%	1.5%	1.5%	1.7%	1.7%	1.8%	1.9%	2.3%	2.1%	1.9%	2.0%	1.8%	1.7%	1.7%	1.9%	2.0%	2.1%	2.2%
	Developed Markets	0.5%	0.8%	0.5%	0.5%	0.5%	0.5%	0.6%	0.5%	0.6%	0.9%	1.1%	1.2%	1.5%	2.0%	2.1%	1.8%	1.9%	1.6%	1.4%	1.5%	1.7%	1.8%	1.6%	1.8%
	Emerging Markets	3.5%	3.5%	3.7%	3.4%	3.4%	3.2%	3.2%	3.2%	2.9%	3.0%	3.1%	3.1%	3.0%	3.2%	2.4%	2.5%	2.6%	2.6%	2.5%	2.4%	2.7%	2.6%	2.8%	2.8%
Developed	U.S.	0.7%	1.4%	1.0%	0.9%	1.1%	1.0%	1.0%	0.8%	1.1%	1.5%	1.6%	1.7%	2.1%	2.5%	2.7%	2.4%	2.2%	1.9%	1.6%	1.7%	1.9%	2.2%	2.0%	2.2%
	Canada	1.6%	2.0%	1.4%	1.3%	1.7%	1.5%	1.5%	1.3%	1.1%	1.3%	1.5%	1.2%	1.5%	2.1%	2.0%	1.6%	1.6%	1.3%	1.0%	1.2%	1.4%	1.6%	1.4%	2.1%
	Japan	0.1%	-0.1%	0.2%	0.0%	-0.3%	-0.4%	-0.3%	-0.5%	-0.5%	-0.5%	0.2%	0.5%	0.3%	0.5%	0.2%	0.2%	0.4%	0.4%	0.3%	0.5%	0.6%	0.7%	0.2%	0.5%
	UK	0.2%	0.3%	0.3%	0.5%	0.3%	0.3%	0.5%	0.6%	0.6%	1.0%	0.9%	1.2%	1.6%	1.8%	2.3%	2.3%	2.7%	2.9%	2.6%	2.6%	2.9%	3.0%	3.0%	3.1%
	Euro Area	0.2%	0.3%	-0.2%	0.0%	-0.2%	-0.1%	0.1%	0.2%	0.2%	0.4%	0.5%	0.6%	1.1%	1.8%	2.0%	1.5%	1.9%	1.4%	1.3%	1.3%	1.5%	1.5%	1.4%	1.5%
	Germany	0.2%	0.4%	-0.2%	0.1%	-0.3%	0.0%	0.2%	0.4%	0.3%	0.5%	0.7%	0.7%	1.7%	1.9%	2.2%	1.5%	2.0%	1.4%	1.5%	1.5%	1.8%	1.8%	1.5%	1.8%
	France	0.3%	0.3%	-0.1%	-0.1%	-0.1%	0.1%	0.3%	0.4%	0.4%	0.5%	0.5%	0.7%	0.8%	1.6%	1.4%	1.4%	1.4%	0.9%	0.8%	0.8%	1.0%	1.1%	1.2%	1.3%
	Italy	0.1%	0.4%	-0.2%	-0.2%	-0.4%	-0.3%	-0.3%	-0.2%	-0.2%	0.1%	-0.2%	0.1%	0.5%	1.0%	1.6%	1.4%	2.0%	1.6%	1.2%	1.2%	1.4%	1.3%	1.1%	1.1%
	Spain	-0.1%	-0.4%	-1.0%	-1.0%	-1.2%	-1.1%	-0.9%	-0.7%	-0.3%	0.0%	0.5%	0.5%	1.4%	2.9%	3.0%	2.1%	2.6%	2.0%	1.6%	1.7%	2.0%	1.8%	1.7%	1.8%
	Greece	0.4%	-0.1%	0.1%	-0.7%	-0.4%	-0.2%	0.2%	0.2%	0.4%	-0.1%	0.6%	-0.2%	0.3%	1.5%	1.4%	1.7%	1.6%	1.5%	0.9%	0.9%	0.6%	1.0%	0.5%	1.1%
Emerging	China	1.6%	1.8%	2.3%	2.3%	2.3%	2.0%	1.9%	1.8%	1.3%	1.9%	2.1%	2.3%	2.1%	2.5%	0.8%	0.9%	1.2%	1.5%	1.5%	1.4%	1.8%	1.6%	1.9%	1.7%
	Indonesia	3.4%	4.1%	4.4%	4.4%	3.6%	3.3%	3.5%	3.2%	2.8%	3.1%	3.3%	3.6%	3.0%	3.5%	3.8%	3.6%	4.2%	4.3%	4.4%	3.9%	3.8%	3.7%	3.6%	3.3%
	Korea	1.1%	0.6%	1.1%	0.8%	1.0%	0.8%	0.7%	0.4%	0.5%	1.3%	1.5%	1.5%	1.3%	2.0%	1.9%	2.2%	1.9%	2.0%	1.9%	2.2%	2.6%	2.1%	1.8%	1.3%
	Taiwan	0.1%	0.8%	2.4%	2.0%	1.9%	1.2%	0.9%	1.2%	0.6%	0.3%	1.7%	2.0%	1.7%	2.2%	-0.1%	0.2%	0.1%	0.6%	1.0%	0.8%	1.0%	0.5%	-0.3%	0.3%
	India	5.6%	5.7%	5.3%	4.8%	5.5%	5.8%	5.8%	6.1%	5.0%	4.4%	4.2%	3.6%	3.4%	3.2%	3.7%	3.9%	3.0%	2.2%	1.5%	2.4%	3.3%	3.3%	3.6%	4.9%
	Brazil	10.7%	10.7%	10.4%	9.4%	9.3%	9.3%	8.8%	8.7%	9.0%	8.5%	7.9%	7.0%	6.3%	5.4%	4.8%	4.6%	4.1%	3.6%	3.0%	2.7%	2.5%	2.5%	2.7%	2.8%
	Mexico	2.1%	2.6%	2.9%	2.6%	2.5%	2.6%	2.5%	2.7%	2.7%	3.0%	3.1%	3.3%	3.4%	4.7%	4.9%	5.4%	5.8%	6.2%	6.3%	6.4%	6.7%	6.3%	6.4%	6.6%
	Russia	12.9%	9.8%	8.1%	7.3%	7.3%	7.3%	7.5%	7.2%	6.8%	6.4%	6.1%	5.8%	5.4%	5.0%	4.6%	4.3%	4.1%	4.1%	4.3%	3.9%	3.3%	3.0%	2.7%	2.5%

Source: Federal Reserve, Statistics Canada, UK Office for National Statistics (ONS), Eurostat, Melbourne Institute, Japan Ministry of Internal Affairs & Communication, National Bureau of Statistics China, Statistics Indonesia, Korean National Statistical Office, DGBAS, India Ministry of Statistics & Programme Implementation, Bank of Mexico, Goskomstat of Russia, IBGE, FactSet, J.P. Morgan Asset Management.
Heatmap colors are based on z-score of year-over-year inflation rate relative to five year history, for the time period shown. Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

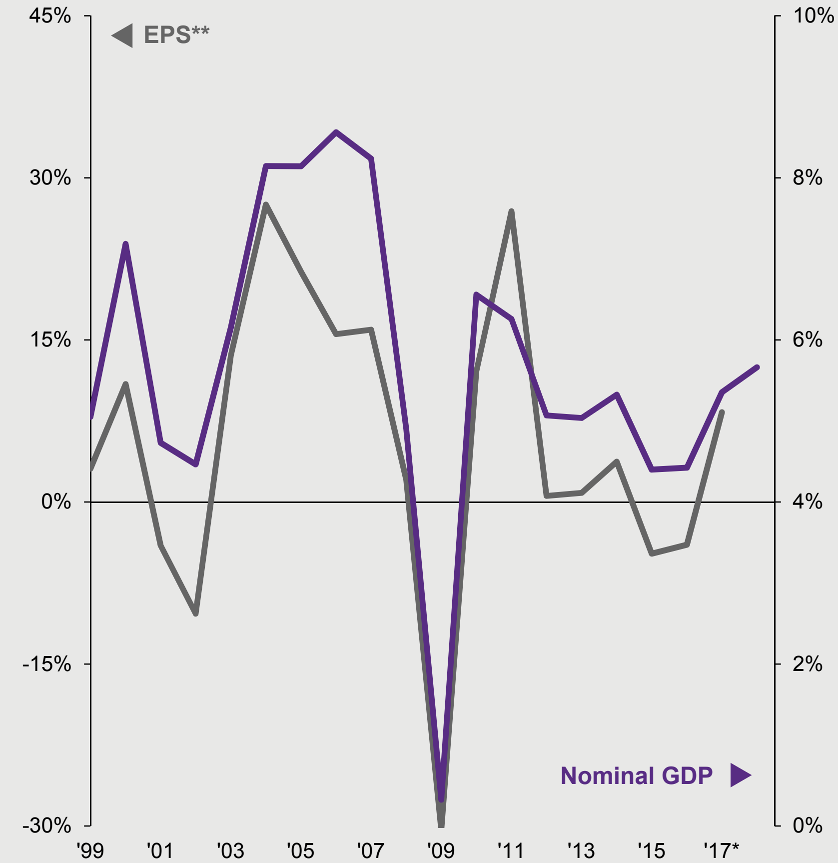
Components of global growth

Nominal GDP growth broken down into real GDP growth and inflation



Global GDP growth and corporate profits

Year-over-year growth, nominal GDP, MSCI AC World trailing EPS



Source: IMF, J.P. Morgan Asset Management; (Right) MSCI, FactSet.
Nominal GDP used is based on purchasing power parity (PPP) valuation of country GDP. *2017 and 2018 nominal GDP figures are IMF estimates.
**Earnings used are U.S. dollar trailing 12-month sum earnings per share figures. Past performance is not a reliable indicator of current and future results.
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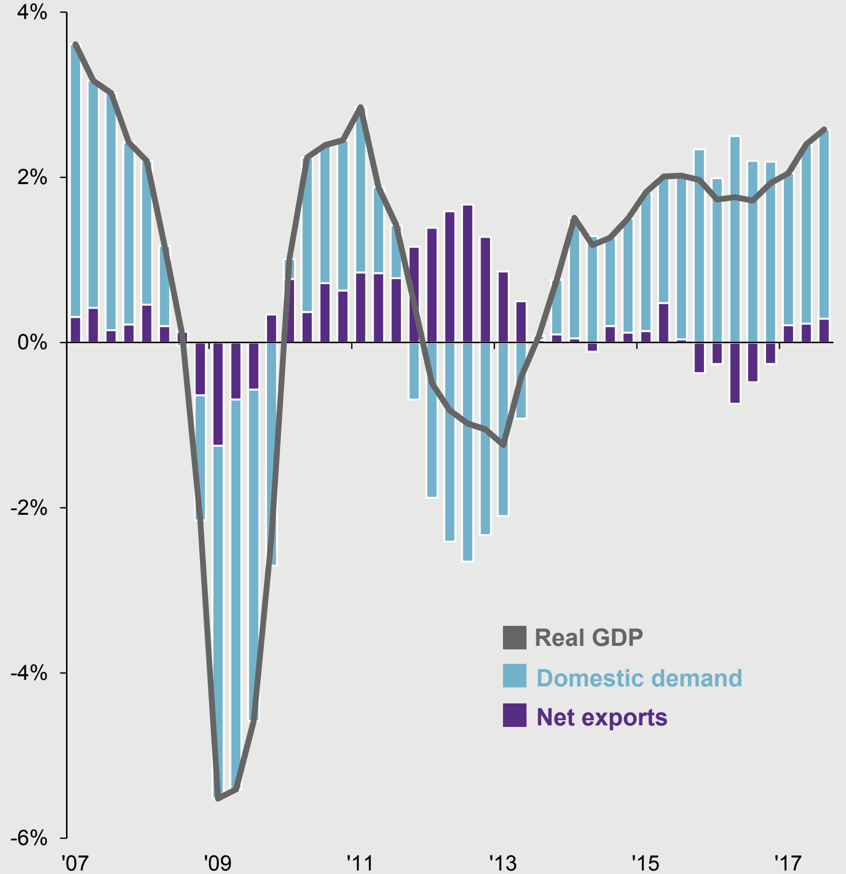
J.P.Morgan Asset Management

European recovery

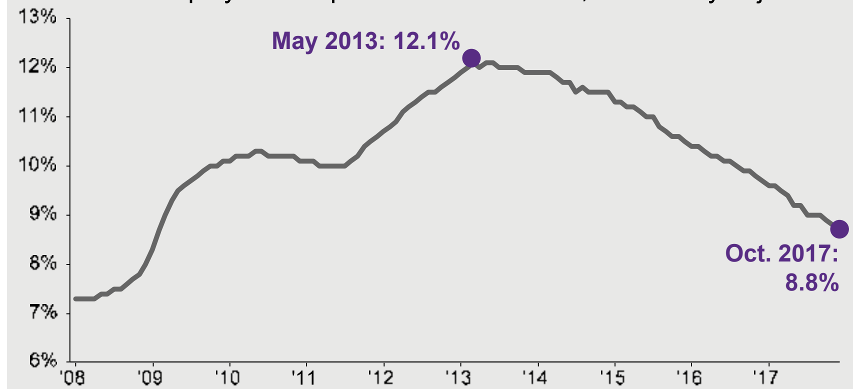
Eurozone GDP growth

Contribution to Eurozone real GDP growth, % change year-over-year



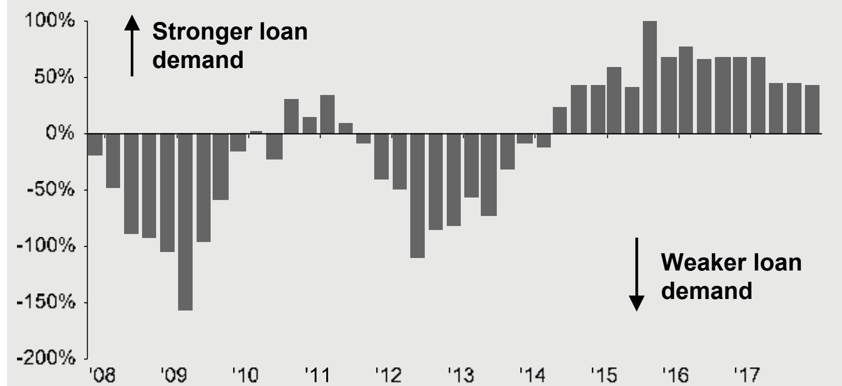
Eurozone unemployment

Persons unemployed as a percent of labor force, seasonally adjusted



Eurozone credit demand

Net % of banks reporting positive loan demand



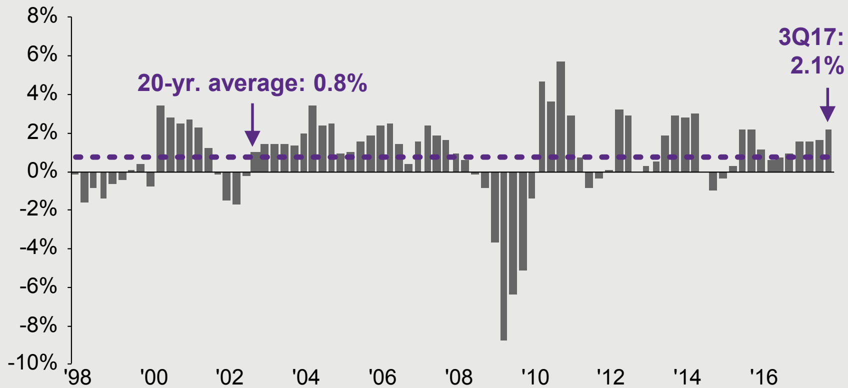
Source: FactSet, J.P. Morgan Asset Management; (Left, Top right) Eurostat; (Bottom right) ECB.
Eurozone shown is the aggregate of the 19 countries that currently use the euro. Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan
Asset Management

International

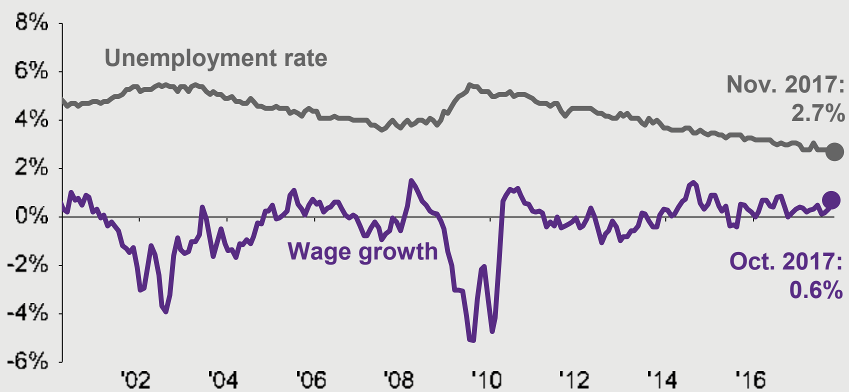
Japanese economic growth

Real GDP, y/y % change

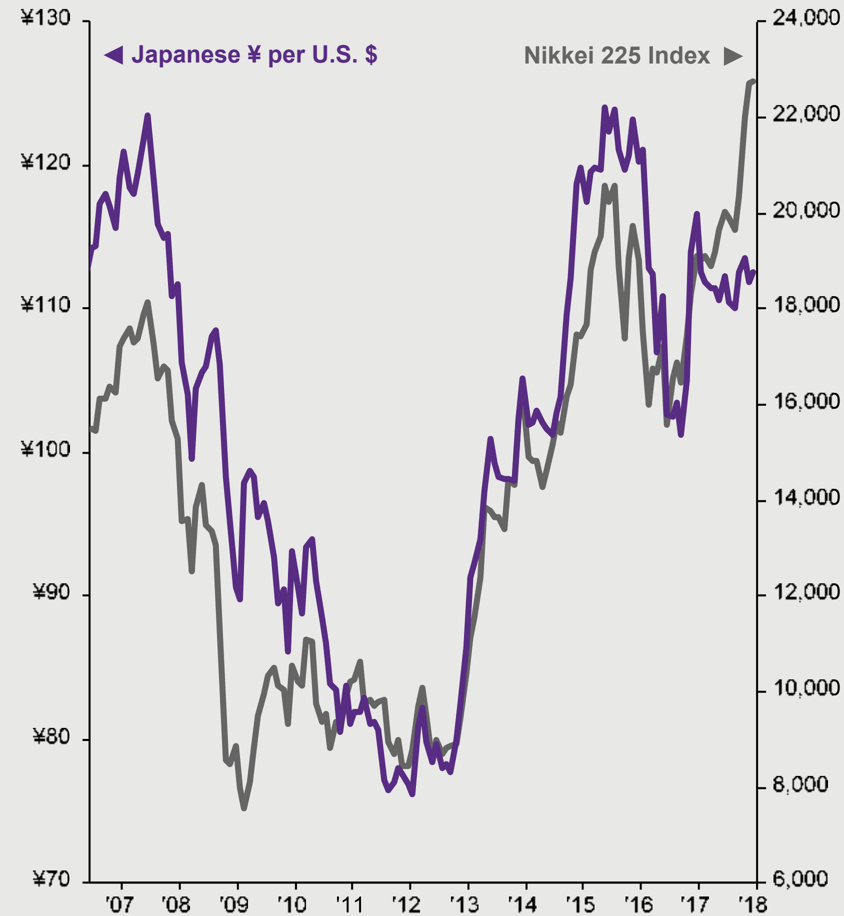


Japanese labor market

Unemployment, y/y % change in wages, 3-month moving average



Japanese yen and the stock market



Source: FactSet, J.P. Morgan Asset Management; (Top and bottom left) Japanese Cabinet Office; (Right) Nikkei. Past performance is not a reliable indicator of current and future results.
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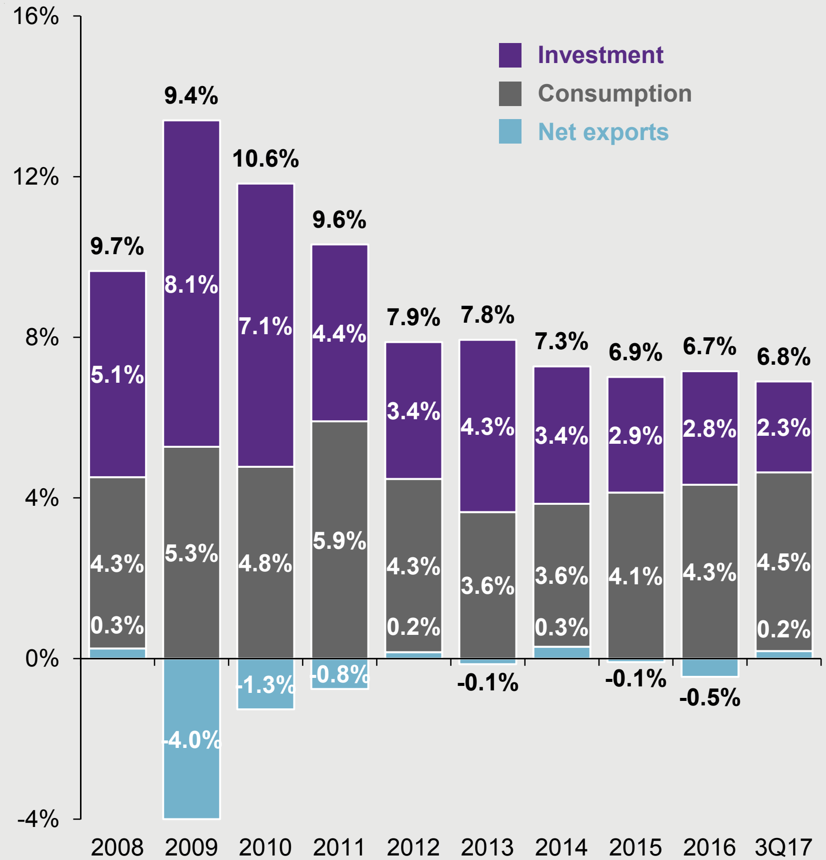
J.P.Morgan Asset Management

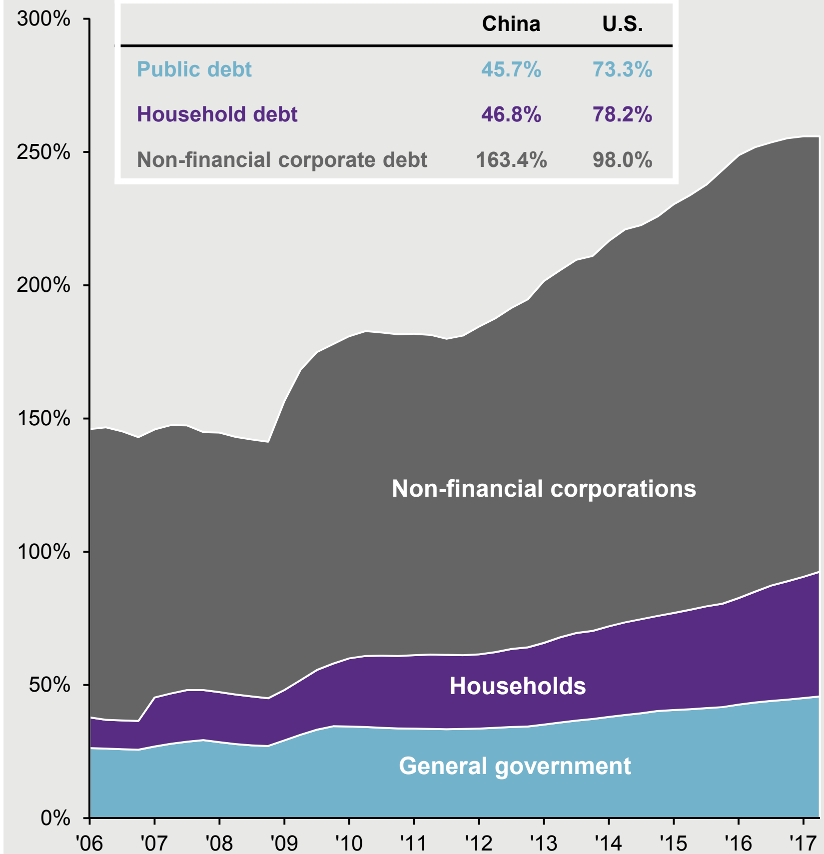
International

China real GDP contribution
Year-over-year % change



Chinese debt by sector
% of GDP, 2Q17

	China	U.S.
Public debt	45.7%	73.3%
Household debt	46.8%	78.2%
Non-financial corporate debt	163.4%	98.0%



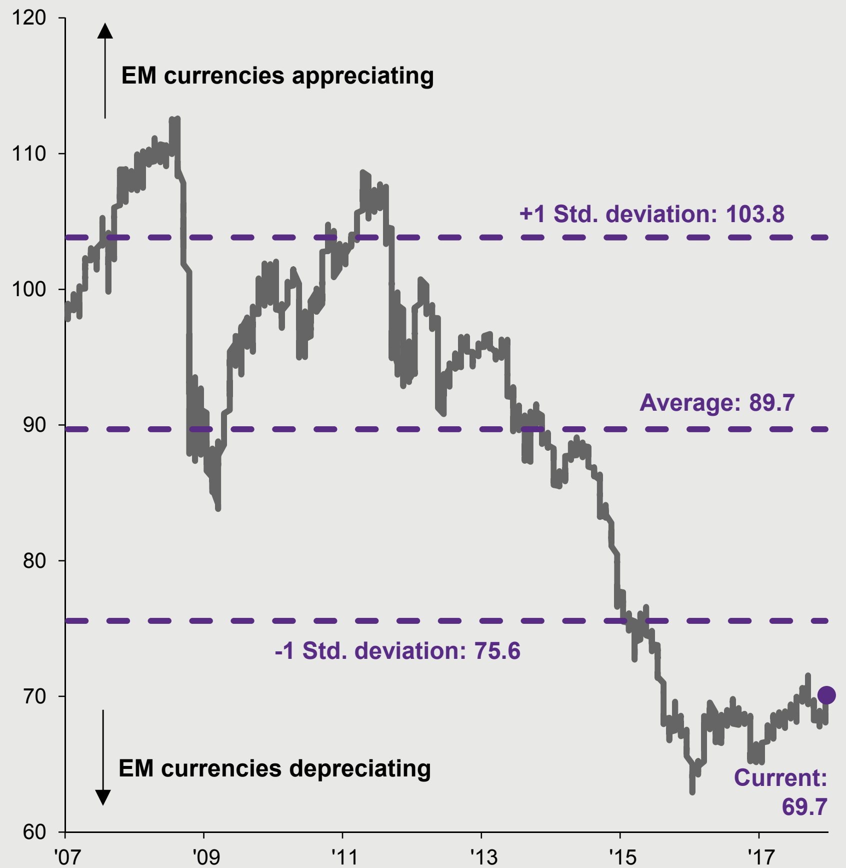
Source: FactSet, J.P. Morgan Asset Management; (Left) CEIC; (Right) BIS.
Household and non-financial corporate debt is based on market value and government debt is based on nominal value. Public debt refers to general government debt. Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

International

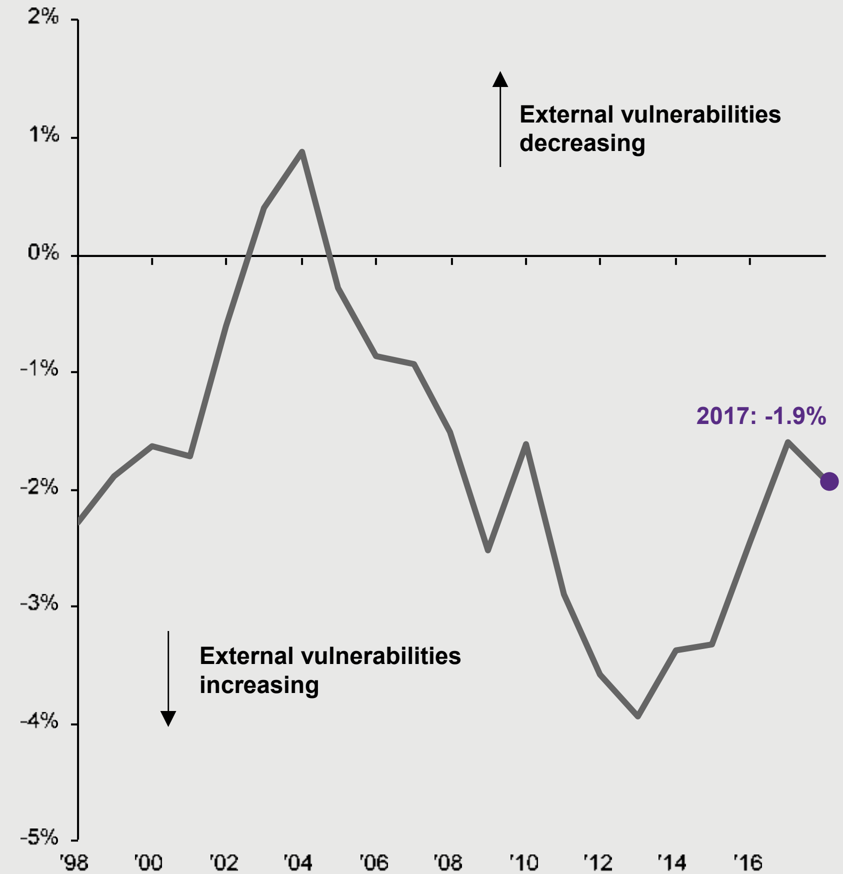
EM FX vs. U.S. dollar

Index level



EM current account balance for "Fragile Five"*

Current accounts as a % of GDP, GDP weighted



Source: J.P. Morgan Asset Management; (Left) J.P. Morgan Global Economic Research; (Right) IMF.
*Fragile Five includes Brazil, India, Indonesia, South Africa and Turkey. 2017 is an IMF forecast. Past performance is not a reliable indicator of current and future results.
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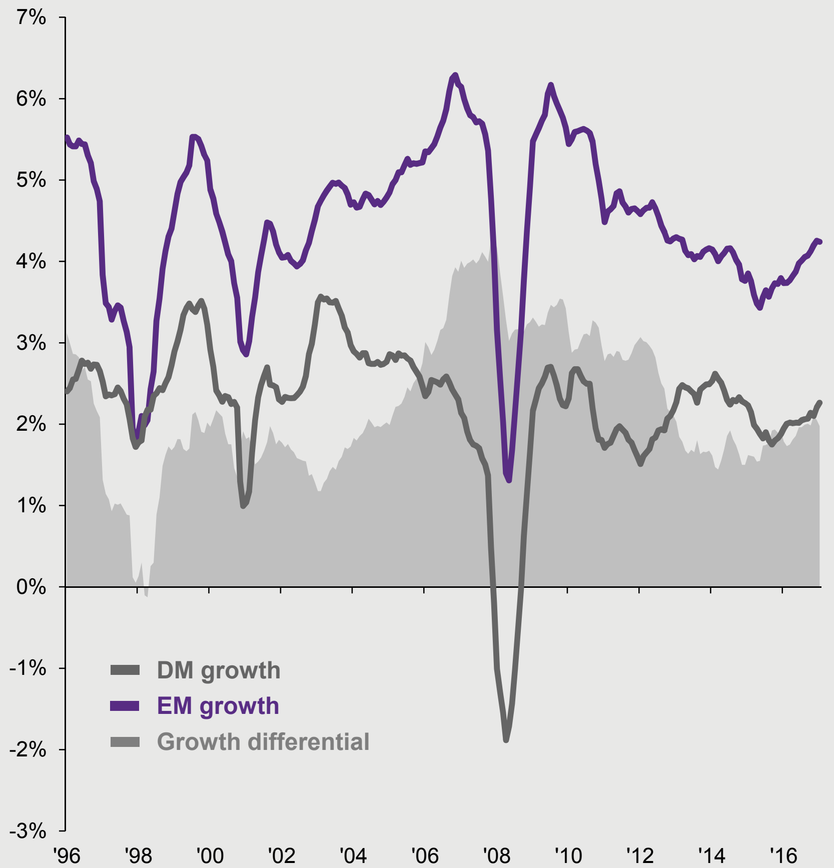
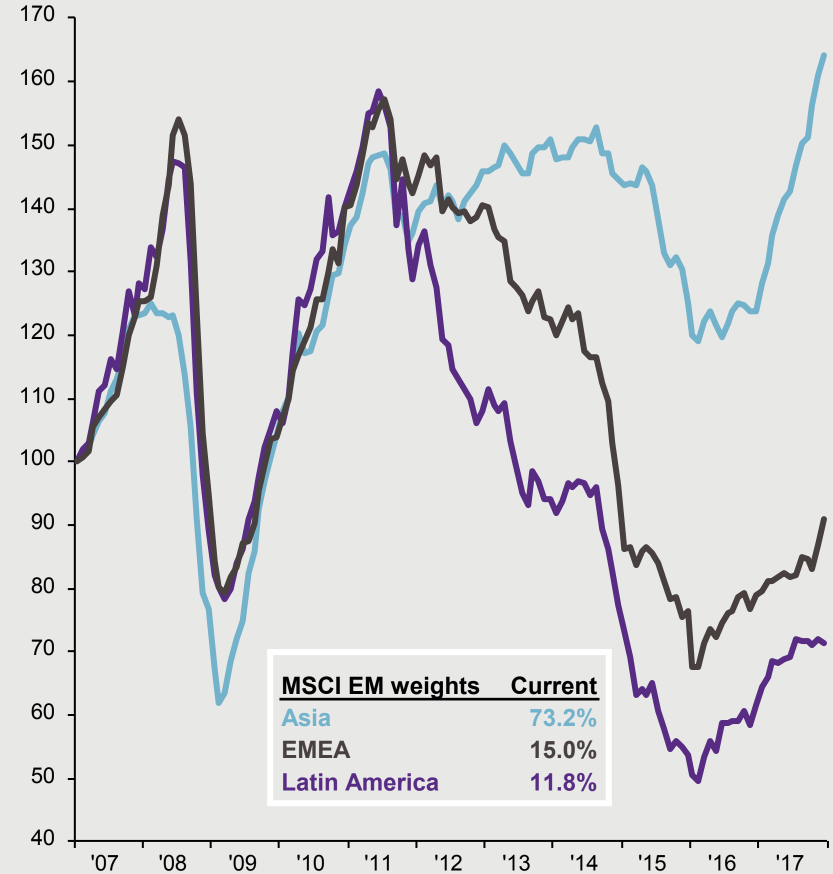
J.P.Morgan Asset Management

International

EM vs. DM growth
Monthly, consensus expectations for GDP growth in 12 months



EM earnings by region
EPS for next 12-month consensus, U.S. dollar, rebased to 100



MSCI EM weights	Current
Asia	73.2%
EMEA	15.0%
Latin America	11.8%

Source: FactSet, MSCI, Consensus Economics, J.P. Morgan Asset Management.
"Growth differential" is consensus estimates for EM growth in the next 12 months minus consensus estimates for DM growth in the next 12 months, provided by Consensus Economics. Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan
Asset Management

	U.S. Large Cap	EAFE	EME	Bonds	Corp. HY	Munis	Currcy.	EMD	Cmdty.	REITs	Hedge funds	Private equity	Ann. Volatility
U.S. Large Cap	1.00	0.89	0.82	-0.28	0.74	-0.10	-0.48	0.61	0.56	0.79	0.84	0.85	16%
EAFE		1.00	0.92	-0.13	0.79	0.02	-0.66	0.72	0.61	0.68	0.86	0.83	20%
EME			1.00	-0.06	0.90	0.10	-0.67	0.86	0.67	0.61	0.87	0.79	24%
Bonds				1.00	-0.04	0.81	-0.19	0.26	-0.15	0.03	-0.21	-0.27	3%
Corp. HY					1.00	0.12	-0.54	0.88	0.67	0.67	0.83	0.73	12%
Munis						1.00	-0.20	0.45	-0.11	0.08	0.00	-0.12	4%
Currencies							1.00	-0.63	-0.60	-0.43	-0.47	-0.57	8%
EMD								1.00	0.58	0.61	0.71	0.62	8%
Commodities									1.00	0.43	0.73	0.70	20%
REITs										1.00	0.59	0.67	25%
Hedge funds											1.00	0.85	7%
Private equity												1.00	10%

Source: Barclays Inc., Bloomberg, Cambridge Associates, Credit Suisse/Tremont, FactSet, Federal Reserve, MSCI, NCREIF, Standard & Poor's, J.P. Morgan Asset Management.
Indexes used – Large Cap: S&P 500 Index; Currencies: Federal Reserve Trade Weighted Dollar; EAFE: MSCI EAFE; EME: MSCI Emerging Markets; Bonds: Barclays Aggregate; Corp HY: Barclays Corporate High Yield; EMD: Barclays Emerging Market; Cmdty.: Bloomberg Commodity Index; Real Estate: NAREIT ODCE Index; Hedge Funds: CS/Tremont Hedge Fund Index; Private equity: Cambridge Associates Global Buyout & Growth Index. Private equity data are reported on a two quarter lag. All correlation coefficients and annualized volatility calculated based on quarterly total return data for period 9/28/07 to 9/29/17. This chart is for illustrative purposes only.
Guide to the Markets – U.S. Data are as of December 31, 2017.

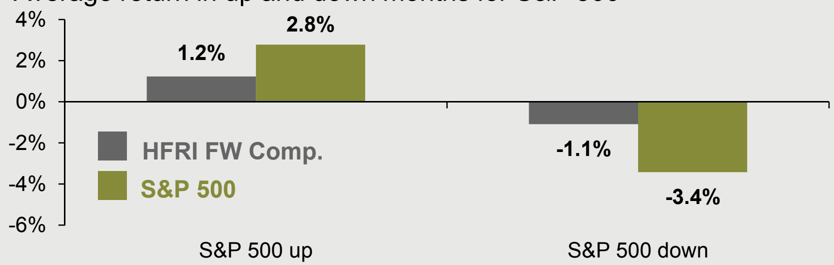
J.P.Morgan Asset Management

Hedge funds

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	YTD	2002 - 2016	
																Ann.	Vol.
Global Bond 16.5%	Large Cap 28.7%	Event Driven 14.2%	Equity L/S 10.0%	Large Cap 15.8%	Macro 11.4%	Global Bond 4.8%	Large Cap 26.5%	Large Cap 15.1%	Global Bond 5.6%	Large Cap 16.0%	Large Cap 32.4%	Large Cap 13.7%	Market Neutral 4.5%	Large Cap 12.0%	Large Cap 20.5%	Large Cap 6.7%	Large Cap 15.9%
Macro 5.5%	Event Driven 23.0%	Large Cap 10.9%	HFRI FW Comp. 9.1%	Event Driven 15.2%	Equity L/S 11.4%	Macro 4.7%	Relative Value 23.0%	Relative Value 12.5%	Large Cap 2.1%	Relative Value 9.7%	Equity L/S 14.5%	Macro 5.8%	Large Cap 1.4%	Event Driven 10.6%	Equity L/S 12.0%	Event Driven 6.4%	Equity L/S 9.9%
Relative Value 5.3%	Macro 21.5%	HFRI FW Comp. 9.3%	Event Driven 8.6%	HFRI FW Comp. 13.3%	HFRI FW Comp. 11.0%	Market Neutral -3.0%	Equity L/S 22.3%	Event Driven 11.5%	Relative Value 0.8%	Event Driven 6.5%	Event Driven 13.4%	Relative Value 5.3%	Macro 0.4%	Relative Value 7.7%	HFRI FW Comp. 7.6%	Relative Value 6.0%	Event Driven 8.6%
Market Neutral 0.9%	HFRI FW Comp. 17.1%	Global Bond 9.3%	Market Neutral 6.1%	Equity L/S 12.8%	Relative Value 10.0%	Relative Value -17.3%	Event Driven 20.3%	Equity L/S 8.9%	Event Driven -0.5%	Equity L/S 4.7%	HFRI FW Comp. 9.6%	HFRI FW Comp. 4.3%	Relative Value 0.2%	Equity L/S 5.5%	Global Bond 7.0%	HFRI FW Comp. 5.4%	HFRI FW Comp. 7.4%
HFRI FW Comp. 0.4%	Equity L/S 16.9%	Equity L/S 7.9%	Macro 6.1%	Relative Value 12.2%	Global Bond 9.5%	HFRI FW Comp. -18.7%	HFRI FW Comp. 18.6%	HFRI FW Comp. 8.5%	Macro -0.7%	HFRI FW Comp. 4.4%	Relative Value 7.5%	Equity L/S 3.6%	Equity L/S -0.2%	HFRI FW Comp. 5.4%	Event Driven 6.0%	Macro 5.0%	Global Bond 6.3%
Equity L/S -1.7%	Global Bond 12.5%	Macro 7.5%	Relative Value 5.3%	Macro 8.2%	Event Driven 8.7%	Event Driven -20.8%	Global Bond 6.9%	Global Bond 5.5%	Market Neutral -1.5%	Global Bond 4.3%	Market Neutral 6.4%	Market Neutral 3.2%	HFRI FW Comp. -0.2%	Market Neutral 2.2%	Market Neutral 4.5%	Equity L/S 4.9%	Relative Value 6.2%
Event Driven -3.1%	Relative Value 9.1%	Relative Value 6.1%	Large Cap 4.9%	Market Neutral 7.0%	Market Neutral 5.7%	Equity L/S -26.4%	Macro 6.9%	Macro 3.2%	HFRI FW Comp. -2.0%	Market Neutral 3.1%	Macro 0.1%	Event Driven 2.6%	Event Driven -2.8%	Global Bond 2.1%	Relative Value 4.4%	Global Bond 4.8%	Macro 5.1%
Large Cap -22.1%	Market Neutral 3.3%	Market Neutral 3.4%	Global Bond -4.5%	Global Bond 6.6%	Large Cap 5.5%	Large Cap -37.0%	Market Neutral -1.7%	Market Neutral 2.5%	Equity L/S -4.3%	Macro -1.3%	Global Bond -2.6%	Global Bond 0.6%	Global Bond -3.2%	Macro 1.0%	Macro 1.6%	Market Neutral 2.7%	Market Neutral 2.7%

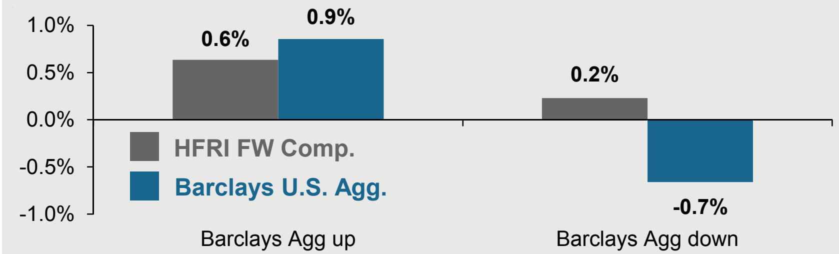
Hedge fund returns in different market environments

Average return in up and down months for S&P 500



Hedge fund returns in different market environments

Average return in up and down months for Barclays Agg.



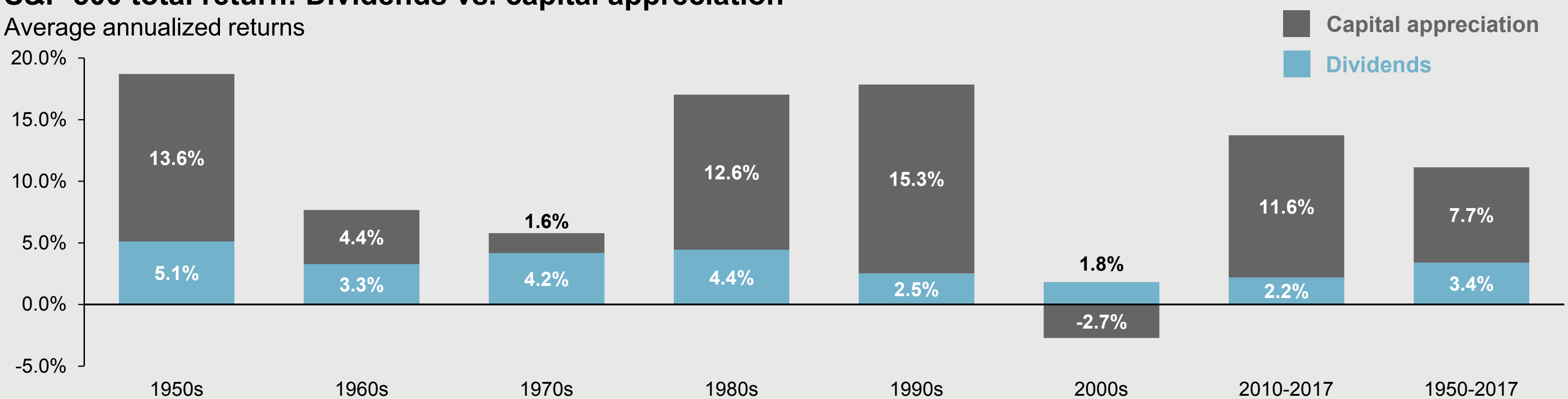
Source: Barclays, FactSet, HFRI, Standard & Poor's, J.P. Morgan Asset Management.
Large Cap equities is represented by the S&P 500. Returns in different market environments are based on monthly returns over the past 15 years through November 30, 2017, due to data availability.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

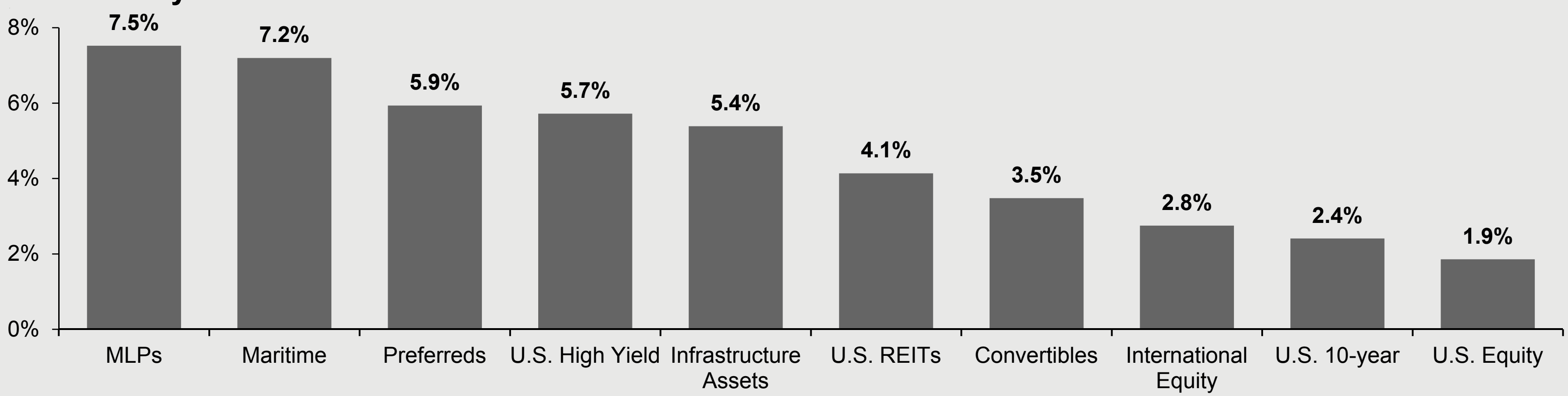
Other asset classes

S&P 500 total return: Dividends vs. capital appreciation

Average annualized returns



Asset class yields

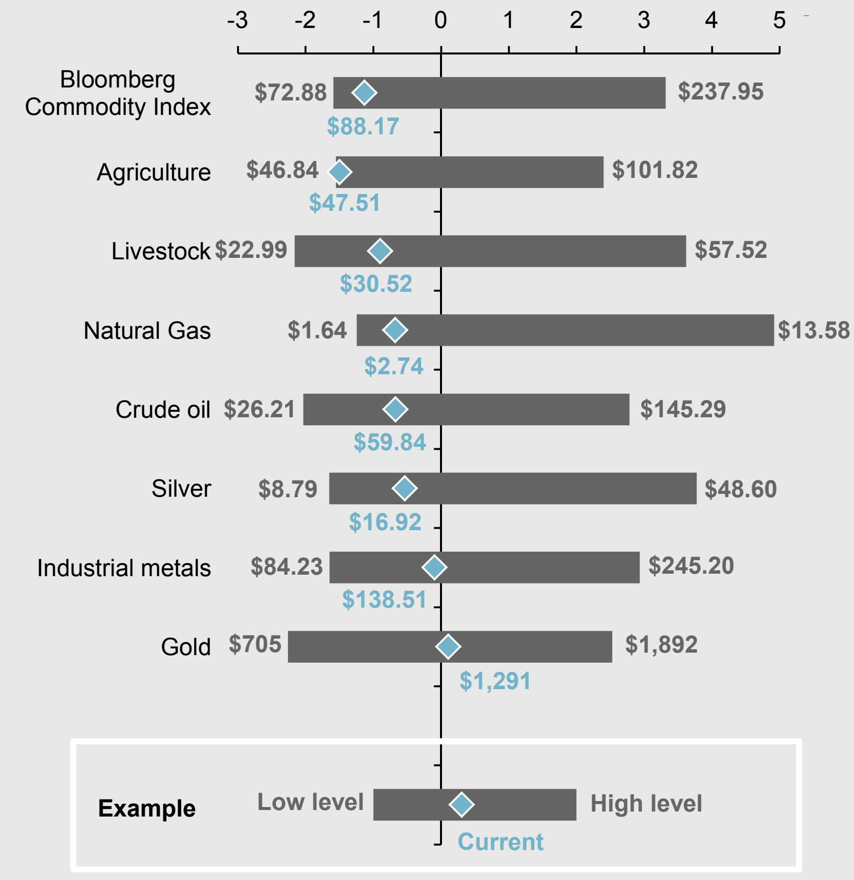


Source: FactSet, J.P. Morgan Asset Management; (Top) Ibbotson, Standard & Poor's; (Bottom) Alerian, BAML, Barclays, Clarkson, Drewry Maritime Consultants, Federal Reserve, FTSE, MSCI, NCREIF, Standard & Poor's. Dividend vs. capital appreciation returns are through 12/31/17. Yields are as of 12/31/17, except maritime (9/30/2017) and infrastructure (6/30/17). Maritime: Unlevered yields for maritime assets are calculated as the difference between charter rates (rental income) and operating expenses as a percentage of current asset value. Yields for each of the sub-vessel types above are calculated and the respective weightings are applied to calculate sub-sector specific yields, and then weighted to arrive at the current indicative yield for the Global Maritime Fleet; MLPs: Alerian MLP; Preferreds: BAML Hybrid Preferred Securities; U.S. High Yield: Bloomberg US Aggregate Corporate High Yield; Infrastructure Assets: MSCI Global Infrastructure Asset Index; U.S. REITs: FTSE NAREIT USA REITs; Convertibles: Barclays U.S. Convertibles Composite; International Equity: MSCI AC World ex USA; U.S. 10-year: Federal Reserve; U.S. Equity: MSCI USA.
Guide to the Markets – U.S. Data are as of December 31, 2017

Global commodities

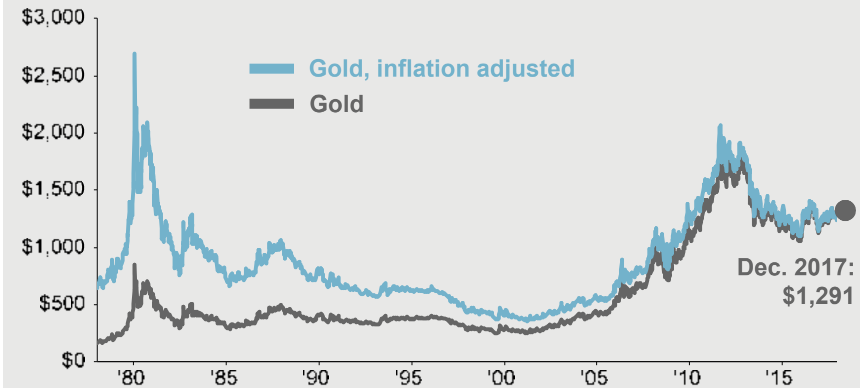
Commodity prices

Commodity price z-scores



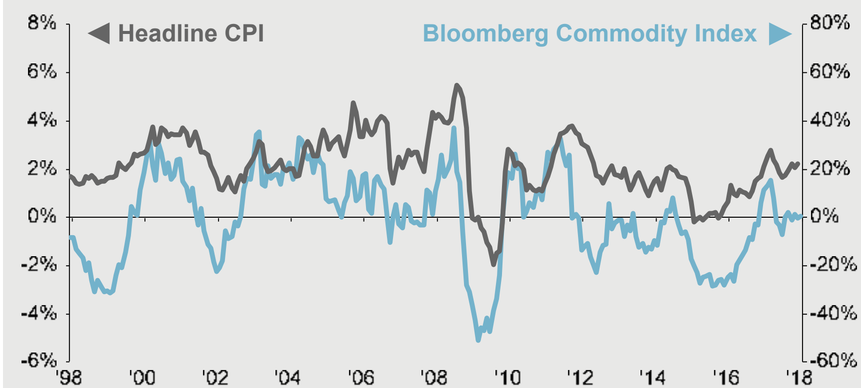
Gold prices

USD per ounce



Commodity prices and inflation

Year-over-year % change

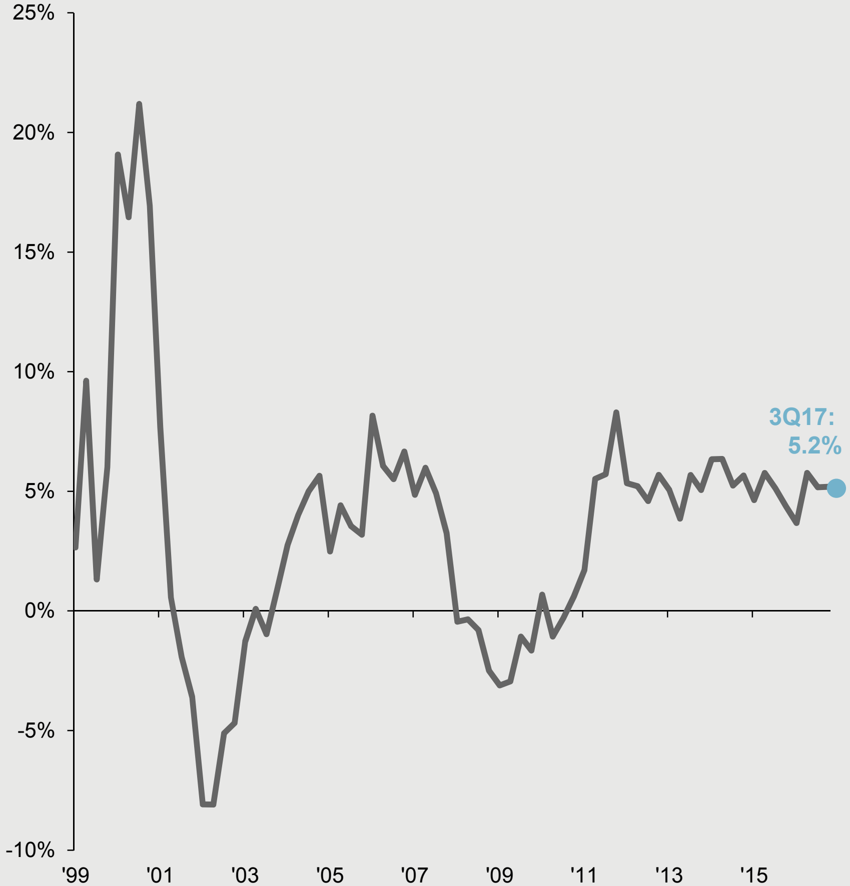


Source: FactSet, J.P. Morgan Asset Management; (Left) Bloomberg, CME; (Top right) BLS, CME; (Bottom right) Bloomberg, BLS.
Commodity prices are represented by the appropriate Bloomberg Commodity sub-index. Crude oil shown is Brent crude. Other commodity prices are represented by futures contracts. Z-scores are calculated using daily prices over the past 10 years.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

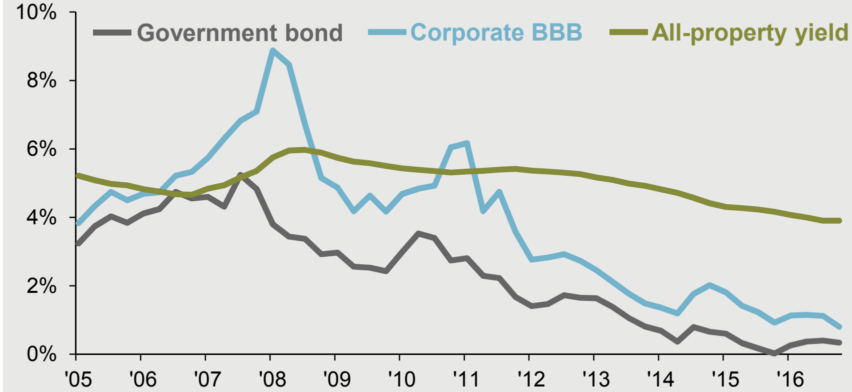
U.S. real estate net operating income growth

Year-over-year NPI-ODCE Index NOI growth



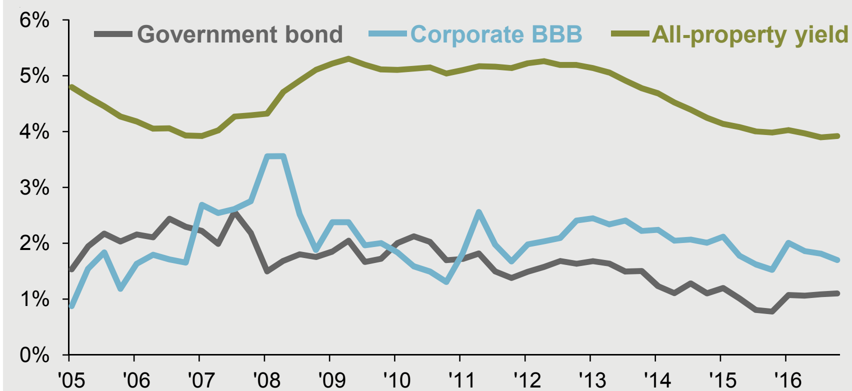
Europe real estate property yield spreads

Property yields vs. government bonds vs. BBB-rated bonds



Asia Pacific real estate property yield spreads

Property yields vs. government bonds vs. BBB-rated bonds



Source: J.P. Morgan Asset Management; (Left) U.S. real estate: NPI-ODCE NOI Growth; (Top right) Europe real estate: CBRE EU-15 prime index; (Bottom right) Asia Pacific real estate: Barclays. All property yields (market value weighted blend of Sydney CBD and Melbourne CBD average equivalent prime yield (NLA) and Tokyo CBD 5-Kus market yield (GFA), in JPY), government bonds and BBB-rated bonds for Asia Pacific are yield to worst.

Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

Asset class returns

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2003 - 2017 Ann.	Vol.
EM Equity 56.3%	REITs 31.6%	EM Equity 34.5%	REITs 35.1%	EM Equity 39.8%	Fixed Income 5.2%	EM Equity 79.0%	REITs 27.9%	REITs 8.3%	REITs 19.7%	Small Cap 38.8%	REITs 28.0%	REITs 2.8%	Small Cap 21.3%	EM Equity 37.8%	EM Equity 12.7%	EM Equity 23.0%
Small Cap 47.3%	EM Equity 26.0%	Comdty. 21.4%	EM Equity 32.6%	Comdty. 16.2%	Cash 1.8%	High Yield 59.4%	Small Cap 26.9%	Fixed Income 7.8%	High Yield 19.6%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	High Yield 14.3%	DM Equity 25.6%	Small Cap 11.2%	REITs 22.3%
DM Equity 39.2%	DM Equity 20.7%	DM Equity 14.0%	DM Equity 26.9%	DM Equity 11.6%	Asset Alloc. -25.4%	DM Equity 32.5%	EM Equity 19.2%	High Yield 3.1%	EM Equity 18.6%	DM Equity 23.3%	Fixed Income 6.0%	Fixed Income 0.5%	Large Cap 12.0%	Large Cap 21.8%	REITs 11.1%	Small Cap 18.8%
REITs 37.1%	Small Cap 18.3%	REITs 12.2%	Small Cap 18.4%	Asset Alloc. 7.1%	High Yield -26.9%	REITs 28.0%	Comdty. 16.8%	Large Cap 2.1%	DM Equity 17.9%	Asset Alloc. 14.9%	Asset Alloc. 5.2%	Cash 0.0%	Comdty. 11.8%	Small Cap 14.6%	Large Cap 9.9%	Comdty. 18.8%
High Yield 32.4%	High Yield 13.2%	Asset Alloc. 8.1%	Large Cap 15.8%	Fixed Income 7.0%	Small Cap -33.8%	Small Cap 27.2%	Large Cap 15.1%	Cash 0.1%	Small Cap 16.3%	High Yield 7.3%	Small Cap 4.9%	DM Equity -0.4%	EM Equity 11.6%	Asset Alloc. 14.6%	High Yield 9.6%	DM Equity 18.4%
Large Cap 28.7%	Asset Alloc. 12.8%	Large Cap 4.9%	Asset Alloc. 15.3%	Large Cap 5.5%	Comdty. -35.6%	Large Cap 26.5%	High Yield 14.8%	Asset Alloc. -0.7%	Large Cap 16.0%	REITs 2.9%	Cash 0.0%	Asset Alloc. -2.0%	REITs 8.6%	High Yield 10.4%	DM Equity 8.6%	Large Cap 14.5%
Asset Alloc. 26.3%	Large Cap 10.9%	Small Cap 4.6%	High Yield 13.7%	Cash 4.8%	Large Cap -37.0%	Asset Alloc. 25.0%	Asset Alloc. 13.3%	Small Cap -4.2%	Asset Alloc. 12.2%	Cash 0.0%	High Yield 0.0%	High Yield -2.7%	Asset Alloc. 8.3%	REITs 8.7%	Asset Alloc. 8.3%	High Yield 11.3%
Comdty. 23.9%	Comdty. 9.1%	High Yield 3.6%	Cash 4.8%	High Yield 3.2%	REITs -37.7%	Comdty. 18.9%	DM Equity 8.2%	DM Equity -11.7%	Fixed Income 4.2%	Fixed Income -2.0%	EM Equity -1.8%	Small Cap -4.4%	Fixed Income 2.6%	Fixed Income 3.5%	Fixed Income 4.1%	Asset Alloc. 11.0%
Fixed Income 4.1%	Fixed Income 4.3%	Cash 3.0%	Fixed Income 4.3%	Small Cap -1.6%	DM Equity -43.1%	Fixed Income 5.9%	Fixed Income 6.5%	Comdty. -13.3%	Cash 0.1%	EM Equity -2.3%	DM Equity -4.5%	EM Equity -14.6%	DM Equity 1.5%	Comdty. 1.7%	Cash 1.2%	Fixed Income 3.3%
Cash 1.0%	Cash 1.2%	Fixed Income 2.4%	Comdty. 2.1%	REITs -15.7%	EM Equity -53.2%	Cash 0.1%	Cash 0.1%	EM Equity -18.2%	Comdty. -1.1%	Comdty. -9.5%	Comdty. -17.0%	Comdty. -24.7%	Cash 0.3%	Cash 0.8%	Comdty. -0.3%	Cash 0.8%

Source: Barclays, Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor's, J.P. Morgan Asset Management.
Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, Comdty: Bloomberg Commodity Index, High Yield: Barclays Global HY Index, Fixed Income: Barclays US Aggregate, REITs: NAREIT Equity REIT Index. The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Barclays US Aggregate, 5% in the Barclays 1-3m Treasury, 5% in the Barclays Global High Yield Index, 5% in the Bloomberg Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. Annualized (Ann.) return and volatility (Vol.) represents period of 12/31/02 – 12/31/17.
Please see disclosure page at end for index definitions. All data represents total return for stated period. Past performance is not indicative of future returns.
Guide to the Markets – U.S. Data are as of December 31, 2017.

Investing principles

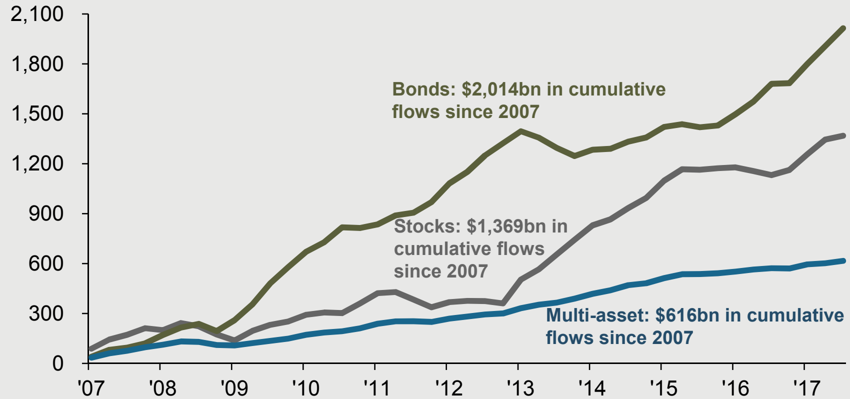
J.P.Morgan Asset Management

Fund flows

USD billions	AUM	Registered product flows																	
		YTD	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
U.S. equity	7,994	32	(20)	(22)	106	183	(35)	(37)	29	18	(3)	23	75	111	171	142	55	89	121
World equity	3,401	225	7	204	149	200	58	17	85	61	(35)	190	171	136	89	39	11	(10)	42
Taxable bond	3,509	366	224	52	81	(20)	302	163	218	312	62	107	49	44	26	46	109	61	(9)
Tax-free bond	692	33	31	21	33	(55)	53	(9)	14	71	11	13	17	7	(7)	(3)	13	9	(9)
Multi-asset	2,454	54	29	59	92	90	51	38	61	39	13	97	78	80	81	51	21	18	(20)
Liquidity	2,664	37	189	39	31	32	0	(50)	(348)	(261)	673	540	170	48	(59)	(93)	3	263	62

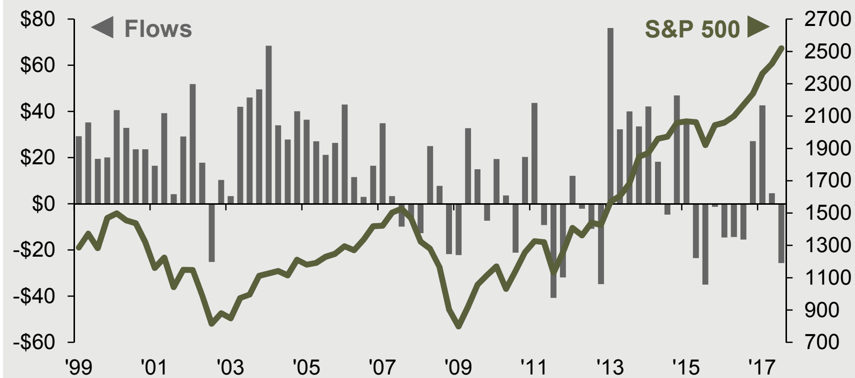
Cumulative flows into long-term asset products

Mutual fund and ETF flows, quarterly, USD billions



Flows into U.S. equity funds & S&P 500 performance

Mutual fund and ETF flows, price index, quarterly, USD billions



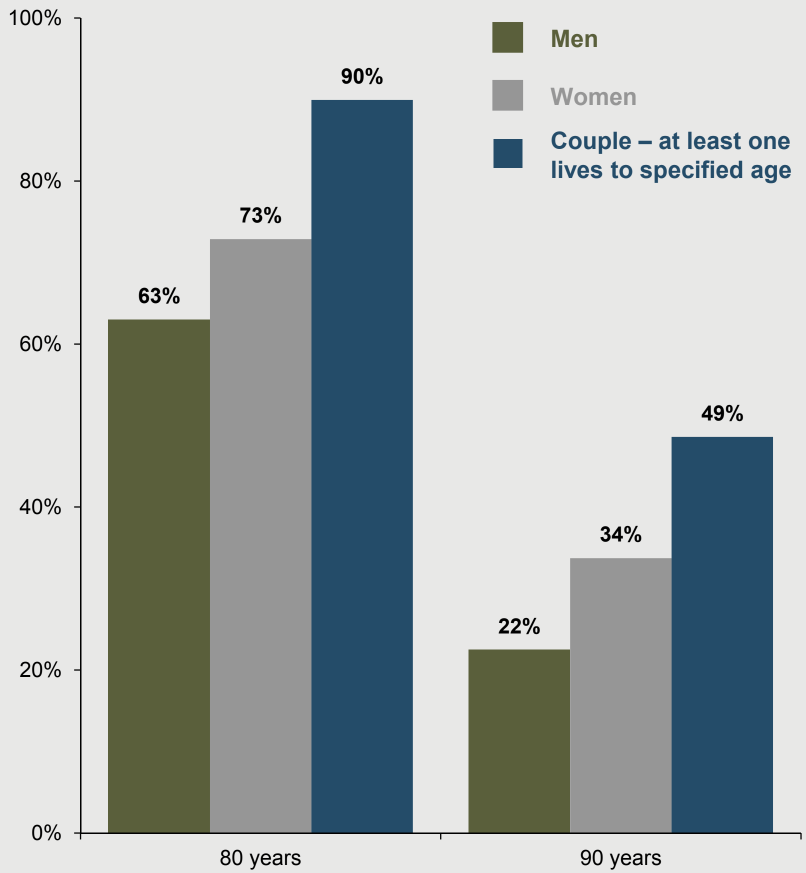
Source: Strategic Insight Simfund, J.P. Morgan Asset Management; All data include flows through November 2017 and capture all registered product flows (open-end mutual funds and ETFs). Simfund data are subject to periodic revisions. World equity flows are inclusive of emerging market, global equity and regional equity flows. Multi-asset flows include asset allocation, balanced fund, flexible portfolio and mixed income flows.
Guide to the Markets – U.S. Data are as of December 31, 2017.

Investing principles

J.P.Morgan Asset Management

Probability of reaching ages 80 and 90

Persons aged 65, by gender, and combined couple



Retirement savings gap

Anticipated amount needed versus actual savings, thousands

Investing principles

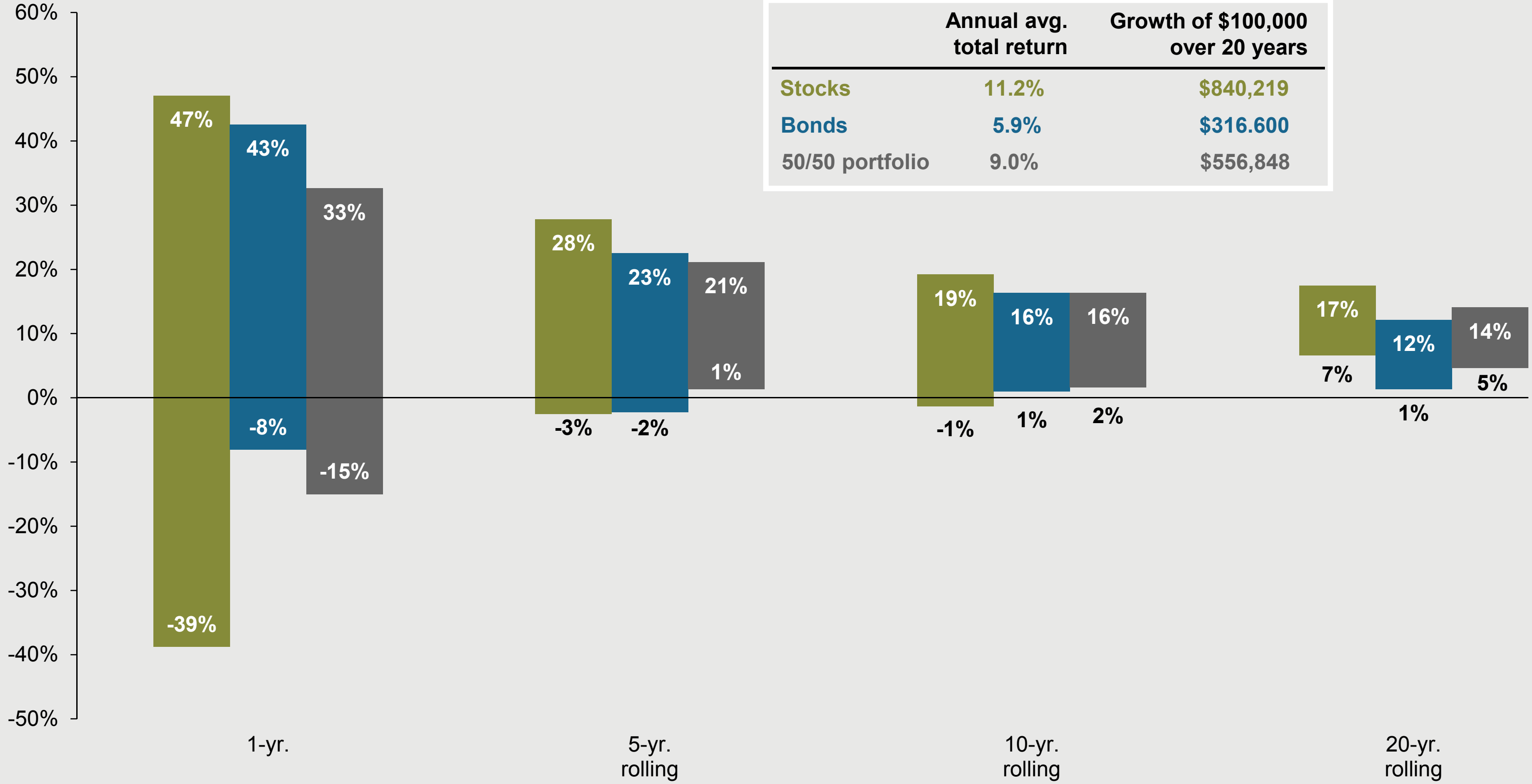
Source: J.P. Morgan Asset Management; (Left) SSA 2014 Life Tables; (Right) 2017 Retirement Confidence Survey, Employee Benefit Research Institute and Greenwald & Associates; 2016 Survey of Consumer Finances, Federal Reserve.
EBRI survey was conducted from January 6, 2017 – January 13, 2017 through online interviews with 1,671 individuals (1,082 workers and 589 retirees) ages 25 and older in the United States.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

Range of stock, bond and blended total returns

Annual total returns, 1950-2017

	Annual avg. total return	Growth of $100,000 over 20 years
Stocks	11.2%	$840,219
Bonds	5.9%	$316.600
50/50 portfolio	9.0%	$556,848



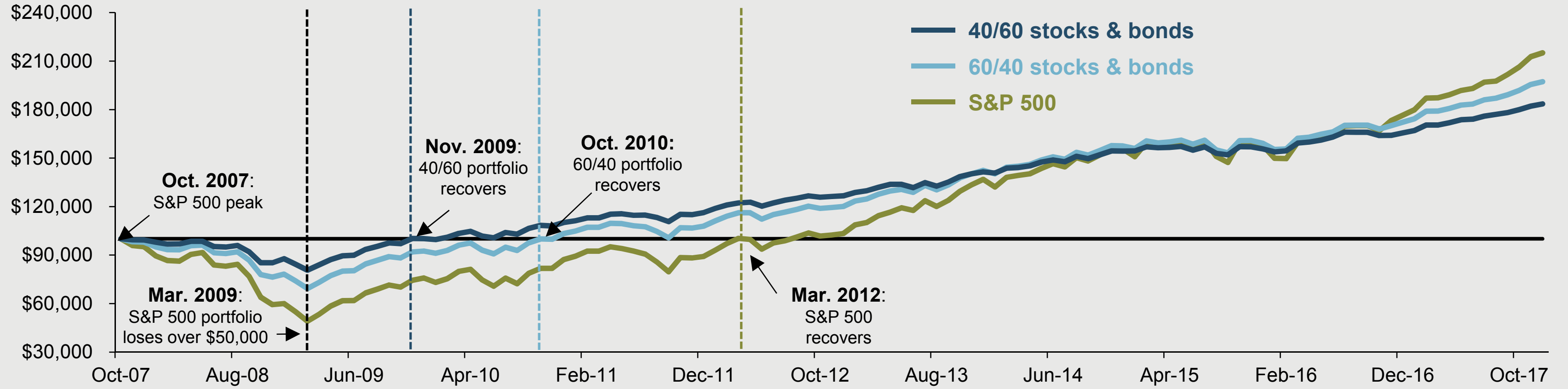
Investing principles

Source: Barclays, FactSet, Federal Reserve, Robert Shiller, Strategas/Ibbotson, J.P. Morgan Asset Management.
Returns shown are based on calendar year returns from 1950 to 2017. Stocks represent the S&P 500 Shiller Composite and Bonds represent Strategas/Ibbotson for periods from 1950 to 2010 and Barclays Aggregate thereafter. Growth of $100,000 is based on annual average total returns from 1950 to 2017.
Guide to the Markets – U.S. Data are as of December 31, 2017.

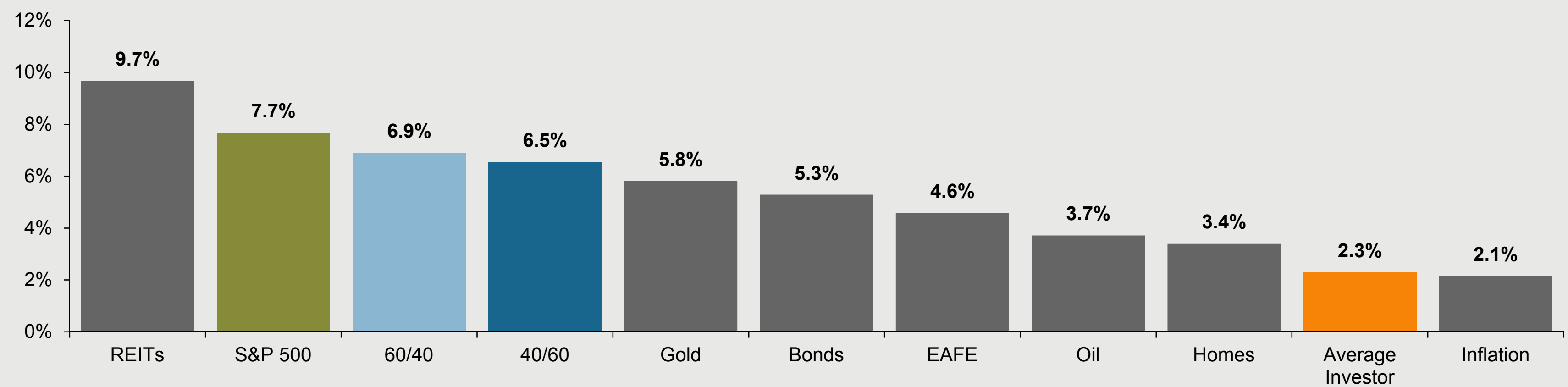
J.P.Morgan Asset Management

Diversification and the average investor

Portfolio returns: Equities vs. equity and fixed income blend



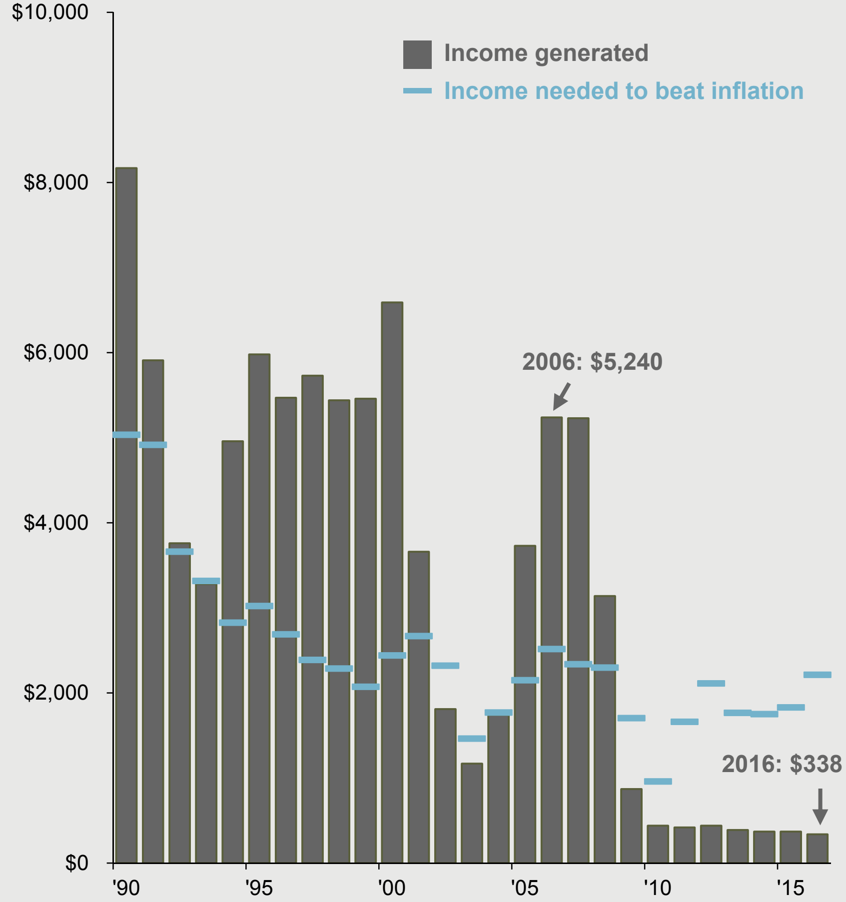
20-year annualized returns by asset class (1997 – 2016)



Source: J.P. Morgan Asset Management; (Top) Barclays, FactSet, Standard & Poor's; (Bottom) Dalbar Inc.
Indexes used are as follows: REITS: NAREIT Equity REIT Index, EAFE: MSCI EAFE, Oil: WTI Index, Bonds: Barclays U.S. Aggregate Index, Homes: median sale price of existing single-family homes, Gold: USD/troy oz., Inflation: CPI. 60/40: A balanced portfolio with 60% invested in S&P 500 Index and 40% invested in high quality U.S. fixed income, represented by the Barclays U.S. Aggregate Index. The portfolio is rebalanced annually. Average asset allocation investor return is based on an analysis by Dalbar Inc., which utilizes the net of aggregate mutual fund sales, redemptions and exchanges each month as a measure of investor behavior. Returns are annualized (and total return where applicable) and represent the 20-year period ending 12/31/16 to match Dalbar's most recent analysis.
Guide to the Markets – U.S. Data are as of December 31, 2017.

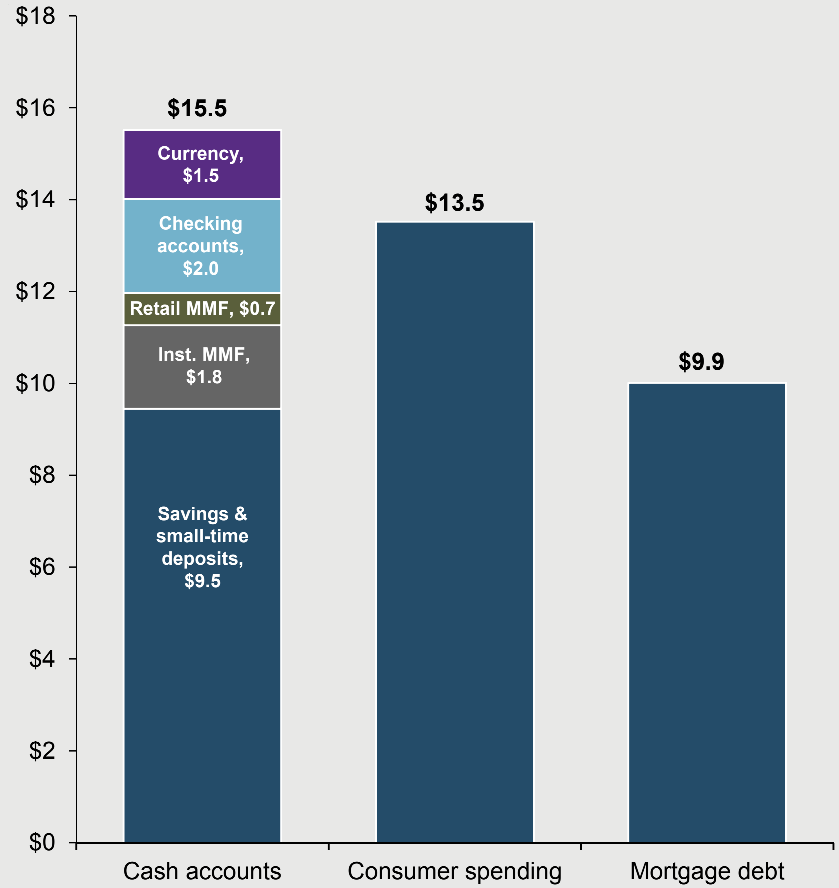
J.P.Morgan Asset Management

Income earned by $100,000 investment in a 6-mo. CD



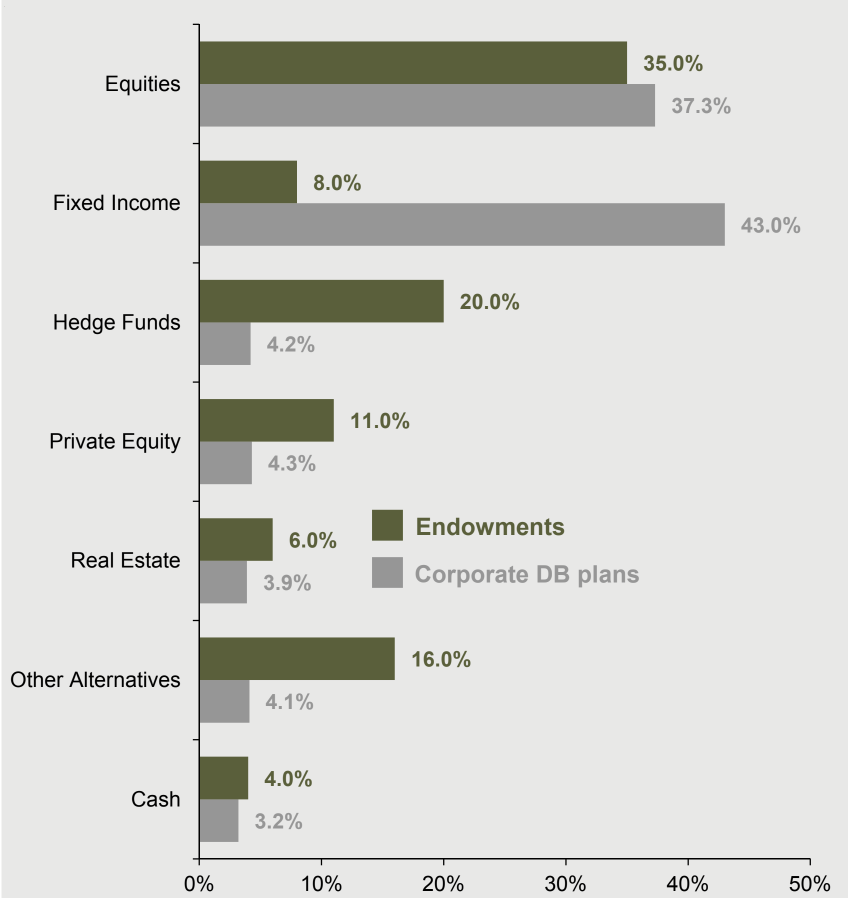
Cash accounts in perspective

Trillions of U.S. dollars

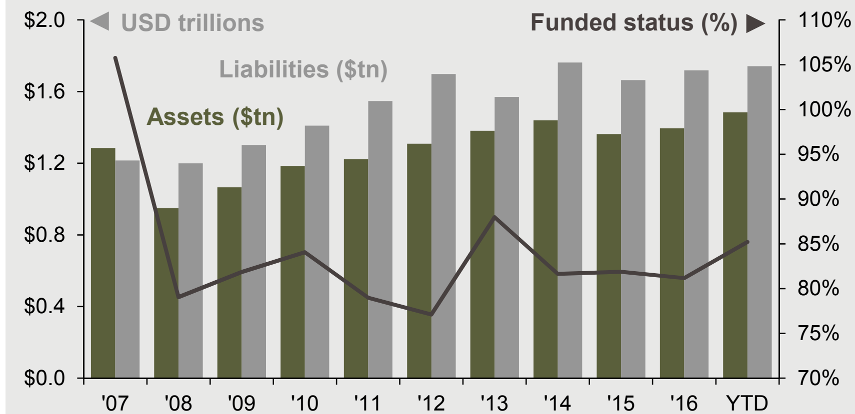


Source: FactSet, J.P. Morgan Asset Management; (Left) Bankrate.com; (Right) Federal Reserve System, BEA.
Money supply, consumer spending, and mortgage debt are as of 9/30/2017. M2 includes M1 (currency in circulation and checking accounts) plus savings deposits, small-denomination time deposits and retail money market mutual funds. Institutional money market funds are considered memorandum item, not included in M2. Annual income is for illustrative purposes and is calculated based on the 6-month CD yield on average during each year and $100,000 invested. Past performance is not indicative of comparable future results.
Guide to the Markets – U.S. Data are as of December 31, 2017.

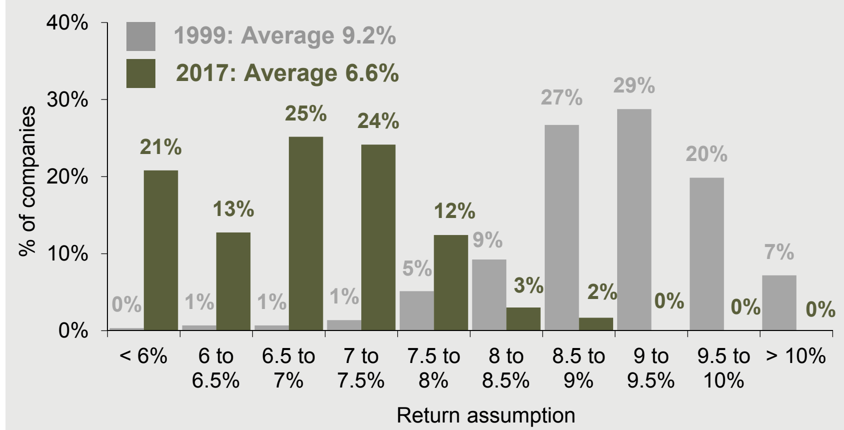
Asset allocation: Corporate DB plans vs. endowments



Defined benefit plans: Milliman 100 companies



Pension return assumptions: S&P 500 companies



Investing principles

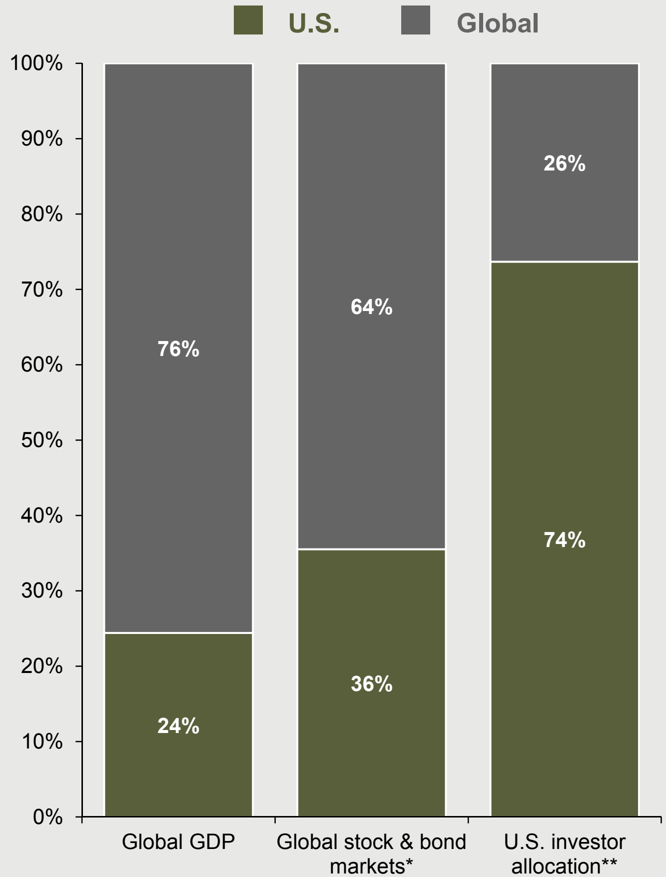
Source: J.P. Morgan Asset Management; (Left) NACUBO (National Association of College and University Business Officers), Towers Watson; (Top right) Milliman Pension Funding Index; (Bottom right) Compustat/FactSet, S&P 500 corporate 10-Ks. Endowment asset allocation as of 2017. Corporate DB plans asset allocation as of 2015. Endowments represents dollar-weighted average data of 805 colleges and universities. Corporate DB plans represents aggregate asset allocation of Fortune 1000 pension plans. Pension return assumptions based on all available and reported data from S&P 500 Index companies. Pension assets, liabilities and funded status based on Milliman 100 companies reporting pension data as of November 30, 2017. Return assumption bands are inclusive of upper range. All information is shown for illustrative purposes only.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

Local investing and global opportunities

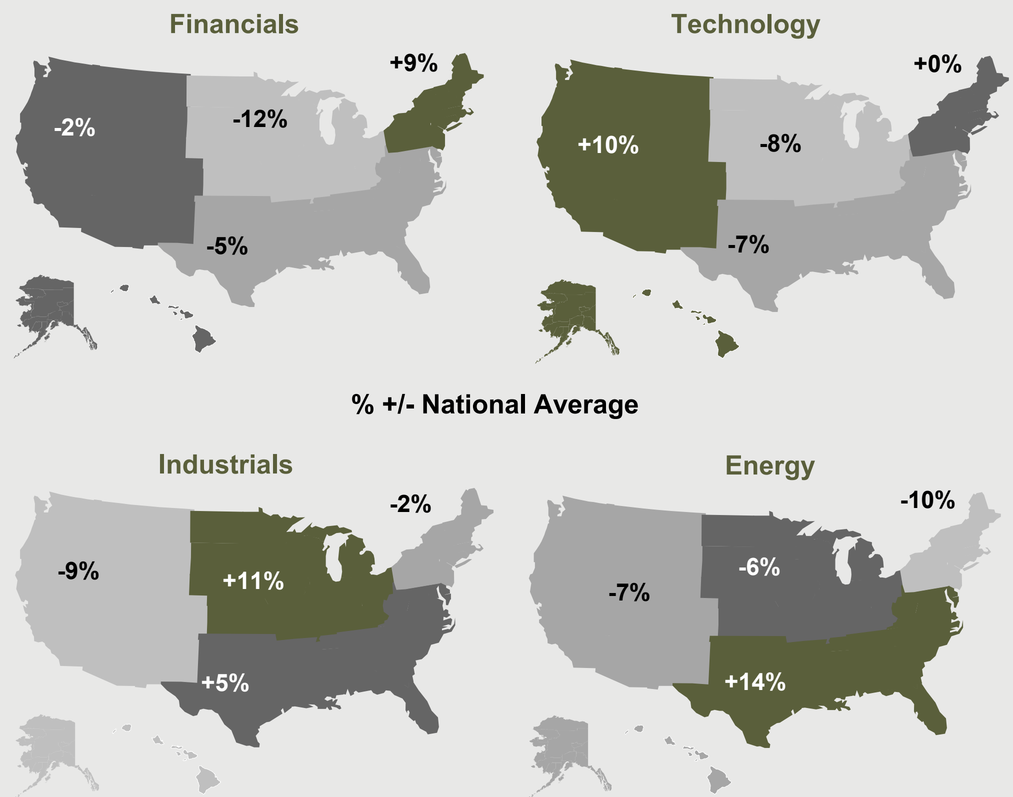
Investment universe & U.S. investors

Percentage of total net assets, 2017



Investor allocation by region

Likelihood of owning stocks in an industry vs. national average***

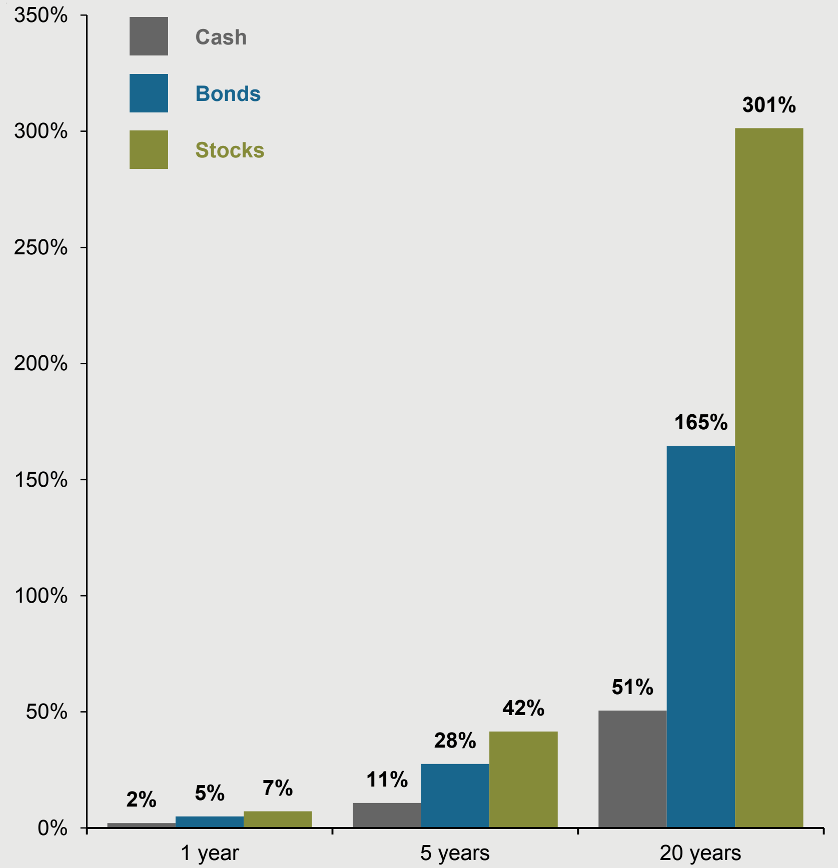


Source: Openfolio, IMF, ICI, J.P. Morgan Asset Management.
*Global stock and bond markets data are as of 2013. **U.S. investor allocation is the total value of investments in global or domestic equity mutual funds and ETFs as of 2014. ***Investor allocation by region is based on data collected by Openfolio. Average sector allocations at the national level are determined by looking at the sector allocations of over 20,000 brokerage accounts, and taking a simple average. Portfolio allocations are then evaluated on a regional basis, and the regional averages are compared to the national average to highlight any investor biases. Further details can be found on openfolio.com.
Guide to the Markets – U.S. Data are as of December 31, 2017.

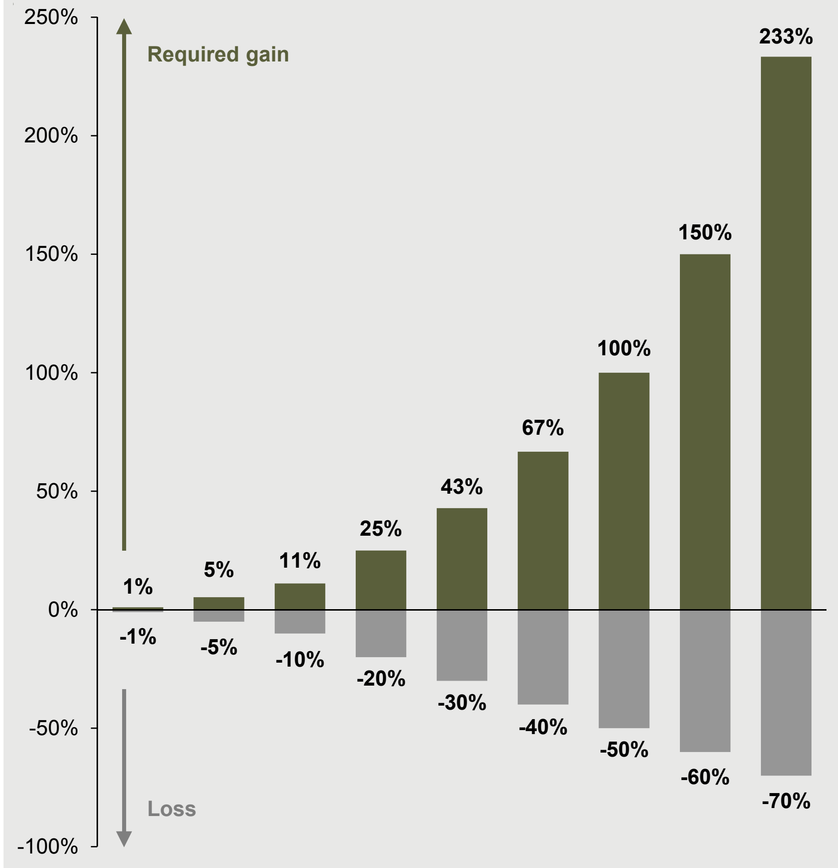
J.P.Morgan Asset Management

The importance of staying invested and limiting losses

The power of compounding
Cumulative return by holding period



Gain required to fully recover from a loss
Loss and subsequent gain necessary for full recovery of value



Investing principles

Source: J.P. Morgan Asset Management, BLS, FactSet, Standard & Poor's
Cumulative returns are calculated using historical data. Stock returns are based on the S&P 500, bonds returns are based on the Barclays U.S. Aggregate Index and cash returns are based on 3-month U.S. Treasury Bills. 1-year returns are 20 year average annualized return from 12/31/1997-12/31/2017 for each asset class. 5- and 20-year returns are cumulative over that time period based on the annualized return. Past performance is not indicative of future returns.
Guide to the Markets – U.S. Data are as of December 31, 2017.

J.P.Morgan Asset Management

All indexes are unmanaged and an individual cannot invest directly in an index. Index returns do not include fees or expenses.

Equities:

The **Dow Jones Industrial Average** is a price-weighted average of 30 actively traded blue-chip U.S. stocks.

The **MSCI ACWI (All Country World Index)** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets.

The **MSCI EAFE Index (Europe, Australasia, Far East)** is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the US & Canada.

The **MSCI Emerging Markets Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets.

The **MSCI Europe Index** is a free float-adjusted market capitalization index that is designed to measure developed market equity performance in Europe.

The **MSCI Pacific Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance in the Pacific region.

The **Russell 1000 Index**® measures the performance of the 1,000 largest companies in the Russell 3000.

The **Russell 1000 Growth Index**® measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

The **Russell 1000 Value Index**® measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell 2000 Index**® measures the performance of the 2,000 smallest companies in the Russell 3000 Index.

The **Russell 2000 Growth Index**® measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.

The **Russell 2000 Value Index**® measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell 3000 Index**® measures the performance of the 3,000 largest U.S. companies based on total market capitalization.

The **Russell Midcap Index**® measures the performance of the 800 smallest companies in the Russell 1000 Index.

The **Russell Midcap Growth Index** ® measures the performance of those Russell Midcap companies with higher price-to-book ratios and higher forecasted growth values. The stocks are also members of the Russell 1000 Growth index.

The **Russell Midcap Value Index** ® measures the performance of those Russell Midcap companies with lower price-to-book ratios and lower forecasted growth values. The stocks are also members of the Russell 1000 Value index.

The **S&P 500 Index** is widely regarded as the best single gauge of the U.S. equities market. The index includes a representative sample of 500 leading companies in leading industries of the U.S. economy. The **S&P 500 Index** focuses on the large-cap segment of the market; however, since it includes a significant portion of the total value of the market, it also represents the market.

Fixed income:

The **Barclays 1-3 Month U.S. Treasury Bill Index** includes all publicly issued zero-coupon US Treasury Bills that have a remaining maturity of less than 3 months and more than 1 month, are rated investment grade, and have $250 million or more of outstanding face value. In addition, the securities must be denominated in U.S. dollars and must be fixed rate and non convertible.

The **Barclays Global High Yield Index** is a multi-currency flagship measure of the global high yield debt market. The index represents the union of the US High Yield, the Pan-European High Yield, and Emerging Markets (EM) Hard Currency High Yield Indices. The high yield and emerging markets sub-components are mutually exclusive. Until January 1, 2011, the index also included CMBS high yield securities.

The **Barclays Municipal Index**: consists of a broad selection of investment- grade general obligation and revenue bonds of maturities ranging from one year to 30 years. It is an unmanaged index representative of the tax-exempt bond market.

The **Barclays US Dollar Floating Rate Note (FRN) Index** provides a measure of the U.S. dollar denominated floating rate note market.

The **Barclays US Corporate Investment Grade Index** is an unmanaged index consisting of publicly issued US Corporate and specified foreign debentures and secured notes that are rated investment grade (Baa3/BBB or higher) by at least two ratings agencies, have at least one year to final maturity and have at least $250 million par amount outstanding. To qualify, bonds must be SEC-registered.

The **Barclays US High Yield Index** covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.

The **Barclays US Mortgage Backed Securities Index** is an unmanaged index that measures the performance of investment grade fixed-rate mortgage backed pass-through securities of GNMA, FNMA and FHLMC.

The **Barclays US TIPS Index** consists of Inflation-Protection securities issued by the U.S. Treasury.

The **J.P. Morgan Emerging Market Bond Global Index (EMBI)** includes U.S. dollar denominated Brady bonds, Eurobonds, traded loans and local market debt instruments issued by sovereign and quasi-sovereign entities.

The **J.P. Morgan Domestic High Yield Index** is designed to mirror the investable universe of the U.S. dollar domestic high yield corporate debt market.

The **J.P. Morgan Corporate Emerging Markets Bond Index Broad Diversified (CEMBI Broad Diversified)** is an expansion of the **J.P. Morgan Corporate Emerging Markets Bond Index (CEMBI)**. The CEMBI is a market capitalization weighted index consisting of U.S. dollar denominated emerging market corporate bonds.

The **J.P. Morgan Emerging Markets Bond Index Global Diversified (EMBI Global Diversified)** tracks total returns for U.S. dollar-denominated debt instruments issued by emerging market sovereign and quasi-sovereign entities: Brady bonds, loans, Eurobonds. The index limits the exposure of some of the larger countries.

The **J.P. Morgan GBI EM Global Diversified** tracks the performance of local currency debt issued by emerging market governments, whose debt is accessible by most of the international investor base.

The **U.S. Treasury Index** is a component of the U.S. Government index.

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Other asset classes:

The **Alerian MLP Index** is a composite of the 50 most prominent energy Master Limited Partnerships (MLPs) that provides investors with an unbiased, comprehensive benchmark for the asset class.

The **Bloomberg Commodity Index** and related sub-indices are composed of futures contracts on physical commodities and represents twenty two separate commodities traded on U.S. exchanges, with the exception of aluminum, nickel, and zinc

The **Cambridge Associates U.S. Global Buyout and Growth Index®** is based on data compiled from 1,768 global (U.S. & ex – U.S.) buyout and growth equity funds, including fully liquidated partnerships, formed between 1986 and 2013.

The **CS/Tremont Hedge Fund Index** is compiled by Credit Suisse Tremont Index, LLC. It is an asset-weighted hedge fund index and includes only funds, as opposed to separate accounts. The Index uses the Credit Suisse/Tremont database, which tracks over 4500 funds, and consists only of funds with a minimum of US$50 million under management, a 12-month track record, and audited financial statements. It is calculated and rebalanced on a monthly basis, and shown net of all performance fees and expenses. It is the exclusive property of Credit Suisse Tremont Index, LLC.

The **HFRI Monthly Indices (HFRI)** are equally weighted performance indexes, utilized by numerous hedge fund managers as a benchmark for their own hedge funds. The HFRI are broken down into 4 main strategies, each with multiple sub strategies. All single-manager HFRI Index constituents are included in the HFRI Fund Weighted Composite, which accounts for over 2200 funds listed on the internal HFR Database.

The **NAREIT EQUITY REIT Index** is designed to provide the most comprehensive assessment of overall industry performance, and includes all tax-qualified real estate investment trusts (REITs) that are listed on the NYSE, the American Stock Exchange or the NASDAQ National Market List.

The **NFI-ODCE**, short for NCREIF Fund Index - Open End Diversified Core Equity, is an index of investment returns reporting on both a historical and current basis the results of 33 open-end commingled funds pursuing a core investment strategy, some of which have performance histories dating back to the 1970s. The NFI-ODCE Index is capitalization-weighted and is reported gross of fees. Measurement is time-weighted.

Definitions:

Investing in **alternative assets** involves higher risks than traditional investments and is suitable only for sophisticated investors. Alternative investments involve greater risks than traditional investments and should not be deemed a complete investment program. They are not tax efficient and an investor should consult with his/her tax advisor prior to investing. Alternative investments have higher fees than traditional investments and they may also be highly leveraged and engage in speculative investment techniques, which can magnify the potential for investment loss or gain. The value of the investment may fall as well as rise and investors may get back less than they invested.

Bonds are subject to interest rate risks. Bond prices generally fall when interest rates rise.

Investments in **commodities** may have greater volatility than investments in traditional securities, particularly if the instruments involve leverage. The value of commodity-linked derivative instruments may be affected by changes in overall market movements, commodity index volatility, changes in interest rates, or factors affecting a particular industry or commodity, such as drought, floods, weather, livestock disease, embargoes, tariffs and international economic, political and regulatory developments. Use of leveraged commodity-linked derivatives creates an opportunity for increased return but, at the same time, creates the possibility for greater loss.

Derivatives may be riskier than other types of investments because they may be more sensitive to changes in economic or market conditions than other types of investments and could result in losses that significantly exceed the original investment. The use of derivatives may not be successful, resulting in investment losses, and the cost of such strategies may reduce investment returns.

Distressed Restructuring Strategies employ an investment process focused on corporate fixed income instruments, primarily on corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings.

Investments in **emerging markets** can be more volatile. The normal risks of investing in foreign countries are heightened when investing in emerging markets. In addition, the small size of securities markets and the low trading volume may lead to a lack of liquidity, which leads to increased volatility. Also, emerging markets may not provide adequate legal protection for private or foreign investment or private property.

The price of **equity** securities may rise, or fall because of changes in the broad market or changes in a company's financial condition, sometimes rapidly or unpredictably. These price movements may result from factors affecting individual companies, sectors or industries, or the securities market as a whole, such as changes in economic or political conditions. Equity securities are subject to "stock market risk" meaning that stock prices in general may decline over short or extended periods of time.

Equity market neutral strategies employ sophisticated quantitative techniques of analyzing price data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. Equity Market Neutral Strategies typically maintain characteristic net equity market exposure no greater than 10% long or short.

Global macro strategies trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets.

International investing involves a greater degree of risk and increased volatility. Changes in currency exchange rates and differences in accounting and taxation policies outside the U.S. can raise or lower returns. Some overseas markets may not be as politically and economically stable as the United States and other nations.

There is no guarantee that the use of **long and short positions** will succeed in limiting an investor's exposure to domestic stock market movements, capitalization, sector swings or other risk factors. Using long and short selling strategies may have higher portfolio turnover rates. Short selling involves certain risks, including additional costs associated with covering short positions and a possibility of unlimited loss on certain short sale positions.

Merger arbitrage strategies which employ an investment process primarily focused on opportunities in equity and equity related instruments of companies which are currently engaged in a corporate transaction.

Mid-capitalization investing typically carries more risk than investing in well-established "blue-chip" companies. Historically, mid-cap companies' stock has experienced a greater degree of market volatility than the average stock.

Price to forward earnings is a measure of the price-to-earnings ratio (P/E) using forecasted earnings. **Price to book value** compares a stock's market value to its book value. **Price to cash flow** is a measure of the market's expectations of a firm's future financial health. **Price to dividends** is the ratio of the price of a share on a stock exchange to the dividends per share paid in the previous year, used as a measure of a company's potential as an investment.

Real estate investments may be subject to a higher degree of market risk because of concentration in a specific industry, sector or geographical sector. Real estate investments may be subject to risks including, but not limited to, declines in the value of real estate, risks related to general and economic conditions, changes in the value of the underlying property owned by the trust and defaults by borrower.

Relative Value Strategies maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities.

Small-capitalization investing typically carries more risk than investing in well-established "blue-chip" companies since smaller companies generally have a higher risk of failure. Historically, smaller companies' stock has experienced a greater degree of market volatility than the average stock.

The Market Insights program provides comprehensive data and commentary on global markets without reference to products. Designed as a tool to help clients understand the markets and support investment decision-making, the program explores the implications of current economic data and changing market conditions.

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Unless otherwise stated, all data are as of December 31, 2017 or most recently available.

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