

# Guide to the Markets<sup>®</sup>

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U.S. | 1Q 2016 | As of January 31, 2016

*J.P. Morgan*

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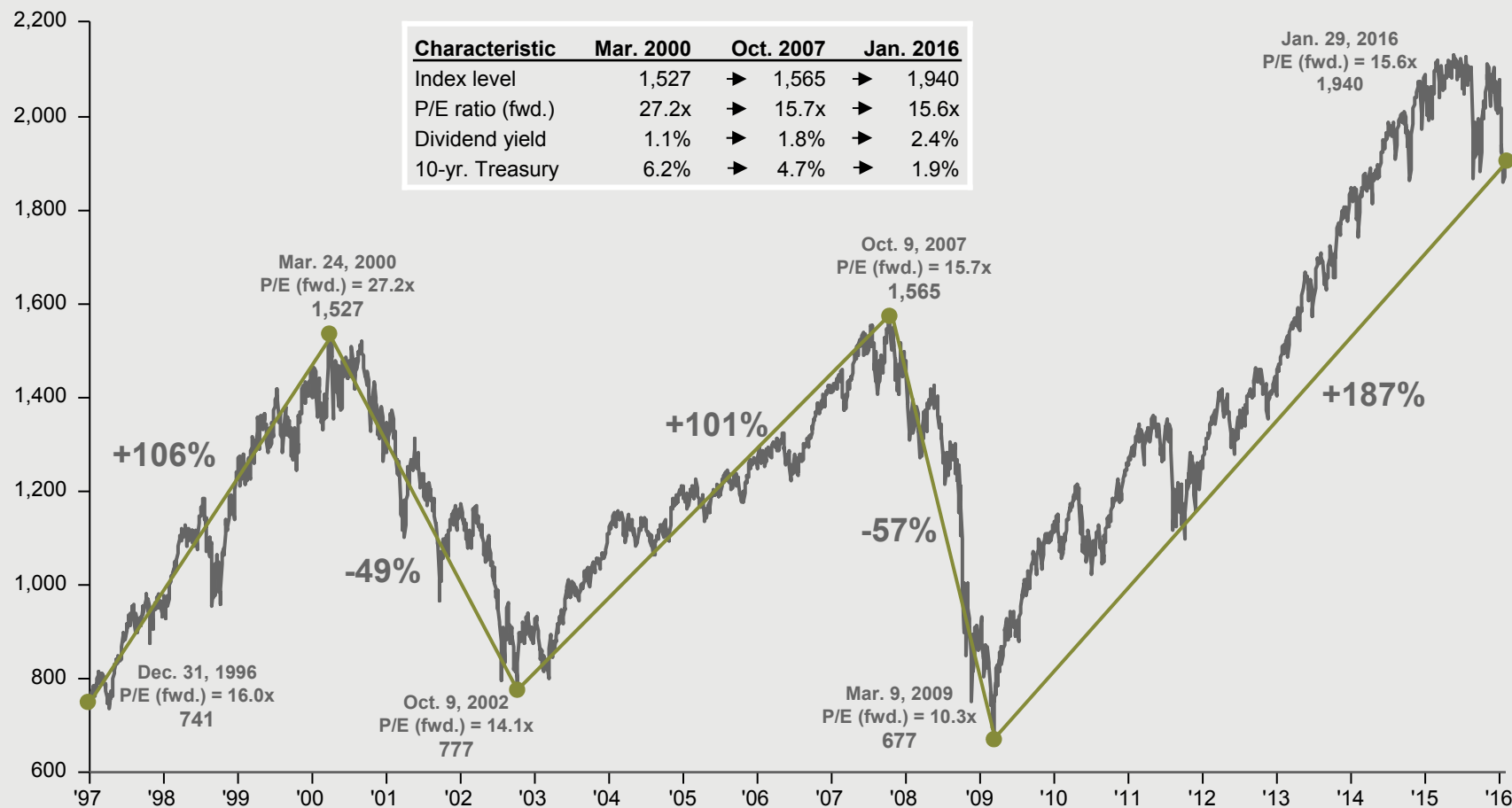
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## S&P 500 Price Index



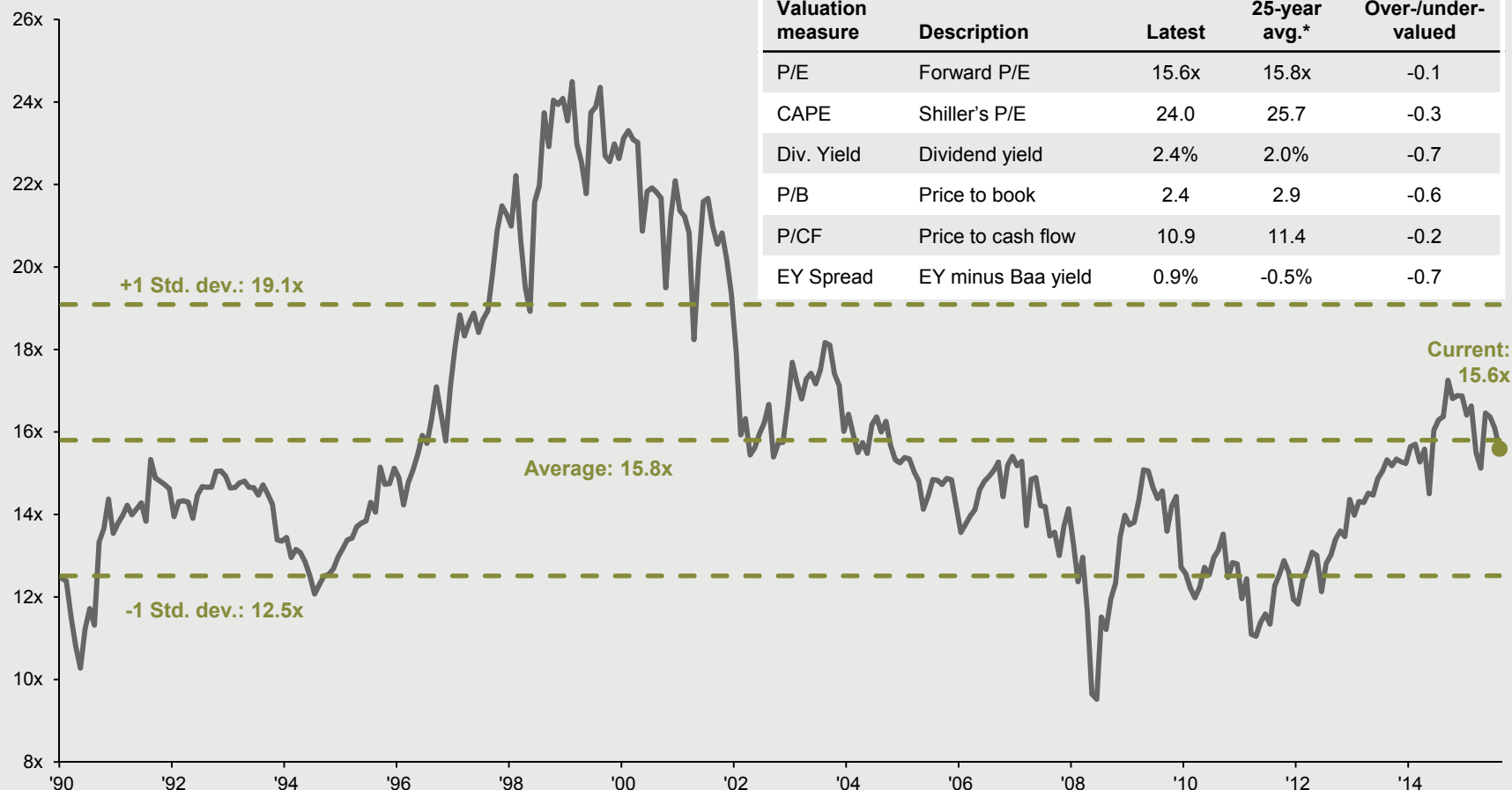
Source: Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management.

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&amp;P 500 Index: Forward P/E ratio



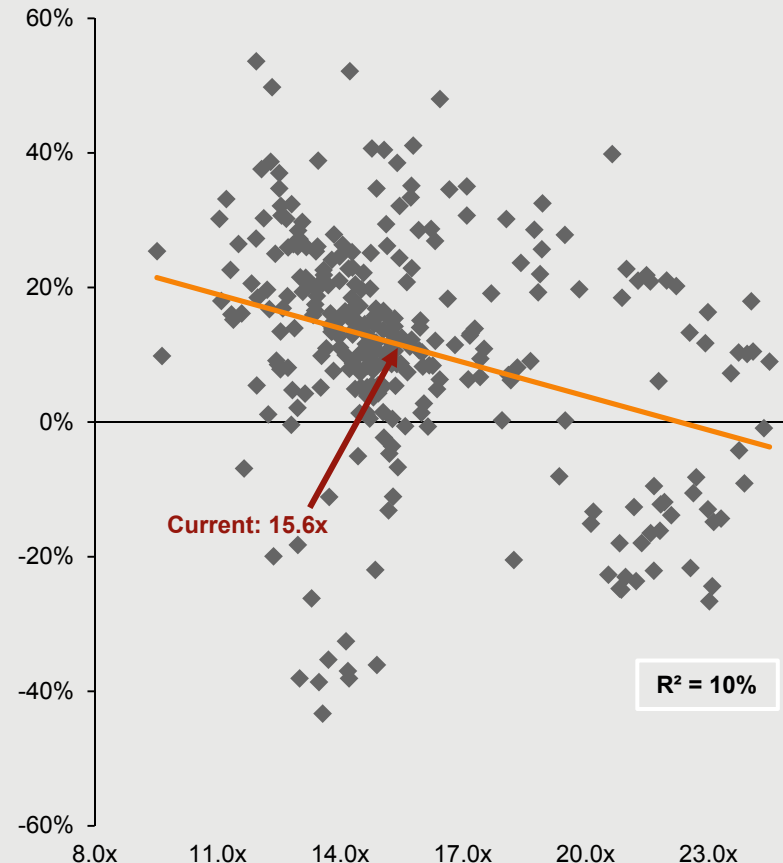
Source: FactSet, FRB, Robert Shiller, Standard & Poor's, J.P. Morgan Asset Management.

Price to earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months. 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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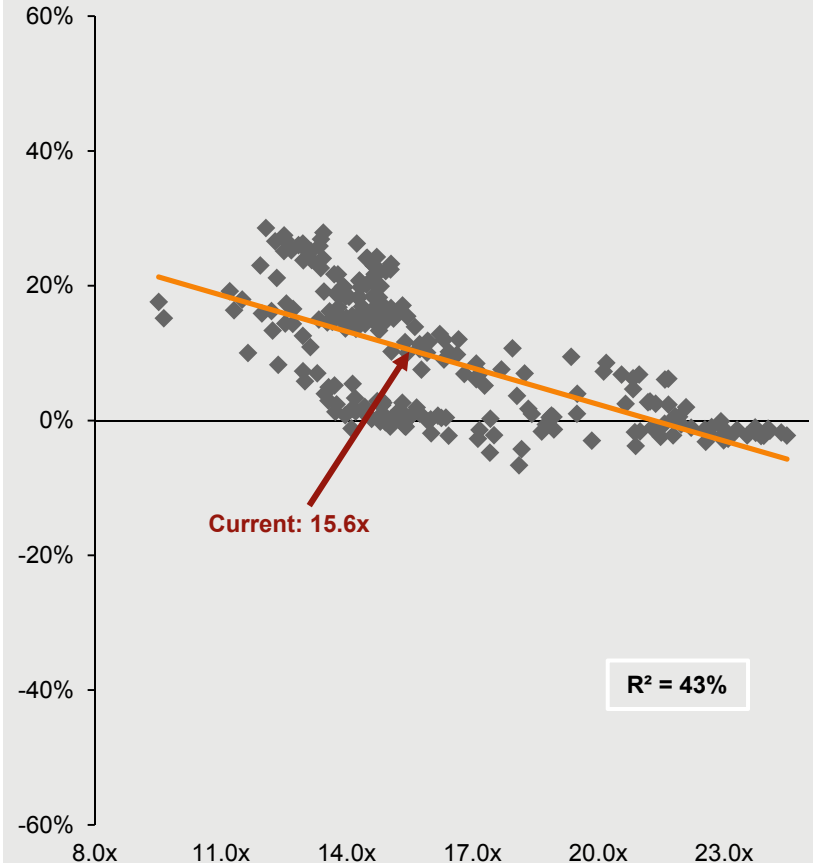
## Forward P/E and subsequent 1-yr returns

S&P 500 Total Return Index



## Forward P/E and subsequent 5-yr annualized returns

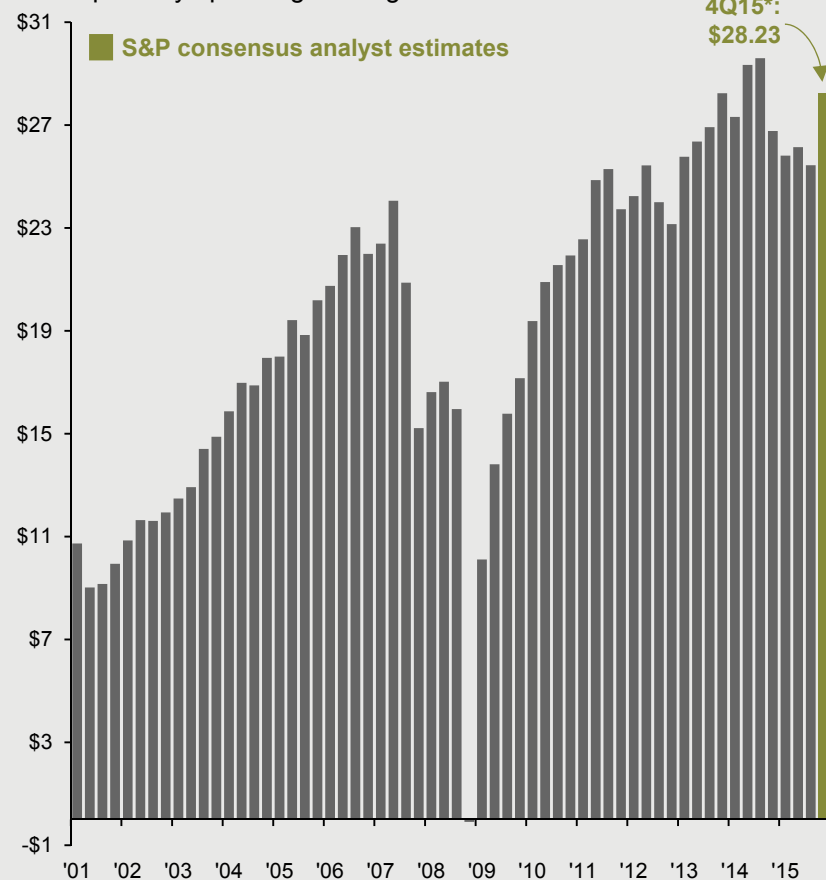
S&P 500 Total Return Index



Source: FactSet, Reuters, Standard & Poor's, J.P. Morgan Asset Management.  
Returns are 12-month and 60-month annualized total returns, measured monthly, beginning January 31, 1991.  $R^2$  represents the percent of total variation in total returns that can be explained by forward P/E ratios.  
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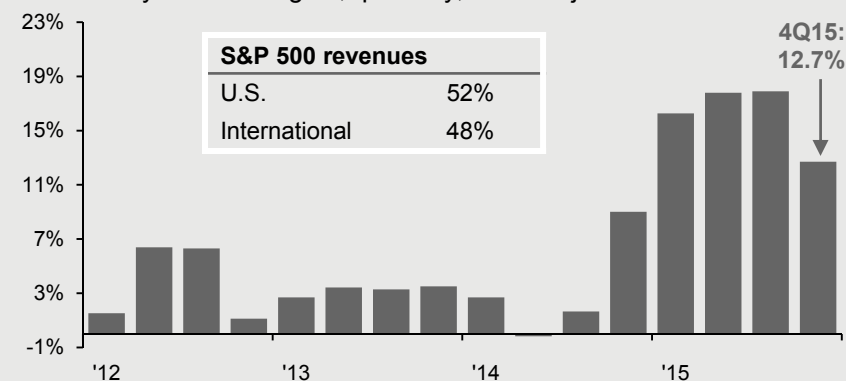
## S&P 500 earnings per share

Index quarterly operating earnings



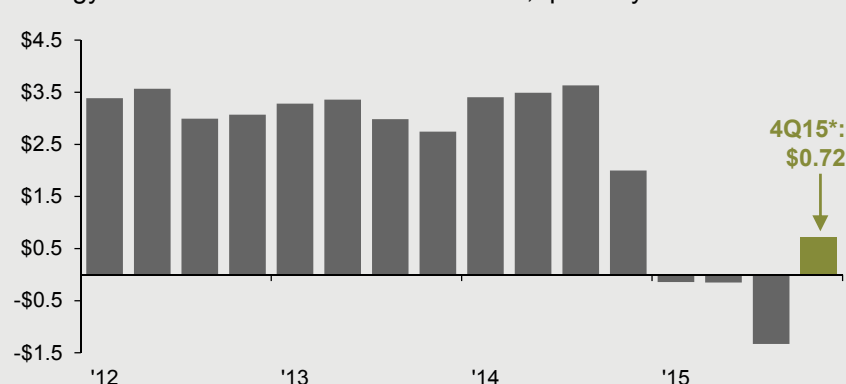
## U.S. dollar

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. \*4Q earnings estimates are Standard & Poor's consensus analyst expectations, based on actual earnings for the 40% of Standard & Poor's companies that have reported and earnings estimates for the remaining 60% of companies. Past performance is not indicative of future returns. 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. \*\*Year-over-year change is calculated using the quarterly average for each period. *Guide to the Markets* – U.S. Data are as of January 31, 2016.

## YTD

	Value	Blend	Growth
Large	-5.2%	-5.0%	-5.6%
Mid	-5.5%	-6.6%	-7.6%
Small	-6.7%	-8.8%	-10.8%

## 2015

	Value	Blend	Growth
Large	-3.8%	1.4%	5.7%
Mid	-4.8%	-2.4%	-0.2%
Small	-7.5%	-4.4%	-1.4%

## Since market peak (October 2007)

	Value	Blend	Growth
Large	29.6%	48.4%	69.7%
Mid	51.5%	55.0%	56.4%
Small	27.8%	37.4%	46.5%

## Since market low (March 2009)

	Value	Blend	Growth
Large	223.2%	231.7%	246.1%
Mid	286.9%	274.1%	261.6%
Small	216.1%	231.2%	245.8%

## Current P/E vs. 20-year avg. P/E

	Value	Blend	Growth
Large	14.4 / 14.3	15.6 / 17.2	17.2 / 21.1
Mid	15.4 / 14.5	16.5 / 16.8	17.8 / 22.1
Small	14.9 / 14.7	15.9 / 17.5	17.0 / 21.6

## Current P/E as % of 20-year avg. P/E

	Value	Blend	Growth
Large	101.0%	90.6%	81.5%
Mid	105.9%	98.4%	80.6%
Small	101.6%	90.9%	78.7%

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 – 1/31/16, illustrating market returns since the S&P 500 Index high on 10/9/07. Since Market Low represents period 3/9/09 – 1/31/16, 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. P/E ratios reflect latest available data. Earnings estimates are as of December for Russell Indexes and as of January for Standard & Poor's.

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	Financials	Technology	Health Care	Industrials	Energy	Cons. Discr.	Cons. Staples	Telecom	Utilities	Materials	S&P 500 Index	
<b>S&amp;P weight</b>	<b>15.9%</b>	<b>20.7%</b>	<b>14.7%</b>	<b>10.0%</b>	<b>6.6%</b>	<b>12.9%</b>	<b>10.6%</b>	<b>2.7%</b>	<b>3.3%</b>	<b>2.6%</b>	<b>100.0%</b>	<b>Weight</b>
Russell Growth weight	5.5%	28.3%	16.2%	10.6%	0.5%	21.3%	11.9%	2.3%	0.1%	3.3%	100.0%	
Russell Value weight	29.1%	11.3%	12.1%	10.3%	12.5%	5.1%	7.5%	2.8%	6.9%	2.4%	100.0%	
<b>YTD</b>	<b>-8.9</b>	<b>-4.8</b>	<b>-7.6</b>	<b>-5.7</b>	<b>-3.0</b>	<b>-5.1</b>	<b>0.6</b>	<b>6.8</b>	<b>4.9</b>	<b>-10.6</b>	<b>-5.0</b>	<b>Return (%)</b>
<b>2015</b>	<b>-1.5</b>	<b>5.9</b>	<b>6.9</b>	<b>-2.5</b>	<b>-21.1</b>	<b>10.1</b>	<b>6.6</b>	<b>3.4</b>	<b>-4.8</b>	<b>-8.4</b>	<b>1.4</b>	
<b>Since market peak</b> (October 2007)	<b>-27.9</b>	<b>80.0</b>	<b>116.0</b>	<b>40.0</b>	<b>-10.6</b>	<b>125.4</b>	<b>127.7</b>	<b>35.2</b>	<b>53.7</b>	<b>9.3</b>	<b>48.4</b>	
<b>Since market low</b> (March 2009)	<b>293.8</b>	<b>277.2</b>	<b>248.3</b>	<b>284.8</b>	<b>63.8</b>	<b>421.8</b>	<b>219.4</b>	<b>158.3</b>	<b>169.0</b>	<b>160.5</b>	<b>231.7</b>	
<b>Beta to S&amp;P 500</b>	<b>1.42</b>	<b>1.10</b>	<b>0.73</b>	<b>1.19</b>	<b>1.00</b>	<b>1.11</b>	<b>0.58</b>	<b>0.61</b>	<b>0.46</b>	<b>1.28</b>	<b>1.00</b>	<b>β</b>
<b>Correl. to Treas. yields</b>	<b>0.47</b>	<b>0.28</b>	<b>0.15</b>	<b>0.25</b>	<b>0.28</b>	<b>0.23</b>	<b>-0.08</b>	<b>0.21</b>	<b>-0.58</b>	<b>0.39</b>	<b>0.28</b>	<b>ρ</b>
Forward P/E ratio	11.7x	15.5x	14.7x	14.6x	43.2x	17.1x	20.1x	12.9x	16.2x	14.5x	15.6x	<b>P/E</b>
<b>20-yr avg.</b>	<b>13.1x</b>	<b>22.6x</b>	<b>19.1x</b>	<b>17.5x</b>	<b>15.7x</b>	<b>19.4x</b>	<b>20.1x</b>	<b>18.2x</b>	<b>14.2x</b>	<b>16.5x</b>	<b>17.2x</b>	
Trailing P/E ratio	13.1x	19.0x	20.4x	17.2x	19.0x	20.2x	22.3x	13.6x	18.3x	17.6x	17.8x	
<b>20-yr avg.</b>	<b>17.0x</b>	<b>26.0x</b>	<b>24.1x</b>	<b>20.4x</b>	<b>16.7x</b>	<b>19.5x</b>	<b>21.5x</b>	<b>20.3x</b>	<b>15.2x</b>	<b>19.4x</b>	<b>19.7x</b>	<b>Div</b>
Dividend yield	2.9%	1.7%	1.8%	2.6%	3.7%	1.7%	2.8%	5.0%	3.9%	2.7%	2.4%	
<b>20-yr avg.</b>	<b>2.3%</b>	<b>0.9%</b>	<b>1.7%</b>	<b>2.1%</b>	<b>2.3%</b>	<b>1.3%</b>	<b>2.2%</b>	<b>3.8%</b>	<b>4.0%</b>	<b>2.2%</b>	<b>1.9%</b>	

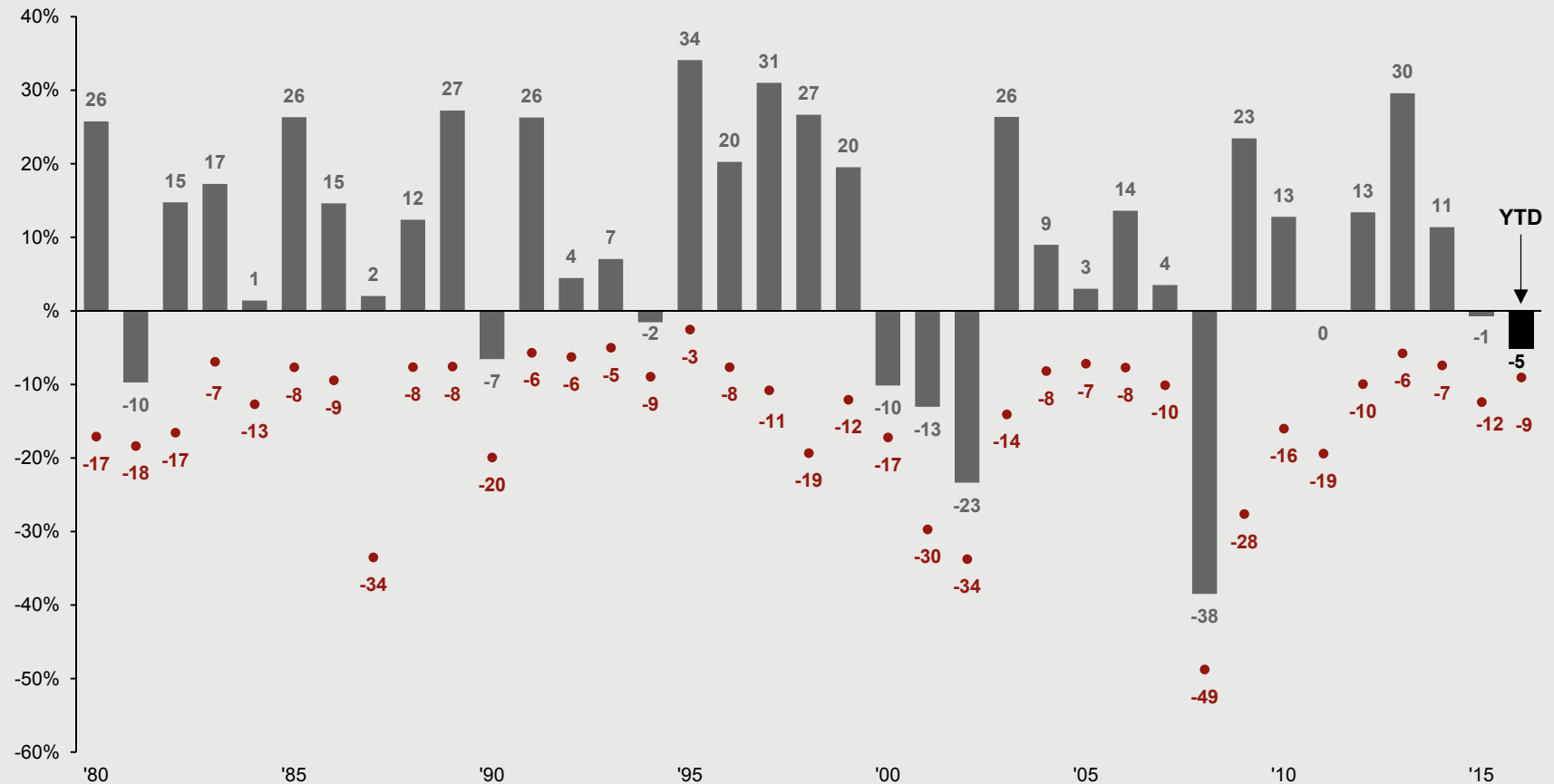
Source: FactSet, Russell Investment Group, Standard & Poor's, J.P. Morgan Asset Management.

All calculations are cumulative total return, not annualized, including dividends for the stated period. Since Market Peak represents period 10/9/07 – 1/31/16. Since Market Low represents period 3/9/09 – 1/31/16. Correlation to Treasury yields are trailing 2-year monthly correlations between S&P 500 sector price returns and 10-year Treasury yield movements. 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. Betas are calculated on a monthly frequency over the past 10 years. Past performance is not indicative of future returns.

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

Despite average intra-year drops of 14.2%, annual returns positive in 27 of 36 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 2015, except for 2016 which is year-to-date.

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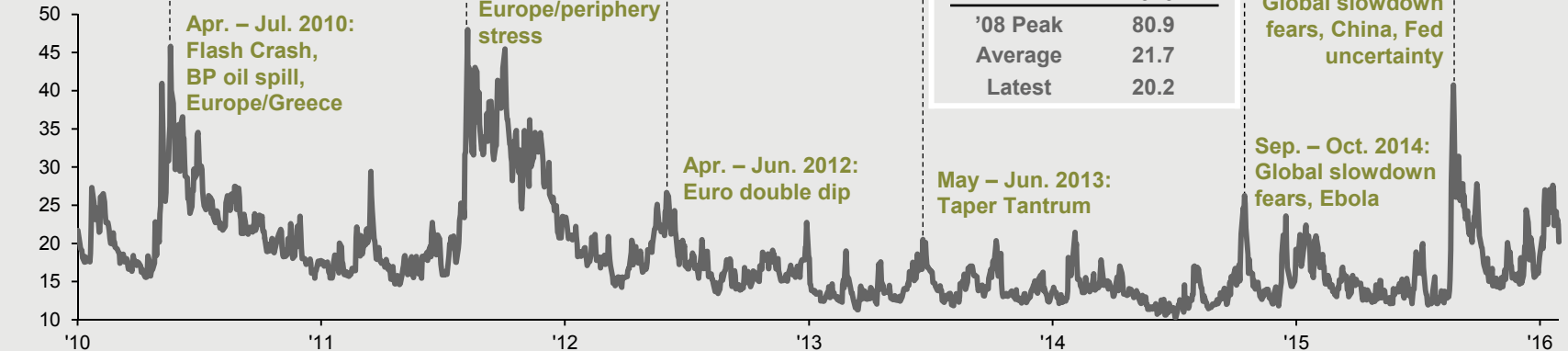
## Major pullbacks during current market cycle

S&P 500 Price Index



## Volatility

VIX Index

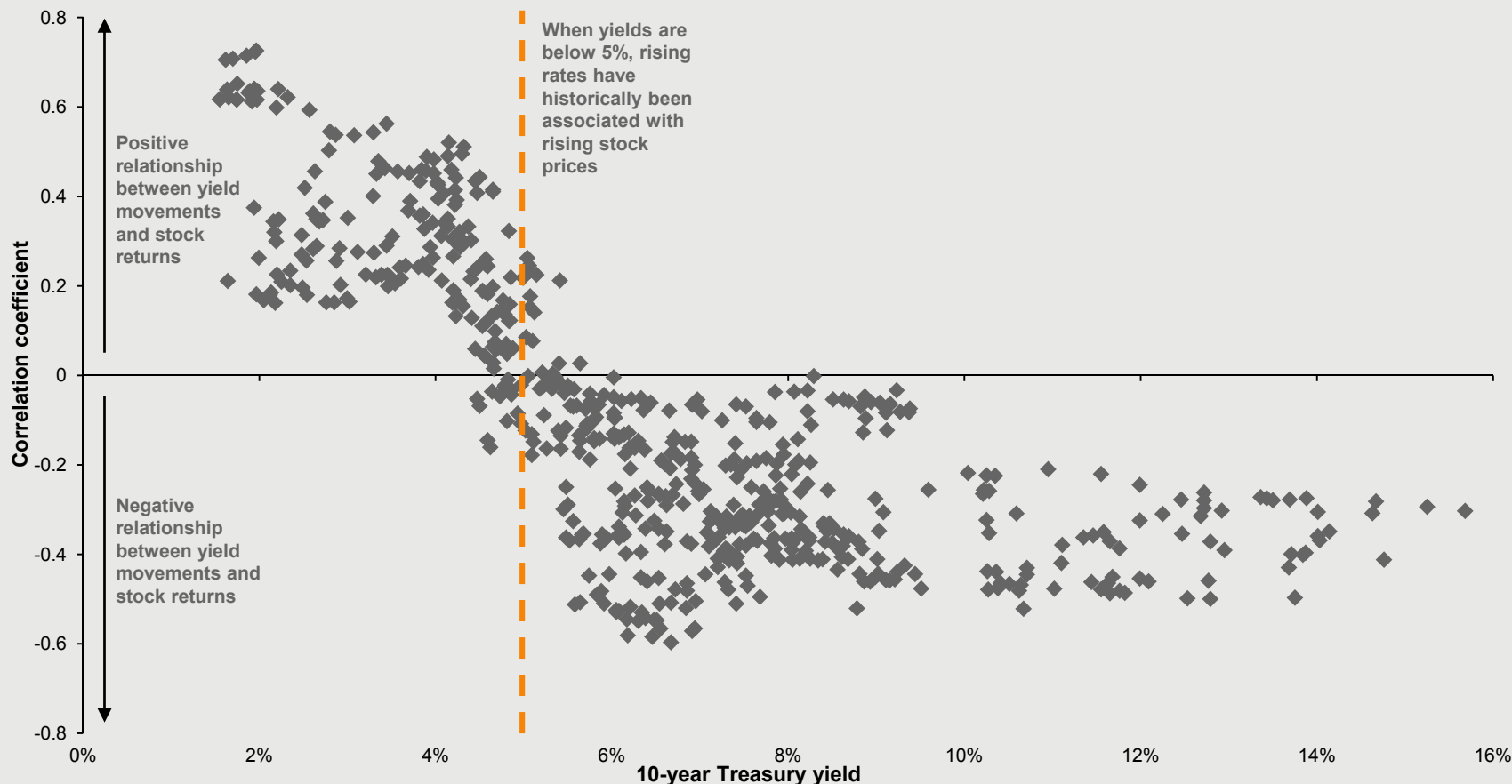


VIX	Level
'08 Peak	80.9
Average	21.7
Latest	20.2

Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management; (Bottom) CBOE.  
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## Correlations between weekly stock returns and interest rate movements

Weekly S&P 500 returns, 10-year Treasury yield, rolling 2-year correlation, May 1963 – January 2016



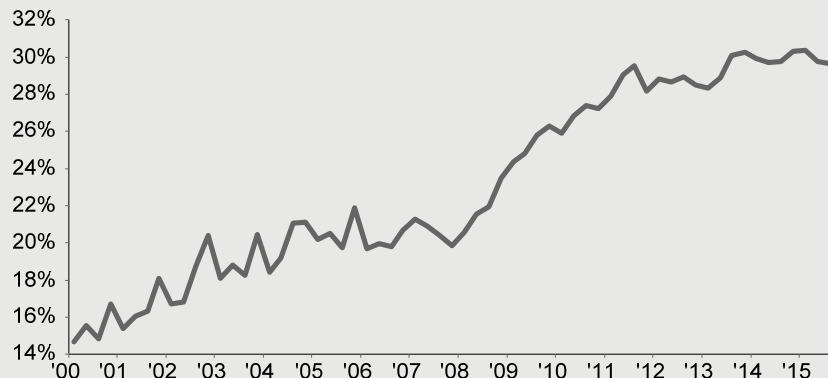
Source: FactSet, Standard & Poor's, FRB, J.P. Morgan Asset Management.

Returns are based on price index only and do not include dividends. Markers represent monthly 2-year correlations only.

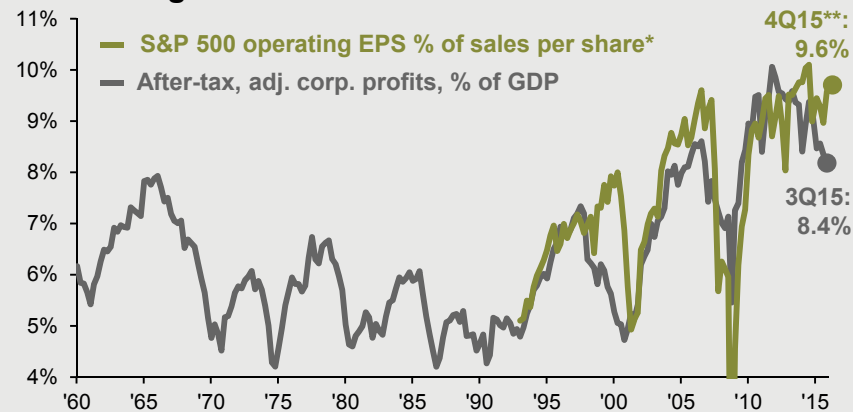
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## Corporate cash as a % of current assets

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

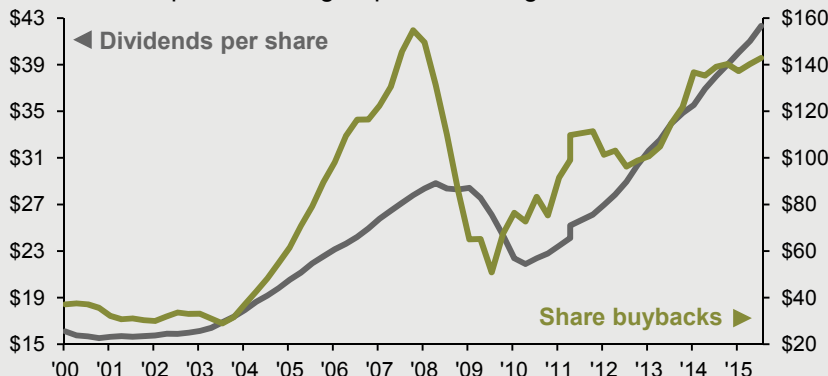


## Profit margins



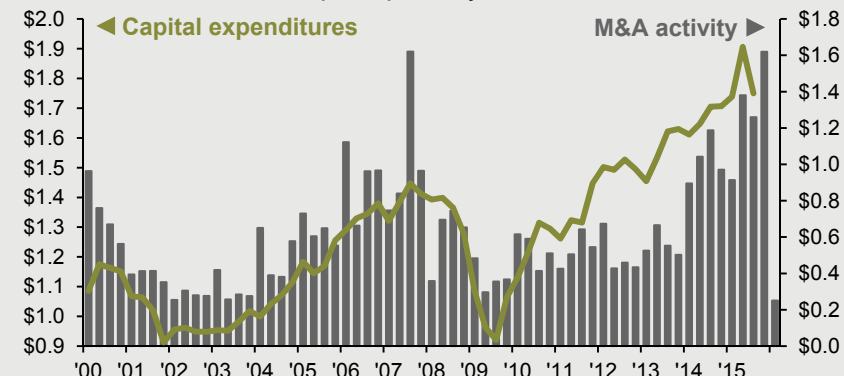
## Cash returned to shareholders

S&P 500 companies, rolling 4-quarter averages, \$bn



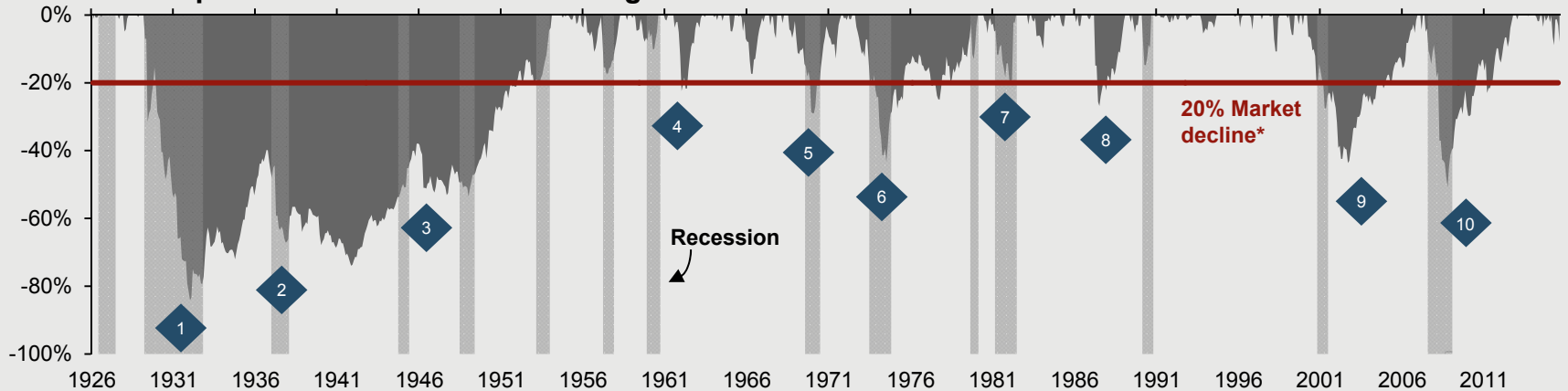
## Corporate growth

Non-farm non-financial capex, quarterly value of deals announced, \$tn



Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management; (Top right) BEA, Compustat; (Bottom right) Bloomberg, FRB.  
M&A activity is the quarterly value of officially announced transactions, and capital expenditures are for non-farm non-financial corporate business. \*S&P 500 Operating EPS % of Sales per Share fell to 0% in 4Q2008 and is adjusted on the chart. \*\*Most recently available data is 4Q2015, which is a Standard & Poor's estimate based on 40% of companies reporting.  
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## S&P 500 composite declines from all-time highs



## Characteristics of bull and bear markets

Market Corrections	Bear markets			Macro environment				Bull markets		
	Market peak	Bear return*	Duration (months)*	Recession	Commodity spike	Aggressive Fed	Extreme valuations	Bull begin date	Bull return	Duration (months)
1 Crash of 1929 - excessive leverage, irrational exuberance	Sep 1929	-86%	33	◆			◆	Jul 1926	152%	38
2 1937 Fed Tightening - premature policy tightening	Mar 1937	-60%	63	◆		◆		Mar 1935	129%	24
3 Post WWII Crash - post-war demobilization, recession fears	May 1946	-30%	37	◆			◆	Apr 1942	158%	50
4 Flash Crash of 1962 - flash crash, Cuban Missile Crisis	Dec 1961	-28%	7				◆	Oct 1960	39%	14
5 Tech Crash of 1970 - Economic overheating, civil unrest	Nov 1968	-36%	18	◆	◆	◆		Oct 1962	103%	74
6 Stagflation - OPEC oil embargo	Jan 1973	-48%	21	◆	◆			May 1970	74%	32
7 Volcker Tightening - Whip Inflation Now	Nov 1980	-27%	21	◆	◆	◆		Mar 1978	62%	33
8 1987 Crash - Program trading, overheating markets	Aug 1987	-34%	3				◆	Aug 1982	229%	61
9 Tech Bubble - Extreme valuations, .com boom/bust	Mar 2000	-49%	31	◆			◆	Oct 1990	417%	115
10 Global Financial Crisis - Leverage/housing, Lehman collapse	Oct 2007	-57%	17	◆	◆	◆		Oct 2002	101%	61
Current Cycle								Mar 2009	187%	84
Averages	-	-45%	25					-	150%	53

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.

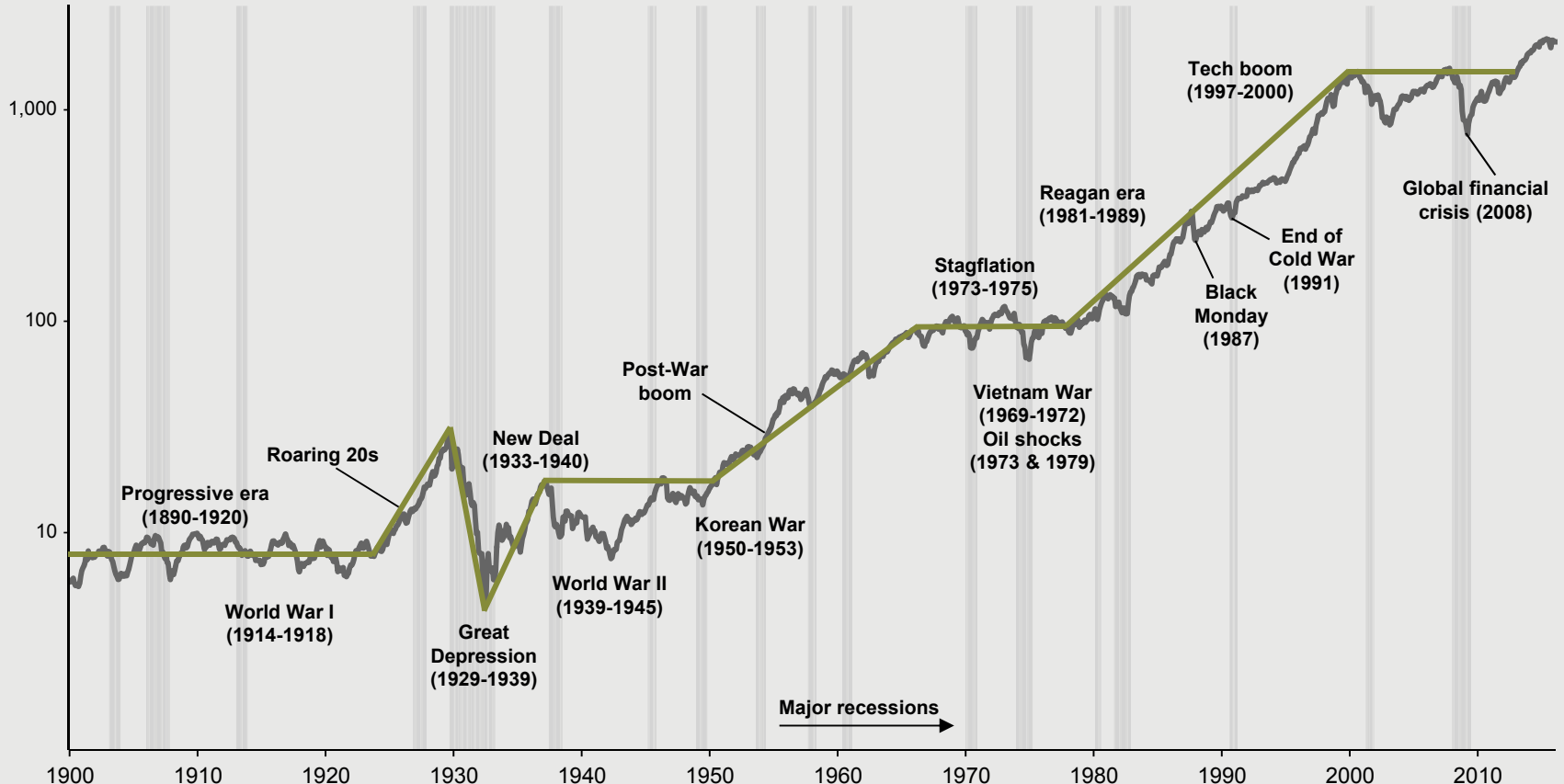
Periods of "Recession" are defined using NBER business cycle dates. "Commodity Spikes" are defined as significant rapid upward moves in oil prices.

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. "Aggressive Fed Tightening" is defined as Federal Reserve monetary tightening that was unexpected and/or significant in magnitude.

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## S&P Composite Index

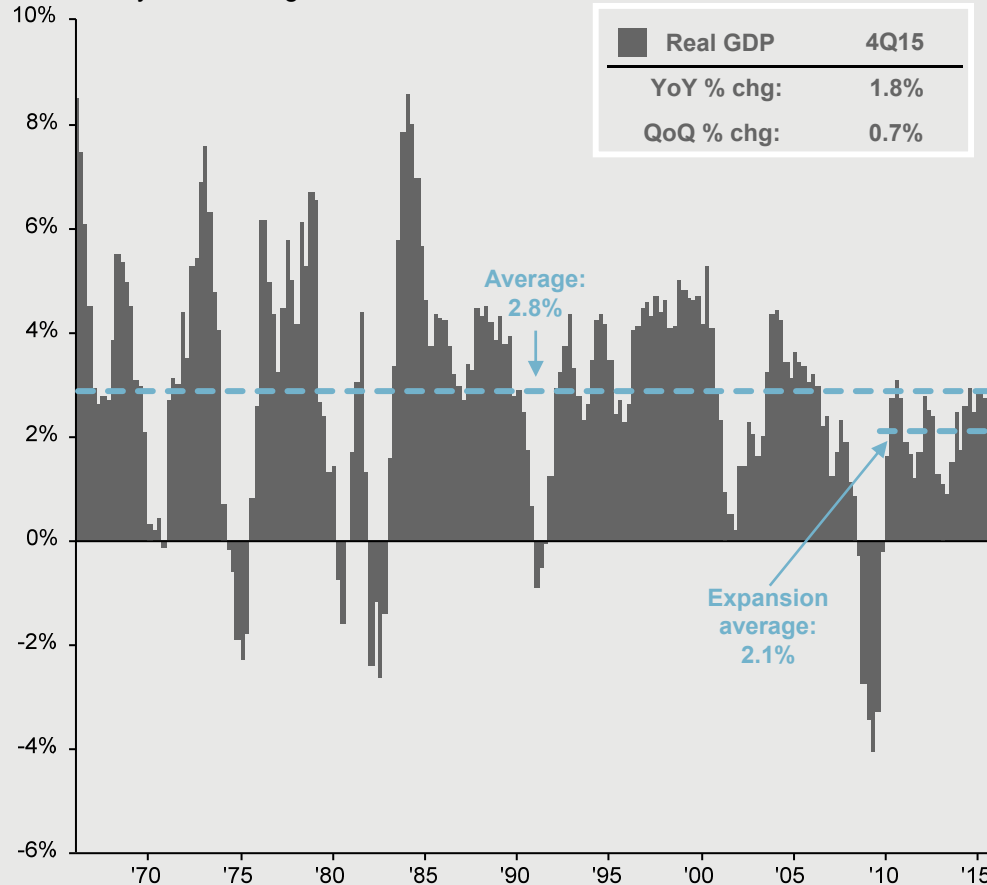
Log scale, annual



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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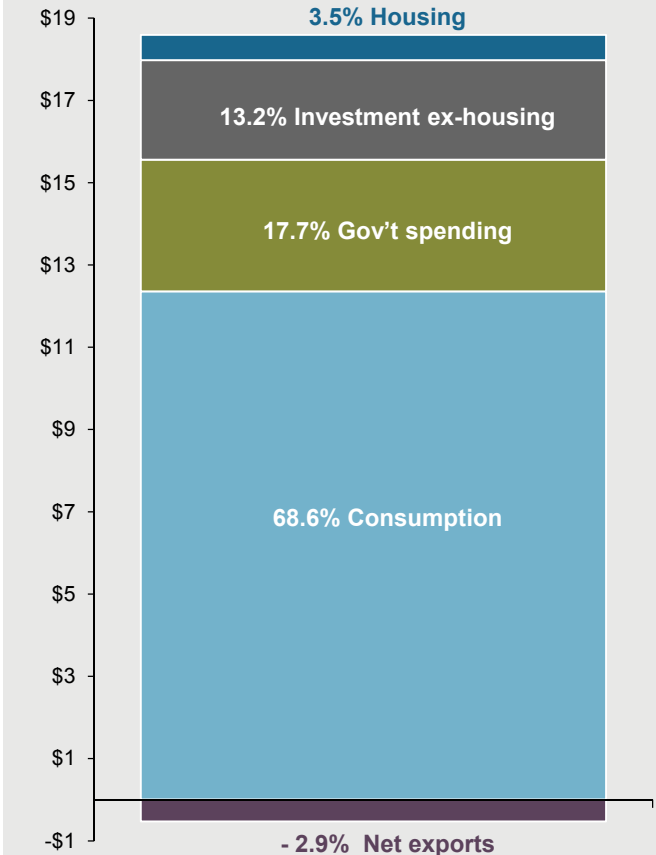
## Real GDP

Year-over-year % change



## Components of GDP

4Q15 nominal GDP, USD trillions



Source: BEA, FactSet, J.P. Morgan Asset Management.

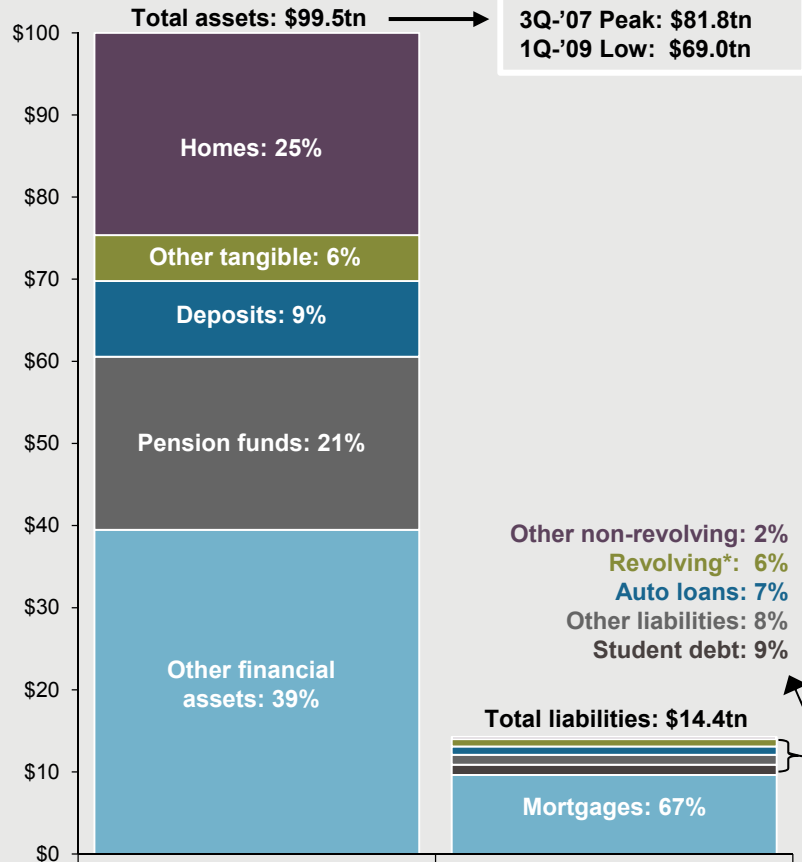
Values may not sum to 100% due to rounding. Quarter-over-quarter percent changes are at an annualized rate. Average represents the annualized growth rate for the full period. Expansion average refers to the period starting in the second quarter of 2009.

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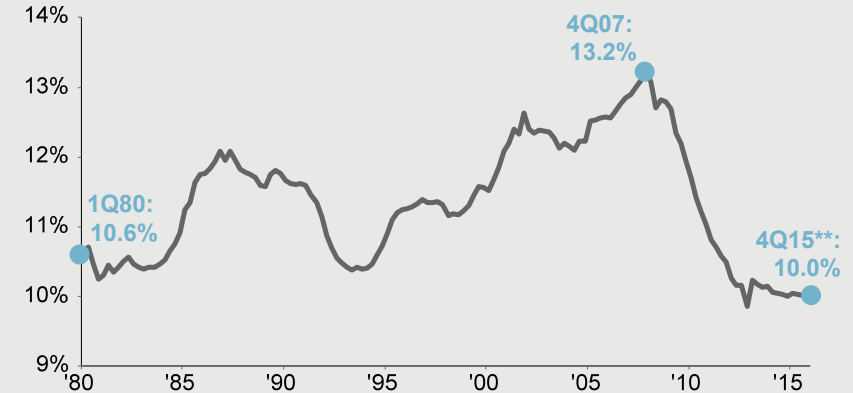
## Consumer balance sheet

3Q15, trillions of dollars outstanding, not seasonally adjusted



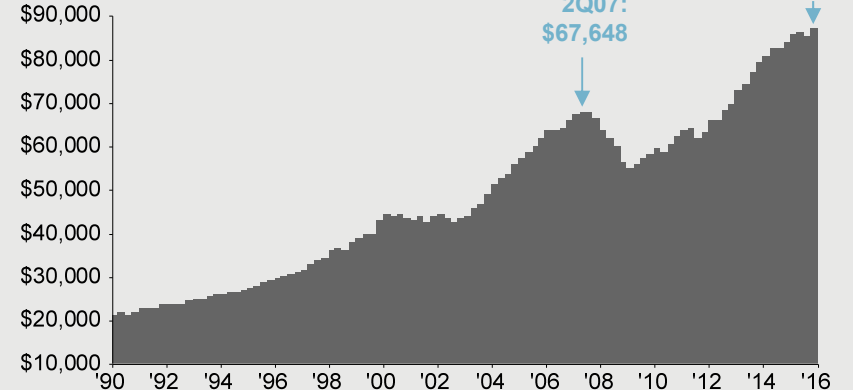
## Household debt service ratio

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.

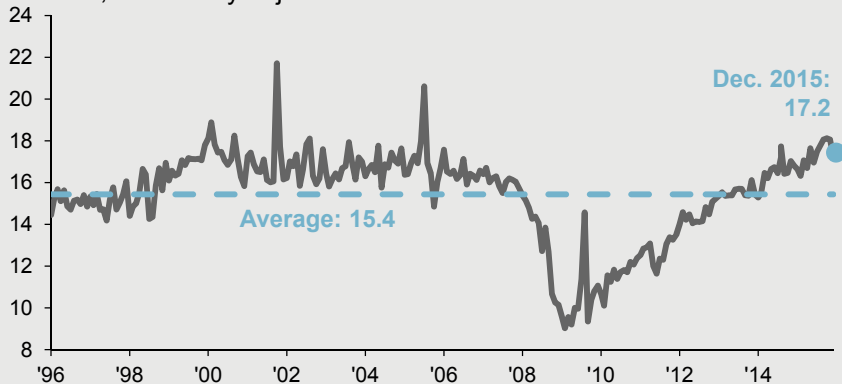
\*Revolving includes credit cards. \*\*4Q15 household debt service ratio and household net worth are J.P. Morgan Asset Management estimates.

Values may not sum to 100% due to rounding.

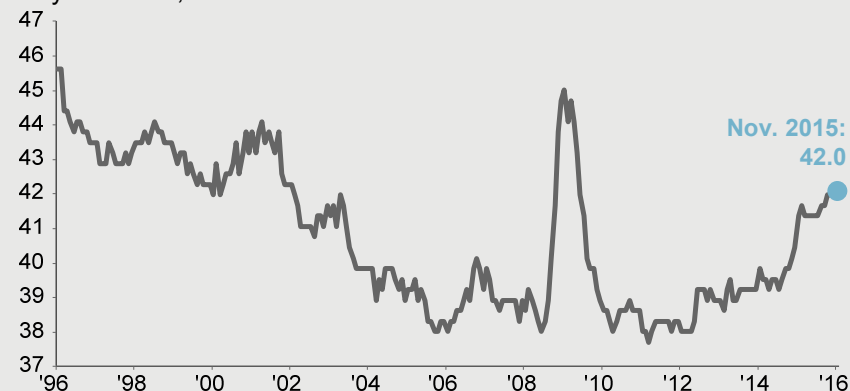
Guide to the Markets – U.S. Data are as of January 31, 2016.

**Light vehicle sales**

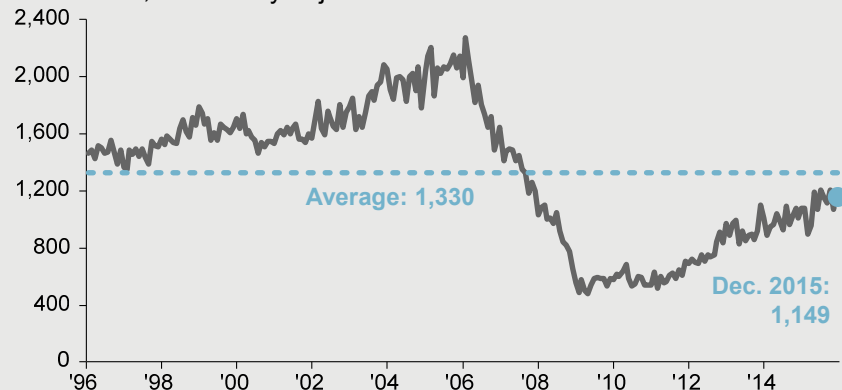
Millions, seasonally adjusted annual rate

**Manufacturing and trade inventories**

Days of sales, SA

**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.

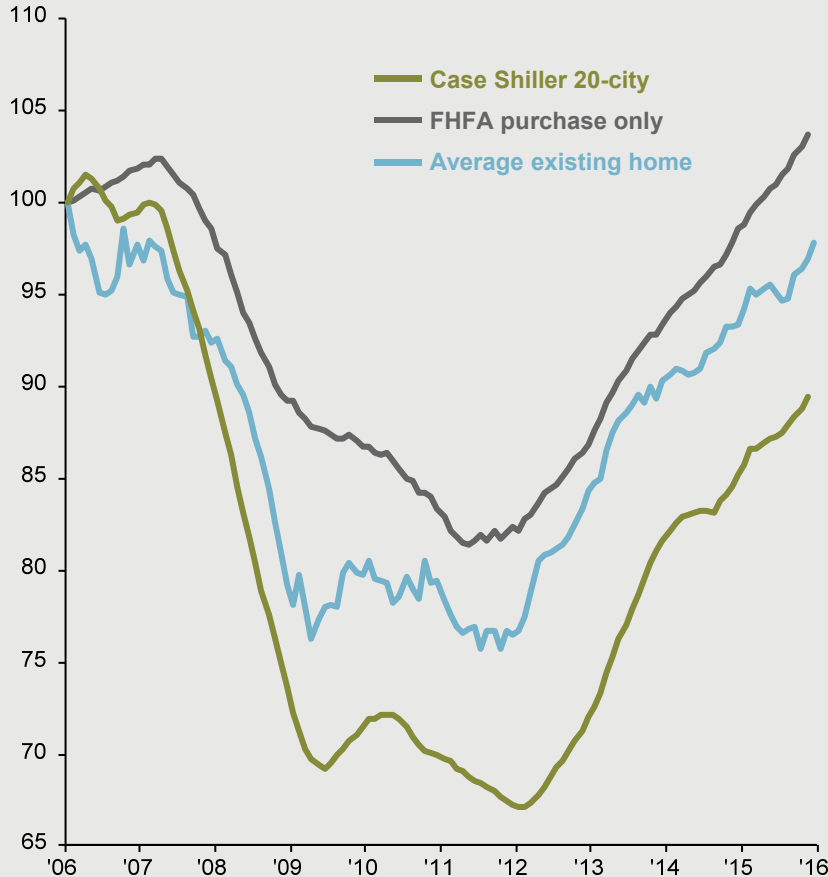
Capital goods orders deflated using the producer price index for capital goods with a base year of 2004. November real capital goods orders is an advance estimate.

SA – seasonally adjusted.

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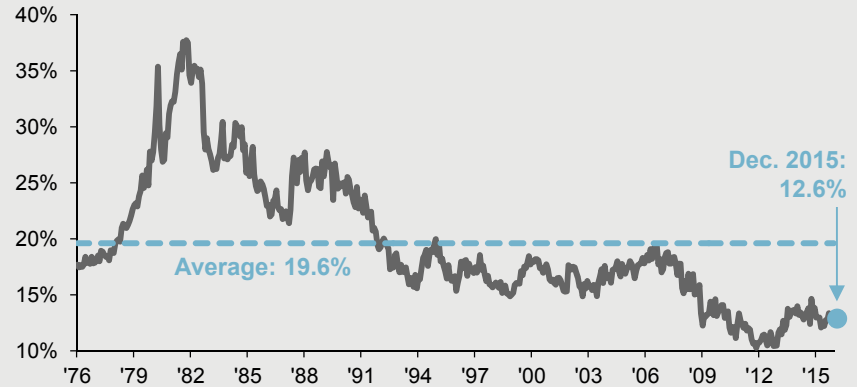
## Home prices

Indexed to 100, seasonally adjusted



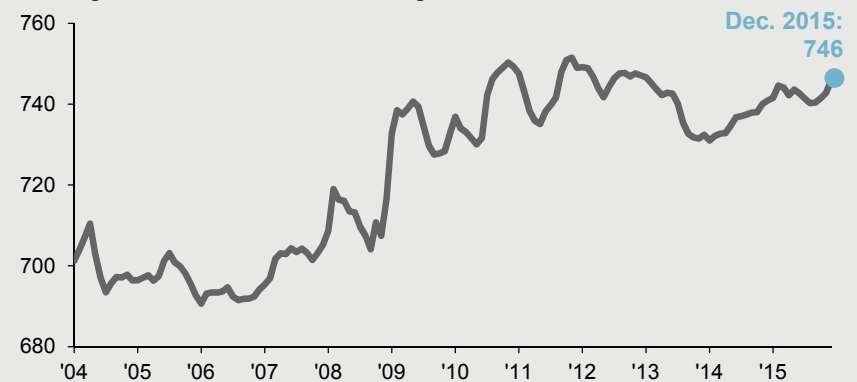
## Housing Affordability Index

Avg. mortgage payment as a % of household income



## Lending standards for approved mortgage loans

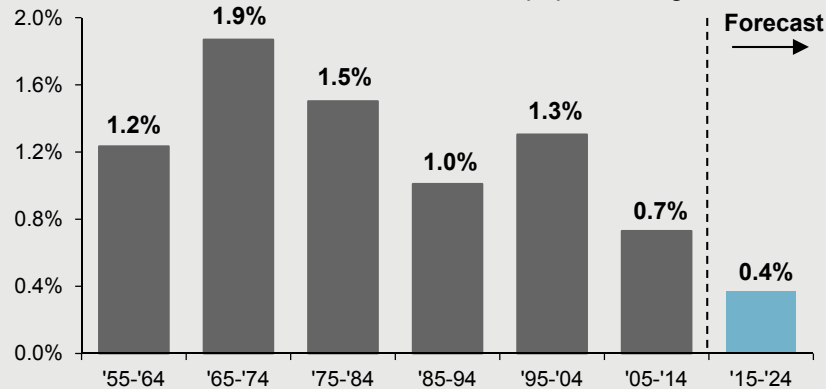
Average FICO score based on origination date



Source: J.P. Morgan Asset Management; (Left and top right) FactSet, National Association of Realtors; (Left) Standard & Poor's, FHFA; (Top right) Census Bureau; (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.  
Guide to the Markets – U.S. Data are as of January 31, 2016.

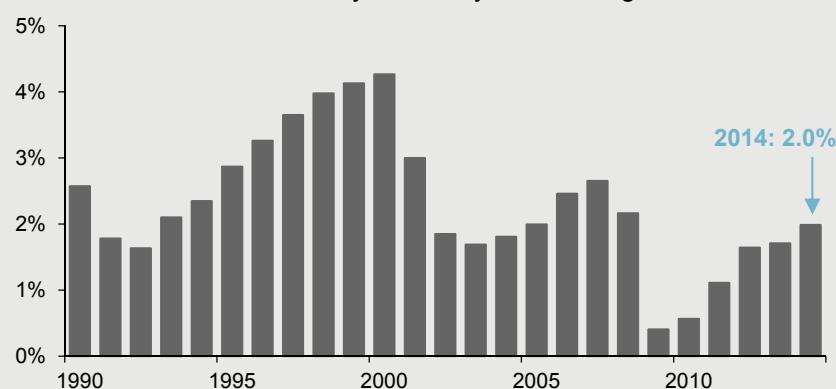
## Growth in working age population

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



## Growth in investment in structures and equipment

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



## Drivers of GDP growth

Average year-over-year percent change

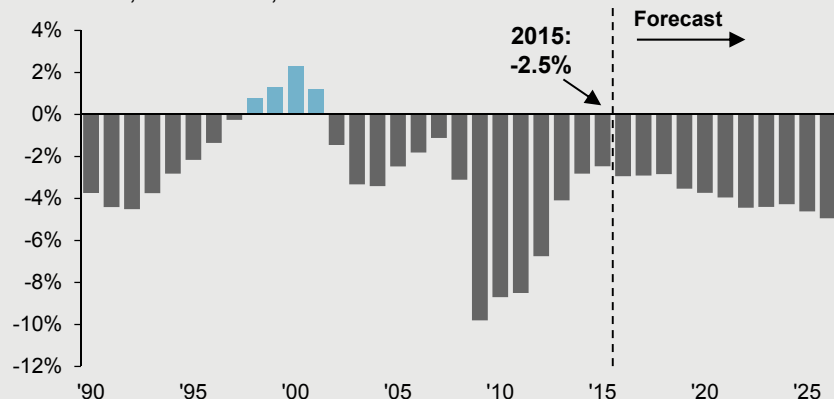


Source: J.P. Morgan Asset Management; (Top left) Census Bureau, DOD, DOJ; (Top left and right) BLS; (Right and bottom left) BEA. GDP drivers are calculated as the average annualized growth between 4Q of the first and last year. Future working age population is calculated as the total estimated number of Americans from the Census Bureau, controlled for military enrollment, growth in institutionalized population and demographic trends.

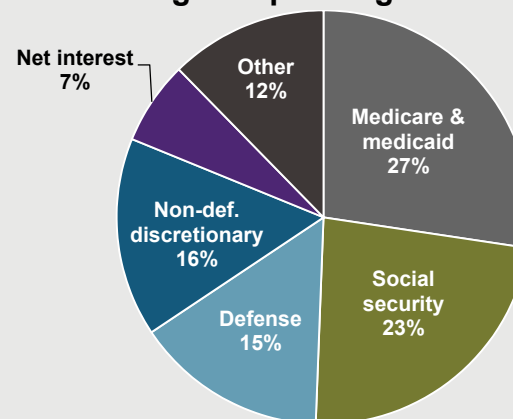
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## Federal budget surplus/deficit

% of GDP, 1990-2026, 2016 CBO Baseline

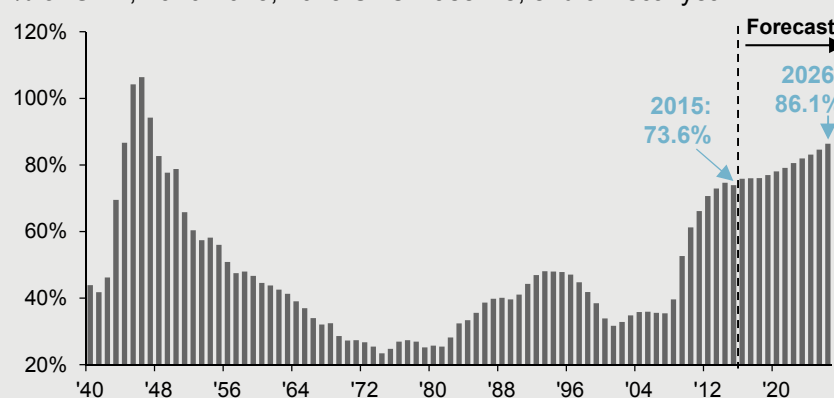


## 2016 Federal Budget - Spending

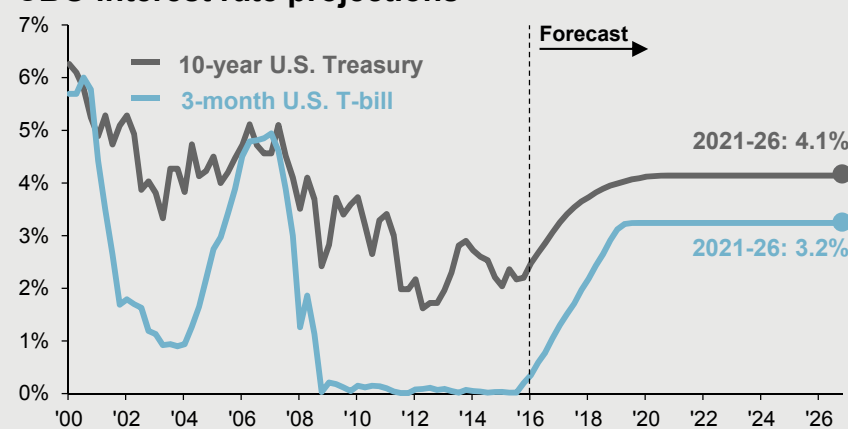


## Federal net debt (accumulated deficits)

% of GDP, 1940-2025, 2015 CBO Baseline, end of fiscal year



## CBO interest rate projections



Source: CBO, J.P. Morgan Asset Management; (Top left and bottom left) BEA; (Bottom right) Federal Reserve.

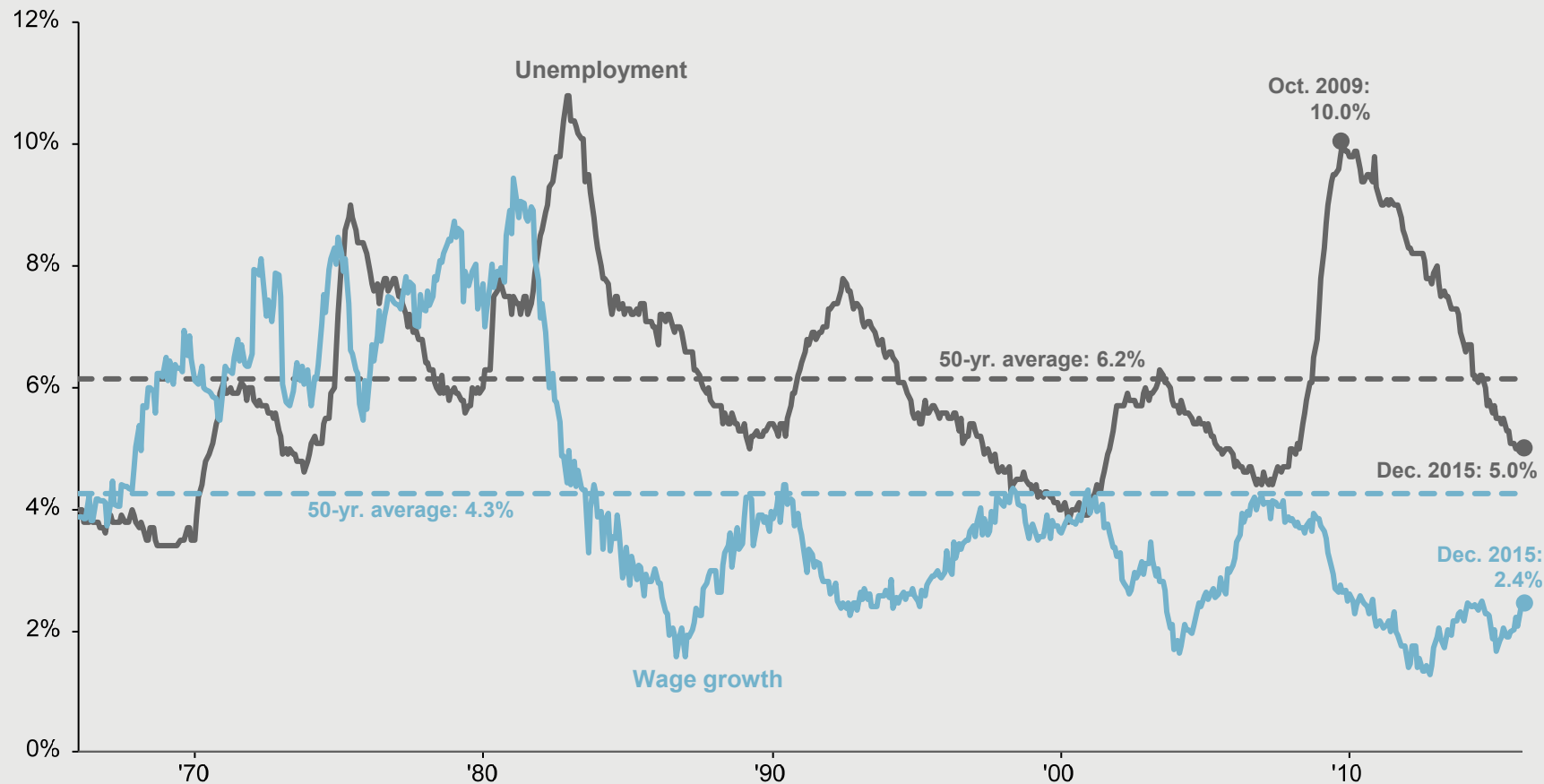
2016 Federal Budget is based on the Congressional Budget Office (CBO) January 2016 Baseline Budget Forecast. Other spending includes, but is not limited to, health insurance subsidies, income security and federal civilian and military retirement.

Note: Years shown are fiscal years (Oct. 1 through Sep. 30). 2015 numbers are CBO estimates as of January 2016. Interest rate projections are actual historical data from the Federal Reserve through 3Q2015 and a quarterly forecast from the CBO's Baseline economic projections afterwards.

Guide to the Markets – U.S. Data are as of January 31, 2016.

## Civilian unemployment rate and year-over-year growth in wages of production and non-supervisory workers

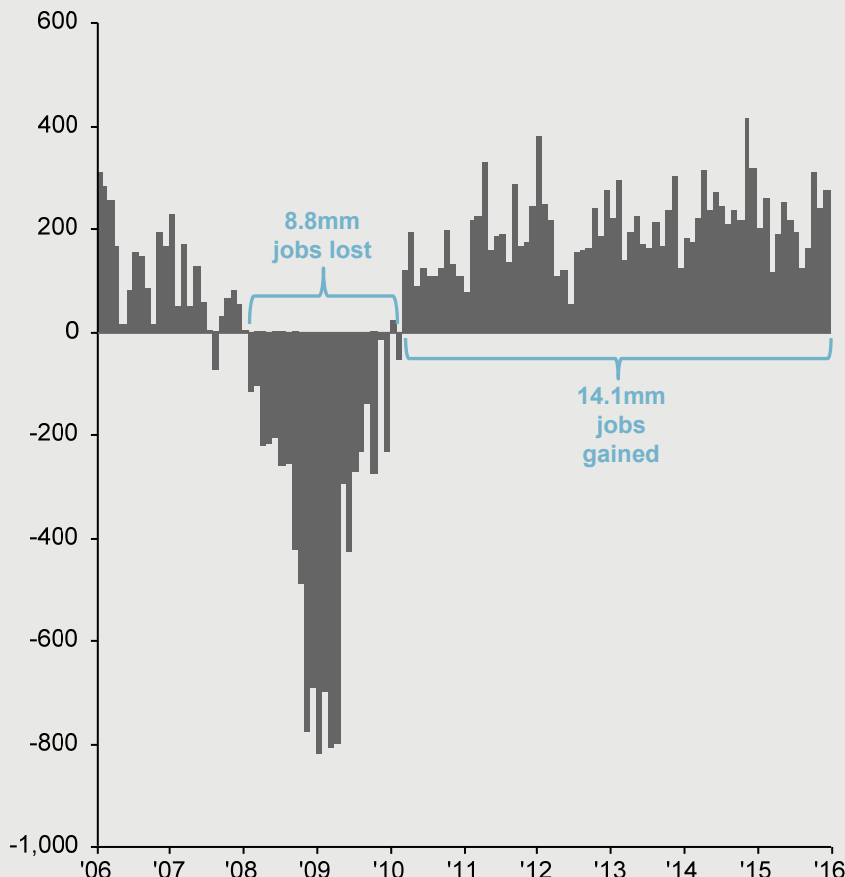
Seasonally adjusted, percent



Source: BLS, FactSet, J.P. Morgan Asset Management.  
Guide to the Markets – U.S. Data are as of January 31, 2016.

## Employment – Total private payroll

Total job gain/loss, thousands



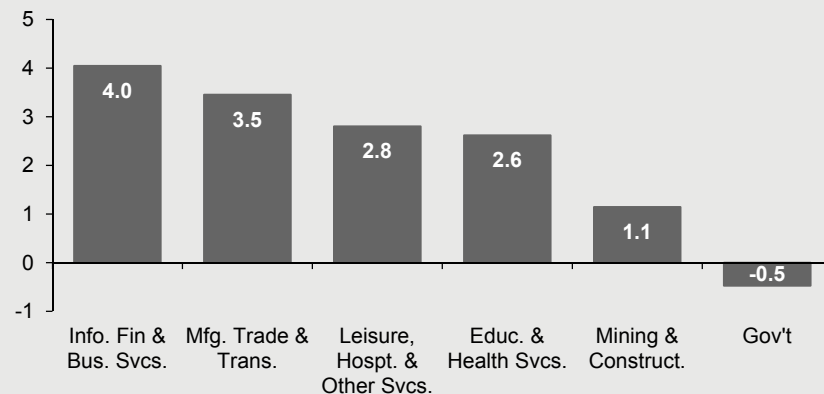
## Labor force participation rate

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



## Net job creation since Feb. 2010

Millions of jobs

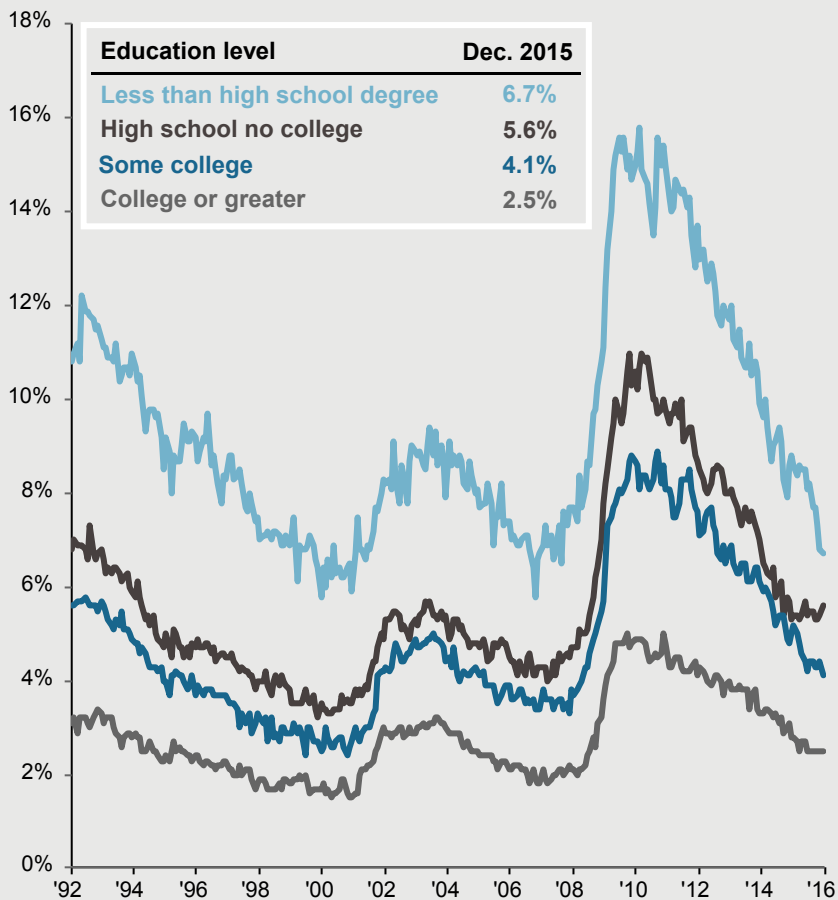


Source: BLS, FactSet, J.P. Morgan Asset Management.

(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.

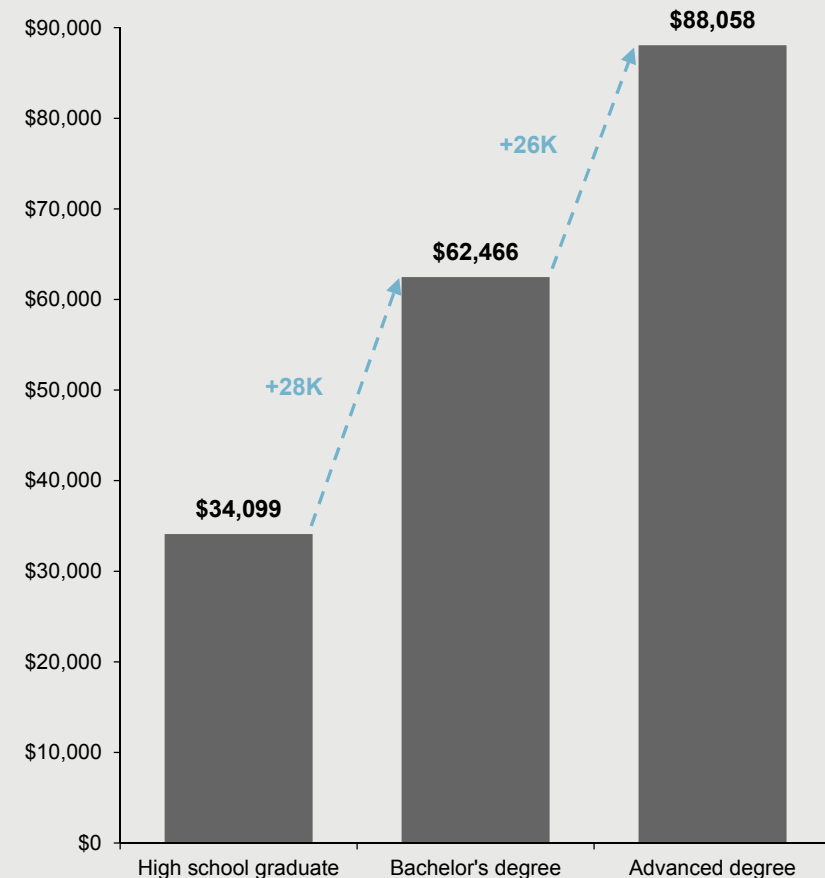
Guide to the Markets – U.S. Data are as of January 31, 2016.

## Unemployment rate by education level



## Average annual earnings by highest degree earned

Workers aged 18 and older, 2014

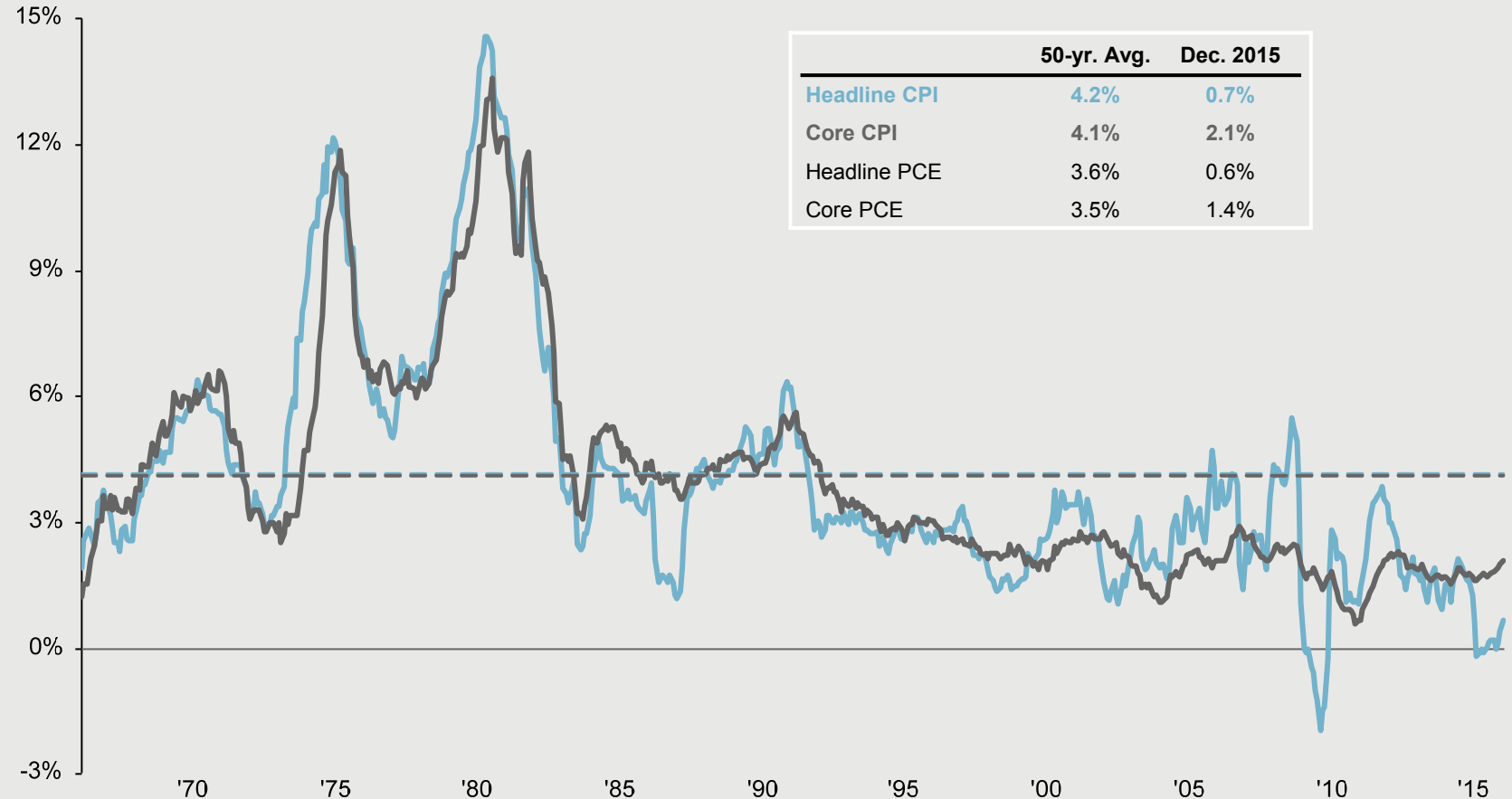


Source: J.P. Morgan Asset Management; (Left) BLS, FactSet; (Right) Census Bureau.  
Unemployment rates shown are for civilians aged 25 and older.  
Guide to the Markets – U.S. Data are as of January 31, 2016.



## CPI and core CPI

% change vs. prior year, seasonally adjusted



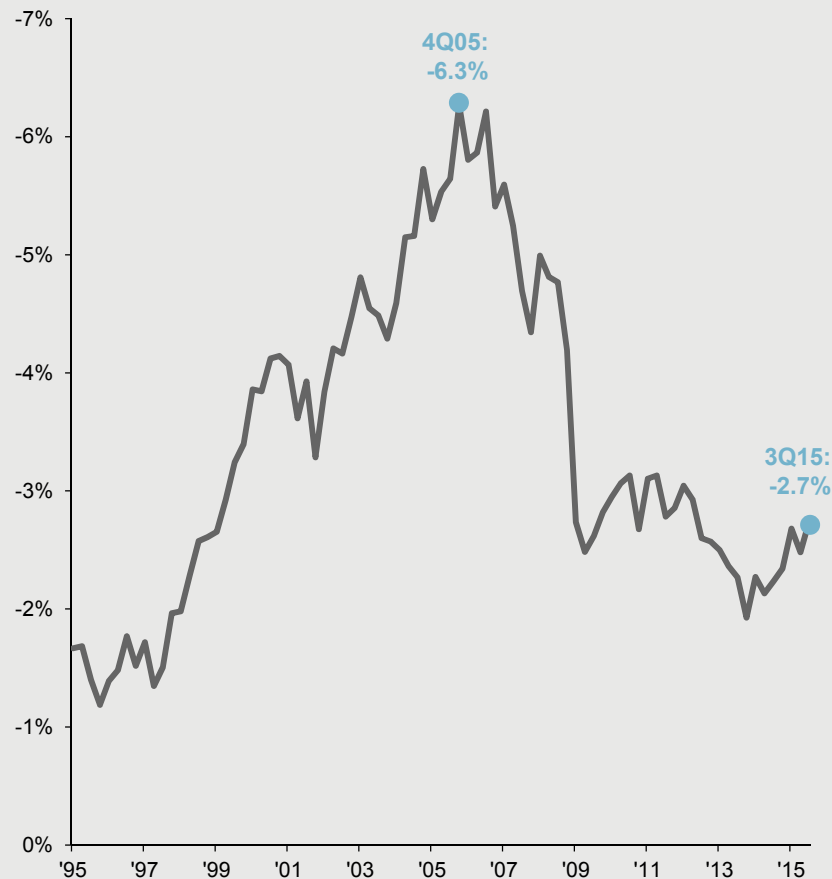
Source: BLS, FactSet, J.P. Morgan Asset Management.

CPI used is CPI-U and values shown are % change vs. one year ago and reflect December 2015 CPI data. 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.

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## Trade balance

Current account balance, % of GDP



## U.S. Dollar Index

Monthly average of major currencies nominal trade-weighted index



Source: J.P. Morgan Asset Management; (Left) BEA; (Right) Federal Reserve, FactSet.  
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.  
Guide to the Markets – U.S. Data are as of January 31, 2016.

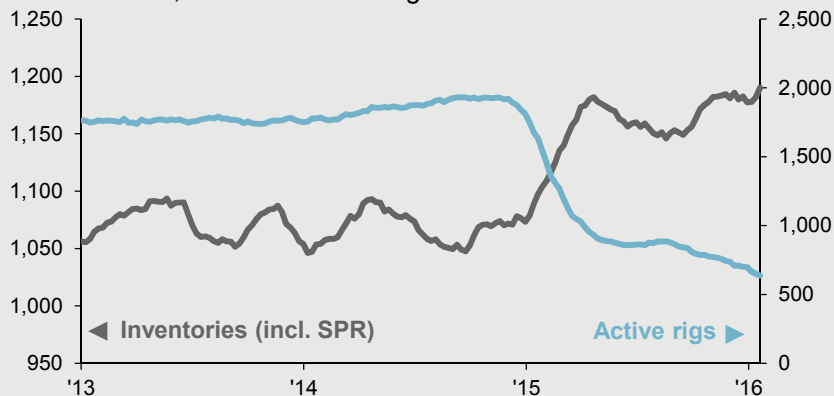
**Change in production and consumption of oil**

Production, consumption and inventories, millions of barrels per day

	2013	2014	2015*	2016*	Growth since 2013
<b>Production</b>					
U.S.	12.4	14.1	15.0	14.6	18.1%
OPEC	37.3	37.2	38.3	39.2	4.9%
<b>Global</b>	<b>91.0</b>	<b>93.3</b>	<b>95.7</b>	<b>95.9</b>	<b>5.4%</b>
<b>Consumption</b>					
U.S.	19.0	19.1	19.4	19.5	3.0%
China	10.5	10.9	11.2	11.5	9.7%
<b>Global</b>	<b>91.2</b>	<b>92.4</b>	<b>93.8</b>	<b>95.2</b>	<b>4.3%</b>
<b>Inventory Change</b>	<b>-0.3</b>	<b>0.9</b>	<b>1.9</b>	<b>0.7</b>	

**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.

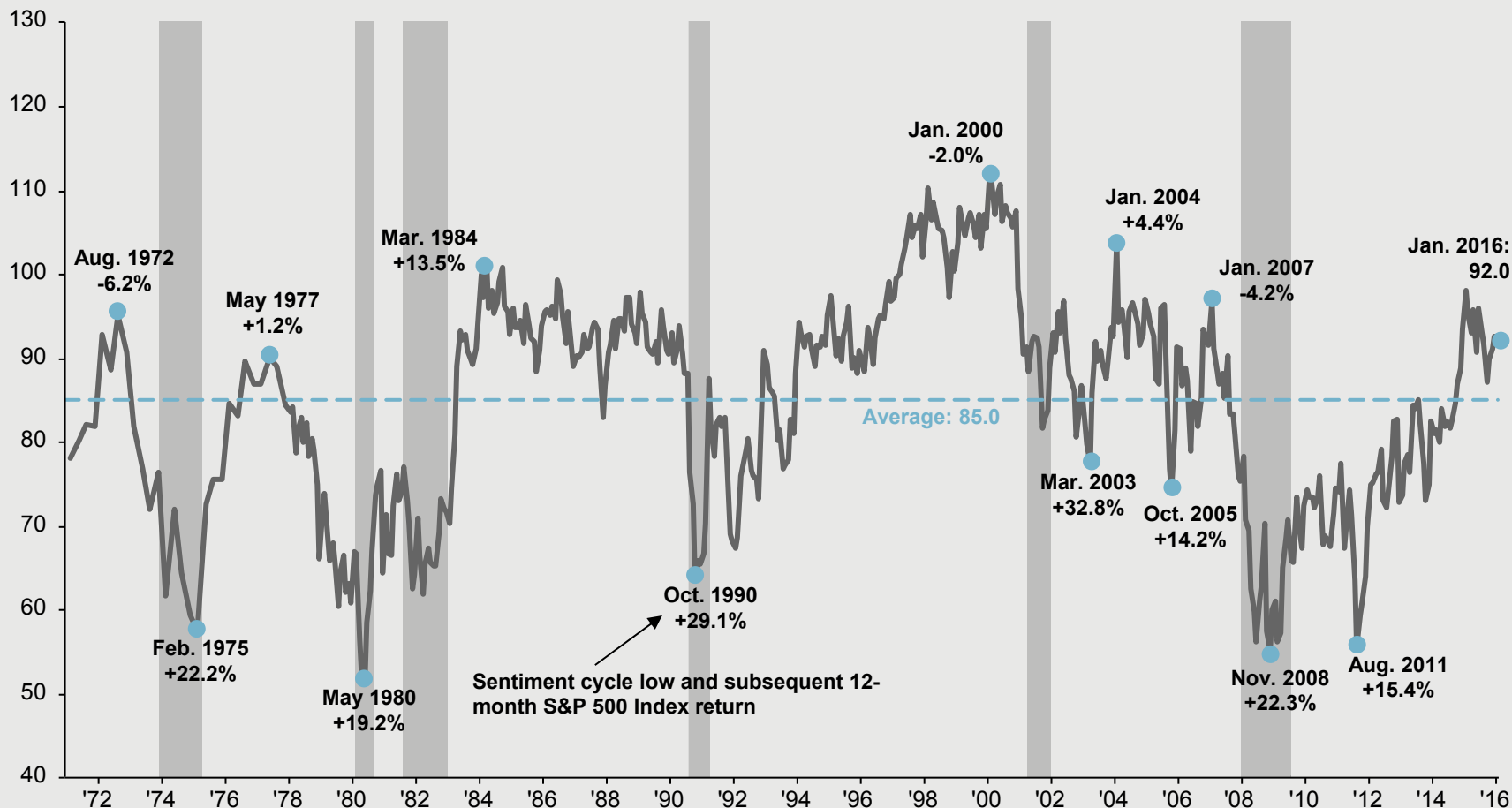
\*Forecasts are from the January 2015 EIA Short-Term Energy Outlook and start in 2016.

\*\*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.

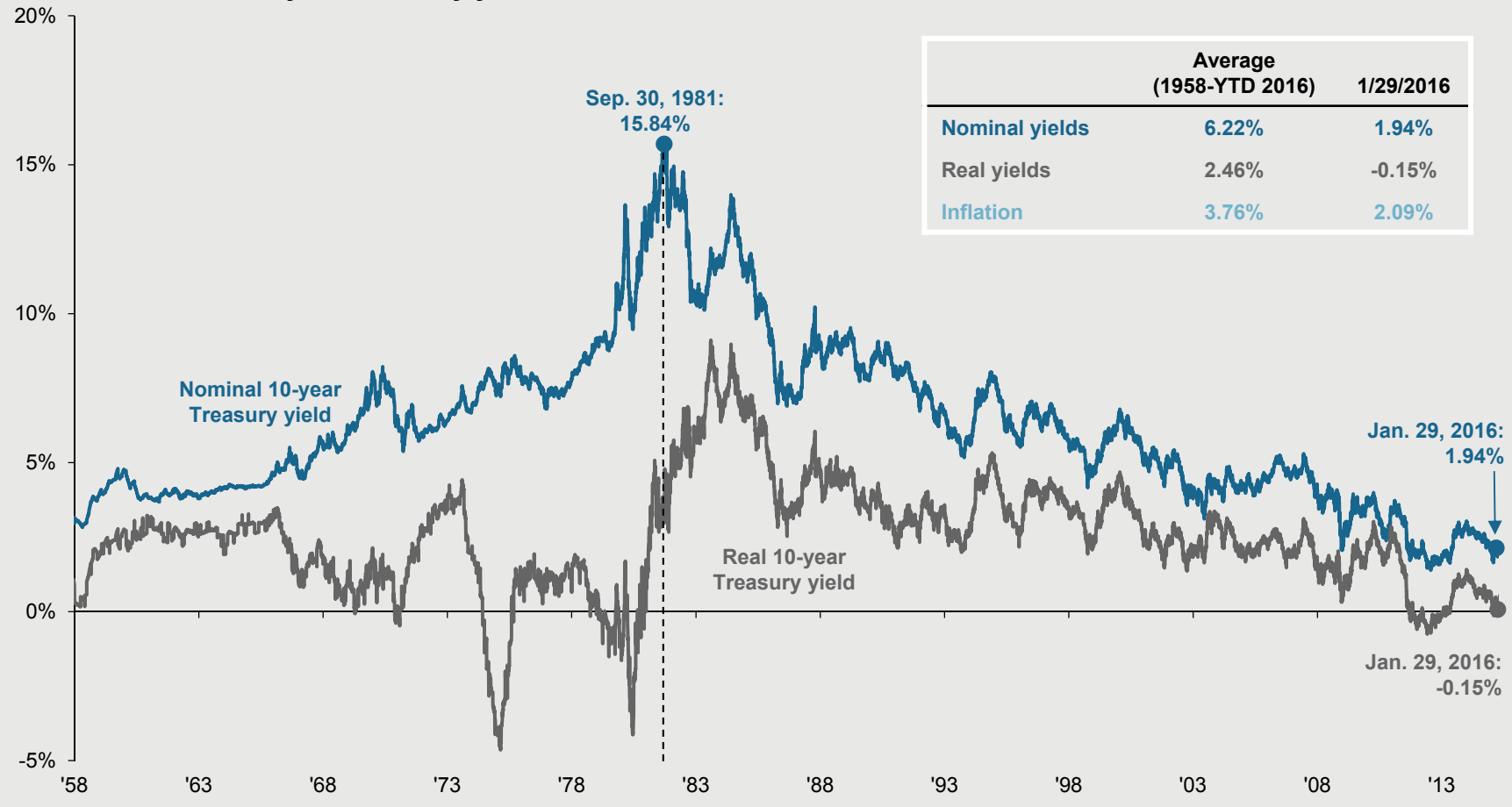
Guide to the Markets – U.S. Data are as of January 31, 2016.

## 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.  
 Guide to the Markets – U.S. Data are as of January 31, 2016.

## Nominal and real 10-year Treasury yields



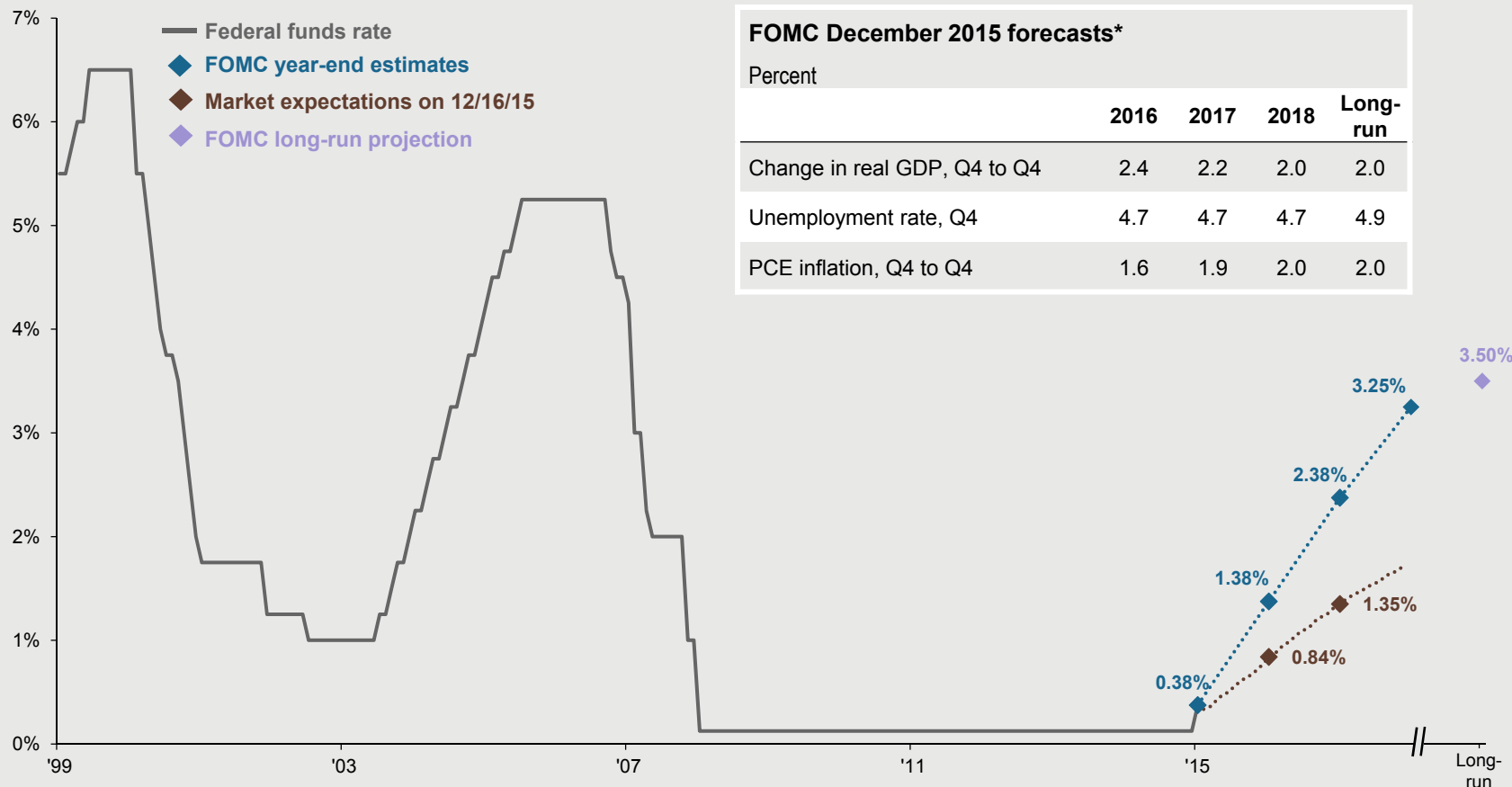
Source: BLS, Federal Reserve, J.P. Morgan Asset Management.

Real 10-year Treasury yields are calculated as the daily Treasury yield less year-over-year core CPI inflation for that month except for January 2016, where real yields are calculated by subtracting out December 2015 year-over-year core inflation.

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## Federal funds rate expectations

FOMC and market expectations for the fed funds rate



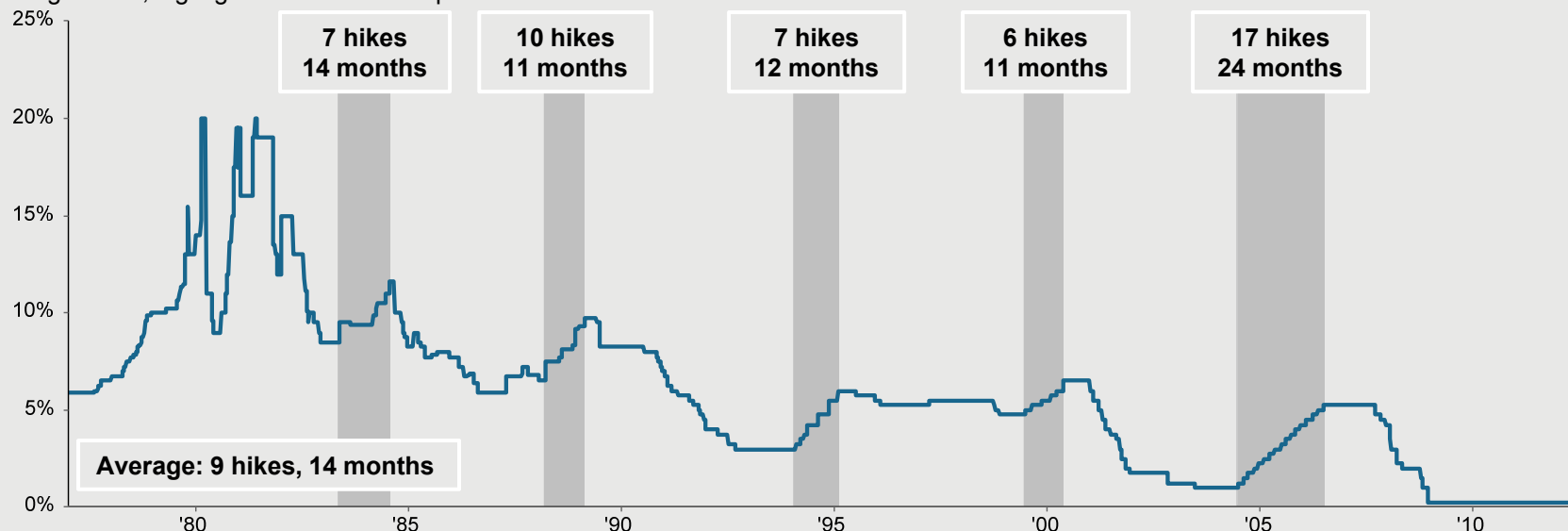
Source: FactSet, Federal Reserve, J.P. Morgan Asset Management.

Market expectations are the federal funds rates priced into the fed futures market as of the date of the December 2015 Federal Open Market Committee (FOMC) meeting. \*Forecasts of 17 FOMC participants, midpoints of central tendency except for federal funds rate, which is a median estimate.

Guide to the Markets – U.S. Data are as of January 31, 2016.

## Federal funds rate

Target rate\*, highlighted areas denote periods of rate hikes



## Market reaction during previous rate hiking cycles

	May 1983 – July 1984	March 1988 – February 1989	February 1994 – February 1995	June 1999 – May 2000	June 2004 – June 2006	Average
<b>Change in interest rates</b>						
<b>Federal funds rate</b>	3.13%	3.25%	3.00%	1.75%	4.25%	<b>3.08%</b>
<b>2-year Treasury</b>	3.11%	2.27%	3.05%	1.21%	2.38%	<b>2.40%</b>
<b>10-year Treasury</b>	2.74%	0.85%	1.89%	0.49%	0.51%	<b>1.30%</b>
<b>S&amp;P 500 return</b>	-9.6%	6.8%	-2.1%	8.5%	12.0%	<b>3.1%</b>
<b>U.S. dollar</b>	10.4%	1.7%	-4.8%	3.4%	-5.8%	<b>1.0%</b>

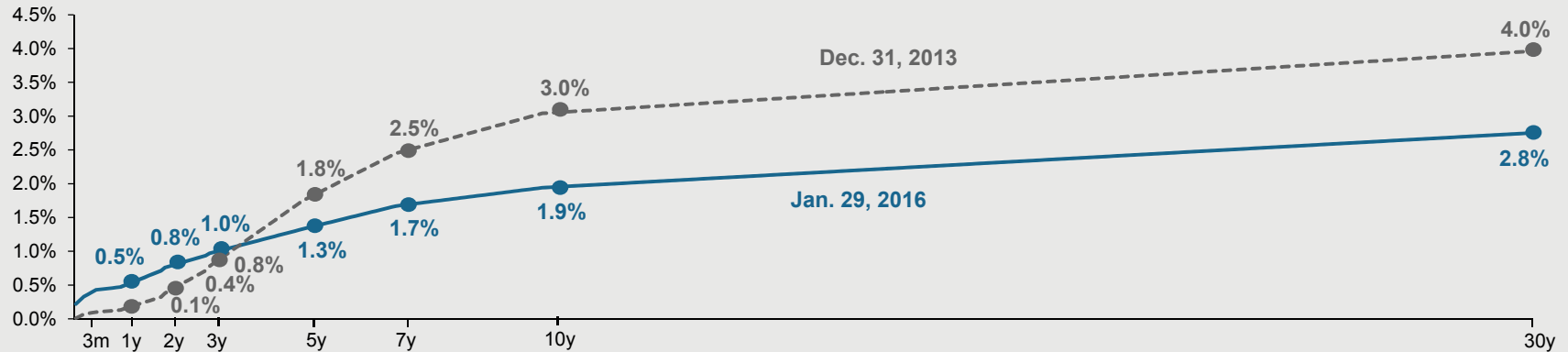
Source: FactSet, Federal Reserve, Standard & Poor's, J.P. Morgan Asset Management.

S&P 500 returns are price returns and do not include reinvestment of dividends. \*Between 1979 and 1982, the FOMC changed its approach to monetary policy, focusing on the money supply, rather than the federal funds rate. In the fall of 1982, however, the Federal Reserve shifted back to its approach of targeting the "price" rather than the "quantity" of money. Thus, because the federal funds rate was not the FOMC's key policy tool, we exclude increases in the federal funds rate between 1979 to 1982 in our analysis of rate hike cycles.

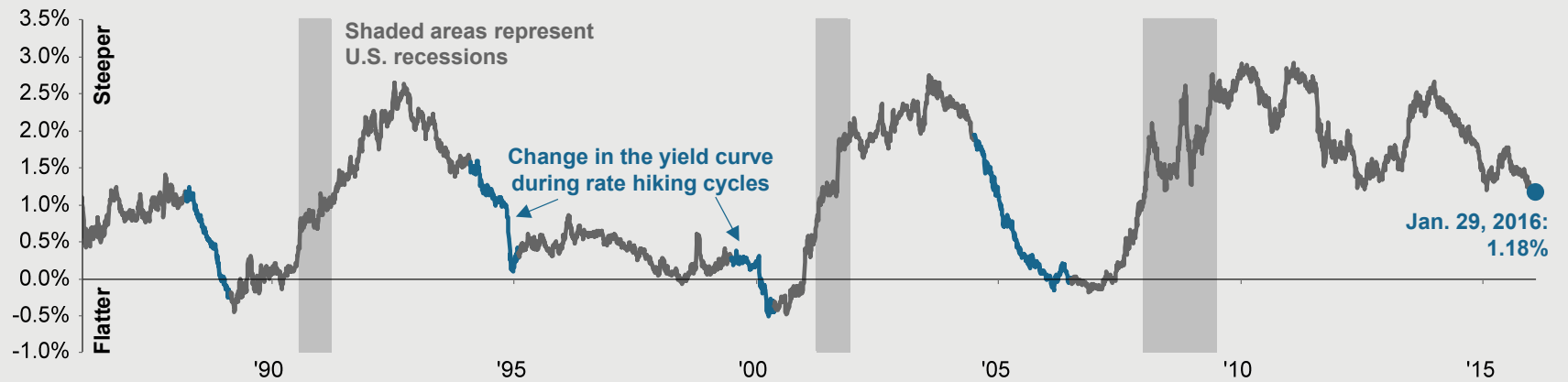
Guide to the Markets – U.S. Data are as of January 31, 2016.

## Yield curve

U.S. Treasury yield curve



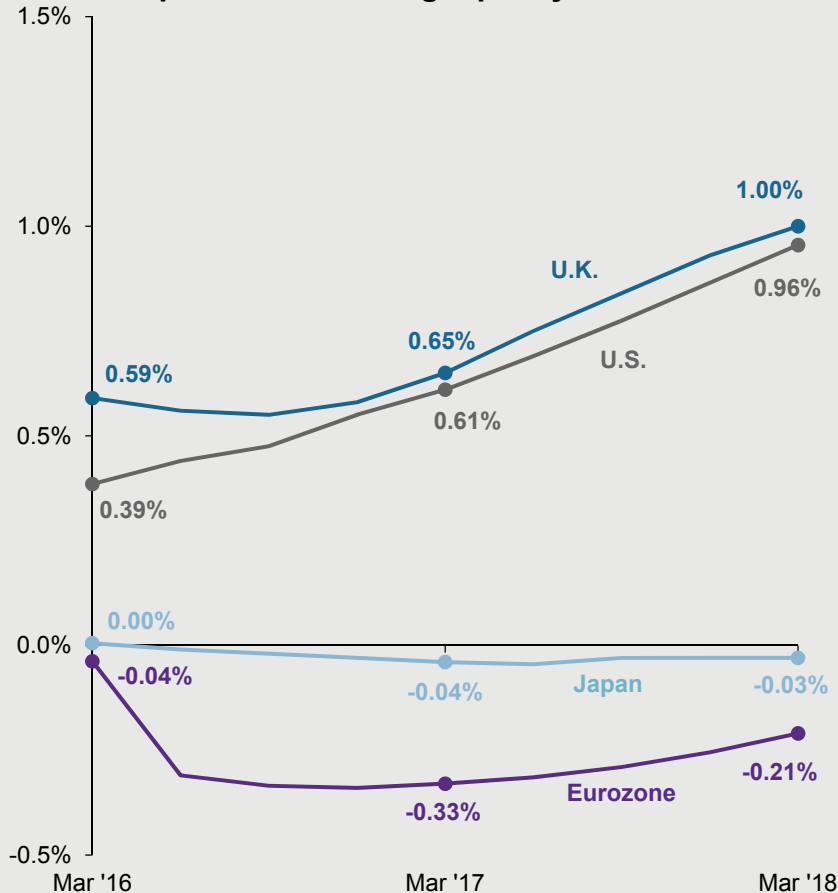
## 10-year minus 2-year U.S. government bond yields



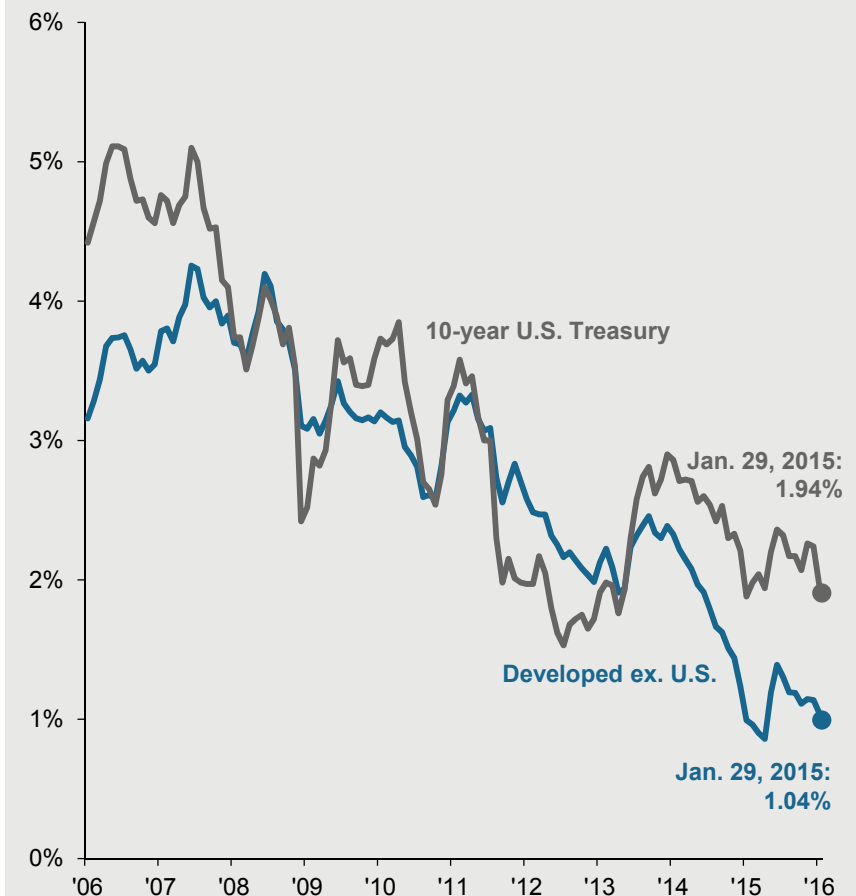
Source: Bloomberg, FactSet, J.P. Morgan Asset Management.  
Guide to the Markets – U.S. Data are as of January 31, 2016.



Market expectations for target policy rate\*



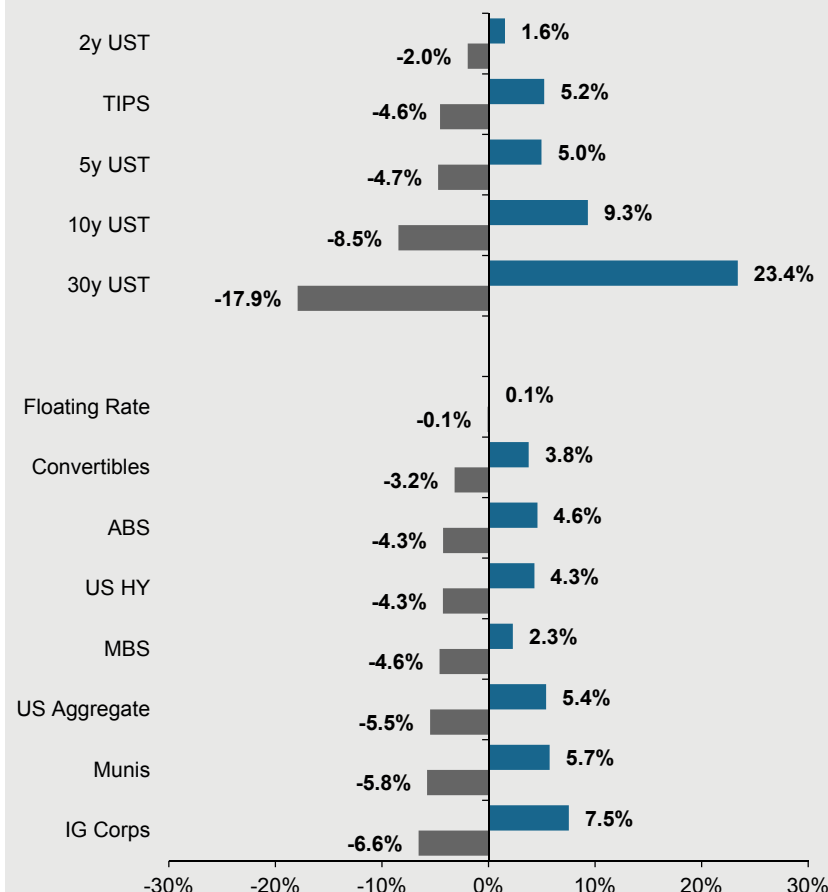
Developed market 10-year government bond yields



Source: Bloomberg, FactSet, J.P. Morgan Global Economics Research, J.P. Morgan Asset Management.  
 \*Target policy rates for Japan are estimated using EuroYen 3m futures contracts less a risk premium of 6bps.  
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U.S. Treasuries	Correlation to 10-year	Avg. Maturity	Yield		Return
			1/29/2016	12/31/2015	2016 YTD
2-Year	0.61	2 years	0.76%	1.06%	0.61%
5-Year	0.91	5	1.33%	1.76%	2.21%
10-Year	1.00	10	1.94%	2.27%	3.25%
30-Year	0.92	30	2.75%	3.01%	5.44%
TIPS	0.58	10	0.53%	0.73%	1.48%
Sector					
Broad Market	0.85	7.8 years	2.34%	2.59%	1.38%
MBS	0.80	6.1	2.47%	2.77%	1.30%
Municipals	0.45	10.0	1.82%	2.05%	1.50%
Corporates	0.45	10.5	3.62%	3.67%	0.35%
High Yield	-0.25	6.2	9.17%	8.74%	-1.61%
Floating Rate	-0.21	1.9	1.81%	1.66%	-0.05%
Convertibles	-0.31	--	0.87%	1.01%	-6.95%
ABS	-0.01	5.0	2.46%	2.71%	1.40%

## Price impact of a 1% rise/fall in interest rates\*



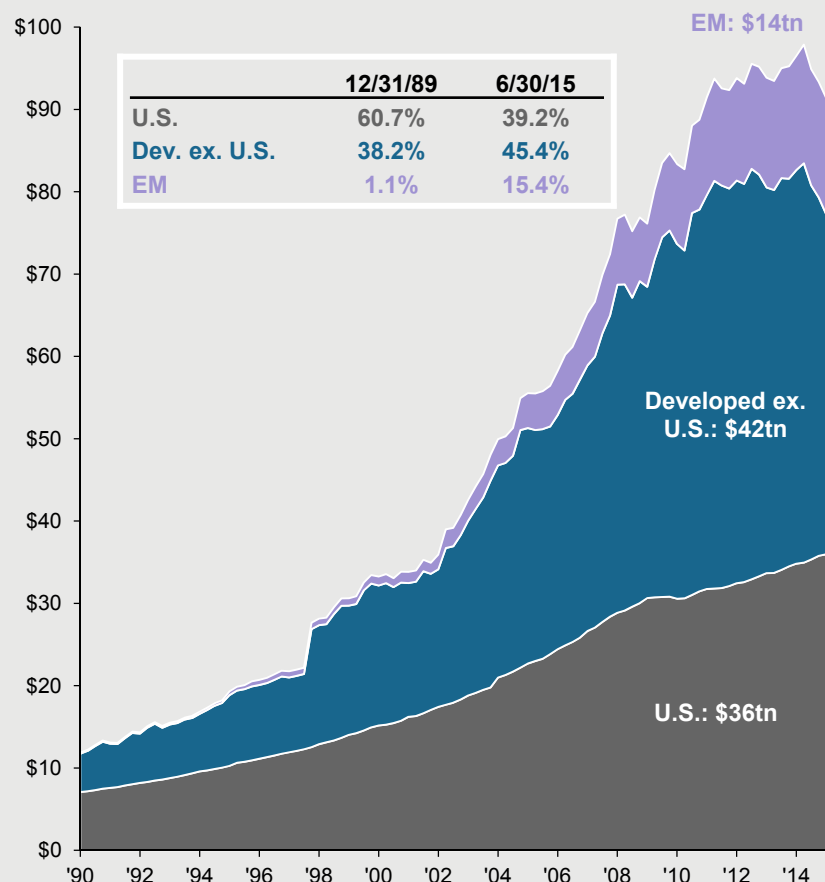
Source: Barclays, U.S. Treasury, FactSet, J.P. Morgan Asset Management. Sectors shown above are provided by Barclays and are represented by – Broad Market: U.S. Aggregate; MBS: U.S. Aggregate Securitized - MBS; Corporate: U.S. Corporates; Municipals: Muni Bond 10-year; High Yield: Corporate High Yield; TIPS: Treasury Inflation Protection Securities (TIPS). Floating Rate: FRN (BBB); Convertibles: U.S. Convertibles Composite; ABS: ABS + CMBS. Treasury securities data for number of issues based on U.S. Treasury benchmarks from Barclays. Yield and return information based on bellwethers for Treasury securities. Sector yields reflect yield to worst, while Treasury yields are yield to maturity. 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). \*Calculation assumes 2-year Treasury interest rate falls 0.76% to 0.00%, as interest rates can only fall to 0.00%. Chart is for illustrative purposes only. Past performance is not indicative of future results.

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Aggregates	Correl to 10-year	Duration	Yield		2016 YTD Return	
			1/29/2016	12/31/2015	Local	USD
U.S.	0.85	5.44 years	2.34%	2.59%	1.38%	1.38%
Gbl. ex. U.S.	0.16	7.3	1.13%	1.29%		0.51%
Japan	0.46	8.6	0.25%	0.36%	1.32%	0.68%
Germany	-0.04	6.1	0.46%	0.67%	1.67%	1.27%
U.K.	0.15	9.7	1.93%	2.17%	3.55%	-0.34%
Italy	-0.17	6.7	1.01%	1.15%	1.06%	0.66%
Spain	-0.16	6.3	1.05%	1.17%	1.26%	0.86%
Sector						
Euro Corp.	0.09	4.9 years	1.36%	1.42%	0.59%	0.20%
Euro HY.	-0.31	4.0	5.68%	5.37%	-1.81%	-2.20%
EMD (\$)	0.12	6.5	6.50%	6.39%		-0.18%
EMD (LCL)	0.04	4.8	6.88%	7.13%	1.64%	0.35%
EM Corp.	-0.03	5.3	6.54%	6.42%		-0.36%

## Global bond market

USD trillions



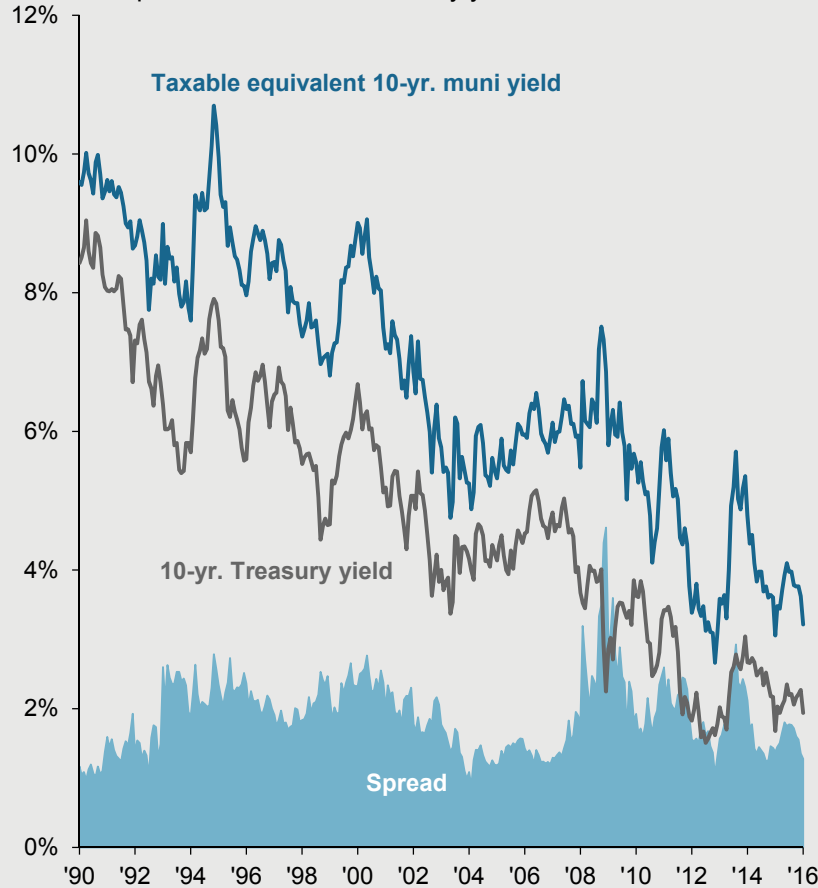
Source: J.P. Morgan Asset Management; (Left) FactSet, Barclays; (Right) BIS.

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. Duration is modified duration. Correlations are based on 7 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 January 31, 2016.

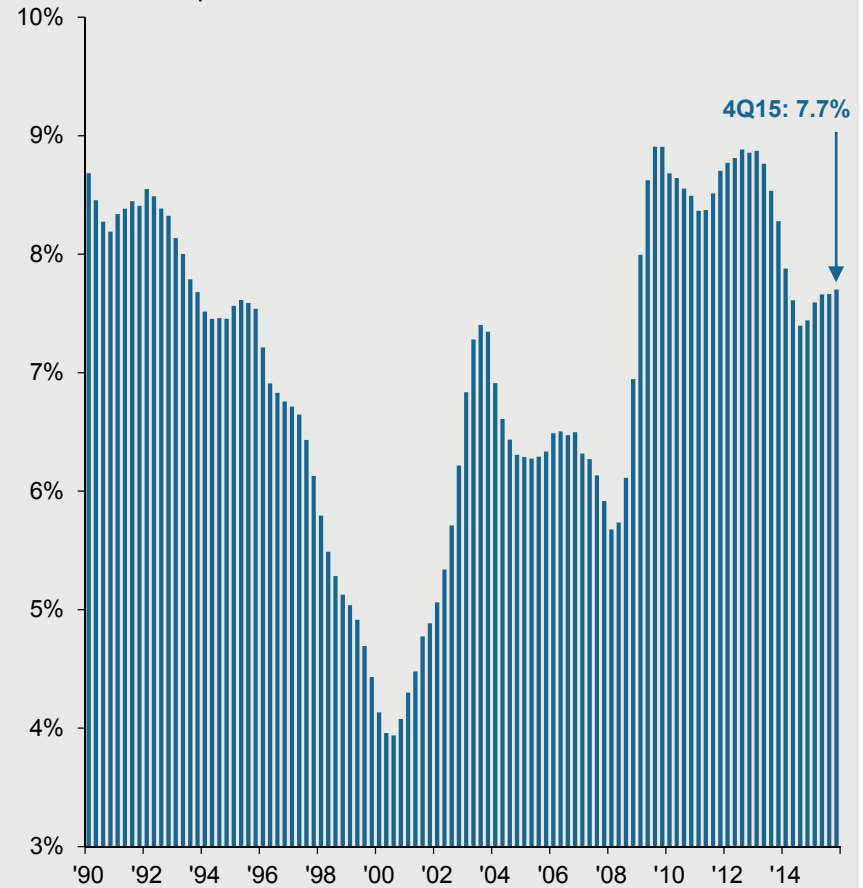
### 10-year muni taxable equivalent yield

Taxable equivalent muni and Treasury yields



### State and local government debt service

% of current expenditures



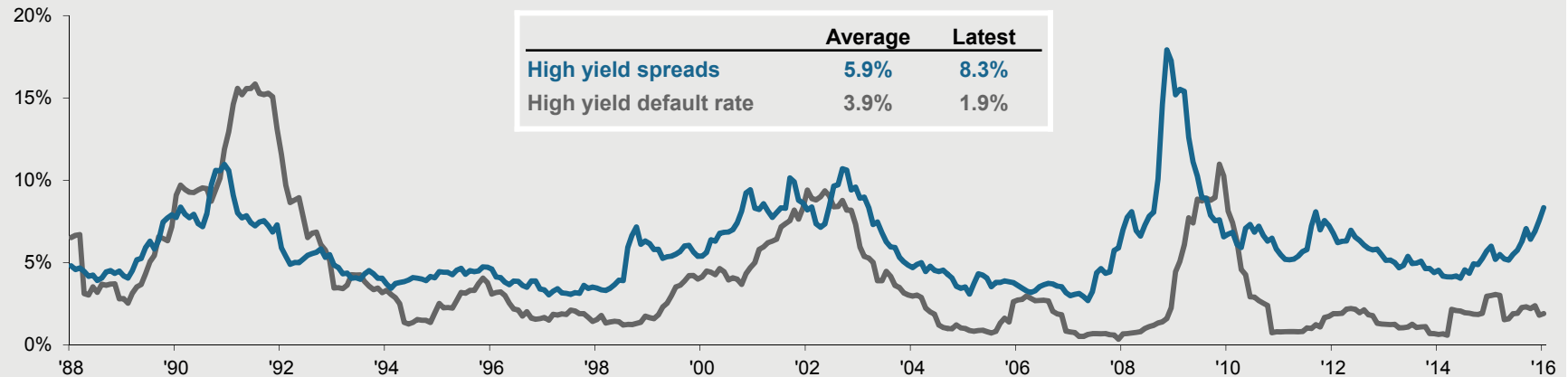
Source: J.P. Morgan Asset Management; (Left) FactSet, Barclays, FRB; (Right) BEA.

Taxable equivalent yields are calculated for the highest federal marginal tax bracket. 2016 tax rate includes the net investment income tax of 3.8%.

State & local government interest payments include interest accrued on defined benefit liabilities.

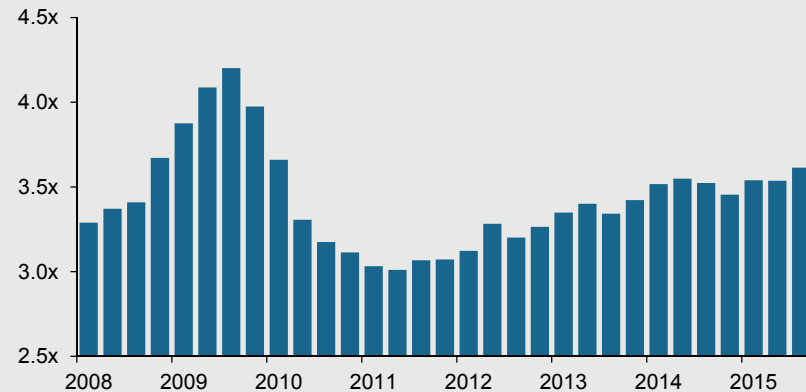
Guide to the Markets – U.S. Data are as of January 31, 2016.

## High yield spreads and defaults



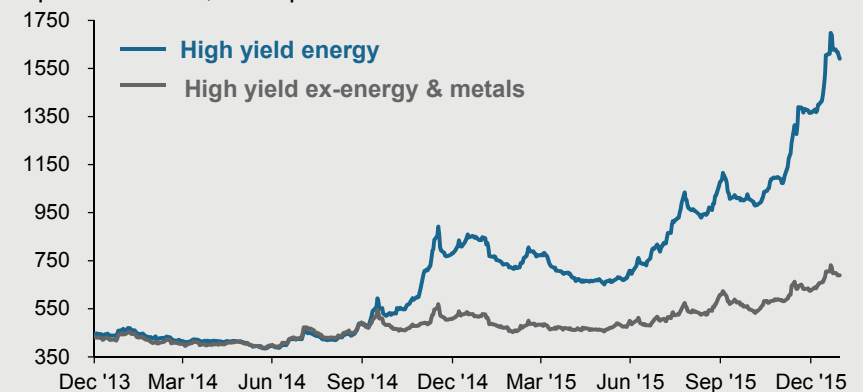
## U.S. high yield net leverage

Net debt/EBITDA



## High yield spreads

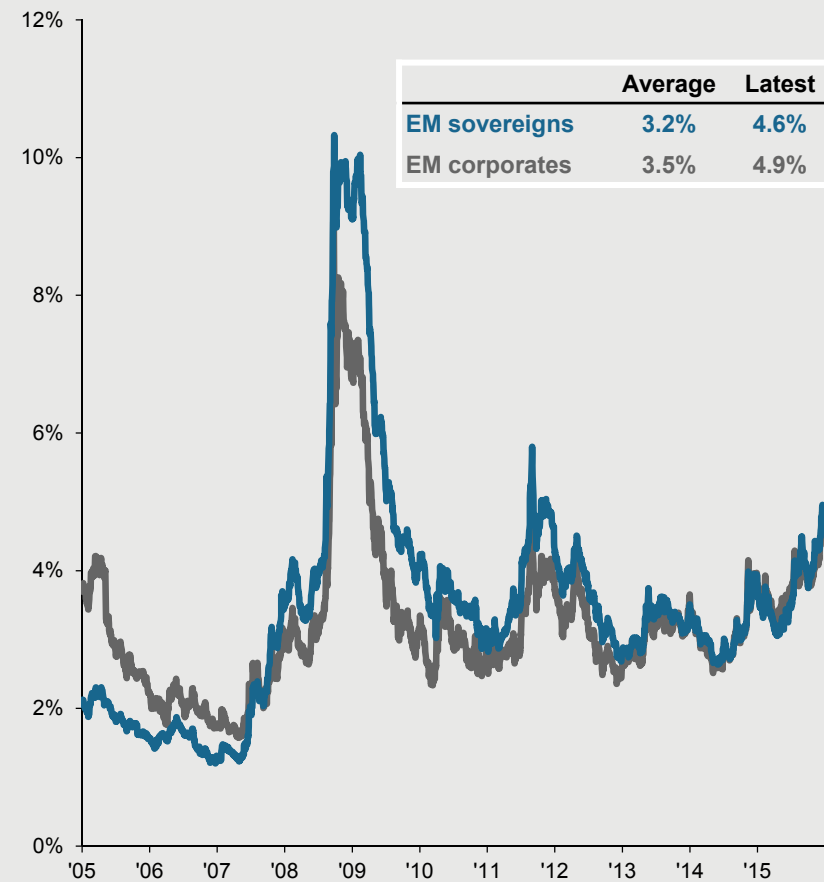
Spread to worst, basis points



Source: J.P. Morgan Asset Management; (Top and bottom left) J.P. Morgan Global Economic Research, FRB; (Bottom right) Strategic Insight. 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 HY Index. Guide to the Markets – U.S. Data are as of January 31, 2016.

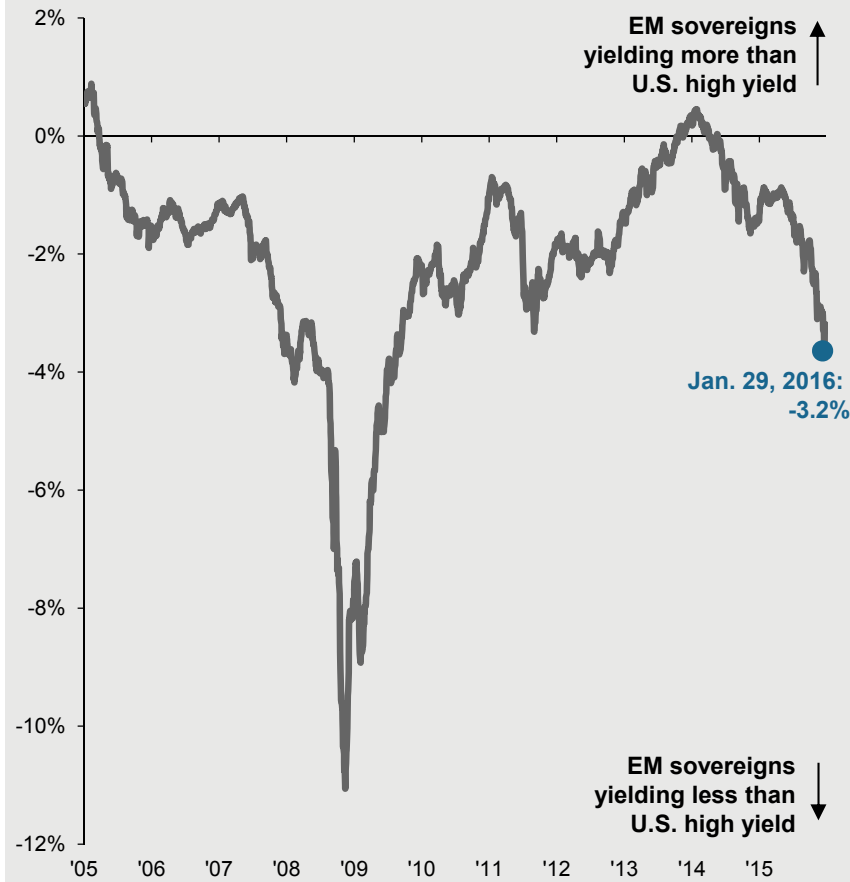
## Corporate and sovereign EMD spreads

USD-denominated debt, percentage points over Treasury



## Emerging market vs. U.S. yields

Emerging market USD sovereign yield – U.S. high yield



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; U.S. high yield: J.P. Morgan Domestic High Yield Index.

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# Fixed income sector returns

GTM - U.S. | 39

Fixed income

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	YTD	2006 - 2015 Cum.	Ann.
EMD LCL. 15.2%	EMD LCL. 18.1%	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%	Treas. 2.1%	EMD USD 114.0%	EMD USD 7.9%
High Yield 11.8%	TIPS 11.6%	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%	Muni 1.5%	High Yield 95.9%	High Yield 7.0%
EMD USD 9.9%	Treas. 9.0%	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%	TIPS 1.5%	Corp. 67.4%	Corp. 5.3%
Asset Alloc. 5.7%	Barclays Agg 7.0%	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%	Barclays Agg 1.4%	Muni 66.0%	Muni 5.2%
MBS 5.2%	MBS 6.9%	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%	MBS 1.3%	Asset Alloc. 65.7%	Asset Alloc. 5.2%
Muni 4.7%	Asset Alloc. 6.7%	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%	Asset Alloc. 0.9%	EMD LCL. 62.0%	EMD LCL. 4.9%
Barclays Agg 4.3%	EMD USD 6.2%	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%	Corp. 0.4%	MBS 57.3%	MBS 4.6%
Corp. 4.3%	Corp. 4.6%	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%	EMD LCL. 0.4%	Barclays Agg 55.5%	Barclays Agg 4.5%
Treas. 3.1%	Muni 4.3%	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%	EMD USD -0.2%	Treas. 50.6%	Treas. 4.2%
TIPS 0.4%	High Yield 1.9%	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%	High Yield -1.6%	TIPS 47.0%	TIPS 3.9%

Source: Barclays, FactSet, J.P. Morgan Global Economic Research, J.P. Morgan Asset Management.

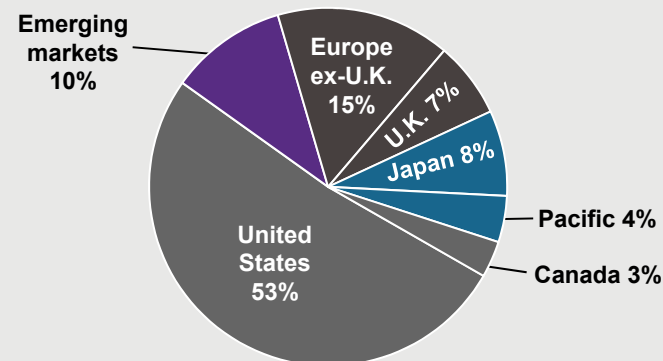
Past performance is not indicative of future returns. Fixed income sectors shown above are provided by Barclays unless otherwise noted and are represented by Broad Market: Barclays U.S. Aggregate Index; MBS: Fixed Rate MBS Index; Corporate: U.S. Corporates; Municipals: Muni Bond 10-Year Index; High Yield: U.S. Corporate High Yield Index; Treasuries: Global U.S. Treasury; TIPS: 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 January 31, 2016.

Country / Region	2016 YTD		2015	
	Local	USD	Local	USD
<b>Regions / Broad Indexes</b>				
All Country World	-5.4	-6.0	1.8	-1.8
U.S. (S&P 500)	-	-5.0	-	1.4
EAFE	-5.8	-7.2	5.8	-0.4
Europe ex-U.K.	-6.0	-6.8	9.1	0.1
Pacific ex-Japan	-7.0	-8.8	-0.8	-8.4
Emerging Markets	-5.2	-6.5	-5.4	-14.6
<b>MSCI: Selected Countries</b>				
United Kingdom	-2.4	-6.0	-2.2	-7.5
France	-4.2	-4.5	12.3	0.8
Germany	-8.5	-8.9	10.0	-1.3
Japan	-7.6	-8.2	10.3	9.9
China	-12.4	-12.7	-7.7	-7.6
India	-4.5	-6.9	-1.6	-6.1
Brazil	-5.8	-7.3	-12.5	-41.2
Russia	1.7	-0.8	22.9	5.0

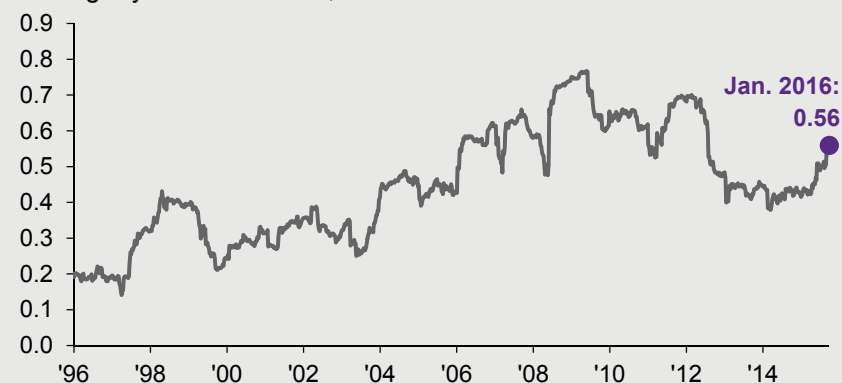
## Weights in MSCI All Country World Index

% 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. Chart is for illustrative purposes only. Past performance is not indicative of future results. 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.

Guide to the Markets – U.S. Data are as of January 31, 2016.



## MSCI EAFE Price Index



Source: FactSet, MSCI, J.P. Morgan Asset Management.

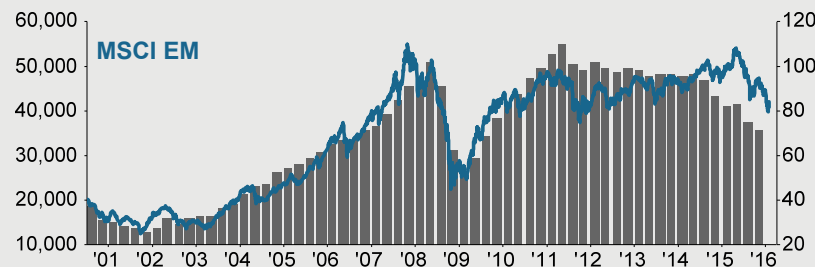
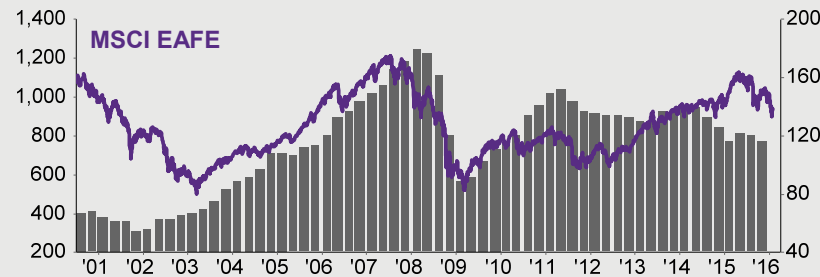
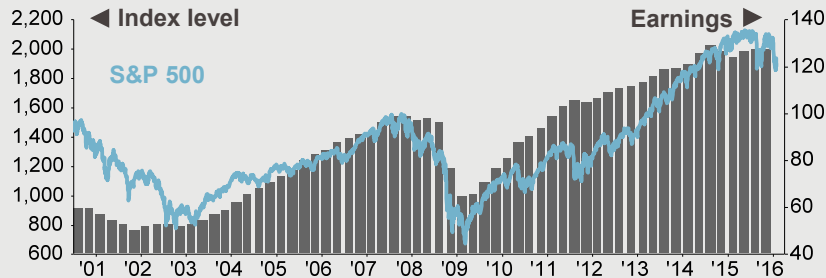
Index levels are in local currency. Dividend yield is calculated as the annualized dividend rate divided by price, as provided by MSCI. Forward price to earnings ratio is a bottom-up calculation based on the most recent MSCI EAFE Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates. Returns are cumulative and based on MSCI EAFE Index price movement only, and do not include the reinvestment of dividends.

Past performance is not indicative of future returns.

Guide to the Markets – U.S. Data are as of January 31, 2016.

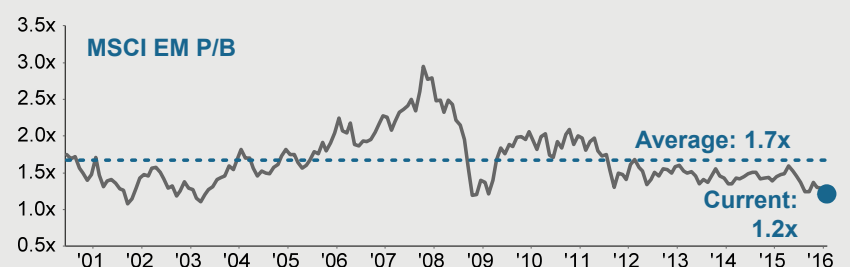
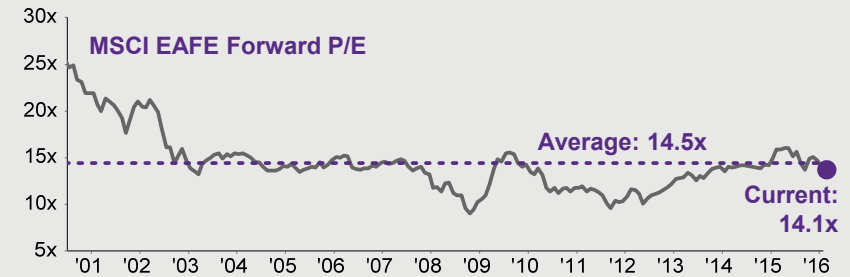
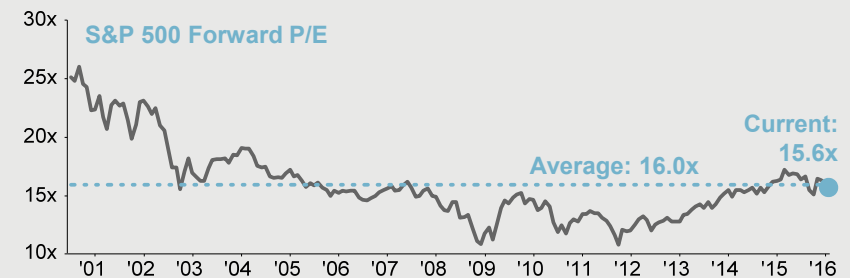
## Earnings and price index

NTM USD earnings estimates, quarterly, local price index, daily



## Valuations

Monthly



Sources: Compustat, FactSet, MSCI, Standard & Poor's, J.P. Morgan Asset Management.

NTM – Next 12 months. Price to earnings ratio is the current price of the index divided by estimated next 12 month earnings. Price to book ratio is the current price of the index divided by the last book value per share. Past performance is not indicative of future returns.

Guide to the Markets – U.S. Data are as of January 31, 2016.

## Global Purchasing Managers' Index for manufacturing

	Feb'14	Mar'14	Apr'14	May'14	Jun'14	Jul'14	Aug'14	Sep'14	Oct'14	Nov'14	Dec'14	Jan'15	Feb'15	Mar'15	Apr'15	May'15	Jun'15	Jul'15	Aug'15	Sep'15	Oct'15	Nov'15	Dec'15	Jan'16
Global	52.8	52.0	51.6	51.9	52.4	52.4	52.3	52.0	52.0	51.7	51.4	51.6	51.8	51.5	50.8	51.1	50.9	50.8	50.4	50.4	51.1	51.0	50.7	50.9
Developed Markets	55.5	54.3	53.2	53.5	54.1	53.2	54.1	53.6	53.5	52.8	52.4	52.5	52.8	53.0	52.1	52.4	52.1	52.5	52.3	52.1	53.1	52.6	52.1	52.3
Emerging Markets	50.0	49.6	49.5	50.1	50.4	51.2	50.5	50.4	50.5	50.6	50.4	50.8	50.9	49.8	49.3	49.4	49.2	48.8	48.3	48.3	48.9	49.0	49.2	49.2
U.S.	57.1	55.5	55.4	56.4	57.3	55.8	57.9	57.5	55.9	54.8	53.9	53.9	55.1	55.7	54.1	54.0	53.6	53.8	53.0	53.1	54.1	52.8	51.2	52.4
Canada	52.9	53.3	52.9	52.2	53.5	54.3	54.8	53.5	55.3	55.3	53.9	51.0	48.7	48.9	49.0	49.8	51.3	50.8	49.4	48.6	48.0	48.6	47.5	49.3
U.K.	56.0	54.8	57.2	56.5	56.9	54.9	53.2	51.7	53.1	53.3	53.0	52.8	53.9	53.7	51.7	51.8	51.5	52.0	51.7	51.6	55.4	52.6	52.1	52.9
Euro Area	53.2	53.0	53.4	52.2	51.8	51.8	50.7	50.3	50.6	50.1	50.6	51.0	51.0	52.2	52.0	52.2	52.5	52.4	52.3	52.0	52.3	52.8	53.2	52.3
Germany	54.8	53.7	54.1	52.3	52.0	52.4	51.4	49.9	51.4	49.5	51.2	50.9	51.1	52.8	52.1	51.1	51.9	51.8	53.3	52.3	52.1	52.9	53.2	52.3
France	49.7	52.1	51.2	49.6	48.2	47.8	46.9	48.8	48.5	48.4	47.5	49.2	47.6	48.8	48.0	49.4	50.7	49.6	48.3	50.6	50.6	50.6	51.4	50.0
Italy	52.3	52.4	54.0	53.2	52.6	51.9	49.8	50.7	49.0	49.0	48.4	49.9	51.9	53.3	53.8	54.8	54.1	55.3	53.8	52.7	54.1	54.9	55.6	53.2
Spain	52.5	52.8	52.7	52.9	54.6	53.9	52.8	52.6	52.6	54.7	53.8	54.7	54.2	54.3	54.2	55.8	54.5	53.6	53.2	51.7	51.3	53.1	53.0	55.4
Greece	51.3	49.7	51.1	51.0	49.4	48.7	50.1	48.4	48.8	49.1	49.4	48.3	48.4	48.9	46.5	48.0	46.9	30.2	39.1	43.3	47.3	48.1	50.2	50.0
Ireland	52.9	55.5	56.1	55.0	55.3	55.4	57.3	55.7	56.6	56.2	56.9	55.1	57.5	56.8	55.8	57.1	54.6	56.7	53.6	53.8	53.6	53.3	54.2	54.3
Australia	48.6	47.9	44.8	49.2	48.9	50.7	47.3	46.5	49.4	50.1	46.9	49.0	45.4	46.3	48.0	52.3	44.2	50.4	51.7	52.1	50.2	52.5	51.9	51.5
Japan	55.5	53.9	49.4	49.9	51.5	50.5	52.2	51.7	52.4	52.0	52.0	52.2	51.6	50.3	49.9	50.9	50.1	51.2	51.7	51.0	52.4	52.6	52.6	52.3
China	48.5	48.0	48.1	49.4	50.7	51.7	50.2	50.2	50.4	50.0	49.6	49.7	50.7	49.6	48.9	49.2	49.4	47.8	47.3	47.2	48.3	48.6	48.2	48.4
Indonesia	50.5	50.1	51.1	52.4	52.7	52.7	49.5	50.7	49.2	48.0	47.6	48.5	47.5	46.4	46.7	47.1	47.8	47.3	48.4	47.4	47.8	46.9	47.8	48.9
Korea	49.8	50.4	50.2	49.5	48.4	49.3	50.3	48.8	48.7	49.0	49.9	51.1	51.1	49.2	48.8	47.8	46.1	47.6	47.9	49.2	49.1	49.1	50.7	49.5
Taiwan	54.7	52.7	52.3	52.4	54.0	55.8	56.1	53.3	52.0	51.4	50.0	51.7	52.1	51.0	49.2	49.3	46.3	47.1	46.1	46.9	47.8	49.5	51.7	50.0
India	52.5	51.3	51.3	51.4	51.5	53.0	52.4	51.0	51.6	53.3	54.5	52.9	51.2	52.1	51.3	52.6	51.3	52.7	52.3	51.2	50.7	50.3	49.1	51.1
Brazil	50.4	50.6	49.3	48.8	48.7	49.1	50.2	49.3	49.1	48.7	50.2	50.7	49.6	46.2	46.0	45.9	46.5	47.2	45.8	47.0	44.1	43.8	45.6	47.4
Mexico	52.0	51.7	51.8	51.9	51.8	51.5	52.1	52.6	53.3	54.3	55.3	56.6	54.4	53.8	53.8	53.3	52.0	52.9	52.4	52.1	53.0	53.0	52.4	52.2
Russia	48.5	48.3	48.5	48.9	49.1	51.0	51.0	50.4	50.3	51.7	48.9	47.6	49.7	48.1	48.9	47.6	48.7	48.3	47.9	49.1	50.2	50.1	48.7	49.8

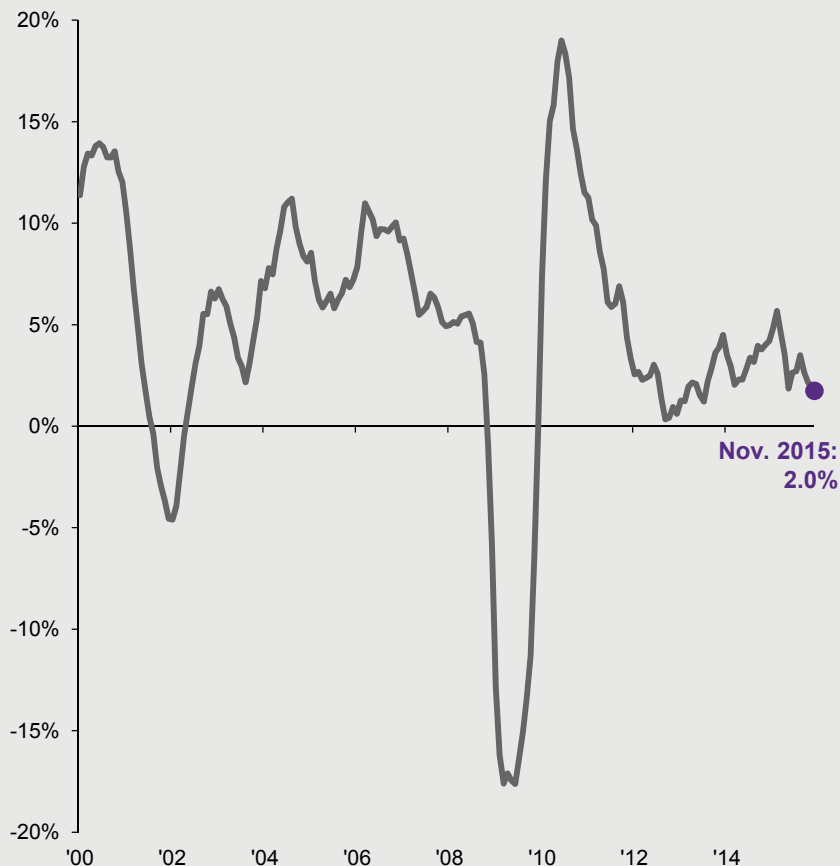
Source: Markit, J.P. Morgan Asset Management.

Heatmap colors are based on PMI relative to the 50 level, which indicates acceleration or deceleration of the sector, for the time period shown.

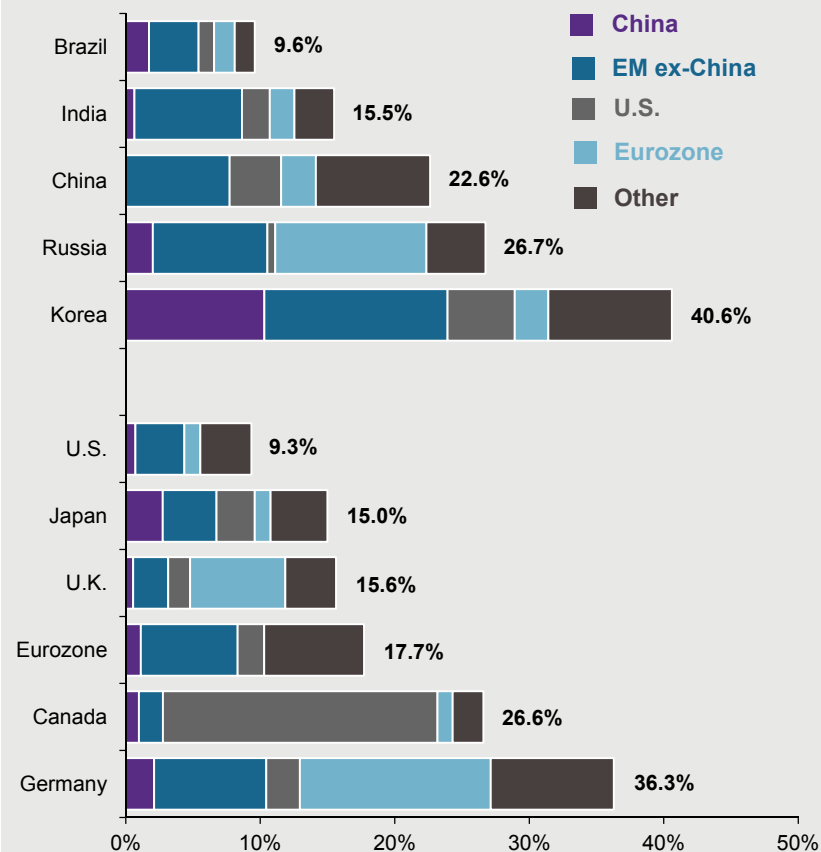
Guide to the Markets – U.S. Data are as of January 31, 2016.

**World export volume**

Goods exported, y/y % change, 3-month moving average

**Exports as a % of GDP**

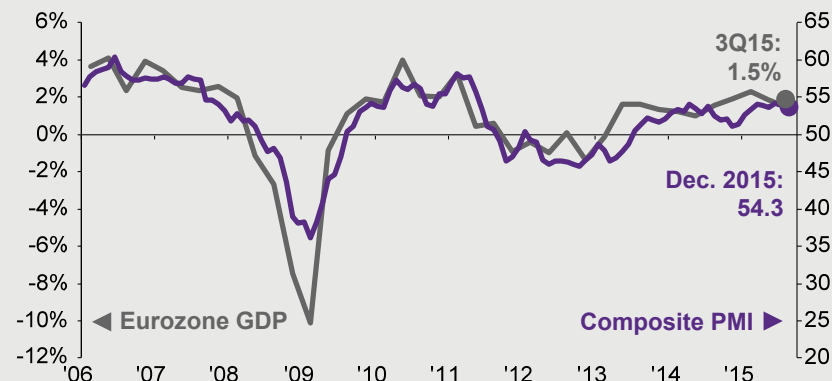
Goods exported, 2014



Source: J.P. Morgan Asset Management; (Left) Netherlands Bureau for Economic Policy Analysis World Trade Monitor; (Right) FactSet, IMF Direction of Trade Statistics.  
 Guide to the Markets – U.S. Data are as of January 31, 2016.

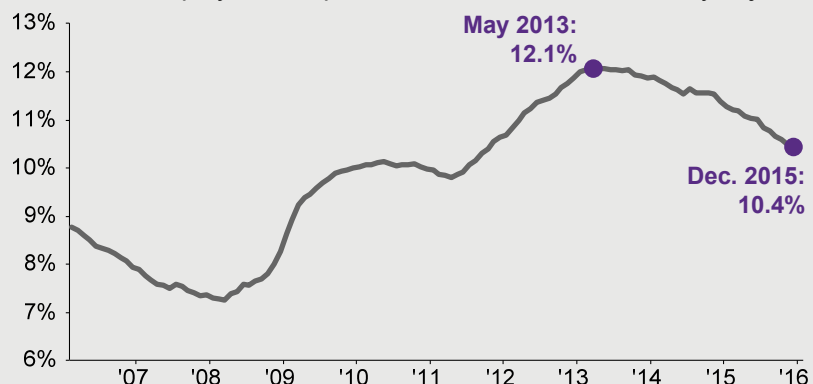
## Markit PMI and GDP growth in the Eurozone

Markit Composite PMI Index and Eurozone GDP q/q SAAR



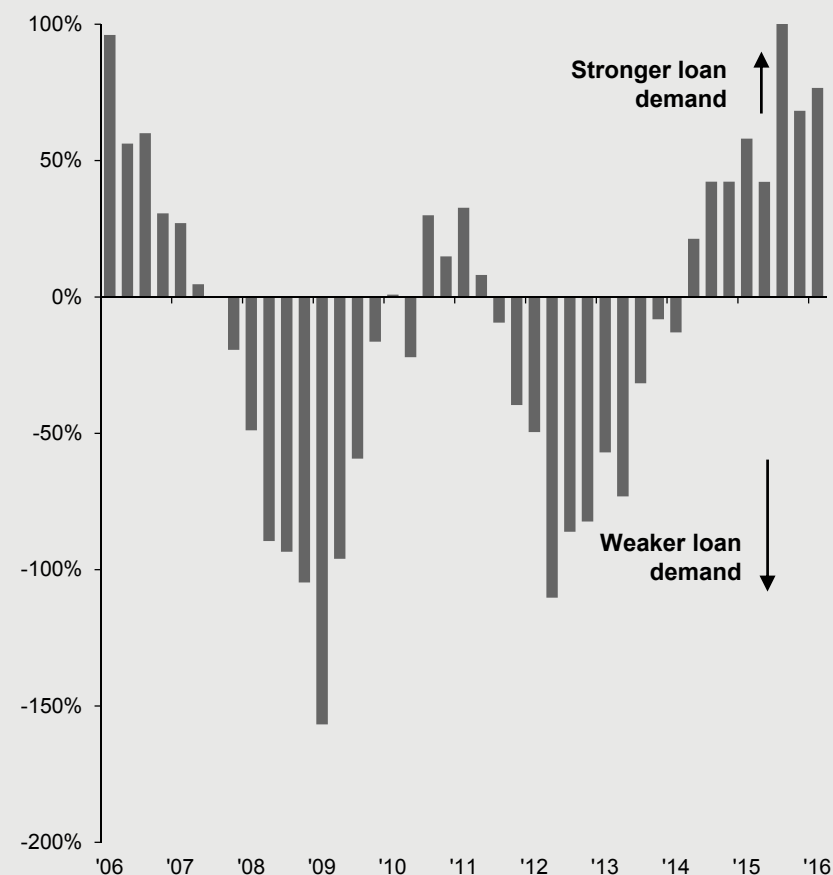
## Eurozone unemployment

Persons unemployed as a percent of labor force, seasonally adjusted



## Eurozone credit demand

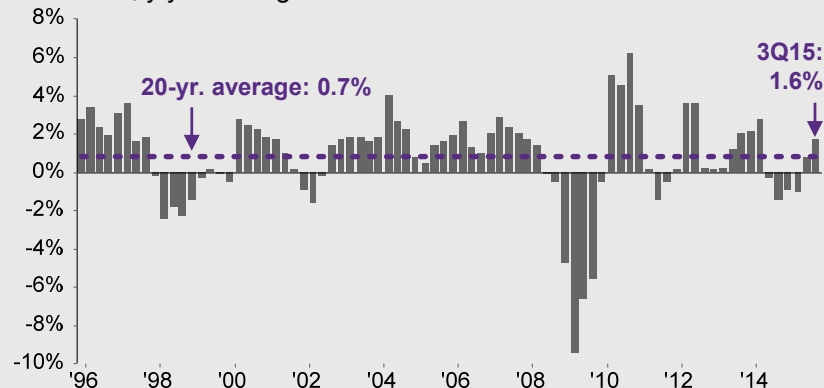
Net % of banks reporting positive loan demand



Source: FactSet, J.P. Morgan Asset Management; (Top left) Markit; (Top and bottom left) Eurostat; (Bottom right) ECB.  
Guide to the Markets – U.S. Data are as of January 31, 2016.

## Japanese economic growth

Real GDP, y/y % change



## Japanese labor market

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



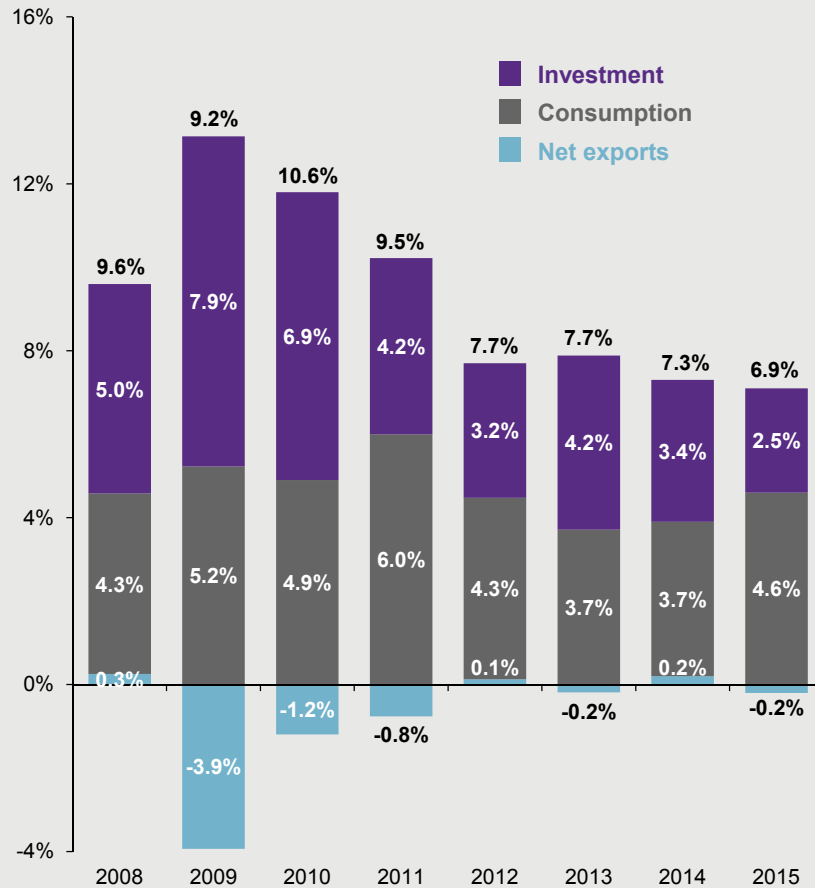
## Japanese yen and the stock market



Source: FactSet, J.P. Morgan Asset Management; (Top and bottom left) Japanese Cabinet Office; (Right) Nikkei.  
Guide to the Markets – U.S. Data are as of January 31, 2016.

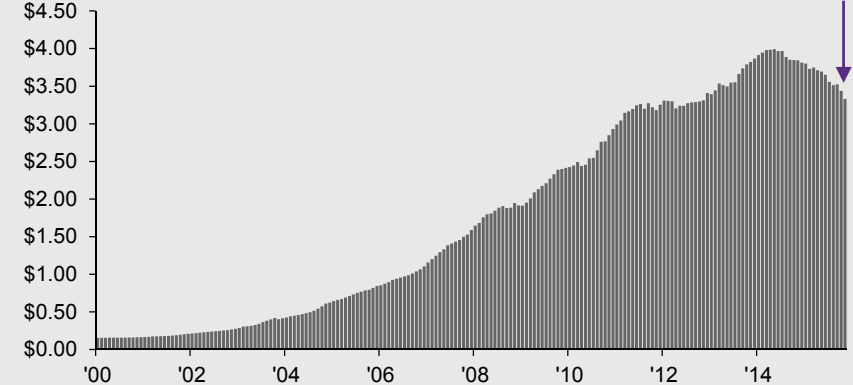
## China real GDP contribution

Year-over-year % change



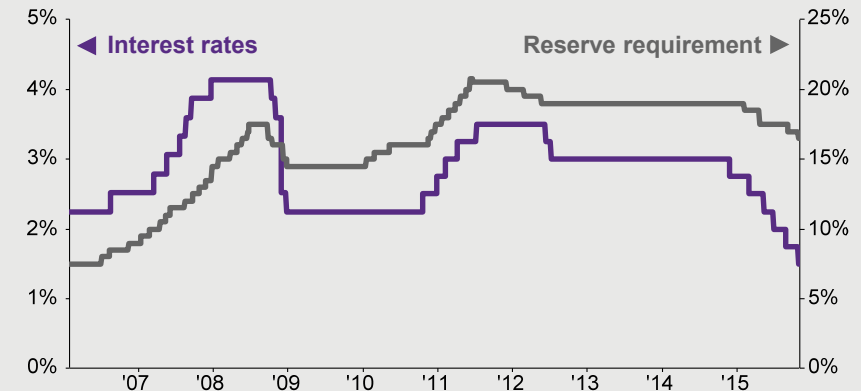
## China foreign exchange reserves

Trillions USD



## Monetary policy tools

Policy rate on 1-year renminbi deposits



Source: FactSet, J.P. Morgan Asset Management; (Left) CEIC; (Top and bottom right) People's Bank of China.  
Guide to the Markets – U.S. Data are as of January 31, 2016.

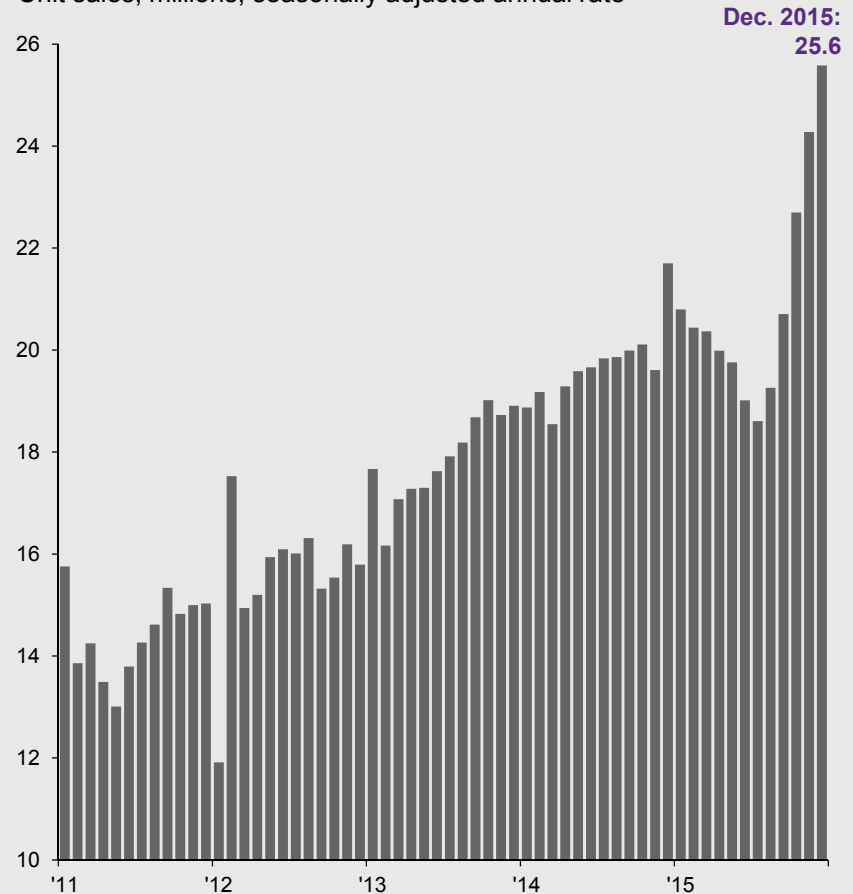
## Manufacturing and services PMIs

Caixin/Markit indices, 3-month moving average



## Domestic car sales

Unit sales, millions, seasonally adjusted annual rate

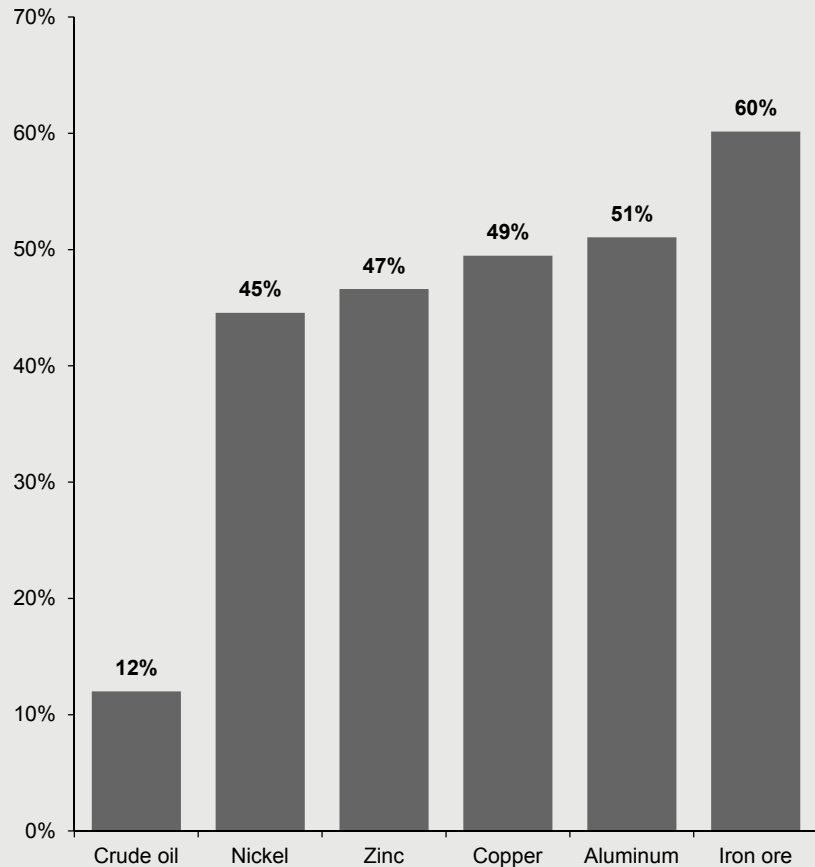


Source: J.P. Morgan Asset Management; (Left) Markit Economics; (Right) National Bureau of Statistics.  
Chinese domestic car sales are all passenger vehicles, including cars, vans, crossovers and SUVs.  
Guide to the Markets – U.S. Data are as of January 31, 2016.



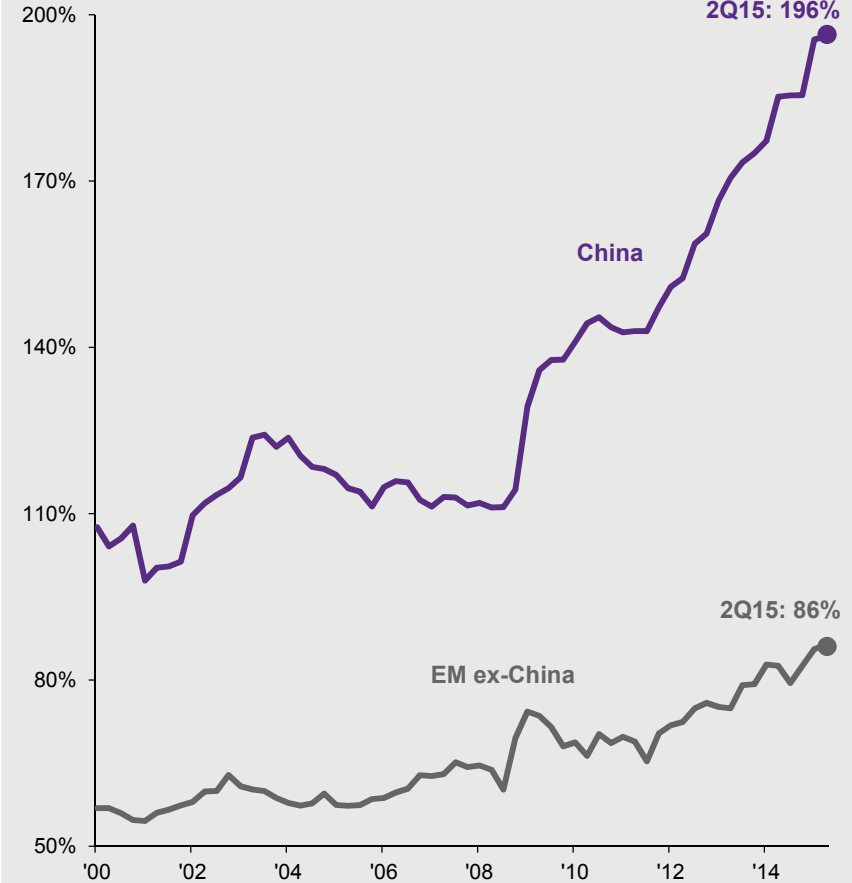
## China's consumption of commodities

% of world total, 2014 average



## Private credit\*

% of GDP



Source: J.P. Morgan Asset Management; (Left) Bloomberg, IEA; (Right) BIS, various National Statistics Offices.

\*Private credit includes non-financial corporates and households, and bank lending, corporate bonds, and shadow banking. Aggregated from BIS underlying data.

Guide to the Markets – U.S. Data are as of January 31, 2016.

## EM vs. DM growth and equity performance

Monthly, consensus expectations for GDP growth in 12 months



## EM earnings by region

EPS for next 12-month consensus, local currency, rebased to 100



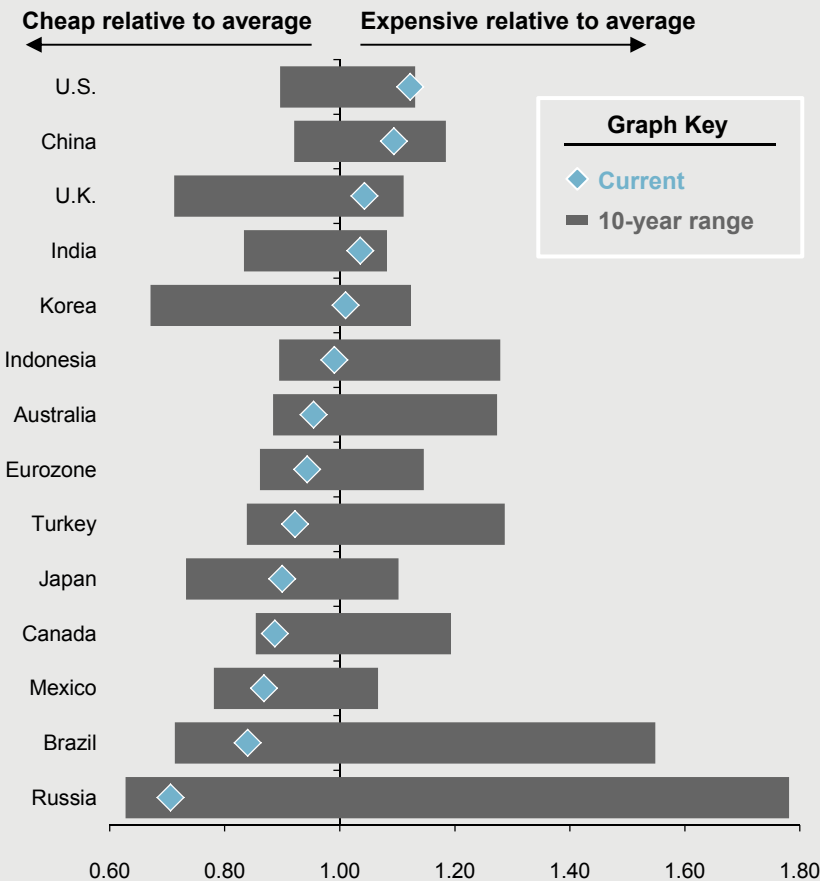
Source: FactSet, MSCI, J.P. Morgan Asset Management, (Left) Consensus Economics.

"EM - DM GDP Growth" 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. "MSCI EM / MSCI DM" is the USD MSCI Emerging Markets Index price level over the USD MSCI The World Index price level, rebased to 1996=100.

Guide to the Markets - U.S. Data are as of January 31, 2016.

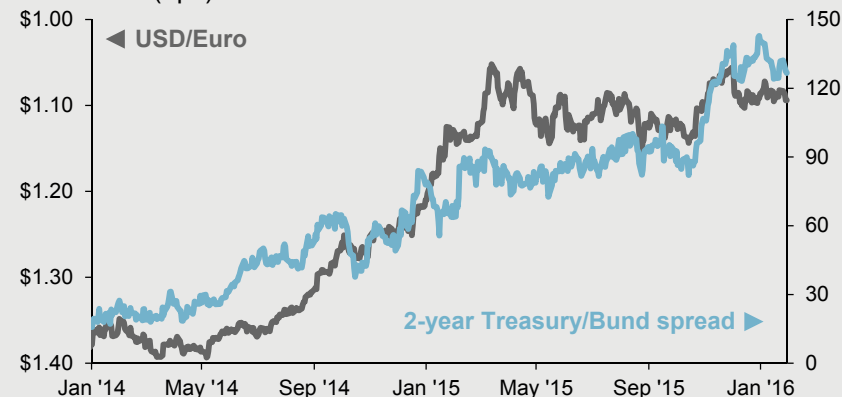
## Real effective exchange rates\*

FX adjusted for relative inflation changes vs. 10-year average



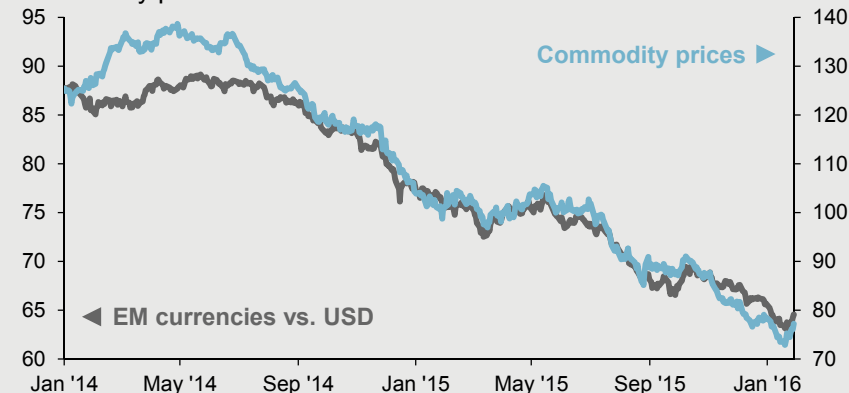
## Developed markets

Short rates (bps) and FX



## Emerging markets

Commodity prices and FX



Source: J.P. Morgan Asset Management; (Left) J.P. Morgan Global Economic Research; (Right) Bloomberg, FactSet, Tullett Prebon.

\*Real effective exchange rates (REERs) compare the value of a currency to a weighted basket of several foreign currencies. They are deflated using a producer price index, except for Indonesia, which uses a consumer price index. EM currencies is the J.P. Morgan Emerging Market Currencies Index. Commodity prices is the Bloomberg Commodity Price Index.

Guide to the Markets – U.S. Data are as of January 31, 2016.

	U.S. Large Cap	EAFE	EME	Bonds	Corp. HY	Munis	Currency.	EMD	Cmdty.	REITs	Hedge funds	Private equity	Ann. Volatility
U.S. Large Cap	1.00	0.89	0.80	-0.27	0.75	-0.09	-0.47	0.63	0.53	0.78	0.81	0.26	17%
EAFE		1.00	0.91	-0.14	0.80	-0.01	-0.66	0.72	0.63	0.69	0.87	0.23	20%
EME			1.00	-0.07	0.85	0.06	-0.65	0.81	0.68	0.58	0.89	0.10	25%
Bonds				1.00	-0.05	0.79	-0.06	0.25	-0.15	-0.02	-0.21	-0.04	3%
Corp. HY					1.00	0.14	-0.50	0.88	0.65	0.68	0.80	0.03	12%
Munis						1.00	-0.06	0.46	-0.13	0.05	-0.04	-0.21	4%
Currencies							1.00	-0.53	-0.70	-0.37	-0.52	-0.23	8%
EMD								1.00	0.55	0.60	0.69	-0.03	8%
Commodities									1.00	0.38	0.73	0.22	20%
REITs										1.00	0.56	0.40	26%
Hedge funds											1.00	0.24	7%
Private equity												1.00	9%

Other  
asset classes

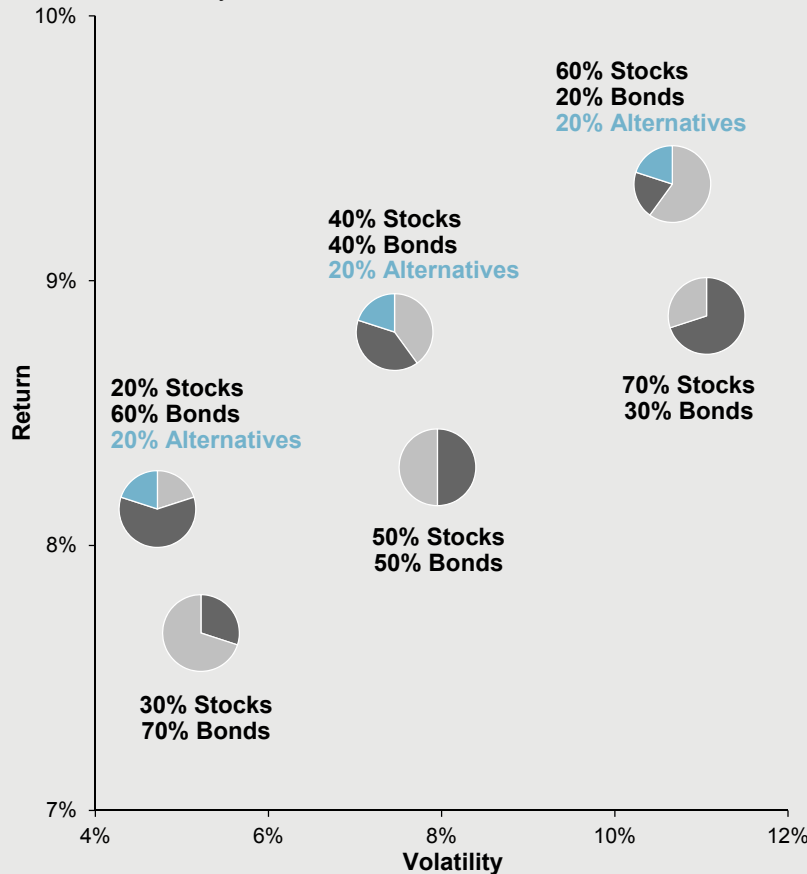
Source: Barclays Inc., Bloomberg, Cambridge Associates, Credit Suisse/Tremont, FactSet, Federal Reserve, MSCI, NCREIF, Standard & Poor's, J.P. Morgan Asset Management.

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 Equity REIT Index; Hedge Funds: CS/Tremont Hedge Fund Index; Private equity: Cambridge Associates Buyout & Growth Index. All correlation coefficients and annualized volatility calculated based on quarterly total return data for period 12/31/05 to 12/31/15. This chart is for illustrative purposes only.

Guide to the Markets – U.S. Data are as of January 31, 2016.

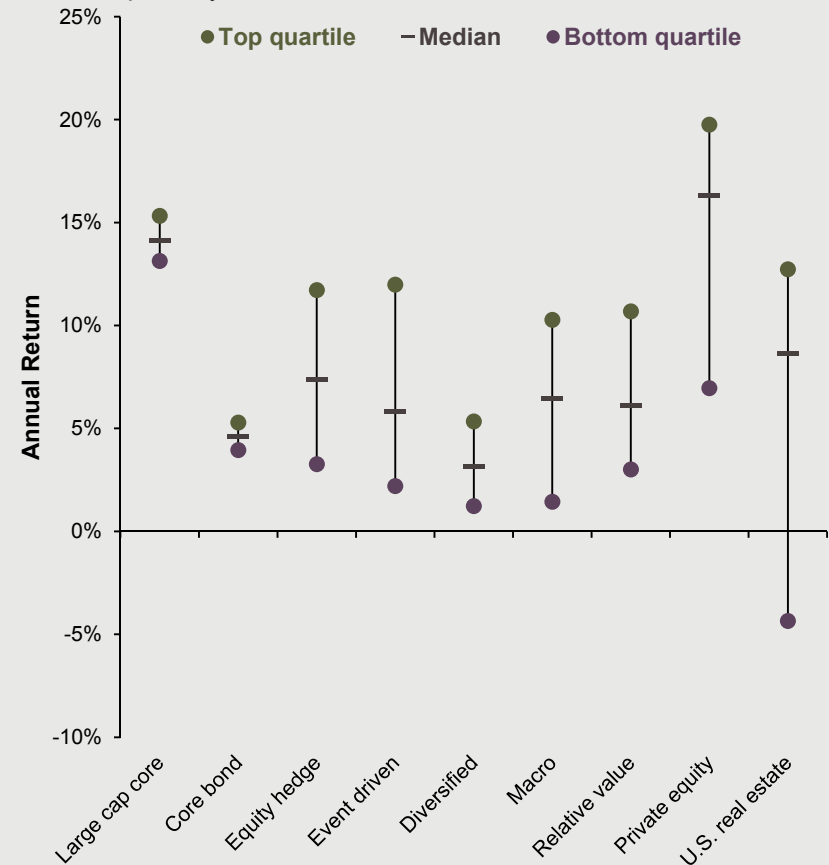
## Alternatives and portfolio risk/return

Annualized volatility and returns, 4Q 1990 – 3Q 2015



## Manager alpha and dispersion

Based on quarterly returns from 2009 – 2014\*

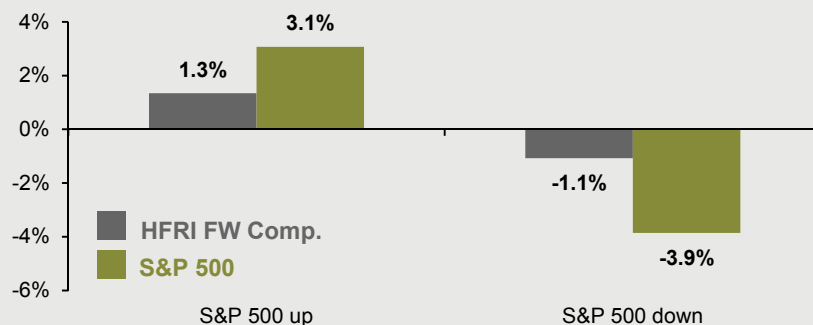


Source: Cambridge Associates, HFRI, J.P. Morgan Asset Management; (Left) Barclays, FactSet, NCREIF, Standard & Poor's; (Right) Lipper. The portfolios that do not contain alternatives are a mix of the S&P 500 and the Barclays U.S. Aggregate. The 20% allocation to alternatives shown on the left reflects the following: 10% in hedge funds (HFR FW Comp.), 5% in private equity, and 5% in private real estate. The volatility and returns are based on data from 4Q90 to 3Q15, encompassing 25 years of data. \*Manager dispersion is based on quarterly returns from 2009-2014, except for hedge funds which are as of September 2014, and private equity which is as of March 2014. Guide to the Markets – U.S. Data are as of January 31, 2016.

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	15-yrs. '01-'15	
															Ann.	Vol.
Event Driven 13.2%	Macro 5.5%	Large Cap 28.7%	Event Driven 14.2%	Equity L/S 10.0%	Large Cap 15.8%	Macro 11.4%	Macro 4.7%	Large Cap 26.5%	Large Cap 15.1%	Large Cap 2.1%	Large Cap 16.0%	Large Cap 32.4%	Large Cap 13.7%	Market Neutral 4.4%	Event Driven 6.8%	Large Cap 17.0%
Macro 10.1%	Relative Value 5.3%	Event Driven 23.0%	Large Cap 10.9%	Event Driven 8.6%	Event Driven 15.2%	Equity L/S 11.4%	Market Neutral -3.0%	Relative Value 23.0%	Relative Value 12.5%	Relative Value 0.8%	Relative Value 9.7%	Equity L/S 14.5%	Macro 5.8%	Large Cap 1.4%	Relative Value 6.2%	Equity L/S 9.9%
Relative Value 9.0%	Market Neutral 0.9%	Macro 21.5%	Equity L/S 7.9%	Market Neutral 6.1%	Equity L/S 12.8%	Relative Value 10.0%	Relative Value -17.3%	Equity L/S 22.3%	Event Driven 11.5%	Event Driven -0.5%	Event Driven 6.5%	Event Driven 13.4%	Relative Value 5.3%	Macro 0.3%	Macro 5.8%	Event Driven 8.5%
Market Neutral 9.0%	Equity L/S -1.7%	Equity L/S 16.9%	Macro 7.5%	Macro 6.1%	Relative Value 12.2%	Event Driven 8.7%	Event Driven -20.8%	Event Driven 20.3%	Equity L/S 8.9%	Macro -0.7%	Equity L/S 4.7%	Relative Value 7.5%	Equity L/S 3.6%	Relative Value 0.2%	Large Cap 5.0%	Relative Value 6.0%
Equity L/S 1.6%	Event Driven -3.1%	Relative Value 9.1%	Relative Value 6.1%	Relative Value 5.3%	Macro 8.2%	Market Neutral 5.7%	Equity L/S -26.4%	Macro 6.9%	Macro 3.2%	Market Neutral -1.5%	Market Neutral 3.1%	Market Neutral 6.4%	Market Neutral 3.2%	Equity L/S -0.2%	Equity L/S 4.8%	Macro 5.2%
Large Cap -11.9%	Large Cap -22.1%	Market Neutral 3.3%	Market Neutral 3.4%	Large Cap 4.9%	Market Neutral 7.0%	Large Cap 5.5%	Large Cap -37.0%	Market Neutral -1.7%	Market Neutral 2.5%	Equity L/S -4.3%	Macro -1.3%	Macro 0.1%	Event Driven 2.6%	Event Driven -2.8%	Market Neutral 3.2%	Market Neutral 2.8%

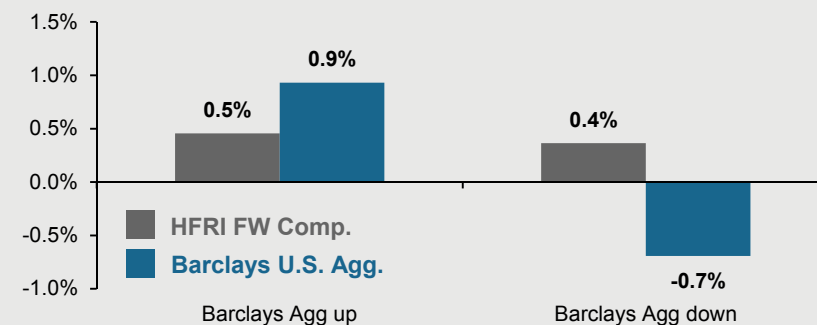
## Hedge fund returns in different market environments

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



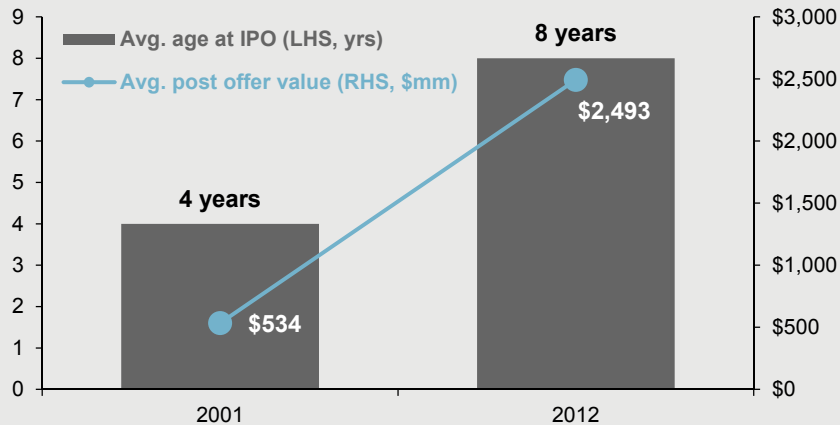
## Hedge fund returns in different market environments

Average return in up and down months for Barclays Agg.

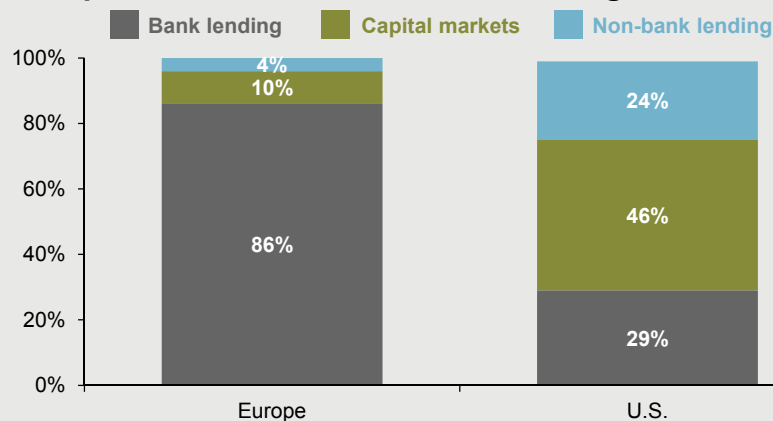


Source: Barclays, FactSet, HFRI, Standard & Poor's, J.P. Morgan Asset Management.  
Hedge fund returns in different market environments are based on monthly returns over the past 15 years.  
Guide to the Markets – U.S. Data are as of January 31, 2016.

## Private company age and market value

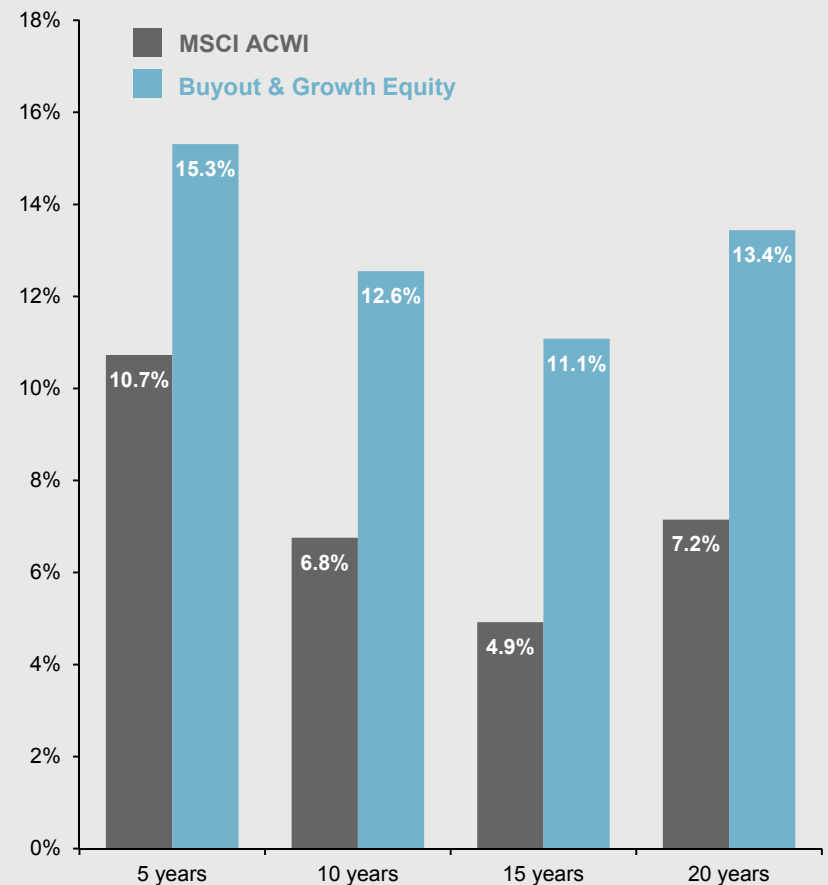


## Composition of firms' external financing sources



## Public vs. private equity returns

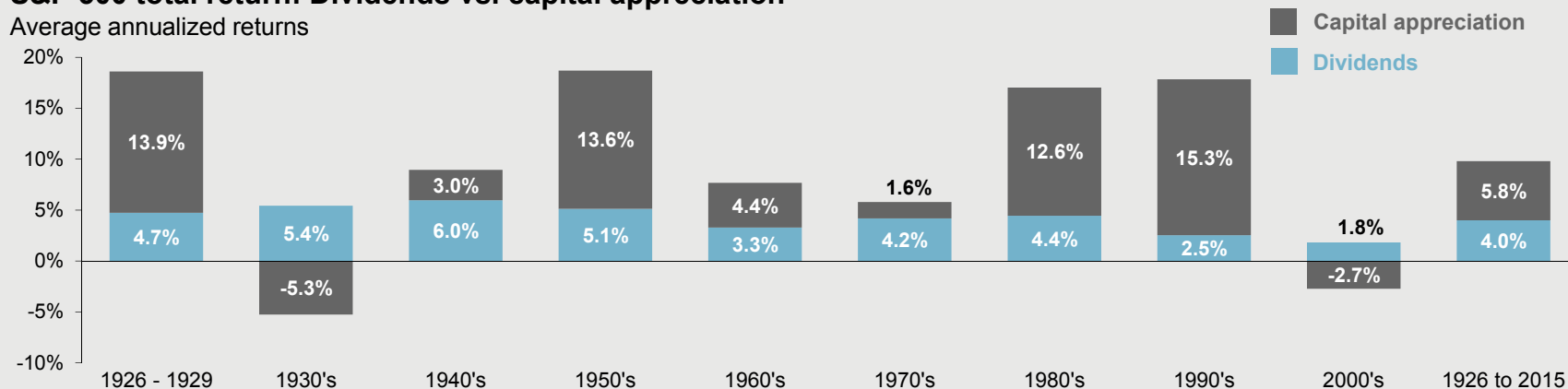
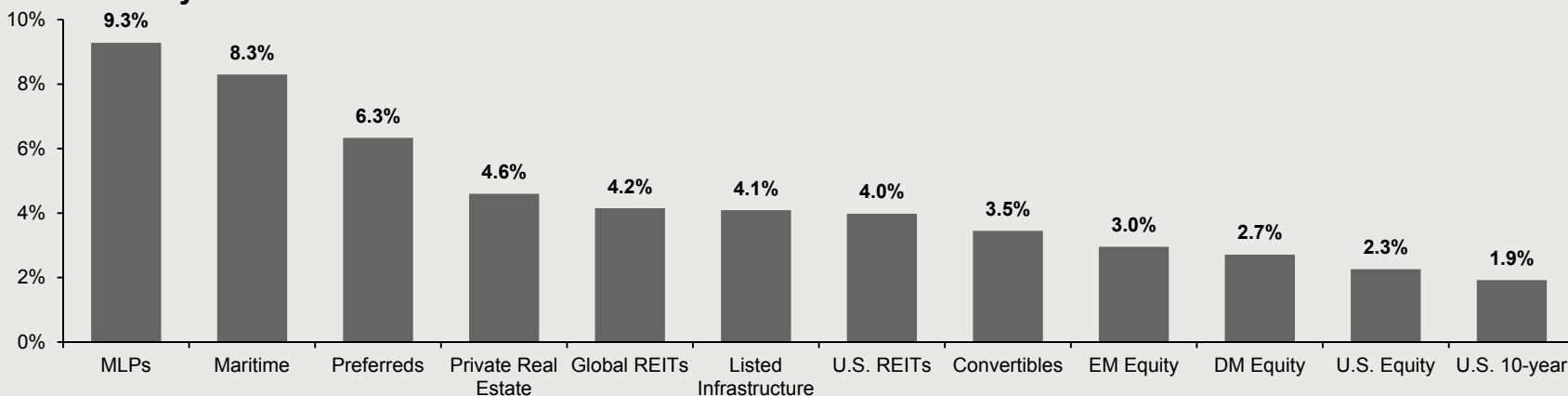
MSCI AC World total return vs. Global Buyout & Growth Equity Index\*



Source: Cambridge Associates, Deutsche Bank, FactSet, MSCI, National Venture Capital Association, J.P. Morgan Asset Management. Age at IPO is defined as time elapsed from first funding round until IPO date. \*Data as of 3Q15. Guide to the Markets – U.S. Data are as of January 31, 2016.

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

Average annualized returns

**Asset class yields**

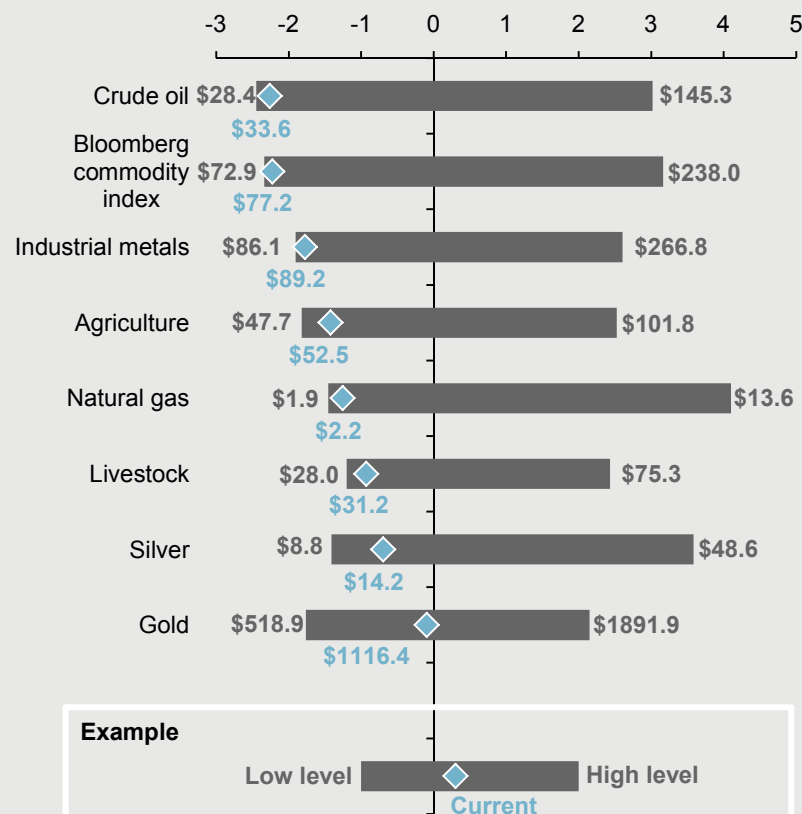
Source: FactSet, J.P. Morgan Asset Management; (Top) Ibbotson, Standard & Poor's; (Bottom) Alerian, Bank of America, Barclays, Clarkson, Drewry Maritime Consultants, Federal Reserve, FTSE, MSCI, NCREIF, Standard & Poor's. Dividend vs. capital appreciation returns are through 12/31/15. Bottom: Maritime = 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 arrive at the current sub-sector specific yields, which are then weighted to arrive at the current indicative yield for the World Maritime Fleet, MLPs = Alerian MLP, Preferreds = BAML Hybrid Preferred Securities, Private Real Estate = NCREIF ODCE, Global/U.S. REITs = FTSE NAREIT Global/USA REITs, Listed Infrastructure = S&P Global Infrastructure Index, Convertibles = Barclays U.S. Convertibles Composite, EM Equity = MSCI Emerging Markets, DM Equity = MSCI The World Index, U.S. Equity = MSCI USA.

Guide to the Markets – U.S. Data are as of January 31, 2016.



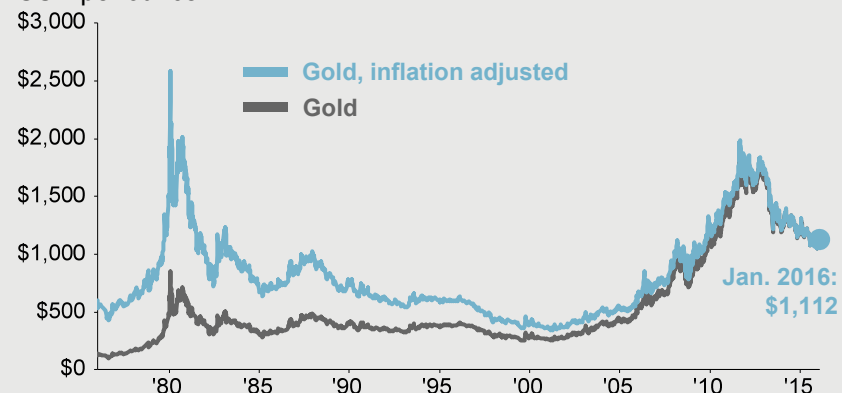
## Commodity prices

Commodity price z-scores



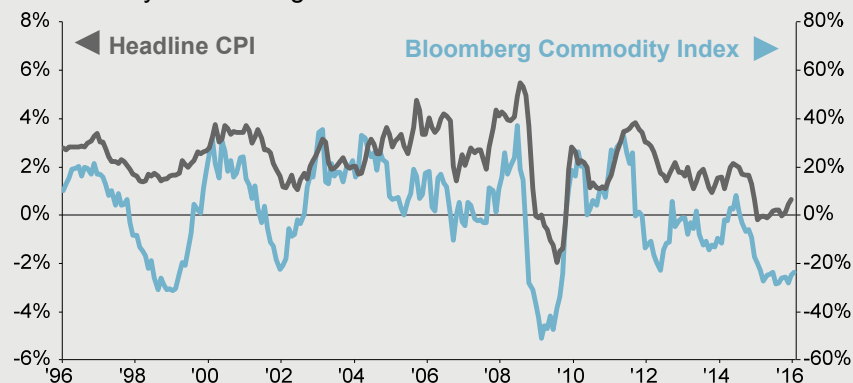
## Gold prices

USD per ounce



## Commodity prices and inflation

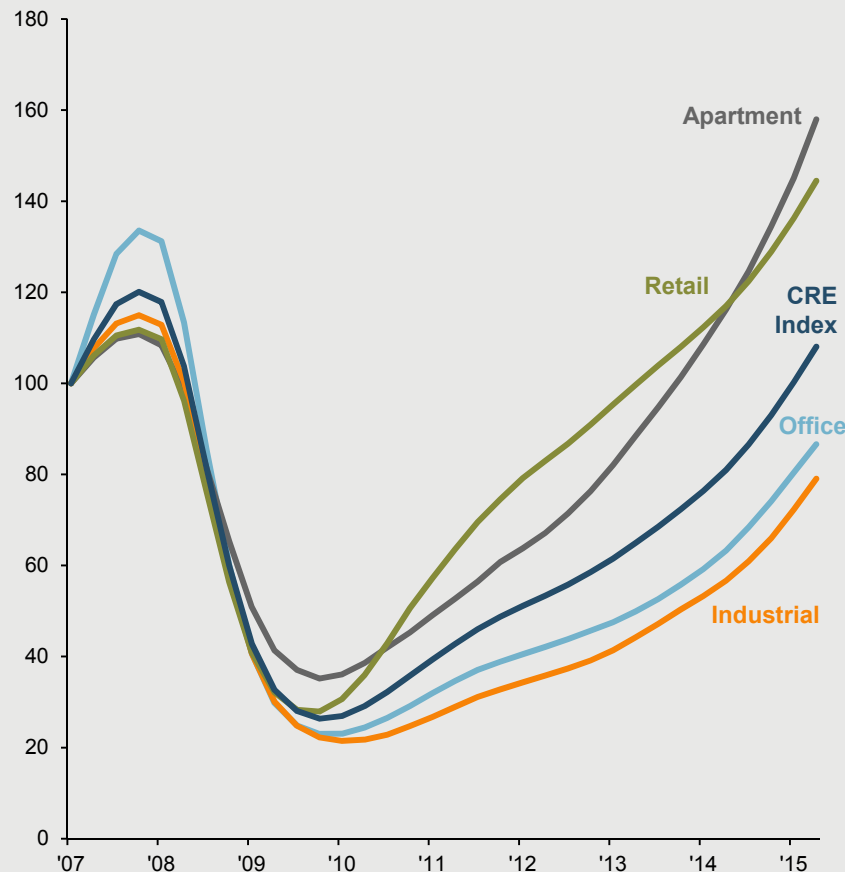
Year-over-year % change



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 January 31, 2016.

## Commercial real estate appreciation by sector

Year-over-year unlevered property appreciation, indexed 3Q2007



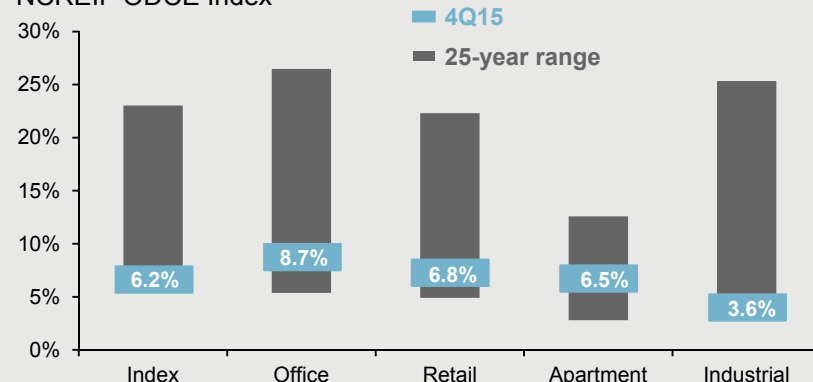
## Operating income growth

Year-over-year NCREIF ODCE Index NOI growth



## Commercial real estate vacancy rates by sector

NCREIF ODCE Index



Source: NCREIF, J.P. Morgan Asset Management.  
Guide to the Markets – U.S. Data are as of January 31, 2016.

# Asset class returns

GTM - U.S. | 59

																15-yrs. '01 - '15	
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	YTD	Ann.	Vol.
REITs 13.9%	Comdty. 25.9%	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%	Fixed Income 1.4%	REITs 11.1%	REITs 22.4%
Fixed Income 8.4%	Fixed Income 10.3%	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%	Cash 0.0%	EM Equity 8.9%	Small Cap 21.6%
Cash 4.1%	High Yield 4.1%	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%	High Yield -1.5%	High Yield 8.4%	EM Equity 20.6%
Small Cap 2.5%	REITs 3.8%	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. -1.7%	Small Cap 7.3%	Comdty. 19.0%
High Yield 2.3%	Cash 1.7%	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%	Asset Alloc. -3.5%	Asset Alloc. 5.3%	DM Equity 17.3%
EM Equity -2.4%	Asset Alloc. -5.9%	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 -3.5%	Large Cap 5.0%	Large Cap 17.0%
Asset Alloc. -3.9%	EM Equity -6.0%	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%	Large Cap -5.0%	Fixed Income 5.0%	Asset Alloc. 13.6%
Large Cap -11.9%	DM Equity -15.7%	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%	EM Equity -6.5%	DM Equity 4.0%	High Yield 11.8%
Comdty. -19.5%	Small Cap -20.5%	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 -7.2%	Cash 1.5%	Fixed Income 3.5%
DM Equity -21.2%	Large Cap -22.1%	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%	Small Cap -8.8%	Comdty. -1.0%	Cash 0.9%

Source: Barclays, Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor's, J.P. Morgan Asset Management.

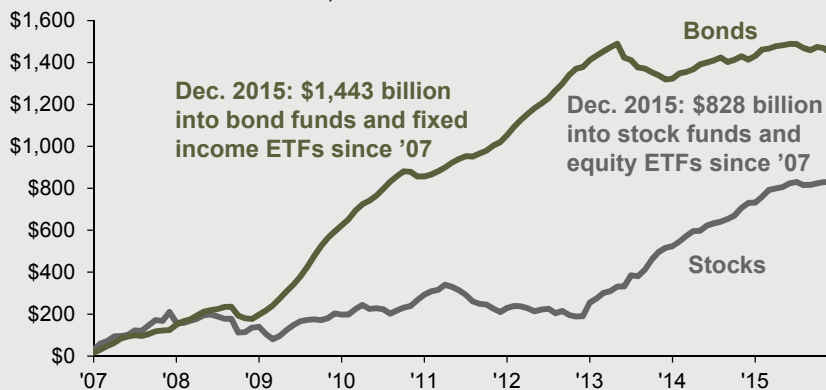
Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, Comdty: Bloomberg Commodity Index, High Yield: Barclays Global HY Index, Fixed Income: Barclays Aggregate, REITs: NAREIT Equity REIT Index. The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Barclays 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 12/31/00 – 12/31/15. 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 January 31, 2016.

USD billions	AUM	Mutual fund flows																
		2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
<b>Domestic equity</b>	6,045	(171)	(60)	18	(159)	(133)	(81)	(28)	(149)	(68)	(3)	17	100	120	(25)	57	258	176
<b>World equity</b>	2,103	94	85	141	6	4	57	26	(80)	142	151	107	72	24	(4)	(23)	58	11
<b>Taxable bond</b>	2,819	(41)	15	(13)	256	129	221	301	22	100	44	21	0	40	125	76	(36)	7
<b>Tax-exempt bond</b>	593	15	28	(58)	50	(12)	12	70	8	11	15	5	(15)	(7)	17	12	(14)	(12)
<b>Hybrid</b>	1,337	(21)	29	74	46	40	36	20	(26)	40	20	43	53	39	8	7	(37)	(13)
<b>Money market</b>	2,755	21	6	15	(0)	(124)	(525)	(539)	637	654	245	62	(157)	(263)	(46)	375	159	194

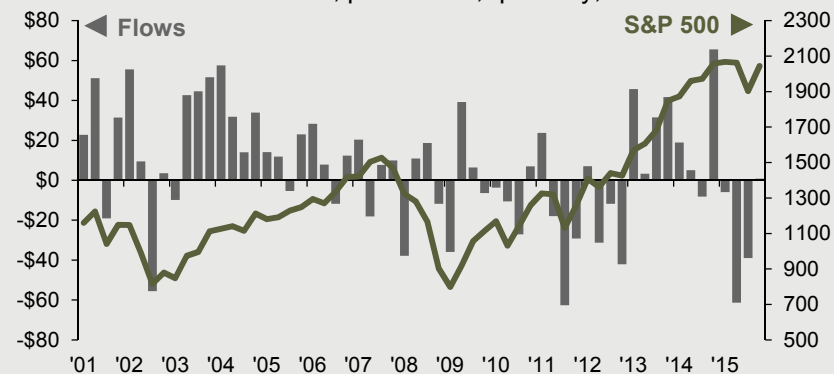
### Cumulative flows into global stock & bond funds

Mutual fund and ETF flows, USD billions



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

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



Source: Investment Company Institute, J.P. Morgan Asset Management.

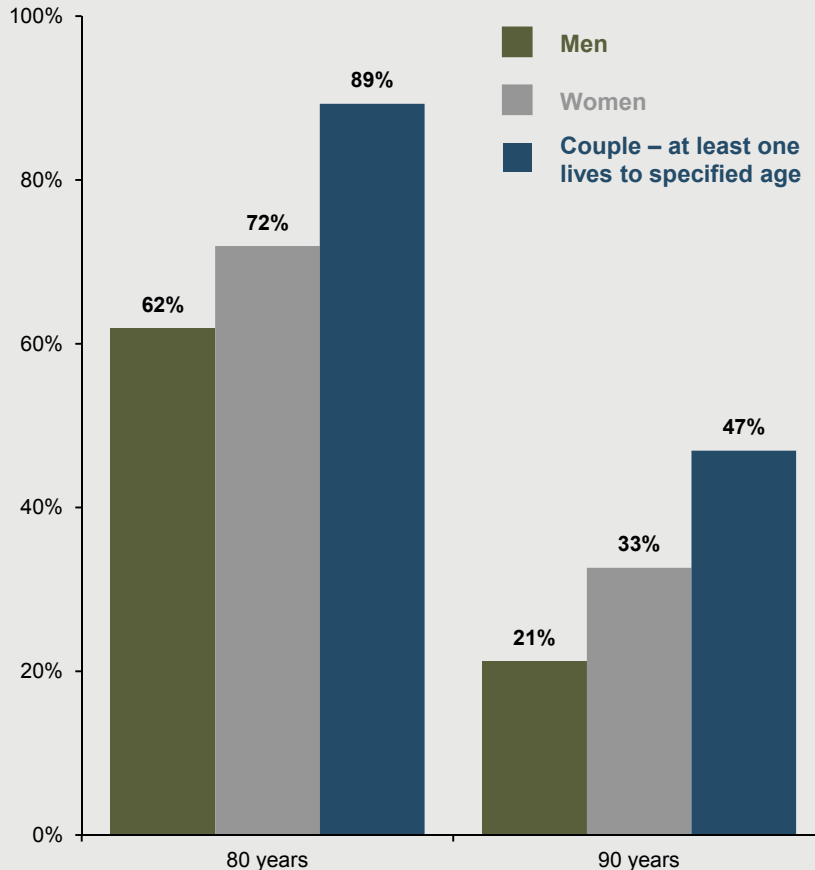
Top: Data includes flows through December 2015 and excludes ETFs. Bottom left and right: Data includes flows through December 2015 and includes ETFs. ICI data are subject to periodic revisions. World equity flows are inclusive of emerging market, global equity and regional equity flows.

Hybrid flows include asset allocation, balanced fund, flexible portfolio and mixed income flows.

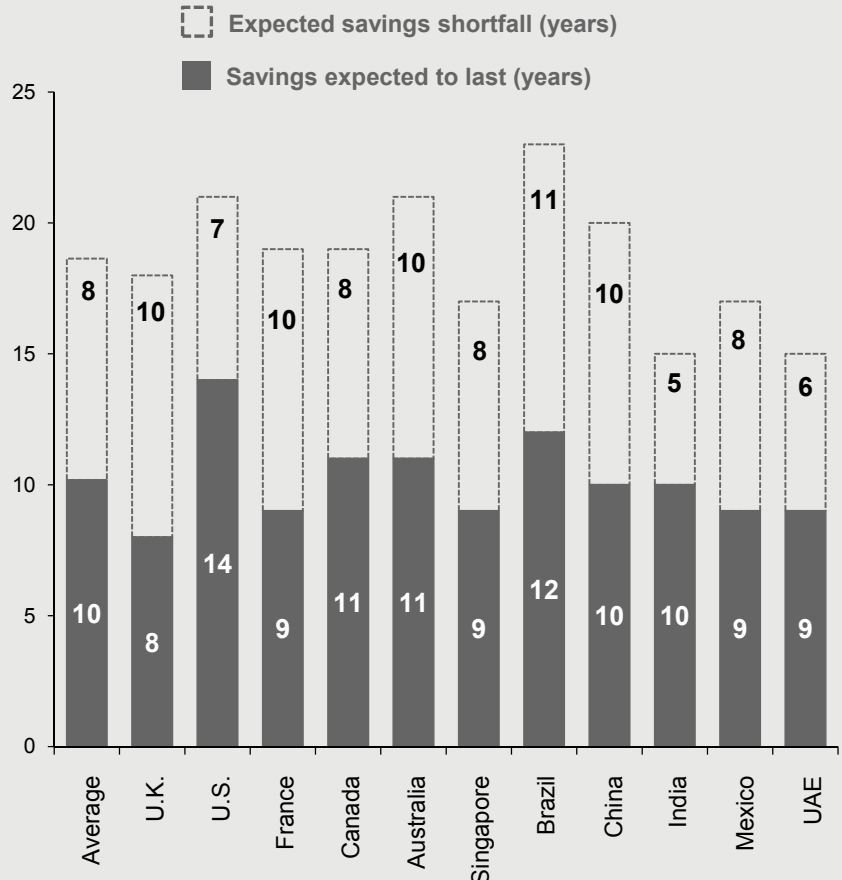
Guide to the Markets – U.S. Data are as of January 31, 2016.

## Probability of reaching ages 80 and 90

Persons aged 65, by gender, and combined couple



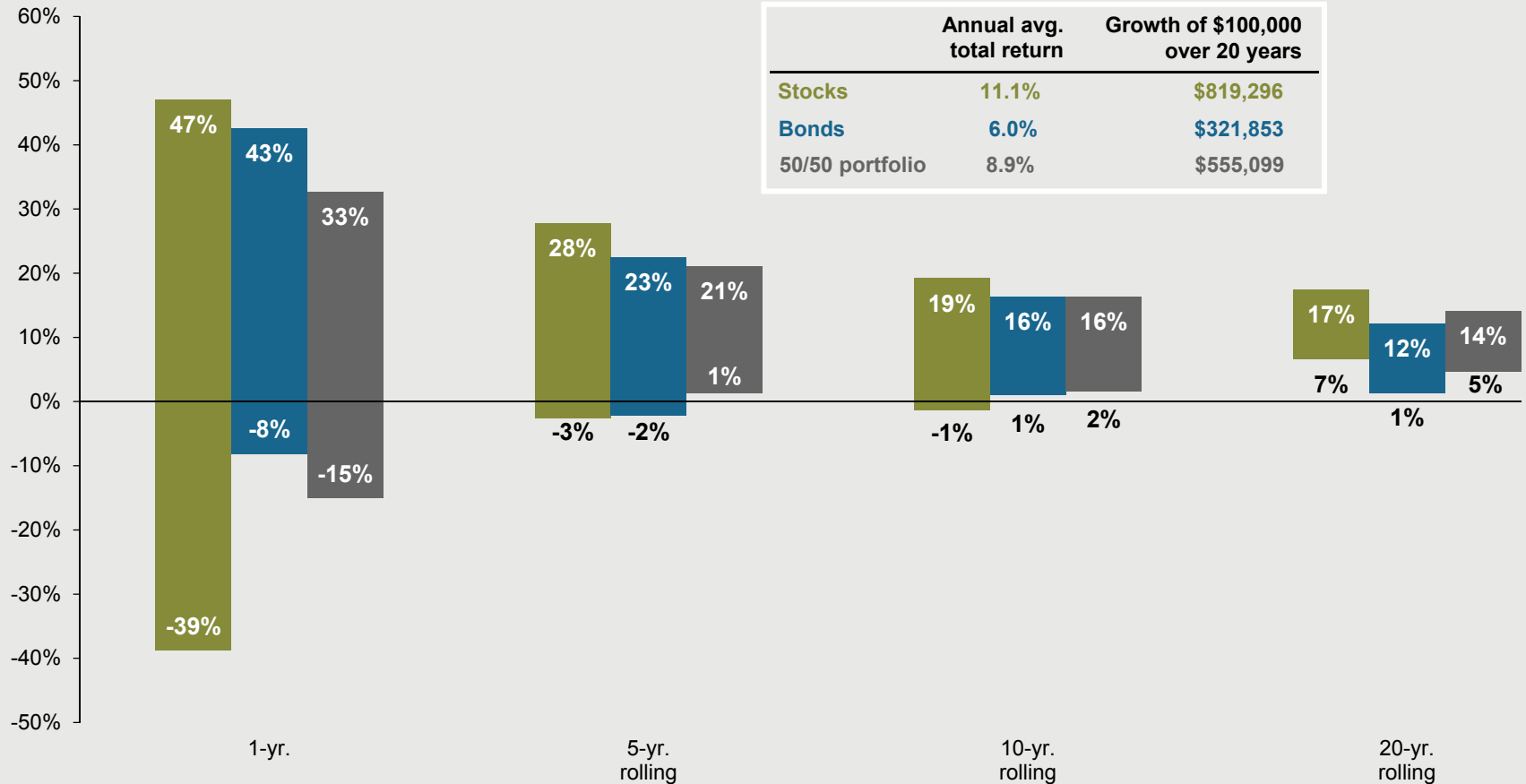
## Perceived retirement shortfall by country



Source: J.P. Morgan Asset Management; (Left) SSA 2010 Life Tables; (Right) "The Future of Retirement: A new reality" study by HSBC. Figures represent the expected portion of retirement that will not be covered by retirement savings based on survey data. Guide to the Markets – U.S. Data are as of January 31, 2016.

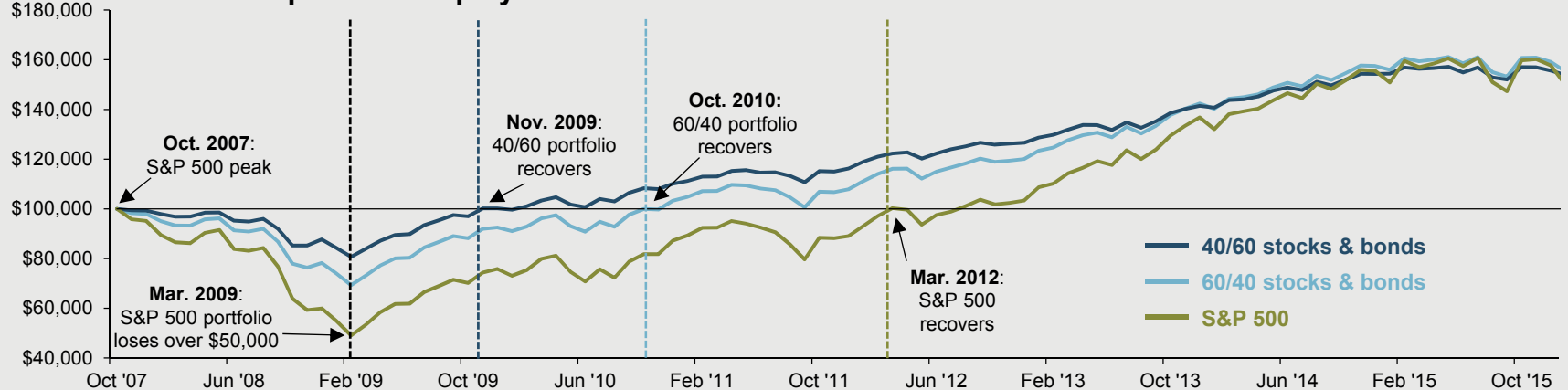
## Range of stock, bond and blended total returns

Annual total returns, 1950-2015

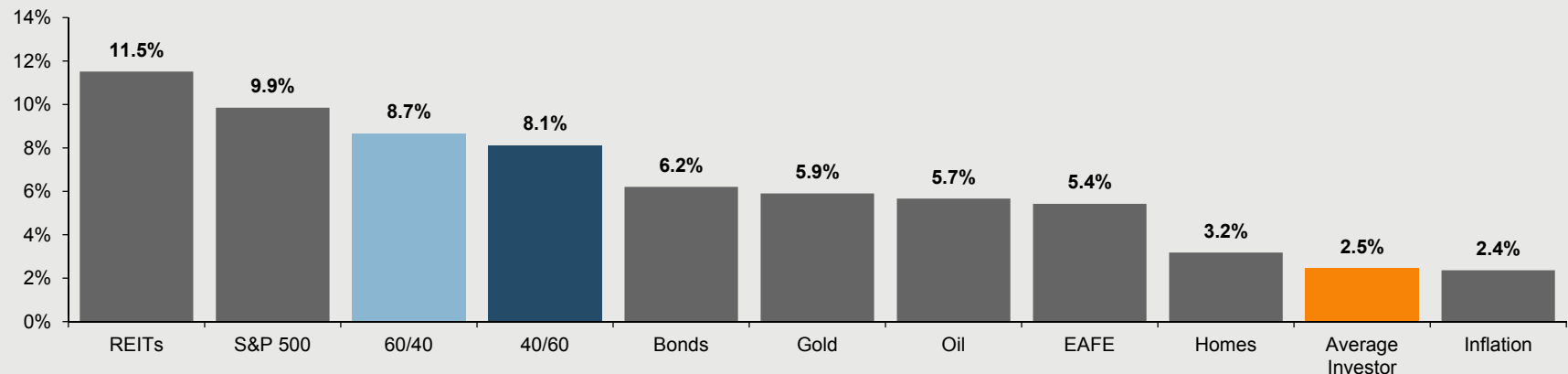


Source: Barclays, FactSet, Federal Reserve, Robert Shiller, Strategas/Ibbotson, J.P. Morgan Asset Management. Returns shown are based on calendar year returns from 1950 to 2015. Stocks represent the S&P 500 Shiller Composite and Bonds represent Strategas/Ibbotson for periods from 1950 to 1980 and Barclays Aggregate after index inception in 1980. Growth of \$100,000 is based on annual average total returns from 1950 to 2015.  
*Guide to the Markets – U.S.* Data are as of January 31, 2016.

## Portfolio returns: Equities vs. equity and fixed income blend

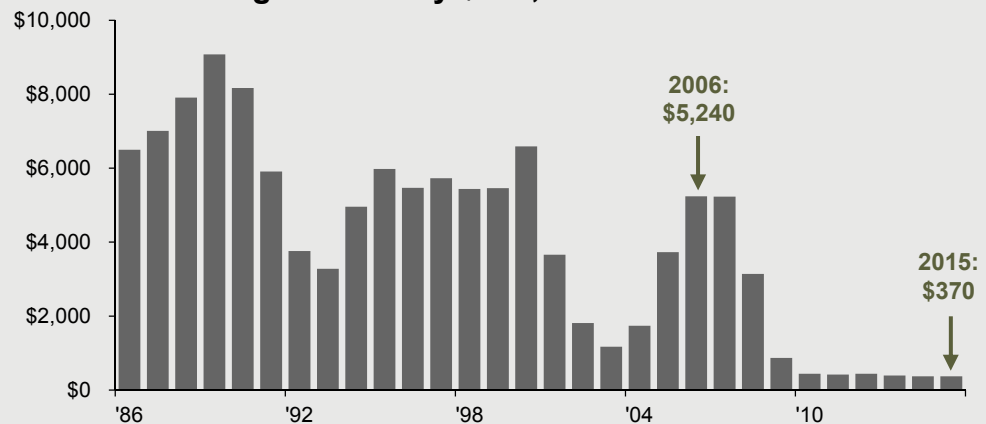


## 20-year annualized returns by asset class (1995 – 2014)

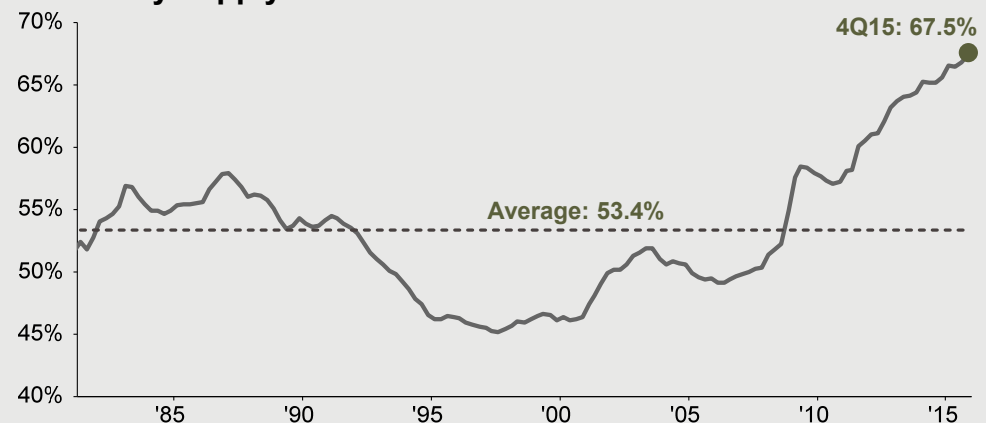


Source: J.P. Morgan Asset Management; (Top) Barclays, FactSet, Standard & Poor's; (Bottom) Dalbar Inc.  
 Indexes used are as follows: REITs: NAREIT Equity REIT Index, EAFE: MSCI EAFE, Oil: WTI Index, Bonds: Barclays U.S. Aggregate Index, Homes: median sale price of existing single-family homes, Gold: 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 12/31/14 to match Dalbar's most recent analysis.  
 Guide to the Markets – U.S. Data are as of January 31, 2016.

**Annual income generated by \$100,000 investment in a 6-mo. CD**



**M2 money supply as a % of nominal GDP**

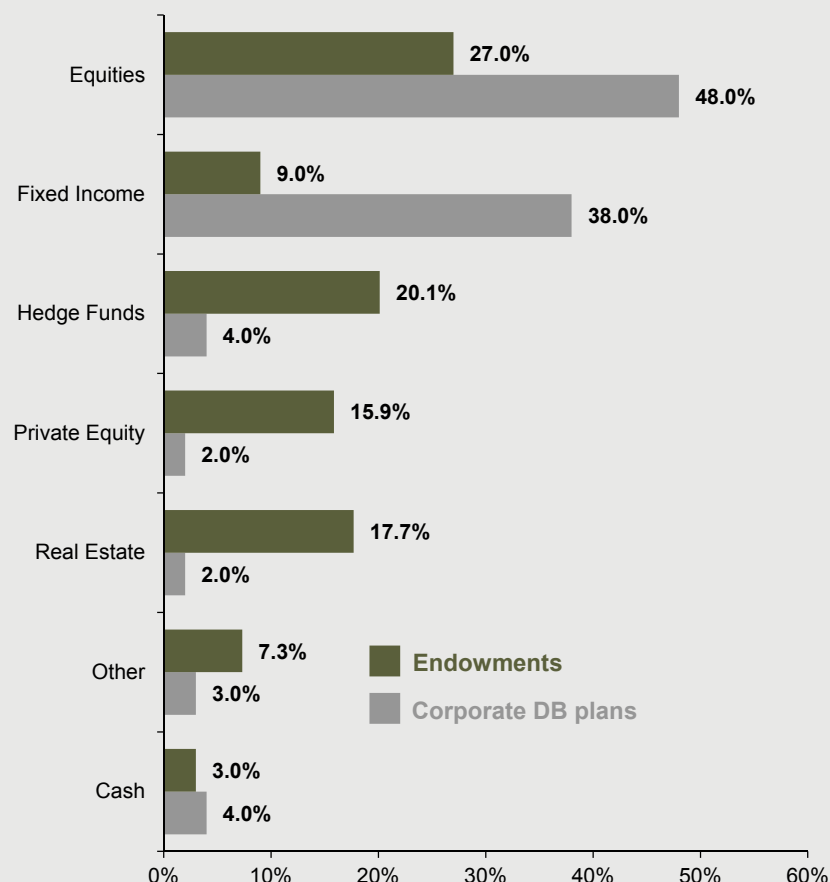


Money supply component	USD billions	Weight in money supply
<b>M2-M1</b>	<b>\$9,217</b>	<b>78.5%</b>
Retail MMMFs	\$622	5.3%
Savings deposits	\$8,188	69.7%
Small time deposits	\$408	3.5%
<b>Institutional MMMFs</b>	<b>\$1,837</b>	<b>15.6%</b>
Cash in IRA & Keogh accounts	\$688	5.9%
<b>Total</b>	<b>\$11,742</b>	<b>100.0%</b>

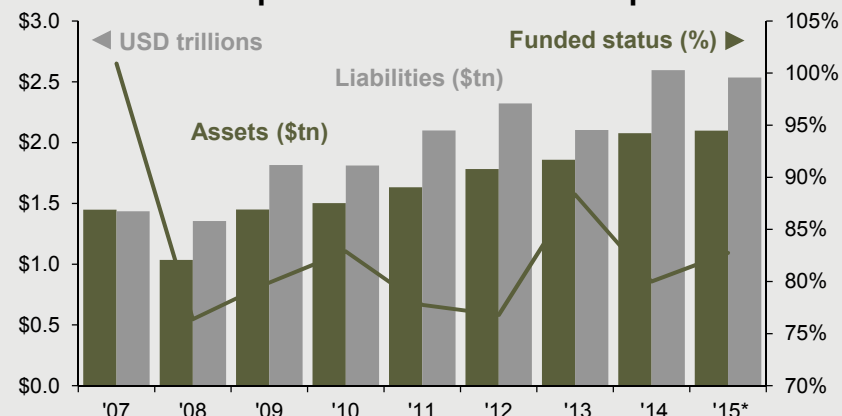
Source: FactSet, J.P. Morgan Asset Management; (Top left) Bankrate.com; (Bottom left and right) BEA, Federal Reserve, St. Louis Fed. All cash measures obtained from the Federal Reserve are seasonally adjusted monthly numbers. All numbers are in billions of U.S. dollars. Small-denomination time deposits are those issued in amounts of less than \$100,000. All IRA and Keogh account balances at commercial banks and thrift institutions are subtracted from small time deposits. 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. IRA and Keogh account balances at money market mutual funds are subtracted from retail money funds. Past performance is not indicative of comparable future results.  
*Guide to the Markets – U.S.* Data are as of January 31, 2016.



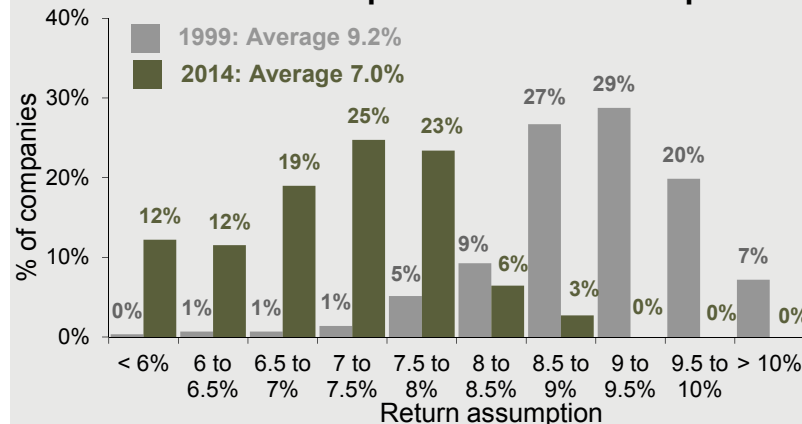
## Asset allocation: Corporate DB plans vs. endowments



## Defined benefit plans: Russell 3000 companies



## Pension return assumptions: S&P 500 companies



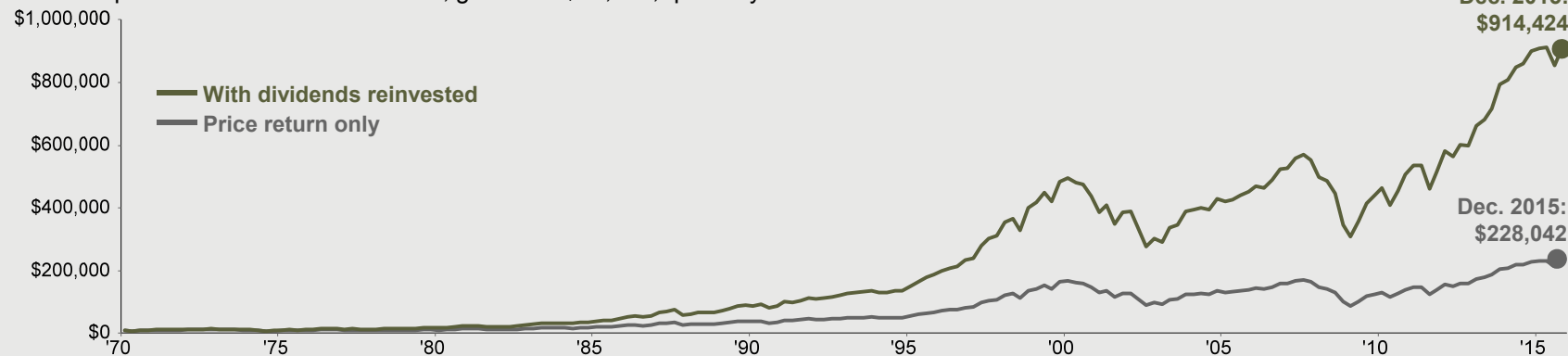
Source: J.P. Morgan Asset Management; (Left) NACUBO (National Association of College and University Business Officers), Towers Watson; (Top right) Bloomberg, Russell 3000 corporate 10-Ks; (Bottom right) Compustat/FactSet, Russell 3000 corporate 10-Ks.

Asset allocation as of 2012. \*Funded status for 2015 is an estimate based on market moves only and does not include contributions, benefit payments and service costs. Endowments represents dollar-weighted average data of 842 colleges and universities. Pension Return Assumptions based on all available and reported data from S&P 500 Index companies. Pension Assets, Liabilities and Funded Status based on Russell 3000 companies reporting pension data. Return assumption bands are inclusive of upper range. All information is shown for illustrative purposes only.

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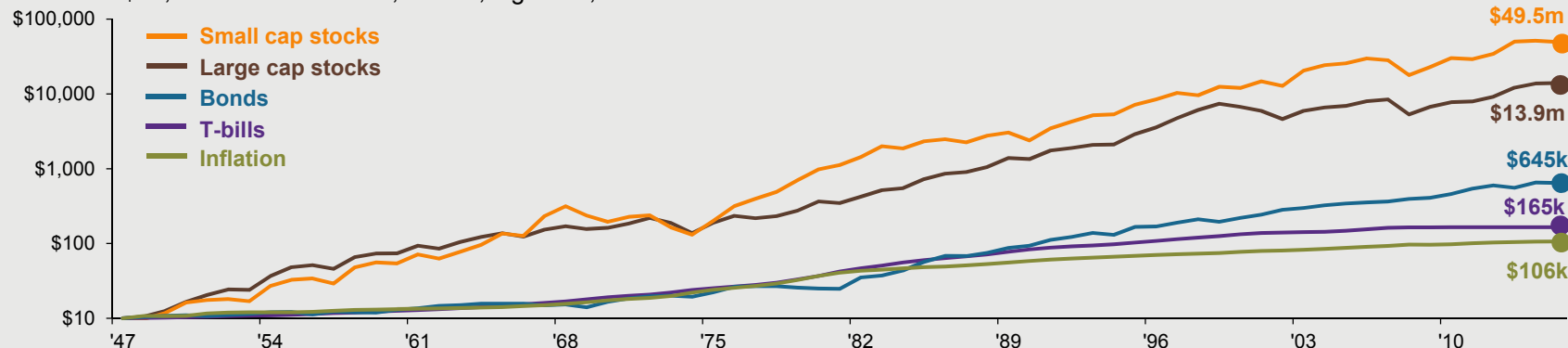
## The power of compounding

S&P 500 price return versus total return, growth of \$10,000, quarterly



## Major asset classes versus inflation

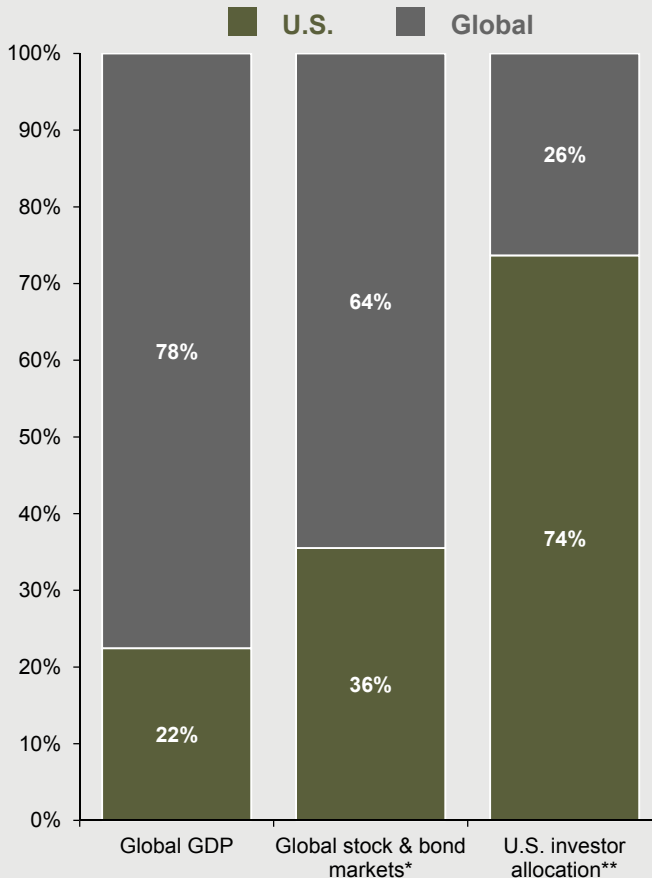
Growth of \$10,000 from 1947-2015, annual, log scale, USD thousands



Source: Ibbotson, Standard & Poor's, J.P. Morgan Asset Management.  
Guide to the Markets – U.S. Data are as of January 31, 2016.

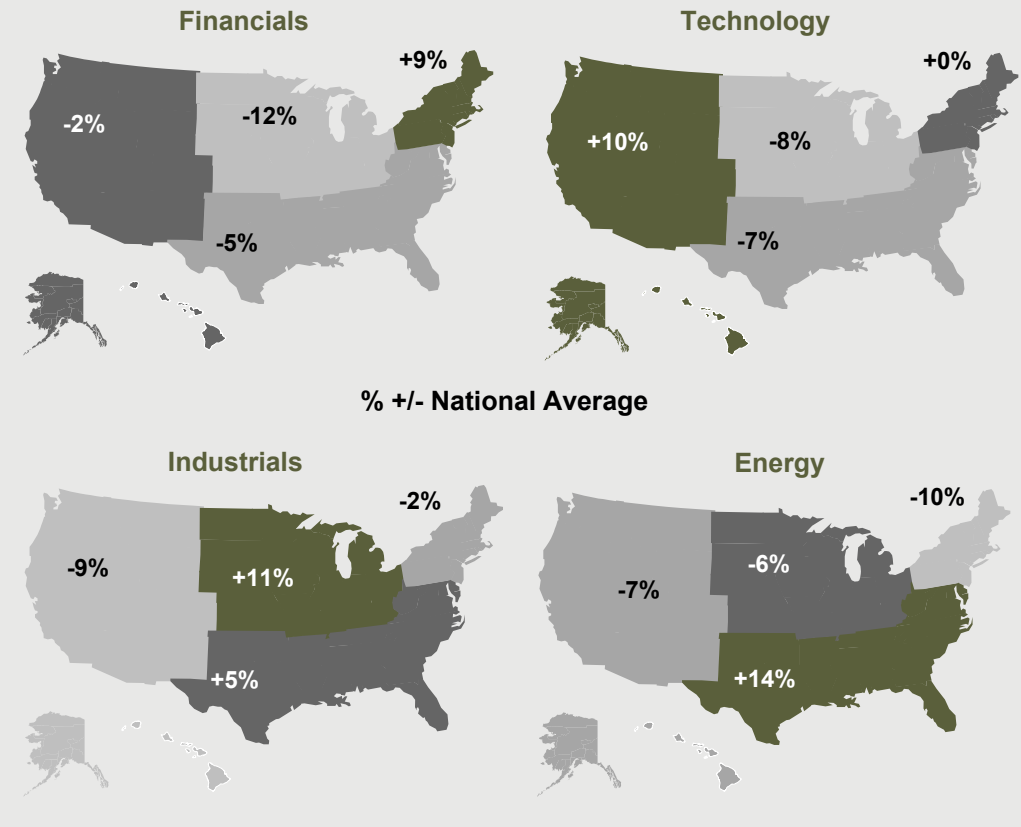
## Investment universe & U.S. investors

Percentage of total net assets, 2014



## 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. \*\*\*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 [www.openfolio.com](http://www.openfolio.com).

Guide to the Markets – U.S. Data are as of January 31, 2016.

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.

*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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**Past performance is no guarantee of comparable future results.**

**Diversification does not guarantee investment returns and does not eliminate the risk of loss.**

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Unless otherwise stated, all data are as of January 31, 2016 or most recently available.

**Guide to the Markets – U.S.**

**JP-LITTLEBOOK**

## Brazilian recipients:

