CAPITAL MARKETS REVIEW

1st Quarter 2019

Reviewing the quarter ended December 31, 2018

YANKE FINANCIAL

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Themes this Quarter

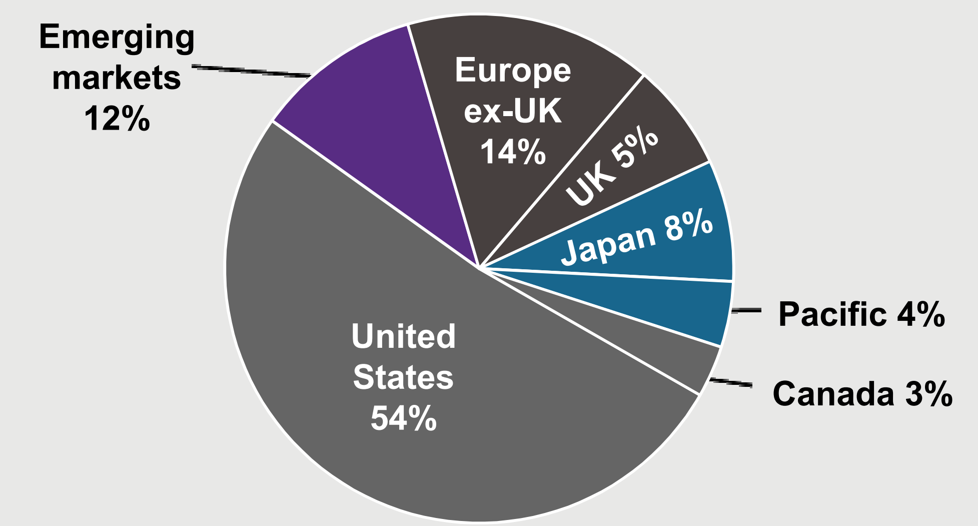
- **Economic update**
- Interest rate update/expectations
- Equity market assumptions
- What should investors do?

Global equity markets

Returns	2018		2017		15-years	
	Local	USD	Local	USD	Ann.	Beta
Regions						
U.S. (S&P 500)	-	-4.4	-	21.8	7.8	0.86
AC World ex-U.S.	-10.2	-13.8	18.8	27.8	5.7	1.11
EAFE	-10.5	-13.4	15.8	25.6	5.2	1.07
Europe ex-UK	-10.6	-14.4	14.5	27.8	5.7	1.22
Emerging markets	-9.7	-14.2	31.0	37.8	8.3	1.28
Selected Countries						
United Kingdom	-8.8	-14.1	11.8	22.4	4.1	1.01
France	-7.5	-11.9	14.1	29.9	5.4	1.23
Germany	-17.7	-21.6	12.9	28.5	6.1	1.34
Japan	-14.9	-12.6	20.1	24.4	4.0	0.76
China	-18.6	-18.7	55.3	54.3	9.9	1.25
India	1.4	-7.3	30.5	38.8	10.0	1.37
Brazil	16.7	-0.1	26.9	24.5	10.0	1.51
Russia	17.8	0.2	1.2	6.1	4.8	1.54

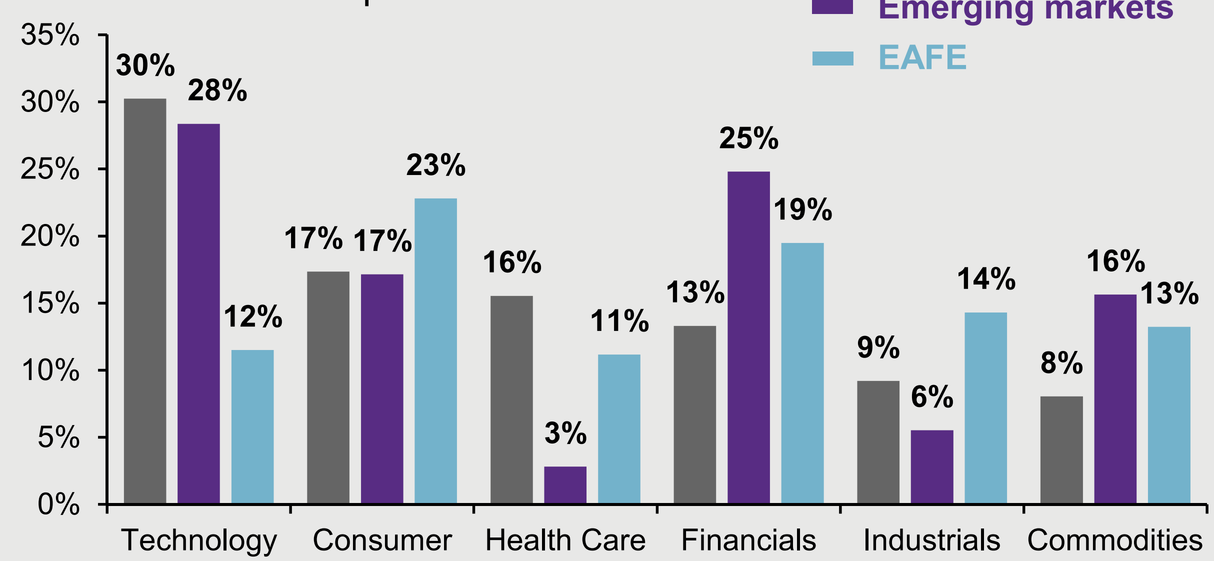
Weights in MSCI All Country World Index

% global market capitalization, float adjusted



Global equities by sector

% of index market capitalization

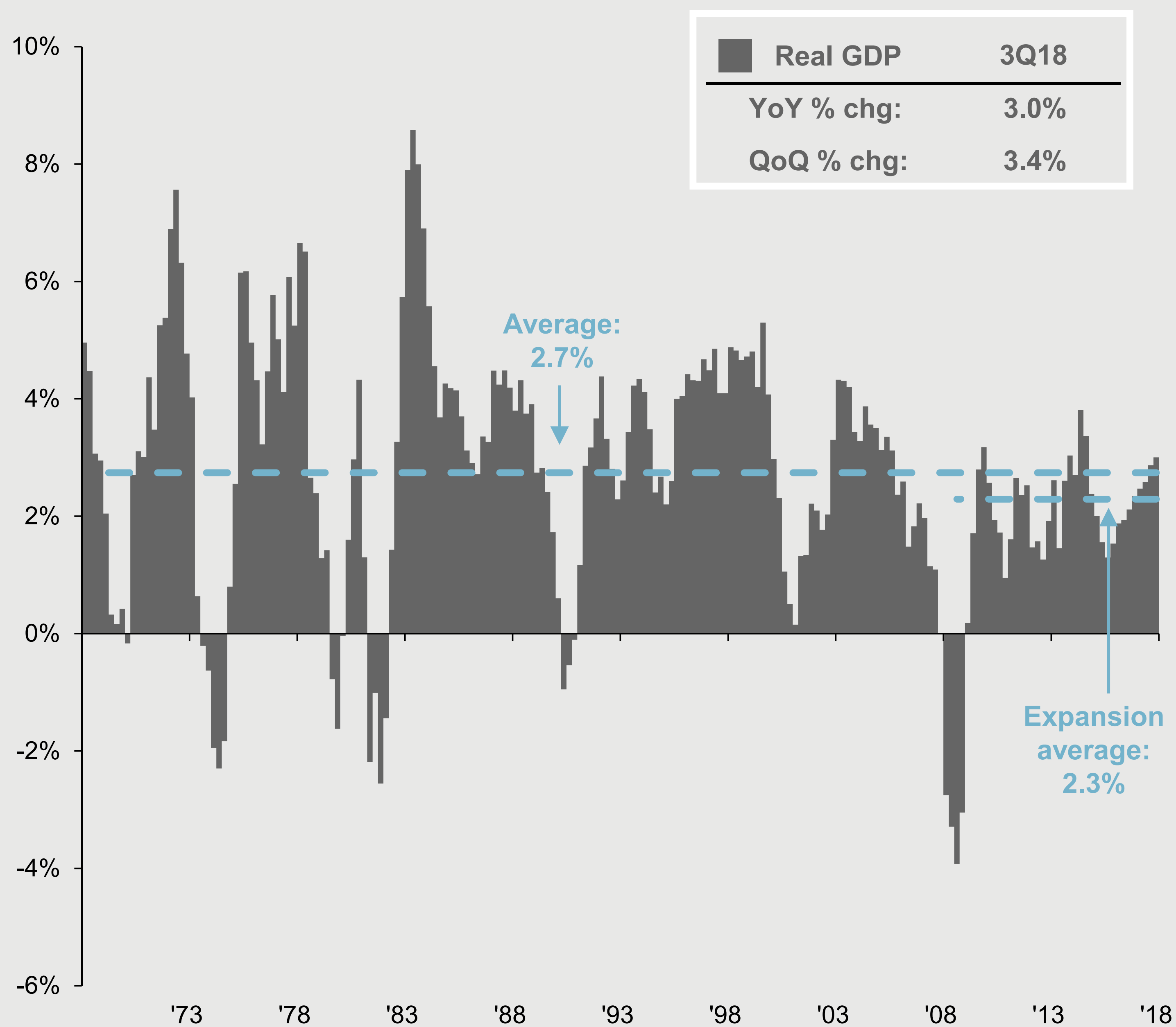


Source: FactSet, Federal Reserve, MSCI, Standard & Poor's, J.P. Morgan Asset Management.
All return values are MSCI Gross Index (official) data. 15-year history based on U.S. dollar returns. 15-year return and beta figures are calculated for the time period 12/31/03-12/31/18. Beta is for monthly returns relative to the MSCI AC World Index. Chart is for illustrative purposes only. Please see disclosure page for index definitions. Past performance is not a reliable indicator of current and future results.
Sector breakdown includes the following aggregates: Technology (communication services and technology), consumer (consumer discretionary and staples), and commodities (energy and materials). The graph excludes the utilities and real estate sectors for illustrative purposes.
Guide to the Markets – U.S. Data are as of December 31, 2018.

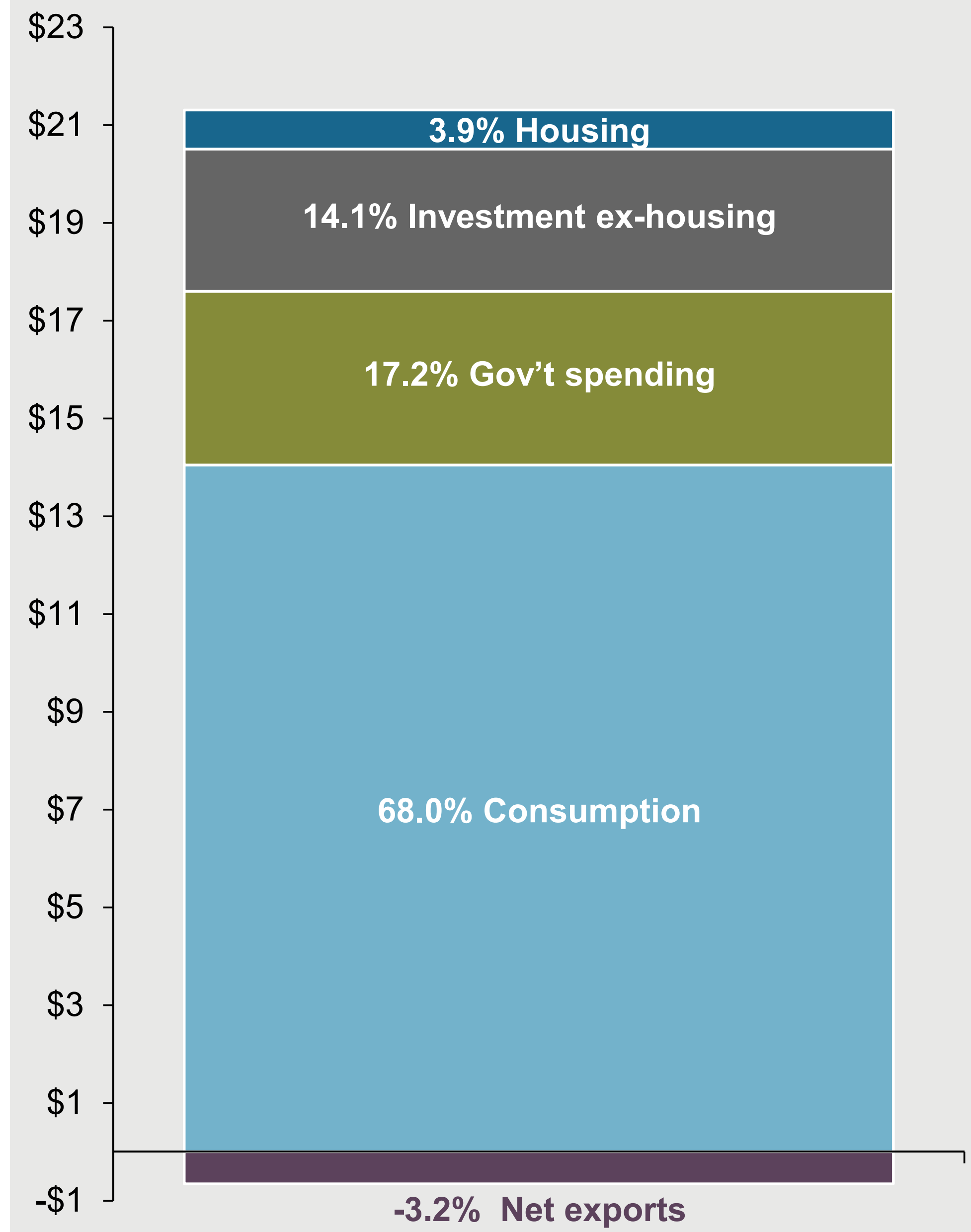
Economic growth and the composition of GDP

Economy

Real GDP
Year-over-year % change



Components of GDP
3Q18 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 third quarter of 2009.
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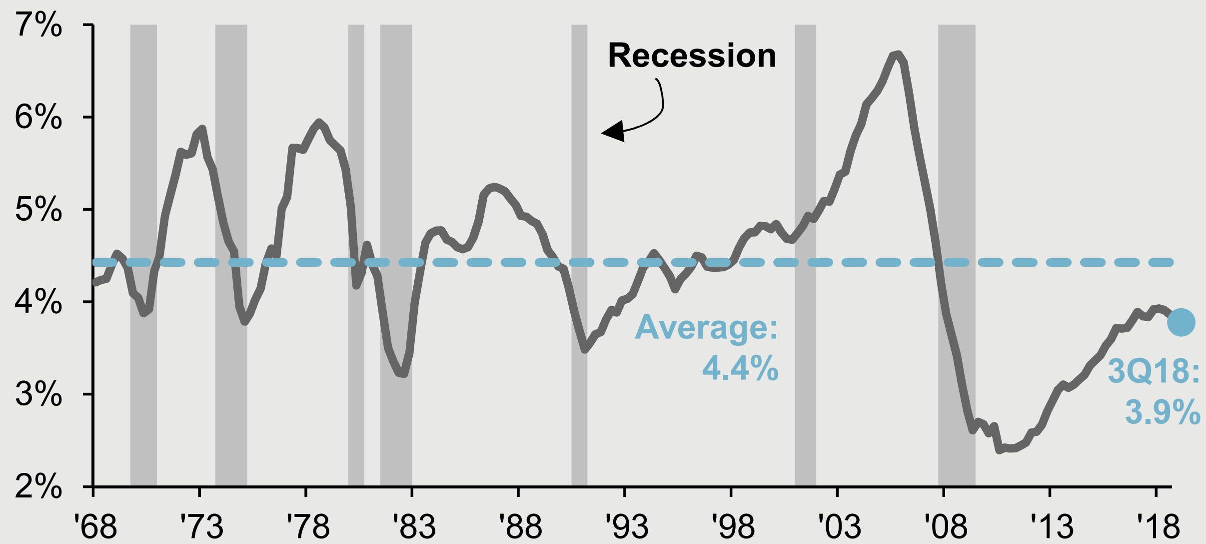
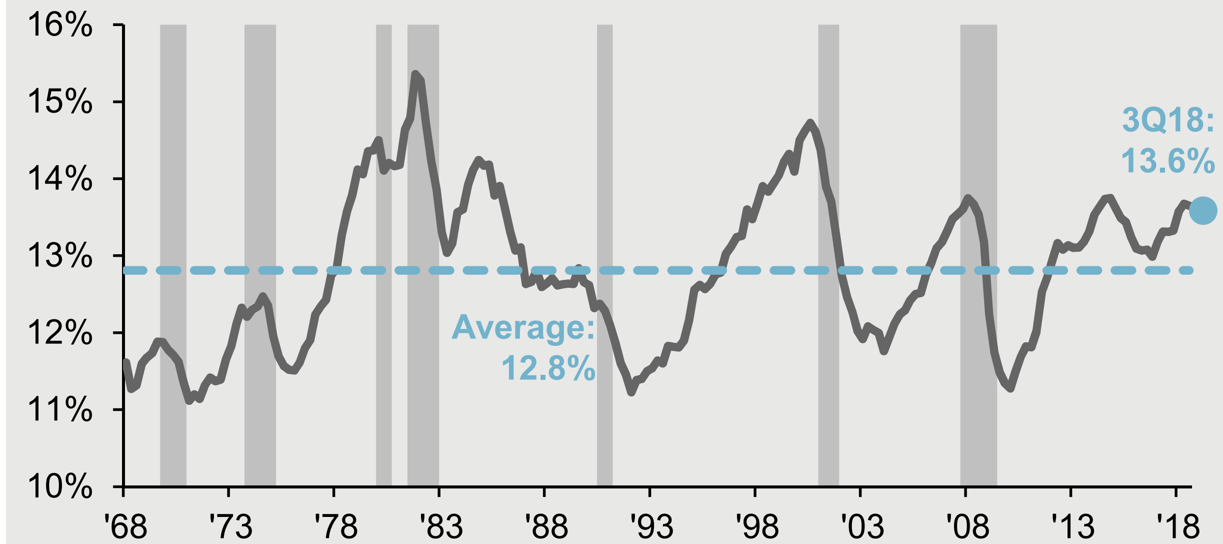
Cyclical sectors

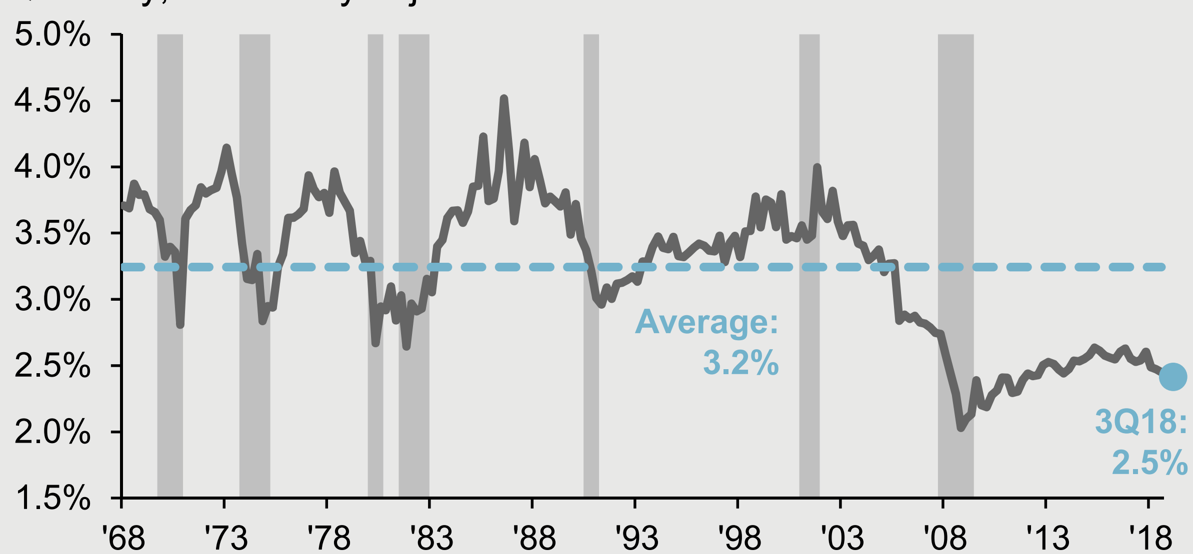
Residential investment as a % of GDP
Quarterly, seasonally adjusted



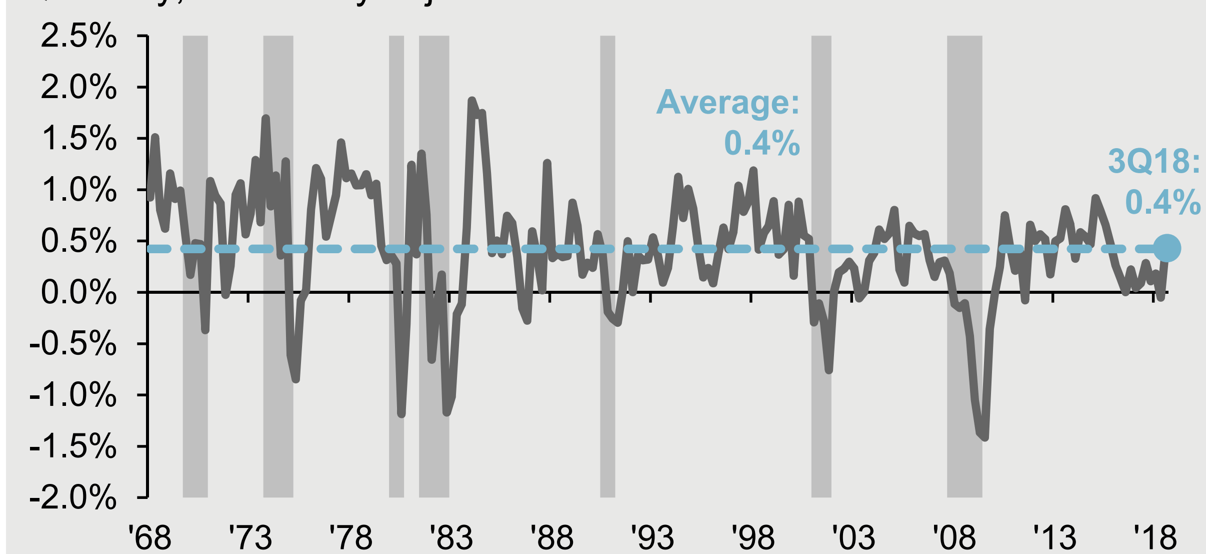
Business fixed investment as a % of GDP
Quarterly, seasonally adjusted



Motor vehicle and parts consumption as a % of GDP
Quarterly, seasonally adjusted



Change in private inventories as a % of GDP
Quarterly, seasonally adjusted



Source: BEA, FactSet, J.P. Morgan Asset Management.
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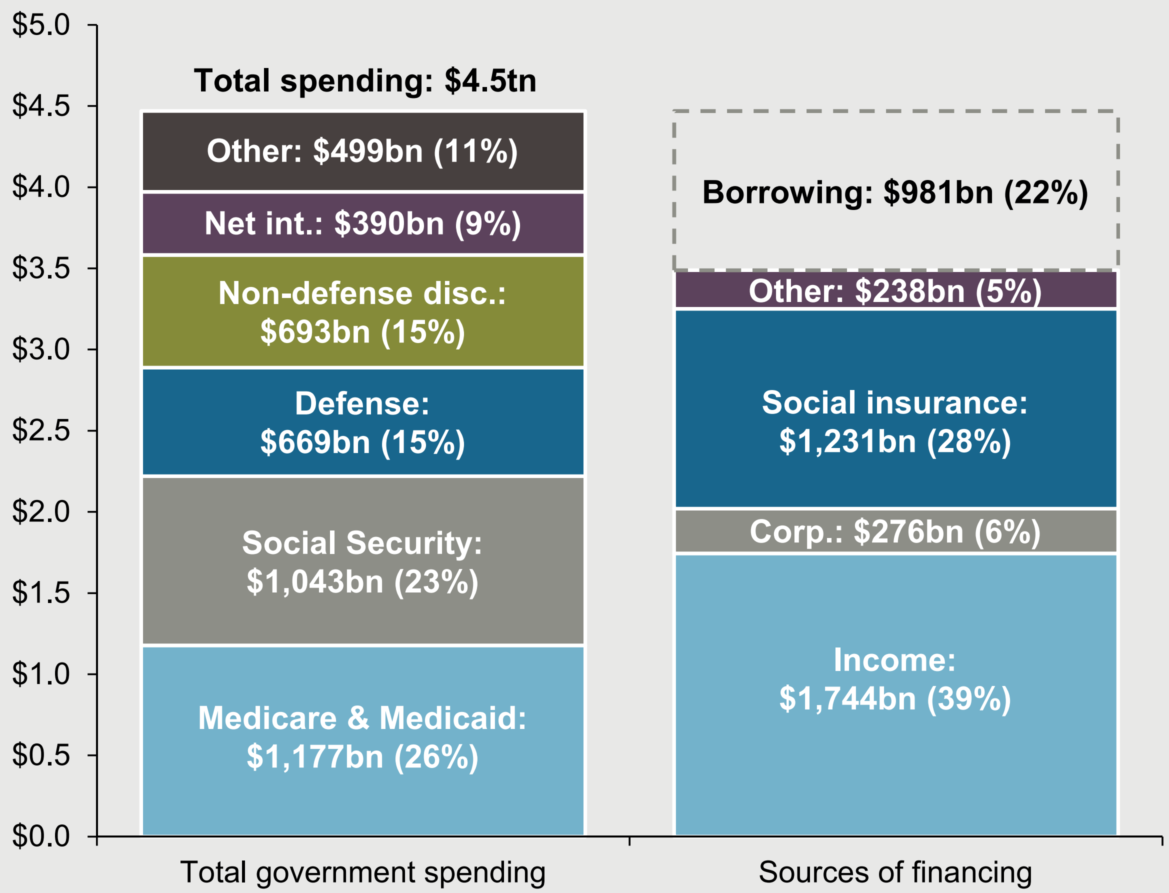
The 2019 federal budget

CBO Baseline forecast, USD trillions

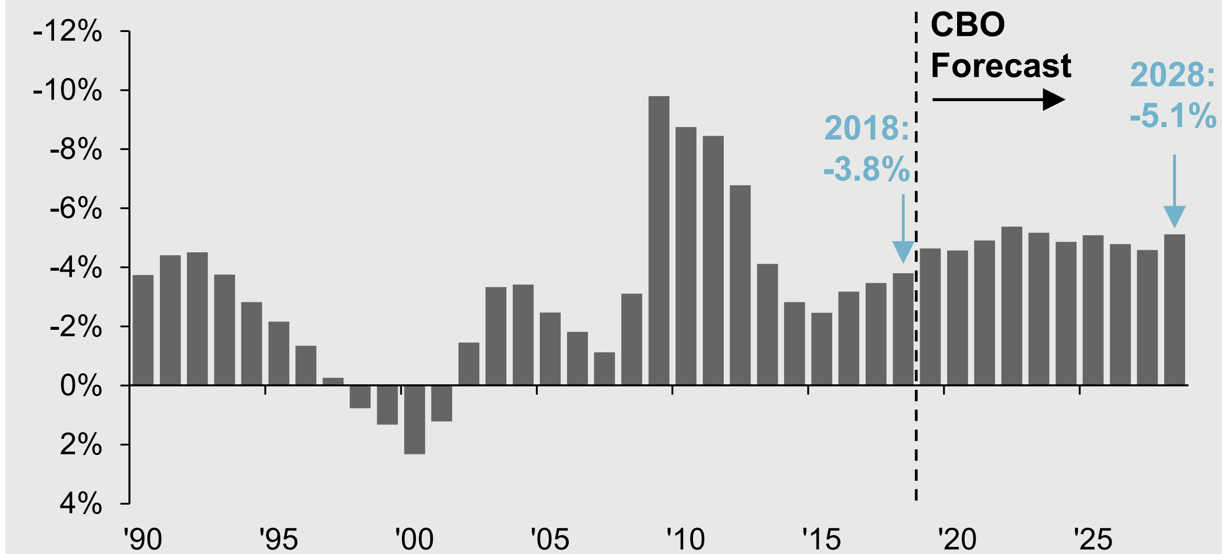


CBO's Baseline assumptions

	2019	2020	'21-'22	'23-'28
Real GDP growth	3.0%	2.1%	1.6%	1.7%
10-year Treasury	3.5%	3.8%	4.0%	3.7%
Headline inflation (CPI)	2.3%	2.4%	2.5%	2.4%
Unemployment	3.4%	3.5%	4.3%	4.8%

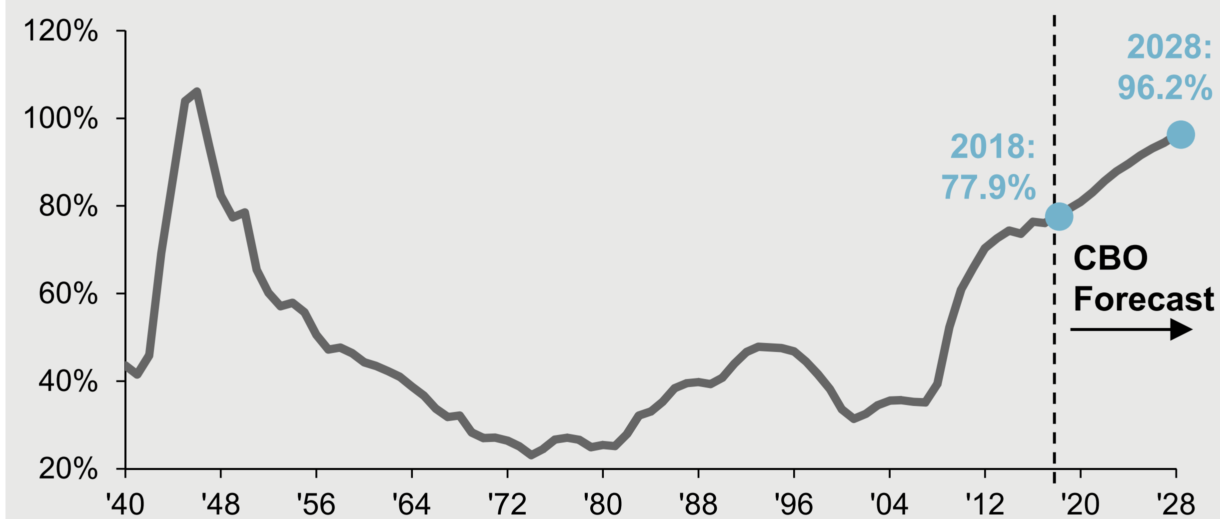
Federal budget surplus/deficit

% of GDP, 1990 – 2028, 2018 CBO Baseline



Federal net debt (accumulated deficits)

% of GDP, 1940 – 2028, 2018 CBO Baseline, end of fiscal year



Source: CBO, J.P. Morgan Asset Management; (Top and bottom right) BEA, Treasury Department.
2019 Federal Budget is based on the Congressional Budget Office (CBO) April 2018 Baseline Budget Forecast. CBO Baseline is based on the Congressional Budget Office (CBO) August 2018 Update to Economic Outlook. 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).
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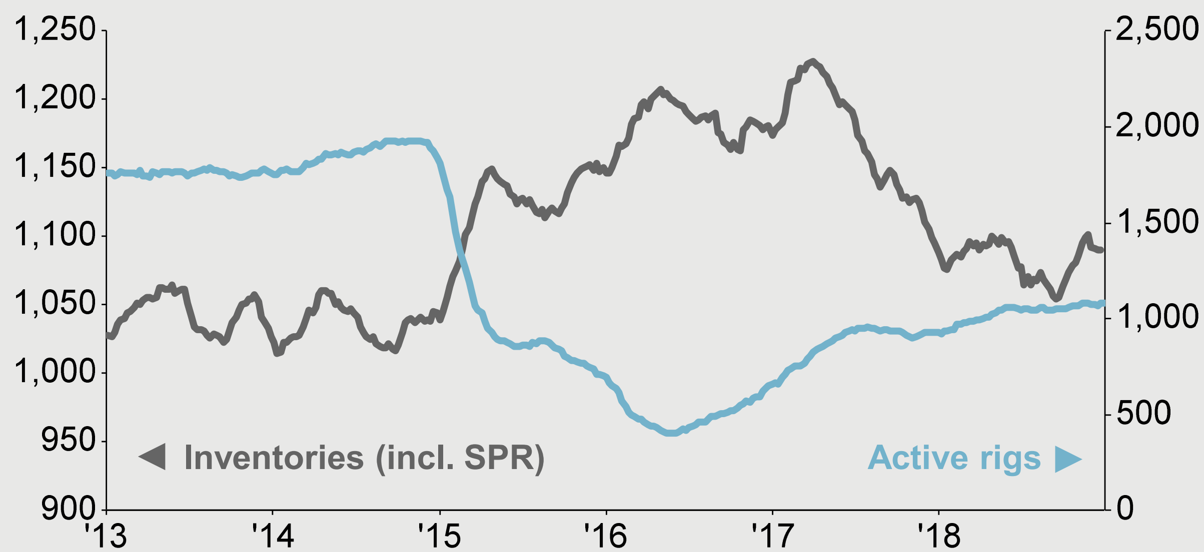
Economy

Change in production and consumption of liquid fuels
Production, consumption and inventories, millions of barrels per day

Production	2015	2016	2017	2018*	2019*	Growth since '15
U.S.	15.1	14.8	15.7	17.8	19.6	29.5%
OPEC	38.4	39.4	39.3	39.2	38.3	-0.2%
Russia	11.0	11.3	11.2	11.4	11.5	4.4%
Global	**97.0**	**97.4**	**98.1**	**100.4**	**101.8**	**5.0%**
Consumption						
U.S.	19.5	19.7	20.0	20.5	20.8	6.6%
China	12.4	12.8	13.4	13.9	14.3	15.8%
Global	**95.9**	**96.9**	**98.6**	**100.1**	**101.6**	**6.0%**
Inventory Change	1.1	0.4	-0.5	0.3	0.2	

U.S. crude oil inventories and rig count**
Million barrels, number of active rigs



Price of oil
WTI crude, nominal prices, USD/barrel

Source: J.P. Morgan Asset Management; (Top and bottom left) EIA; (Right) FactSet; (Bottom left) Baker Hughes.
*Forecasts are from the December 2018 EIA Short-Term Energy Outlook and start in 2018. **U.S. crude oil inventories include the Strategic Petroleum Reserve (SPR). Active rig count includes both natural gas and oil rigs. WTI crude prices are monthly averages in USD using continuous contract NYM prices.
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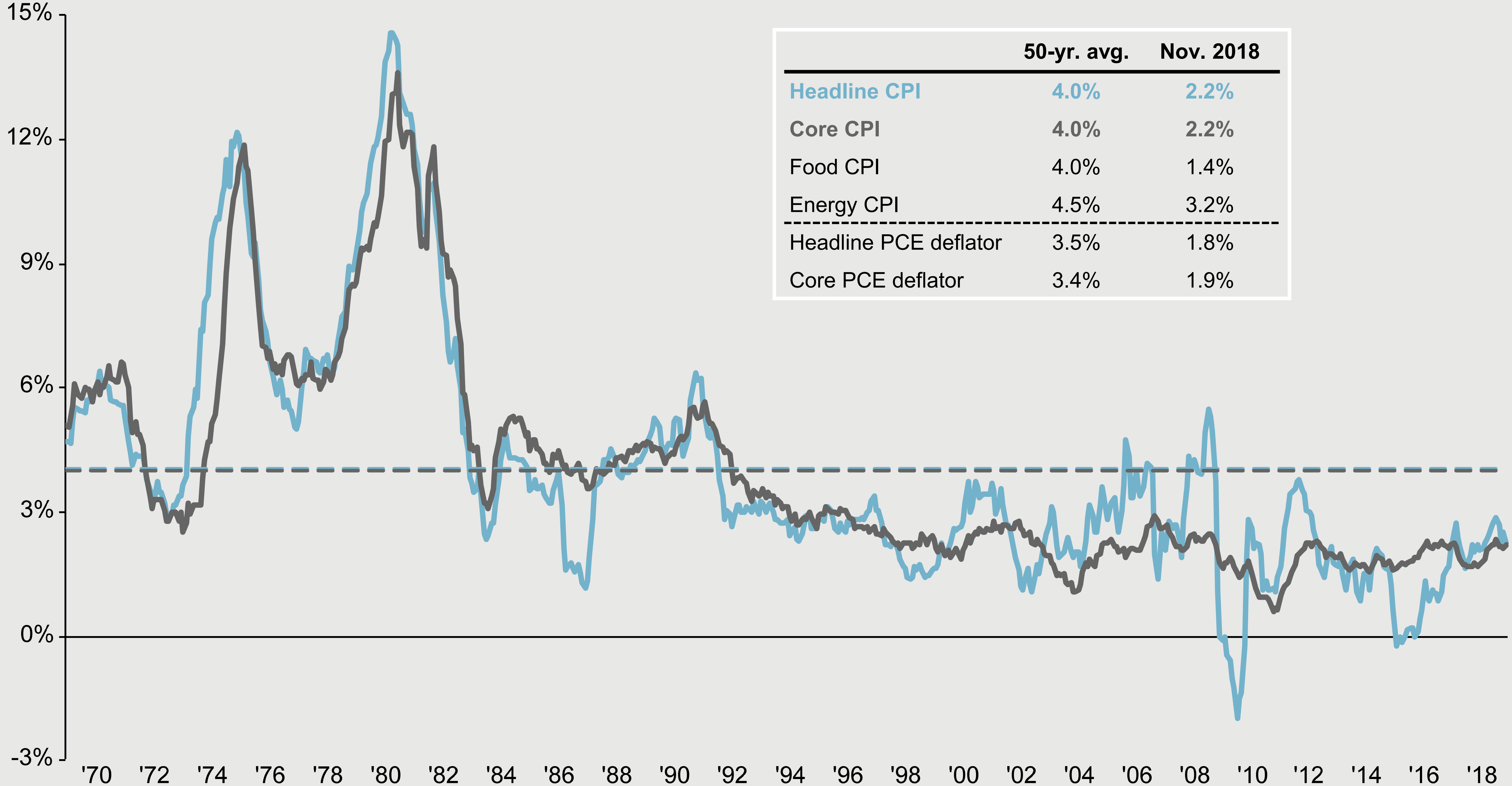
Economy

CPI and core CPI

% change vs. prior year, seasonally adjusted



	50-yr. avg.	Nov. 2018
Headline CPI	4.0%	2.2%
Core CPI	4.0%	2.2%
Food CPI	4.0%	1.4%
Energy CPI	4.5%	3.2%
Headline PCE deflator	3.5%	1.8%
Core PCE deflator	3.4%	1.9%

Source: BLS, FactSet, J.P. Morgan Asset Management.
CPI used is CPI-U and values shown are % change vs. one year ago. Core CPI is defined as CPI excluding food and energy prices. The Personal Consumption Expenditure (PCE) deflator employs an evolving chain-weighted basket of consumer expenditures instead of the fixed-weight basket used in CPI calculations.
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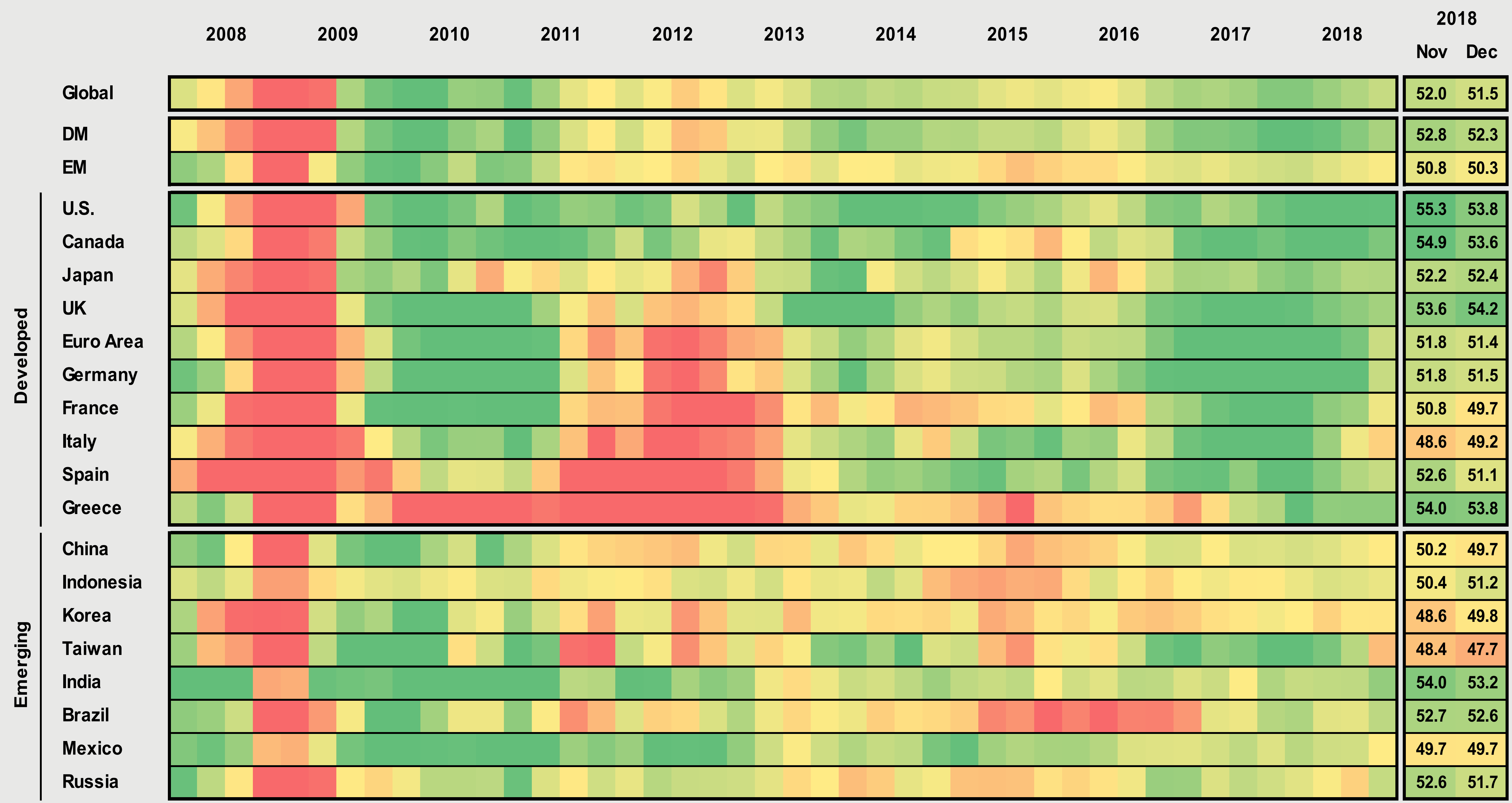
International

Global Purchasing Managers' Index for manufacturing, quarterly



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. Heat map is based on quarterly averages, with the exception of the two most recent figures, which are single month readings. Data for Canada, Indonesia and Mexico are back-tested and filled in from December 2007 to November 2010 for Canada and May 2011 for Indonesia and Mexico due to lack of existing PMI figures for these countries. DM and EM represent developed markets and emerging markets, respectively.
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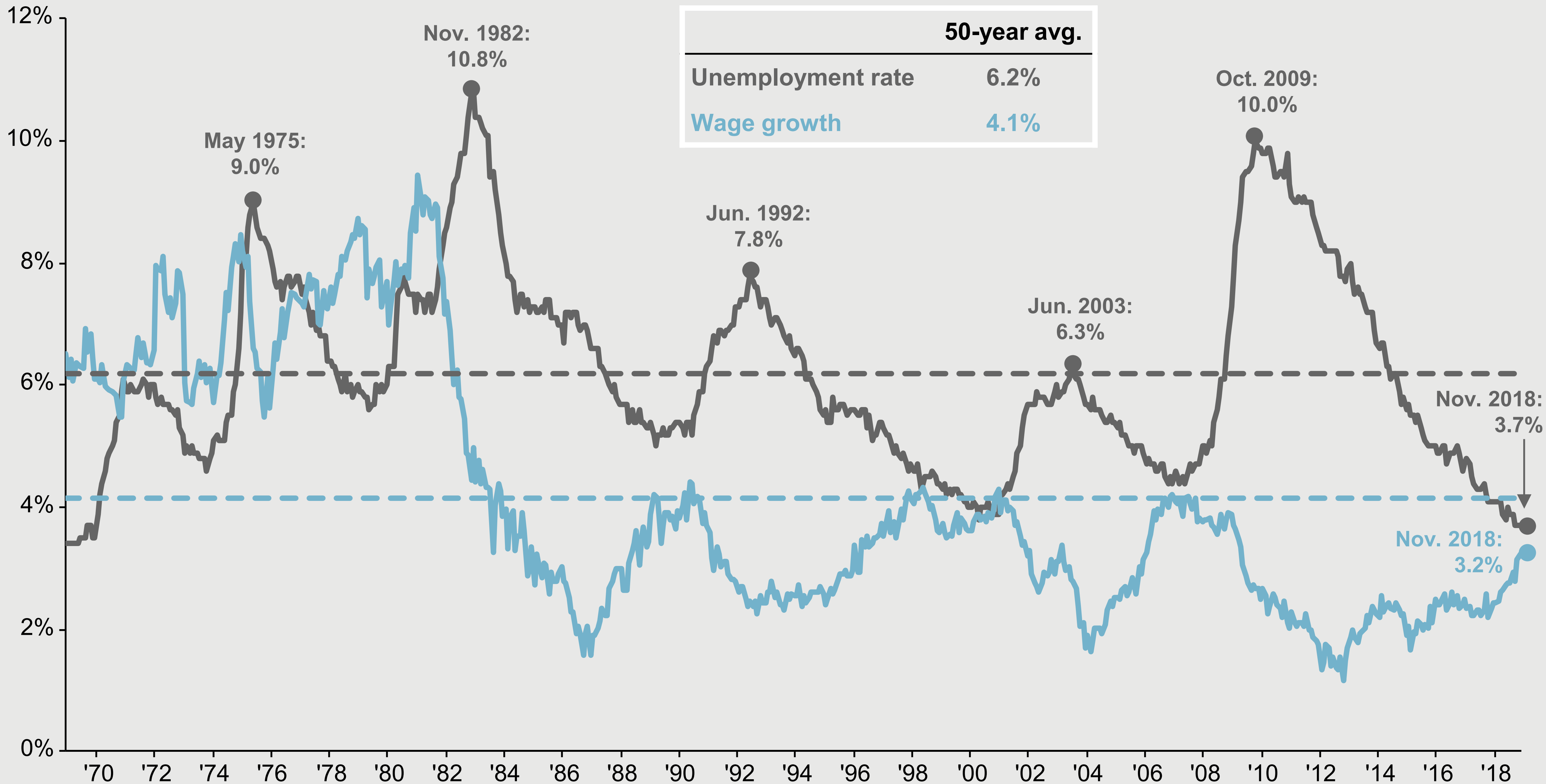
Unemployment and wages

Civilian unemployment rate and year-over-year wage growth for private production and non-supervisory workers

Seasonally adjusted, percent



Source: BLS, FactSet, J.P. Morgan Asset Management.
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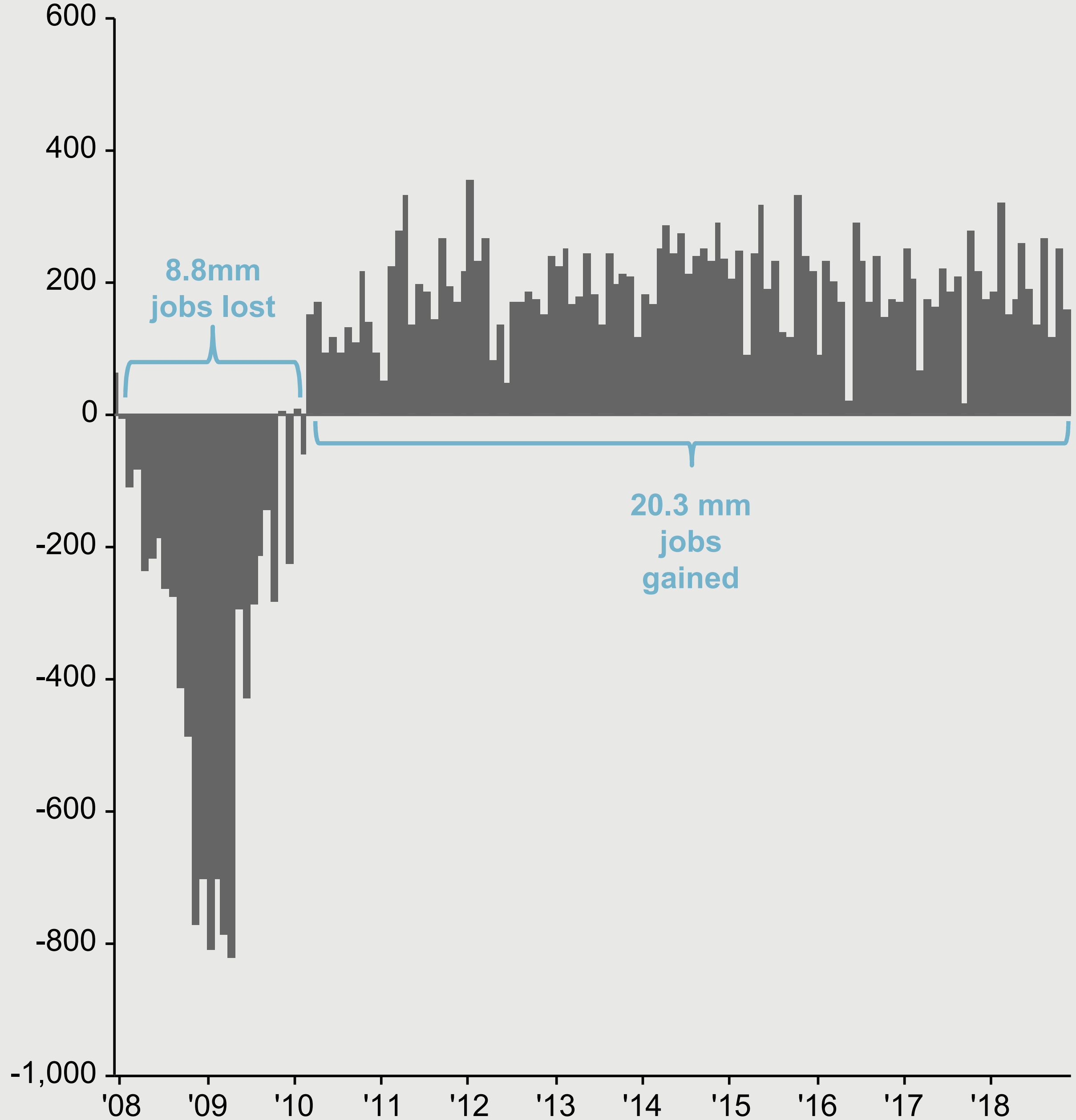
Labor market perspectives

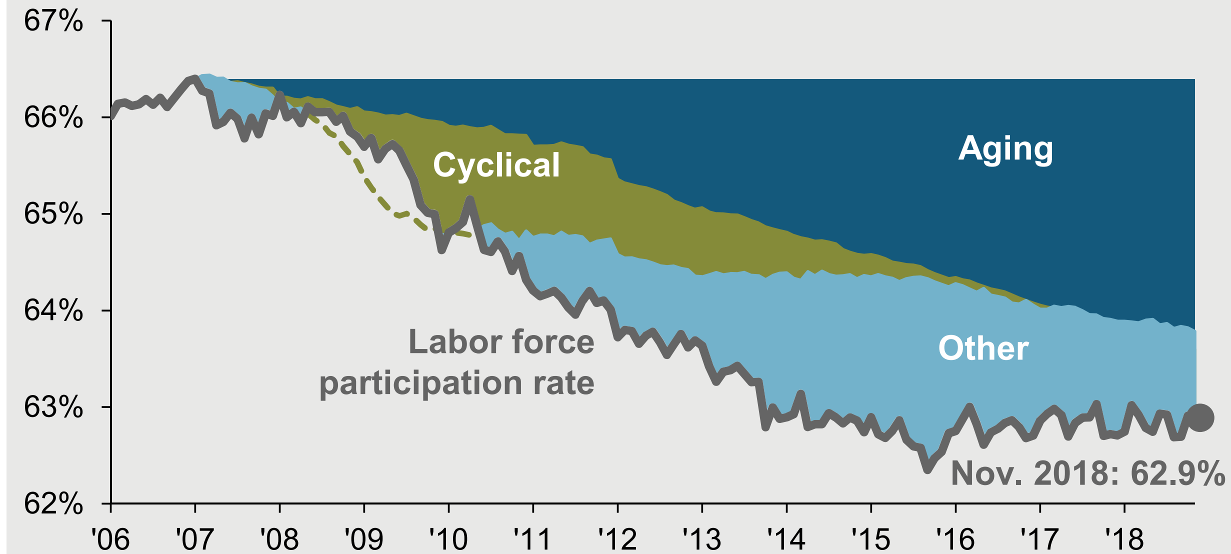
Employment – Total private payroll

Total job gain/loss, thousands



Labor force participation rate decline since 2007 peak*

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



Net job creation since February 2010

Millions of jobs

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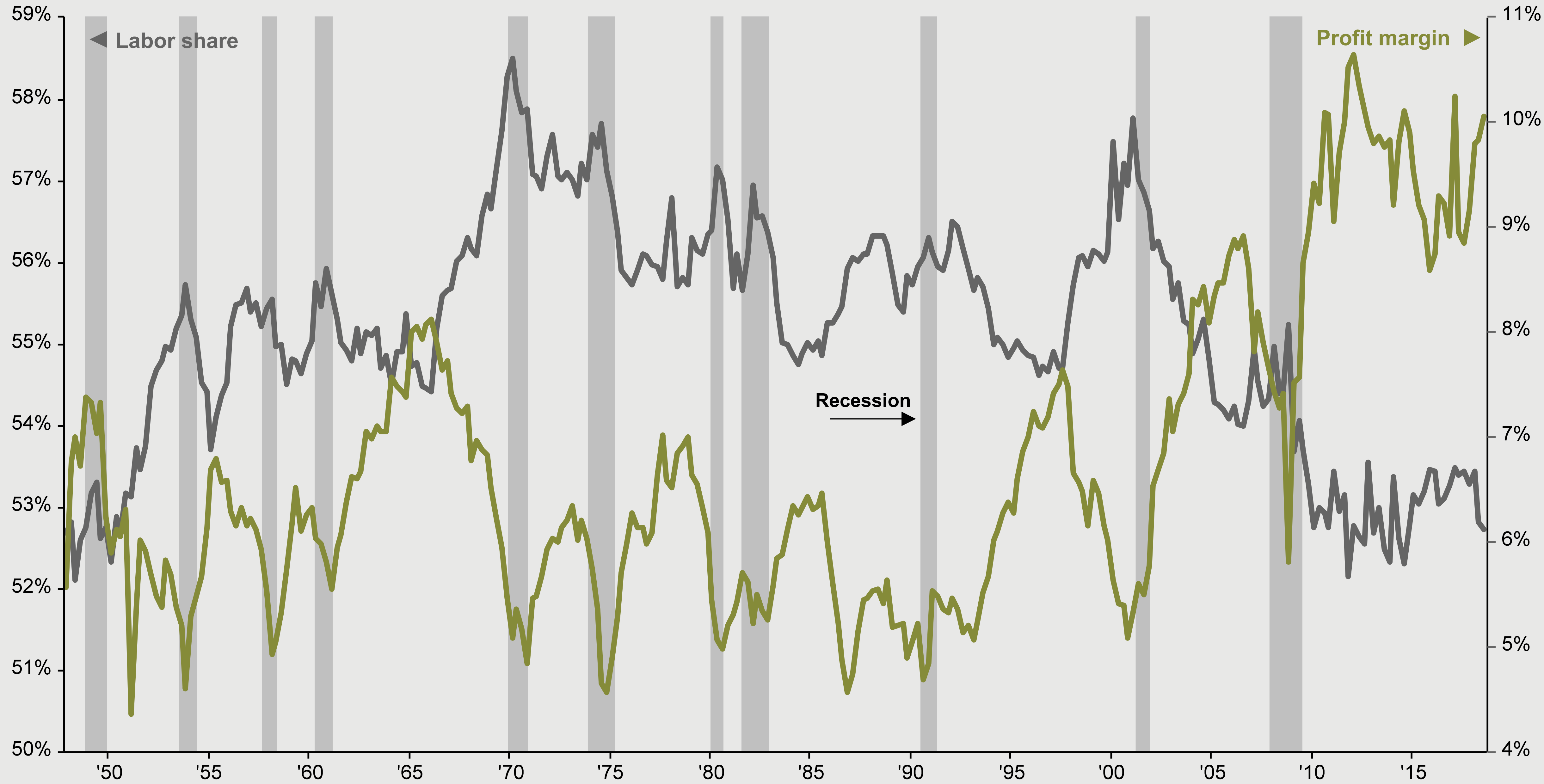
Profit margins and wages

On the Bench

Equities

Labor share of income and profit margins

Employee compensation % nominal GDP, after-tax corporate profits with inventory & valuation adjustment % nominal GDP, SAAR



Source: BEA, FactSet, J.P. Morgan Asset Management.
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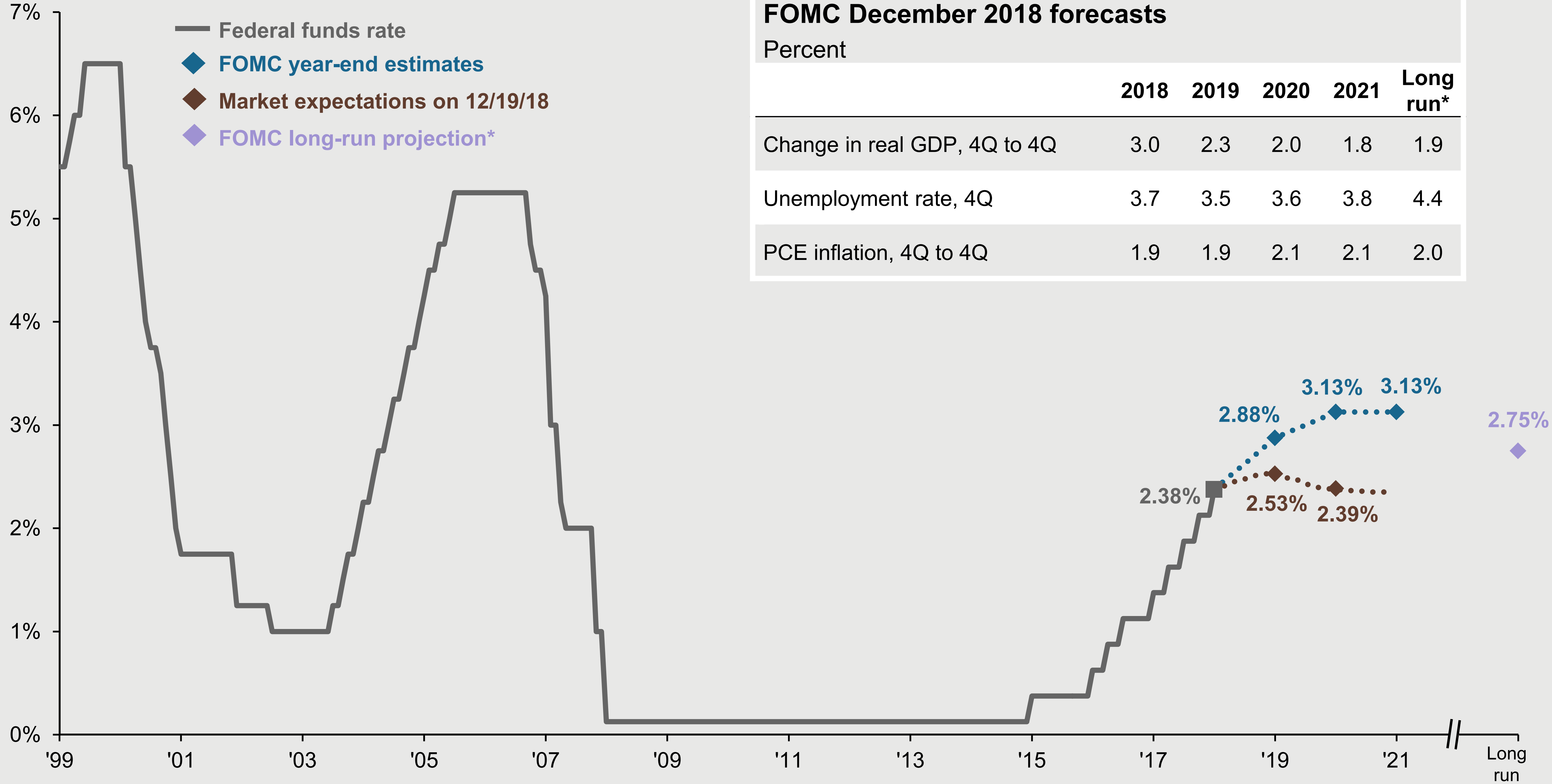
Themes this Quarter

- Economic update
- **Interest rate update/expectations**
- Equity market assumptions
- What should investors do?

Fixed income

Federal funds rate expectations

FOMC and market expectations for the federal funds rate



FOMC December 2018 forecasts

Percent

	2018	2019	2020	2021	Long run*
Change in real GDP, 4Q to 4Q	3.0	2.3	2.0	1.8	1.9
Unemployment rate, 4Q	3.7	3.5	3.6	3.8	4.4
PCE inflation, 4Q to 4Q	1.9	1.9	2.1	2.1	2.0

Source: Bloomberg, 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 2018 FOMC meeting and are through November 2021. *Long-run projections are the rates of growth, unemployment and inflation to which a policymaker expects the economy to converge over the next five to six years in absence of further shocks and under appropriate monetary policy.
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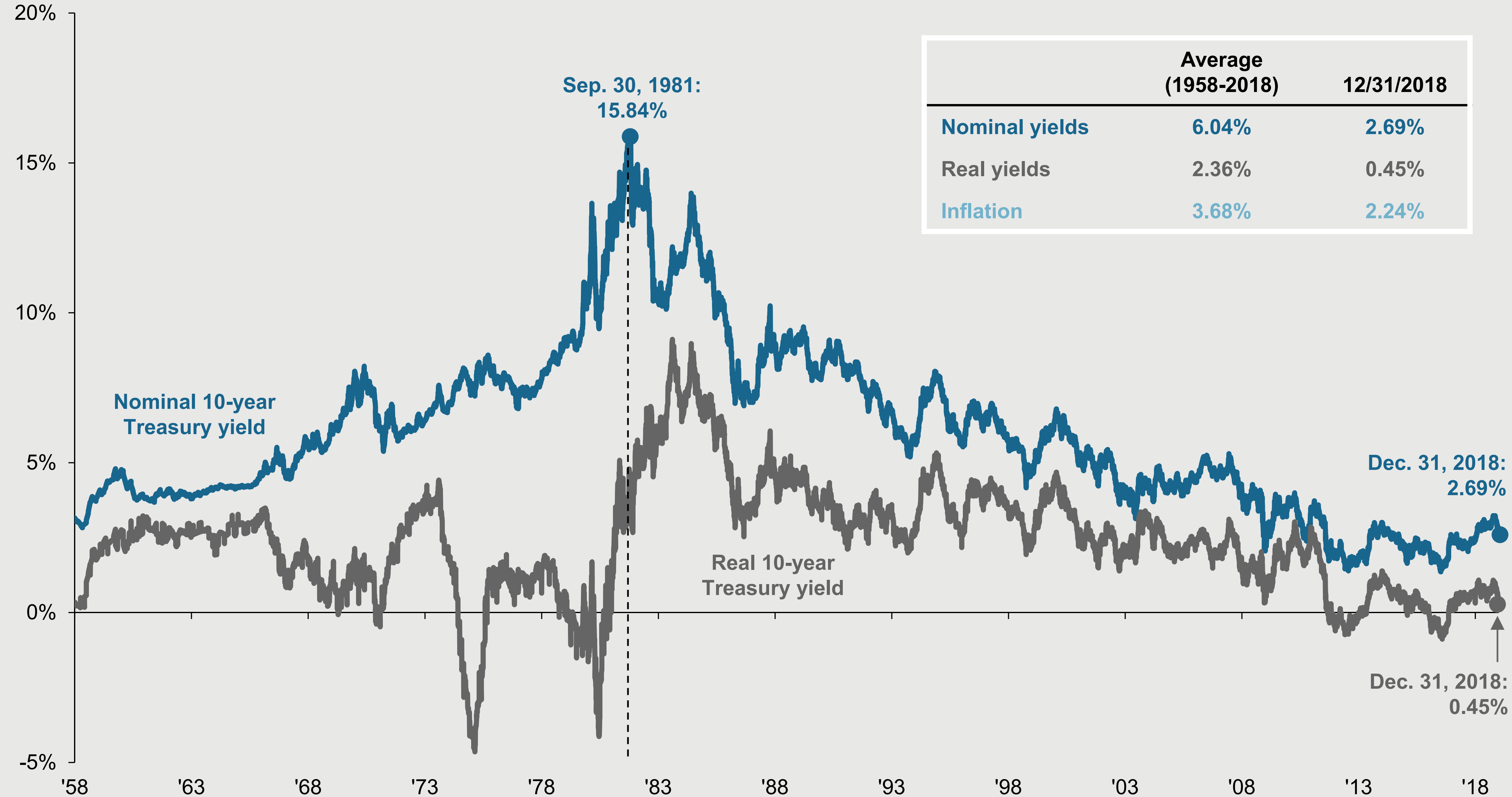
Nominal and real 10-year Treasury yields



	Average (1958-2018)	12/31/2018
Nominal yields	6.04%	2.69%
Real yields	2.36%	0.45%
Inflation	3.68%	2.24%

Source: BLS, FactSet, 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 December 2018, where real yields are calculated by subtracting out November 2018 year-over-year core inflation.
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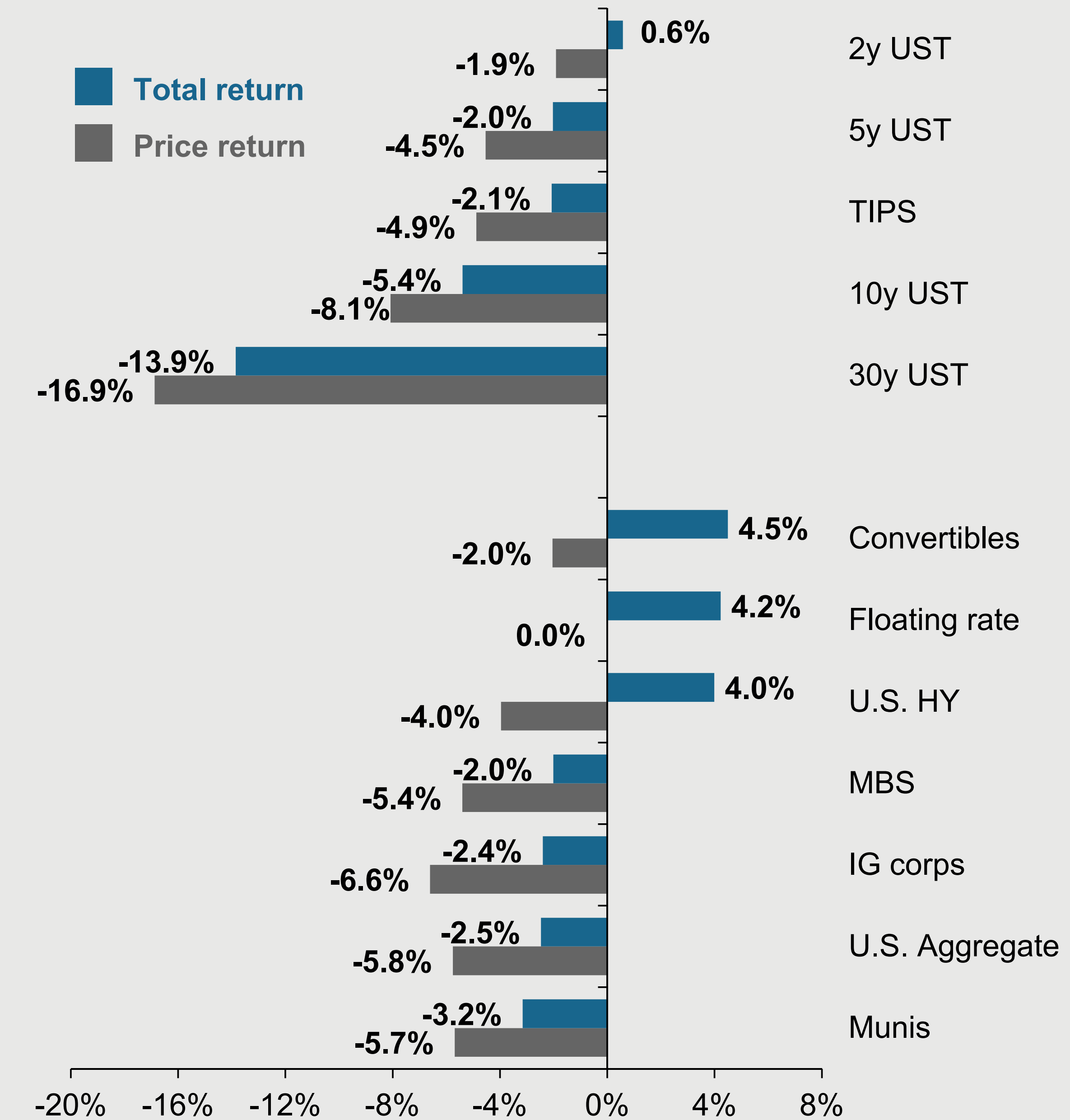
Fixed income yields and returns

	Yield		Return			
U.S. Treasuries	12/31/2018	12/31/2017	2018	Avg. Maturity	Correlation to 10-year	Correlation to S&P 500
2-Year	2.48%	1.89%	1.40%	2 years	0.72	-0.17
5-Year	2.51%	2.20%	1.42%	5	0.92	-0.23
TIPS	0.98%	0.44%	-1.26%	10	0.62	0.07
10-Year	2.69%	2.40%	0.00%	10	1.00	-0.31
30-Year	3.02%	2.74%	-2.72%	30	0.92	-0.32
Sector						
Convertibles	6.54%	6.35%	-2.03%	-	-0.35	0.88
Floating Rate	4.26%	2.05%	0.92%	3.0	-0.42	0.35
High Yield	7.95%	5.72%	-2.08%	5.8	-0.27	0.63
MBS	3.39%	2.91%	0.99%	7.2	0.77	-0.14
Broad Market	3.28%	2.71%	0.01%	8.2	0.87	-0.06
Corporates	4.20%	3.25%	-2.51%	10.7	0.46	0.23
Municipals	2.53%	2.26%	1.41%	10.0	0.56	-0.13

Impact of a 1% rise in interest rates

Assumes a parallel shift in the yield curve and steady spreads



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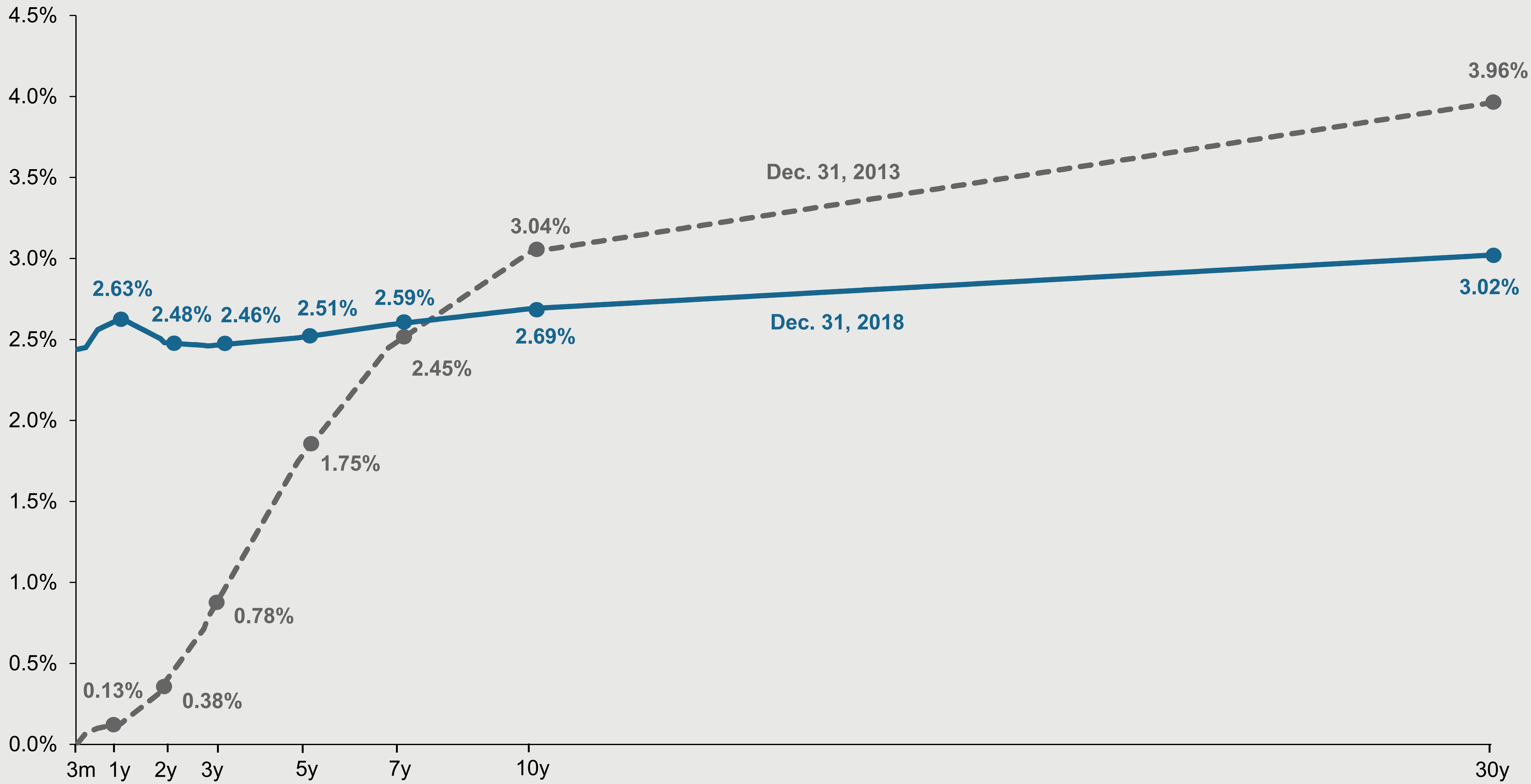
Yield curve

U.S. Treasury yield curve



Source: FactSet, Federal Reserve, J.P. Morgan Asset Management.
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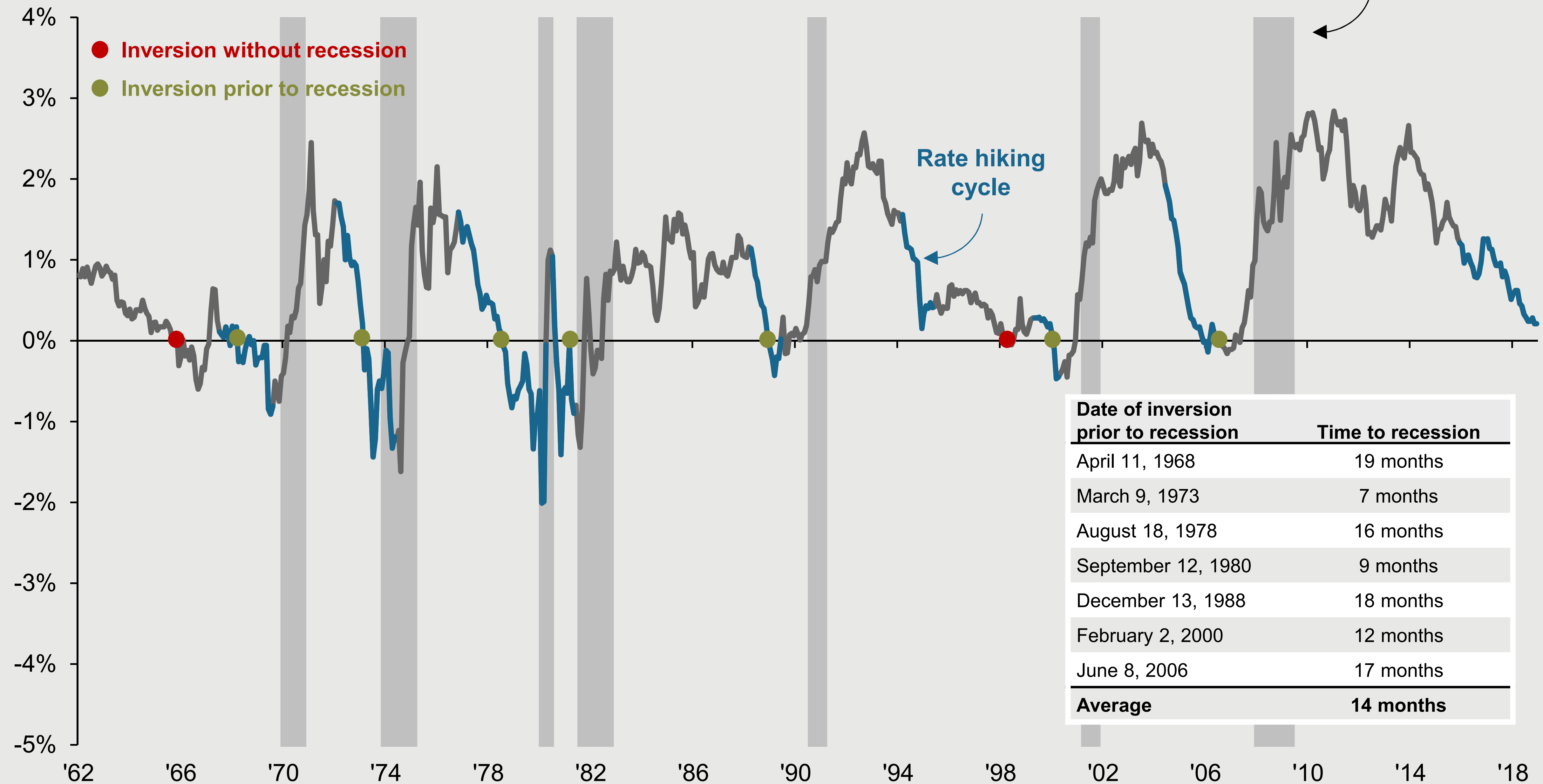
U.S. yield curve inversion and recessions



Date of inversion prior to recession	Time to recession
April 11, 1968	19 months
March 9, 1973	7 months
August 18, 1978	16 months
September 12, 1980	9 months
December 13, 1988	18 months
February 2, 2000	12 months
June 8, 2006	17 months
Average	**14 months**

Source: FactSet, Federal Reserve, J.P. Morgan Asset Management. *From January 1962 to May 1976 short-term bond is U.S. 1-year bond. Short-dated bond is 2-year from June 1976. Time to recession is calculated as the time between the final sustained inversion of the yield curve prior to recession, and the onset of recession.
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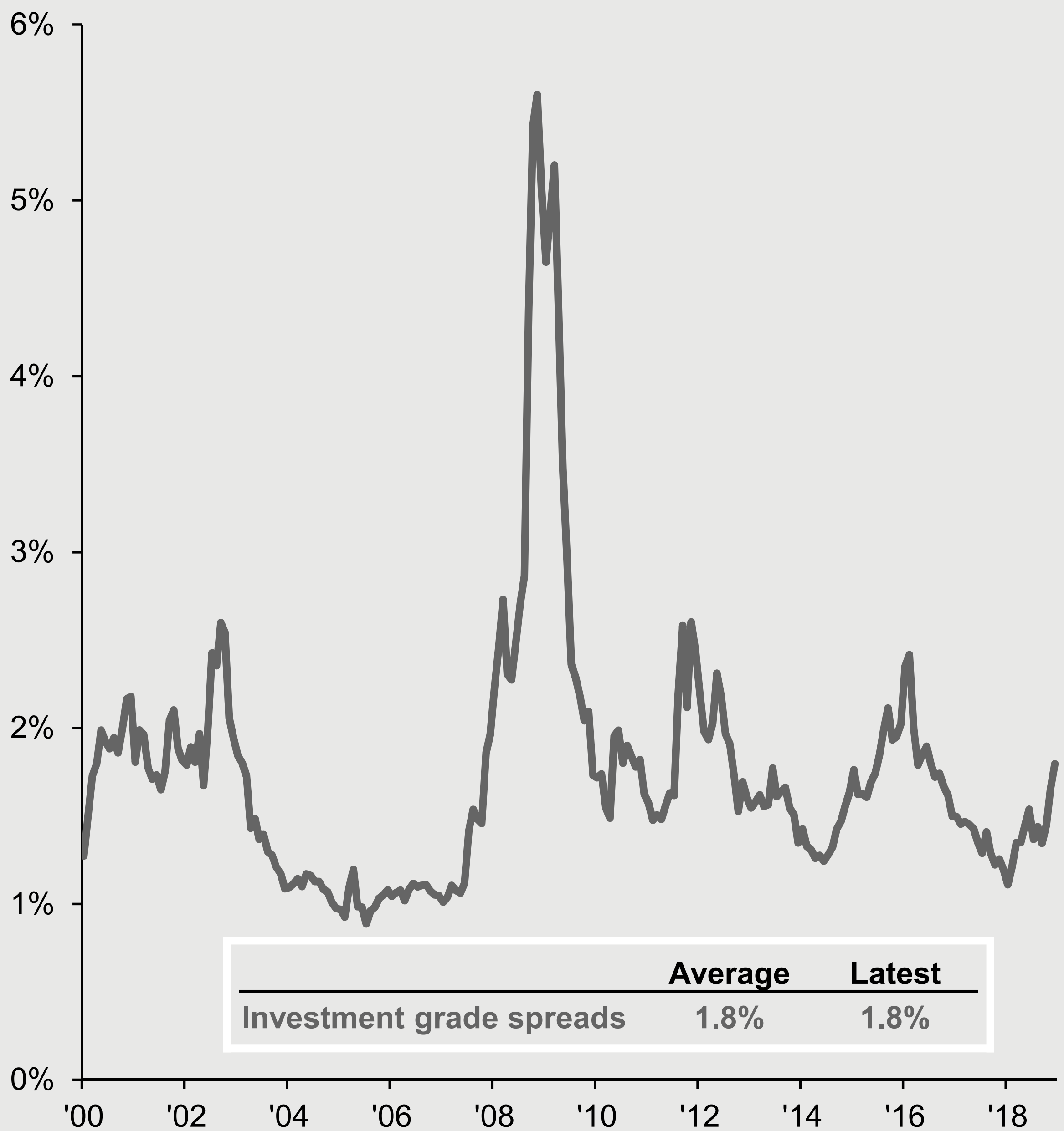
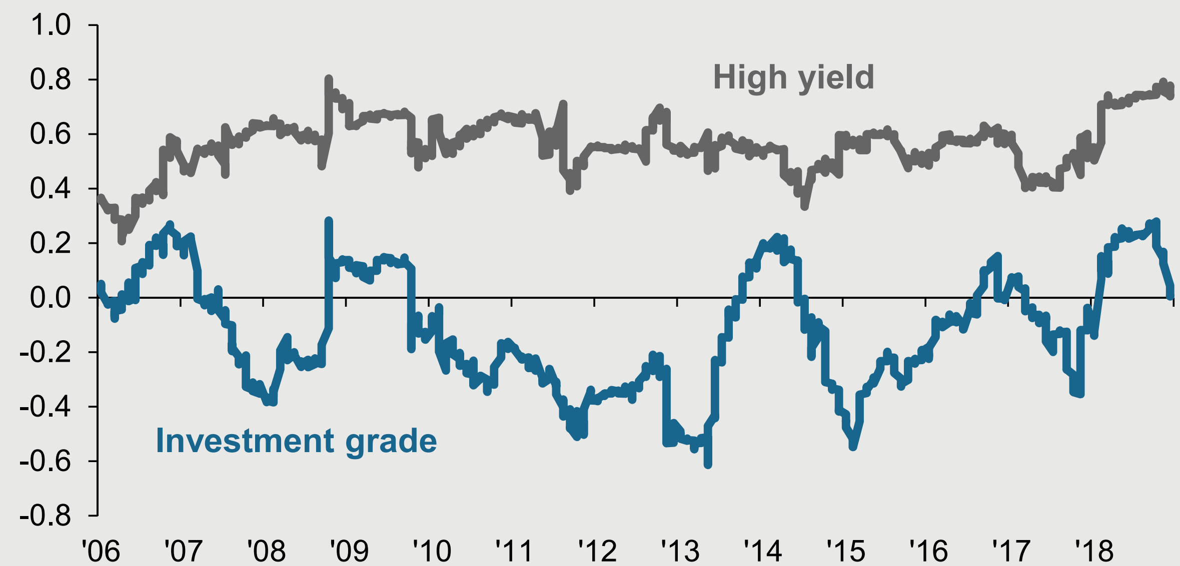
Investment grade spreads

Spread to worst



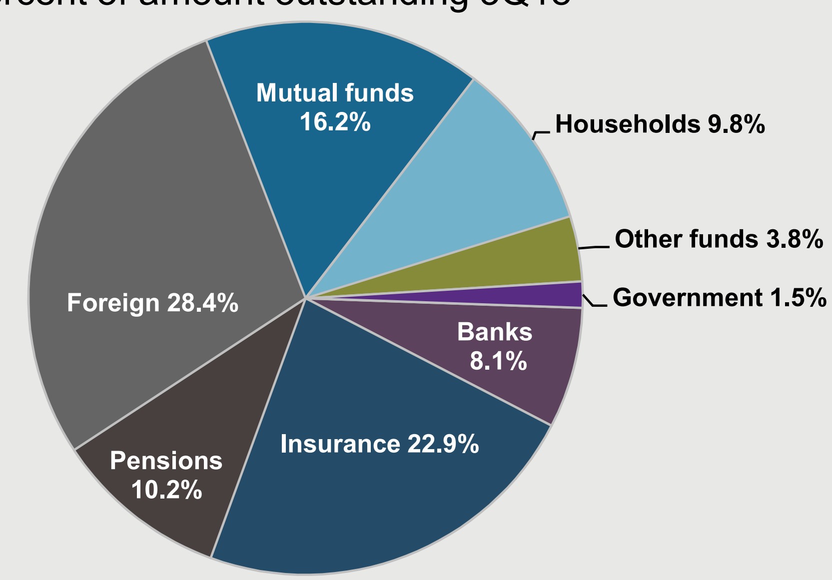
Rolling correlations of stocks and corporate bonds

Correlation* of high yield and investment grade bonds with stocks



Corporate bond ownership

Ownership as percent of amount outstanding 3Q18



Source: J.P. Morgan Asset Management; (Left) J.P. Morgan Global Economic Research; (Top right) Barclays, Bloomberg, FactSet; (Bottom right) FRB.
Investment grade corporate bonds are represented by the J.P. Morgan U.S. Liquid Index (JULI). High yield corporate bonds are represented by the J.P. Morgan Domestic HY Index. Stocks are represented by the S&P 500. Correlation is based on the weekly change in price. Spreads indicated are benchmark yield to worst less comparable maturity Treasury yields. *Rolling 12-month correlation of weekly change in price.
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S&P 500 Index at inflection points

S&P 500 Price Index

Characteristic	Mar. 2000		Oct. 2007		Dec. 2018
Index level	1,527	→	1,565	→	2,507
P/E ratio (fwd.)	27.2x	→	15.7x	→	14.4x
Dividend yield	1.1%	→	1.8%	→	2.3%
10-yr. Treasury	6.2%	→	4.7%	→	2.7%

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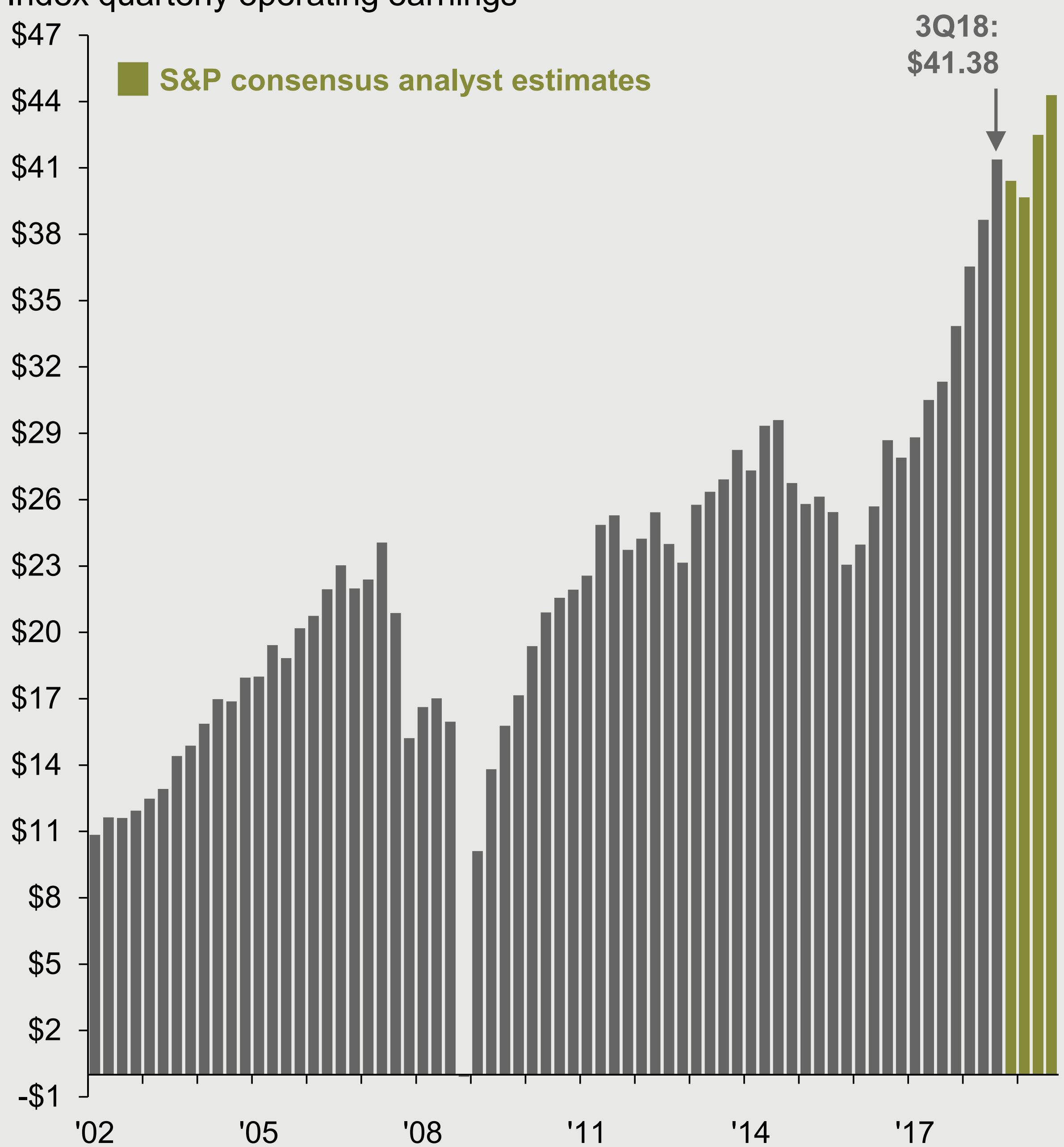
Corporate profits

S&P 500 operating earnings per share

Index quarterly operating earnings



S&P 500 profit margins

Quarterly operating earnings/sales

Source: Compustat, FactSet, Standard & Poor's, J.P. Morgan Asset Management; (Right) Federal Reserve.
EPS levels are based on operating earnings per share. Earnings estimates are Standard & Poor's consensus analyst expectations. Past performance is not indicative of future returns.
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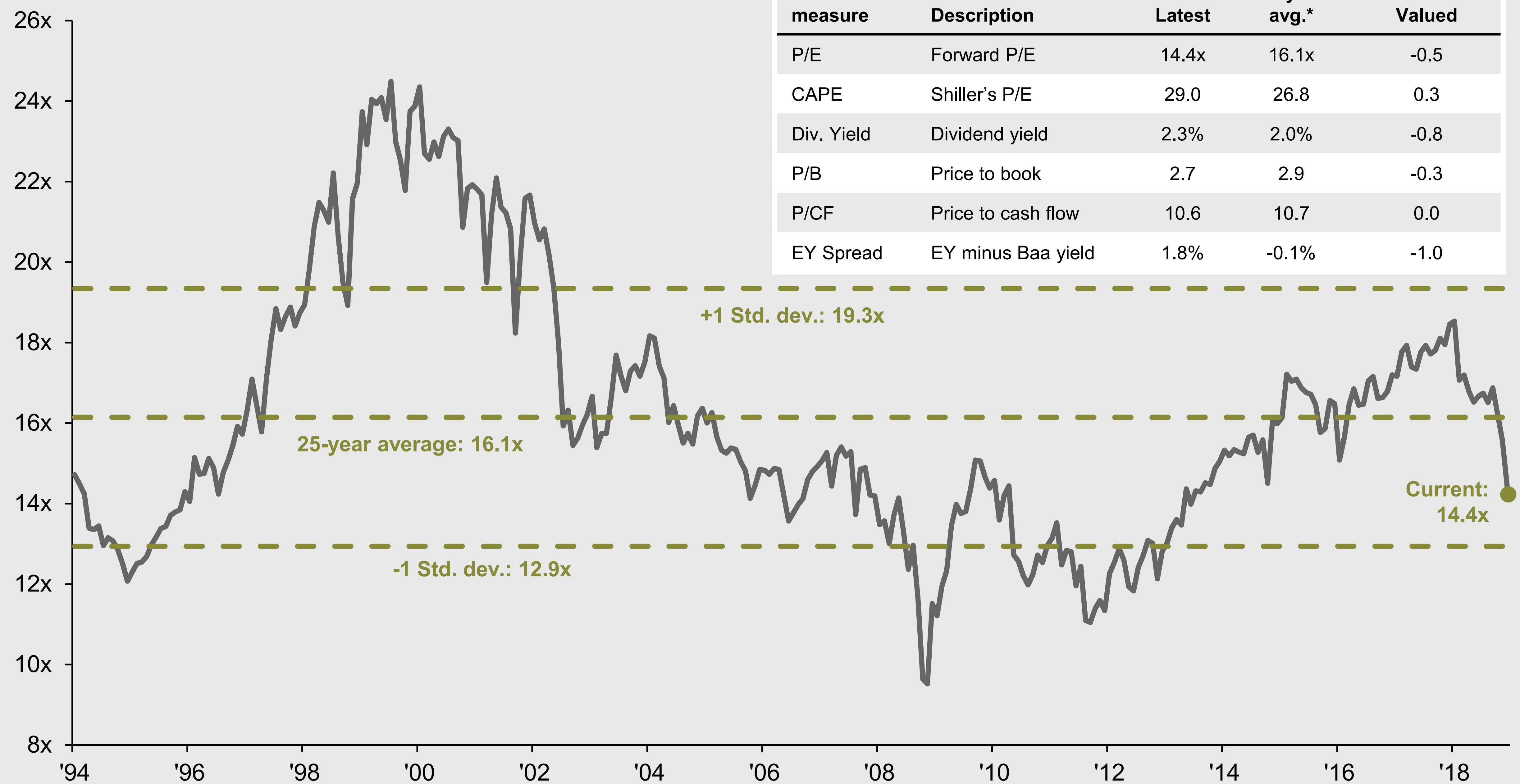
S&P 500 valuation measures

S&P 500 Index: Forward P/E ratio



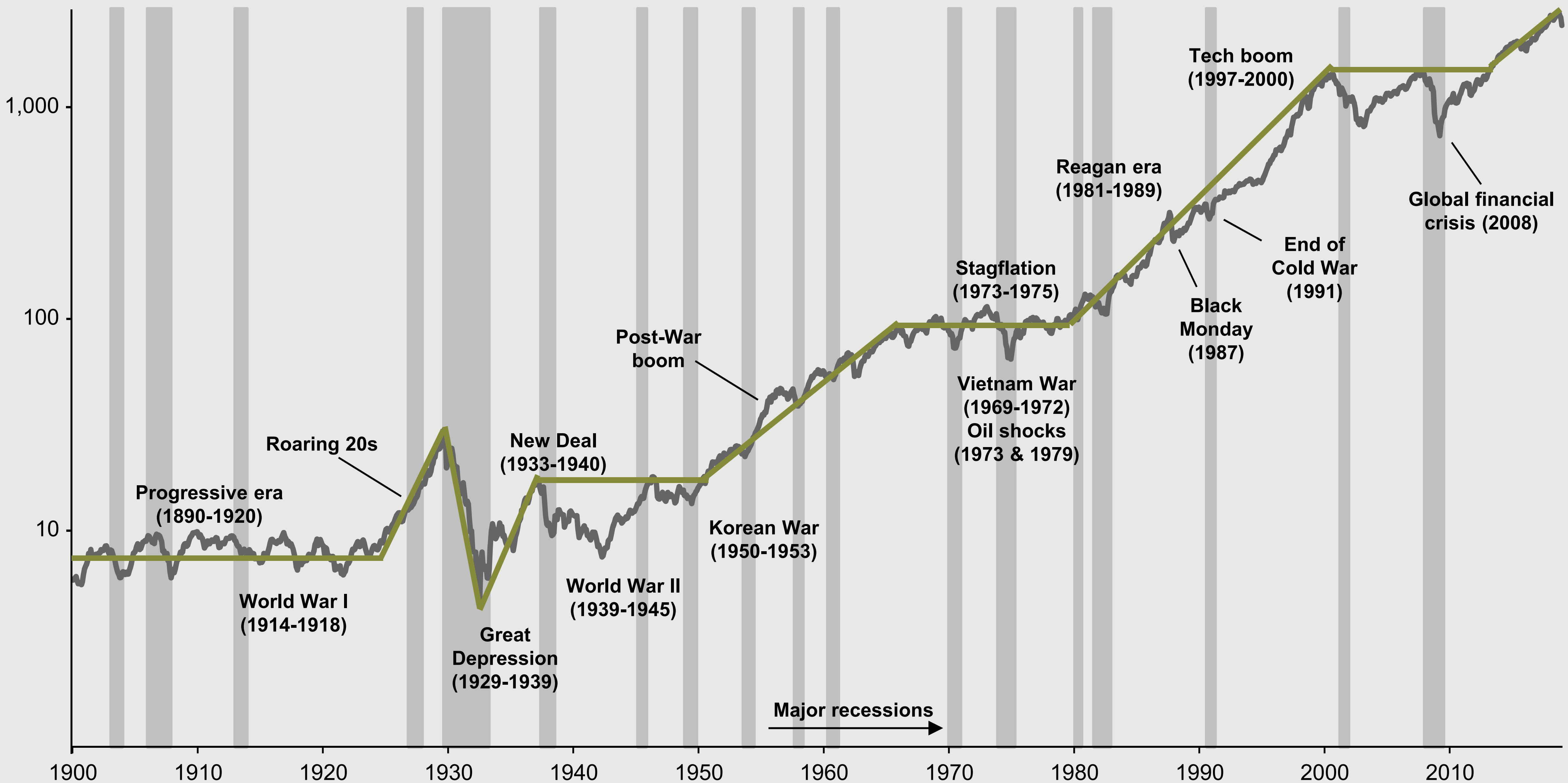
Valuation measure	Description	Latest	25-year avg.*	Std. dev. Over-/under-Valued
P/E	Forward P/E	14.4x	16.1x	-0.5
CAPE	Shiller's P/E	29.0	26.8	0.3
Div. Yield	Dividend yield	2.3%	2.0%	-0.8
P/B	Price to book	2.7	2.9	-0.3
P/CF	Price to cash flow	10.6	10.7	0.0
EY Spread	EY minus Baa yield	1.8%	-0.1%	-1.0

Source: FactSet, FRB, Robert Shiller, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.
Price to earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since December 1993, and FactSet for December 31, 2018. Average P/E and standard deviations are calculated using 25 years of IBES history. Shiller's P/E uses trailing 10-years of inflation-adjusted earnings as reported by companies. Dividend yield is calculated as the next 12-month consensus dividend divided by most recent price. Price to book ratio is the price divided by book value per share. Price to cash flow is price divided by NTM cash flow. EY minus Baa yield is the forward earnings yield (consensus analyst estimates of EPS over the next 12 months divided by price) minus the Moody's Baa seasoned corporate bond yield. Std. dev. over-/under-valued is calculated using the average and standard deviation over 25 years for each measure.
*P/CF is a 20-year average due to cash flow data availability.
Guide to the Markets – U.S. Data are as of December 31, 2018.

Stock market since 1900

S&P Composite Index

Log scale, annual



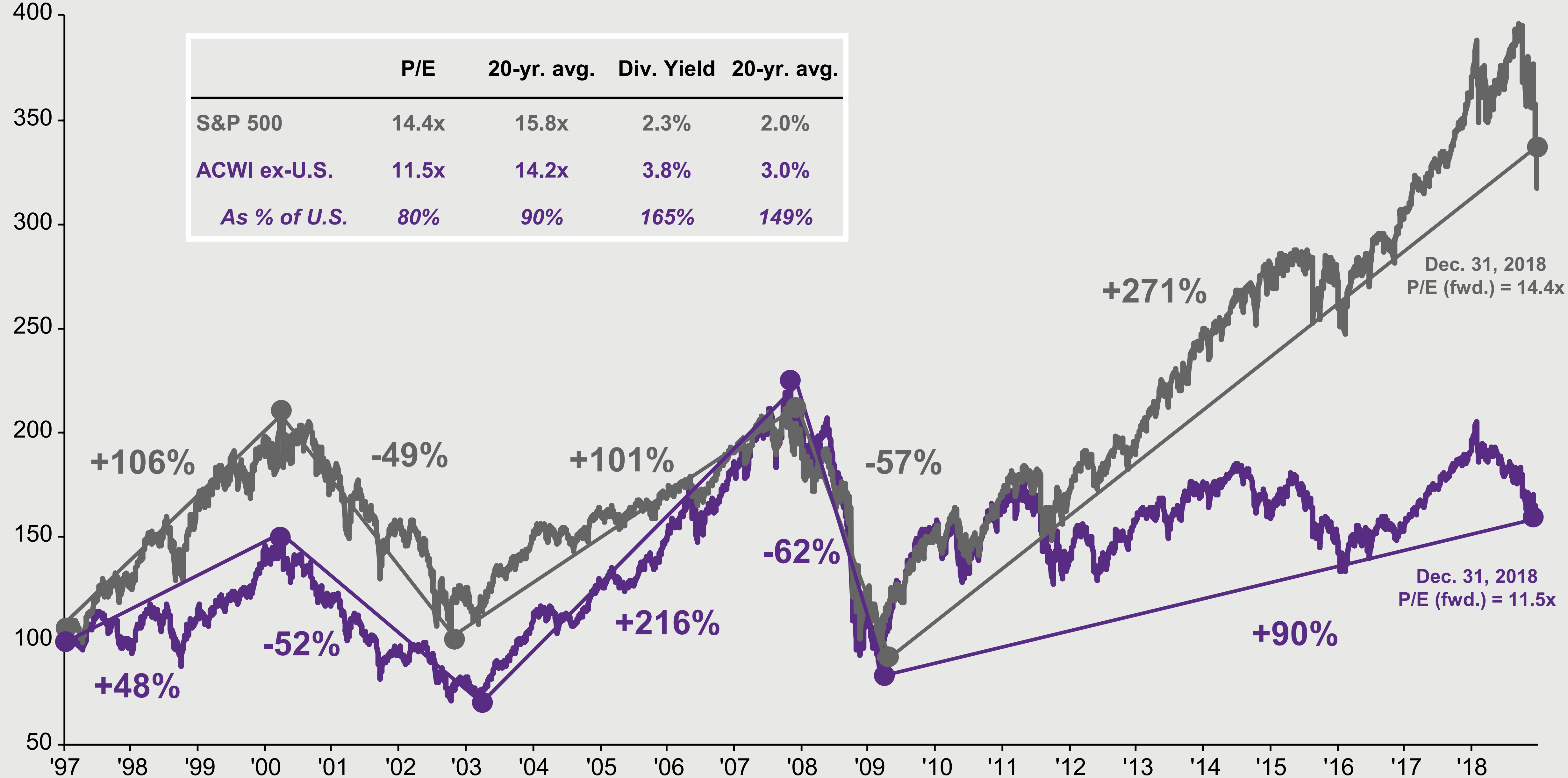
Source: FactSet, NBER, Robert Shiller, J.P. Morgan Asset Management.
Data shown in log scale to best illustrate long-term index patterns. Past performance is not indicative of future returns. Chart is for illustrative purposes only.
Guide to the Markets – U.S. Data are as of December 31, 2018.

U.S. and international equities at inflection points

International

MSCI All Country World ex-U.S. and S&P 500 Indices
Dec. 1996 = 100, U.S. dollar, price return

	P/E	20-yr. avg.	Div. Yield	20-yr. avg.
S&P 500	14.4x	15.8x	2.3%	2.0%
ACWI ex-U.S.	11.5x	14.2x	3.8%	3.0%
As % of U.S.	*80%*	*90%*	*165%*	*149%*



Source: FactSet, MSCI, Standard & Poor's, J.P. Morgan Asset Management.
Forward price to earnings ratio is a bottom-up calculation based on the most recent index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates. Returns are cumulative and based on price movement only, and do not include the reinvestment of dividends. Dividend yield is calculated as consensus estimates of dividends for the next 12 months, divided by most recent price, as provided by FactSet Market Aggregates. Past performance is not a reliable indicator of current and future results.
Guide to the Markets – U.S. Data are as of December 31, 2018.

Themes this Quarter

- Economic update
- Interest rate update/expectations
- Equity market assumptions
- **What should investors do?**

Long-Term Drivers of Capital Markets

Fundamental Drivers

Inflation
Economic Growth
Global Conditions and Relationships

Financial Drivers

Interest Rates
Required Risk Premiums
Valuations

Source: Mercer

Economic Growth Assumptions

	Labor Force Growth		0.5%
+	<u>Productivity Growth</u>	+	<u>1.6%</u>
	Real GDP Growth		2.1%

Source: Mercer

Expected Return on Equities

Return = Real Growth + Dividends + Inflation + Change in PE

6.9% = 2.1% + 2.7% + 2.2% +/- 0.0%

Source: Mercer

Expected Return on Equities

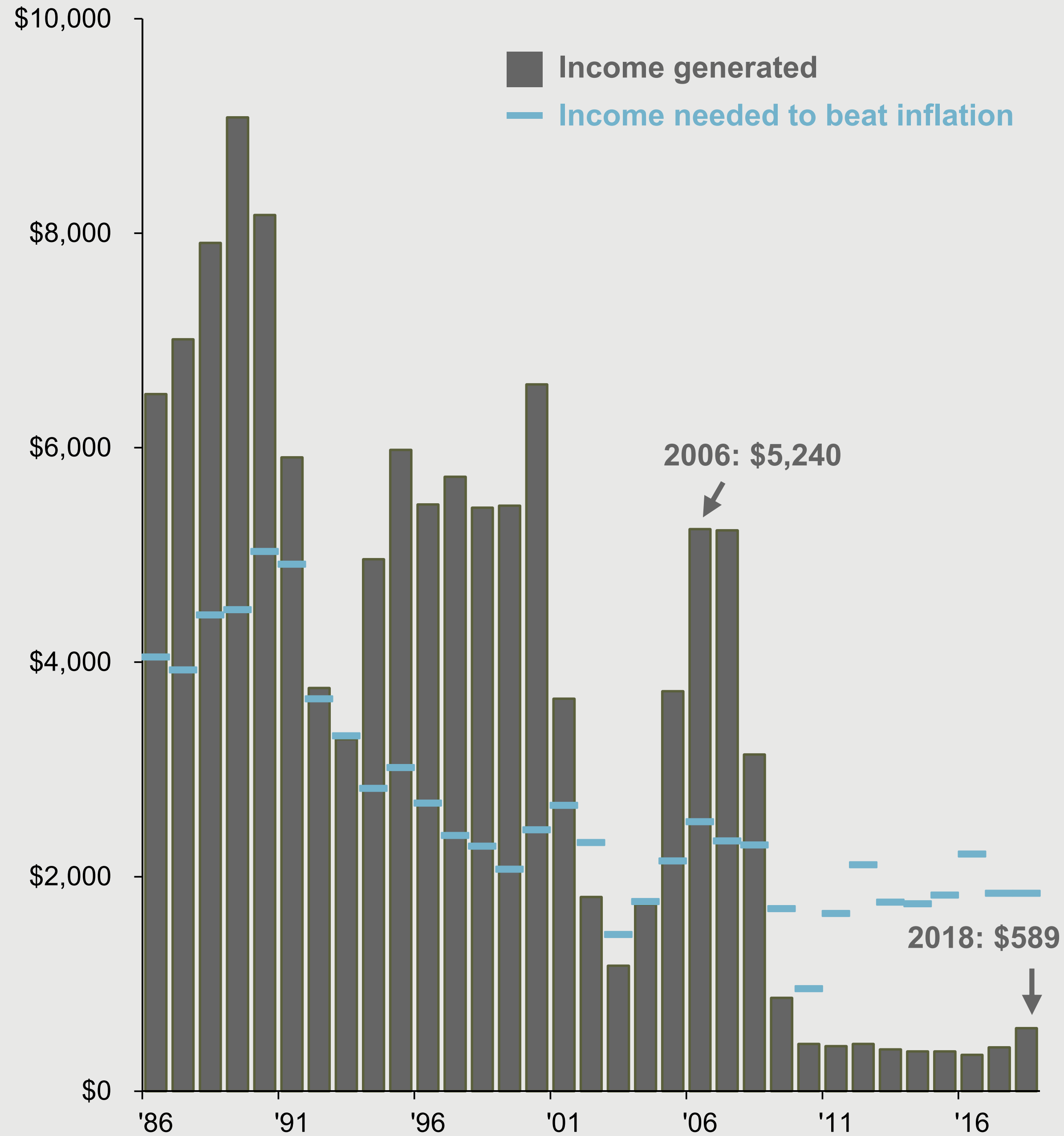
Return = Real Growth + Dividends + Inflation + Change in PE

6.9%	=	2.1%	+	2.7%	+	2.2%	+/-	0.0%

Source: Mercer

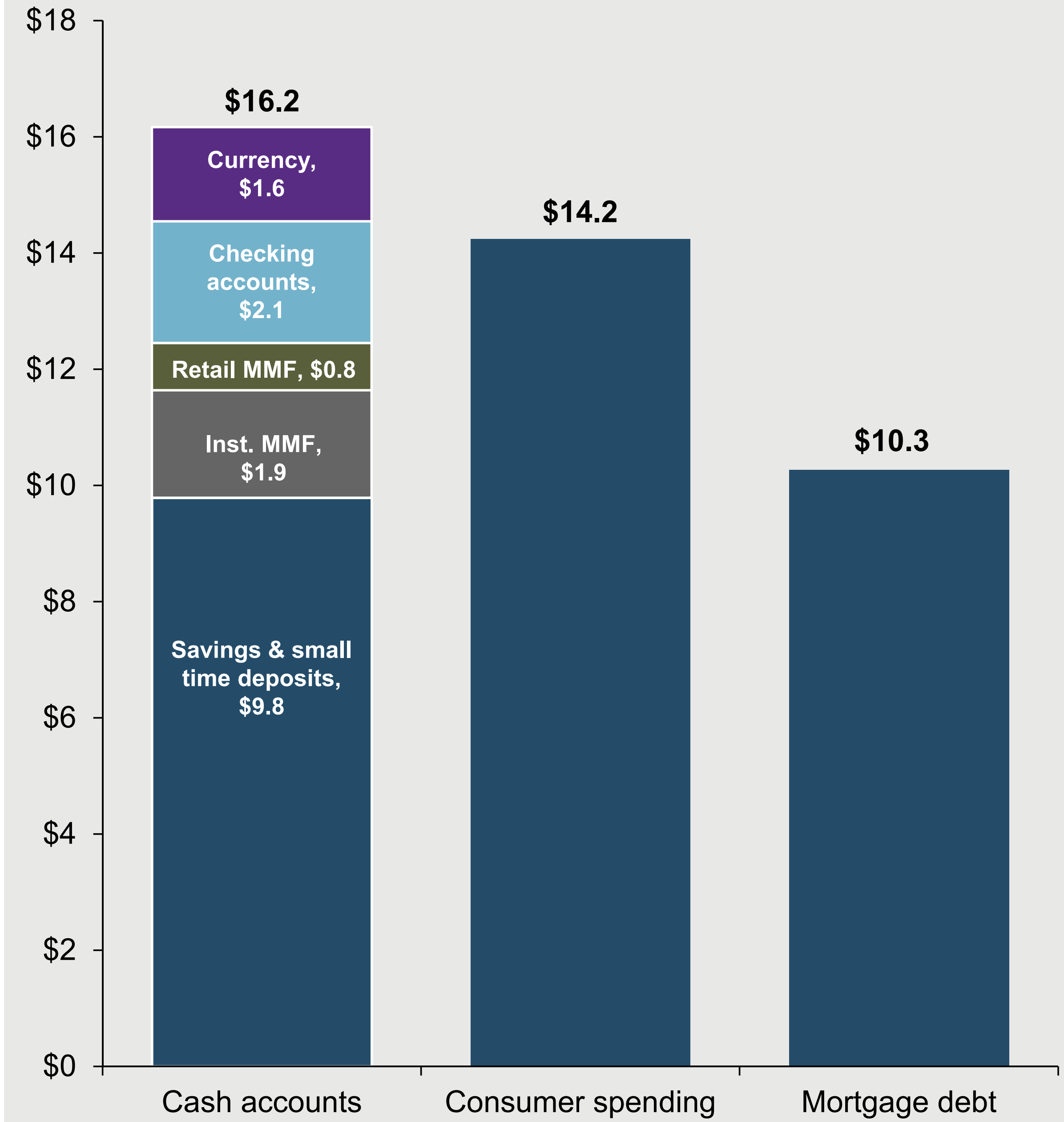
Cash accounts

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



Cash accounts in perspective

Trillions of U.S. dollars

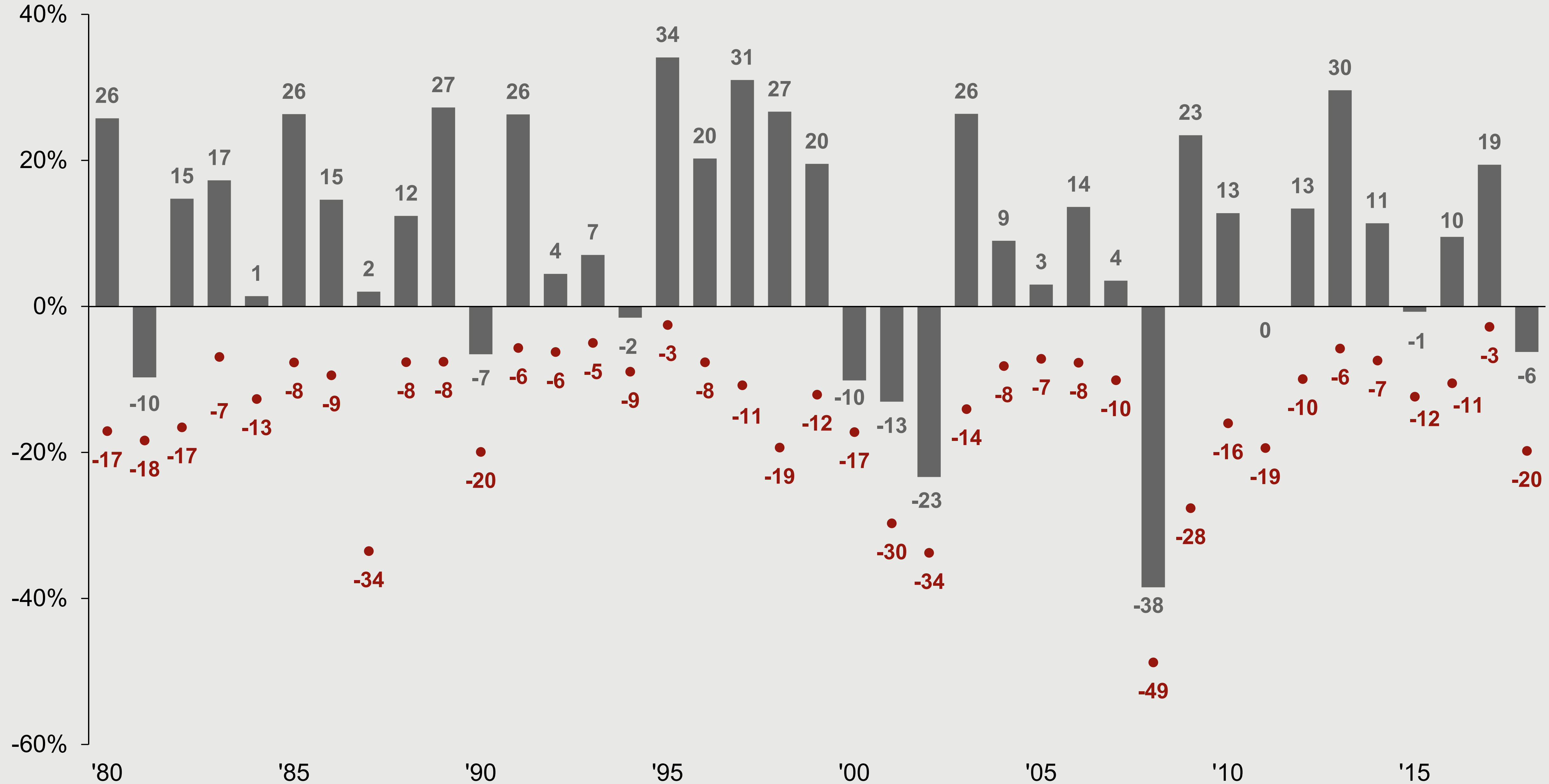


Source: FactSet, J.P. Morgan Asset Management; (Left) Bankrate.com; (Right) BEA, Federal Reserve System.
Cash accounts and consumer spending are as of 11/30/18 and mortgage debt is as of 9/30/18. M2 includes M1 (currency in circulation and checking accounts) plus savings deposits, small-denomination time deposits and retail money market mutual funds. Institutional money market funds are considered a memorandum item, not included in M2. Annual income is for illustrative purposes and is calculated based on the 6-month CD yield on average during each year and $100,000 invested. Past performance is not indicative of comparable future results.
Guide to the Markets – U.S. Data are as of December 31, 2018.

Annual returns and intra-year declines

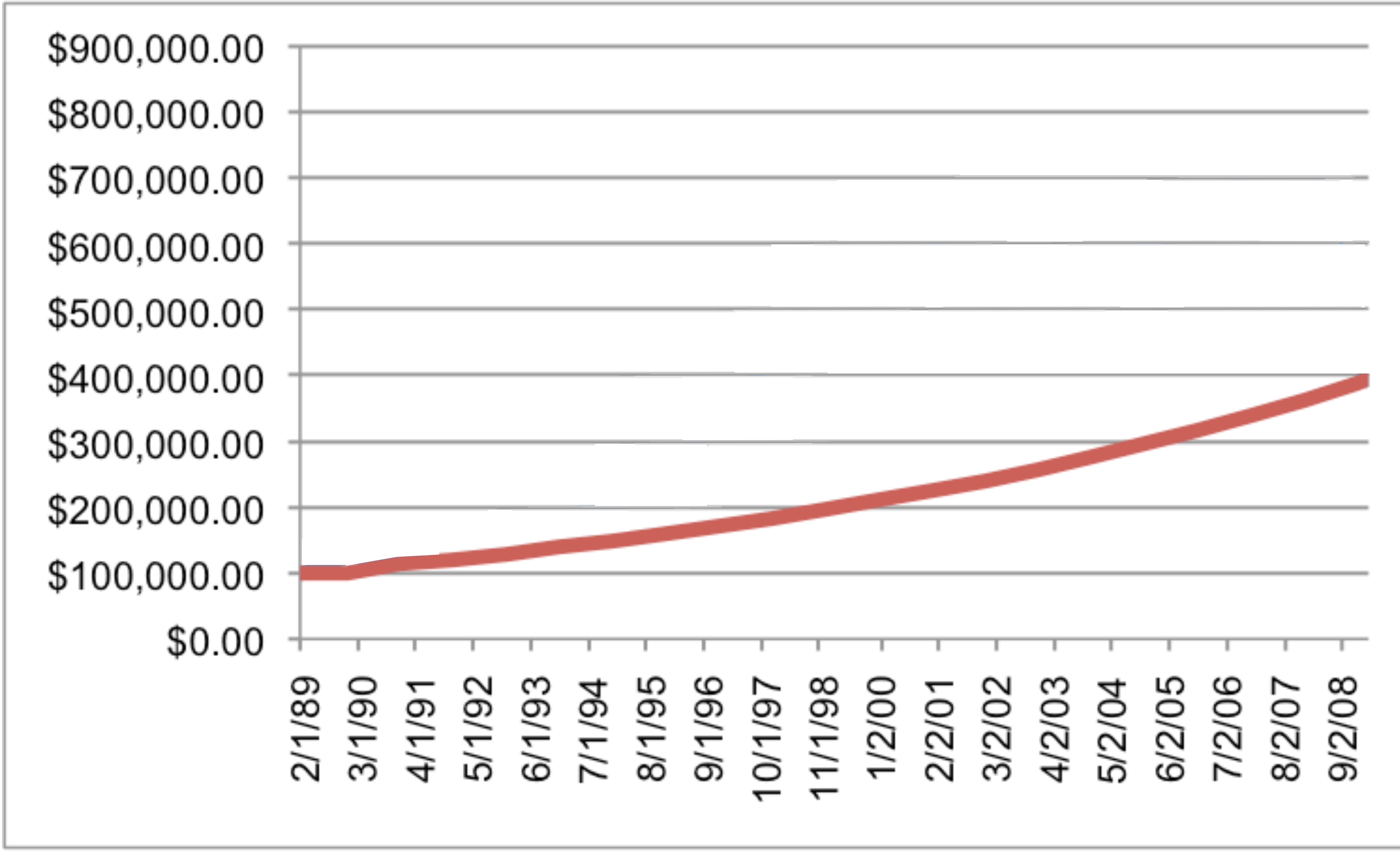
S&P 500 intra-year declines vs. calendar year returns

Despite average intra-year drops of 13.9%, annual returns positive in 29 of 39 years

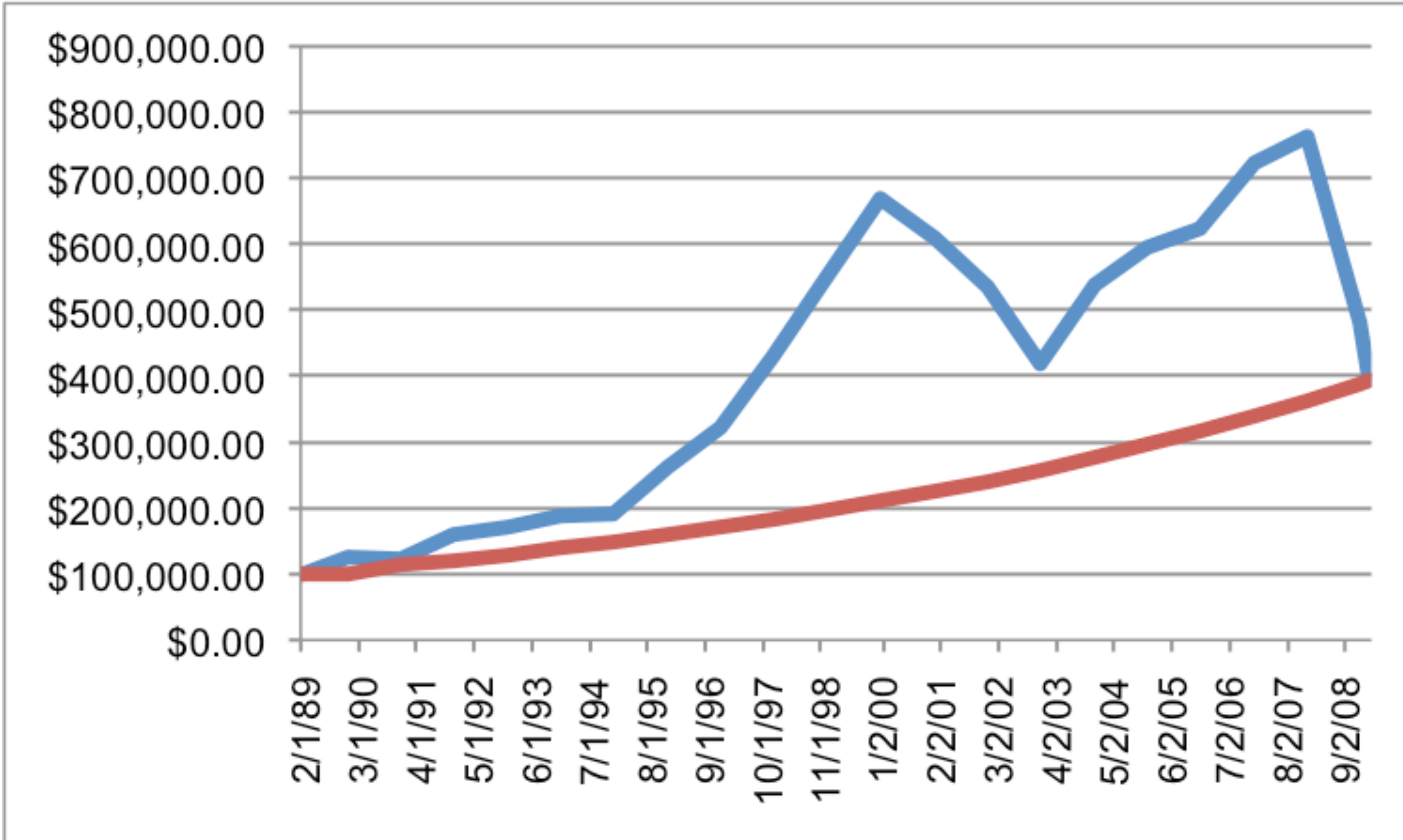


Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management.
Returns are based on price index only and do not include dividends. Intra-year drops refers to the largest market drops from a peak to a trough during the year. For illustrative purposes only. Returns shown are calendar year returns from 1980 to 2018, over which time period the average annual return was 8.4%.
Guide to the Markets – U.S. Data are as of December 31, 2018.

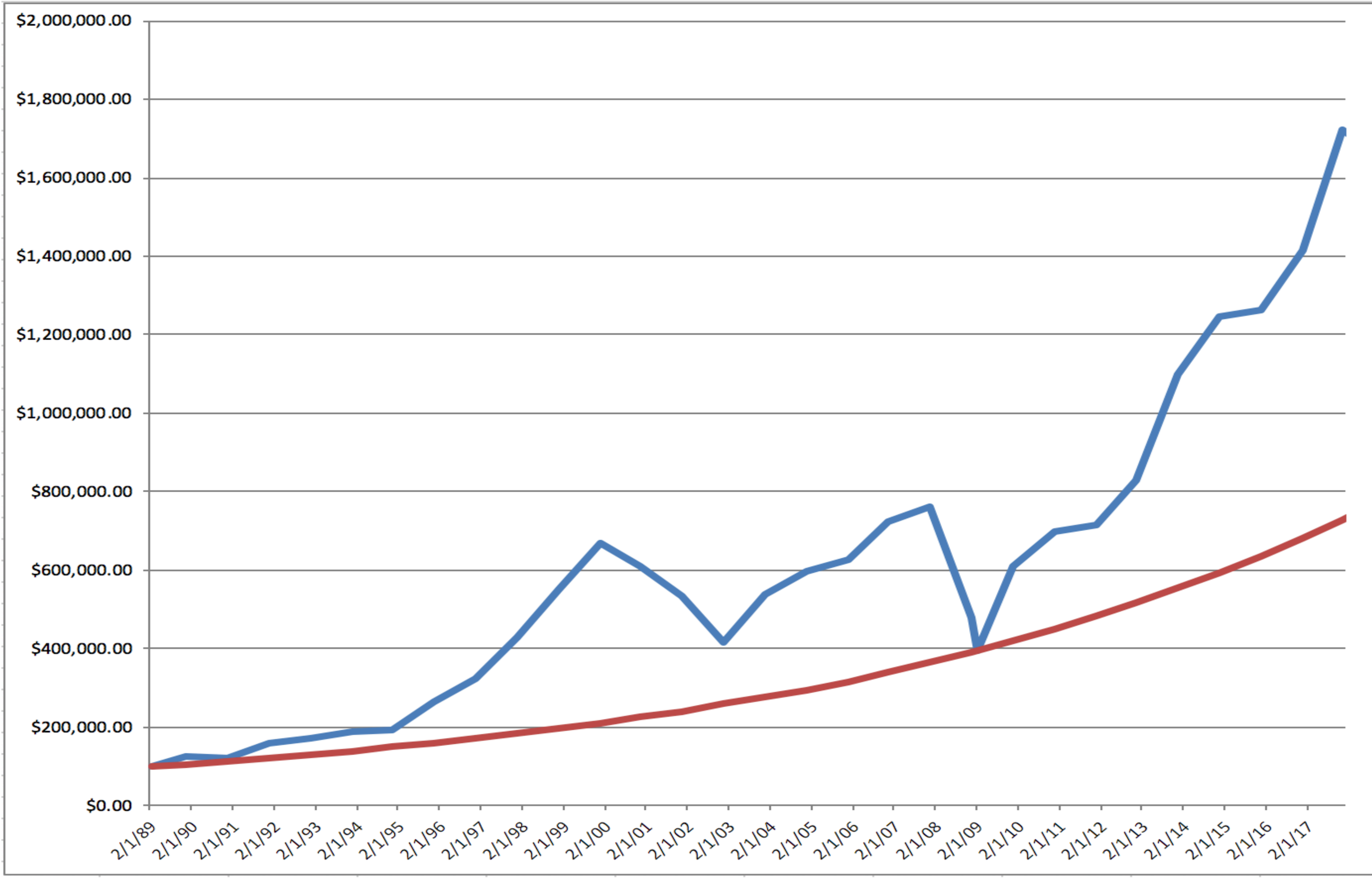
J.P.Morgan Asset Management



Source: Hypothetical Illustration tool from https://www.americanfunds.com/advisor/



Source: Hypothetical Illustration tool from https://www.americanfunds.com/advisor/



Source: Hypothetical Illustration tool from https://www.americanfunds.com/advisor/

Asset class returns

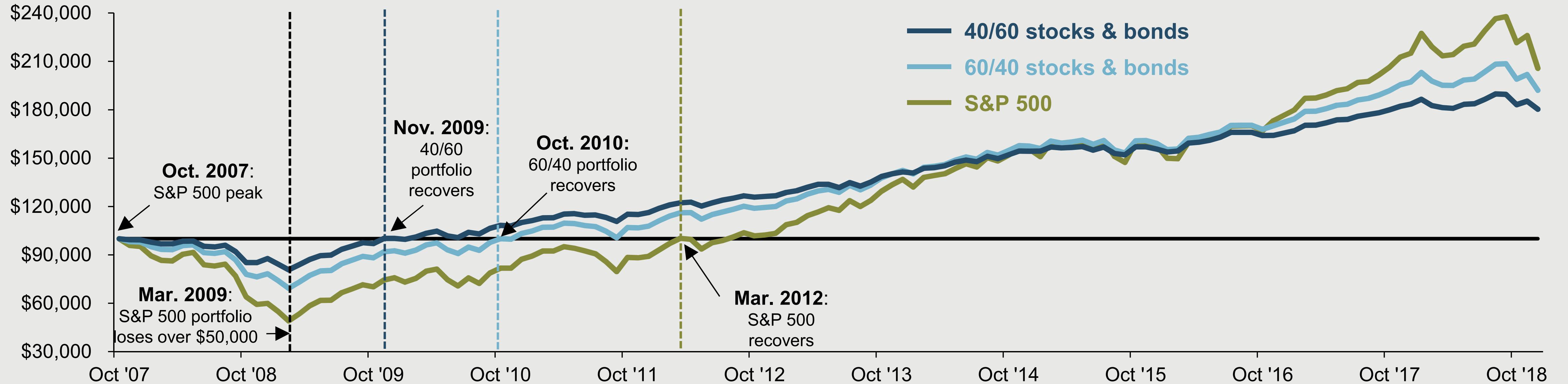
2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2004 - 2018 Ann.	2004 - 2018 Vol.
REITs 31.6%	EM Equity 34.5%	REITs 35.1%	EM Equity 39.8%	Fixed Income 5.2%	EM Equity 79.0%	REITs 27.9%	REITs 8.3%	REITs 19.7%	Small Cap 38.8%	REITs 28.0%	REITs 2.8%	Small Cap 21.3%	EM Equity 37.8%	Cash 1.8%	REITs 8.5%	REITs 22.4%
EM Equity 26.0%	Comdty. 21.4%	EM Equity 32.6%	Comdty. 16.2%	Cash 1.8%	High Yield 59.4%	Small Cap 26.9%	Fixed Income 7.8%	High Yield 19.6%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	High Yield 14.3%	DM Equity 25.6%	Fixed Income 0.0%	EM Equity 8.3%	EM Equity 22.1%
DM Equity 20.7%	DM Equity 14.0%	DM Equity 26.9%	DM Equity 11.6%	Asset Alloc. -25.4%	DM Equity 32.5%	EM Equity 19.2%	High Yield 3.1%	EM Equity 18.6%	DM Equity 23.3%	Fixed Income 6.0%	Fixed Income 0.5%	Large Cap 12.0%	Large Cap 21.8%	REITs -4.0%	Large Cap 7.8%	Small Cap 18.6%
Small Cap 18.3%	REITs 12.2%	Small Cap 18.4%	Asset Alloc. 7.1%	High Yield -26.9%	REITs 28.0%	Comdty. 16.8%	Large Cap 2.1%	DM Equity 17.9%	Asset Alloc. 14.9%	Asset Alloc. 5.2%	Cash 0.0%	Comdty. 11.8%	Small Cap 14.6%	High Yield -4.1%	Small Cap 7.5%	Comdty. 18.6%
High Yield 13.2%	Asset Alloc. 8.1%	Large Cap 15.8%	Fixed Income 7.0%	Small Cap -33.8%	Small Cap 27.2%	Large Cap 15.1%	Cash 0.1%	Small Cap 16.3%	High Yield 7.3%	Small Cap 4.9%	DM Equity -0.4%	EM Equity 11.6%	Asset Alloc. 14.6%	Large Cap -4.4%	High Yield 7.3%	DM Equity 17.6%
Asset Alloc. 12.8%	Large Cap 4.9%	Asset Alloc. 15.3%	Large Cap 5.5%	Comdty. -35.6%	Large Cap 26.5%	High Yield 14.8%	Asset Alloc. -0.7%	Large Cap 16.0%	REITs 2.9%	Cash 0.0%	Asset Alloc. -2.0%	REITs 8.6%	High Yield 10.4%	Asset Alloc. -5.8%	Asset Alloc. 6.2%	Large Cap 14.5%
Large Cap 10.9%	Small Cap 4.6%	High Yield 13.7%	Cash 4.8%	Large Cap -37.0%	Asset Alloc. 25.0%	Asset Alloc. 13.3%	Small Cap -4.2%	Asset Alloc. 12.2%	Cash 0.0%	High Yield 0.0%	High Yield -2.7%	Asset Alloc. 8.3%	REITs 8.7%	Small Cap -11.0%	DM Equity 5.2%	High Yield 11.0%
Comdty. 9.1%	High Yield 3.6%	Cash 4.8%	High Yield 3.2%	REITs -37.7%	Comdty. 18.9%	DM Equity 8.2%	DM Equity -11.7%	Fixed Income 4.2%	Fixed Income -2.0%	EM Equity -1.8%	Small Cap -4.4%	Fixed Income 2.6%	Fixed Income 3.5%	Comdty. -11.2%	Fixed Income 3.9%	Asset Alloc. 10.3%
Fixed Income 4.3%	Cash 3.0%	Fixed Income 4.3%	Small Cap -1.6%	DM Equity -43.1%	Fixed Income 5.9%	Fixed Income 6.5%	Comdty. -13.3%	Cash 0.1%	EM Equity -2.3%	DM Equity -4.5%	EM Equity -14.6%	DM Equity 1.5%	Comdty. 1.7%	DM Equity -13.4%	Cash 1.3%	Fixed Income 3.3%
Cash 1.2%	Fixed Income 2.4%	Comdty. 2.1%	REITs -15.7%	EM Equity -53.2%	Cash 0.1%	Cash 0.1%	EM Equity -18.2%	Comdty. -1.1%	Comdty. -9.5%	Comdty. -17.0%	Comdty. -24.7%	Cash 0.3%	Cash 0.8%	EM Equity -14.2%	Comdty. -2.5%	Cash 0.8%

Source: Barclays, Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor's, J.P. Morgan Asset Management.
Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, Comdty: Bloomberg Commodity Index, High Yield: Bloomberg Barclays Global HY Index, Fixed Income: Bloomberg Barclays US Aggregate, REITs: NAREIT Equity REIT Index, Cash: Bloomberg Barclays 1-3m Treasury. 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 Bloomberg Barclays US Aggregate, 5% in the Bloomberg Barclays 1-3m Treasury, 5% in the Bloomberg 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 12/31/03 – 12/31/18. Please see disclosure page at end for index definitions. All data represents total return for stated period. Past performance is not indicative of future returns.
Guide to the Markets – U.S. Data are as of December 31, 2018.

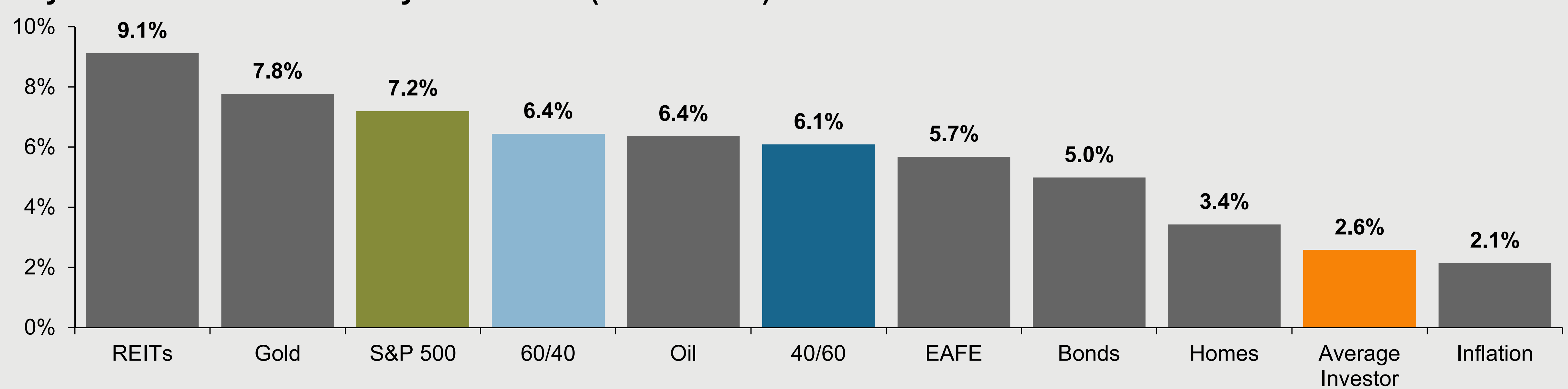
Diversification and the average investor

Investing principles

Portfolio returns: Equities vs. equity and fixed income blend



20-year annualized returns by asset class (1998 – 2017)



Source: J.P. Morgan Asset Management; (Top) Barclays, Bloomberg, FactSet, Standard & Poor's; (Bottom) Dalbar Inc.
Indices used are as follows: REITS: NAREIT Equity REIT Index, EAFE: MSCI EAFE, Oil: WTI Index, Bonds: Bloomberg 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 Bloomberg 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 12/31/17 to match Dalbar's most recent analysis.
Guide to the Markets – U.S. Data are as of December 31, 2018.

J.P.Morgan Asset Management

J.P. Morgan Asset Management – Index definitions

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

The **Bloomberg 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 **Bloomberg 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 **Bloomberg 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 **Bloomberg 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.

J.P. Morgan Asset Management – Index definitions & disclosures

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.

J.P. Morgan Asset Management – Risks & disclosures

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Unless otherwise stated, all data are as of December 31, 2018 or most recently available.

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CAPITAL MARKETS REVIEW

1st Quarter 2019

Reviewing the quarter ended December 31, 2018

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