Callan

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2017 Capital Market Projections

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Agenda

- Process Overview
  – Why does Callan create capital market expectations?
- Current Economic Conditions
- Economic outlook
- Asset class outlook
- Detailed 2017 Expectations and Resulting Portfolio Returns

Process Overview

Why Make Capital Market Projections?

Guiding Objectives and Process

- Cornerstone of a prudent process is a long-term strategic investment plan.
- Capital market projections are key elements — set reasonable return and risk expectations for the appropriate time horizon.
- Projections represent our best thinking regarding the long-term (10-year) outlook, recognizing our median projections represent the midpoint of a range, rather than a specific number.
- Develop results that are readily defensible both for individual asset classes and for total portfolios.
- Be conscious of the level of change suggested in strategic allocations for long-term investors: DB plan sponsors, foundations, endowments, trusts, DC participants, families and individuals.
- Reflect common sense and recent market developments, within reason.
  - Callan's forecasts are informed by current market conditions, but are not built directly from them.
- Balance recent, immediate performance and valuation against long-term equilibrium expectations.

Why Make Capital Market Projections?

Guiding Objectives and Process

- Underlying beliefs guide the development of the projections:
  - An initial bias toward long-run averages
  - A conservative bias
  - An awareness of risk premiums
  - A presumption that markets ultimately clear and are rational.
- Reflect our beliefs that long-term equilibrium relationships between the capital markets and lasting trends in global economic growth are key drivers to setting capital market expectations.
- Long-term compensated risk premiums represent "beta"—exposure to each broad market, whether traditional or "exotic," with limited dependence on successful realization of alpha.
- The projection process is built around several key building blocks:
  - Advanced modeling at the individual asset class level (for example, a detailed bond model, an equity model)
  - A path for interest rates and inflation
  - A cohesive economic outlook
  - A framework that encompasses Callan beliefs about the long-term operation and efficiencies of the capital markets.

How are Capital Market Projections Constructed?

- Projections consist of return and two measures that contribute to portfolio volatility: standard deviation and correlation.
- Cover most broad asset classes and inflation
  - Broad Domestic Equity
    - *Large Cap*
    - *Small/mid Cap*
  - International Equity
    - *Developed Markets*
    - *Emerging Markets*
  - Domestic Fixed Income
    - *Short Duration*
    - *Broad Market*
    - *TIPS*
    - *High Yield*
    - *Long Duration*
  - International Fixed Income
  - Real Estate
  - Alternative Investments
  - Cash
  - Inflation

Current Conditions

The Capital Markets at January 2017

U.S. and Global Capital Markets Rallied After Mid-Year Investor Uncertainty

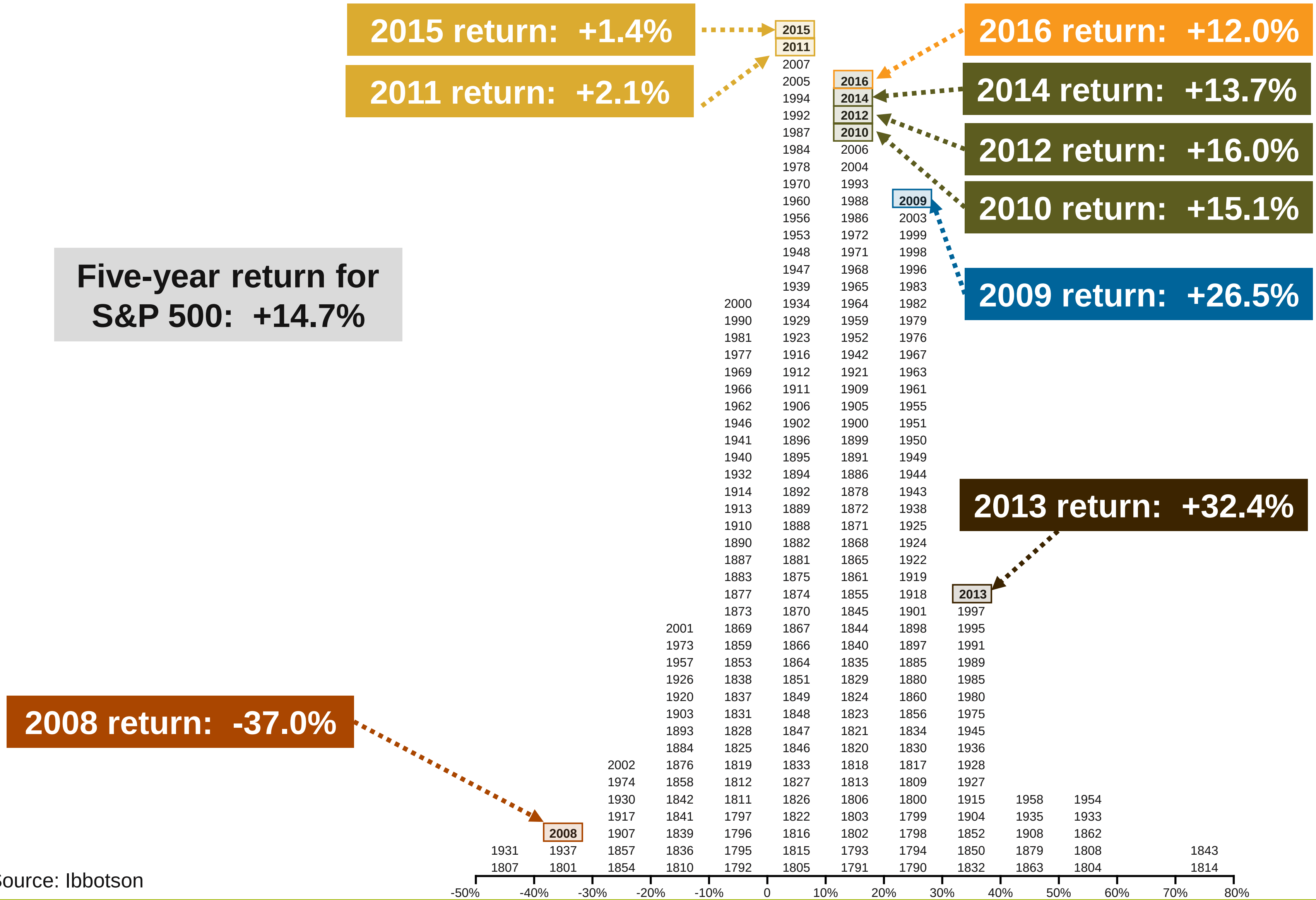
- Stock and bond markets endured a wild ride around the world, with Brexit and the US elections roiling investors' emotions. Underlying economic data remain positive, and tell a story of persistent modest growth in the U.S. and weak recovery in Europe.
- Five-year US equity returns through 2016 are very strong. Ten-year returns no longer include the robust 2003-05 results. Fifteen-year equity returns are still below long-run averages, but are above those of fixed income, as 2000-2002 downturn as rolled off the calculation.

	2011	2012	2013	2014	2015	2016	Average Annual Returns for periods ended 12.31.2016 5 Years	10 Years	15 Years
Broad U.S. Stock Market									
Russell 3000	1.03	16.42	33.55	12.56	0.48	12.74	14.67	7.07	7.11
Large Cap U.S. Stocks									
S&P 500	2.11	16.00	32.39	13.69	1.38	11.96	14.66	6.95	6.69
Small Cap U.S. Stocks									
Russell 2000	-4.18	16.35	38.82	4.89	-4.41	21.31	14.46	7.07	8.49
Non-U.S. Stock Markets									
MSCI EAFE US$	-12.14	17.32	22.78	-4.90	-0.81	1.00	6.53	0.75	5.28
MSCI Emerging Markets	-18.17	18.63	-2.27	-1.82	-14.60	11.60	1.64	2.17	9.85
Fixed Income									
Barclays Aggregate	7.84	4.21	-2.02	5.97	0.55	2.65	2.23	4.34	4.58
Barclays Glbl Agg ex USD	4.36	4.09	-3.08	-3.09	-6.02	1.49	-1.39	2.44	4.96
Barclays Long Gov/Credit	22.49	8.78	-8.83	19.31	-3.30	6.67	4.07	6.85	7.03
Real Estate									
NCREIF	14.26	10.54	10.98	11.82	13.33	8.01	10.92	6.94	9.01
Hedge Funds									
CS Hedge Fund Index	-2.52	7.67	9.73	4.13	-0.71	1.25	4.34	3.75	5.74
Private Equity									
Cambridge Private Equity*	11.00	13.33	22.13	12.75	7.10*	4.06*	10.89*	10.54*	10.22*
Commodities									
Bloomberg Commodity	-13.37	-1.14	-9.58	-17.04	-24.70	11.40	-9.06	-6.23	-0.11
Cash Market									
90-Day T-Bill	0.10	0.11	0.07	0.03	0.05	0.33	0.12	0.80	1.34
Inflation									
CPI-U**	2.96	1.74	1.50	0.76	0.73	1.69	1.30	1.82	2.07

* Private equity data is time-weighted return series for periods ended 6.30.2016 rather than 12.31.2016 in select columns due to a reporting lag.
** CPI-U data are measured as year-over-year change through 11.30.2016.
Source: Callan Associates

Stock Market Returns by Calendar Year

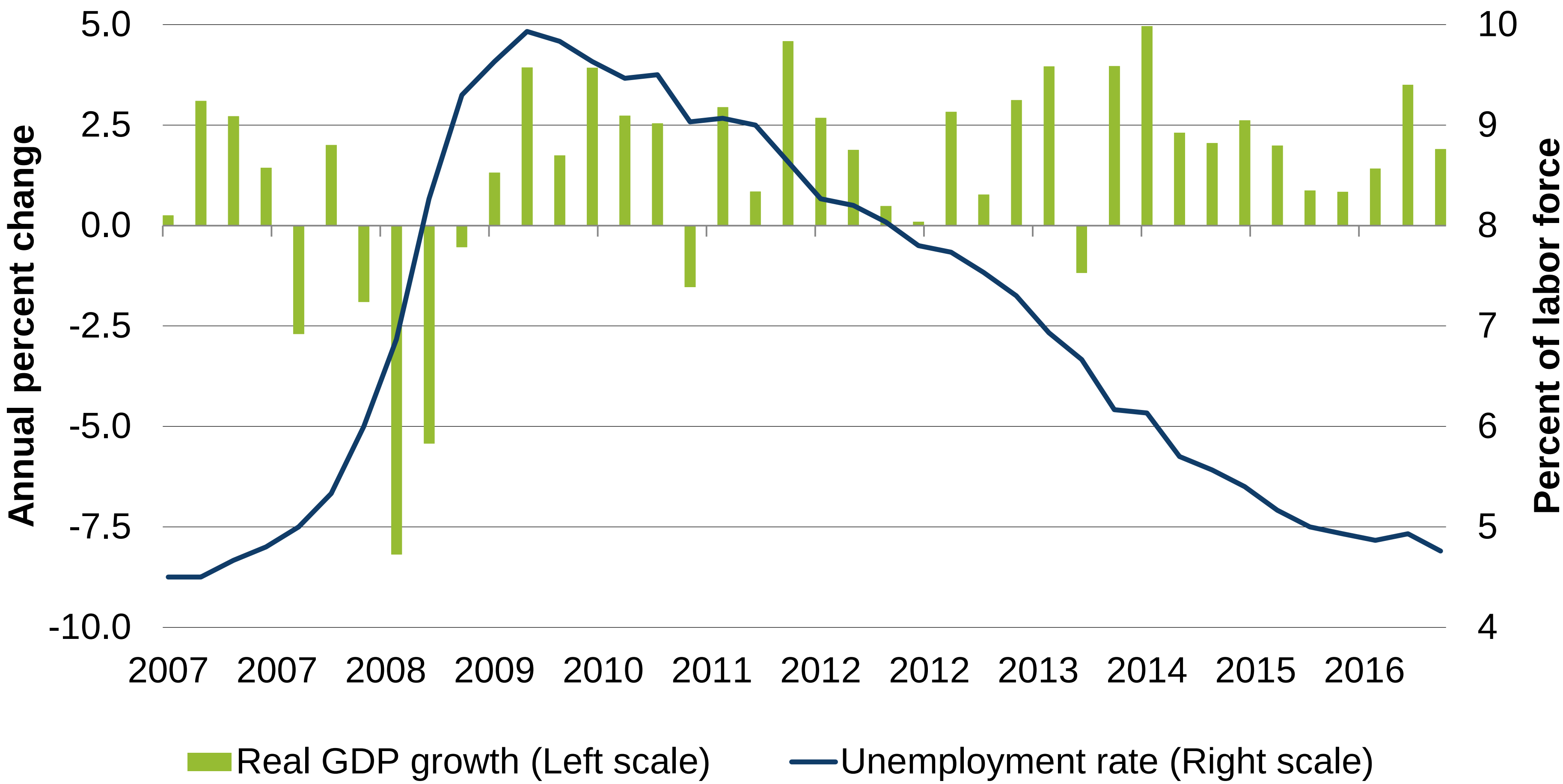
2016 Performance in Perspective: History of the U.S. Stock Market (228 Years of Returns)



Source: Ibbotson

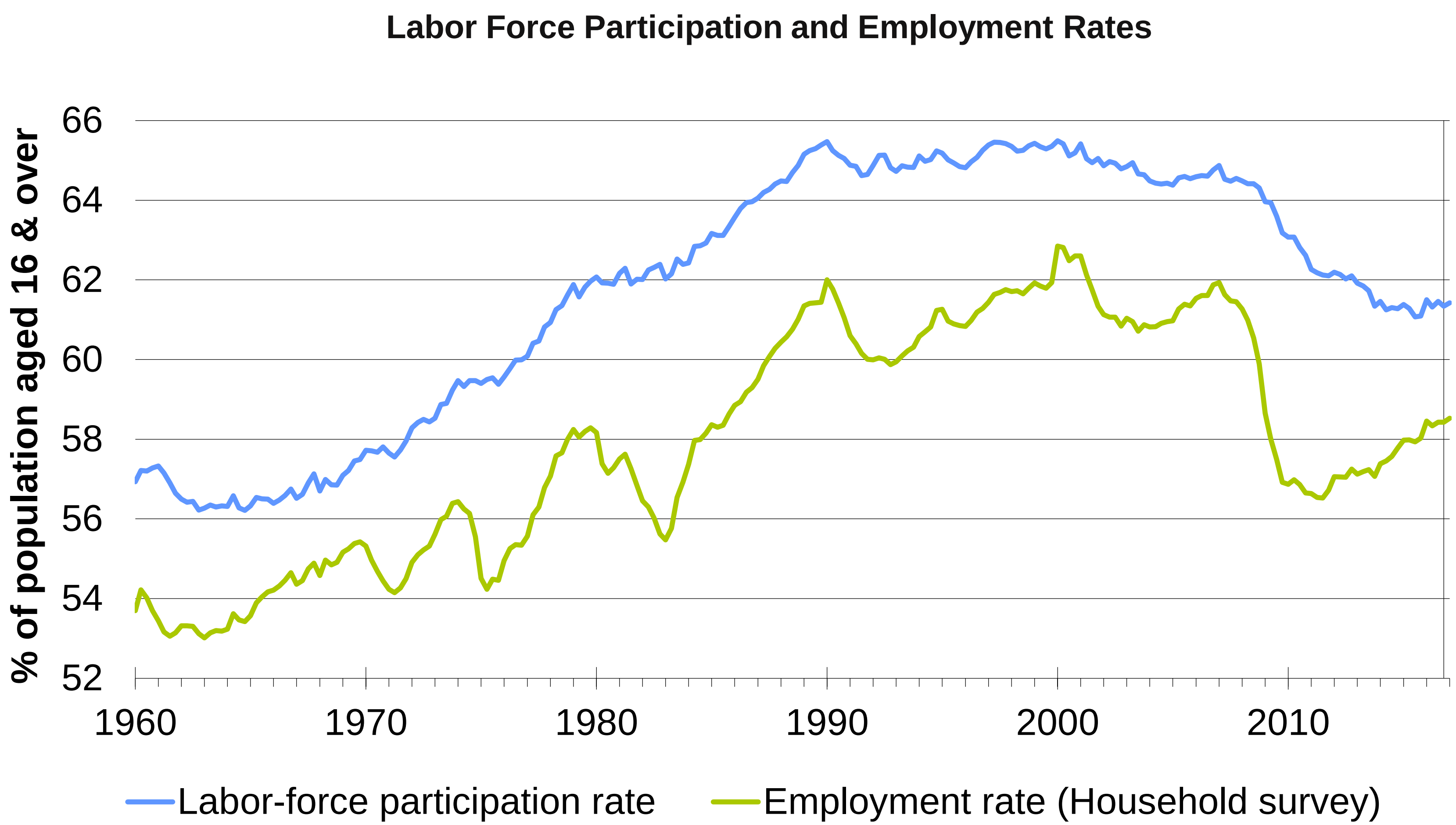
Unemployment Declined Even With Modest GDP Growth

Rate Now Well Below Fed Target – A Full Employment?



Labor-Force Participation and Employment Rates Suppressed

Aging of the Baby Boomers Keep Rates Below Pre-Recession Levels



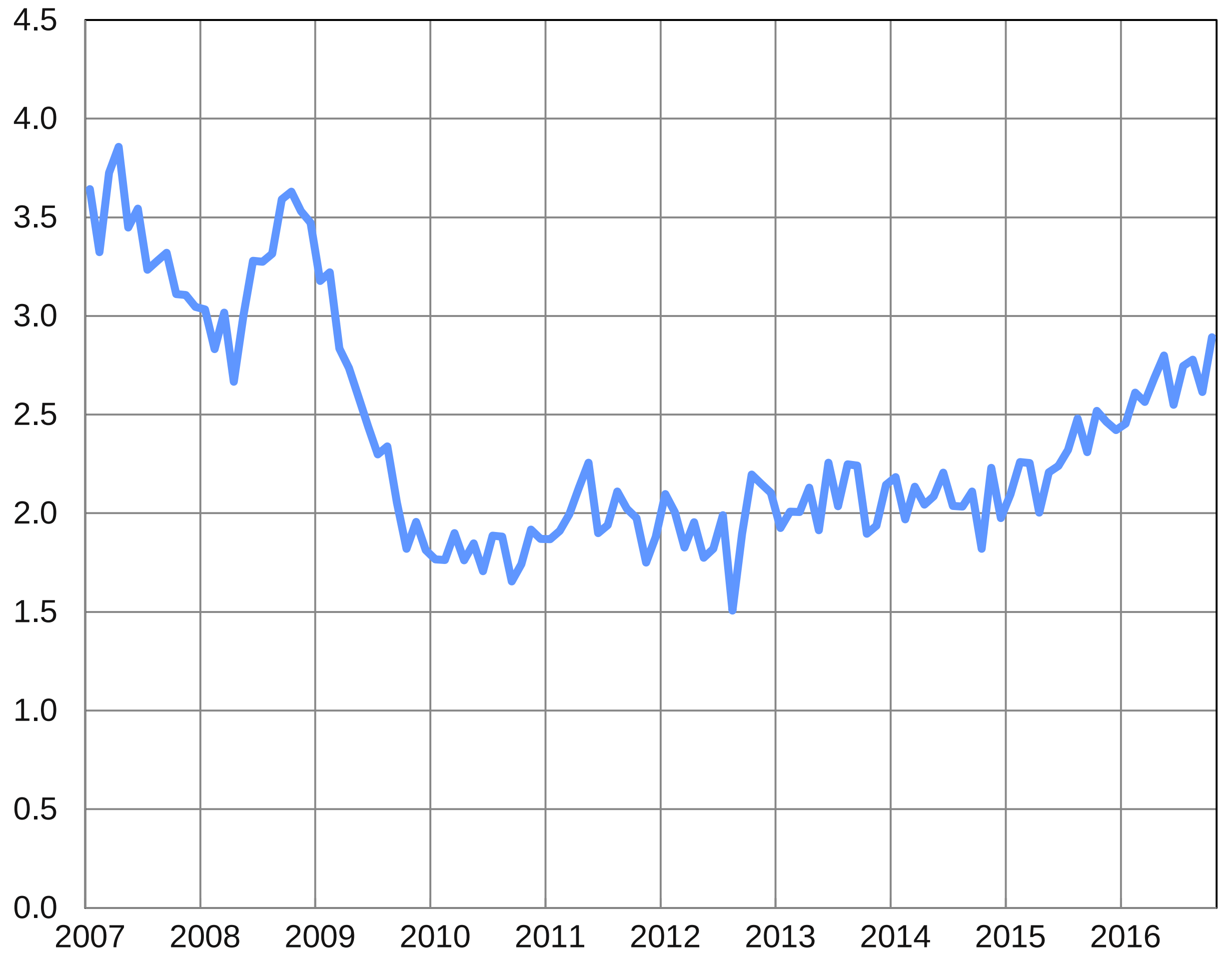
Source: IHS

Growing Inflation Pressures From Wages

Wages flat until 2015

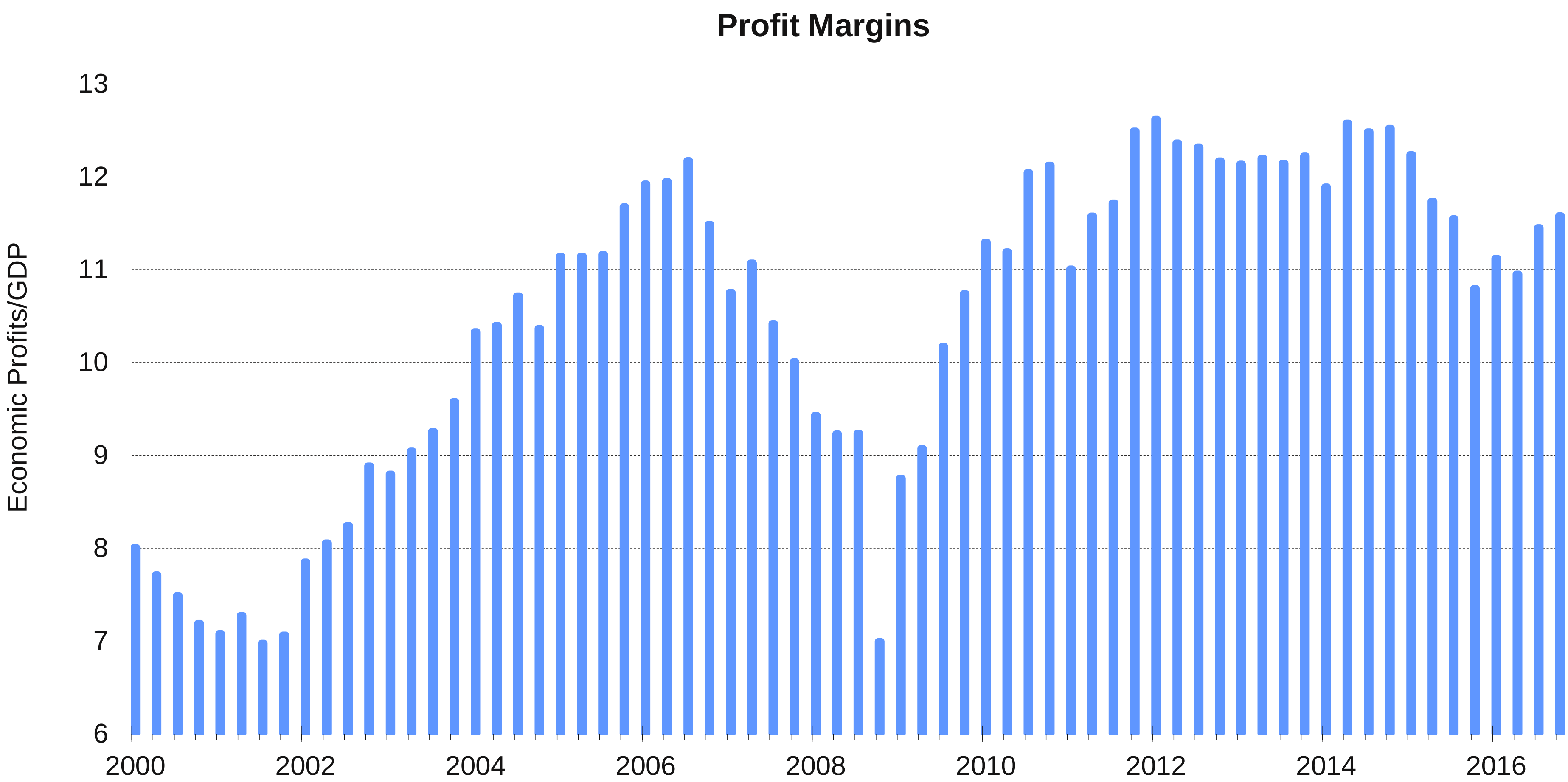
- Sector mix
  - new jobs created in lower-paying fields
- Experience displacement
  - more experienced employees being replaced by less experienced ones
- “Pent up wage deflation”
  - sticky wages prevented full wage adjustments from occurring during the recession
- Substantial job gains and unemployment at 4.7% is beginning to put pressure on wages
  - still sector and region specific

Average Hourly Earnings



Source: IHS, US BLS, Callan Associates

Corporate Profit Margins Remain Robust



Source: Global Insight

U.S. Economic Growth by Sector

Annual Percentage Change

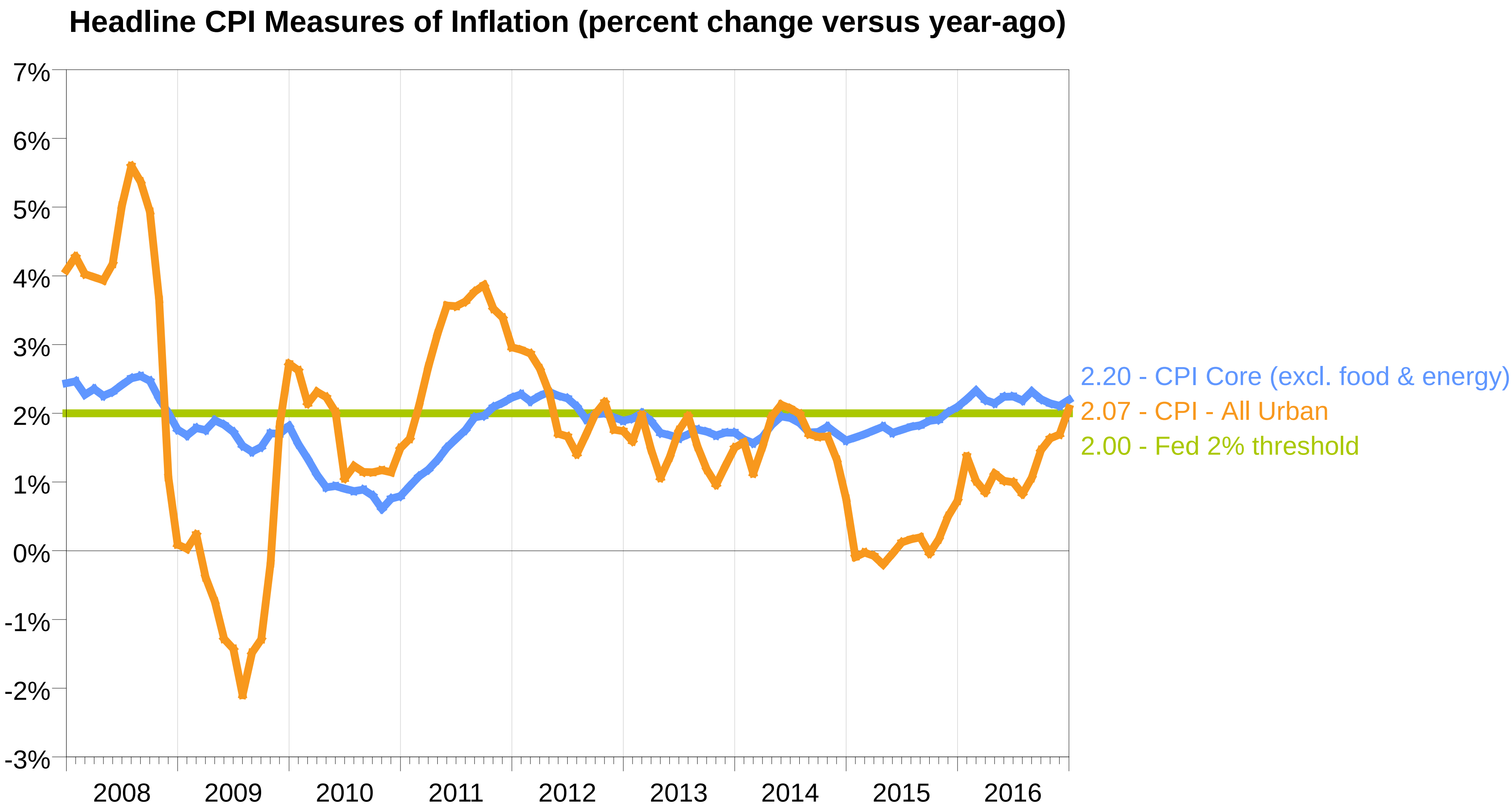
	12/31/2006 Share of GDP	12/31/2016 Share of GDP	2008	2009	2010	2011	2012	2013	2014	2015	2016	Direction of Change
Real GDP	100.0%	100.0%	-0.3	-2.8	2.5	1.6	2.2	1.7	2.4	2.6	1.6	Stable but back below 2%
Consumption	67.2%	69.1%	-0.3	-1.6	1.9	2.3	1.5	1.5	2.9	3.2	2.7	Back above GDP growth
Residential Investment	5.5%	3.5%	-24.0	-21.2	-2.5	0.5	13.5	11.9	3.5	11.7	4.7	Recovered in 2015
Bus Fixed Investment	12.6%	13.2%	-0.7	-15.6	2.5	7.7	9.0	3.5	6.0	2.1	-0.2	Growth slowed in 2015; energy decline
Federal Government	7.3%	6.7%	6.8	5.7	4.3	-2.7	-1.9	-5.8	-2.5	0.0	0.7	No stimulus since 2010
State & Local Government	12.4%	10.7%	0.3	1.6	-2.7	-3.3	-1.9	-0.8	0.2	2.9	0.9	Modest gains as economy improves
Exports	10.3%	12.8%	5.7	-8.8	11.9	6.9	3.4	3.5	4.3	0.1	0.4	Weakened by strong $
Imports	15.7%	16.1%	-2.6	-13.7	12.7	5.5	2.2	1.1	4.4	4.6	0.9	Consumption improving plus strong $

- Recovery has been modest by historical standards. U.S. GDP suffered a hiccup in first quarters of 2014, 2015 and 2016, but regained momentum as each year progressed.
- Housing market found a bottom, and new home construction surged following a slump in 2014. Consumer spending moved back into a driving force as the job market solidified and consumer wealth rebounds. Housing remains challenged by demographics.
- Government spending as a percent of GDP peaked in 2011, receded in 2012-14 without further stimulus.
- Note: Imports are a negative number in the calculation of GDP.

Source: IHS Global Insight and Callan

Inflation Concerns Revive

CPI Rebounded With Oil Prices in the Second Half of 2016



Source: Bureau of Labor Statistics and Callan

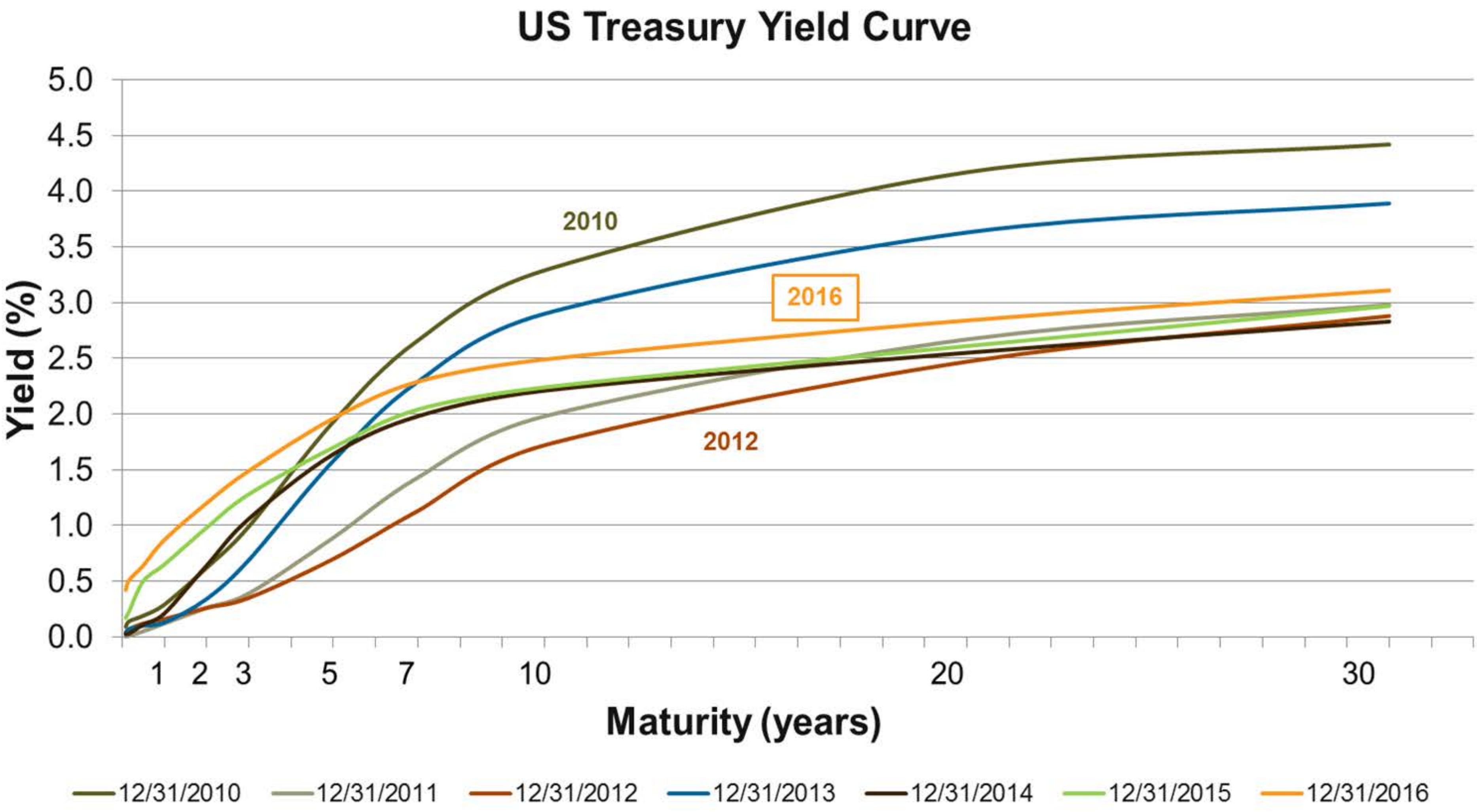
Economy Update Through December 2016

Modest Growth Continues in the US; Concerns Remain Elsewhere

- Wild swings in sentiment and confidence moved markets around the globe, without regard to the underlying economic data. Which was reasonably positive!
- The US economy shows modest strength.
  - Third quarter GDP growth came in strong at 3.5%, fourth quarter at 1.9%; annual growth for 2016 will average 1.6%, down from 2.6% in 2015.
  - Job growth has been consistent and strong. Unemployment rate is down to 4.7%, well below any Fed target. Are we approaching full employment?
  - Consumer spending is strong, driving GDP growth. However, inventories were built in anticipation of even stronger spending, which led to a weak start to 2016.
- Modest recovery slow to take shape in Europe in response to continued stimulus.
  - Progress on the recovery in Europe is clouded by refugee crisis, geopolitical change, fallout from Brexit.
- Fed is talking rate increases. Capital markets do not necessarily buy Fed's articulated pace of rate hikes: futures market predicts fewer hikes and a slower pace.
- Energy prices found a bottom, bringing inflation back to 2%.
- Uncertainty surrounding trade a major source of negative sentiment and market volatility.
  - Slowing growth in China, and context matters: China is now the second largest economy, slowing growth means dropping below 7%.
  - US economic exposure to China is relatively small compared to Europe and emerging markets.
  - Trade wars?

Treasury Rates Rose Across the Curve by the End of 2016

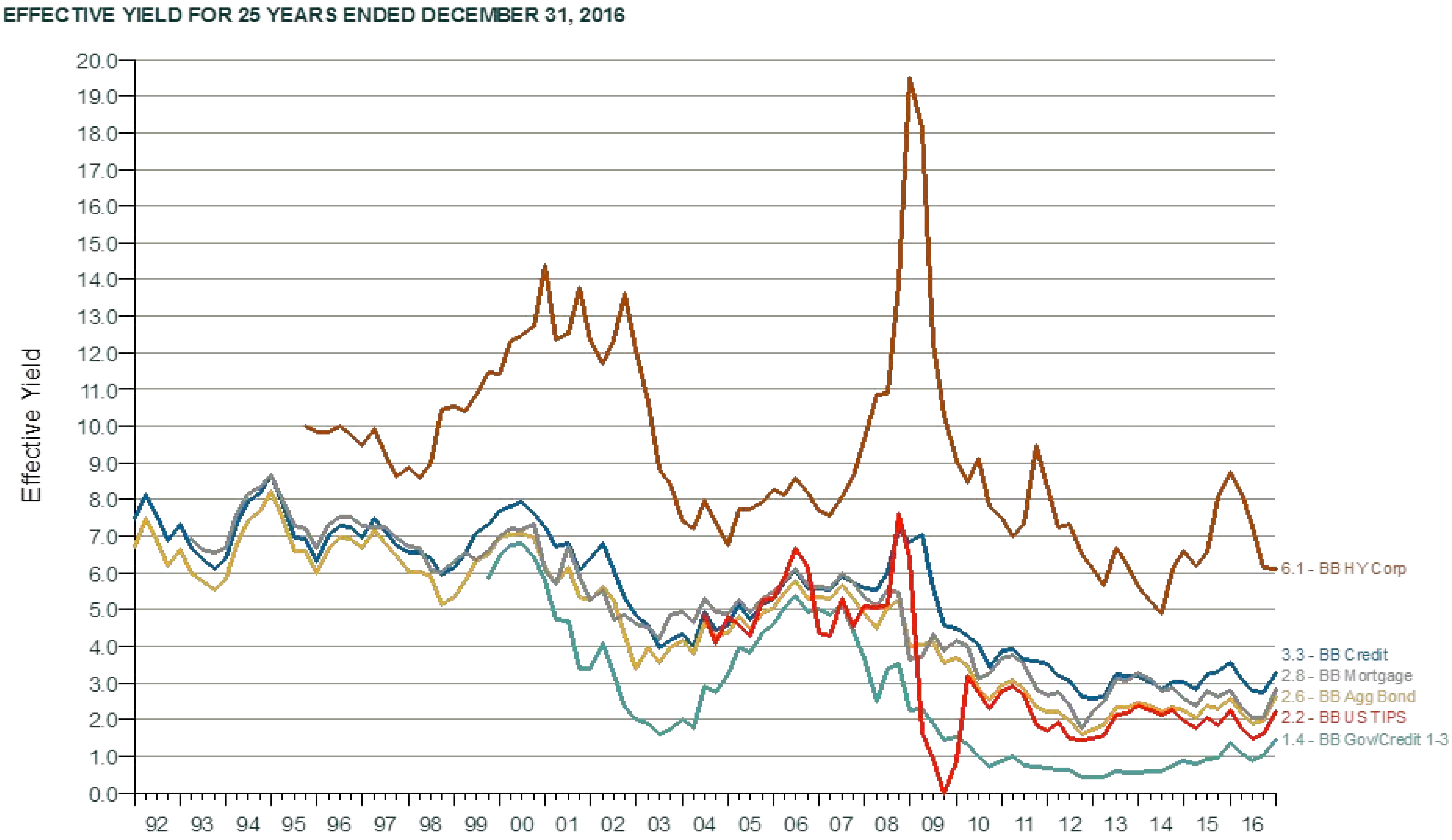
U.S. Treasury Yield Curves



Source: Federal Reserve and Callan

Have Interest Rates Hit Bottom, At Least in the U.S.?

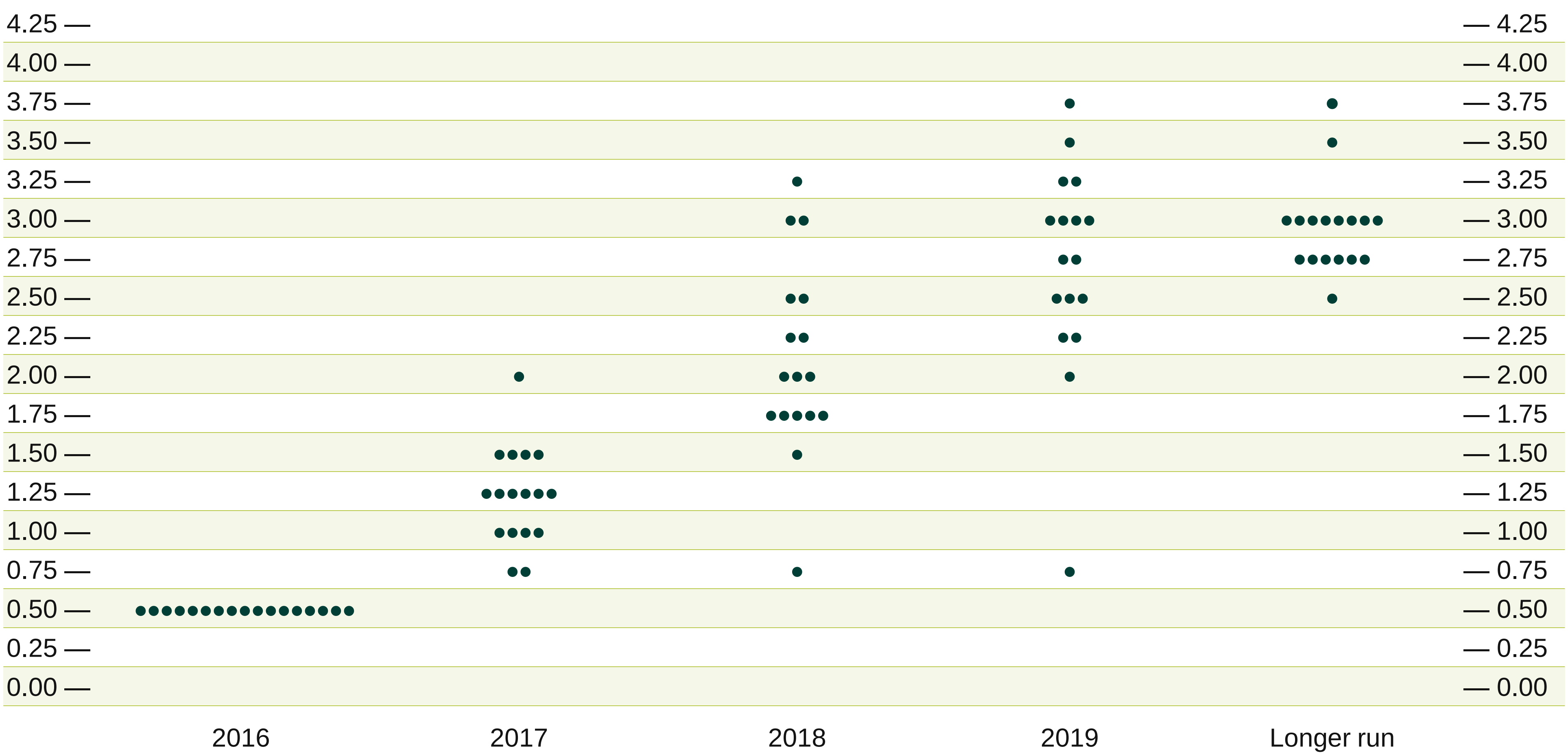
Effective Yields – Various Benchmarks



The Federal Reserve Dot Chart

Longer Term Target has Consensus Within the FOMC, But Not the Path to Get There

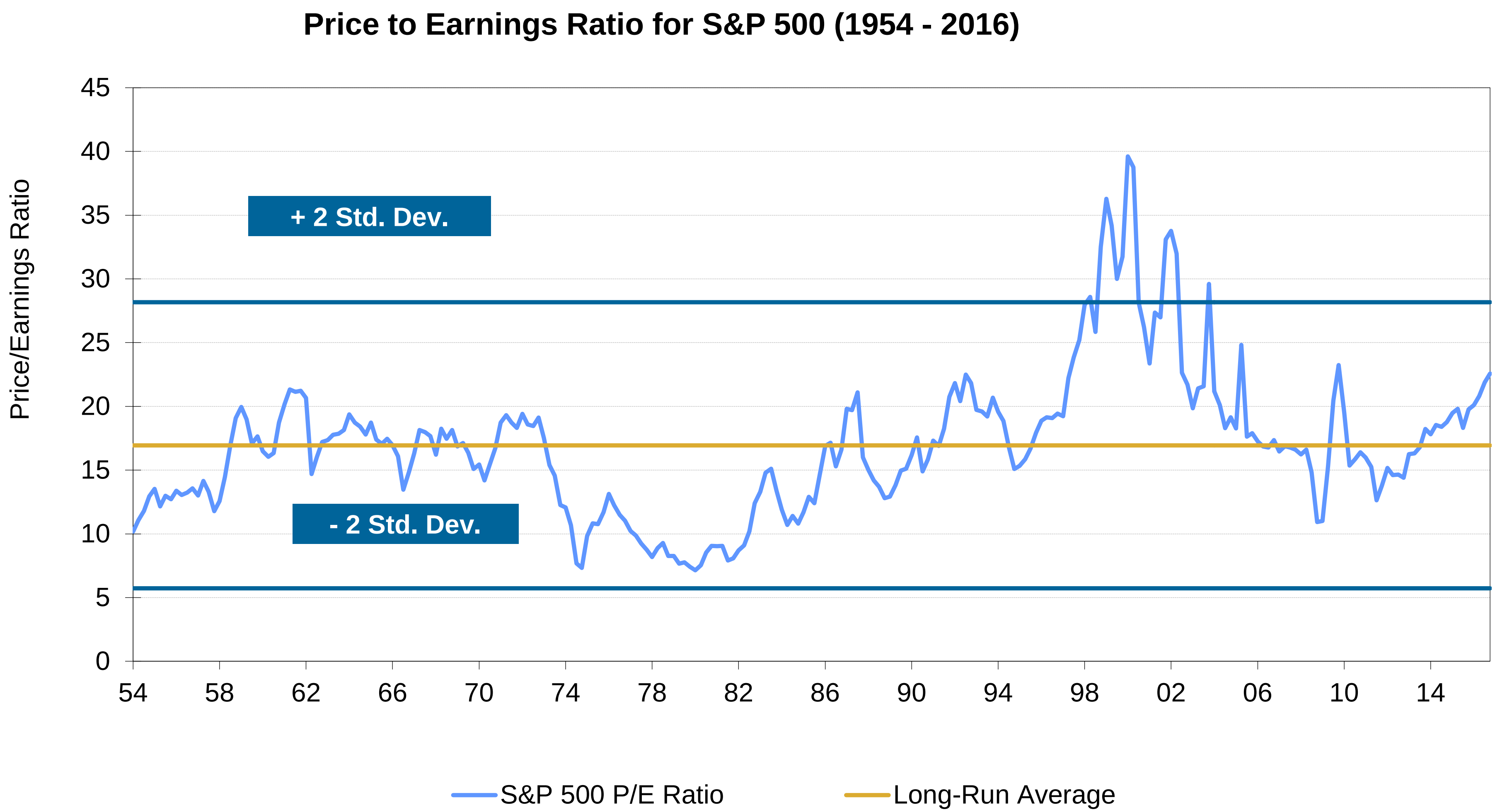
Target fed funds rate at year-end (December projections)



Each shaded circle indicates the value of an individual participant's judgment of the midpoint of the target federal funds rate at the end of the specified calendar year and over the longer run. The number in each column represents the lower bound of an 0.25 percentage point range.

Egregiously Overvalued, Or the Best of What's Out There?

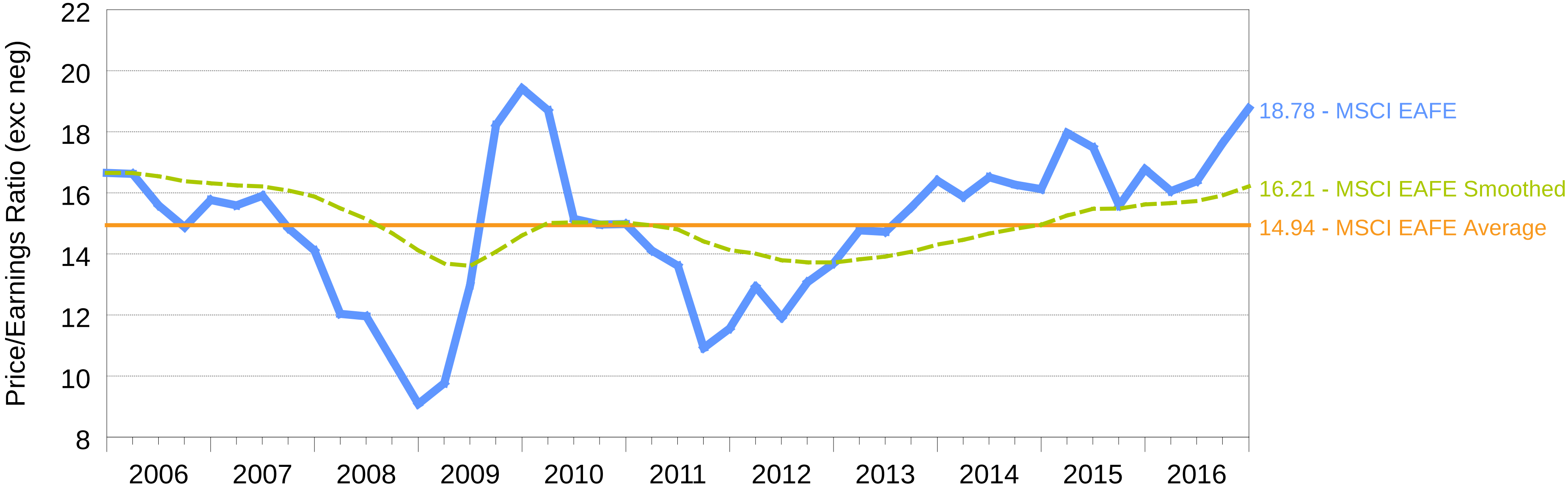
Trailing P/E for the S&P 500 Surges Past Its Long Run Average



Trailing earnings as reported for the fiscal year; includes negative earnings from 1998 onward.
Source: Standard & Poor's and Callan

Can Non-U.S. Equities Overcome Economic Issues?

Price/Earnings Ratio (exc neg) for 11 Years ended December 31, 2016



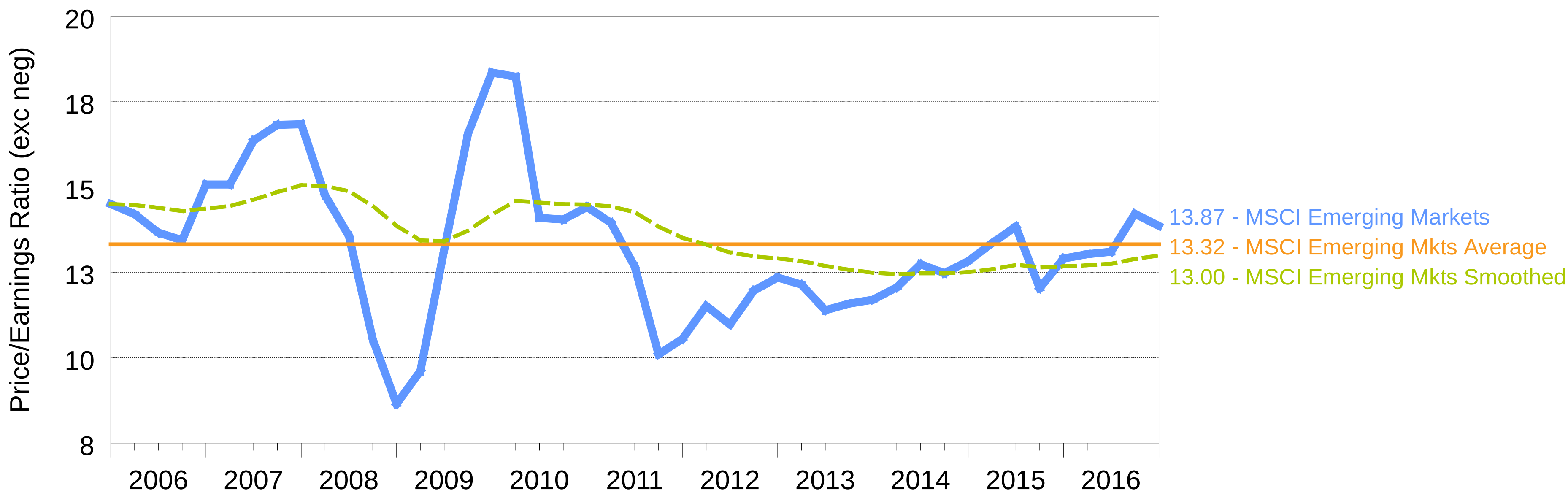
- Valuations are consistent with history.
- Stock prices can increase as earnings increase without creating valuation issues.

Source: MSCI

Can Non-U.S. Equities Overcome Economic Issues?

Emerging Markets Valuations Should Improve

Price/Earnings Ratio (exc neg) for 11 Years ended December 31, 2016



- Valuations are generally lower than developed markets to account for additional risk.
- There is significant room for growth in both earnings and stock prices but a slightly higher growth rate for prices is expected to move valuations closer to historical averages.

Source: MSCI

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Economic Outlook

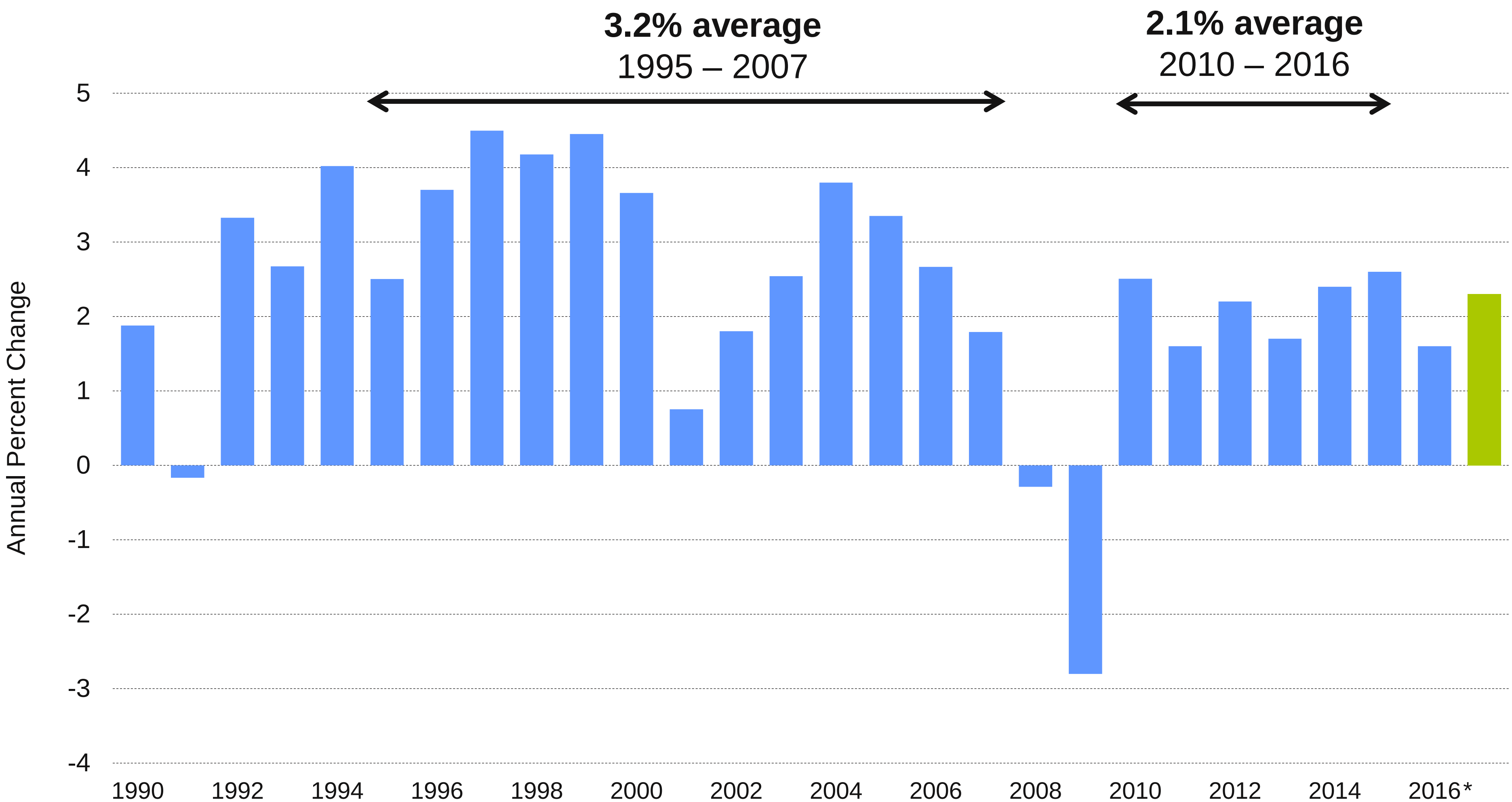
Economic Outlook

Role of Economic Variables

- Real Gross Domestic Product (GDP) Growth and Consumer Price Inflation (CPI) are forecast
- Callan forecasts are based on forecasts provided by the Federal Reserve and the International Monetary Fund (IMF)
  - Forecasts are country-specific for non-US markets
  - Aggregated non-US forecasts are weighted averages using World ex USA and Emerging Markets index weights
- Forecasts are intertwined
  - GDP and inflation tend to rise and fall together
- Forecasts form a starting point for projections
  - GDP forecasts provide a very rough estimate of future earnings growth
  - Inflation forecasts provide an approximate path for short-term yields
  - Inflation is added to the real return forecasts for equity and fixed income

U.S GDP Growth on a Slower Trajectory

Real GDP Growth



* 2017 forecast – IHS Global Insight
Source: IHS

Economic Outlook

GDP Growth Forecasts

- 2% to 2.5% for the US
  - Higher growth rate than the post financial crisis time period but lower than the last half century average
  - Factors which could lead to upper end of forecast
    - *Strong labor market*
    - *Expansive fiscal policies of the incoming administration*
    - *Restrictive trade policies*
  - Factors which could lead to lower end of forecast
    - *Tighter monetary policy, unexpectedly high interest rates or both*
    - *Congressional resistance to the fiscal policies of the incoming administration*
    - *Strong dollar*
- 1.5% to 2.0% for Developed Non-US Markets
  - Lower than the US due to concerns about political, fiscal and monetary policy as well as the banking system
  - Factors which could lead to upper end of forecast
    - *Additional stimulative monetary policies*
    - *Controlled growth of government budget deficits*
    - *Reduced levels of austerity*
    - *Improvements in bank balance sheets*
    - *Reduced unemployment*
  - Factors which could lead to lower end of forecast
    - *Political uncertainty*
    - *Trade issues*
    - *Declining health of the financial sector*

Economic Outlook

GDP Growth Forecasts

- 4% to 5% for Emerging Markets
  - Absolute size of many emerging economies (primarily China and India) limits growth to below historical values
  - Growth rates still substantially exceed those of the developed markets
  - Factors which could lead to upper end of forecast
    - *Improving export markets*
    - *Expanding internal demand*
  - Factors which could lead to lower end of forecast
    - *Domestic government policies*
    - *Developed market trade restrictions*

Economic Outlook

Inflation Forecasts

- 2% to 2.5% for the US
  - Headline values ticking up but still less than 1.75% while core inflation has been above 2% since late 2015
  - Factors which could lead to upper end of forecast
    - *Rising energy prices*
    - *Tight labor markets*
    - *Fiscal stimulus*
    - *Declining dollar drives up import prices*
  - Factors which could lead to lower end of forecast
    - *Poor overseas economic performance strengthens the dollar*
    - *Competitive labor market keeps wages in check*
    - *The Fed implements tight monetary policy*
- 1.75% to 2.25% for Developed Non-US Markets
  - Inflation is starting to tick up but is very low in largest economies
  - Factors which could lead to upper end of forecast
    - *More expansive fiscal policies*
    - *Faster economic growth*
  - Factors which could lead to lower end of forecast
    - *Opportunities for additional fiscal and monetary stimulus are limited*
    - *Slack in European labor markets*

Economic Outlook

Inflation Forecasts

- 2.5% to 3.5% for Emerging Markets
  - Future inflation is uncertain
  - Path of prices depends on government policies, relative currency strength, trade policies, the balance of internal supply and demand, and commodity prices

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Asset Class Outlook

Equity Forecasts

Overview

- Fundamental Relationship

Equity Return = Capital Appreciation + Income

- Forecast capital appreciation depends on projected future earnings
  - Long-term earnings tend to correspond to long-term GDP growth
    - *Weak short-term relationship*
    - *Relationship more robust in developed than emerging markets economies*
  - Investors will pay more for stocks with better future earnings potential
    - *Prices don't depend on historical or current earnings*
- Forecast income also depends on projected future earnings
  - Income is related to earnings via the payout ratio
  - Income also influenced by
    - *Prospects for future corporate investments*
    - *Interest rates*
- Valuations have limited impact on forecasts
  - Average P/Es over different market cycles differ markedly
    - *Oil Boycott*
    - *Tech Bubble*
    - *Global Financial Crisis*
  - Capital market projections only impacted when markets reach extreme valuations

Equity Forecasts

Broad US Equity

- Return = 6.85%, Risk = 18.25%
- Broad US equity is represented by the Russell 3000 index
- Earnings growth likely to improve
  - Stronger GDP growth
  - More expansive economic policies
- Dividend yield consistent with recent history
  - Payout ratios close to historical norms
  - Yields have been stable for 20 years in the face of changing interest rates
- Any additional return from share buybacks likely offset by dilution from additional issuance

Equity Forecasts

Global ex US Equity

- Return = 7.00%, Risk = 21.00%
- Global ex US equity is represented by the MSCI All-Country World ex USA index
- Earnings growth likely to be moderate
  - Improving outlook for developed markets economies but from a low starting point
  - Emerging market growth declining but still substantial
  - Significant uncertainty in future economic policies
- Relatively high dividend yields will support returns
  - Developed markets yields are measurably higher than those in the US
    - *High even relative to history*
    - *Dividends to make up differences in capital appreciations between US and developed non-US markets*
  - Emerging markets yields not as high as in developed markets but still higher than in US

Fixed Income Forecasts

Overview

- Fundamental Relationship

  Bond Return = Capital Appreciation + Income + Roll Return

- Forecast capital appreciation depends on projected future interest rates
  - Inflation
  - Central bank policy
  - Credit conditions
- Income = yield
- Roll return reflects capital appreciation from declines in yields as bonds move toward maturity with upward sloping yield curves

Fixed Income Forecasts

Broad US Fixed Income

- Return = 3.00%, Risk = 3.75%
- Broad US fixed income is represented by the Bloomberg Barclays Aggregate index
- Interest rates expected to rise
  - Most of the increase is expected over the next 3 years
  - Our path is consistent with that forecast by the Fed
- Yield curve expected to flatten
  - Yield curve currently steep
  - Long rates are still expected to increase but not as much as short rates
- Higher yields expected to be earned over most of the forecast horizon
- Capital losses expected as yields increase in early years
  - Losses consistent with moderate duration
    - *Historically about 5 but currently closer to 6*
  - Little impact from changing credit spreads
- Roll return expected to decline
  - Current steep yield curve provides relatively high roll return
  - Flatter curve will reduce its contribution to total return

Alternative Investment Forecasts

Hedge Funds

- Return = 5.05%, Risk = 9.15%
- Hedge funds are represented by the Callan Hedge Fund of Funds database
- Hedge funds returns will be supported by increasing interest rates
  - Hedge fund returns consist of cash plus a spread
  - Cash returns are forecast to increase to 2.25%
- Hedge funds overall tend to have an equity beta
  - Beta tends to be about 0.4
  - Return expected between that of stocks and bonds; benefit to hedge fund investing derives from potential for diversification to stocks and bonds
  - Expected hedge fund return reduced due to lower forecast equity returns
- Hedge funds earn risk premia
  - Exotic beta
  - Illiquidity
- Forecast does not include a net active management premium beyond beta and illiquidity
  - Broad spectrum of possible returns
  - Represents an average expectation for return across the universe
  - Skillful managers expected to earn net excess returns

Alternative Investment Forecasts

Real Estate

- Return = 5.75%, Risk = 16.35%
- Real estate is represented by the Callan Real Estate database
- Real estate returns reflect decreases in cap rates
  - Cap rates declined about 25 bps during 2016
  - Spread between cap rates and bonds has compressed making real estate relatively less attractive
- Overall real estate tends to have an equity beta
  - Stylized beta tends to be about 0.75
  - Reduced equity expectations weigh on real estate return
- Risk reflects economic realities rather than volatility observed under normal conditions
  - Observed volatility is generally less than 5% in normal markets
  - Our forecast volatility better represents the risk of loss
    - *Assuming a 3% standard deviation would imply that the real estate loss experienced during the financial crisis was a 10+ standard deviation event*

Alternative Investment Forecasts

Private Equity

- Return = 7.35%, Risk = 32.90%
- Private equity is represented by the Cambridge Private Equity index
- Private equity forecasts related to public equity forecasts
  - Both returns driven by similar economic factors
    - *Risk premia for both should rise and fall together*
  - Public equity markets are often the exit strategy for private equity investments
    - *Less attractive public markets reduce the outlook for private equity*
  - The compound return reflects heightened risk
    - *In any single period the private equity forecast has a 4.15% spread over the US public equity forecast*
- Wide range of results across implementations
  - The best managers far outperform the worst managers in any given period
  - Superior managers could substantially outperform our projected return
- Risk reflects economic realities rather than volatility observed under normal conditions
  - Observed volatility is generally less than that of the S&P 500
  - Variations in investment values can’t be observed since private equity is not frequently priced in public markets
  - Our forecast volatility puts private equity on the security market line

2017 Capital Market Expectations—Return and Risk

Summary of Callan's Long-Term Capital Market Projections (2017 – 2026)

		PROJECTED RETURN			PROJECTED RISK		
Asset Class	Index	1-Year Arithmetic	10-Year Geometric*	Real	Standard Deviation	Sharpe Ratio	Projected Yield
Equities							
Broad Domestic Equity	Russell 3000	8.30%	6.85%	4.60%	18.25%	0.332	2.00%
Large Cap	S&P 500	8.05%	6.75%	4.50%	17.40%	0.333	2.10%
Small/Mid Cap	Russell 2500	9.30%	7.00%	4.75%	22.60%	0.312	1.55%
Global ex-U.S. Equity	MSCI ACWI ex USA	8.95%	7.00%	4.75%	21.00%	0.319	3.10%
International Equity	MSCI World ex USA	8.45%	6.75%	4.50%	19.70%	0.315	3.25%
Emerging Markets Equity	MSCI Emerging Markets	10.50%	7.00%	4.75%	27.45%	0.301	2.65%
Fixed Income							
Short Duration	Barclays G/C 1-3	2.60%	2.60%	0.35%	2.10%	0.167	2.85%
Domestic Fixed	Barclays Aggregate	3.05%	3.00%	0.75%	3.75%	0.213	3.50%
Long Duration	Barclays Long G/C	3.75%	3.20%	0.95%	10.90%	0.138	4.50%
TIPS	Barclays TIPS	3.10%	3.00%	0.75%	5.25%	0.162	3.35%
High Yield	Barclays High Yield	5.20%	4.75%	2.50%	10.35%	0.285	7.75%
Non-U.S. Fixed	Barclays Global Aggregate ex US	1.80%	1.40%	-0.85%	9.20%	-0.049	2.50%
Emerging Market Debt	EMBI Global Diversified	4.85%	4.50%	2.25%	9.60%	0.271	5.75%
Other							
Real Estate	Callan Real Estate	6.90%	5.75%	3.50%	16.35%	0.284	4.75%
Private Equity	TR Post Venture Cap	12.45%	7.35%	5.10%	32.90%	0.310	0.00%
Hedge Funds	Callan Hedge FOF Database	5.35%	5.05%	2.80%	9.15%	0.339	2.25%
Commodities	Bloomberg Commodity	4.25%	2.65%	0.40%	18.30%	0.109	2.25%
Cash Equivalents	90-Day T-Bill	2.25%	2.25%	0.00%	0.90%	0.000	2.25%
Inflation	CPI-U		2.25%		1.50%		

* Geometric returns are derived from arithmetic returns and the associated risk (standard deviation).

Source: Callan Associates

2017 Capital Market Expectations—Correlation Coefficient Matrix

Key to Constructing Efficient Portfolios

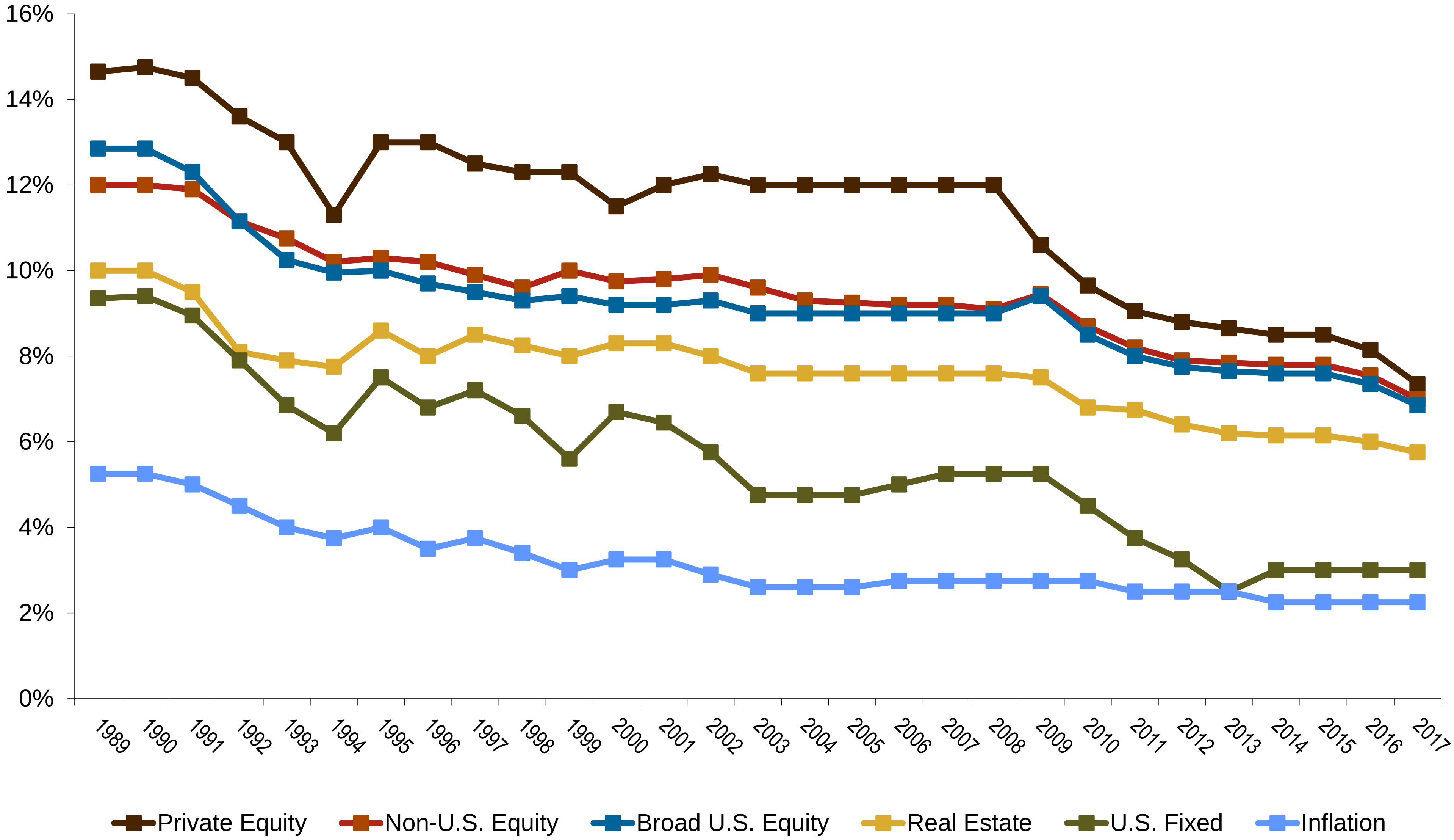
	Broad US Eq	Large Cap	Sm/Mid Cap	Global ex-US	Non-US Equity	Em Mkt Eq	Sht Dur	US Fixed	Long Duration	TIPS	High Yield	Non-US Fixed	Em Mkt Debt	Real Estate	Private Equity	Hedge Funds	Comm	Cash Equiv	Inflation
Broad US Equity	1.000																		
Large Cap	0.996	1.000																	
Small/Mid Cap	0.966	0.940	1.000																
Global ex-US Equity	0.874	0.872	0.839	1.000															
Non-US Equity	0.840	0.840	0.800	0.987	1.000														
Em Mkts Equity	0.866	0.860	0.845	0.936	0.865	1.000													
Short Duration	-0.250	-0.240	-0.270	-0.271	-0.250	-0.290	1.000												
US Fixed	-0.110	-0.100	-0.135	-0.130	-0.115	-0.160	0.870	1.000											
Long Duration	0.133	0.136	0.119	0.104	0.117	0.066	0.730	0.925	1.000										
TIPS	-0.054	-0.045	-0.080	-0.049	-0.030	-0.085	0.525	0.600	0.528	1.000									
High Yield	0.636	0.635	0.610	0.627	0.605	0.615	-0.140	0.020	0.217	0.060	1.000								
Non-US Fixed	0.013	0.050	-0.100	0.013	0.060	-0.090	0.480	0.510	0.542	0.340	0.120	1.000							
Em Mkt Debt	0.573	0.570	0.555	0.577	0.550	0.580	-0.040	0.100	0.157	0.180	0.600	0.010	1.000						
Real Estate	0.732	0.730	0.705	0.677	0.660	0.650	-0.165	-0.030	0.188	0.000	0.560	-0.050	0.440	1.000					
Private Equity	0.948	0.945	0.915	0.927	0.895	0.910	-0.260	-0.200	0.020	-0.110	0.640	-0.060	0.570	0.715	1.000				
Hedge Funds	0.802	0.800	0.770	0.760	0.730	0.755	-0.130	0.080	0.301	0.075	0.570	-0.080	0.540	0.605	0.780	1.000			
Commodities	0.152	0.150	0.150	0.161	0.155	0.160	-0.220	-0.100	-0.041	0.120	0.100	0.050	0.190	0.200	0.180	0.210	1.000		
Cash Equivalents	-0.043	-0.030	-0.080	-0.040	-0.010	-0.100	0.300	0.100	-0.048	0.070	-0.110	-0.090	-0.070	-0.060	0.000	-0.070	0.070	1.000	
Inflation	-0.010	-0.020	0.020	0.010	0.000	0.030	-0.200	-0.280	-0.285	0.180	0.070	-0.150	0.000	0.100	0.060	0.200	0.400	0.000	1.000

- Relationships between asset classes is as important as standard deviation.
- To determine portfolio mixes, Callan employs mean-variance optimization.
- Return, standard deviation and correlation determine the composition of efficient asset mixes.

Source: Callan Associates

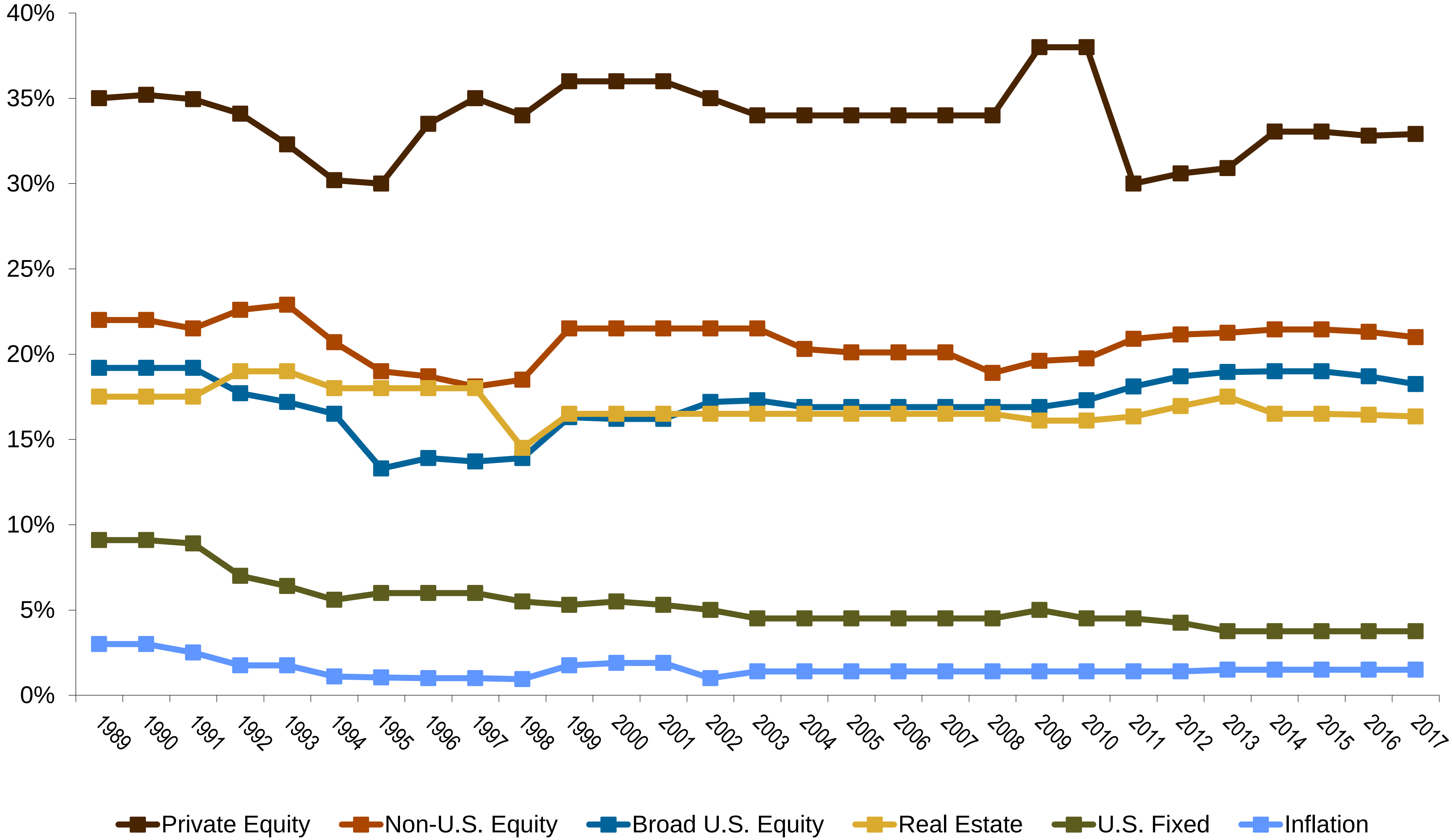
Return Projections

1989 - 2017



Risk Projections

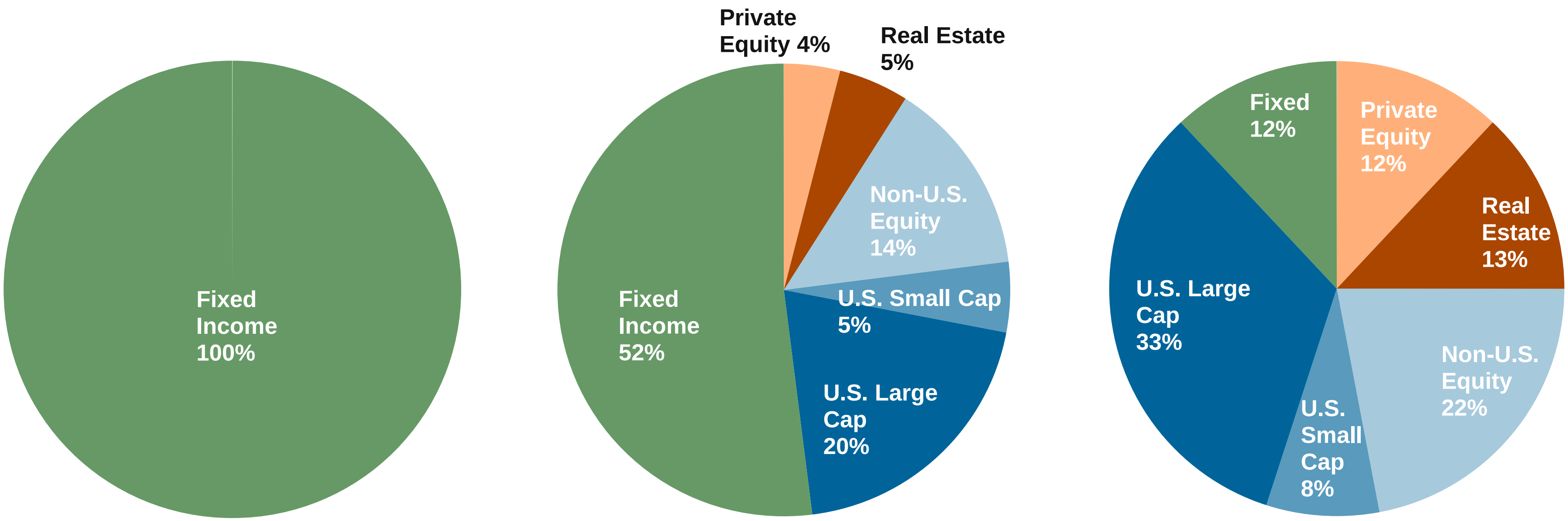
1989 - 2017



Increasing Volatility and Complexity

Expected Portfolio Returns Over Past 20 Years

Increasing Complexity



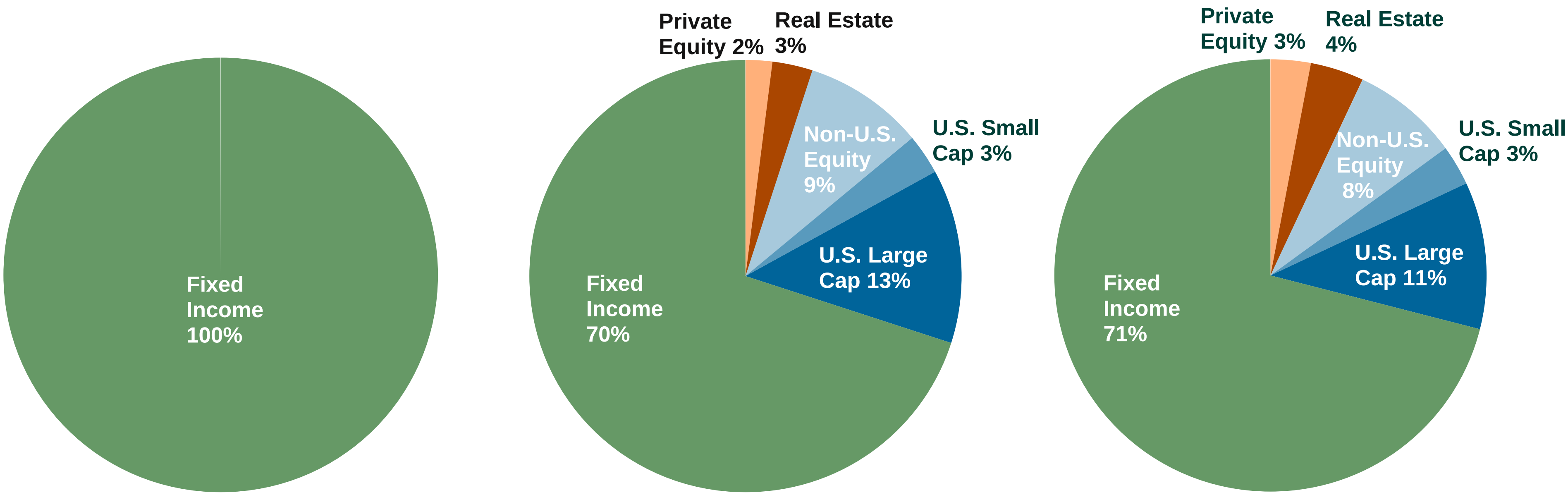
1995	2005	2015
Expected Return: 7.5%	Expected Return: 7.5%	Expected return: 7.5%
Projected Volatility: 6.0%	Projected Volatility: 8.9%	Projected Volatility: 17.2%
Actual Return (1995-2004): 7.7%	Actual Return (2005-2014): 6.2%	
Actual Vol (1995-2004): 4.0%	Actual Vol (2005-2014) 7.7%	

Increasing Risk

Same Risk, Decreasing Returns

When target risk is held at 6.0%, expected returns fall from 7.5% in 1995 to 4.8% in 2015

Increasing Complexity

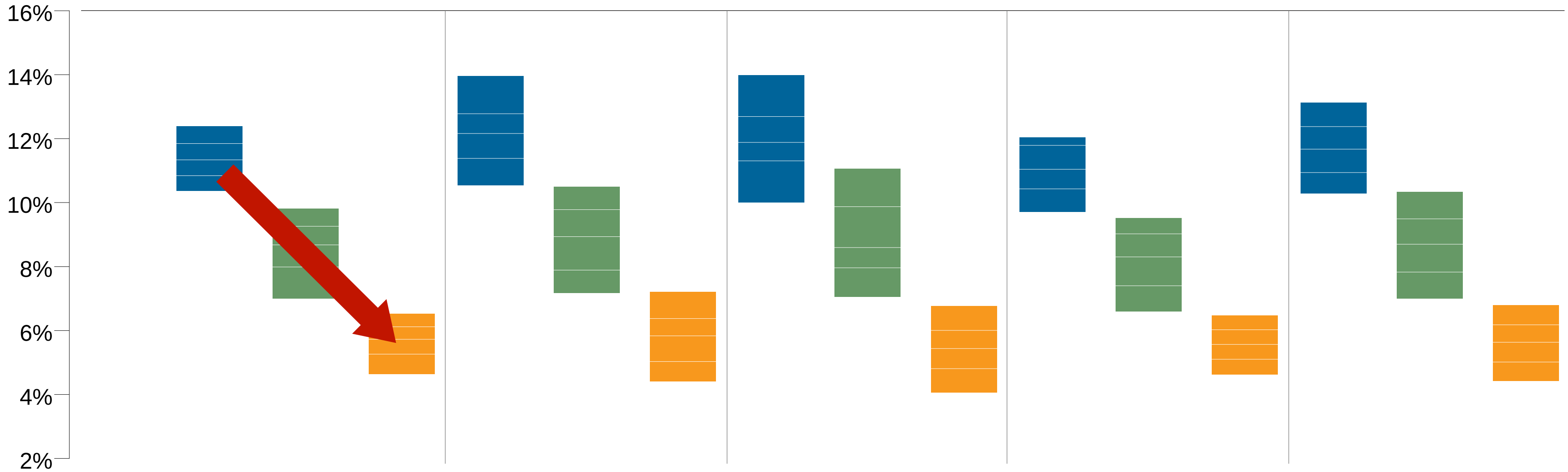


1995	2005	2015
Expected return: 7.5%	Expected return: 6.5%	Expected return: 4.8%
Expected Volatility: 6.0%	Expected Volatility: 6.0%	Expected Volatility: 6.0%

Returns Lowered Over Time

What Returns Did Fund Sponsors Actually Achieve?

10-Year Returns by Fund Sponsor Type: Point in Time Comparison

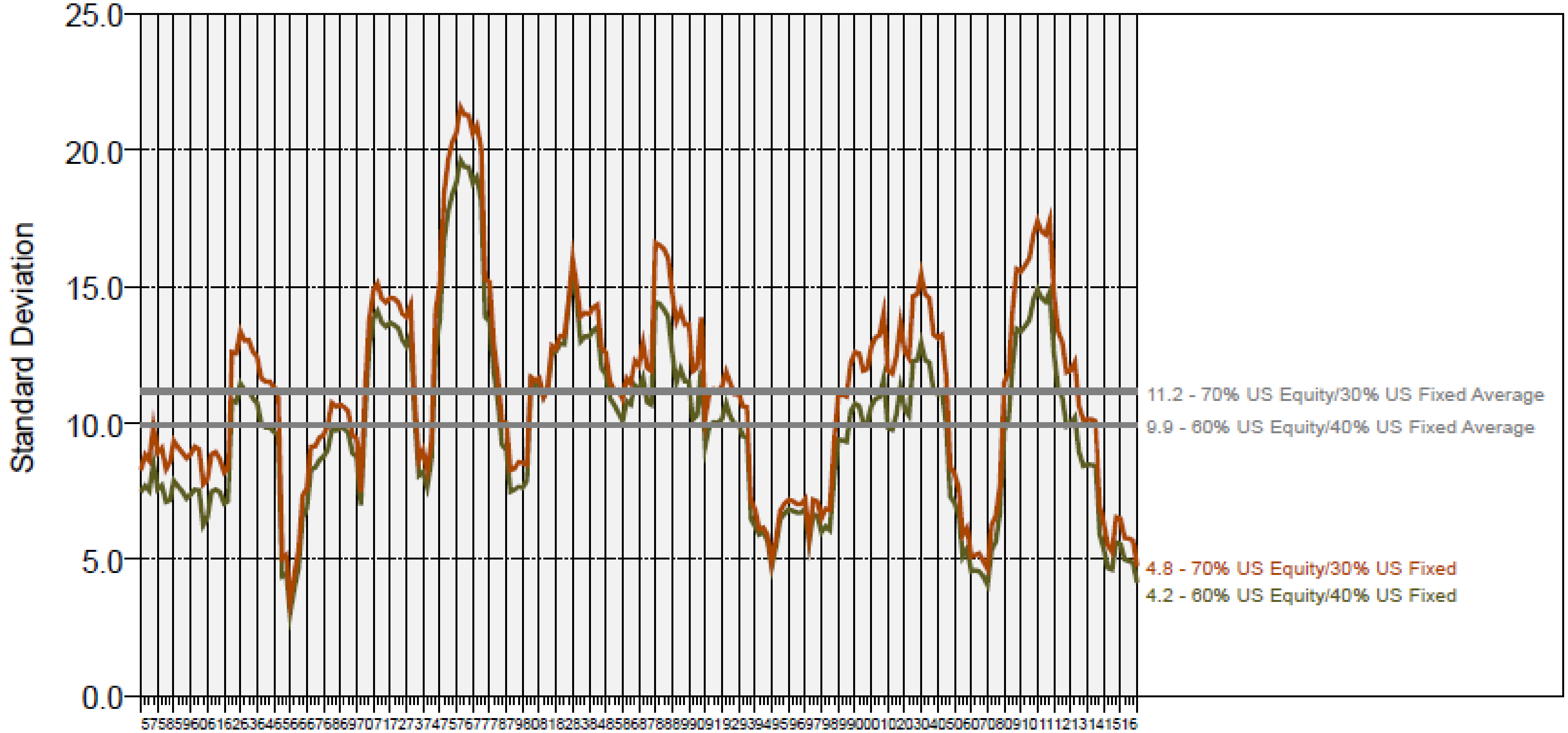


	Public Funds			Corporate Fund			Endowments/ Foundations			Taft-Hartley			Total Fund Sponsors		
	4Q1995	4Q2005	4Q2015	4Q1995	4Q2005	4Q2015	4Q1995	4Q2005	4Q2015	4Q1995	4Q2005	4Q2015	4Q1995	4Q2005	4Q2015
10th Percentile	12.40	9.82	6.53	13.96	10.50	7.20	13.99	11.06	6.78	12.05	9.53	6.47	13.13	10.33	6.79
25th Percentile	11.85	9.26	6.12	12.78	9.78	6.37	12.70	9.87	6.01	11.79	9.03	6.03	12.38	9.49	6.18
Median	11.34	8.68	5.73	12.17	8.94	5.84	11.89	8.60	5.44	11.05	8.30	5.57	11.67	8.70	5.63
75th Percentile	10.84	7.99	5.26	11.39	7.89	5.03	11.31	7.96	4.81	10.43	7.40	5.10	10.94	7.83	5.02
90th Percentile	10.37	7.01	4.64	10.54	7.18	4.41	10.02	7.06	4.07	9.71	6.61	4.64	10.29	7.00	4.42

Source: Callan. Callan's database includes the following groups: public defined benefit, corporate defined benefit, endowments/foundations, and Taft-Hartley plans. Approximately 10-15% of the database constituents are Callan's clients. All database group returns presented gross of fees. Past performance is no guarantee of future results.

2017 Capital Market Expectations

Rolling 12 Quarter Standard Deviation
for 60 Years Ended December 31, 2016

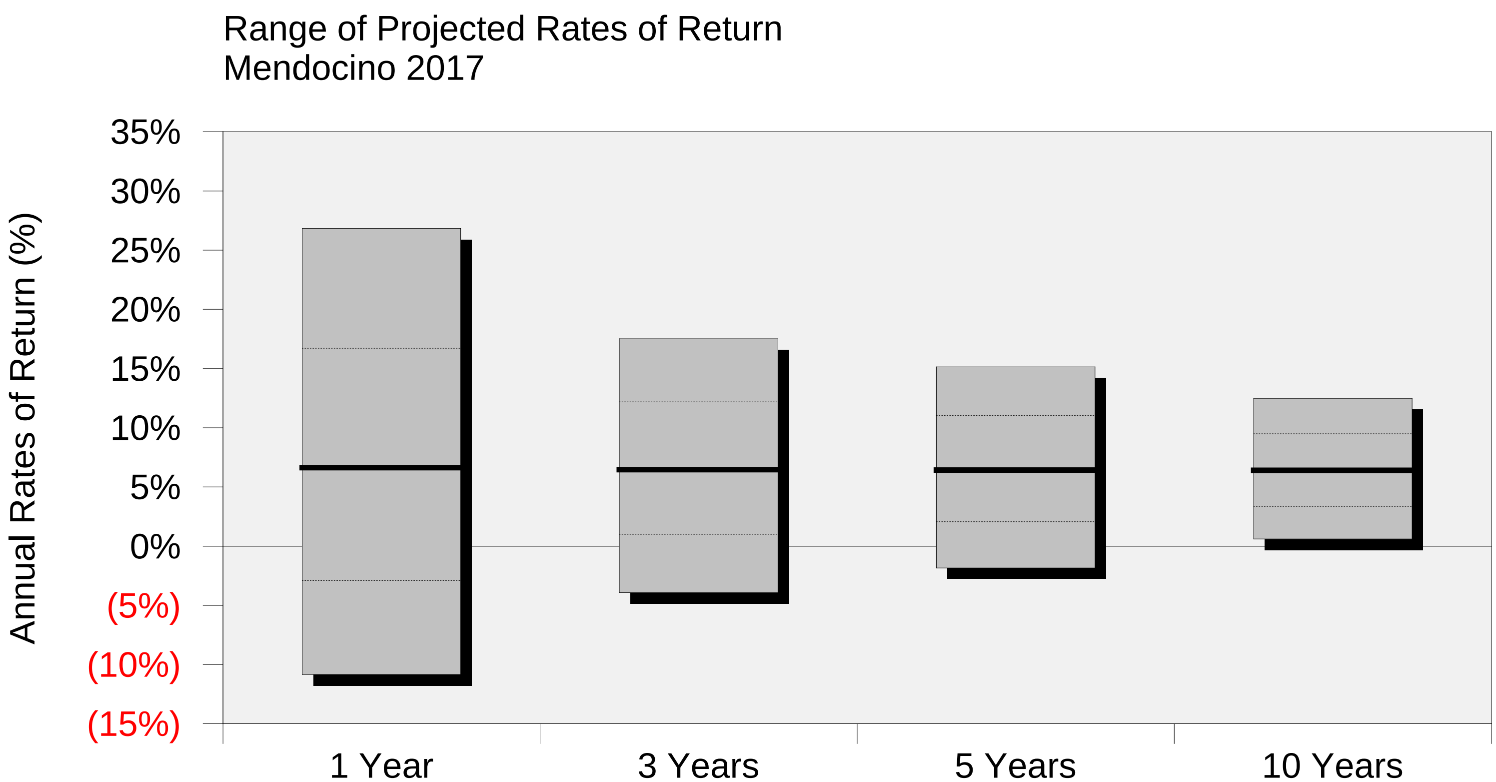


2017 Capital Market Expectations

Asset Classes	MCERA Target
US Broad Equity	38%
Global ex-US Equity	29%
Domestic Fixed	22%
Real Estate	11%
Cash Equivalents	0%
Totals	100%

Projected 1-Year Arithmetic Return	7.2%
10-Year Geometric Mean Return	6.4%
Projected Risk (Standard Deviation)	13.9%
Projected Sharpe Ratio	0.4

2017 Capital Market Expectations



	1 Year	3 Years	5 Years	10 Years
Average	6.6%	6.5%	6.4%	6.4%
10th Percentile	26.8%	17.5%	15.1%	12.5%
25th Percentile	16.7%	12.2%	11.0%	9.5%
75th Percentile	(2.9%)	1.0%	2.1%	3.4%
90th Percentile	(10.8%)	(3.9%)	(1.8%)	0.6%

Long-Term Vision and Short-Term Reality

- Greatest danger—Investors take on additional risk to compensate for capital market returns that are likely to be below historical averages. We do not believe investors are likely to be compensated for such risk taking in the shorter term.
- Fixed income is a conundrum for investors. No other investment offers the same anchor to windward and protection in a flight to quality. Yet current yields and the prospect for rising rates spell dismal total returns.
- Stocks appear to be the best spot in the capital markets given the current environment, but are not without substantial risk.
- Other strategies to manage risk:
  - Active management in equity and fixed income to take advantage of opportunities and protect in a volatile environment.
  - Global opportunities in equity and debt; yields, currency.
  - Absolute return strategies to hedge market risk, both long-only and hedged.
  - Private markets.
  - Lower expectations…