

Callan

A decorative bracket consisting of two vertical lines, one orange and one green, with horizontal bars at the top and bottom.

Mendocino County Employees Retirement Association Performance Review

Quarter ended September 30, 2019

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Agenda

-
- Capital Market Overview
 - MCERA CY 3Q 2019 Performance

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Capital Market Overview

Global Economic Update 2019

The big picture

Central bank policy front and center

- The Fed was alone on a path to normalize interest rates, with nine rate hikes in two years; euro zone sat out. U.S. rates have been substantially higher than developed markets globally for an extended period.
- Fed reversed course and adopted dovish tone in January. Rates held constant through Q2; cut rates twice in Q3, but signaled no more rate cuts in Q4 2019 or 2020. Bond market believes rates will come down another 100 bps.

Rest of the global economy is slowing, but U.S. remains strong, labor market very tight, reaching the limits of full employment

- Solid Q1 GDP growth (3.2%) moderated in Q2 (2.0%), but held up surprisingly well in Q3 (1.9%), despite slowing global growth and trade uncertainty.
- Slower growth is inevitable after impact of 2018 fiscal stimulus fades and full impact of nine rate hikes feeds through the economy.
- Switch to dovish Fed policy boosted consumer and business confidence, and juiced stock market; drop in borrowing costs expected to sustain consumption growth and soften slowdown.
- Policy reversal simultaneously stoked fears of coming slowdown and fed a rally in bonds, which are having an “outlier” year.
- Any recession will be the most anticipated in recent history.

Slowdown in Europe and China weighing on global growth

- Euro zone unemployment has dropped, but economic growth stalled (GDP below 1.5%).
- China suffering dramatic slowdown in growth: industrial output, retail sales, implied GDP
- Resolution of trade uncertainty crucial to resumption of growth—far more important to China than the U.S.

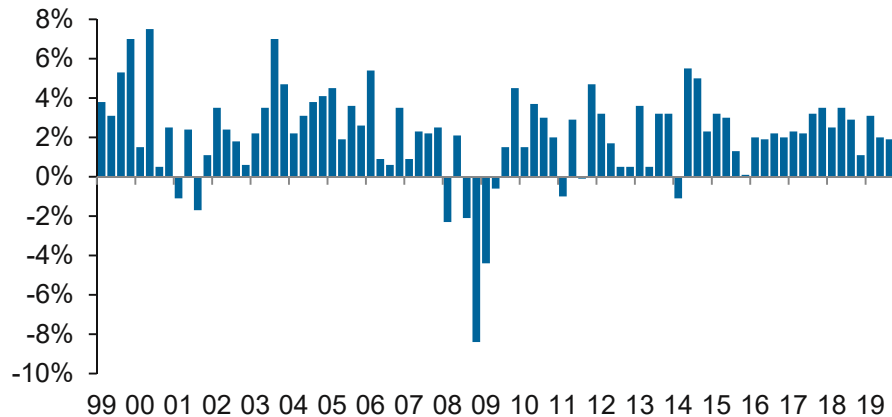
Inflation remains stuck below 2% in U.S., weaker overseas

- Wage pressures in U.S. have yet to translate into headline inflation; low inflation gives Fed cover to cut rates.

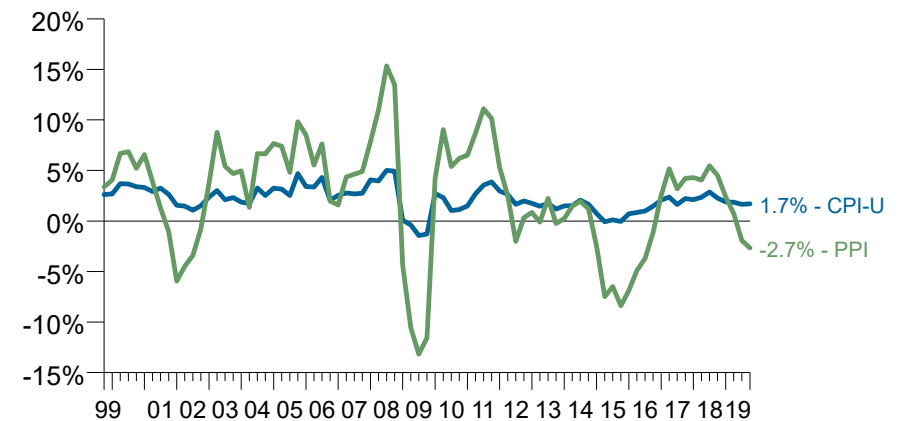
U.S. Economy—Summary

For periods ended September 30, 2019

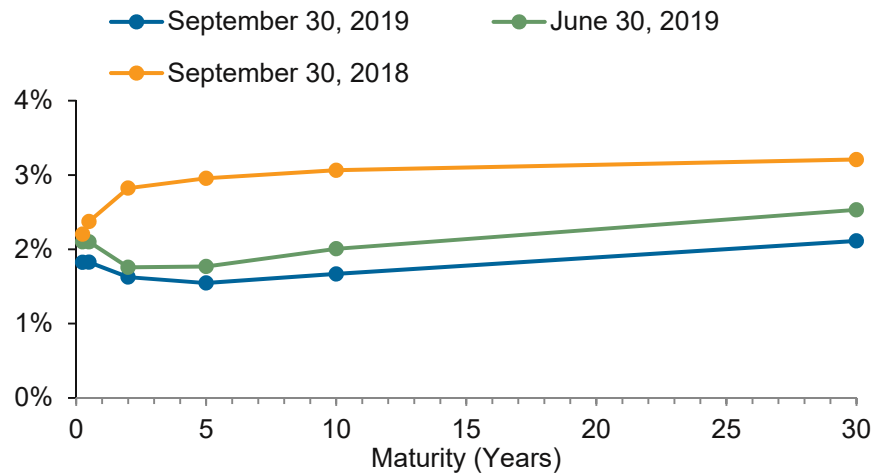
Quarterly Real GDP Growth



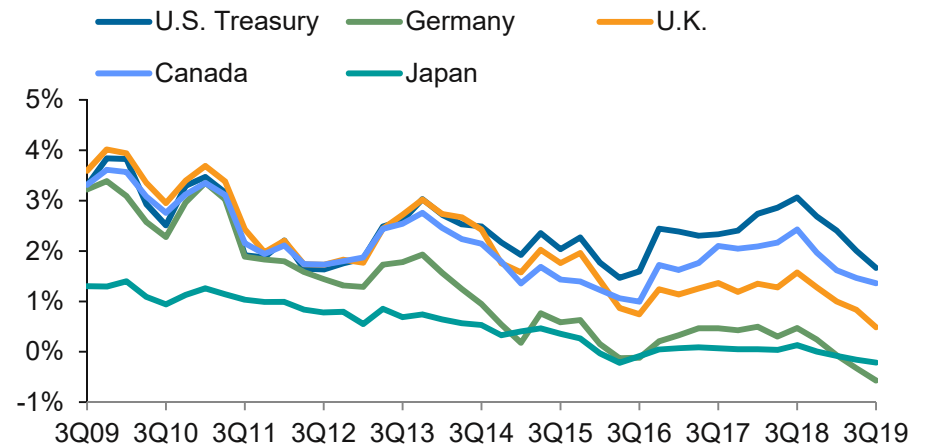
Inflation Year-Over-Year



U.S. Treasury Yield Curves



10-Year Global Government Bond Yields



Sources: Bureau of Labor Statistics, Bloomberg, Callan

Does Strong 2019 Spell Problems for 2020 and Beyond?

Did we just “steal” the expected return for the next 18 months?

U.S. equity market expanded modestly in Q3, while non-U.S. markets suffered losses

- S&P up 1.7%, World ex USA down 0.9%, Emerging Markets lost 4.3%. One-year results look weak, thanks to Q4 2018, but all regions are still up sharply y-t-d.

Fed rate cuts, solid corporate fundamentals, and even lower unemployment propel U.S. equity markets in Q3:

- Value caught up to growth in September.
- Small cap declined and lags large cap again.
- Economic weakness, trade concerns hit developed non-U.S. and EM equities in Q3.

Fixed income markets are having an “outlier” year

- Investment grade is strongest performer in the U.S.
- Credit spreads continued rally in Q3.
- Yield curve shifts lower across maturities; inverted from 3 month – 10 year in April, then from 2- to 10-year in August.

Returns for Periods ended September 30, 2019

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	1.16	2.92	10.44	13.08	9.81
S&P 500	1.70	4.25	10.84	13.24	9.83
Russell 2000	-2.40	-8.89	8.19	11.19	8.86
Non-U.S. Equity					
MSCI World ex USA	-0.93	-0.95	3.06	4.78	4.94
MSCI Emerging Markets	-4.25	-2.01	2.33	3.37	--
MSCI ACWI ex USA Small Cap	-1.19	-5.63	3.98	6.13	5.30
Fixed Income					
Bloomberg Barclays Aggregate	2.27	10.30	3.38	3.75	5.57
90-day T-Bill	0.56	2.39	0.98	0.54	2.50
Bloomberg Barclays Long Gov/Credit	6.58	21.88	6.81	7.42	8.02
Bloomberg Barclays Global Agg ex-US	-0.58	5.34	0.87	1.27	4.38
Real Estate					
NCREIF Property	1.41	6.24	8.57	9.77	9.36
FTSE Nareit Equity	7.80	18.42	10.26	13.04	10.67
Alternatives					
CS Hedge Fund	0.26	2.13	2.30	4.32	7.69
Cambridge Private Equity*	4.31	12.23	12.22	14.51	15.42
Bloomberg Commodity	-1.84	-6.57	-7.18	-4.32	1.66
Gold Spot Price	4.19	23.13	3.98	3.85	5.38
Inflation - CPI-U	0.24	1.71	1.53	1.75	2.19

*Cambridge PE data are available through June 30, 2019.

Source: Callan

Callan Periodic Table of Investment Returns

As of September 30, 2019

Annual Returns			Monthly Returns									
2016	2017	2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sept 2019	YTD 2019
Small Cap Equity	Emerging Market Equity	U.S. Fixed Income	Small Cap Equity	Small Cap Equity	Real Estate	Large Cap Equity	U.S. Fixed Income	Small Cap Equity	Large Cap Equity	U.S. Fixed Income	Non-U.S. Equity	Large Cap Equity
21.31%	37.28%	0.01%	11.25%	5.20%	3.51%	4.05%	1.78%	7.07%	1.44%	2.59%	2.81%	20.55%
High Yield	Non-U.S. Equity	High Yield	Real Estate	Large Cap Equity	Large Cap Equity	Small Cap Equity	Non-U.S. Fixed Income	Large Cap Equity	Small Cap Equity	Real Estate	Real Estate	Real Estate
17.13%	24.21%	-2.08%	10.87%	3.21%	1.94%	3.40%	1.04%	7.05%	0.58%	1.87%	2.35%	19.82%
Large Cap Equity	Large Cap Equity	Non-U.S. Fixed Income	Emerging Market Equity	Non-U.S. Equity	U.S. Fixed Income	Non-U.S. Equity	Real Estate	Emerging Market Equity	High Yield	Non-U.S. Fixed Income	Small Cap Equity	Small Cap Equity
11.96%	21.83%	-2.15%	8.77%	2.57%	1.92%	2.83%	-0.29%	6.24%	0.56%	1.59%	2.08%	14.18%
Emerging Market Equity	Small Cap Equity	Large Cap Equity	Large Cap Equity	High Yield	High Yield	Emerging Market Equity	High Yield	Non-U.S. Equity	Real Estate	High Yield	Emerging Market Equity	Non-U.S. Equity
11.19%	14.65%	-4.38%	8.01%	1.66%	0.94%	2.11%	-1.19%	5.94%	0.35%	0.40%	1.91%	13.57%
Real Estate	Non-U.S. Fixed Income	Real Estate	Non-U.S. Equity	Emerging Market Equity	Emerging Market Equity	High Yield	Non-U.S. Equity	Non-U.S. Fixed Income	U.S. Fixed Income	Large Cap Equity	Large Cap Equity	High Yield
4.06%	10.51%	-5.63%	7.14%	0.22%	0.84%	1.42%	-4.73%	2.98%	0.22%	-1.58%	1.87%	11.41%
Non-U.S. Equity	Real Estate	Small Cap Equity	High Yield	U.S. Fixed Income	Non-U.S. Fixed Income	U.S. Fixed Income	Large Cap Equity	High Yield	Non-U.S. Fixed Income	Non-U.S. Equity	High Yield	U.S. Fixed Income
2.75%	10.36%	-11.01%	4.52%	-0.06%	0.71%	0.03%	-6.35%	2.28%	-0.72%	-2.46%	0.36%	8.52%
U.S. Fixed Income	High Yield	Non-U.S. Equity	Non-U.S. Fixed Income	Real Estate	Non-U.S. Equity	Non-U.S. Fixed Income	Emerging Market Equity	Real Estate	Non-U.S. Equity	Emerging Market Equity	U.S. Fixed Income	Emerging Market Equity
2.65%	7.50%	-14.09%	1.86%	-0.15%	0.51%	-0.61%	-7.26%	1.56%	-1.21%	-4.88%	-0.53%	5.90%
Non-U.S. Fixed Income	U.S. Fixed Income	Emerging Market Equity	U.S. Fixed Income	Non-U.S. Fixed Income	Small Cap Equity	Real Estate	Small Cap Equity	U.S. Fixed Income	Emerging Market Equity	Small Cap Equity	Non-U.S. Fixed Income	Non-U.S. Fixed Income
1.49%	3.54%	-14.57%	1.06%	-1.04%	-2.09%	-1.32%	-7.78%	1.26%	-1.22%	-4.94%	-1.42%	4.38%

Sources: ● Bloomberg Barclays Aggregate ● Bloomberg Barclays Corp High Yield ● Bloomberg Barclays Global Aggregate ex US
 ● EPRA/NAREIT Developed ● MSCI World ex USA ● MSCI Emerging Markets ● Russell 2000 ● S&P 500

Q3 Rebound Continues, U.S. Stock Markets Surge Through Three Quarters of 2019

New record for the S&P 500 reached in Q3 2019

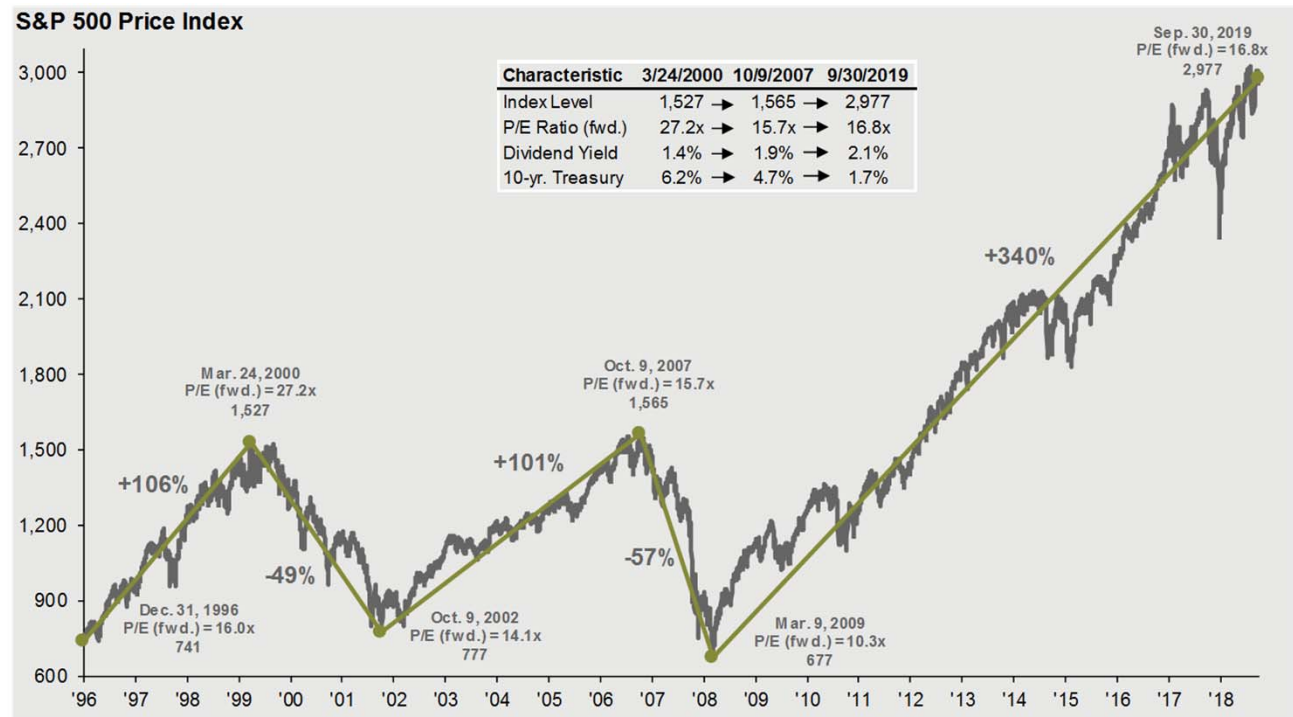
- 1.7% gain in Q3, after 4.3% in Q2 and the strongest first quarter (13.7%) since 2009.

Forward valuation slipped back to 16.8 in Q3, but above its 25-year average (16.2)

- Still nowhere near the peak set in 2000

Yield on 10-year Treasury fell back below the level of the dividend yield on stocks

- Prior to GFC, Treasury yield typically exceeded that of the stock dividend; two yields were very close for eight years following GFC.
- Gap began to widen with Fed tightening in 2017, but narrowed again in Q2 with reversal of Fed policy.
- Vastly different relationship between stock and bond yields in 2000 and 2007



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.
Guide to the Markets – U.S. Data are as of September 30, 2019.

Source: J.P. Morgan Asset Management

Outperformance of Low Beta Sectors

- Low beta sectors Real Estate, Consumer Staples, and Utilities have outperformed year-to-date and are trading at premiums to their forward P/E of the S&P 500 (16.8x) and their historical, 20-year average P/E. Why? Macroeconomic concerns and investor unease surrounding the longevity of the bull market
- Health Care is the exception among “defensive” sectors due to concern over price transparency and pricing reform discussions.

	Materials	Industrials	Energy	Financials	Cons. Discr.	Technology	Comm. Service	Real Estate	Health Care	Cons. Staples	Utilities	S&P 500 Index	
S&P weight	2.7%	9.3%	4.5%	12.9%	10.1%	21.9%	10.4%	3.2%	13.7%	7.6%	3.6%	100.0%	Weight
Russell Growth weight	1.4%	10.0%	0.3%	3.2%	14.4%	37.6%	11.4%	2.6%	14.2%	4.9%	0.0%	100.0%	
Russell Value weight	4.3%	9.4%	8.4%	23.6%	6.1%	6.0%	8.2%	5.5%	12.4%	9.2%	7.0%	100.0%	
3Q 2019	-0.1	1.0	-6.3	2.0	0.5	3.3	2.2	7.7	-2.2	6.1	9.3	1.7	Return (%)
YTD	17.1	22.6	6.0	19.6	22.5	31.4	21.7	29.7	5.6	23.3	25.4	20.6	
Since market peak (October 2007)	76.5	127.1	0.9	23.5	282.5	291.7	64.4	112.3	212.3	205.6	149.3	145.5	
Since market low (March 2009)	320.5	524.3	84.9	574.2	785.5	720.7	214.1	687.2	403.5	328.6	336.4	448.7	
Beta to S&P 500	1.27	1.20	1.20	1.18	1.11	1.11	0.95*	0.79	0.79	0.59	0.30	1.00	β
Correl. to Treas. yields	0.25	0.33	0.40	0.51	0.27	0.31	0.29	-0.31	0.21	0.11	-0.14	0.33	ρ
Foreign % of sales	52.7	44.6	54.1	31.2	34.1	56.9	-	-	38.2	32.5	41.3	43.6	%
NTM Earnings Growth	7.3%	13.6%	10.4%	6.0%	10.7%	7.7%	10.8%*	5.1%	7.9%	5.7%	5.1%	8.3%	EPS
20-yr avg.	20.0%	11.0%	12.9%	22.3%	15.4%	14.5%	10.3%*	7.7%**	9.6%	8.6%	4.9%	11.6%	
Forward P/E ratio	17.3x	16.0x	16.1x	12.1x	21.1x	19.5x	17.5x	20.3x	14.6x	19.9x	20.1x	16.8x	P/E
20-yr avg.	13.9x	16.0x	17.1x	12.5x	17.9x	20.0x	18.2x*	15.4x	16.4x	16.8x	14.3x	15.6x	
Trailing P/E ratio	18.4x	17.9x	18.1x	12.7x	22.8x	20.3x	18.8x	20.6x	15.8x	20.4x	20.5x	17.9x	Div
20-yr avg.	16.7x	17.7x	21.2x	15.2x	20.3x	23.1x	19.9x*	16.5x	17.9x	18.1x	14.9x	17.3x	
Dividend yield	2.3%	2.1%	4.2%	2.3%	1.4%	1.5%	1.4%	3.2%	1.9%	2.9%	3.2%	2.1%	Div
20-yr avg.	2.6%	2.2%	2.4%	2.3%	1.4%	1.0%	1.6%*	4.3%	1.8%	2.7%	4.0%	2.1%	

Source: J.P. Morgan Guide to the Markets; as of September 30, 2019

What Are We Talking About with Investors?

Common themes continuing in second half of 2019

Dominant fear: inevitable equity market downturn

- Fear of missing out (FOMO!) fades the longer the current expansion continues.
- Lower equity exposures are a serious consideration across all investor types.
- Re-evaluation of the purpose and implementation of asset classes:
 - *Real assets*
 - *Hedge funds and liquid alternatives*
 - *Fixed income*
 - *Equity*
- Tail risk hedging returns
- Leverage to manage liquidity needs

Litany of macro investing concerns raising anxiety:

- How long can the current expansion continue?
- Is value dead?
- Is there any hope for active management?
- How does the reversal in Fed policy change the landscape?
 - *Equity markets cheered, but doesn't accommodation imply leaner times ahead?*
 - *LDI pays off when rates fall, but lower rates can wreak havoc with liability-driven investing glidepaths.*

Market volatility has subsided once again despite sentiment of uncertainty

Broad-Based Inflation Measures Fall Back Again in the U.S.

Expectations have fallen again and are low relative to long-term history

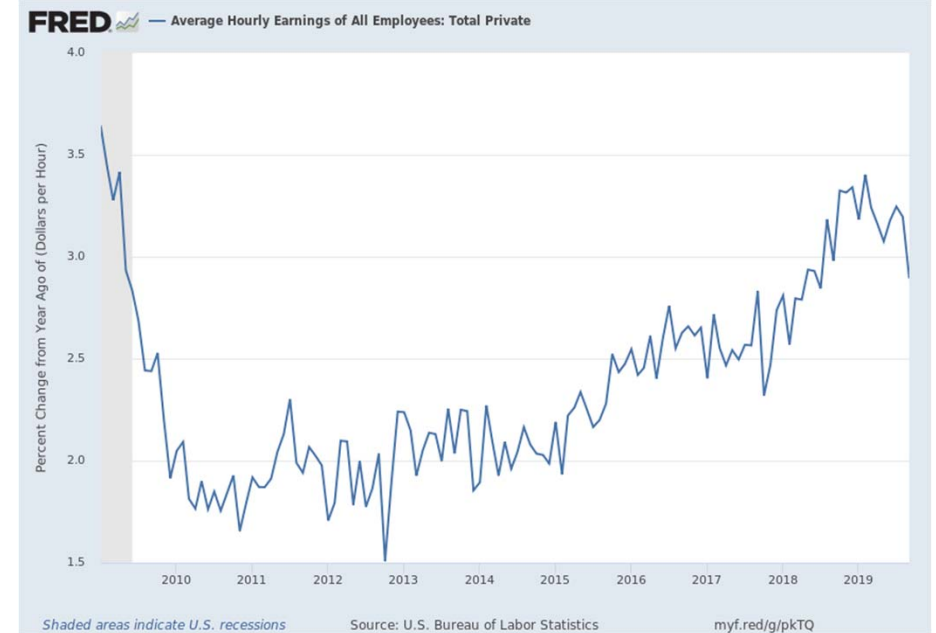
10-Year Breakeven Inflation Rate



U.S. breakeven rate recovered somewhat in Q1 2019, only to plunge again in Q2 and Q3

- Breakeven rate (TIPS vs. nominal Treasury yields) had recovered with oil prices, but expectations weakened sharply after the Fed changed its policy stance.

U.S. Average Hourly Earnings, %Year over Year



Wage growth broke through the 3% barrier in the second half of 2018, and continued at this rate through August 2019, dipping to 2.9 in September

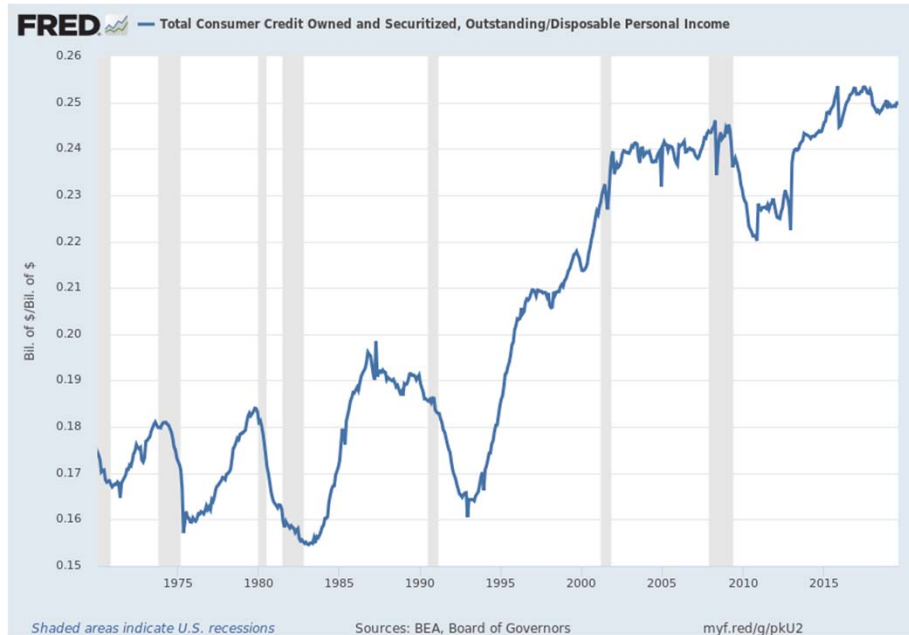
- Steady rise of 2017 has been shrugged off.
- Tight labor markets finally pushing up wages; good news for workers and consumer spending.

However, wage pressure yet to show as headline inflation

Sources: Federal Reserve, U.S. Department of Labor

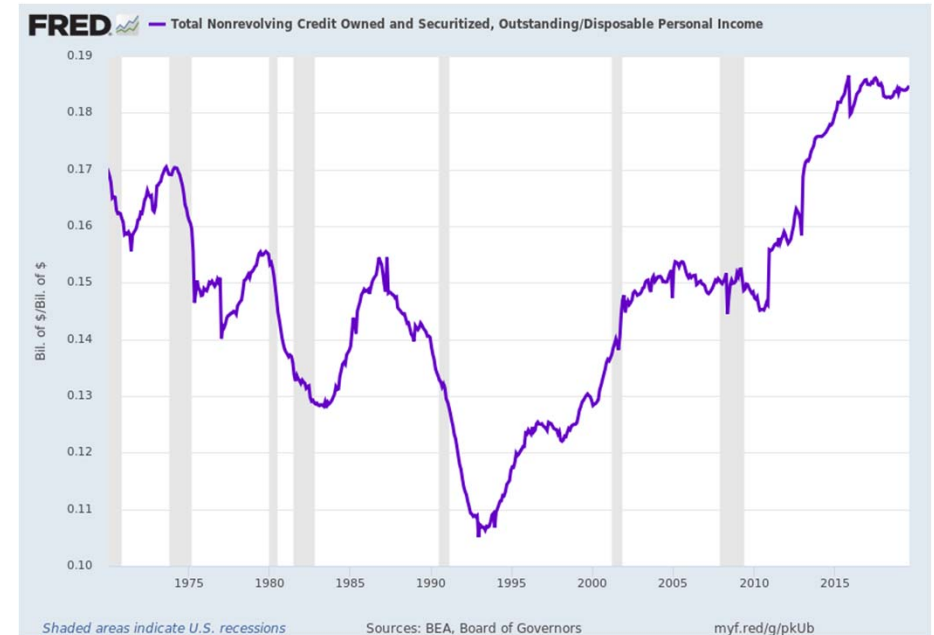
Consumer Borrowing Reaching New Heights

Leverage has fueled consumption growth to a new historical peak



Consumer credit (ex-mortgages) as a percentage of disposable income has leveled off since 2017, after climbing sharply during the previous five years

- Credit exposures well above the pre-GFC peak, at an all-time high
- Suggests vulnerability to deleveraging



The increase since 2010 stems from non-revolving debt, mostly student and auto loans

- The ratio of non-revolving debt to disposable income reached a plateau in 2017, and has held steady through Q3 2019, albeit at an all-time high.
- Another sign of potential vulnerability to deleveraging

Source: Federal Reserve

Gradual Slowdown for Consumers, but Retreat in Interest Costs Will Be Beneficial

Consumption is 70% of GDP, and the sector typically leads growth (and contractions)

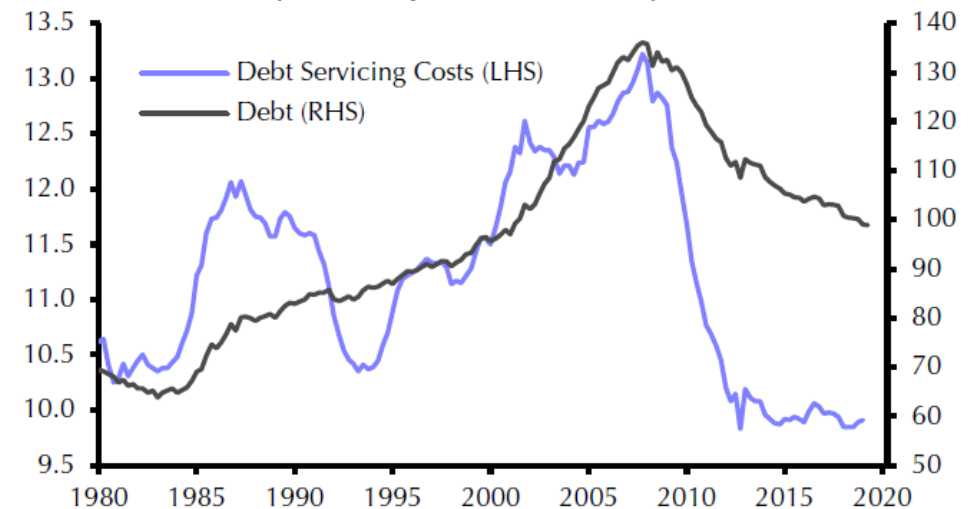
Overall consumption growth is solid, although durable goods spending slowed

- Spending reflects healthy job market and resilient consumer confidence, even in the face of escalating trade war and mounting economic uncertainty.
- Drop in household borrowing costs working its way back into spending, after 2+ years of interest rate hikes.
- Household debt servicing costs are near a record low and the savings rate is relatively high, which may limit the severity of a downturn.

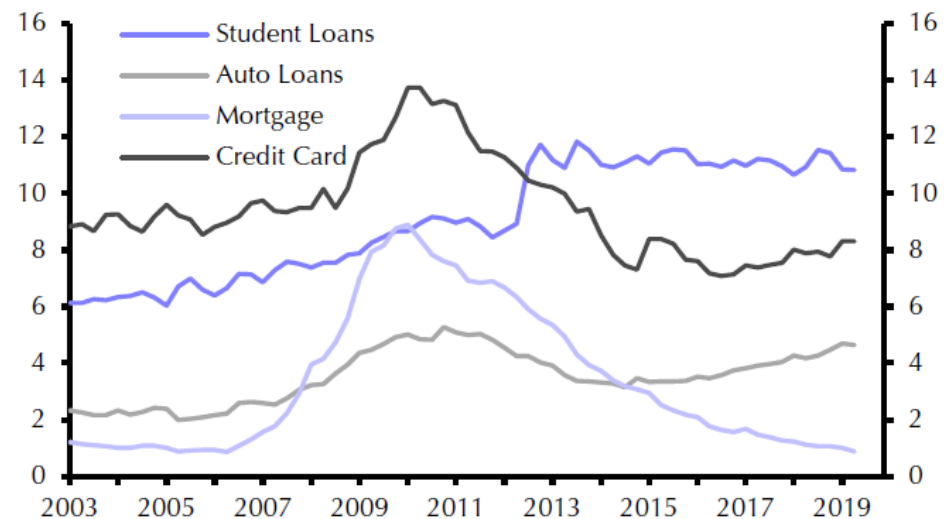
Delinquency rates for autos and credit cards have trended higher in recent years, but are levelling off with tighter standards

- Few signs of household financial stress
- Delinquency rates on borrowing besides credit cards are low. Mortgage debt, which accounts for 70% of consumer debt, has the lowest delinquency rate in 13 years.

Household Debt (% of Disposable Income)



Newly Delinquent Loans (30+ Days, % of total)



Sources: Capital Economics; BEA; NY Federal Reserve

Trade Matters, but More to U.S. Trading Partners

Exports, imports, and trade-to-GDP ratio in 2018

Trade and trade policy dominate headlines in 2019, but impact of trade in the U.S. is far lower than in Europe and many other developed markets

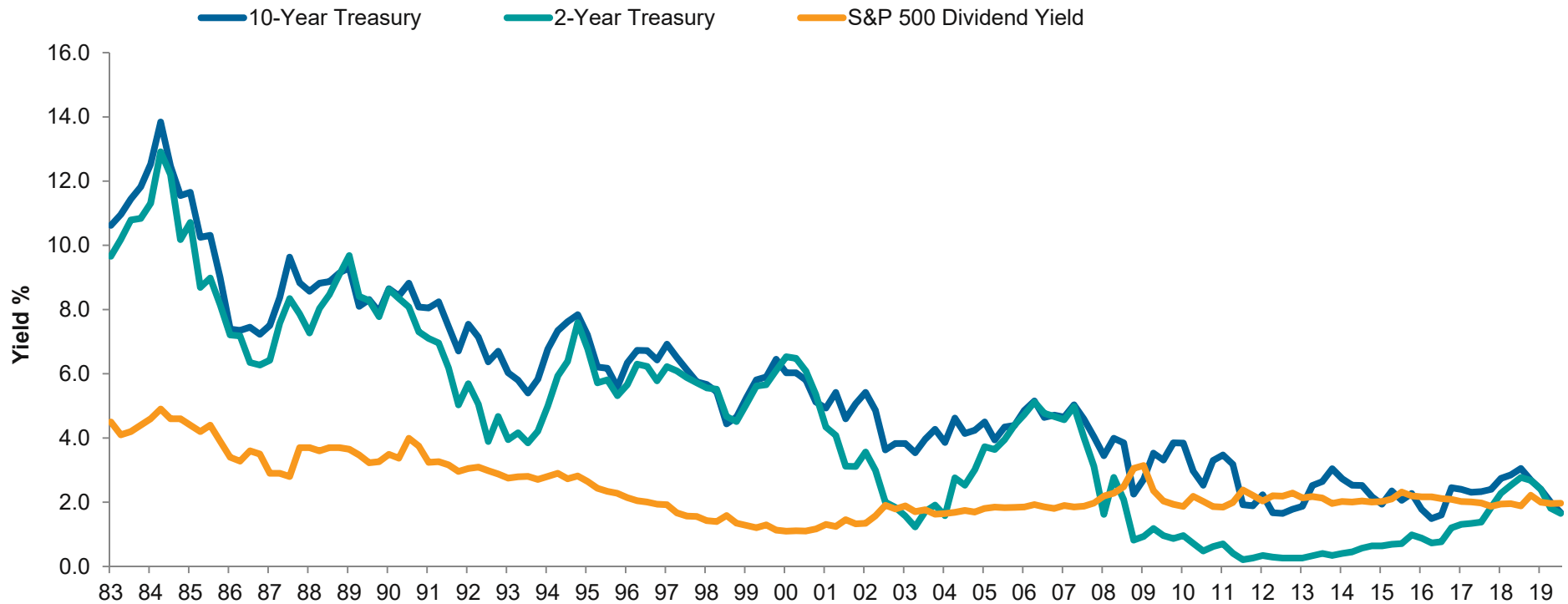
- Trade-to-GDP ratio is the sum of exports and imports as a % of GDP. Exports and imports include both goods and services.
- Trade has become a larger component of U.S. GDP over time.
 - U.S. exports have gradually risen from 7% in 1985 to 12.1% in 2018, while imports rose from 9% to 15%.
 - Trade activity now involves 27.1% of U.S. GDP.
- By comparison, trade accounts for 38.2% of China GDP, and well over half of GDP in Europe and Mexico.

	Exports (% of GDP)	Imports (% of GDP)	Trade-to-GDP Ratio
Germany	47.0%	40.2%	87.2%
Mexico	39.2%	41.1%	80.3%
Canada	31.8%	33.9%	65.7%
France	31.3%	32.1%	63.4%
U.K.	29.9%	31.4%	61.3%
Italy	31.8%	29.3%	61.1%
Russia	30.7%	20.8%	51.5%
China	19.5%	18.7%	38.2%
Japan	17.8%	16.8%	34.6%
U.S.	12.1%	15.0%	27.1%

Source: World Bank

Long Period of Zero Interest Rate Policy Skews Memories of 'Normal Markets'

Yields on 2- and 10-year Treasury notes now back at level of the S&P dividend



Long-term historical relationship between bond yields and dividends has been distorted by 10 years of extreme policy intervention

After Fed rate hikes starting in 2017, 2-year Treasury yields rose above dividends. Both 2- and 10-year Treasury yields fell back to the level of stock dividends in Q2 2019

Source: Callan

Fed Pauses in Q1 2019 After 9 Interest Rate Hikes, Two Cuts in Q3

Fed projections now more in line with market expectations

Median of 2019 projections (2.4%) signals no more rate hikes this year

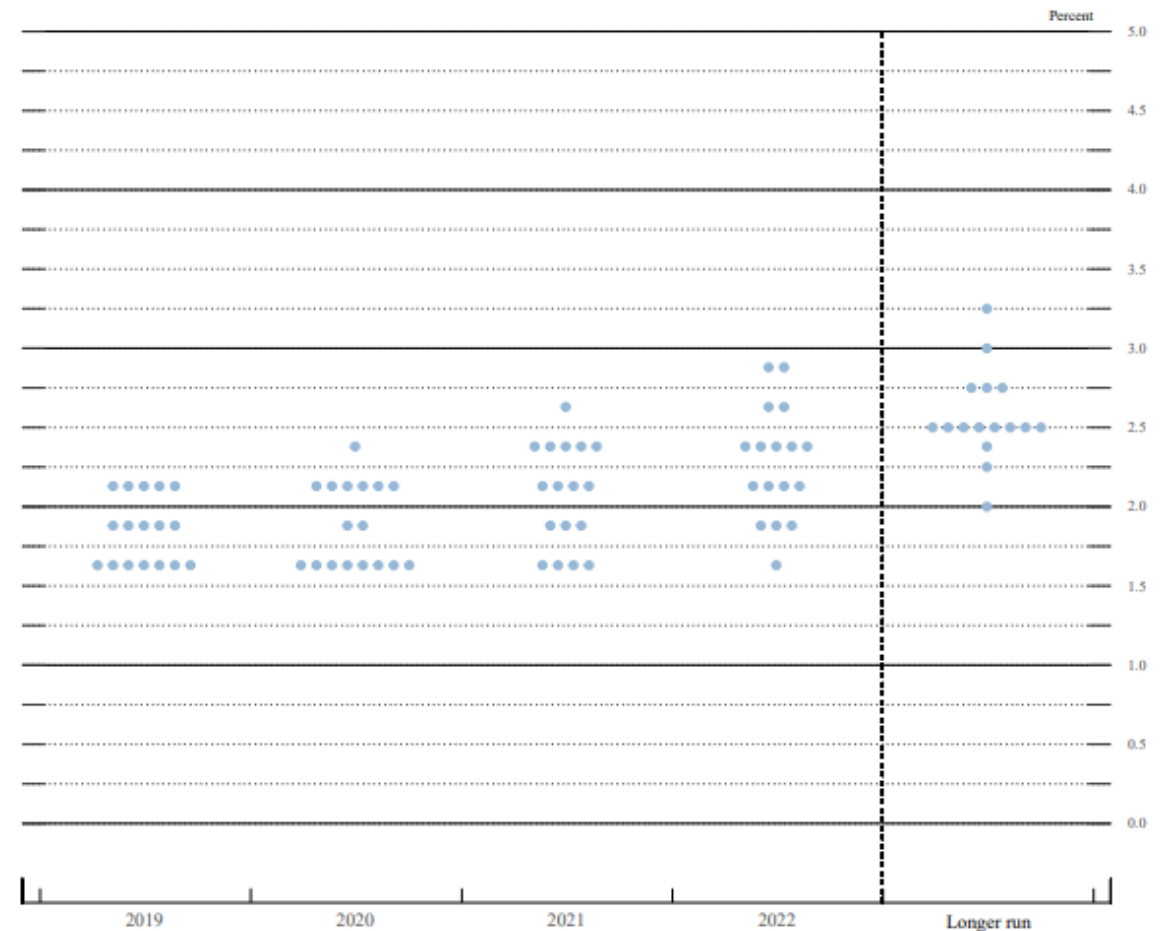
- September median is the same as June, and down from 2.9% projected in December.
- Longer term, median expectation is settled around 2.6%.

Fed paused on rate hikes through June, cut 25 bps in July and again in September

- Fed projected no more rate cuts in 2019 and 2020, but members of the FOMC are divided on the Fed's future actions.
- Rate pause and potential cut represents a shift from traditional Fed policy of price stabilization and employment; Fed has now fully articulated market growth and stability as a goal.
- Fed stated further rate hikes will be “data driven,” but strong economic results have been used to justify the pause: “...a downturn must be coming...”

Federal Reserve Dot Plot— September 2019

FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



Source: Federal Reserve

Inverted Yield Curve Points to Recession, a Normal Part of the Economic Cycle

Built into the 10-year forecast

Timing of recession following yield curve inversion is long and variable—6 to 18 months

Ten-year fell below cash in Q2, but maintained spread over 2-year until August (circled in chart).

Consensus expectation for U.S. recession in 2020; may avoid true recession with slowdown in GDP growth to 1%

Typical economic impact:

- Slowing job growth, layoffs
- Wages and income
- Consumer confidence
- Housing market
- Capital spending

Only housing market and business investment are showing signs of slowdown

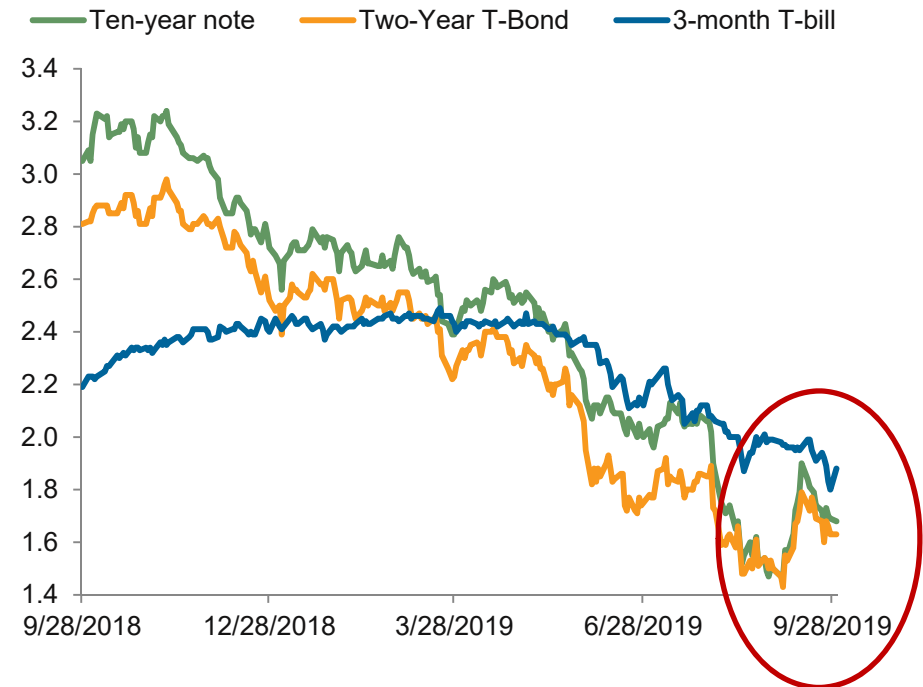
Stock market reaction is usually sharp and early

- Recession fears spurred Q4 2018 market decline; snap back in 2019 is a response to Fed policy shift

Bond market benefited greatly from falling rates in 2019, but:

- Sharp rise in government debt from 2018 tax cut; impact exacerbated by recession (hits tax receipts)

Treasury Yield Curve Inverts



Source: Bloomberg

Investing in a Market Laden with Negative-Yielding Bonds

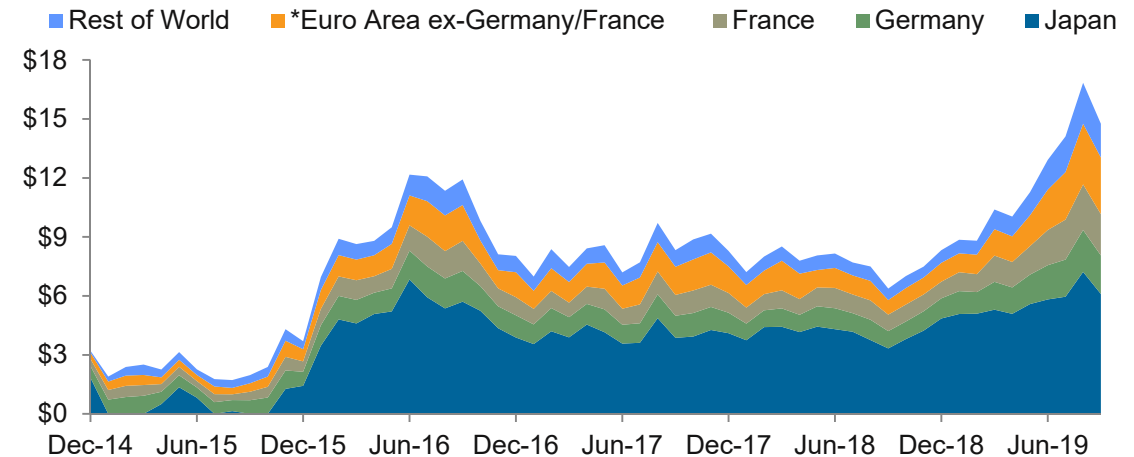
Negative-yielding debt rose to \$17 trillion globally as of August 2019

- 30% of debt within the Bloomberg Barclays Global Aggregate Index is negative yielding.
- France and Germany's yield curves are now negative out to 10 years or further.
- \$1 trillion of investment grade corporate debt is negative yielding.

Investing in Negative Yield Bonds

- Negative yields imply that holding the bond to maturity would result in a loss.
- However, short-term returns can be positive as bond prices increase with the decline in yield.
- Investors could earn a positive real yield if inflation were more negative than the negative nominal yield on the bond.

Country Breakdown of Negative Yielding Debt (trillions)



Growth of Negative Yield Debt by Sector

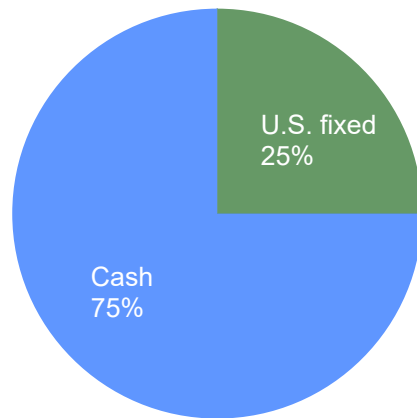


Source: (Top) Bloomberg Barclays as of September 2019, (Bottom) Colchester Global Investors, Bloomberg Barclays Global Agg Treasuries Idx and Global Agg Corporate Idx as of August 2019

*Top 5 euro-area constituents ex-Germany/France by market value: Spain, Supranational (e.g., EU Investment Bank, European Financial Stability Facility), Italy, Netherlands, Belgium

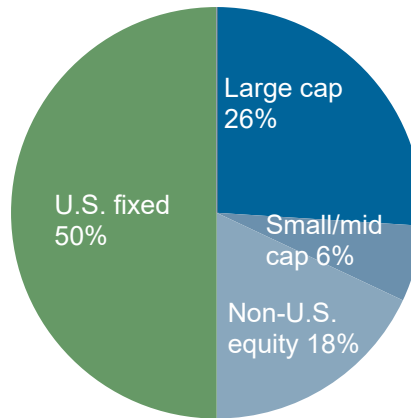
7.5% Expected Returns Over Past 30+ Years

Increasing Complexity →



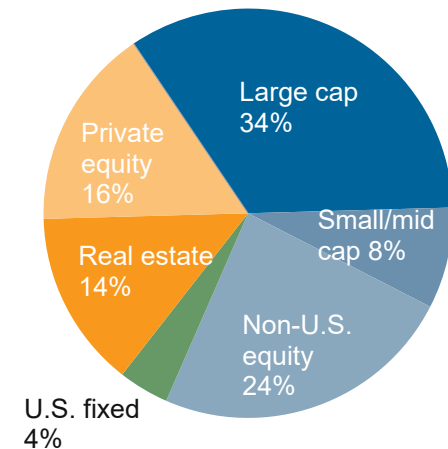
1989

Return: 7.5%
Risk: 3.1%



2004

Return: 7.5%
Risk: 8.9%



2019

Return: 7.5%
Risk: 18.0%

Increasing Risk →

In 1989, our expectations for cash and broad U.S. fixed income were 6.80% and 9.35%, respectively.

Growth assets were not required to earn a 7.5% expected return.

15 years later, an investor would have needed half of the portfolio in public equities to achieve a 7.5% expected return, nearly tripling the portfolio volatility of 1989.

Today an investor is required to include 96% in growth assets to earn a 7.5% expected return at almost 6x the volatility compared to 1989.

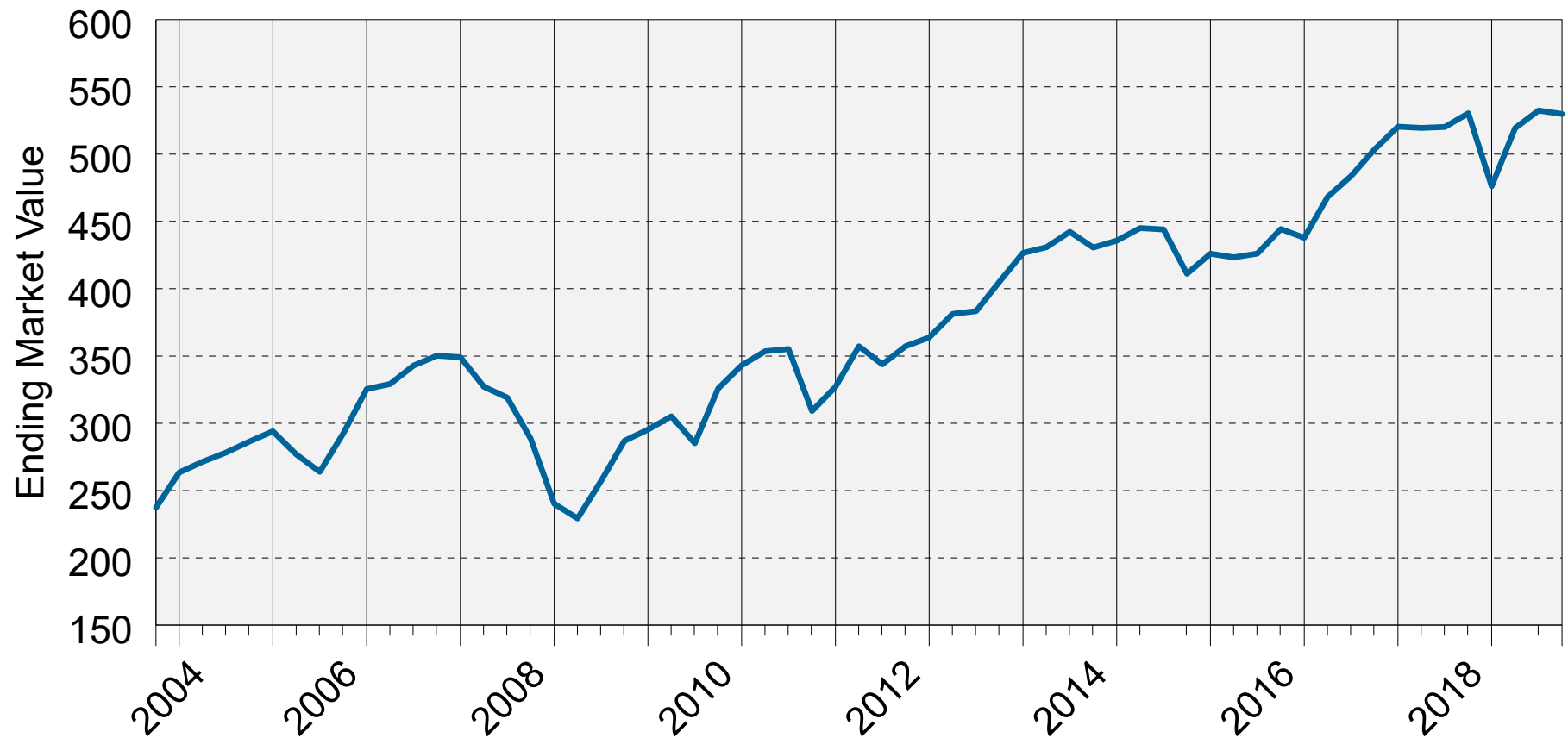
Source: Callan

Callan

MCERA Plan Performance

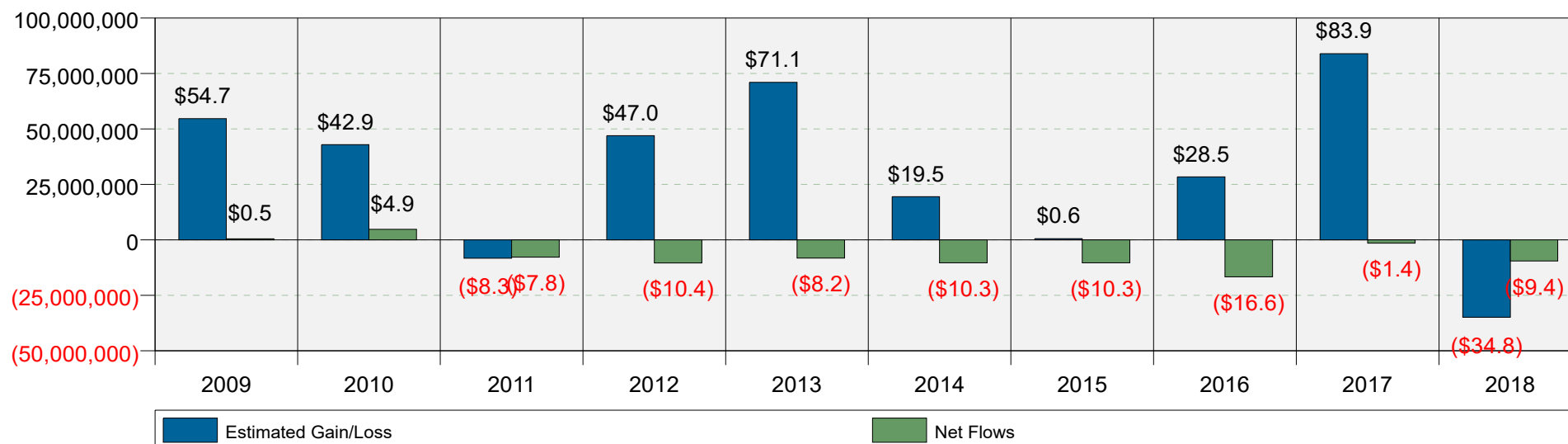
Total MCERA Plan Growth

MCERA Ending Market Value
for 15 Years Ended September 30, 2019



Total MCERA Plan Growth

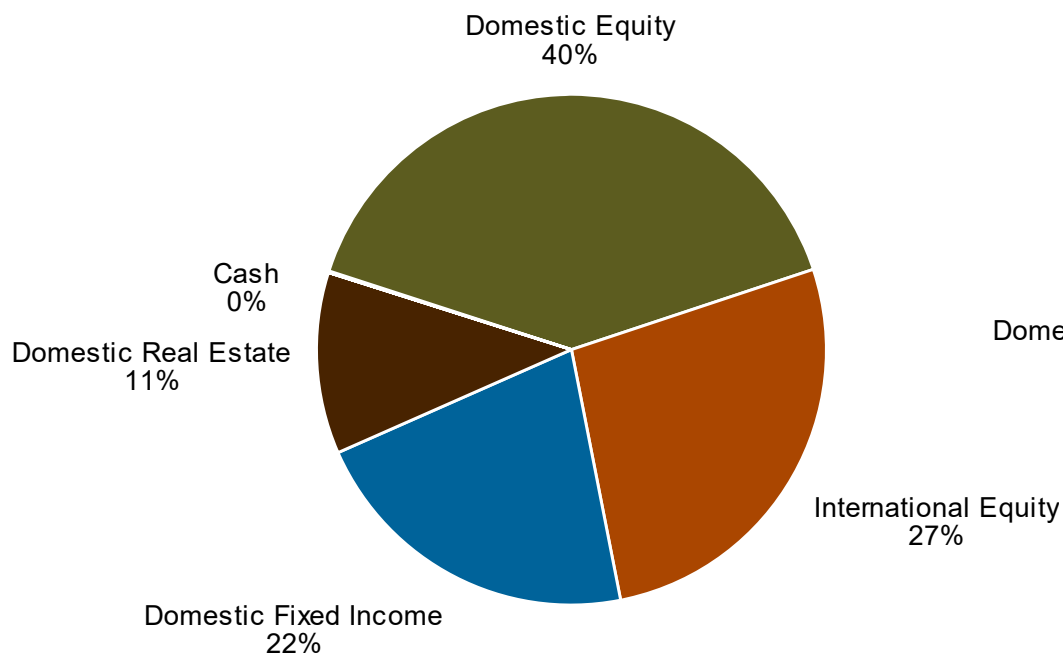
Investment Gain/Loss and Net Contribution/Distribution MCERA for 10 Years Ended December 31, 2018



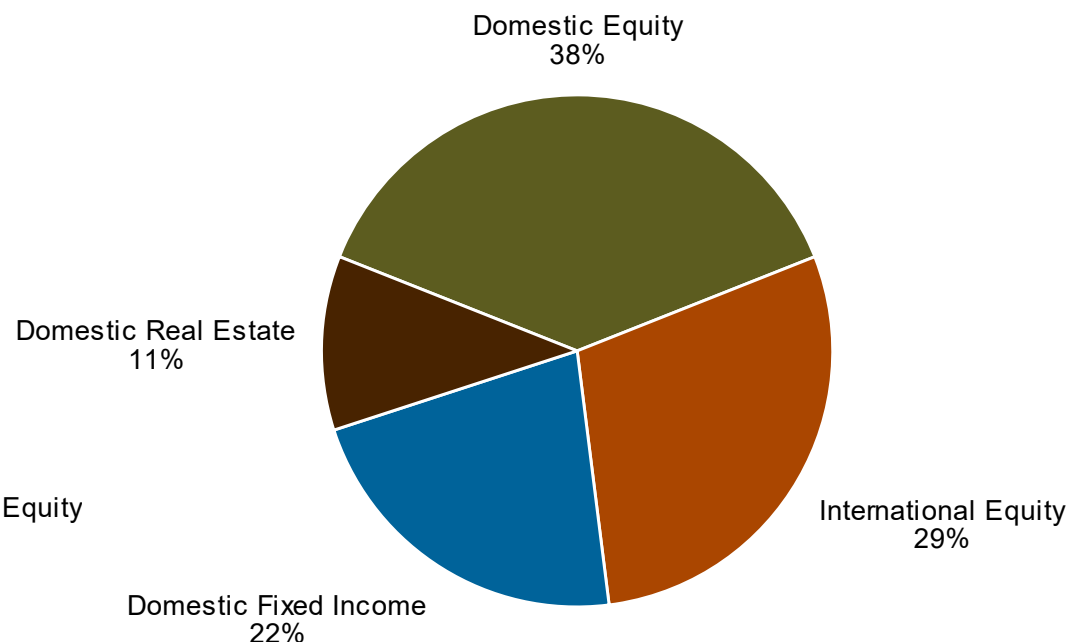
	September 30, 2019				December 31, 2018	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Domestic Equities	\$211,388,477	39.89%	\$(6,884,121)	\$33,872,734	\$184,399,863	38.72%
International Equities	\$143,304,413	27.04%	\$0	\$14,813,083	\$128,491,331	26.98%
Domestic Fixed Income	\$114,149,899	21.54%	\$0	\$9,130,760	\$105,019,140	22.05%
Real Estate	\$60,928,573	11.50%	\$(56,371)	\$2,871,298	\$58,113,647	12.20%
Cash	\$136,154	0.03%	\$(37,451)	\$(0)	\$173,604	0.04%
Total Fund	\$529,907,517	100.0%	\$(6,977,943)	\$60,687,875	\$476,197,584	100.0%

MCERA Actual vs Target Asset Allocation as of September 30, 2019

Actual Asset Allocation



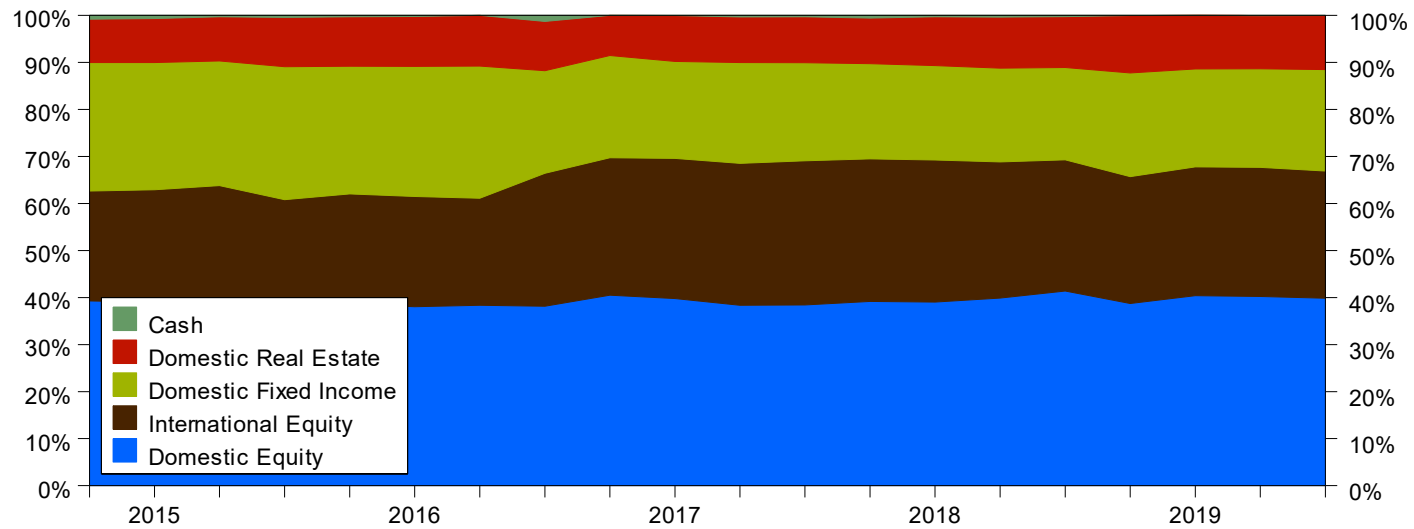
Target Asset Allocation



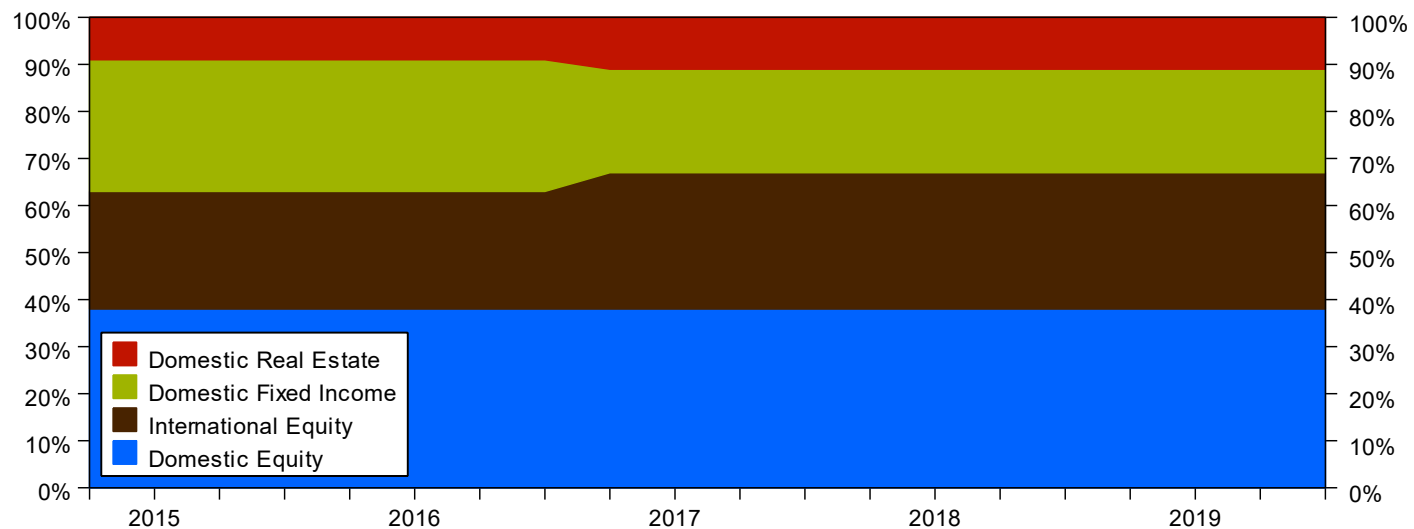
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	211,388	39.9%	38.0%	1.9%	10,024
International Equity	143,304	27.0%	29.0%	(2.0%)	(10,369)
Domestic Fixed Income	114,150	21.5%	22.0%	(0.5%)	(2,430)
Domestic Real Estate	60,929	11.5%	11.0%	0.5%	2,639
Cash	136	0.0%	0.0%	0.0%	136
Total	529,908	100.0%	100.0%		

MCERA Actual vs Target Historical Asset Allocation

Actual Historical Asset Allocation

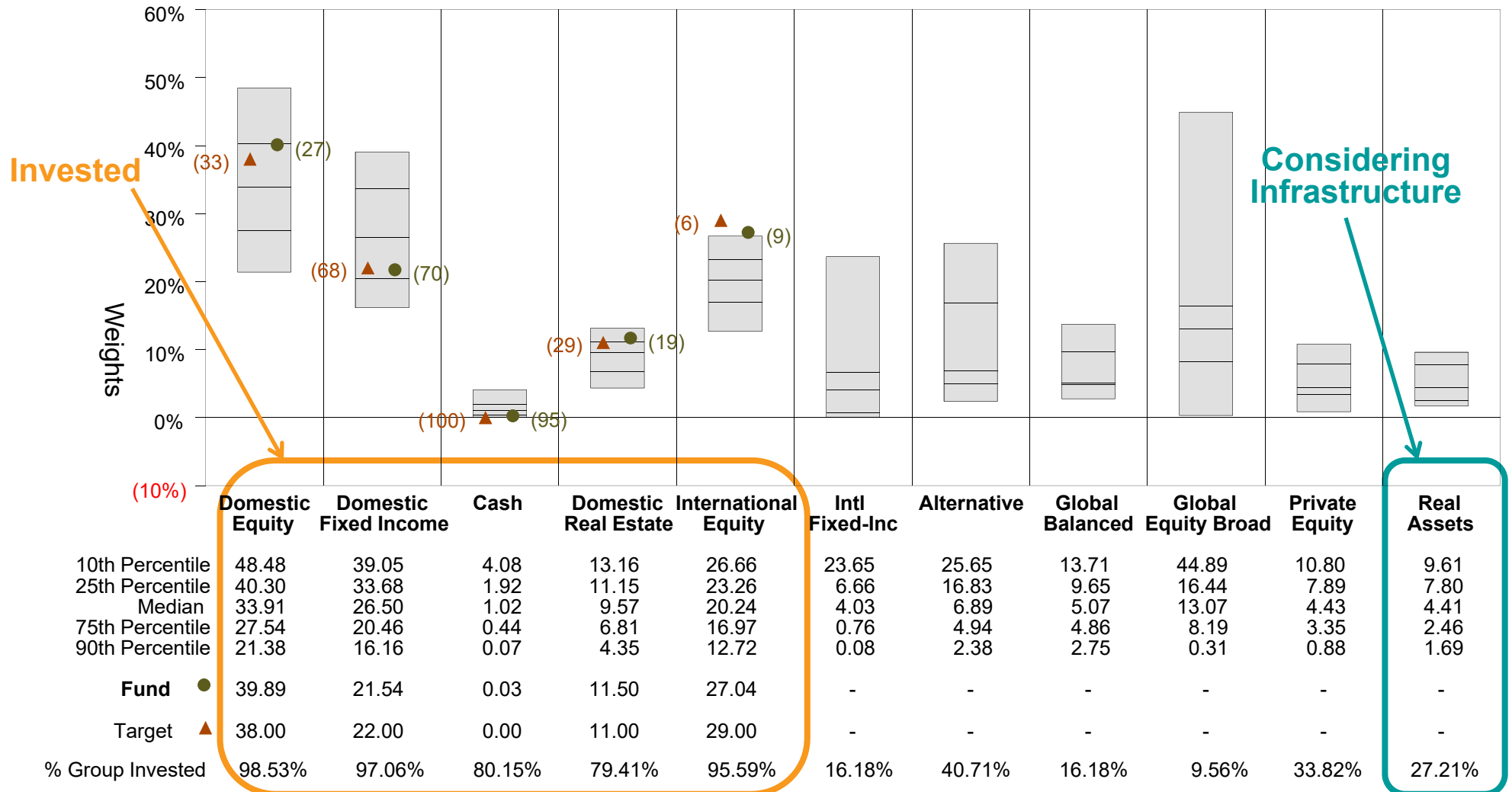


Target Historical Asset Allocation



MCERA Asset Class Weights vs Callan Public Fund Sponsor Database

Asset Class Weights vs Callan Public Fund Sponsor Database



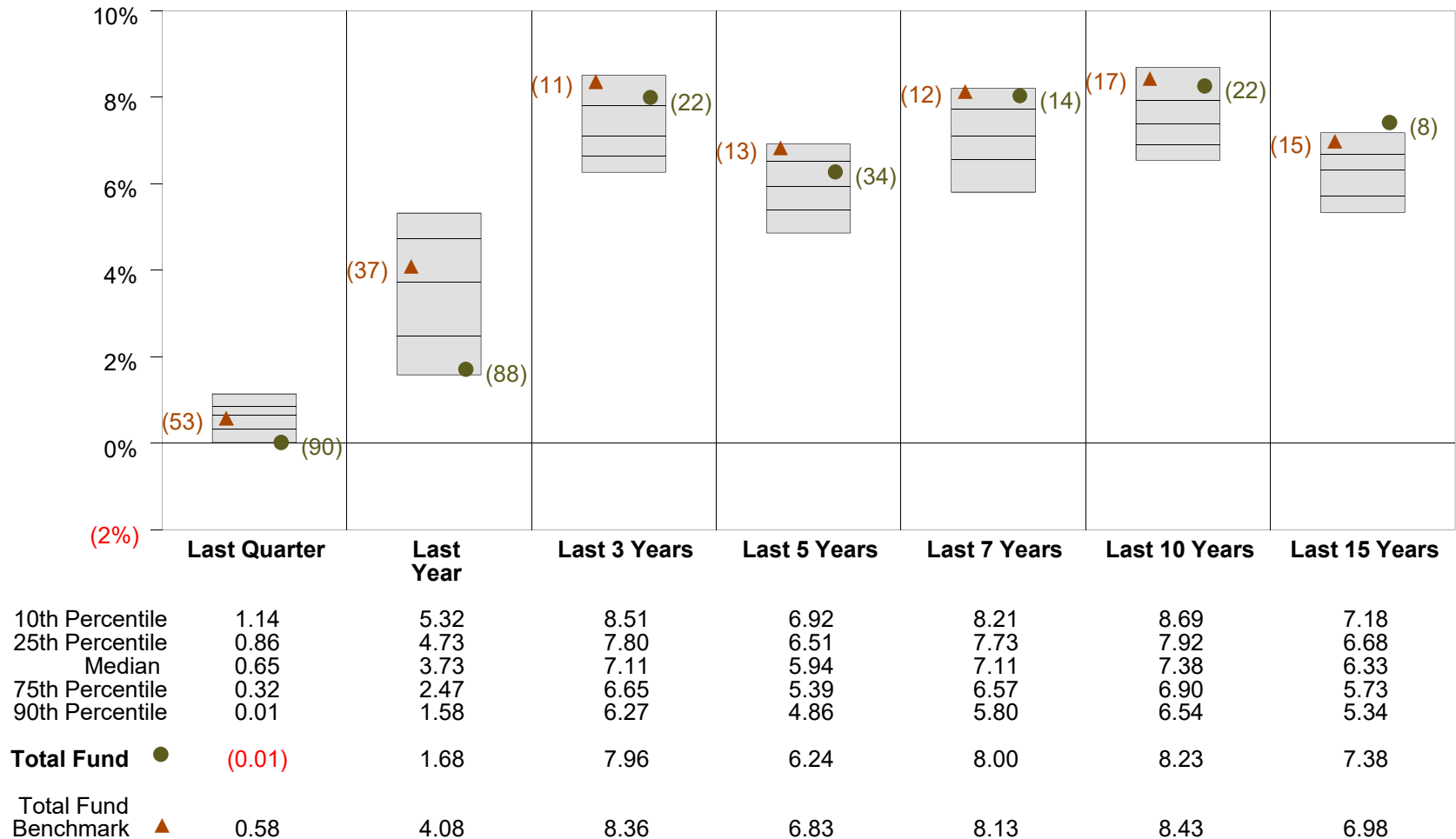
- The chart above ranks MCERA's asset allocation and the target allocation versus the Callan Public Fund Sponsor Database

Asset Allocation as of September 30, 2019

	September 30, 2019				June 30, 2019	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Domestic Equities	\$211,388,477	39.89%	\$(2,579,619)	\$(272,507)	\$214,240,603	40.23%
Large Cap Equities	\$149,160,805	28.15%	\$(2,304,619)	\$775,219	\$150,690,205	28.30%
Vanguard S&P 500 Index	37,160,307	7.01%	(1,300,000)	613,093	37,847,213	7.11%
SSGA S&P Equal Weighted NL CTF	37,597,782	7.10%	(1,004,619)	364,170	38,238,231	7.18%
Boston Partners	37,230,675	7.03%	0	597,573	36,633,102	6.88%
Harbor Cap Appreciation	37,172,041	7.01%	0	(799,617)	37,971,659	7.13%
Mid Cap Equities	\$33,196,117	6.26%	\$(275,000)	\$167,002	\$33,304,116	6.25%
Fidelity Low Priced Stock	15,298,315	2.89%	0	(33,098)	15,331,413	2.88%
Janus Enterprise	17,897,803	3.38%	(275,000)	200,099	17,972,703	3.37%
Small Cap Equities	\$29,031,554	5.48%	\$0	\$(1,214,727)	\$30,246,282	5.68%
Prudential Small Cap Value	12,484,146	2.36%	0	91,571	12,392,575	2.33%
AB US Small Growth	16,547,408	3.12%	0	(1,306,299)	17,853,707	3.35%
International Equities	\$143,304,413	27.04%	\$0	\$(2,933,713)	\$146,238,126	27.46%
EuroPacific	26,576,689	5.02%	0	(429,481)	27,006,170	5.07%
Harbor International	28,494,058	5.38%	0	(272,888)	28,766,947	5.40%
Oakmark International	26,795,192	5.06%	0	(340,447)	27,135,640	5.10%
Mondrian International	25,797,726	4.87%	0	(712,527)	26,510,253	4.98%
T. Rowe Price Intl Small Cap	21,278,959	4.02%	0	(508,371)	21,787,330	4.09%
Investec	14,361,788	2.71%	0	(669,998)	15,031,787	2.82%
Domestic Fixed Income	\$114,149,899	21.54%	\$0	\$2,481,110	\$111,668,789	20.97%
Dodge & Cox Income	57,214,834	10.80%	0	1,169,709	56,045,124	10.52%
PIMCO	56,935,066	10.74%	0	1,311,401	55,623,665	10.44%
Real Estate	\$60,928,573	11.50%	\$(16,585)	\$815,743	\$60,129,416	11.29%
RREEF Private	31,264,241	5.90%	0	476,800	30,787,441	5.78%
Barings Core Property Fund	28,376,332	5.35%	0	322,358	28,053,974	5.27%
625 Kings Court	1,288,000	0.24%	(16,585)	16,585	1,288,000	0.24%
Cash	\$136,154	0.03%	\$(154,413)	\$0	\$290,566	0.05%
Total Fund	\$529,907,517	100.0%	\$(2,750,617)	\$90,633	\$532,567,500	100.0%

MCERA Total Fund Performance as of September 30, 2019

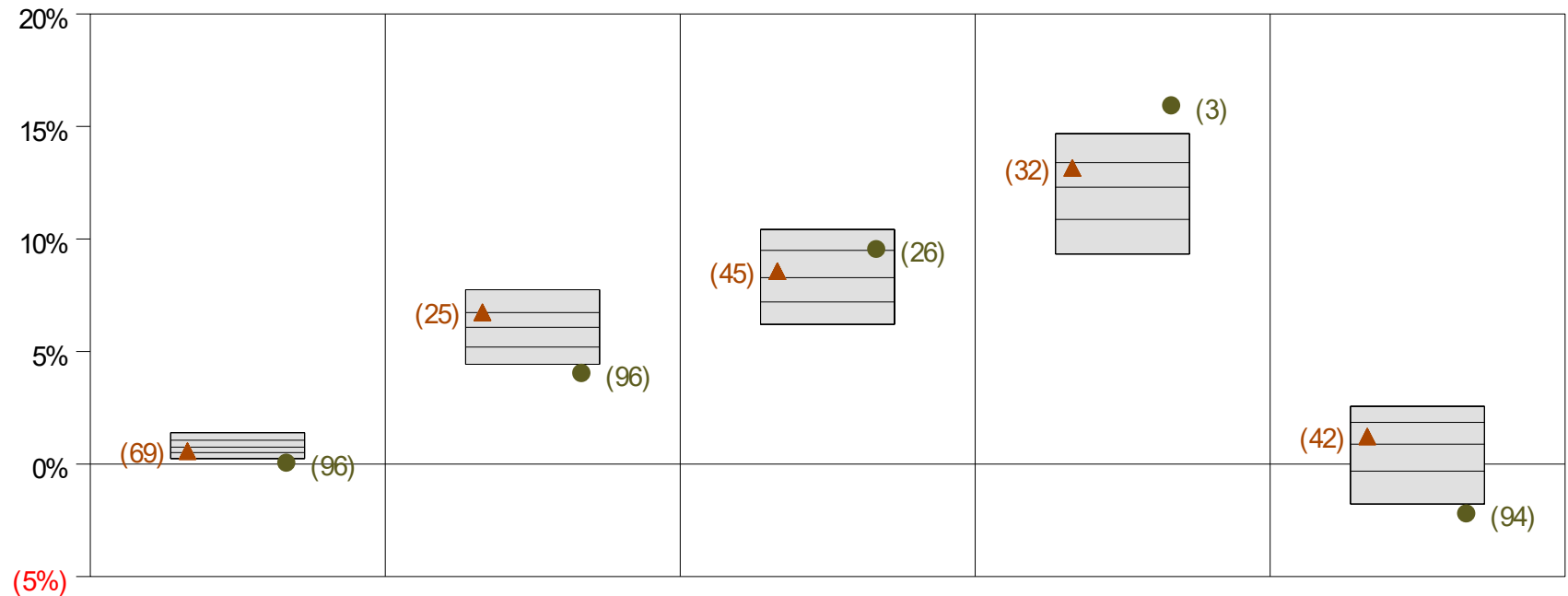
Performance vs Callan Public Fund Sponsor Database (Net)



- The Callan Public Fund Sponsor Database consists of public employee pension total funds including both Callan LLC client and surveyed non-client funds.
- Returns greater than one year are annualized

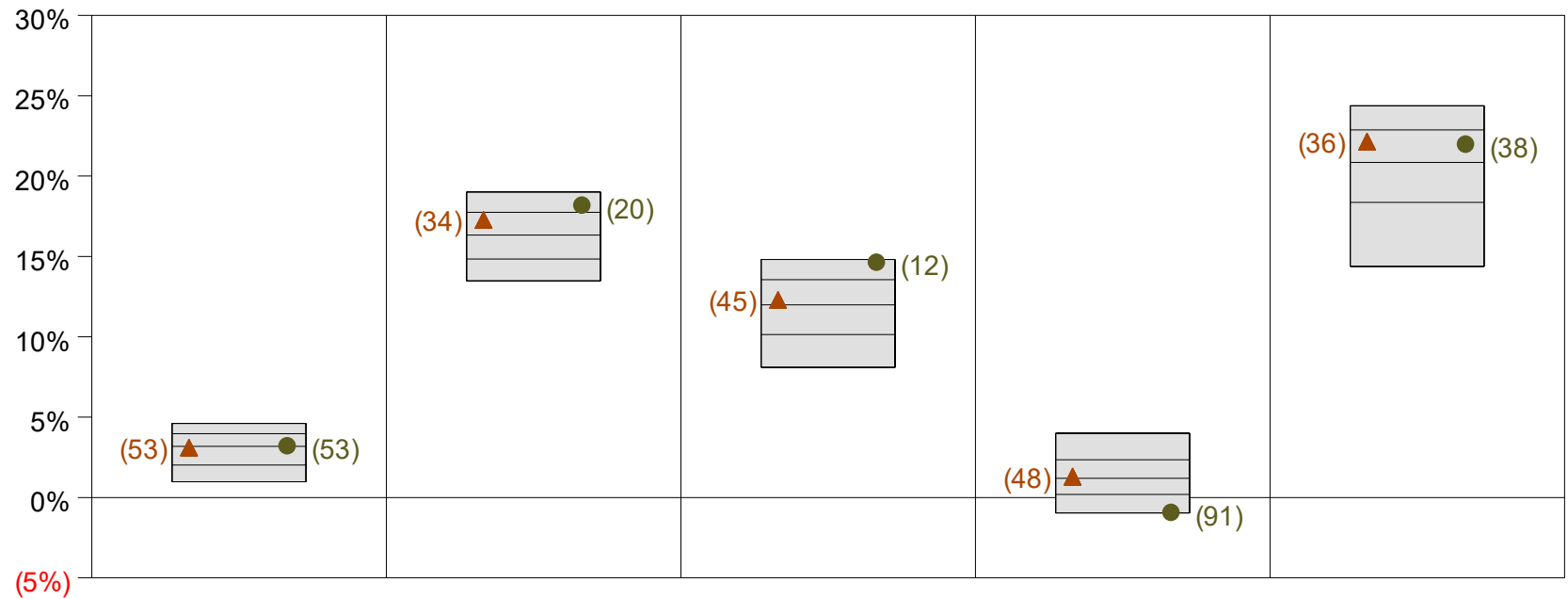
MCERA Total Fund Fiscal Year Performance

September 30, 2019



	Fiscal YTD	FY 2019	FY 2018	FY 2017	FY 2016
10th Percentile	1.39	7.75	10.43	14.68	2.57
25th Percentile	1.07	6.74	9.50	13.40	1.85
Median	0.75	6.08	8.29	12.30	0.88
75th Percentile	0.51	5.20	7.20	10.88	(0.31)
90th Percentile	0.24	4.43	6.20	9.33	(1.78)
Total Fund ●	(0.01)	3.97	9.48	15.86	(2.26)
Total Fund Benchmark ▲	0.58	6.75	8.57	13.16	1.23

MCERA Total Fund Fiscal Year Performance (continued)



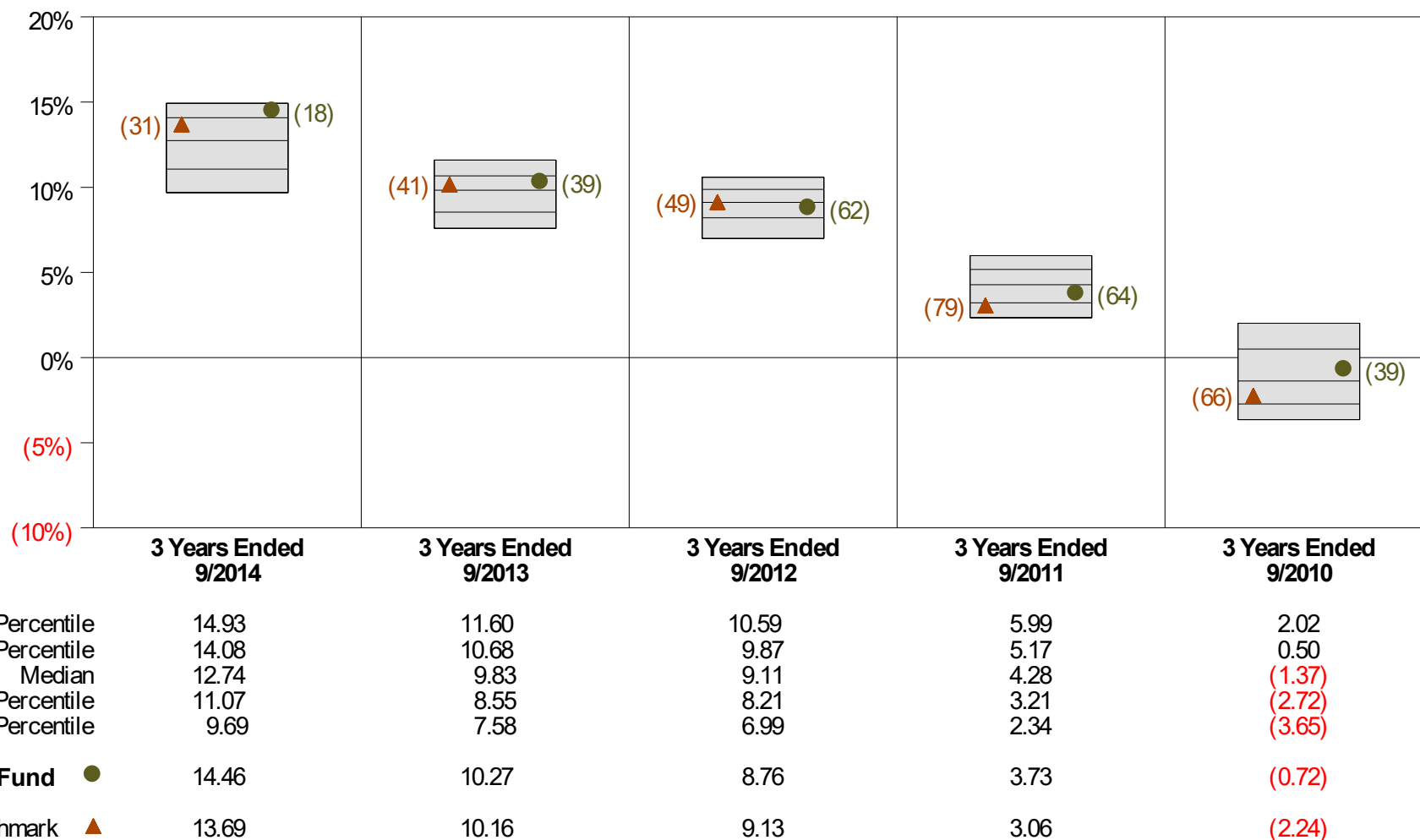
MCERA Total Fund Rolling 3-Year Performance



10th Percentile	9.26	11.34	8.01	7.18	8.63
25th Percentile	8.58	10.59	7.47	6.66	7.89
Median	7.80	9.73	6.81	6.05	6.79
75th Percentile	7.20	8.99	6.14	5.18	5.69
90th Percentile	6.55	8.20	5.41	4.40	4.08

Total Fund	●	7.96	10.53	7.50	5.40	7.68
Total Fund Benchmark	▲	8.36	10.60	7.45	6.42	7.06

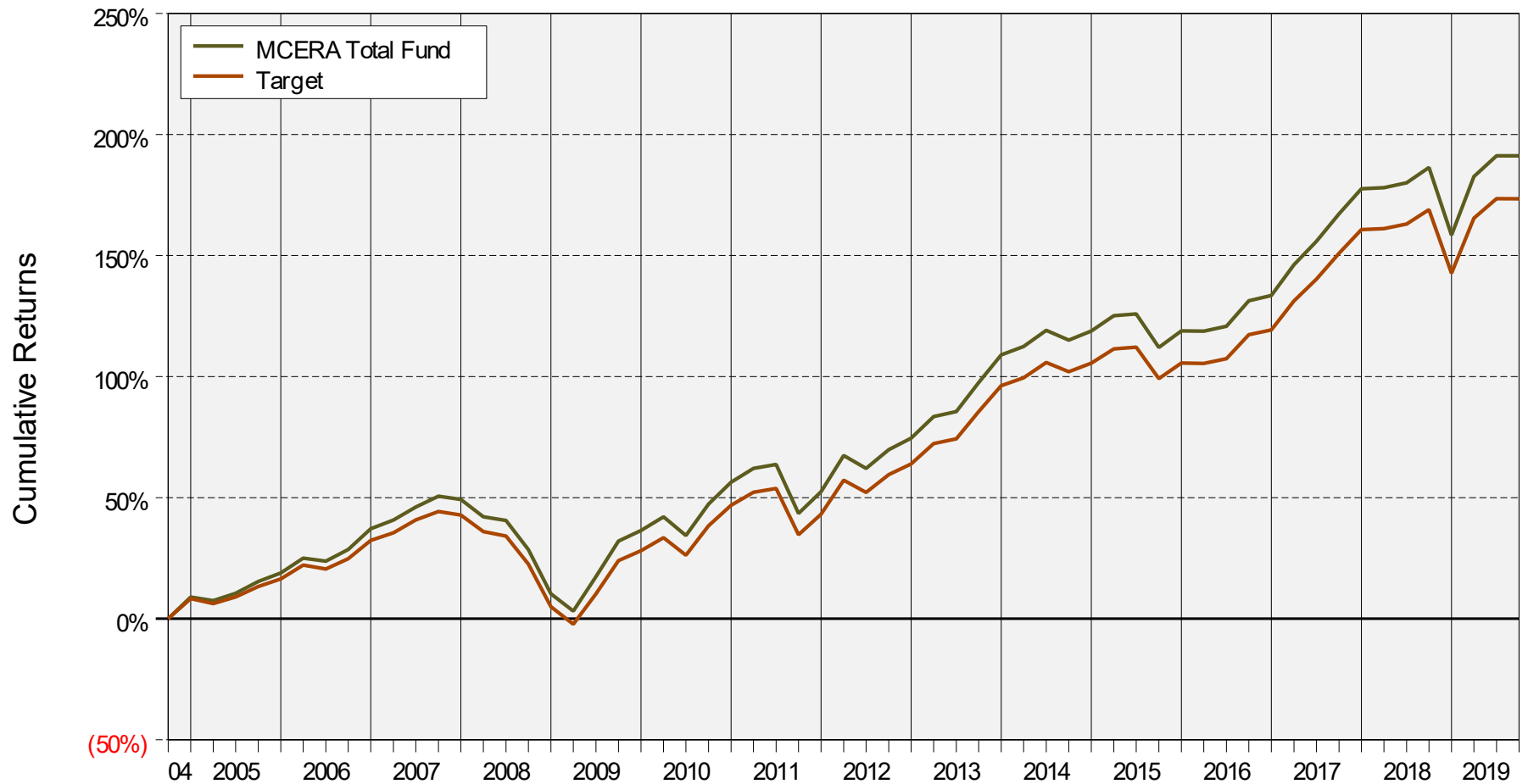
MCERA Total Fund Rolling 3-Year Performance (continued)



MCERA Cumulative Total Fund Performance

For 15 Years Ended September 30, 2019

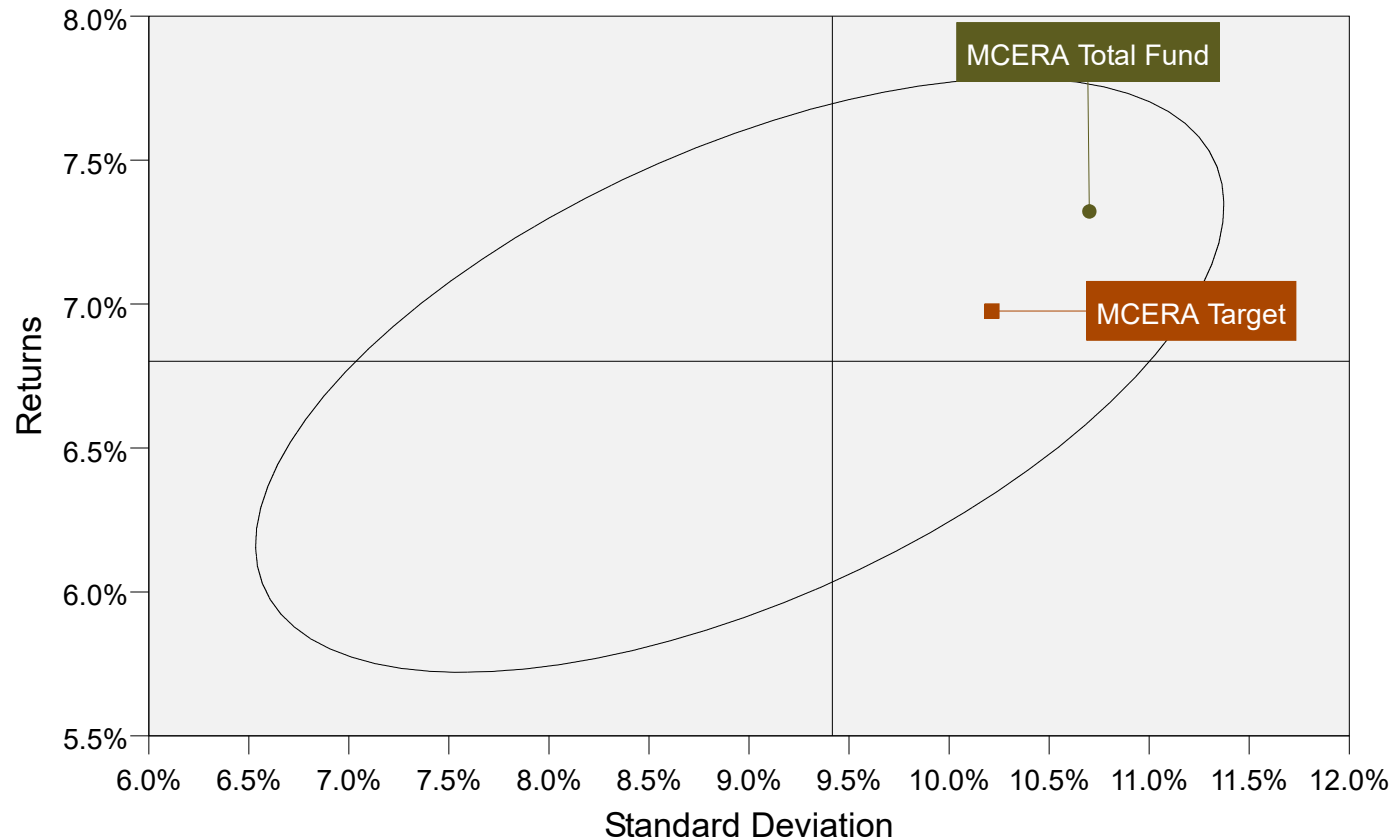
Fifteen Year Cumulative Returns



MCERA Annualized Return vs Risk

15 Years Ended September 30, 2019

Group: Callan Public Fund Sponsor Database



- The chart above plots 15 year annualized return vs standard deviation of the MCERA Total Fund and the Total Fund Target. Over the trailing 15 year period the MCERA Total Fund has achieved an annualized return higher than the Total Fund Target with higher volatility.

Cumulative Total Fund Relative Attribution

September 30, 2019

One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	40%	38%	0.28%	2.92%	(1.06%)	(0.18%)	(1.24%)
Domestic Fixed Income	21%	22%	9.60%	10.30%	(0.14%)	(0.28%)	(0.43%)
Domestic Real Estate	11%	11%	6.15%	5.26%	0.10%	(0.12%)	(0.02%)
International Equity	28%	29%	(3.47%)	(0.72%)	(0.78%)	0.04%	(0.74%)
Cash	0%	0%	0.00%	0.00%	0.00%	0.01%	0.01%
Total			1.68%	= 4.08%	+ (1.88%)	+ (0.52%)	(2.41%)

- The trailing year has seen challenged results from MCERA's active managers
- In particular, the active public equity managers, which account for nearly 70% of the total portfolio, underperformed in aggregate
- The majority of the underperformance for the trailing year occurred during 4Q 2018 when public equity markets posted double digit negative returns
- Asset allocation has remained closely in line with the strategic target over the year, but slight dislocations caused by market movement posed a modest headwind to relative performance

Investment Manager Returns for Periods Ended September 30, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Domestic Equities	(0.10%)	0.28%	12.96%	9.93%	12.85%
Russell 3000 Index	1.16%	2.92%	12.83%	10.44%	13.08%
Large Cap Equities					
Vanguard S&P 500 Index	1.69%	4.23%	13.36%	10.81%	-
S&P 500 Index	1.70%	4.25%	13.39%	10.84%	13.24%
SSGA S&P Eq Weighted NL CTF	1.06%	3.67%	-	-	-
S&P 500 Eq Weighted	0.77%	3.40%	11.05%	9.46%	13.41%
Boston Partners	1.63%	(1.41%)	10.32%	7.18%	-
S&P 500 Index	1.70%	4.25%	13.39%	10.84%	13.24%
Russell 1000 Value Index	1.36%	4.00%	9.43%	7.79%	11.46%
Harbor Cap Appreciation (1)	(2.11%)	(0.82%)	16.34%	12.74%	14.21%
S&P 500 Index	1.70%	4.25%	13.39%	10.84%	13.24%
Russell 1000 Growth Index	1.49%	3.71%	16.89%	13.39%	14.94%
Mid Cap Equities					
Fidelity Low Priced Stock	(0.22%)	(3.38%)	7.53%	6.28%	10.97%
Russell MidCap Value Idx	1.22%	1.60%	7.82%	7.55%	12.29%
Janus Enterprise (2)	1.11%	10.38%	17.23%	14.94%	15.60%
Russell MidCap Growth Idx	(0.67%)	5.20%	14.50%	11.12%	14.08%
Small Cap Equities					
Prudential Small Cap Value (3)	0.74%	(11.95%)	3.92%	4.94%	-
MSCI US Small Cap Value Idx	0.06%	(6.61%)	6.69%	7.05%	10.79%
Russell 2000 Value Index	(0.57%)	(8.24%)	6.54%	7.17%	10.06%
AB US Small Growth (4)	(7.32%)	(6.01%)	18.59%	12.18%	16.17%
Russell 2000 Growth Index	(4.17%)	(9.63%)	9.79%	9.08%	12.25%

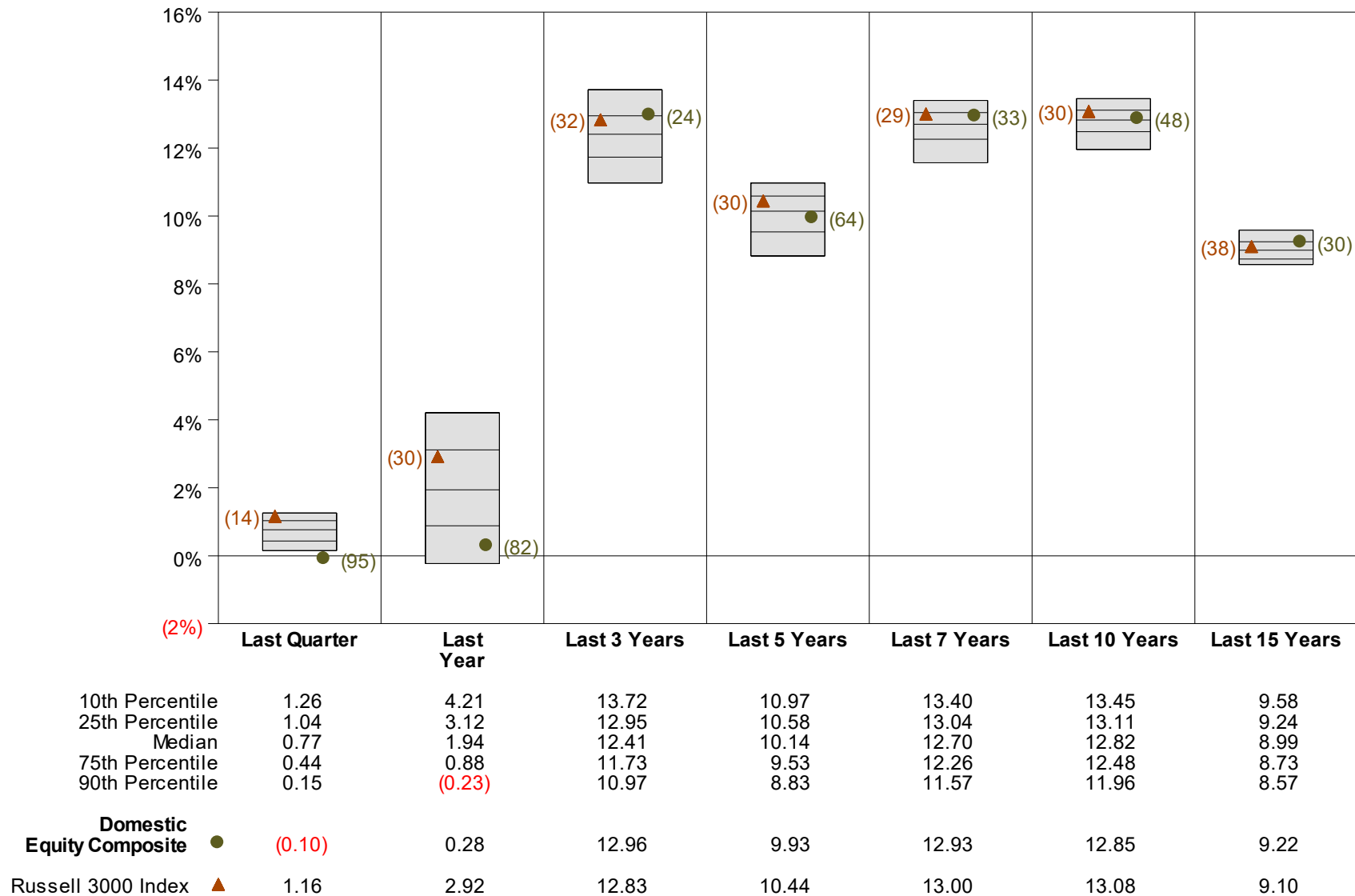
Investment Manager Returns for Periods Ended September 30, 2019 (continued)

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
International Equities	(2.10%)	(3.47%)	4.90%	2.04%	4.50%
MSCI ACWI ex-US Index	(1.70%)	(0.72%)	6.85%	3.39%	4.93%
EuroPacific	(1.59%)	1.14%	7.38%	5.02%	6.07%
Harbor International (1)	(0.95%)	(3.27%)	2.64%	0.89%	4.19%
Oakmark International (2)	(1.25%)	(6.63%)	5.90%	2.90%	6.68%
Mondrian International	(2.88%)	(2.50%)	4.20%	1.38%	-
MSCI EAFE Index	(1.07%)	(1.34%)	6.48%	3.27%	4.90%
MSCI ACWI ex-US Index	(1.70%)	(0.72%)	6.85%	3.39%	4.93%
T. Rowe Price Intl Small Cap	(2.59%)	(6.06%)	-	-	-
MSCI ACWI ex US Small Cap	(1.19%)	(5.63%)	4.64%	3.98%	6.13%
Investec	(4.65%)	(3.64%)	-	-	-
MSCI Emerging Markets Index	(4.25%)	(2.01%)	5.98%	2.33%	3.37%
Domestic Fixed Income	2.22%	9.60%	3.67%	3.64%	4.32%
Blmbg Aggregate Index	2.27%	10.30%	2.92%	3.38%	3.75%
Dodge & Cox Income	2.09%	9.13%	3.79%	3.70%	4.59%
PIMCO	2.36%	10.08%	3.55%	3.57%	4.32%
Blmbg Aggregate Index	2.27%	10.30%	2.92%	3.38%	3.75%
Real Estate	1.36%	6.15%	6.52%	8.55%	10.72%
Real Estate Custom Benchmark (3)	1.18%	5.26%	6.34%	8.67%	10.98%
RREEF Private	1.55%	5.74%	7.00%	8.95%	10.60%
Barings Core Property Fund	1.15%	6.05%	6.55%	8.14%	-
NFI-ODCE Equal Weight Net	1.18%	5.26%	6.69%	8.68%	9.89%
625 Kings Court	1.29%	19.54%	17.63%	14.49%	10.59%
Total Fund	(0.01%)	1.68%	7.96%	6.24%	8.23%
Total Fund Benchmark*	0.58%	4.08%	8.36%	6.83%	8.43%

MCERA Domestic Equity Composite Performance

For Periods Ended September 30, 2019

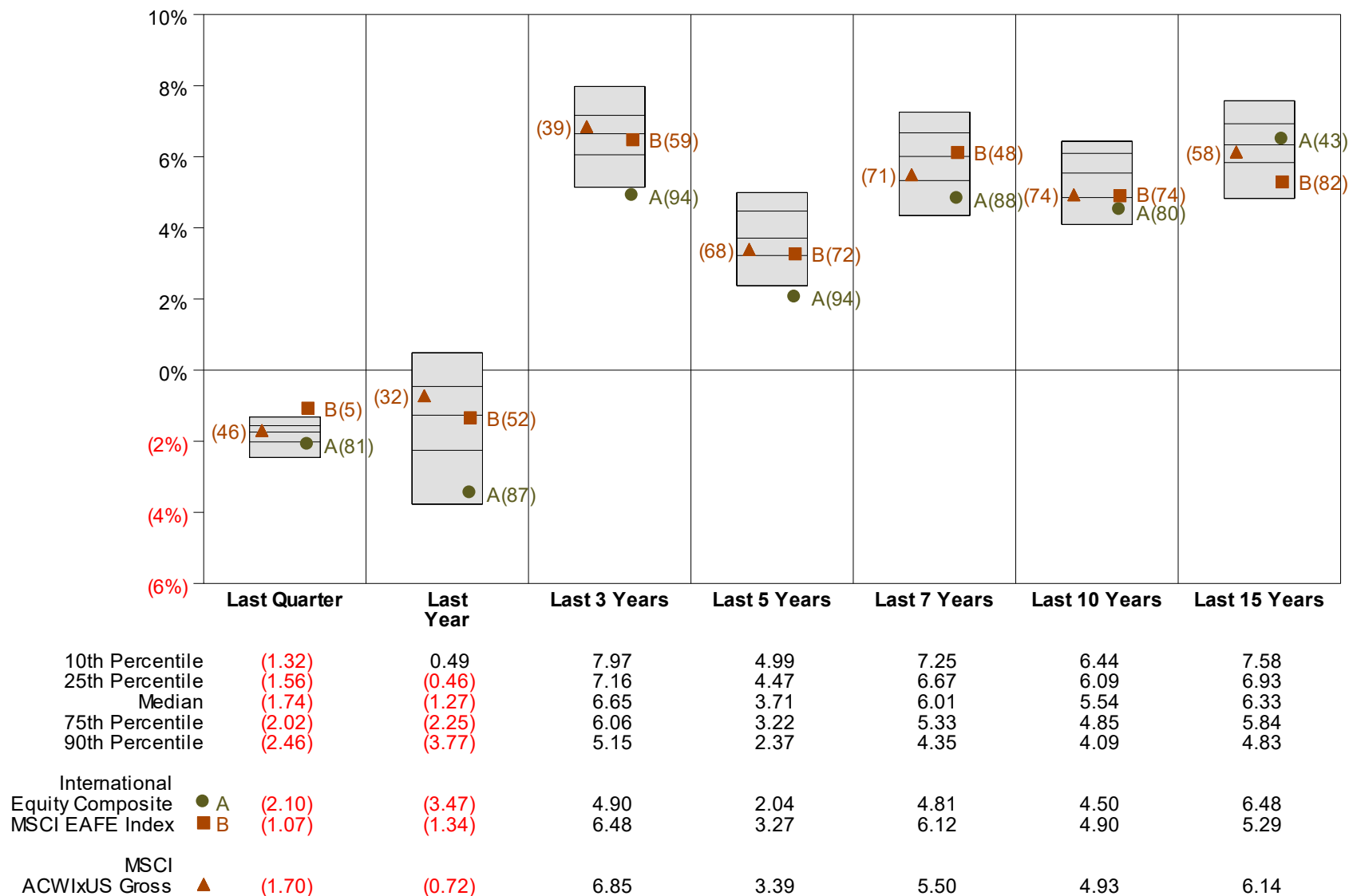
Performance vs Public Fund - Domestic Equity (Gross)



MCERA International Equity Composite Performance

For Periods Ended September 30, 2019

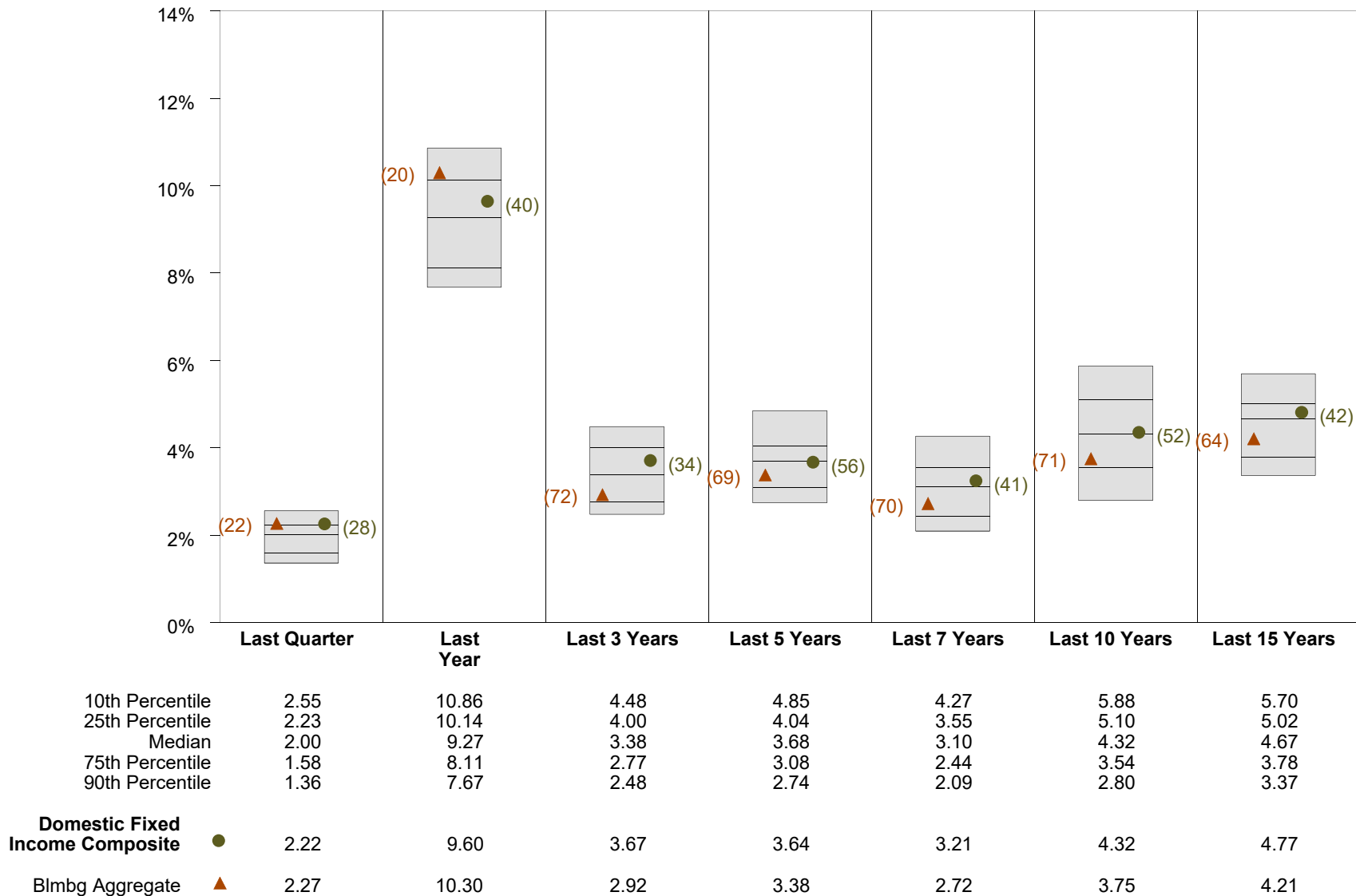
Performance vs Public Fund - International Equity (Gross)



MCERA Fixed Income Composite Performance

For Periods Ended September 30, 2019

Performance vs Public Fund - Domestic Fixed (Gross)



MCERA Real Estate Composite Performance

For Periods Ended September 30, 2019

Performance vs Callan Open End Core Cmmingled Real Est (Net)



10th Percentile	2.17	8.25	9.41	10.77	11.40	13.25	8.21
25th Percentile	1.95	7.80	7.80	9.56	10.15	10.81	7.55
Median	1.61	6.13	7.03	8.88	9.59	10.06	6.92
75th Percentile	1.41	5.74	5.92	7.99	8.91	9.01	6.42
90th Percentile	1.23	4.10	5.36	7.40	8.06	8.69	6.26

Real Estate Composite ●

Real Estate Custom Benchmark ▲

1.36	6.15	6.52	8.55	9.27	10.72	7.70
1.18	5.26	6.34	8.67	9.33	10.98	7.80

Callan

Callan Update

Published Research Highlights from 3Q19

Callan's 2019 ESG Survey



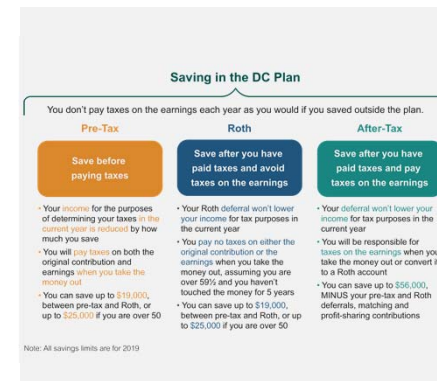
The Callan DC Index™ in Detail



The Keys to Unlocking Private Equity Portfolio Assessment



DC Plan Hacks: Tips for an Efficient Design



Recent Blog Posts

For Corporate DB Plans, We Have Good News and Bad News

William Emmett

What Fixed Income Managers Are Thinking Now

David Zee

Tips for Emerging and Diverse Managers

Anne Maloney

Additional Reading

Private Equity Trends quarterly newsletter

Active vs. Passive quarterly charts

Capital Market Review quarterly newsletter

Monthly Updates to the Periodic Table

Market Pulse Flipbook quarterly markets update

Callan Institute Events

Upcoming Conferences, Workshops, and Webinars

Save the Date! Callan's 40th National Conference

January 27–29, 2020 | The Palace Hotel, San Francisco

This year's lineup of speakers will include:



Frank W. Abagnale

- Renowned cybersecurity and fraud prevention expert
- Best-selling author and subject of *Catch Me If You Can*



Dr. Joseph F. Coughlin

- Director of the Massachusetts Institute of Technology AgeLab
- Professor of MIT's Department of Urban Studies & Planning and the Sloan School's Advanced Management Program



Dr. Doris Kearns Goodwin

- World-renowned presidential historian and public speaker
- Pulitzer Prize-winning and New York Times #1 best-selling author



Dr. Dambisa Mayo

- Global economist and investor in the future
- Author of four New York Times best-selling books

On-Demand Webinars

Visit our website for On-Demand webinar options at <https://www.callan.com/ondemandwebinar/>

“Callan College” Introduction to Investments

San Francisco, April 21-22, 2020

Chicago, July 21-22, 2020

Callan Updates

Firm updates by the numbers, as of September 30, 2019

Total Associates: 194

Ownership

- 100% employees
- Broadly distributed across 94 shareholders

Leadership Changes

- No executive additions or departures
- No leadership changes this quarter

Total General and Fund Sponsor Consultants: more than 45

Total Specialty and Research Consultants: more than 60

Total CFA/CAIA/FRMs: more than 55

Total Fund Sponsor Clients: more than 400

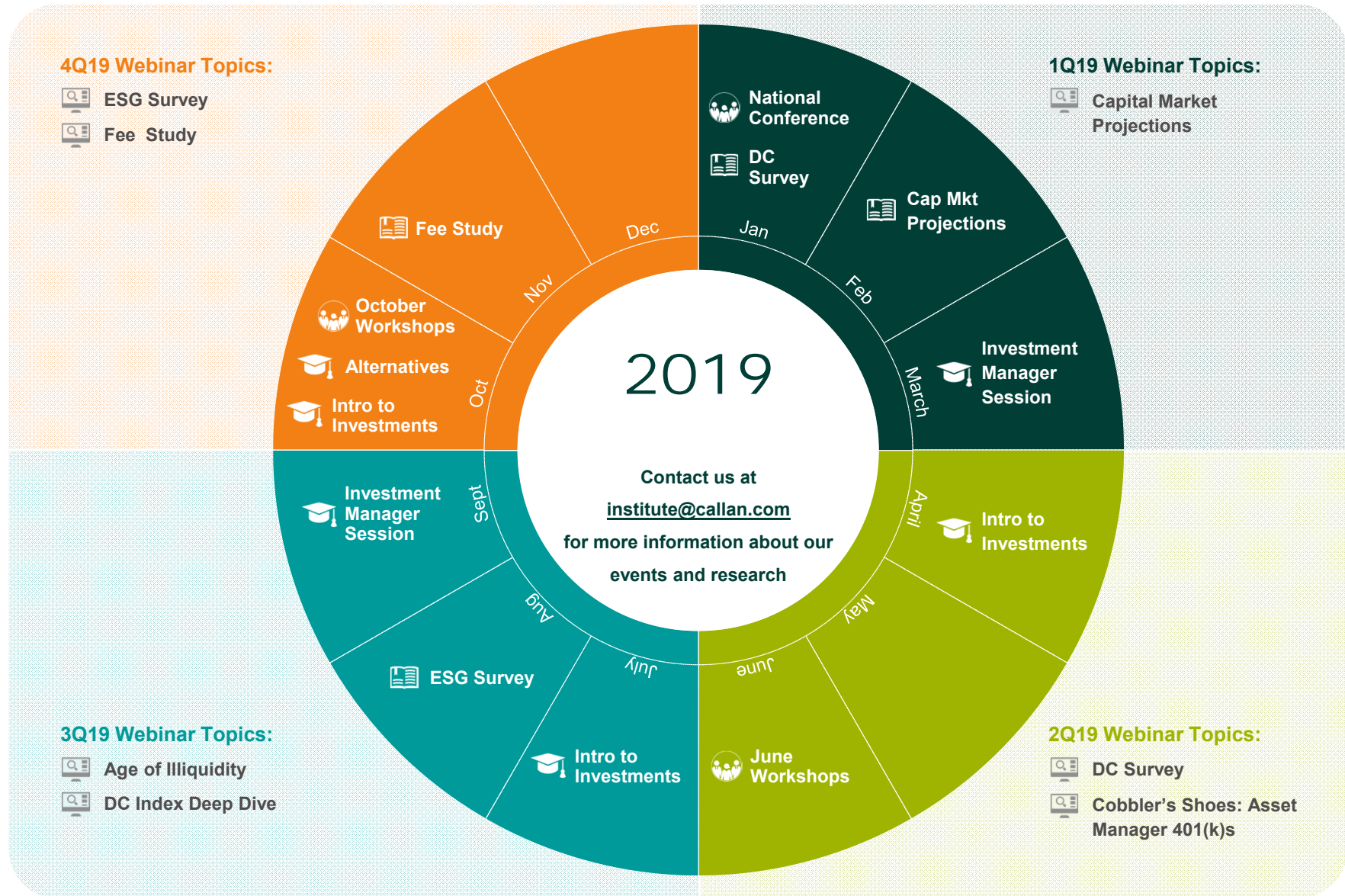
AUA: more than \$2.4 trillion

“The Callan culture that we have all built together over the years is the reason we like coming to work each day ... Our culture of supporting and caring about each other, of appreciating and respecting each other while still having some fun and good humor has been the key to our longevity and success. We never want to diminish it.”

— Ron Peyton, Executive Chairman



2019 Content Calendar



"Callan College"



Conference/Workshop



Publication



Webinar

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Past performance is no guarantee of future results.

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