

Callan's 2017-2026 Capital Market Projections

- Callan develops capital market projections at the start of each year to help guide clients with their long-term strategic planning.
- Over the next 10 years, we forecast annual GDP growth of 2% to 2.5% for the U.S., 1.5% to 2% for non-U.S. developed markets, and 4% to 5% for emerging markets.
- For broad U.S. equity, we project an annualized return of 6.85% with a standard deviation (or risk) of 18.25%, for non-U.S. equity a return of 7.00% (risk: 21.00%), and for U.S. fixed income a return of 3.00% (risk: 3.75%).

Overview

Callan develops long-term capital market projections at the start of each year, detailing our expectations for return, volatility, and correlation for all the broad asset classes. These projections represent our best thinking regarding a long-range outlook and are critical for strategic planning as our clients set investment expectations over five-year, ten-year, and longer time horizons.

Our forecasts are informed by current market conditions but are not directly built from them. Long-term equilibrium relationships between markets and trends in global growth are the key drivers. This results in a set of assumptions that changes slowly (or not at all) from year to year. The process is designed to ensure that the forecasts behave reasonably and predictably when used as a set in an optimization or simulation environment.

Our forecasting begins with the quantitative work of estimating major global macroeconomic variables, which are integrated into our equity, fixed income, and alternative investment models to generate initial estimates. We then analyze those projections from a qualitative perspective to create a reasonable and consistent set of projections.

Economic Outlook

GDP

U.S.: 2%-2.5%
Non-U.S. Dev.: 1.5%-2%
Emerging Markets: 4%-5%

Inflation

U.S.: 2%-2.5%
Non-U.S. Dev.: 1.75%-2.25%
Emerging Markets: 2.5%-3.5%

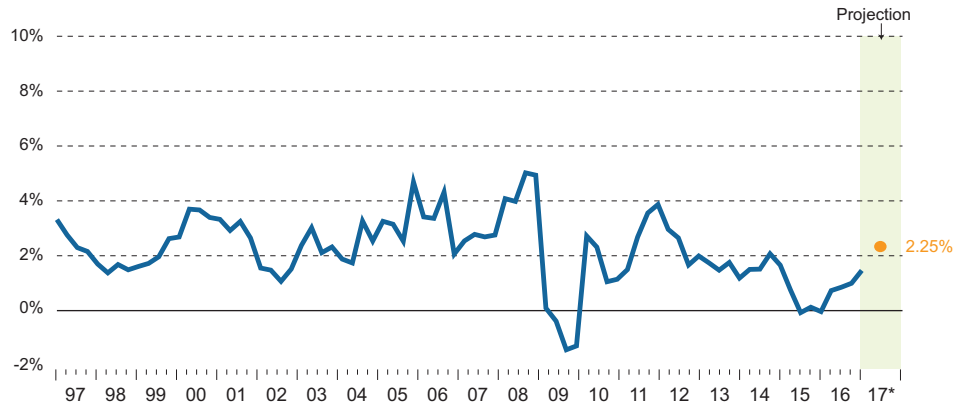
We look at a wide variety of economic variables to forecast growth in real gross domestic product (GDP) and consumer price inflation in the regions for which we develop equity, bond, and alternative investment projections. These forecasts are intertwined in that GDP growth and inflation tend to move in concert. Both variables play important roles in our capital market projections.

For the 10-year period ending 2026, we are forecasting annualized real GDP growth of 2% to 2.5% for the U.S., 1.5% to 2% for non-U.S. developed markets, and 4% to 5% for emerging markets.

The real GDP expectation for the U.S. is higher than the average growth since the Global Financial Crisis but lower than that experienced over the last 50 years. Several factors will play into how much GDP actually grows over that time period. A strong labor market, pro-business policies from the incoming administration

Exhibit 1

A Long-Term Look at U.S. Inflation



Sources: Bureau of Labor Statistics, Callan
* Callan's projected U.S. inflation rate for 2017-2026

(such as lower taxes or increased infrastructure spending), and increased exports to foreign countries with improving economies would push GDP growth higher. But interest rate hikes, limits to fiscal stimulus imposed by the federal deficit, a strong dollar, and restrictive trade policies that limit the attractiveness of U.S. exports would hinder growth.

Real GDP growth for non-U.S. developed markets faces headwinds primarily from political uncertainty, the health of their banking systems, and demographics. These economies have the potential to grow faster if employment improves, central banks continue stimulative monetary policies, governments reduce budget deficits (especially if this lowers the perceived need for austerity), and banks become better capitalized.

Just by virtue of their sizes, emerging economies are unlikely to expand at historical rates, but their growth will still substantially exceed that of developed markets. Expanding internal demand and improving export markets would promote GDP increases, but government policies and foreign trade restrictions could limit growth.

For the 10-year period ending 2026, we are forecasting consumer price inflation of 2% to 2.5% for the U.S. (**Exhibit 1**), 1.75% to 2.25% for non-U.S. developed markets, and 2.5% to 3.5% for emerging markets.

Factors that could push the U.S. inflation rate to the high end of expectations include a rebound in energy prices; a weak dollar driving up import prices; significant levels of fiscal stimulus, monetary stimulus, or both; and tight labor markets. Inflation could be constrained if overseas economies decline and make the dollar stronger; the Fed imposes monetary constraints to offset fiscal stimulus; or a larger, more competitive labor market keeps wages in check.

Inflation in non-U.S. developed economies would likely be at the lower end of the range if there are limits on further fiscal and monetary stimulus. But more liberal, growth-oriented policies could drive values to the higher end of the range.

The rate of emerging market inflation is subject to considerable uncertainty due to a wide variety of possible outcomes for government policies, currencies, trade, internal supply and demand, and commodity prices.

Equity Forecasts

All equity forecasts are developed by building off of this fundamental relationship:

Equity Return = Income Return + Capital Appreciation

While the short-term relationship is weak, over the long term earnings tend to follow economic growth. In the absence of this linkage profits would become an extraordinarily large or small part of the economy. The connection is more robust in developed economies than in emerging markets, where profit growth can substantially lag economic growth.

Forecast earnings growth is the key to projected equity price appreciation, with investors obviously willing to pay more for stocks if they have a higher profit potential. Income return is also a function of earnings by way of the payout ratio.

We also evaluate market valuations, with a caveat. Valuation averages can vary substantially across market cycles; for example, average price-to-earnings (P/E) ratios for the S&P 500 were substantially different over the market cycle that included the Tech Bubble than they have been over the market cycle that includes the Global Financial Crisis. Consequently, we make adjustments to capital appreciation forecasts only at extreme market valuations.

The variables described below are forecast in real terms, with inflation added to generate the nominal returns used for our projections.

Broad U.S. Equity

Russell 3000 Index

Return = 6.85%

Risk = 18.25%

Earnings growth in the U.S. is expected to be modestly above GDP growth given expected economic conditions and government policies. P/E ratios are within historical norms and therefore we have not incorporated a negative P/E repricing term into our long-horizon forecast. Payout ratios are close to historical norms and dividend yields have been remarkably stable for the last two decades even in the face of substantial changes in earnings and interest rates, so dividend yields are expected to remain unchanged. Over the long run, we forecast that any additional income derived from share buybacks will be offset by dilution through the issuance of new shares.

Global ex U.S. Equity

MSCI ACWI ex USA Index

Return = 7.00%

Risk = 21.00%

We expect earnings growth in overseas markets to be moderate, driven by poor but improving economic growth in developed markets and slowing but still substantial economic growth in emerging markets. Uncertain political and economic conditions will cause earnings growth to lag economic growth across markets, with the problem being more acute in emerging markets. International developed equity has historically had a significantly higher dividend yield than in the U.S. and we expect that income payouts will continue to be a greater driver of overall returns in these markets. Dividends will be somewhat lower in emerging markets but still above those in the U.S. Current P/E valuations, while

cheaper than in the U.S., are in line with longer-term averages and we do not anticipate any P/E repricing adjustments in either developed or emerging markets. Lower inflation than in the U.S. is a drag on developed markets' nominal returns. Conversely, higher inflation boosts emerging markets.

Fixed Income Forecasts

Our fixed income forecasts are created by deconstructing fixed income returns into subcomponents and incorporating a forecast for the evolution of the term structure over time. Fixed income return can be broken down into the following terms:

$$\text{Fixed Income Return} = \text{Yield} + \text{Capital Gains} + \text{Roll Return}$$

Broad U.S. Fixed Income

Bloomberg Barclays U.S. Aggregate Bond Index

Return = 3.00%

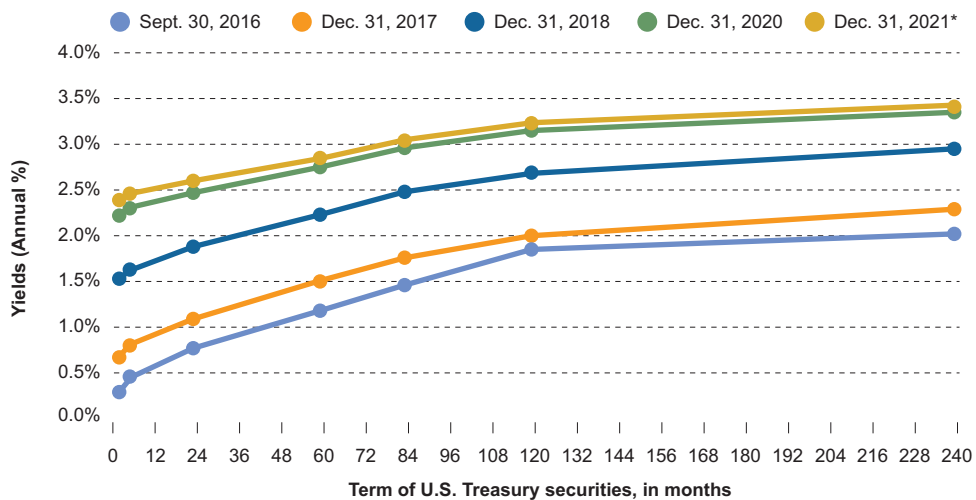
Risk = 3.75%

In the U.S. we forecast a modest rise in interest rates over the next 10 years, with most of the increase front-loaded to the first three years. The shorter end of the yield curve will rise more than the longer end, flattening the curve (**Exhibit 2**). The annualized yield for the Aggregate is forecast to increase significantly over the next 10 years, but its capital gains will be negative given the projected rise in rates. That dynamic is typical in a rising rate environment, muting the impact of rate increases on changes in

expected returns. The moderate interest rate sensitivity of the Aggregate (duration of roughly 6) results in capital losses confined to the next few years when we anticipate interest rate increases. An expected migration of credit spreads to their longer-term averages does not have a substantial impact on the projection. Upward sloping yield curves over the forecast horizon results in positive roll returns as bond issues gradually move toward maturity. The roll returns are expected to decline in the future as the yield curve flattens.

Exhibit 2

A Rising Yield Curve Over the Long Haul—Callan Projections



Source: Callan

* Callan projects the yield curve will be stable from 2021-2026

Alternatives Forecasts

Alternative investments differ substantially from each other and we use different models for each.

Hedge funds can be evaluated in a multi-factor context using the following relationship:

$$\text{Expected Return} = \text{Cash} + \text{Equity Beta} \times (\text{Equity-Cash}) + \text{Exotic Beta} + \text{Net Alpha}$$

Hedge Funds

Callan Hedge Fund-of-Funds Database

Return = 5.05%

Risk = 9.15%

Callan's 10-year cash forecast is 2.25%, which is the starting point for our hedge fund returns.

Diversified hedge fund portfolios have historically exhibited equity beta relative to the S&P 500 on the order of 0.4 which, when combined with our equity risk premium forecast, results in an excess return from equity beta of 1.75%.

Return from hedge fund exotic beta (which may include both liquid and illiquid factor exposures) is forecast to be 1%, to arrive at an overall expected return of 5.05%.

This forecast assumes that on average hedge fund alpha (after subtracting out fees) is zero. But hedge funds display a significant divergence in results and the ability to select skillful managers could lead to returns greater than our projections.

Real Estate

Callan Real Estate Database

Return = 5.75%

Risk = 16.35%

Capitalization rates have declined every year from 2010 and are at a record low.

In addition, the spread between cap rates and bonds has recently compressed, making real estate a potentially less attractive income source.

We expect the real estate return to be about 75% of the excess return (versus cash) of the U.S. equity market which, when combined with the projected cash return, results in a forecast of 5.75%.

The real estate risk forecast reflects economic realities rather than observed volatility. Observed volatility is often less than 5%; however, forecasting lower standard deviation (i.e., 3%) implies that the real estate loss experienced during the financial crisis was a 10+ standard deviation event. Our forecast risk better represents the probability of a loss of this magnitude.

Private Equity

Cambridge Private Equity Index

Return = 7.35%

Risk = 32.90%

Private equity strategies are generally driven by many of the same economic factors as public equity markets; hence we adjust our private equity forecast in line with changes to our public equity expected return. Given that our public equity risk premium is contracting, the spread between private equity and cash contracts by a similar amount for consistency. Adding our private equity spread results in an annualized return forecast of 7.35%.

There is tremendous disparity between the best- and worst-performing private equity managers. The ability to select skillful managers could result in realized returns significantly greater than we project here.

As is the case with real estate, the projection for private equity standard deviation is consistent with the risk of loss rather than a measure of observed volatility. Day-to-day variations in value cannot be observed since private equity is by definition not publicly traded. Our forecast for private equity risk approximates the ratio of return to risk for the other equity asset classes we forecast.

Exhibit 3
Callan's Capital
Market Projections
2017-2026

	Asset Class	Index	Projected Return*	Projected Risk
EQUITIES	Broad U.S. Equity	Russell 3000	6.85%	18.25%
	Large Cap	S&P 500	6.75%	17.40%
	Small/Mid Cap	Russell 2500	7.00%	22.60%
	Global ex-U.S. Equity	MSCI ACWI ex USA	7.00%	21.00%
	Dev. Non-U.S. Equity	MSCI World ex USA	6.75%	19.70%
	Emerging Market Equity	MSCI Emerging Markets	7.00%	27.45%
FIXED INCOME	Short Duration	Bloomberg Barclays 1-3 Yr G/C	2.60%	2.10%
	U.S. Fixed	Bloomberg Barclays Aggregate	3.00%	3.75%
	Long Duration	Bloomberg Barclays Long G/C	3.20%	10.90%
	TIPS	Bloomberg Barclays TIPS	3.00%	5.25%
	High Yield	Bloomberg Barclays High Yield	4.75%	10.35%
	Non-U.S. Fixed	Bloomberg Barclays Global Agg. ex-US	1.40%	9.20%
	Emerging Market Debt	EMBI Global Diversified	4.50%	9.60%
OTHER	Real Estate	Callan Real Estate Database	5.75%	16.35%
	Private Equity	TR Post Venture Capital	7.35%	32.90%
	Hedge Funds	Callan Hedge FOF Database	5.05%	9.15%
	Commodities	Bloomberg Commodity	2.65%	18.30%
	Cash Equivalents	90-Day T-Bill	2.25%	0.90%
	Inflation	CPI-U	2.25%	1.50%

Source: Callan

* Returns are geometric (annualized over the 10-year forecast horizon)

About the Authors



John Pirone, CFA, CAIA, is a Senior Vice President and a consultant in the Capital Markets Research group. He is responsible for assisting clients with their strategic investment planning.

Prior to joining Callan in 2015, John was a Managing Director at BlackRock in the Client Solutions Group, advising major institutional clients throughout the Americas on total portfolio strategy issues.

From 1997 to 2009, John was a Client Advisory Strategist at Barclays Global Investors. Previously, he was a Fixed Income Analyst at Gifford Fong Associates.

John earned a MSc in Finance from the London Business School, a MA in Economics from the University of California at Santa Barbara and a BA in Biology from Washington University in St. Louis. He earned the right to use the Chartered Financial Analyst and Chartered Alternative Investment Analyst designations and is a member of the CFA Society of San Francisco and CFA Institute.

James W. Van Heuit is a Senior Vice President and a consultant in the Capital Markets Research group. He is responsible for assisting clients with their strategic investment planning. Jim speaks regularly at both the “Callan College” and the Callan Institute. Jim is a shareholder of the firm.



Jim was originally with Callan in the Capital Markets Research group from 1989 to 1997 and returned in 2001. From 2001 through 2004, he was a general consultant in the San Francisco office. From 1997 to 2001 Jim was with consulting firms Watson Wyatt and R.V. Kuhns.

Prior to joining Callan in 1989, Jim participated in the Ph.D. program in Economics at the University of Michigan where he studied microeconomics and international economics. Jim’s previous experience includes four years as an independent consulting engineer and two years as a design engineer for Ford Aerospace and Communications Corp.

He earned an MA in Economics from the University of Michigan and received a BA in Economics from California State University at Sacramento. He also earned a BS in Mechanical/Aeronautical Engineering from the University of California.

The capital market projections were produced by Callan’s Capital Markets Research group, our specialized team of economists, mathematicians, and actuaries dedicated to research in the field of strategic planning, including asset allocation and manager structure, as well as the development of economic tools and statistical models.

If you have any questions or comments, please email institute@callan.com.

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