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Research

March 2019

Callan's 2019-2028 Capital Market Projections

KEY ELEMENTS

- **Callan develops capital market projections to help clients with their long-term strategic planning. This year, we increased our fixed income assumptions to reflect higher starting yields compared to a year ago, but we held constant our equity return premium over cash.**
- **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 7.15% with a standard deviation (or risk) of 17.95%; for global ex-U.S. equity a return of 7.25% (risk: 21.10%).**
- **We increased our projection for broad U.S. fixed income from 3.00% to 3.75% (risk: 3.75%).**

"These projections represent our best thinking regarding a longer-term outlook and are critical for strategic planning."

Jay Kloepfer
Director of Capital Markets Research

Overview

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

Our projections are informed by current market conditions but are not directly built from them since the forecasts are long term in nature. Equilibrium relationships between markets and trends in global growth over the long term are the key drivers, resulting in a set of assumptions that changes slowly (or not at all) from year to year. Our process is designed to insure that the forecasts behave reasonably and predictably when used as a set in an optimization or simulation environment.

Our process begins with estimates of major global macroeconomic variables, which are integrated into our equity, fixed income, and alternative investment models to generate initial forecasts. We then make qualitative adjustments to create a reasonable and consistent set of projections.

For the period 2019-2028, we made gradual, evolutionary changes to our capital market expectations from our projections last year. We have increased our fixed income assumptions to reflect higher starting yields compared to one year ago, including a higher return for cash, but we have held constant our equity return premium over cash. As a result, we have narrowed the equity risk premium over bonds. Our 10-year projections include a likely recession (or two) in the economy and the capital markets, as such events are a normal part of the path to long-term returns. However, we only adjust our forecasts when we believe asset class prospects have materially changed.

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%

Economic Outlook

The real rate of U.S. gross domestic product (GDP) growth came in just shy of 3% in 2018, likely representing the peak of the current cycle. Confidence in the strength of the global economy evaporated suddenly in October 2018, leading to sharp declines in equity and commodity prices, widening interest rate spreads, and an appreciation of the U.S. dollar. Little in the underlying fundamentals of the U.S. economy had changed: GDP grew at a solid if unspectacular pace through the end of the year, while a robust labor market spurred rising wages, fueling consumer spending. Confidence eroded on signs of slower growth in the global economy outside the U.S., rising concerns over a trade war, and fears that U.S. interest rate increases have slowed growth both here and abroad. A global slowdown or recession suddenly seemed inevitable, and asset prices cheapened across the board. Of course, a recession is very much part of the path to a 10-year outlook; we expect the U.S. economy to cool in 2019 and potentially bottom out in 2020 before rebounding.

Non-U.S. developed economies are diverging from the U.S. once again. Euro zone unemployment dropped to its lowest level in 10 years, but a rate of 7.9% stands in stark contrast to the 3.9% in the U.S. Within the core countries, Germany has favorable employment levels, but France and Italy continue to wrestle with high unemployment rates. Euro zone GDP growth stalled as 2018 unfolded, falling below 1.5%. We anticipate that a messy Brexit and the potential for reduced trade with the U.S. will also weigh on output. Economic growth in the euro zone will likely slide to 1% this year and the next, which will keep inflation well below the ECB target. Central bank tightening therefore remains on hold, further isolating U.S. monetary policy. The euro zone may well miss the global tightening cycle completely.

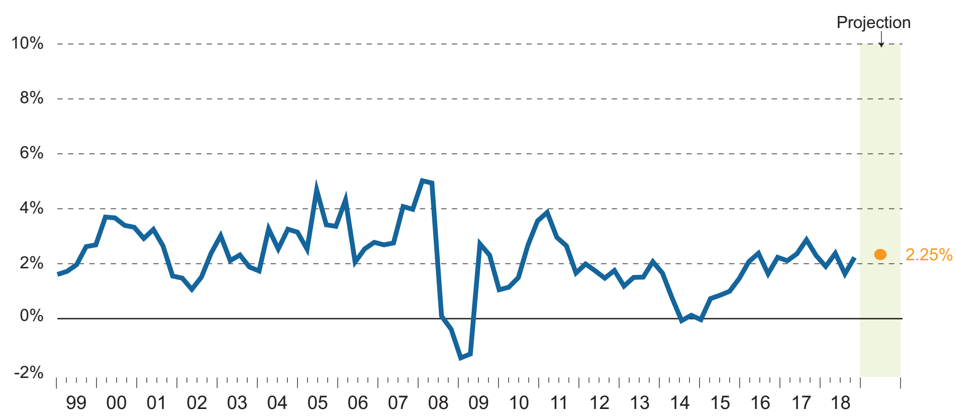
Growth will remain mixed across the emerging markets. India surpassed China as the fastest-growing economy among emerging markets in 2018. Many forecasters, including the International Monetary Fund, predict that real economic growth in India will slow in each of the next three years from 8% to 6% but will still surpass the growth of China by 1 to 2 percentage points per year. China's position as the world's second-largest economy precludes it from continuing to expand at its historic rates. Aside from India and China, major emerging markets are expected to grow at modest real rates.

Back in the U.S., a tight labor market and rising energy prices fueled expectations for the return of inflation. Growth in the consumer price index (CPI) reached 3% by midyear 2018. Oil prices hit $84 in early October. Then confidence in global growth collapsed and one of the first casualties was oil, whose price dropped to $52 in December. As a result, the CPI dropped below 2% growth, and the landscape for inflation going forward was altered radically. Slowing global growth is likely to keep inflation constrained. Monetary tightening will probably remain a drag for at least the next several years while fiscal policy stimulus could still spur some increases in prices.

Inflation in non-U.S. developed economies is expected to fall short of central bank targets well into the projection period. The same factors that constrain growth are also a drag on inflation. Bank of Japan and European Central Bank policies have yet to achieve the key objective of reviving significant inflation; euro zone inflation will likely remain at 1% over the near term. There is little reason to think that those policies will be substantially more effective as they are being curtailed.

Exhibit 1

A Long-Term Look at U.S. Inflation



Sources: Bureau of Labor Statistics, Callan
* Callan's projected U.S. inflation rate for 2019-2028

Inflation varies much more widely across emerging market countries than is the case for developed markets. South Africa and India are expected to have the highest rates and could be joined by Brazil if government policies to contain price increases are ineffective. Conversely, South Korea and Taiwan are projected to have inflation more in line with developed rather than emerging markets. Last year saw a clear shift toward tighter monetary policy in emerging markets for the first time in eight years. A number of emerging market central banks raised rates during 2018, but the need to tighten further has waned. Factors that are weighing on future U.S. rate hikes apply in emerging markets: signs of slowing global growth, concerns that the cumulative effect of U.S. rate hikes is starting to bite, and the collapse in oil prices are putting downward pressure on inflation. Tightening in emerging markets may not be over, with plans for rate hikes still on the books in many countries, at least through mid-2019, but rate cuts in 2020 are now entering forecasters' discussions.

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, earnings tend to follow economic growth over a long-term strategic horizon. 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.

Broad U.S. Equity
Russell 3000 Index
Return = 7.15%
Risk = 17.95%

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 are also aware of market valuations, but 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 cycles containing the Tech Bubble and the Global Financial Crisis (GFC). Consequently, adjustments to capital appreciation forecasts are only made at extreme market valuations.

Inflation plays a role in equity forecasts inasmuch as the variables described above are forecast in real terms with inflation added to generate nominal returns.

Compound earnings growth in the U.S. is expected to be modestly above GDP growth given expected economic conditions and government policies. Earnings growth has been substantial since the beginning of 2016, with nominal dollar earnings on the S&P 500 at historically high levels. Consequently, while U.S. equity returns were strong through the first three quarters of 2018, the cheapening of the market in the fourth quarter pulled the U.S. P/E ratio back to its long-term average. As a result, we have not incorporated a negative P/E repricing term into our long-horizon forecast. Similarly, dividends have grown at a high rate, keeping yields in line with historical averages. The collapse in stock prices in the fourth quarter pushed yields up sharply, a likely short-term deviation. 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.

We expect weaker earnings growth in overseas markets due to slowing economic growth. Non-U.S. developed market equity has historically had higher dividend yields than U.S. equity. We anticipate that income payouts will continue to be a greater driver of overall returns in these markets as payouts returned to historical norms in 2018. Valuations dropped sharply in 2018 and are below historical averages, suggesting room for price expansion. However, we did not incorporate any P/E repricing adjustments in our forecast.

Global ex-U.S. Equity
MSCI ACWI ex USA Index
Return = 7.25%
Risk = 21.10%

Substantial economic growth will continue to support emerging market equities. Weak returns in 2018 drove valuations back below long-term averages after a year of solid growth in 2017. Future deterioration in earnings could push PE ratios back up in the absence of further price declines. Dividend yields fell only modestly over the last year. Relatively high inflation increases the nominal returns for emerging markets.

Fixed Income Forecasts

Our fixed income forecasts are created by decomposing fixed income returns into subcomponents and incorporating a forecast for the evolution of the term structure over time:

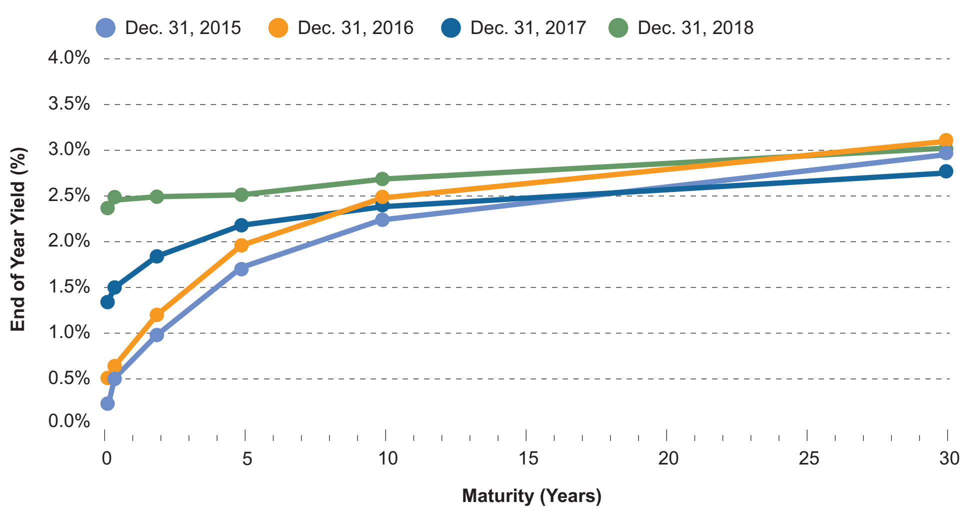
Fixed Income Return = Yield + Capital Gains + Roll Return

Broad U.S. Fixed Income
Bloomberg Barclays US Aggregate Bond Index
Return = 3.75%
Risk = 3.75%

The yield of the Bloomberg Barclays US Aggregate Bond Index increased materially over the year, reaching 3.5% in late 2018. Four increases in the Fed Funds rate resulted in a flattening of the curve (**Exhibit 2**). We still expect an incremental rise in interest rates across the yield curve over the next 10 years, with the long end of the curve rising more than the short end. The primary driver of our higher expected return forecast for 2019-2028 is higher starting yields, coupled with yields gradually rising over the next decade.

Exhibit 2

Yield Curve Continues to Flatten



Source: Callan

Gradually increasing yields will confer modest capital losses, initially serving as an incremental headwind to bond returns. However, yields are the most important driver of bond returns, and higher yield levels will ultimately enable higher fixed income returns.

Projected upward-sloping yield curves in the forecast provide a return tailwind as they result in positive roll returns as bond issues gradually move toward maturity. Roll returns are expected to increase over time as the yield curve steepens.

Alternatives Forecasts

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

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

Expected Return = Cash + Equity Beta x (Equity-Cash) + Exotic Beta + Net Alpha

Hedge Funds
Callan Hedge Fund-of-Funds Database
Return = 5.50%
Risk = 8.85%

Callan's 10-year cash forecast is 2.50%, 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. Combined with our equity risk premium forecast, this results in an excess return from equity beta of just under 2%.

Return from hedge fund exotic beta and illiquidity premia is forecast to be 1%, to arrive at an overall expected return of 5.50%.

This forecast assumes that hedge fund alpha in aggregate after subtracting out fees is zero. In practice, hedge funds display significant divergence in returns, and the ability to select skillful managers could result in returns greater than we project.

Real Estate
NCREIF ODCE Index
Return = 6.25%
Risk = 15.70%

Capitalization rates continued their annual decline that began in 2010 and reached a record low in 2018. Capital flows were healthy in 2018 as investors rebalanced their overall portfolios by moving equity market allocations into real estate. Finally, the spread between cap rates and bonds continues to compress, making real estate a potentially less attractive income source.

After adjusting for the embedded leverage in core real estate, we forecast the expected real estate return to be about 85% of the excess return (versus cash) of the U.S. equity market. When combined with the forecast cash return, this calculation results in a projection of 6.25%.

The real estate risk forecast reflects economic realities rather than observed volatility. Observed volatility is often less than 5%; however forecasting, for example, a 3% standard deviation implies that the real estate loss experienced during the GFC 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 = 8.50%
Risk = 29.30%

The private equity market in aggregate is driven by many of the same economic factors as public equity markets. Consequently, the private equity performance expectations remain the same as they were last year.

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

As is the case with real estate, the projection for standard deviation for private equity is consistent with 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 2019-2028

	Asset Class	Index	Projected Return*	Projected Risk
EQUITIES	Broad U.S. Equity	Russell 3000	7.15%	17.95%
	Large Cap	S&P 500	7.00%	17.10%
	Small/Mid Cap	Russell 2500	7.25%	22.65%
	Global ex-U.S. Equity	MSCI ACWI ex USA	7.25%	21.10%
	Dev. Non-U.S. Equity	MSCI World ex USA	7.00%	19.75%
	Emerging Market Equity	MSCI Emerging Markets	7.25%	27.45%
FIXED INCOME	Short Duration	Bloomberg Barclays 1-3 Yr G/C	3.40%	2.10%
	U.S. Fixed	Bloomberg Barclays Aggregate	3.75%	3.75%
	Long Duration	Bloomberg Barclays Long G/C	3.75%	10.65%
	TIPS	Bloomberg Barclays TIPS	3.75%	5.05%
	High Yield	Bloomberg Barclays High Yield	5.35%	10.35%
	Non-U.S. Fixed	Bloomberg Barclays Global Agg. ex-US	1.40%	9.20%
	Emerging Market Debt	JPM EMBI Global Diversified	5.05%	9.50%
OTHER	Real Estate	NCREIF ODCE	6.25%	15.70%
	Private Equity	Cambridge Private Equity	8.50%	29.30%
	Hedge Funds	Callan Hedge FOF Database	5.50%	8.85%
	Commodities	Bloomberg Commodity	3.20%	18.00%
	Cash Equivalents	90-day T-bill	2.50%	0.90%
	Inflation	**CPI-U**	**2.25%**	**1.50%**

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

About the Authors

Jay V. Kloepfer is an executive vice president and the director of Capital Markets Research. The Capital Markets Research group helps Callan's fund sponsor clients with their strategic planning, conducting asset allocation and asset/liability studies, developing optimal investment manager structures, evaluating defined contribution plan investment lineups and providing custom research on a variety of investment topics.

Jay is the author of the "Callan Periodic Table of Investment Returns," which he created in 1999. He is a member of Callan's Management and Institute Advisory Committees and is a shareholder of the firm. Prior to joining Callan, Jay was a Senior Economist and the Western Regional Manager for Standard & Poor's DRI. Jay earned an MA in Economics from Stanford and a BS with honors in Economics from the University of Oregon.

John Pirone, CFA, FRM, 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.

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.

About Callan

Callan was founded as an employee-owned investment consulting firm in 1973. Ever since, we have empowered institutional clients with creative, customized investment solutions backed by proprietary research, exclusive data, and ongoing education. Today, Callan advises on more than $2 trillion in total fund sponsor assets, which makes it among the largest independently owned investment consulting firms in the U.S. We use a client-focused consulting model to serve pension and defined contribution plan sponsors, endowments, foundations, independent investment advisers, investment managers, and other asset owners. Callan has six offices throughout the U.S. Learn more at www.callan.com.

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