EXECUTIVE SUMMARY

2018 Long-Term Capital Market Assumptions

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IN BRIEF

This executive summary gives readers a broad overview of our 2018 Long-Term Capital Market Assumptions (LTCMAs) and provides a context for how some of the structural factors affecting economies today are likely to drive asset returns over a 10- to 15-year investment horizon. The key takeaways from this year's LTCMAs:

- Our 2018 trend real GDP growth estimates of 1.5% in developed markets and 4.5% in emerging markets are unchanged from last year. However, beneath this stable outlook is evidence that the prolonged series of downgrades to trend growth, reflecting population aging, may be nearing an end. We also see potential for a technology-driven boost to productivity, which creates an upside risk to our forecasts. Yet despite cautious optimism on secular growth trends, cyclical factors still constrain asset returns.
- Interest rates are rising but the pace of normalization remains slow. Equilibrium yields are constrained by muted inflation, low trend growth and persistent safe asset demand.
- High global equity valuations and corporate margins reflect a mature economic cycle and are a headwind for returns. The secular outlook for stocks is reasonable as low equilibrium interest rates compensate for modest equilibrium growth in our framework, but even long-term investors must navigate the near-term cyclical challenges.
- Despite outperforming in 2017, emerging market equities remain attractive. Elsewhere, credit and real assets are bright spots, while low correlations and the start of normalization enhance alpha opportunities in private equity and hedge funds.
- Expected returns for a simple 60/40 portfolio are lower than last year, and the clockwise rotation of the stock-bond frontier—as bond returns rise and valuations constrain equity returns—is indicative of the late-cycle environment. Diversification, active allocation and manager selection in alternatives will be essential tools for managing cyclical risks in anticipation of secular growth trends that might finally be bottoming out.

INTRODUCTION

As we compile the 2018 edition of our Long-Term Capital Market Assumptions, the world economy is enjoying its best period of synchronized growth in more than a decade. Policymakers have coaxed an unusually long, if shallow, expansion out of the near-death experience of the global financial crisis, and despite the long-run drag of global aging, technological innovation seems to be at a positive inflection point—giving a tantalizing glimpse of what might trigger a long overdue boost to productivity.

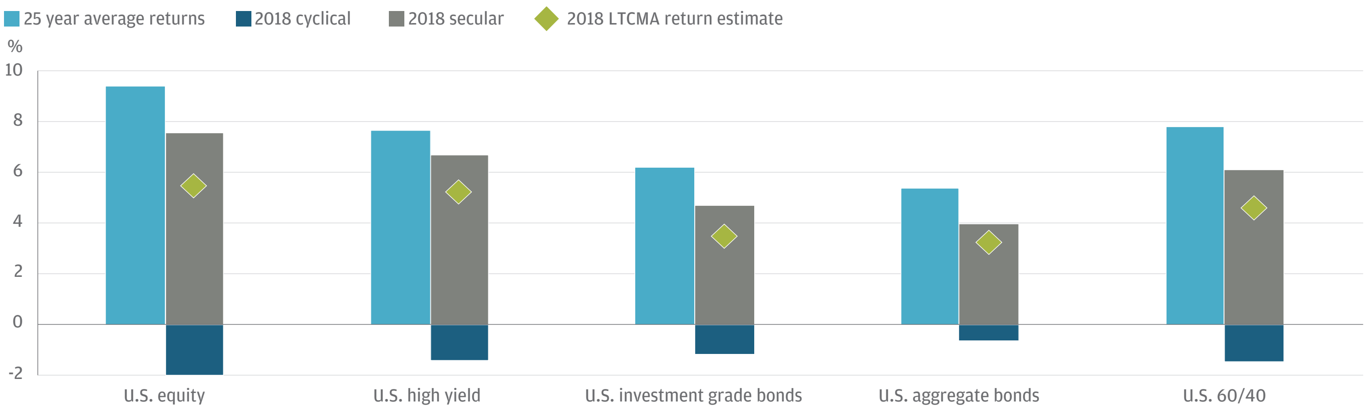
Yet few expansions have endured so many skeptics, and few bull markets have remained so unpopular. High levels of debt, the perceived trap of zero interest rates, the lack of inflation, and sporadic political dysfunction do more than keep some investors up at night; they often hijack the market narrative. Many of the patterns and trends in this year's LTCMAs will be familiar to regular readers, but given the maturity of this business cycle, the interplay of cyclical and secular factors is set to influence long-term investment outcomes far more than in recent years (**Exhibit 1**).

Since 2010, the steady trend of population aging has cut almost half a point from our estimates of trend GDP in developed economies, and the post-financial crisis productivity slump shaved the estimate by a further quarter point. At a global level, the steadily increasing weight of faster-growing emerging markets partially buffered the effect of aging populations, but the demographic strain remains apparent in the evolution of our global growth estimates. In our 2018 LTCMAs, the outlook for global growth is broadly stable at a modest level, but for the first time in a decade we have cause to upgrade our growth forecast for a major economic region—the eurozone. Cyclical momentum and strengthening of key institutions are laying the foundation for a secular uplift in trend growth, which we expect to be reinforced with gradual but ongoing reform of labor laws. The upgrade is notable—not least in light of the eurozone sovereign debt crisis of 2010-12—but it is not sufficient to spur a broader upgrade to aggregate global growth.

Against this backdrop, we have shifted our attention to a more rigorous analysis of some of the secular themes—along with a reflection on their nearer-term cyclical implications—that are set to drive asset returns in the coming decade. The themes may be felt directly, through their economic impact, as is the case for our themes of technological innovation, Chinese financial markets liberalization and long- and short- term drivers of the U.S. dollar. Others may be felt more indirectly via policy channels, as we'd anticipate for our demographics and pension de-accumulation themes.

Reduced long-term growth estimates have pulled down equilibrium returns for most asset classes compared with the last 25 years, but there is an additional cyclical penalty in most key assets due to extended valuations and low starting yields

EXHIBIT 1: HISTORICAL 25-YEAR AVERAGE RETURNS FOR KEY ASSETS AND THIS YEAR'S ESTIMATES, SPLIT INTO THEIR SECULAR (EQUILIBRIUM) AND CYCLICAL COMPONENTS



Source: Bloomberg, Datastream, J.P. Morgan Asset Management Multi-Asset Solutions; data as of September 30, 2017.

MACROECONOMIC THEMES: BALANCING SECULAR AND CYCLICAL FACTORS

Our 10- to 15-year aggregate forecasts for global growth are unchanged this year, with developed markets at 1.50% and emerging markets at 4.50% (**Exhibit 2**). This translates to rather modest return expectations for most asset classes at equilibrium, which are further affected by the cyclical positioning of the economy and markets. Simply put, we've already banked a great deal of the current cycle's returns, and with the global expansion now quite mature there's little scope for any cyclical uplift to average returns. But if we look beyond the limitations that today's mature cycle places on long-term returns, there are reasons for cautious optimism and even some upside risks emerging for our long-term economic forecasts. The impact of demographics has been well flagged, and has led to the steady lowering of potential growth estimates, but the possible upside from technology and its consequent additional boost to productivity has yet to come into base case economic forecasts.

Our long-term macroeconomic assumptions stand at the intersection of two powerful secular forces: demographics and productivity. While the long-term economic impact of an aging population is well documented, estimating productivity remains the "dark art" of economics. These secular forces tend to define potential growth over the long run. Short-term cycles fluctuate around this trend as demand ebbs and flows, but the supply-side factors effectively set an "average speed limit" for the economy. Demographic trends can be tweaked a little by policy—raising the retirement age, increasing net migration, etc.—but the economic drag of a slower-growing working age population is persistent.

If the net economic effect of an older population is simply to limit potential growth, its impact on asset returns is more nuanced. Lower growth drives down equilibrium interest rates, but a competing factor is that as populations age, "savings gluts" (considered in some analyses[1] to depress equilibrium interest rates) may start to unwind. Another important consideration is that vast pools of pension assets are currently underfunded, with lower long-term interest rates exacerbating that underfunding. As pension plans seek to fulfill their commitments to a growing pool of retirees, the incremental demand for income from higher risk assets such as credit and equity may remain surprisingly strong. While policymakers may find the temptation to tackle pension underfunding by tolerating higher inflation somewhat appealing—financial repression by another name—it overlooks that many funds are already inflation proofed. But the bigger problem, perhaps, is that inflation isn't what it used to be and $11 trillion[2] of central bank interventions since the global financial crisis have failed, so far, to push inflation meaningfully higher (**Exhibit 3**).

[1] BIS working papers No. 656, Goodhart and Pradhan; Ben Bernanke speech at Virginia Association of Economists, Richmond, Virginia on March 10, 2005.

[2] The combined balance sheets of the U.S. Federal Reserve, Bank of Japan, European Central Bank, Bank of England and Swiss National Bank expanded from approximately USD 4.3 trillion at the end of 2007 to approximately USD 15.5 trillion at the end of Q3 2017.

Our 2018 assumptions anticipate slow real GDP growth globally; neither global growth assumptions nor the emerging market-developed market growth gap has changed from last year

EXHIBIT 2: MACROECONOMIC ASSUMPTIONS (%)

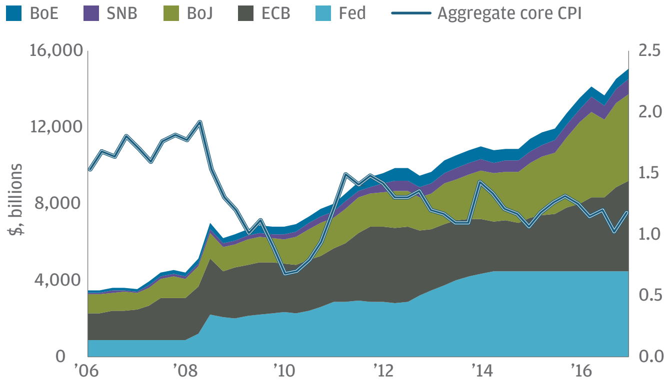
	2018 assumptions		2017 assumptions		Change (percentage points)	
	Real GDP	Core inflation	Real GDP	Core inflation	Real GDP	Core inflation
DEVELOPED MARKETS	**1.50**	**1.75**	**1.50**	**1.75**	**0.00**	**0.00**
U.S.	1.75	2.25	1.75	2.25	0.00	0.00
Eurozone	1.50	1.50	1.25	1.50	0.25	0.00
UK	1.25	2.00	1.25	2.00	0.00	0.00
Japan	0.50	1.00	0.50	1.00	0.00	0.00
Australia	2.00	2.25	2.25	2.25	-0.25	0.00
Canada	1.50	1.75	1.50	1.75	0.00	0.00
Sweden	1.75	1.75	1.75	1.25	0.00	0.50
Switzerland	1.25	0.75	1.50	0.75	-0.25	0.00
EMERGING MARKETS*	**4.50**	**3.50**	**4.50**	**3.75**	**0.00**	**-0.25**
Brazil	3.00	5.00	2.75	5.25	0.25	-0.25
China	5.00	2.75	5.25	3.00	-0.25	-0.25
India	7.00	5.00	7.00	5.00	0.00	0.00
Russia	1.50	5.50	2.25	5.50	-0.75	0.00
GLOBAL	**2.50**	**2.50**	**2.50**	**2.50**	**0.00**	**0.00**

Source: J.P. Morgan Asset Management; estimates as of September 30, 2017.

* Emerging markets aggregate derived from 9-country sample.

The balance sheets of the major central banks grew by over $11 trillion since 2007, yet core inflation remains low

EXHIBIT 3: GLOBAL CENTRAL BANKS BALANCE SHEETS SIZE ($, BILLIONS) VS. PREVAILING GLOBAL CORE* INFLATION



Source: J.P. Morgan Asset Management Multi-Asset Solutions, Bloomberg; data through September 2017.

*Core CPI across U.S., Switzerland, UK, eurozone and Japan, weighted by GDP.

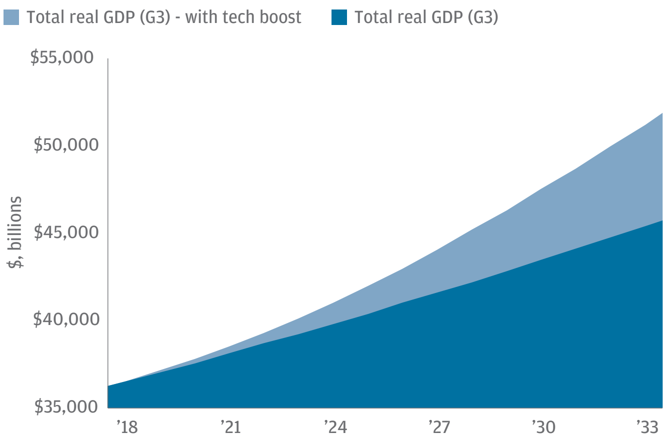
Population aging is a key factor in China's long-term outlook, in which gradually declining trend growth and the possible reversal in public sector savings rates could have a significant impact on global capital flows. China is the world's second-biggest economy, representing 15% of world GDP,[3] and is the largest international holder of U.S. debt. Yet China's domestic financial markets are undeveloped and difficult to access. The portion of China's stock market that is open to foreign investors accounts for just 3% of global free-float equity market capitalization.[4] However, the total scale of the Chinese equity market—including both domestic and non-domestic—is almost six times this size. We believe that over the next decade China's financial system will open up meaningfully to market forces and foreign access will be considerably easier. Liberalization of the financial system could exert some upward pressure on Chinese equilibrium interest rates and, over time, attract global savings away from lower yielding G4 bond markets. Such secular trends have led us to publish our first set of long-term Chinese asset return estimates this year.

These trends also strengthen our conviction that, over the long term, the U.S. dollar is moving lower. The reversal of fortunes in 2017 highlights the cyclical and structural crosscurrents that affect the U.S. dollar as secular drivers such as growth differentials and current account imbalances once again begin to dominate monetary policy in dictating the currency's path. Given that the U.S. dollar remains above our current estimate of long-term fair value, the path of the dollar is a critical consideration for any international diversification throughout our 10- to 15-year investment horizon.

If demographics are defining much of the debate over long-term economic risks, then it is productivity—and specifically technology—that creates the main upside risk to our outlook. Although productivity growth seems to have stalled in the aftermath of the global financial crisis, we reject the idea that productivity is permanently impaired. Based on the pace of development in automation and artificial intelligence, we estimate a potential upside risk to our baseline growth forecasts of 1.0%-1.5% if the promise of today's innovations are fully realized in productivity gains (**Exhibit 4**).

If just one tenth of the potential growth gain from technology accrues each year, it could boost G3 GDP by $6.5 trillion by the early 2030s

EXHIBIT 4: G3 GROWTH BOOST FROM TECH



Source: J.P. Morgan Asset Management Multi-Asset Solutions, Bloomberg, IMF World Economic Outlook; data as of September 30, 2017. Note: G3 economies defined as U.S., eurozone and Japan.

MAJOR ASSET CLASS ASSUMPTIONS

Our 2018 assumptions represent something of a watershed in our long-term economic outlook. Over the last decade, worsening demographic trends drove successive downgrades to our estimates of trend growth, but this sequence of downgrades may be nearing an end. Moreover, for the first time, we can see tangible upside risks to long-term trend growth expectations starting to emerge. It is too early to declare a trough in long-term trend growth estimates or, indeed, to fully bake in the promise of a technology-driven boost to productivity to our base case numbers. However, the possibility that we are nearing the end of a prolonged sequence of downgrades to long-term trend growth is significant for estimates of equilibrium asset returns.

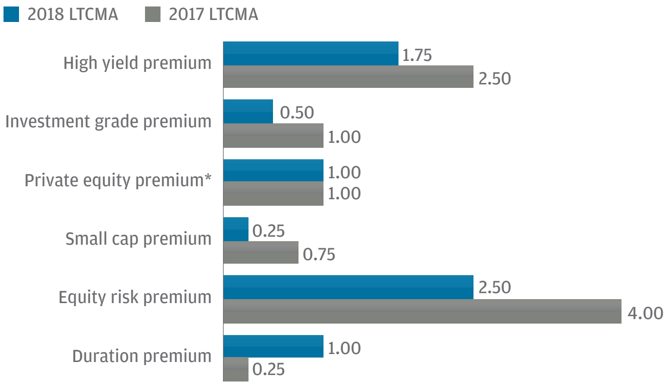
[3] April 2017 IMF World Economic Outlook, estimates for world and China 2017 nominal GDP.

[4] From MSCI data on free-float market capitalization: world, USD 43.7 trillion; China, USD 1.5 trillion.

Cyclical pressures are weighing on returns for long-term equity and riskier credit, while higher starting yields push bond returns modestly higher

EXHIBIT 5A: SELECTED LTCMA RETURNS (%)

EXHIBIT 5B: SELECTED LTCMA RISK PREMIA (%)



Source: J.P. Morgan Asset Management, estimates as of September 30, 2016 and September 30, 2017.
* Private equity premium assumptions are our alpha assumptions for private equity.

This year, though, the maturity of the current economic cycle is manifesting itself only too clearly in asset returns. Equity return expectations, especially, are displaying a cyclical drag from full valuations and above-average margins. These factors will very likely be in place for the remainder of the current business cycle. As the cycle matures, even investors with a very long investment horizon will need to further balance cyclical and secular influences on asset returns. Indeed, it will be a critical consideration (**Exhibits 5A** and **5B**).

FIXED INCOME—No rush to normalize

The slow and shallow path of normalization that we discussed last year is emerging as the preferred central bank playbook. Quite simply, the path of rates we described in our 2017 LTCMAs is little changed, bar rolling forward by a year. Return forecasts for G4 sovereign bonds are slightly improved this year, given the modest rebound in the duration premium as G4 bond yields have pushed up from their lows. Nevertheless, the outlook for most government bond returns remains challenged and only moderately above that of cash. Credit continues to offer a decent pickup in returns even though prevailing spread levels are tighter than our estimates of fair value. The duration component of corporate bonds is also a factor in the modest changes to return forecasts—investment grade returns up 0.25% and high yield returns down 0.50%. The outlook for emerging market (EM) economies continues to improve, and greater structural stability should offset some of the lingering fears over leverage. As a result, EM debt continues to offer fixed income investors both diversification and reasonable return potential.

EQUITY—Cyclical drags, but still the best for long-term returns

Our equity return forecasts are down 0.5% to 0.75% for most regions this year, reflecting primarily the strong returns delivered by stocks in 2017. With growth forecasts generally little changed compared with 2017, equilibrium revenue growth levels are unchanged, but both margins and valuations are a constraint on future returns in most major regions. In our estimation of long-term returns, equities, more than other asset classes, are reflecting the interplay of cyclical considerations and secular growth projections. The equity risk premium (ERP) has fallen meaningfully vs. last year but remains close to its long-run average and is distinctly attractive when compared with the duration premium. Nevertheless, the principal source of returns from developed market (DM) equities remains dividends and buybacks, and with this now a persistent trend, it is likely to push investors seeking capital growth further toward EM equities and private equity markets.

ALTERNATIVE ASSETS—Alpha better, beta abating

Lower equity return forecasts naturally create a headwind for private markets, but the downtrend in alpha expectations of recent years looks to have taken a pause as monetary policy around the world starts to normalize. High valuations are still an impediment to private equity returns, but at the same time, lower prevailing correlation across equity markets and a widening opportunity set serve to increase potential for alpha and enhanced returns. The improvement in alpha opportunities, though, is more pronounced in the hedge fund sector, where the shift from a macro-driven to a more fundamentally driven investing environment is supportive.

Improved alpha opportunities and worsening beta underline our view that manager selection remains the critical driver of returns for both private equity and hedge funds. Indeed, we anticipate a significant premium to our long-term return estimates for upper quartile managers.

We see a relatively attractive outlook for real asset returns, and despite the advanced stage of the U.S. business cycle we expect that real estate will prove to be quite resilient. Our estimates fall modestly, but supply and leverage constraint mean that the typical "late-cycle exuberance" that so often appears in real estate markets is largely absent. More broadly, real assets remain well supported by a combination of the strong and persistent bid for such assets and the relatively high illiquidity premiums that are keeping long-term return estimates elevated.

FOREIGN EXCHANGE—Secular forces starting to prevail

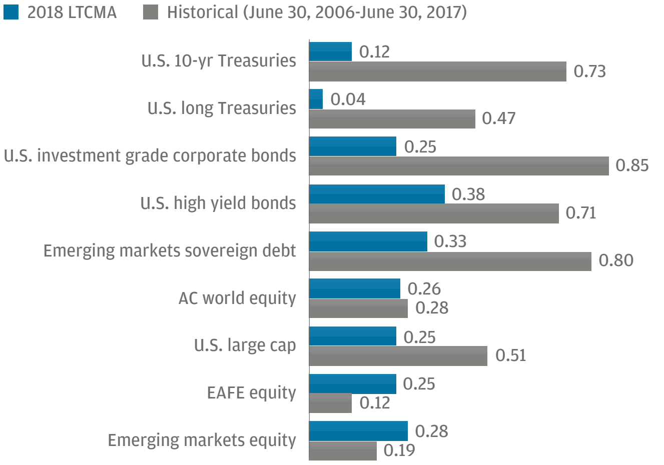
The secular forces that we expect to nudge the U.S. dollar down over the longer term began to assert themselves in 2017, when they started to dominate the cyclical monetary policy that had driven the dollar's appreciation in 2014-15. Despite the sharp decline in USD in 2017, the currency remains meaningfully above our long-term estimates of fair value, which we see as 1.34 for EUR/USD and 93 for USD/JPY. Now that the dollar has retreated from its recent highs, we would expect the pace of further declines to moderate somewhat. But the impact of currency translation on asset returns in globally diversified portfolios will continue to be an important consideration for many investors.

IMPLICATIONS FOR INVESTORS

Risk-adjusted returns for fixed income assets now stand at the low end of their typical ranges (**Exhibit 6**). As last year, equity Sharpe ratios are substantially better than those for government bonds, but in absolute terms U.S. large cap Sharpe ratios are below the average of the last 10 years, while EAFE and EM equity Sharpe ratios are above their 10-year average. Subdued forecasts for equilibrium growth play some part in this. But it is also a function of how late we are in the economic cycle, and of the valuation headwinds that most regions face. Further cyclical momentum could certainly front-load returns from equities—much as it has in 2017—but long-term investors should be clear that this is a cyclical, not a secular, trade. Overcoming the pressure on long-term potential returns from full valuations and high margins will require more active positioning around long-term themes (e.g., technology, Chinese financial liberalization, etc.), greater use of alternatives, an element of timing—or, most likely, all three. Despite these challenges for investors, the incremental deterioration in risk-adjusted returns from 2017 is quite marginal, and opportunities to enhance returns and generate alpha persist.

Forecast Sharpe ratios for bonds are well below their long-term average

EXHIBIT 6: RISK-ADJUSTED RETURN ASSUMPTIONS VS. HISTORICAL AVERAGES ACROSS ASSET CLASSES (SHARPE RATIOS)



Source: J.P. Morgan Asset Management Multi-Asset Solutions; estimates as of September 30, 2017.

Last year we argued that, after years of borrowing returns from the future, the future had finally arrived. This remains our view today. As we look forward, cyclical factors loom large, even for long-term investors, but the secular trends of lower growth and lower equilibrium interest rates must also be considered. Lower equilibrium interest rates and the glacial pace of normalization put secular constraints on government bond returns that will likely transcend this cycle. Even if trend growth surprises positively and equilibrium rates rise, they will force losses on government bondholders as yields adjust from cyclically depressed levels. The other side of this is that lower interest rates, all else equal, exert upward pressure on equity risk premia and valuations, which in turn may increase the lower bound for equity multiples over the full business cycle.

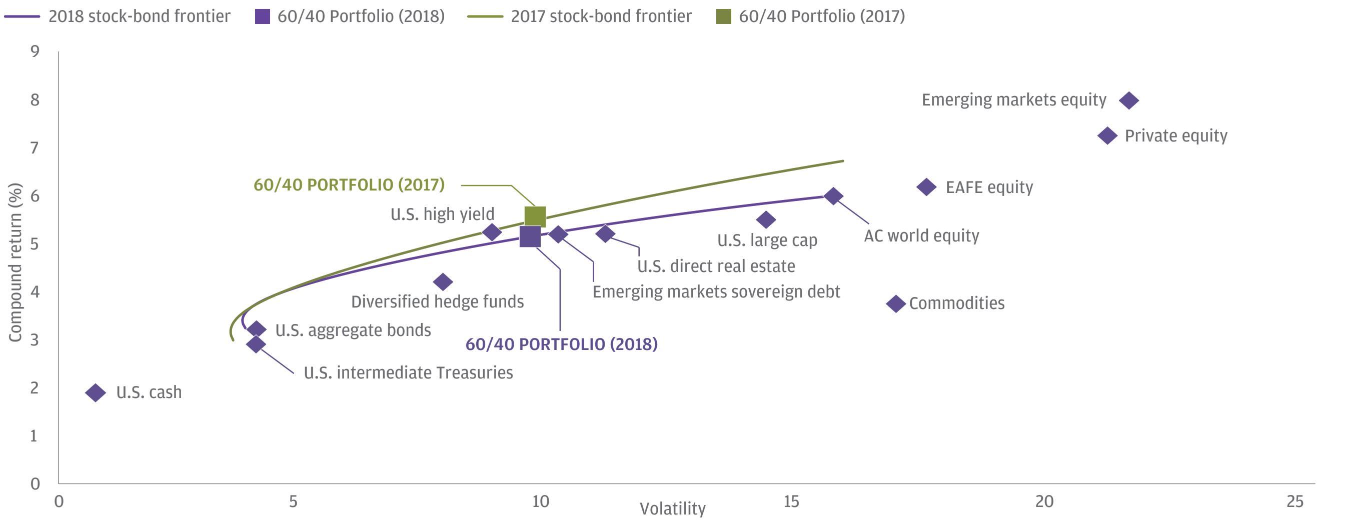
The asset market impact of the structural themes we explore in this paper is likely to be both complex and nuanced. Aging populations are an impediment to growth but may equally start to reverse savings gluts. Technological innovation could meaningfully boost trend growth but is likely to be disinflationary at the margin. On balance, we expect modest baseline economic growth with some upside risk from productivity gains, but generally subdued inflation. This condition should not necessitate overtly tight policy, reinforcing the secular anchor of low equilibrium rates. For investors of all types, recognizing this long-term trend will be essential in calibrating how today's cyclical environment will normalize and how to construct robust and versatile portfolios.

This year, our expected return for a U.S. dollar-based 60/40 portfolio is slightly lower at 5.25%, down from 5.50% last year, and the stock-bond frontier has rotated clockwise (**Exhibit 7**). This is a clear manifestation of the cyclical and secular considerations that investors face: Modest baseline growth continues to limit long-term return expectations for static balanced portfolios, while the late-cycle conditions of elevated equity valuations and gradually rising interest rates flatten the stock-bond frontier. The challenge for investors is that returns for a simple, static 60/40 portfolio are unlikely to turn meaningfully higher until this cycle ends—and that means riding out an inevitable period of disruption. But opportunity lies in the clustering of many asset classes close to, and even above, the stock-bond frontier, which implies ample scope for diversification and enhancing returns.[5] Beyond this current cycle, however, there is reason for cautious optimism, as the persistent pattern of declining long-term trend growth estimates might be nearing an end. Indeed, the outlook this year for long-term investors might well be somewhat brighter than the dip in return estimates may imply.

[5] We use a simple, two-asset stock-bond frontier; addition of further assets—particularly uncorrelated ones—will typically improve the efficiency of the resulting portfolio.

Compared with last year, 60/40 returns are a little lower, and the late stage of the current cycle is rotating the stock-bond frontier in a clockwise direction; although returns are subdued, the clustering of many assets close to the frontier implies ample opportunity for diversification

EXHIBIT 7: USD STOCK-BOND FRONTIERS AND 60/40 PORTFOLIOS BASED ON 2018 VS. 2017 LTCMAS FOR RISK AND RETURN (%)



Source: J.P. Morgan Asset Management; estimates as of September 30, 2016 and September 30, 2017.

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