NEPC 2019 INVESTMENT OUTLOOK

THEMES AND OPPORTUNITIES

January, 2019

NEPC Research

BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

INTRODUCTION

THEMES AND OPPORTUNITIES

Key Market Themes

Key Market Themes are factors that define global markets and can be expected to both evolve and remain relevant without a clear timeline of conclusion. At times, themes may be challenged or disrupted and generate market volatility. The conclusion of a theme likely alters both market dynamics and our market outlook. Our intent is for clients to be aware of these themes and understand their implications for asset allocation and portfolio implementation.

Current Opportunities

Current Opportunities are investment ideas that represent an action with the goal of improving investment outcomes relative to an investor's strategic asset allocation. It is not our intent that the full list of opportunities be implemented. Rather, we encourage a focus on the actions that offer a material benefit to each client's strategic allocation relative to their unique objectives and constraints. These investment ideas are likely to change more frequently as market dynamics and valuations shift over time.

2019 SUMMARY OUTLOOK

Market dynamics shifted significantly in 2018, with Fed policy and US-China trade tensions disrupting many of our key market themes

As a result we have removed Federal Reserve Gradualism, Extended US Economic Cycle, and Global Synchronized Growth as key themes

We believe we have entered a late-cycle market environment and the dynamics of such an environment will be a focal point for investors

However, late-cycle does not mean end of cycle and equities can still offer lucrative returns, though are likely to be accompanied by additional volatility

We have downgraded our outlook for non-US developed equities

The overweight recommendation has been removed from our current opportunities and the 5-7 year return assumption has been reduced by 1.25% relative to 2018

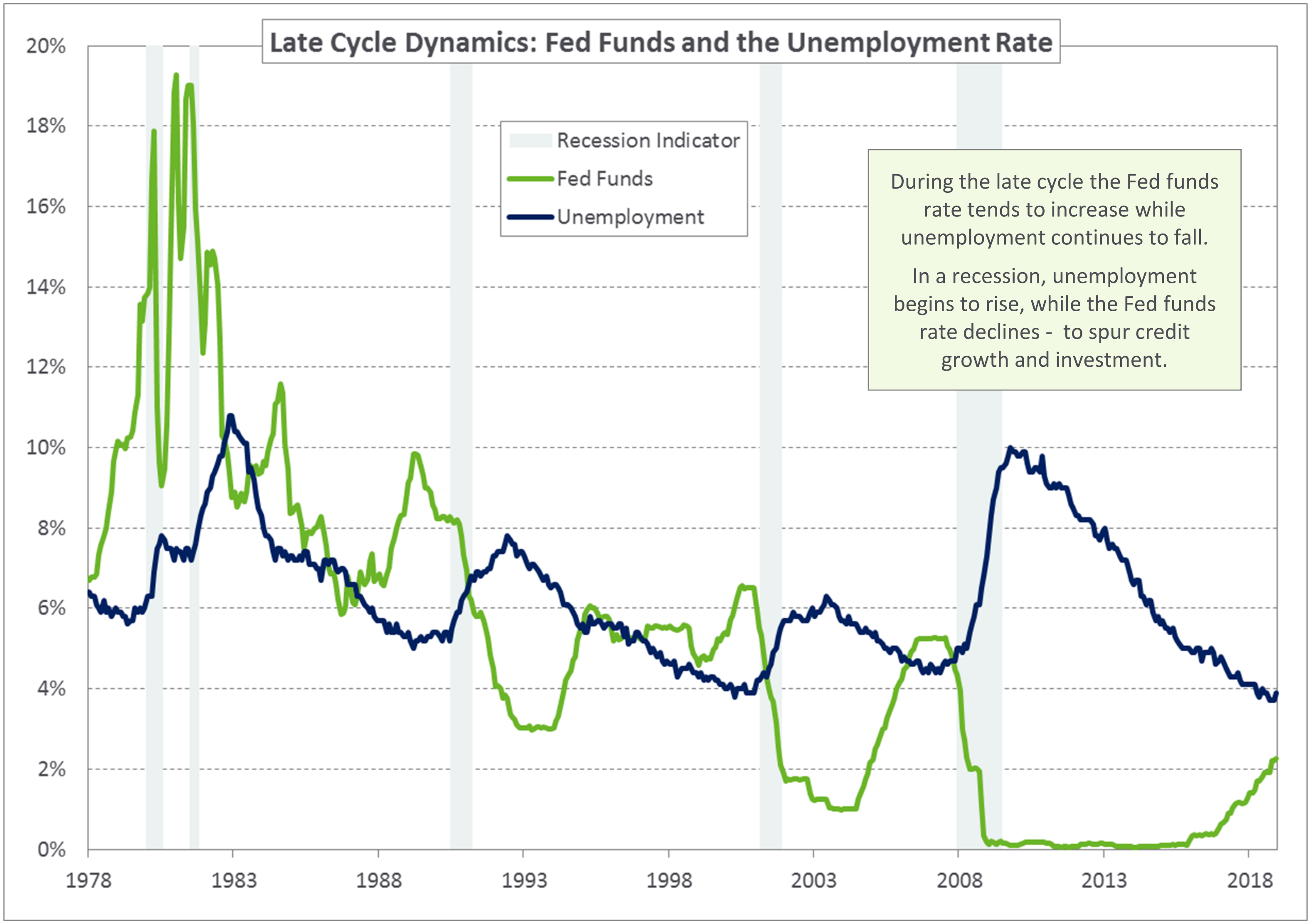
The main driver of the change is negative sentiment surrounding economic and political conditions of Europe, concerns related to the earnings growth outlook, and central banks paring back their support of easy financial conditions

The transition to a late-cycle is accompanied with a more risk-averse investment outlook as economic risks become more pronounced

After years of low volatility and outsized equity returns, the market is likely to transition to a higher volatility regime, which offers more risk but also tactical opportunities

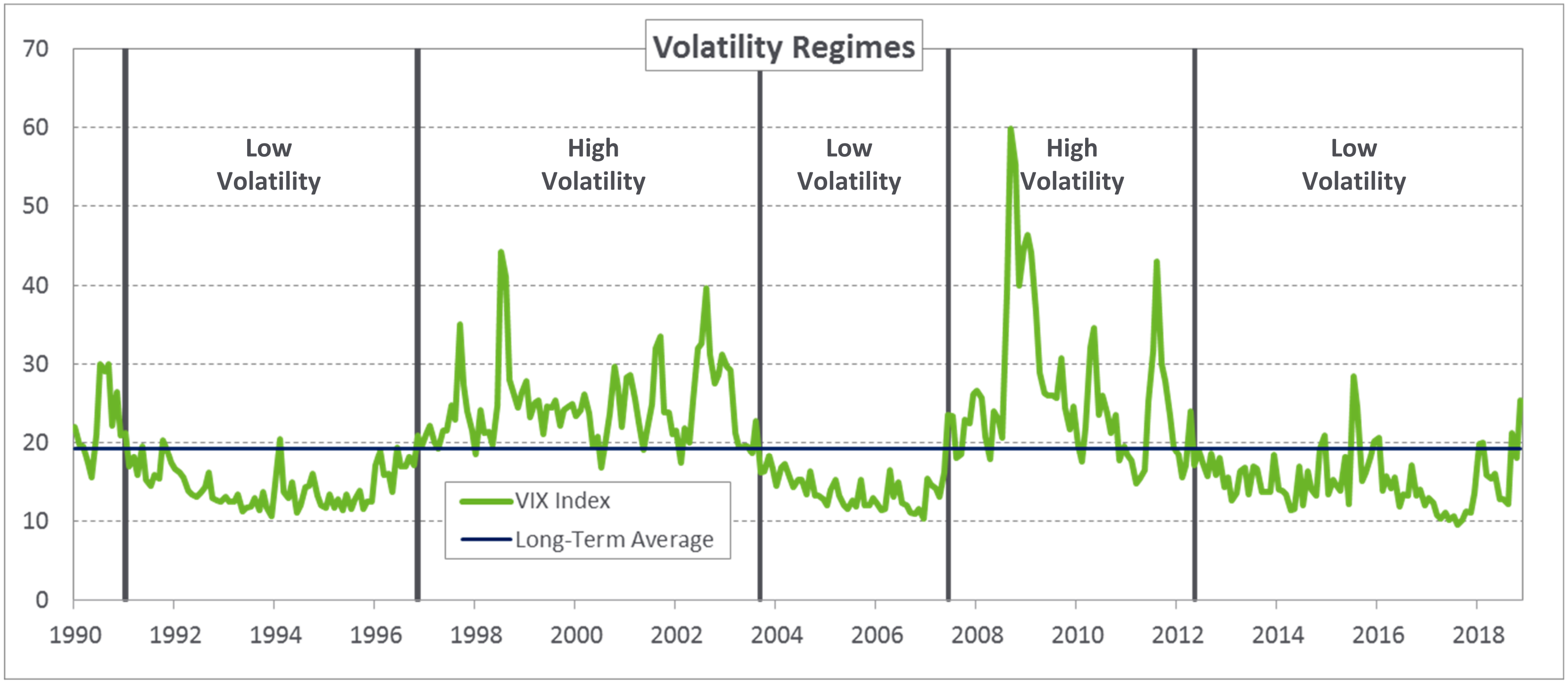
We recommend reducing lower quality credit exposure as higher default rates are a common aspect of late-cycle market dynamics

THE ECONOMIC CYCLE IS IN TRANSITION



Source: St. Louis Federal Reserve, NBER

BRACE FOR HIGHER VOLATILITY IN 2019



Source: S&P, CBOE, Bloomberg, NEPC

Equity volatility regimes tend to persist over prolonged periods and 2018 was witness to a material shift higher in equity volatility

We encourage investors to raise "safe haven" fixed income exposure as trends associated with each of our key market themes suggest higher volatility is on the horizon

2019 may prove to be a difficult year for markets but higher volatility can also offer a greater number of opportunities for dynamic investors

Investors should be prepared to act in a higher volatility regime, as dynamic opportunities may arise to deploy safe-haven assets back into US equity and other risk assets

CORE RETURN ASSUMPTIONS

	Asset Class	5-7 Year Return	Change 2019-2018	Volatility
	Cash	2.50%	**+.50%**	1.00%
	US Inflation	2.25%	**-0.25%**	-
Equity	Large Cap Equities	6.00%	**+0.75%**	16.50%
	International Equities (Unhedged)	6.75%	**-0.75%**	20.50%
	Emerging International Equities	9.25%	**+0.25%**	28.00%
	*Private Equity**	*10.01%*	***+2.01%***	*24.16%*
Rates/Credit	Treasuries	2.50%	**+0.25%**	5.50%
	*Core Bonds**	*3.04%*	***+0.29%***	*6.10%*
	Municipal Bonds (1-10 Year)	3.00%	**+0.50%**	5.50%
	High Yield Bonds	5.25%	**+1.50%**	12.50%
	*Private Debt**	*7.60%*	***+1.10%***	*11.97%*
Real Assets	Commodities	4.25%	**-0.50%**	19.00%
	Midstream Energy	8.25%	**+1.00%**	18.50%
	REITs	6.75%	**+0.25%**	20.00%
	Core Real Estate	6.00%	**+0.25%**	13.00%
Multi-Asset	*US 60/40**	*5.07%*	***+0.53%***	*10.45%*
	*Global 60/40**	*5.08%*	***+0.17%***	*10.95%*
	*Hedge Funds**	*5.74%*	***-0.09%***	*8.15%*

**Calculated as a blend of other asset classes – see page 39 for additional details*

MODIFIED ASSUMPTIONS AS OF DECEMBER 31

Significant market movements during the month of December caused the Asset Allocation Committee to update the capital market return assumptions created as of November 30th

Volatility and correlation assumptions were unchanged from the November 30th figures

Asset Class	12/31 5-7 Year Return Assumption	11/30 5-7 Year Return Assumption	Rationale
US Inflation	2.25%	2.50%	5-Year, 5-Year forward inflation expectations fell to 2%
Cash	2.50%	2.75%	The market no longer expects any Fed rate increases in 2019; our US inflation assumption declined 25 basis points
Large Cap US Equities	6.00%	5.00%	The S&P 500 Index fell 9% during December
Treasuries	2.50%	3.00%	The 10-year US Treasury yield fell 30 basis points during December; lower inflation
US High Yield	5.25%	4.75%	Spreads increased 108 bps during December; lower rates

2019 THEMES AND OPPORTUNITIES

Key Market Themes

- Late Cycle Dynamics
- Tightening Global Liquidity
- China Transitions
- Globalization Backlash

Current Opportunities

- Rebalance Developed Market Equities
- Maintain Overweight to Emerging Market Equities
- Raise Safe-Haven Fixed Income Exposure
- Reduce Lower Quality Credit Exposure
- Fund Emerging Local Debt
- Add Long Volatility Exposure
- Fund Public Midstream Energy Exposure

CONSIDERATIONS: RHODE ISLAND

Considerations

1 - Consolidate Core & Long Duration Fixed Income Managers

2 - Include Emerging Market Debt as an eligible Income Class investment

3 - Reexamine the CPC Program construction

KEY MARKET THEMES

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KEY MARKET THEMES

Late Cycle Dynamics

Tightening Global Liquidity

China Transitions

Globalization Backlash

KEY MARKET THEMES

Late Cycle Dynamics

The US economy has transitioned from a mid- to late-cycle environment

Late cycle does not mean end of cycle; equity markets can offer strong returns and abandoning risk assets early may detract from long-term results

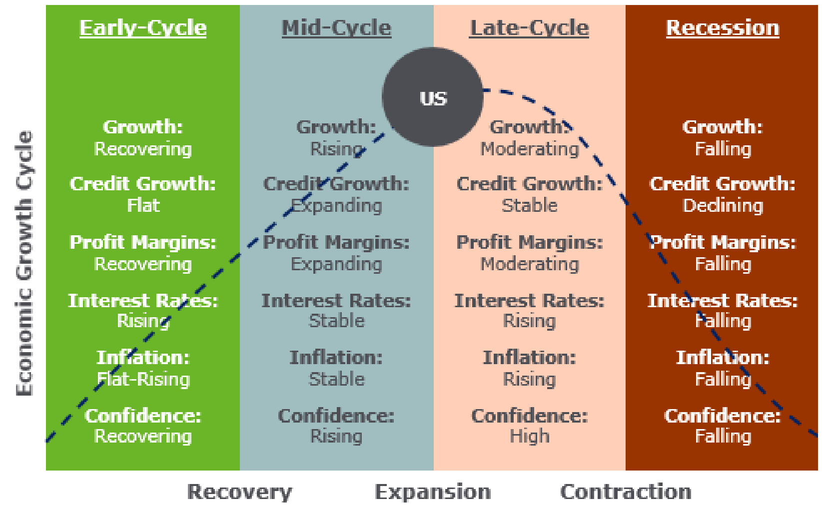
Positive economic data can support continued US economic expansion and further equity gains

However, moving into a late cycle negatively skews the range of outcomes and our investment outlook reflects a more risk-averse posture with a bias toward selling low quality credit and increasing safe-haven fixed income exposure

Trends among key indicators suggest a transition to late-cycle has occurred

These indicators provide a useful guide to recognize changes in the economic cycle

Despite the recent trend, there is minimal evidence in economic/financial indicators to suggest that a US recession is imminent



US Indicators	Late-Cycle Trend	Current Trend
Equities	Peaking	Uncertain
Interest Rates	Rising	Yes
Yield Curve	Flattening	Yes
Inflation	Rising	Yes
GDP Growth	Moderating	Uncertain
Credit Spreads	Stable/Rising	Yes
Output Gap	Near/Above Potential	Yes
Unemployment	Falling/Bottoming	Uncertain

Source: (Top) NEPC
Source: (Bottom) NEPC

KEY MARKET THEMES

Late Cycle Dynamics

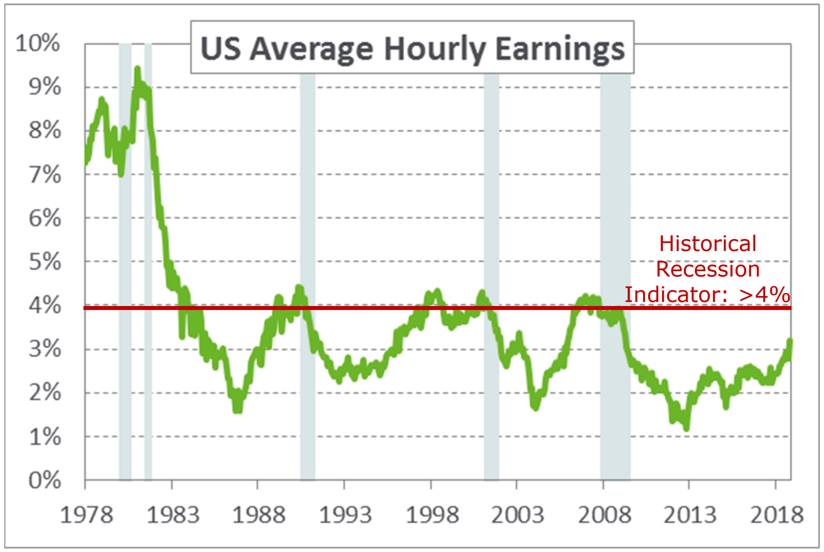
Key indicators are helpful guides, but all business cycles are different

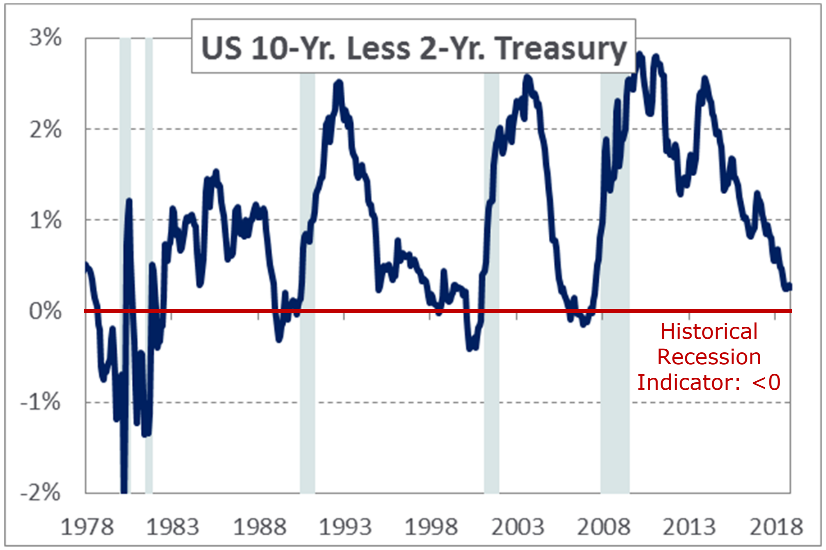
Late-Cycle Dynamics		
	⬆	Growth: This expansion has been the longest ever, but cumulative GDP growth remains well below average. Sustainability of current growth from fiscal stimulus remains unclear.
	⬆	Interest Rates: The Fed has methodically increased rates off post-crisis lows. They appear to be on a tightening path to push rates above the long-term neutral rate through 2019 and beyond.
	⬆	Inflation: Despite record low unemployment rates, inflation pressures have been slow to materialize relative to history. Yet US inflation is up nearly 2% over the last three years, but remains below historic levels.

We are evaluating market indicators such as the yield curve that would lead us to adopt a defensive outlook

Should the yield curve invert and economic metrics weaken, our recommendation will be to materially increase safe-haven fixed income and reduce equity exposure

There is a greater need to seek portfolio balance in a late cycle, while the increased volatility may offer tactical opportunities





Source: (Top) Bloomberg, NEPC

Source: (Bottom) Federal Reserve Bank of St. Louis, NEPC; Light blue shading indicates recession

KEY MARKET THEMES

Tightening Global Liquidity

The Fed has shifted from a "lower for longer" policy to a more balanced posture of raising rates in line with higher inflation

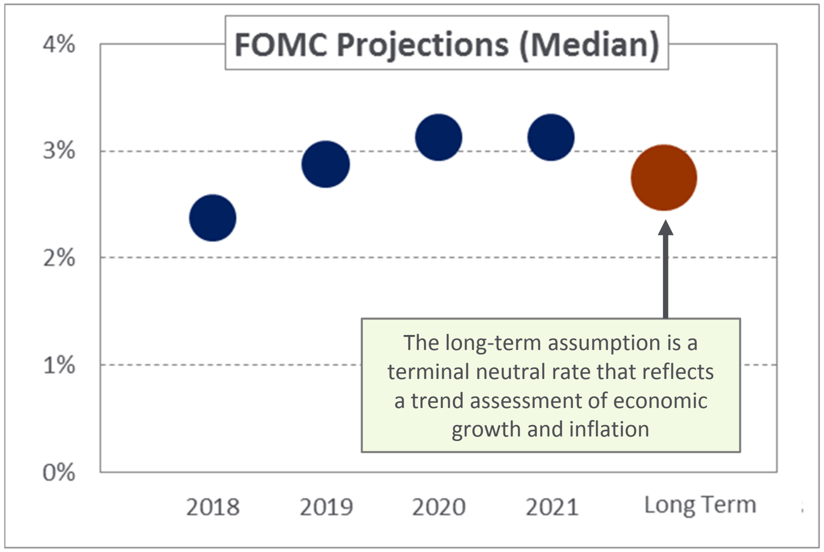
Based on the FOMC projections, the Fed is communicating a tightening path as their forecast for interest rate hikes moves beyond the long-term neutral rate

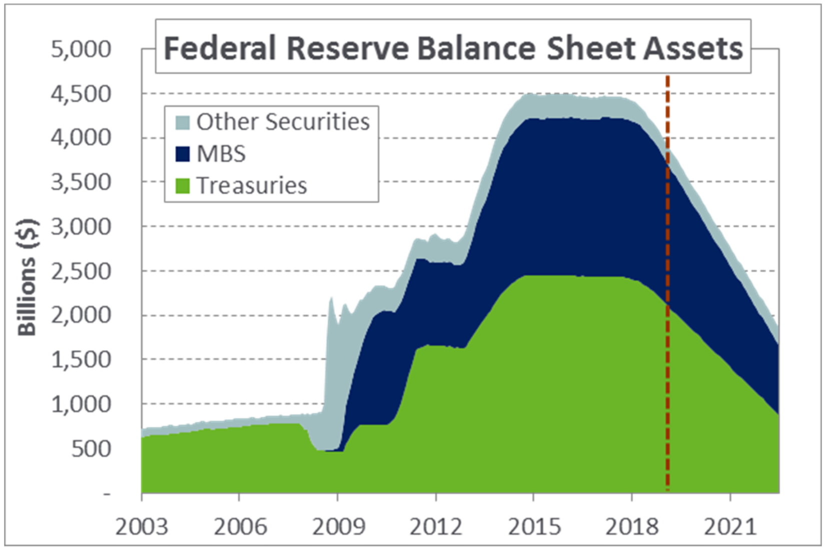
Markets are discounting a muted pace of hikes relative to Fed projections, creating potential for capital market disruption. However, the Fed's bias appears to be to raise rates in the absence of market turmoil

The Fed's balance sheet has shrunk by $400B and will continue to decline by a monthly maximum target of $50B

Normalization of the balance sheet is a form of monetary policy tightening as liquidity is methodically extracted from the system

The impact of the balance sheet reduction is untested – potentially mirroring how the Fed's balance sheet expansion (QE) had easing effects





Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

KEY MARKET THEMES

Tightening Global Liquidity

Transmission of tighter liquidity is already underway and is felt globally

Slowing money supply growth rates tighten financial conditions and are a headwind for credit and equity markets across the world

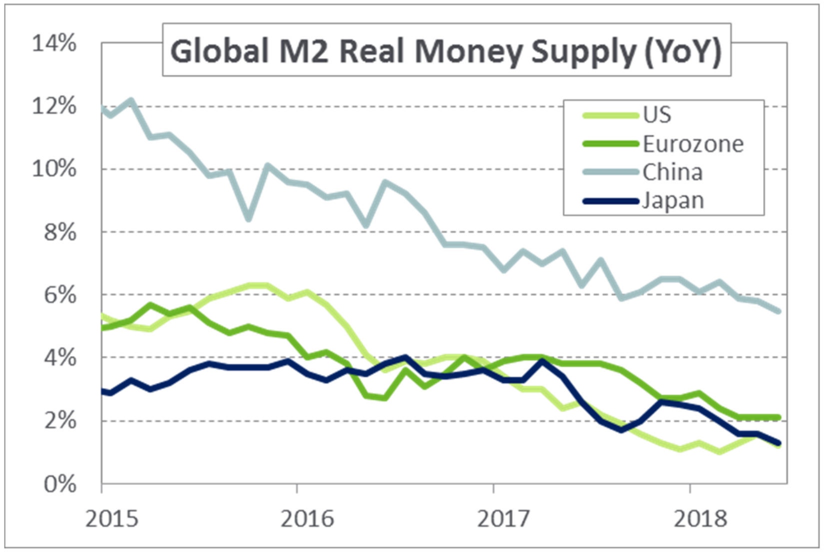
Ability to ease financial conditions is limited outside the US as central banks do not have dry powder with interest rates near historic lows and the ECB restricted in their ability to expand QE purchasing capacity

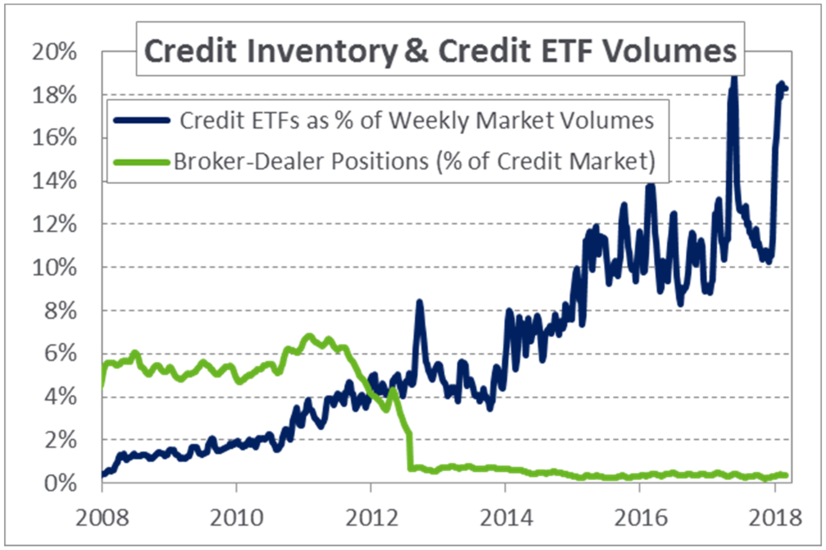
A pause in Fed tightening or a large stimulus program from China are the limited global levers available to ease tighter conditions

The diminishing support from central banks warrants caution regarding liquidity in credit markets

Underlying trading conditions for ETF and credit markets remain fragile and are likely to be severely tested to absorb an exodus from crowded credit positions

The "Fed put" or a reversal of balance sheet normalization may be necessary to avoid a liquidity crisis in a severe market disruption





Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

KEY MARKET THEMES

China Transitions

China is the global growth engine but faces fundamental transitions

China's economy is transitioning from a focus on production and investment to a service and consumption based economy

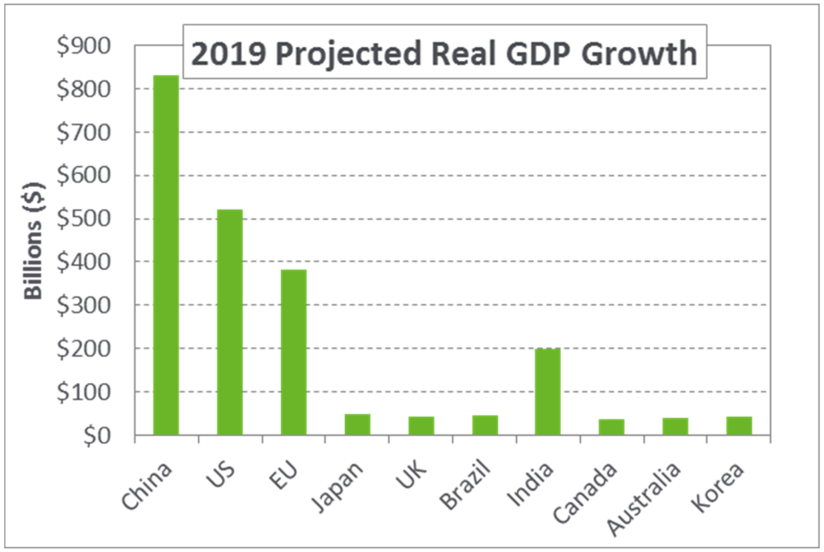
Fixed investment and credit expansion is needed to sustain the "old" production-based economy and support employment as the population shifts to urban centers

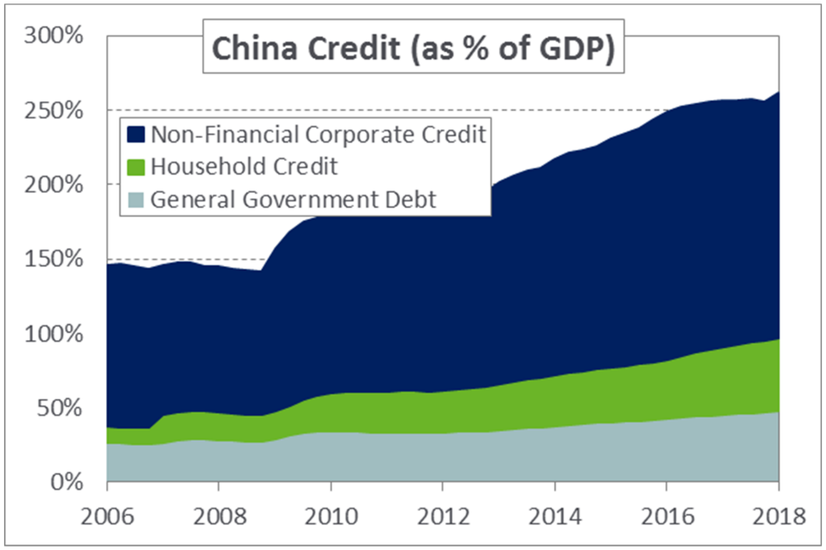
Any disruption to these transitions will be transmitted globally due to China's outsized role in the world economy

Policy makers must continue to balance goals of moderating credit expansion against sustaining healthy economic growth rates

Recent shifts in policy suggest a tilt away from credit moderation to offset the harmful effects of the US-China trade dispute

However, an uncontrolled expansion of credit growth and real estate development pose a future systemic risk to the economy





Source: (Top) Bloomberg, NEPC
Source: (Bottom) BIS, NEPC

KEY MARKET THEMES

China Transitions

China's economy is expected to equal the size of the US within 25 years

China's increased economic and geopolitical prominence on the world stage can be viewed as a threat to US leadership

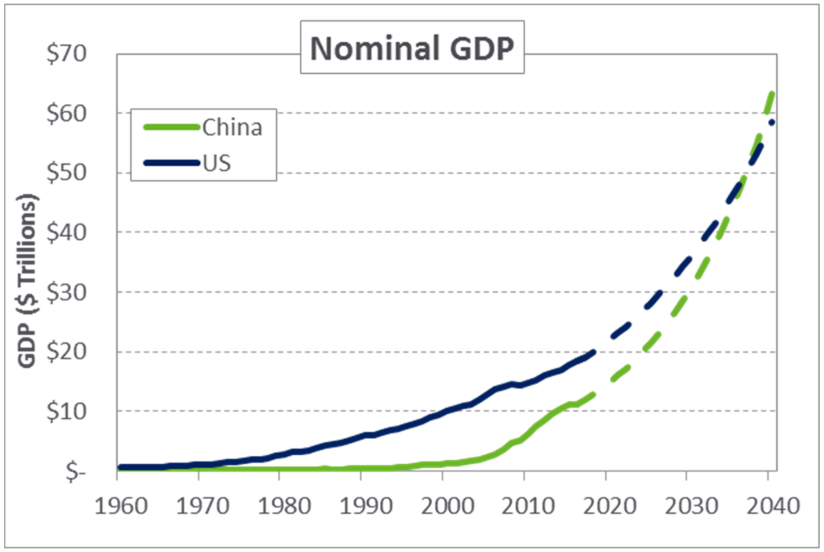
Tariffs and trade conflict are a form of "Thucydides Trap", where a rising power causes fear in an established power

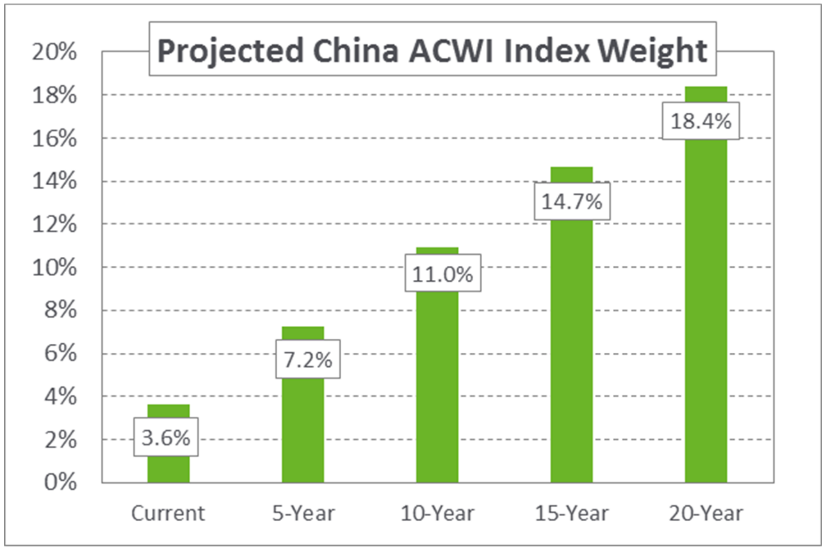
China is in a race against time: *Can they get rich before they get old?* This race may conflict with some US geopolitical interests and risks a zero-sum dynamic of economic competition between the US and China

Access to local financial markets is accelerating and expected to expand

Expansion of Hong Kong-mainland stock connect program broadens access to A-shares and strengthens the case for increasing size of Chinese equities in indices

With limited access for foreign investors, China is looking to slowly open access to the world's third largest fixed income market





Source: (Top) St. Louis Fed, NEPC; China is projected to grow at 7.5% and the US is projected to grow at 5.0%
Source: (Bottom) MSCI, Bloomberg, NEPC

KEY MARKET THEMES

Globalization Backlash

Uneven economic growth and wage gains have fueled political discontent in the developed and emerging world

Fatigue over globalization has led to a turn inward and greater political interest in nationalism, while multilateral relationships are viewed with suspicion

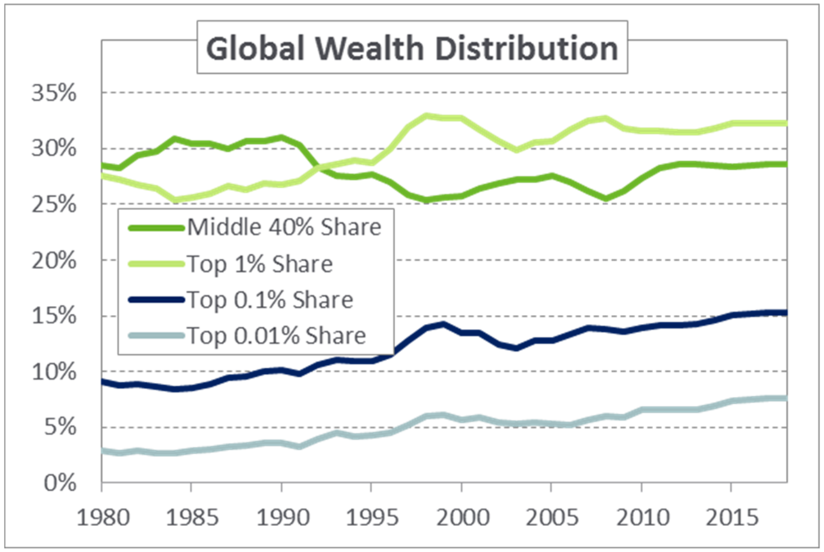
Globalization Backlash is a long-term trend as populist movements lead to shifts away from political/economic orthodoxy, which heightens tail risks

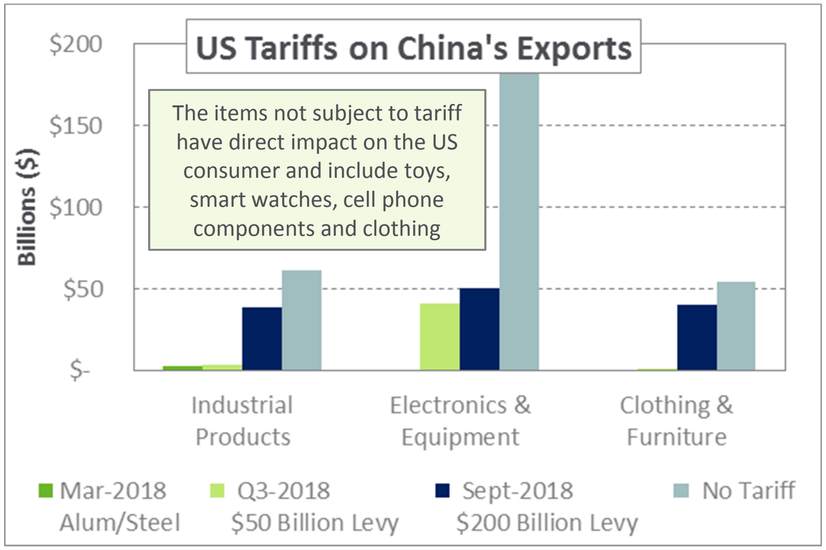
US-China trade tensions are a full expression of our backlash theme

Levying tariffs is a dangerous game as both the US and China look to negotiate an end to the tensions but must demonstrate strength for their domestic audience

In the past, markets have taken the US administration's rhetoric with a grain of salt but the tit-for-tat tariff escalation with China is a concern for market sentiment

We have likely settled into a prolonged "cold war" in the ongoing US-China trade battle





Source: (Top) WID.World, World Inequality Lab
Source: (Bottom) USTR, Bloomberg, NEPC

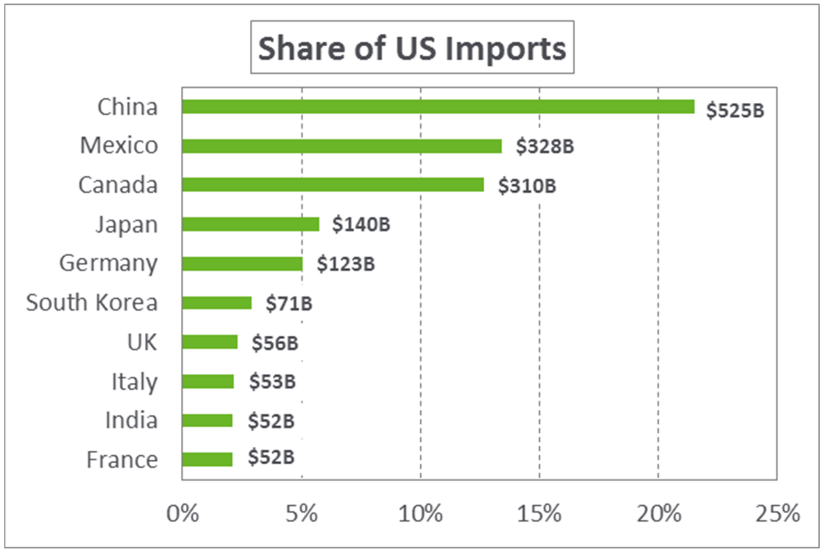
KEY MARKET THEMES

Globalization Backlash

Expanding protectionism from US trade policy is a material risk to global markets and the economy

US adopted a more restrictive trade policy in 2018 and investor sentiment outside the US deteriorated along with US-China relations

US-China tariffs are the "new normal" and we expect this dynamic to continue for the foreseeable future. We do not anticipate the trade dispute to escalate beyond tariff levies and prohibit the flow of goods and services



The UK serves as a live case study for the effects of globalization backlash

Economic metrics across the country have turned lower in the time since the UK voted to leave the European Union

Deterioration in business and consumer confidence along with potential disruption to the financial sector are a cautionary tale

The economic unease of voters remain and the political instability likely leads to higher levels of currency volatility over time

	Brexit Vote	Current
Real GDP (YoY%)	1.7%	1.5%
Household Consumption	3.3%	1.8%
Exports (YoY%)	1.1%	-1.3%
Imports (YoY%)	3.2%	0.2%
CPI (YoY%)	0.4%	2.5%
Unemployment (%)	4.9%	4.0%
Central Bank Rate	0.50%	0.75%
GBP/USD Exchange Rate	1.49*	1.28
Economic Sentiment	106.9	105.6

Source: (Top) Bloomberg, NEPC
*Source: (Bottom) Bloomberg, NEPC, *Data as of 6/23/16*

CURRENT OPPORTUNITIES

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CURRENT OPPORTUNITIES

Rebalance Developed Market Equities
Funding Sources: EAFE equity, lower quality credit, multi-asset strategies

Raise Safe-Haven Fixed Income Exposure
Funding Sources: Lower quality credit, equity, multi-asset strategies

Reduce Lower Quality Credit Exposure
Funding Sources: High yield, bank loans, US direct lending

Maintain Overweight to Emerging Market Equities
Funding Sources: US equity and EAFE equity

Add Long Volatility Exposure
Funding Sources: Multi-asset strategies

Fund Public Midstream Energy Exposure
Funding Sources: Commodities, high yield, equity

Fund Emerging Local Debt
Funding Sources: High yield and equity

CURRENT OPPORTUNITIES

Rebalance Developed Market Equities

Adjust US and EAFE regional exposure to developed market index weights

Continue to recommend an overweight to emerging equity and adopt an index weight for US/EAFE relative to MSCI World

We encourage a global equity target weight of 52% to the US, 33% EAFE, and 15% to the EM. Larger overweight to EM can be funded pro rate from developed equity

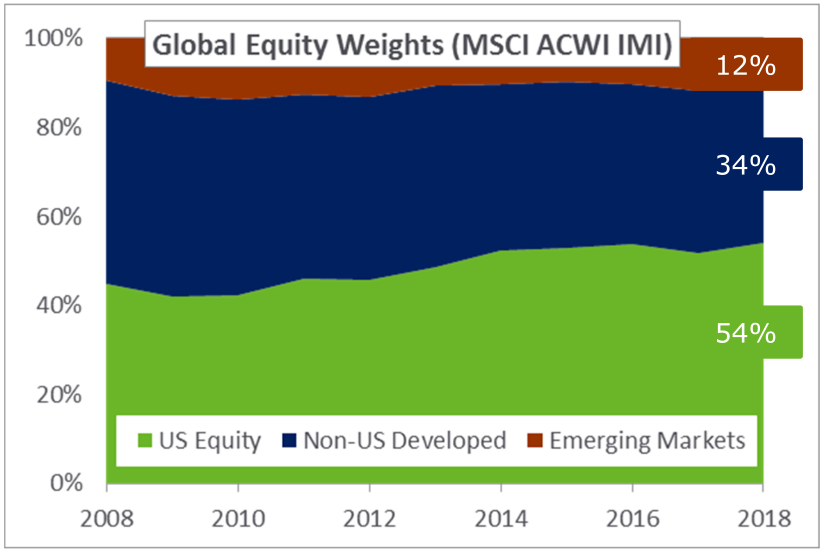
Should US equity declines continue, look to exploit the market volatility and overweight US exposure relative to EAFE index weights

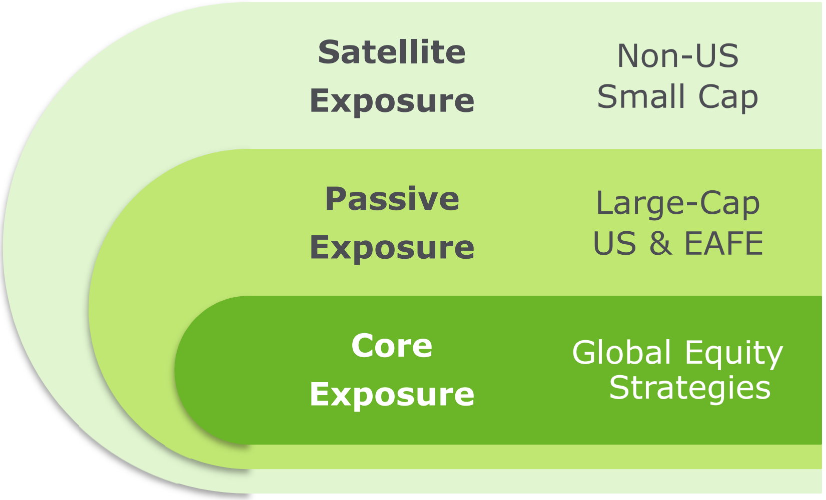
Global equity strategies can serve as the core implementation approach for developed market equity exposure

We remain supportive of pairing active global equity strategies with passive large-cap US and EAFE equity exposure

Within non-US developed markets, we have a strong bias to active small-cap equities

EAFE and US small-cap are a viable funding source for private market commitments





Source: (Top) MSCI, Bloomberg, NEPC; represents free float market cap weights as of 12/31 each year

Source: (Bottom) NEPC

CURRENT OPPORTUNITIES

Raise Safe-Haven Fixed Income Exposure

The potential for an adverse economic outcome appears to have expanded

Safe-haven exposure is an essential asset class exposure to mitigate portfolio risks

We are evaluating market metrics such as the yield curve that would cause us to shift to a more defensive recommendation

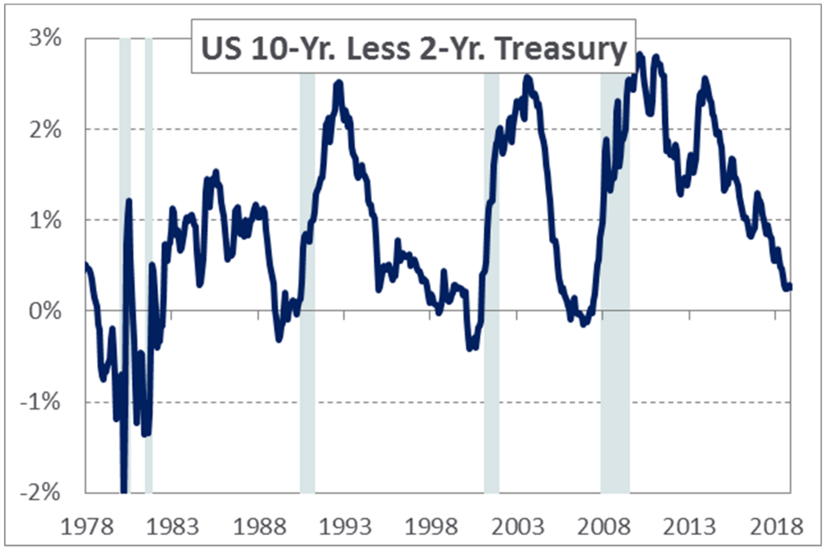
Should the yield curve invert and economic metrics show weakness, we are likely to recommend a material increase to safe-haven fixed income exposure

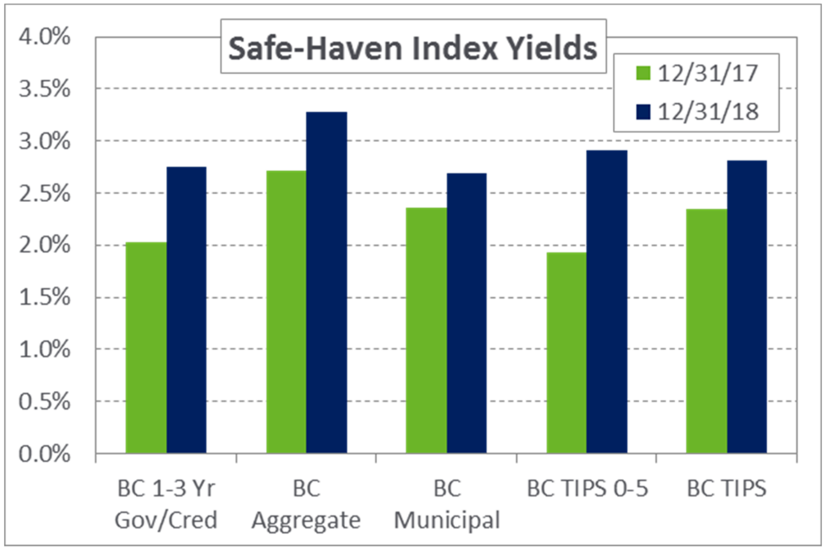
Short duration safe-haven exposure is attractive on a relative value basis

We encourage investors to increase safe-haven fixed income and use lower quality credit exposure as a funding source

Market volatility has depressed long rates and inflation expectations making short duration segments an important part of a safe haven allocation

TIPS continue to have a place in safe-haven fixed income as a strategic allocation





Source: (Top) Federal Reserve Bank of St. Louis, NEPC; Light blue shading indicates recession
Source: (Bottom) Bloomberg, TIPS yield includes CPI accrual

CURRENT OPPORTUNITIES

Reduce Return Seeking Credit Exposure

Lower-rated credit exposure does not adequately compensate investors for the risk relative to safer alternatives

Late-cycle markets generally exhibit higher than average credit default rates, acutely impacting debt rated BBB and below

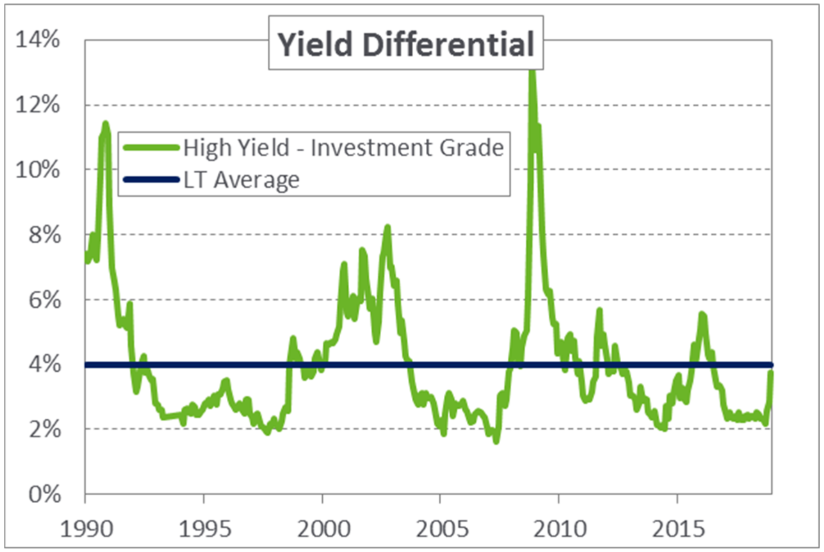
Despite credit spreads trading near median levels, we encourage moving away from lower quality credit and look to alternatives such as safe-haven fixed income, IG CLO's, and higher quality IG corporate bonds

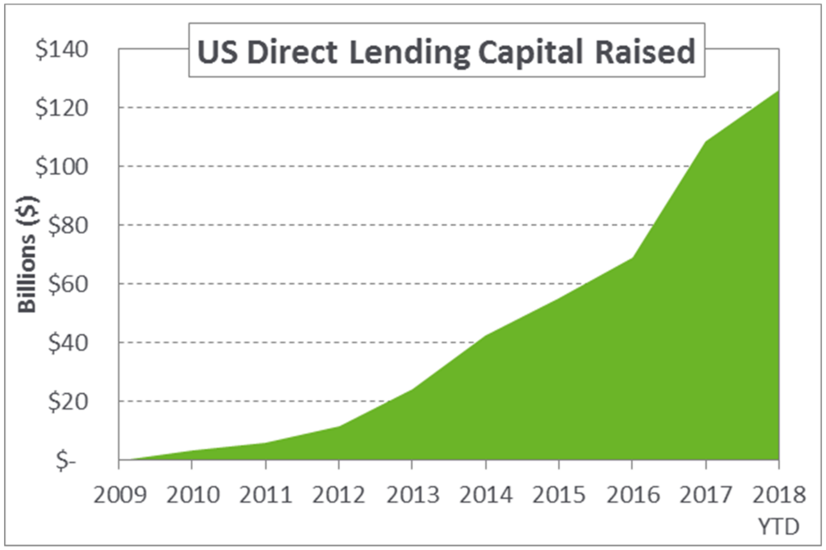
A misaligned risk-return tradeoff also applies to private credit markets

US direct lending is one example as the space has absorbed a large influx of capital over a multi-year horizon

Distressed and niche segments of private markets offer opportunities but require a hyper-focus on underwriting standards

We encourage reducing exposure to credit segments that have performed well over a prolonged period such as high yield, bank loans, and many private debt approaches





Source: (Top) MSCI, Bloomberg
Source: (Bottom) Preqin; represents cumulative capital raised

CURRENT OPPORTUNITIES

Maintain Overweight to Emerging Market Equities

Emerging equities offer the highest total return potential for investors

Valuation levels and fundamentals suggest an overweight relative to global equity market cap weights (e.g. 15% to 20%)

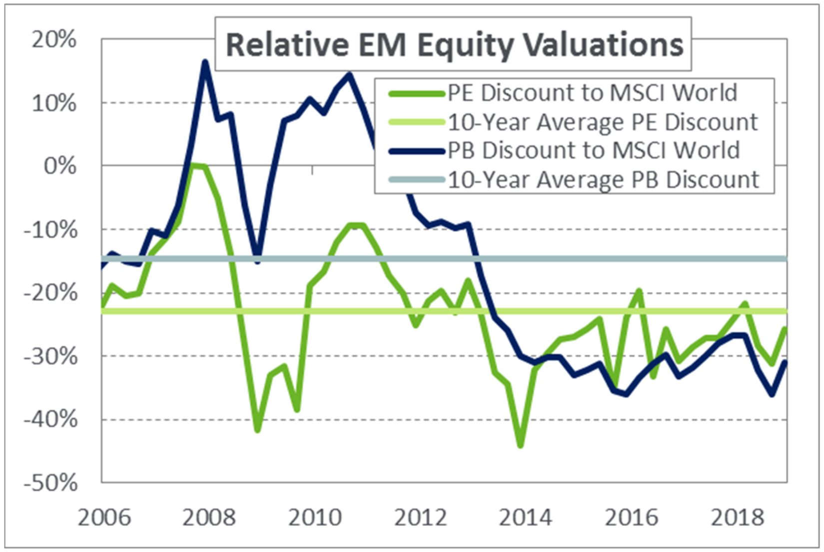
Growth premium relative to the developed world persists as economic conditions in EM remain supportive despite the negative sentiment associated with US trade policies

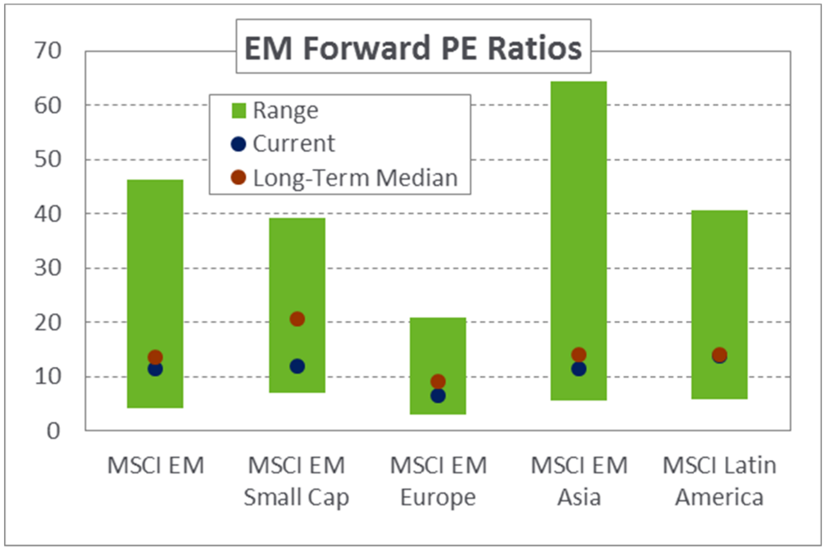
High tracking error strategies offer greater flexibility to invest across emerging countries and are preferred to benchmark focused mandates

Opportunity set for active management and excess return appear more abundant in EM versus developed markets

Strategies that invest down the market cap spectrum offer investors more focused exposure to local country growth rates

We encourage the use of multiple emerging market strategies to mitigate the risk of an unintended value-growth style or size bias





Source: (Top) MSCI, Bloomberg
Source: (Bottom) MSCI, Bloomberg

CURRENT OPPORTUNITIES

Add Long Volatility Exposure

Volatility levels for markets outside equities remain near historic lows

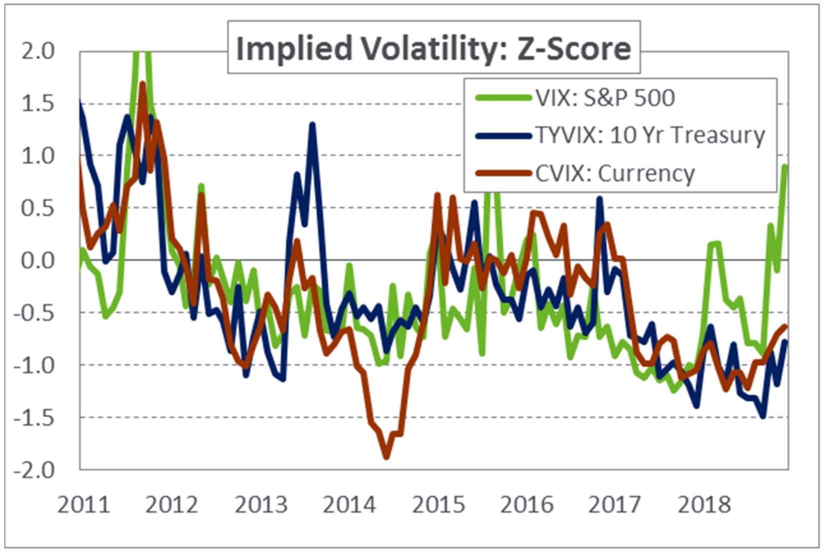
Long volatility exposure positively benefits from rising asset class volatility and an allocation of 1% to 2% can provide a significant return contribution should volatility normalize across global markets

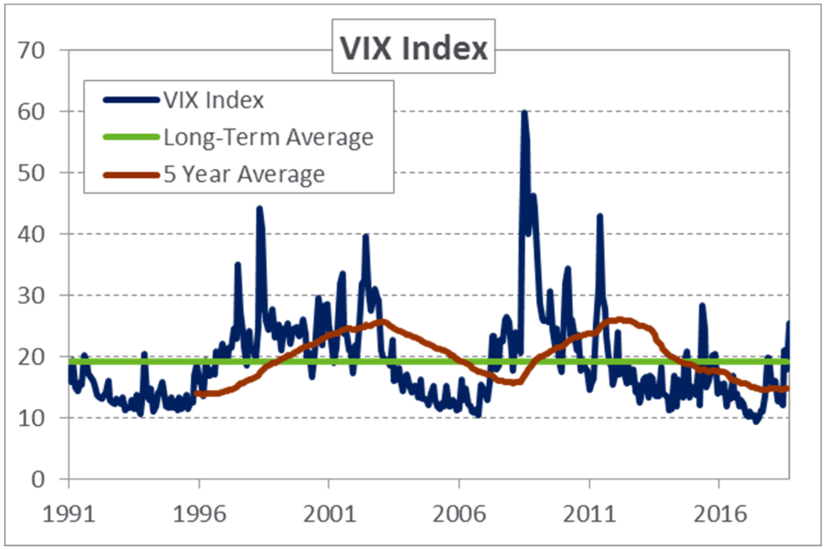
Exposure is not without risk. Losses would be expected if market volatility declines. Discipline of a multi-year time horizon is required should volatility levels move slowly back to normal levels

Long volatility strategies with positive carry are the only implementation option we recommend

Purchasing S&P VIX is a costly method to implement long volatility exposure due to the negative roll yield of the VIX curve

More suited for opportunistic investors willing to fund from multi-asset or other unconstrained strategies





Source: (Top) Bloomberg
Source: (Bottom) Bloomberg

CURRENT OPPORTUNITIES

Fund Public Midstream Energy Exposure

Midstream energy offers an attractive long-term growth potential

Balance sheet reform and a sustainable financing profile has been underappreciated by the market

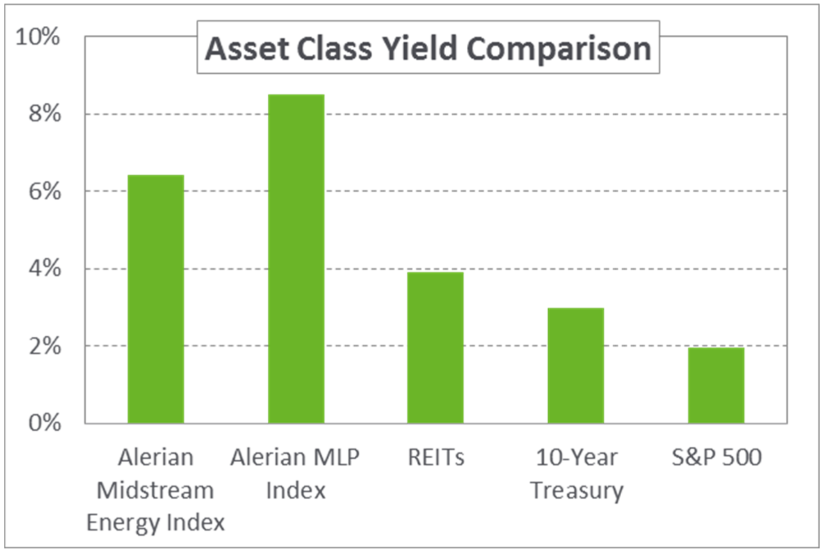
Reform of the MLP operating structure (IDR elimination) offers a more stable business model and improved corporate governance

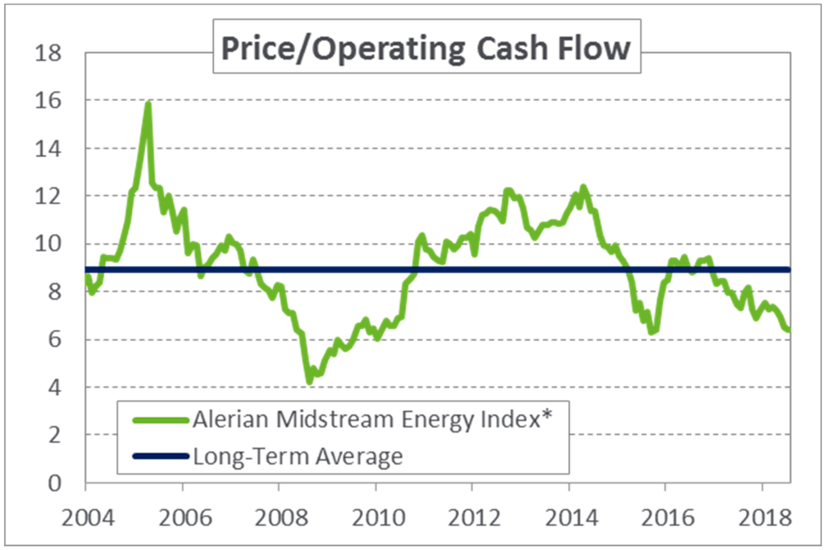
Negative sentiment weighs on the energy infrastructure market as performance has been poor over the last five years and operational concerns remain for some MLPs

Recovery of the energy infrastructure sector offers a compelling total return

Risk assets, such as high yield bonds and equities are an appropriate funding source for new midstream energy allocations

Nearly half of the midstream energy market is made up of MLPs. While down materially from recent years, careful thought must be given for tax-exempt investors as MLPs generate UBTI





Source: (Top) Alerian, NAREIT, Barclays, S&P, Bloomberg; As of 11/30/2018

*Source: (Bottom) Alerian, Bloomberg.*01/31/2018 to present a 50%/50% blend of the Alerian MLP and Midstream Energy Index*

CURRENT OPPORTUNITIES

Fund Emerging Local Debt

EM local debt offers an attractive total return opportunity

The combination of high real rates, lower inflation levels, and low currency valuations represents an attractive investment profile

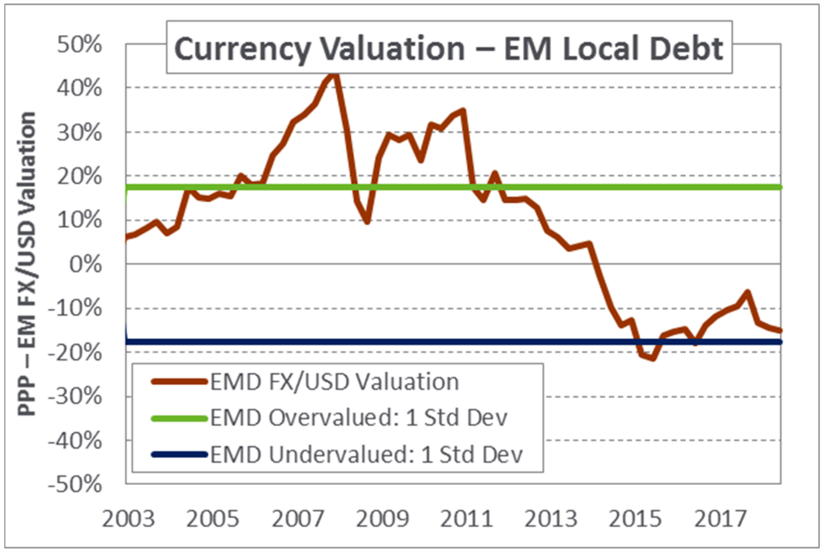
Above average index yields relative to the developed world provide a cushion to offset currency volatility and declines

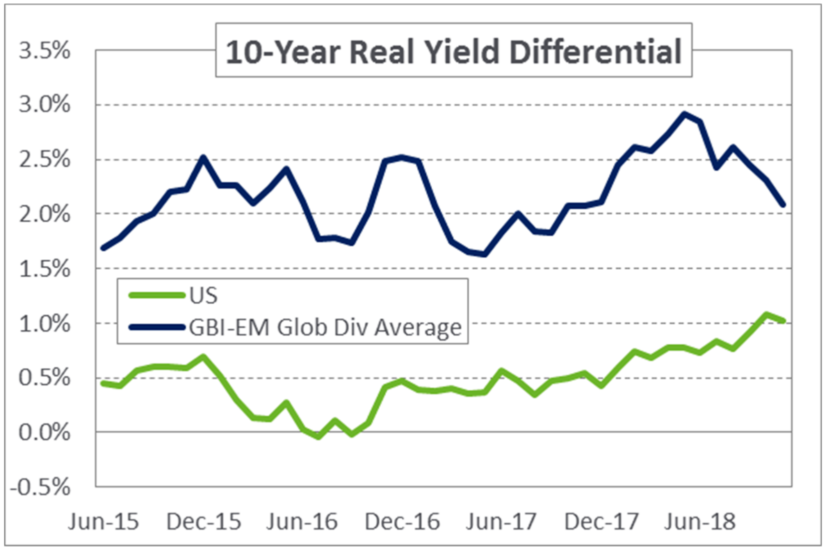
Additional Fed rate hikes not fully priced into market expectations are a risk and was a key source of the negative sentiment that hit the asset class in 2018

For tactical oriented investors, look to fund emerging local debt from high yield and equity exposure

A balanced EMD approach of local currency and dollar denominated debt remains our long-term bias as a strategic allocation

Currently, our preferred implementation is with a stand alone local debt strategy but unique macro or credit hedge funds may offer a unique return opportunity





Source: (Top) JPM, Bloomberg, NEPC
Source: (Bottom) JP Morgan, Bloomberg, NEPC

ASSUMPTIONS

NEPC, LLC

2019 ASSET CLASS OVERVIEW

NEPC asset class assumptions offer both an intermediate (5-7 years) and long term (30 years) forecast horizon

- November 30th replaced by December 31st market data for inputs to asset class models

Return expectations for credit asset classes are broadly higher relative to last year due to interest rate increases and wider credit spreads

- Despite the increase in return expectations, we encourage caution when investing in lower-quality credit exposure as we expect default rates to trend higher in the current late-cycle market environment

US equity return expectations increased relative to last year following a sizable correction in the fourth quarter of 2018

Our outlook for international developed equities is less optimistic than prior years, resulting in a significantly lower 5-7 year return expectation

We continue to refine and enhance our process where appropriate

- New asset class assumptions were added this year to provide greater differentiation in credit, including investment and speculative grade corporate ratings (AAA-CCC)

- Private equity and private debt sub-strategies were added to offer a distinction among private market implementation options with different volatility and return profiles

- Asset class correlation and volatility assumptions were adjusted to integrate private markets and new asset classes, to improve risk modeling and scenario analysis

ASSUMPTION DEVELOPMENT

Capital market assumptions are published for over 60 asset classes

- Assumptions include 5-7 year and 30 year return forecasts, average annual volatility expectations, and correlations

The 5-7 year forecast is designed to capture the return outlook for the current investment cycle

- 30 year return assumptions reflect a long-term outlook and are informed by the historical relationships among asset classes

Assumptions are published annually in December and use market data as of November 30

- Assumptions are developed by the Asset Allocation Committee and approved by the Partners Research Committee (PRC)

Assumptions are developed with proprietary valuation models and rely on a core building block methodology

Asset Allocation Committee	
September	**Asset Allocation Committee Assumptions Kickoff** **Finalize List of New Asset Class Assumptions**
October	**Review Draft of Asset Class Return Assumptions** **Discuss Outlook with NEPC Research Beta Groups**
November	**Finalize Volatility and Correlation Assumptions** **Final Update of Asset Class Models (As of 11/30)**
December	**Review Model Output and Create Return Assumptions** **Present Draft to the PRC** **Publish Assumptions on December 14th**

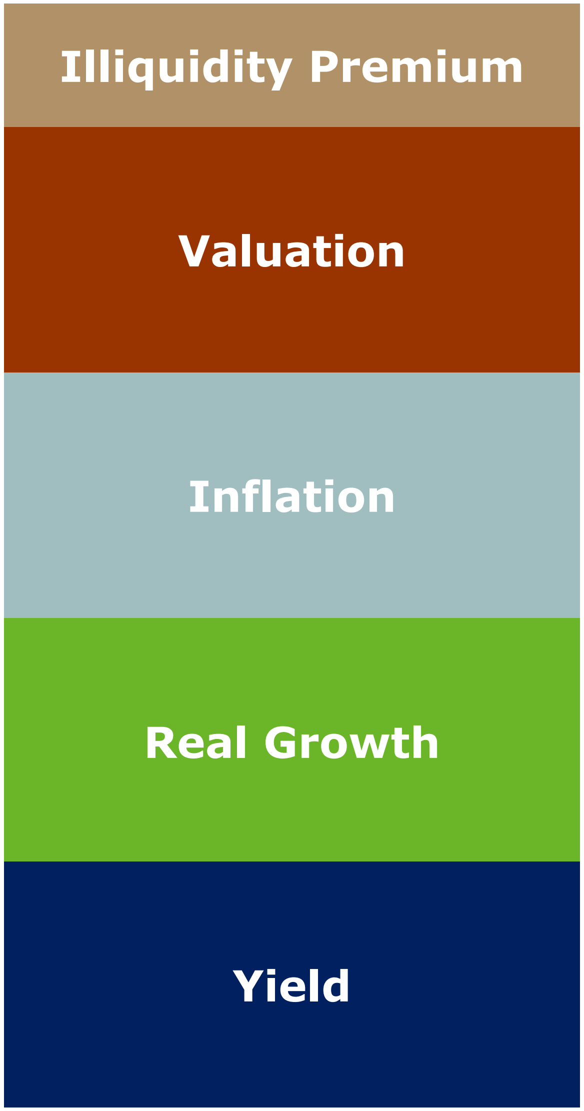
BUILDING BLOCKS METHODOLOGY

Forward-looking asset class models incorporate current and forecasted market and economic data to inform expected returns

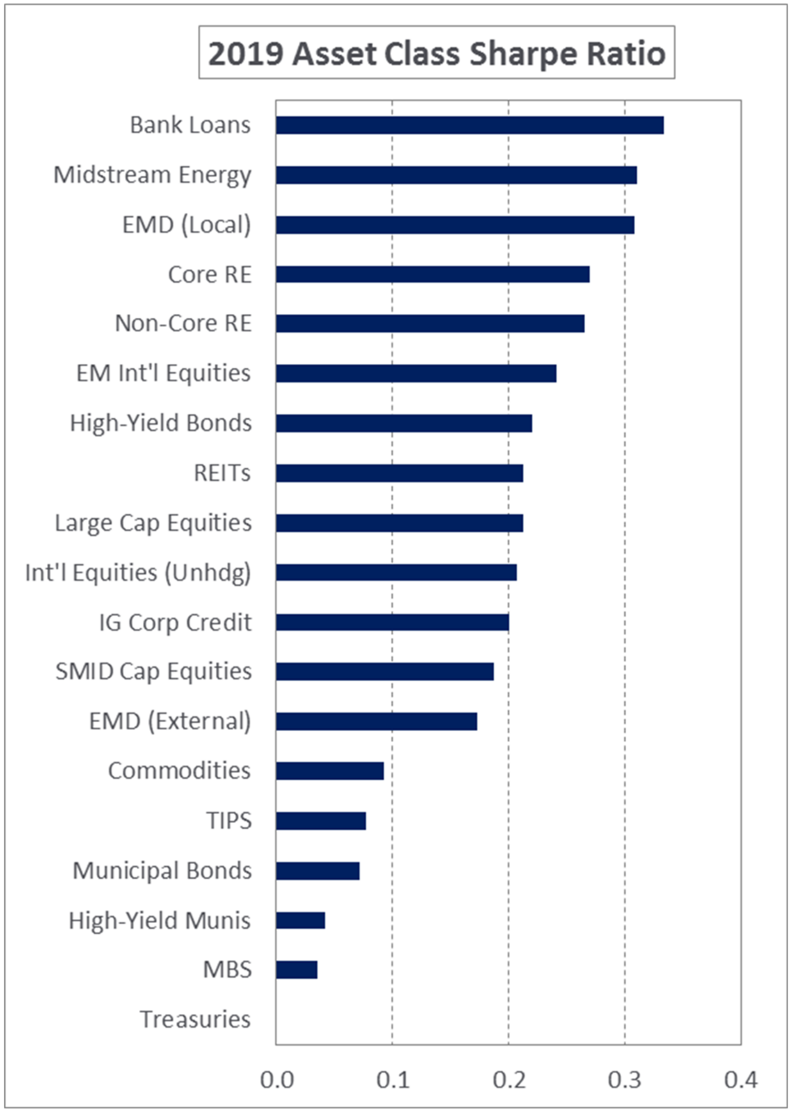
Quantitative inputs combined with qualitative factors and investor sentiment (capital flows, etc.) drive the 5-7 year return outlook

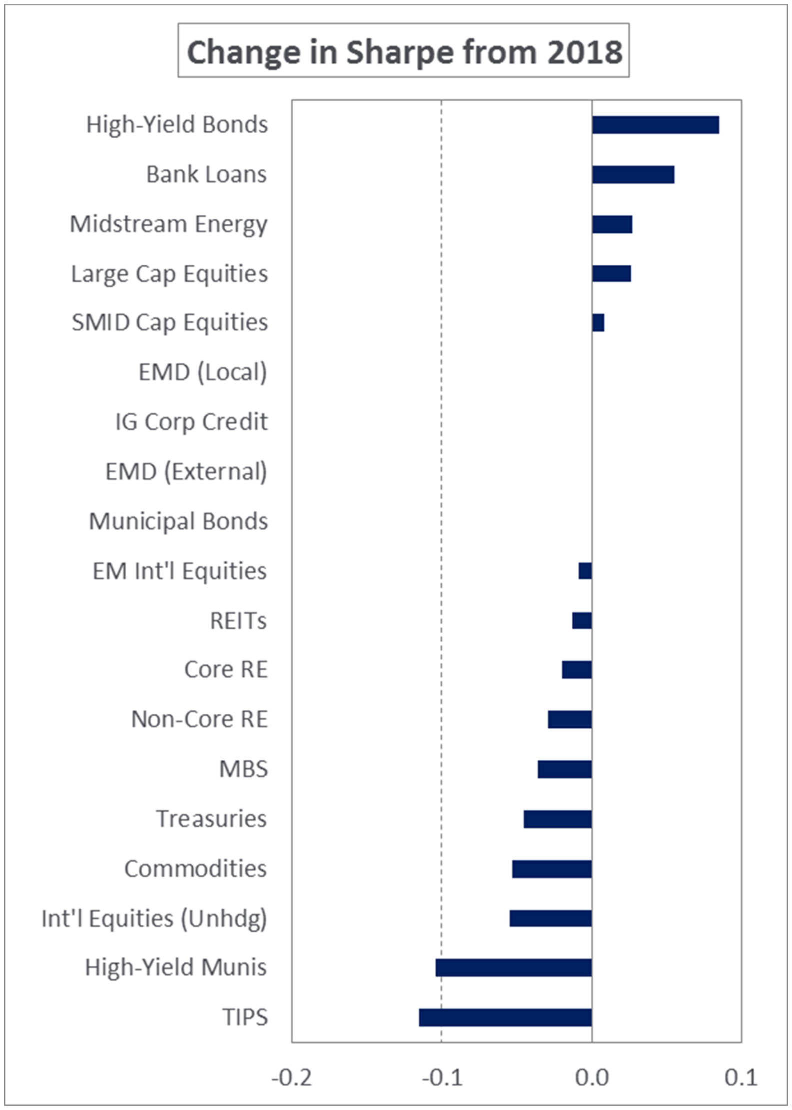
Components are combined to capture core drivers of return across asset classes – forming the foundation of our building blocks framework

Building blocks will vary across equity, credit, and real assets



RELATIVE ASSET CLASS ATTRACTIVENESS





Source: NEPC

MACRO ASSUMPTIONS

NEPC, LLC

INFLATION OVERVIEW

Inflation is an integral component of our asset allocation assumptions

Represents an essential building block for developing asset class returns

Inflation building blocks are model driven and informed by multiple sources for both the US and global asset classes

Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, break-even inflation expectations, and global interest rate curves

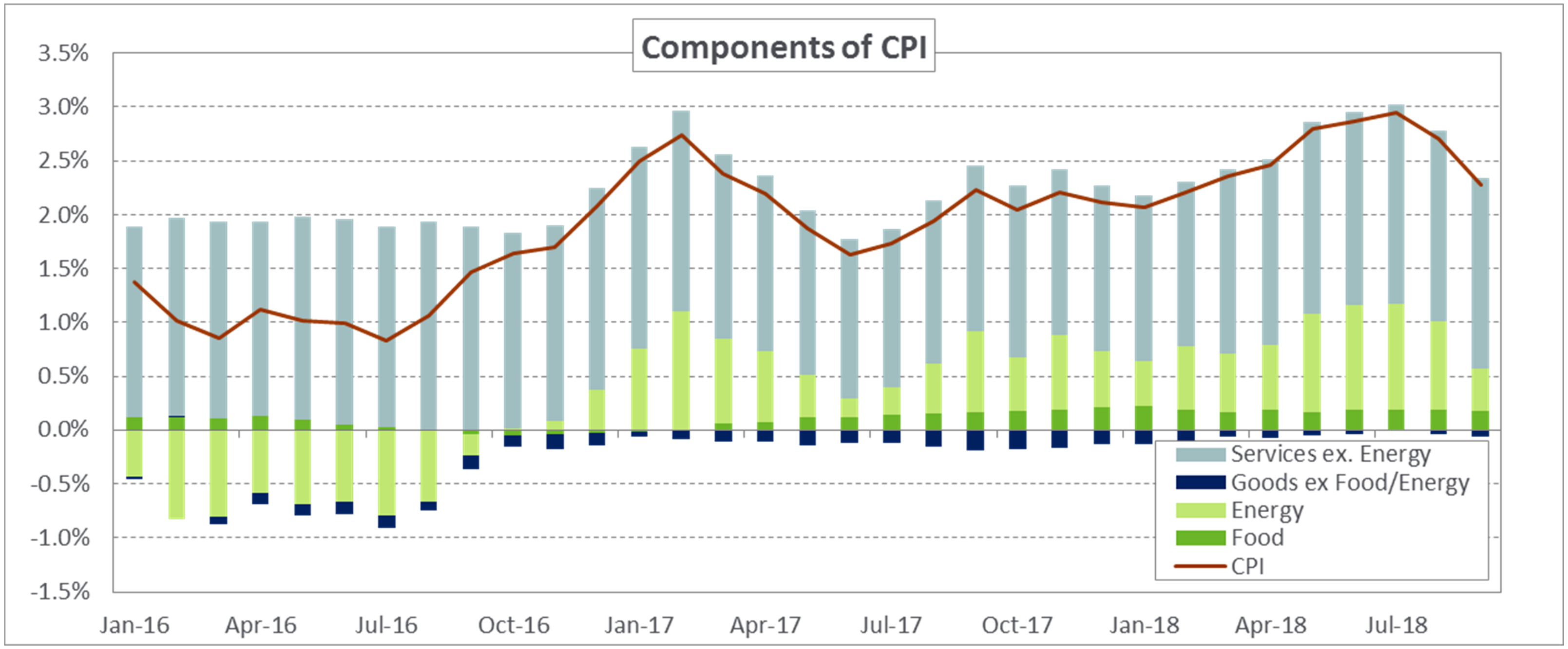
US inflation is based upon the TIPS breakeven inflation curve adjusted for expectations of economic activity, employment, and capacity levels

Global inflation expectations are informed by consensus forecasts across countries along with implied inputs from global bond curves

The 30 year global inflation forecast assumes purchase power parity holds across the globe and country specific inflation levels converge to a terminal value

Region	5-7 Year Inflation Assumption	30-Year Inflation Assumption
United States	2.25%	2.75%
Global	3.00%	3.25%

US INFLATION



Source: Bloomberg, NEPC

US inflation has increased, but has yet to materially accelerate despite strong economic growth and a tight labor market

Underlying inflation has risen with a modest increase in wages due to the tightening labor market but market-based inflation expectations have declined considerably this year

A significant decline in energy prices in the latter half of 2018 has minimized overall price pressures

Energy is historically the most volatile component of CPI and a sustained decline in prices can cause inflation to remain muted

GLOBAL INFLATION

In most developed economies, core inflation has failed to reach or exceed central bank targets

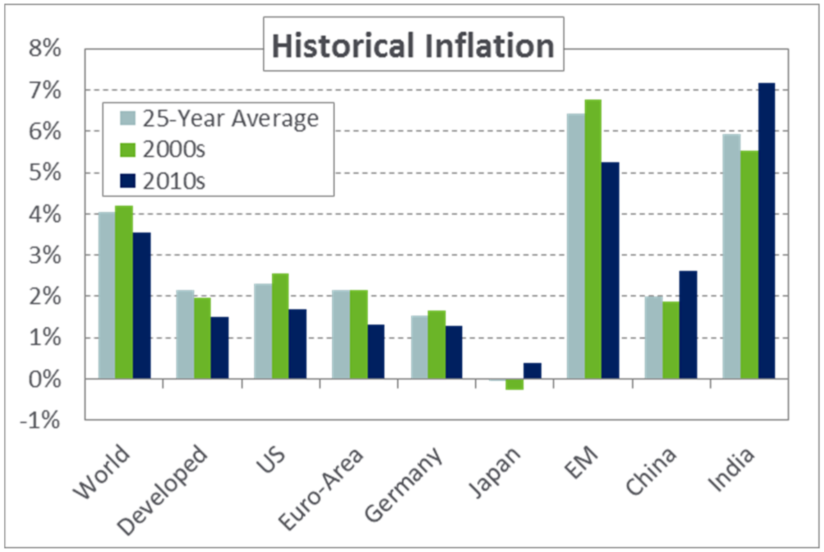
The European Central Bank is expected to end the expansion of its quantitative easing program at the end of the year despite a weakening economic outlook

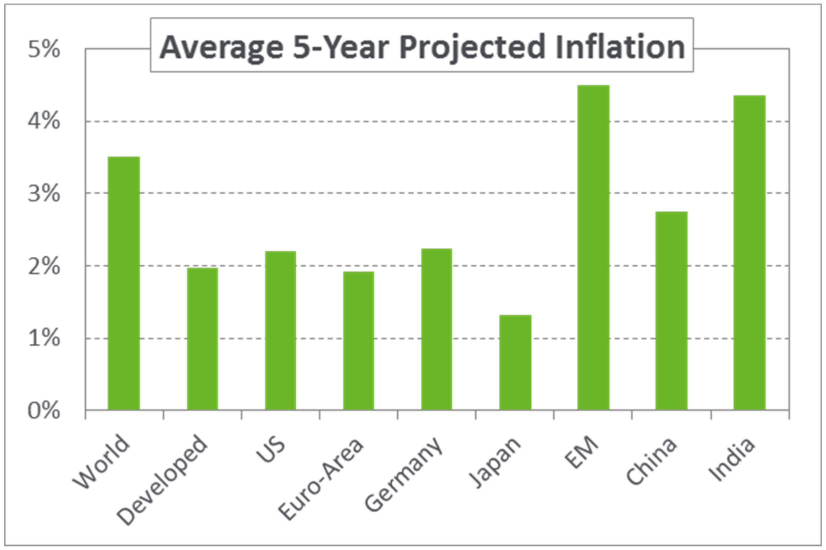
Japan has been the only developed economy to drive inflation above historical levels, although still less than other countries

Emerging market inflation remains significantly lower than long-term averages in most economies

Turkey and Argentina remain notable outliers as idiosyncratic risks and inconsistent monetary policy have fueled rising prices

Lower inflation is likely to give select countries room to ease monetary policy, as needed, to bolster economic growth





Source: (Top) IMF, NEPC
Source: (Bottom) IMF, NEPC

US CASH EXPECTATIONS

Cash is a foundation for all asset classes

The assumption flows through as a direct building block component or as a relative value adjustment (cash + risk premia)

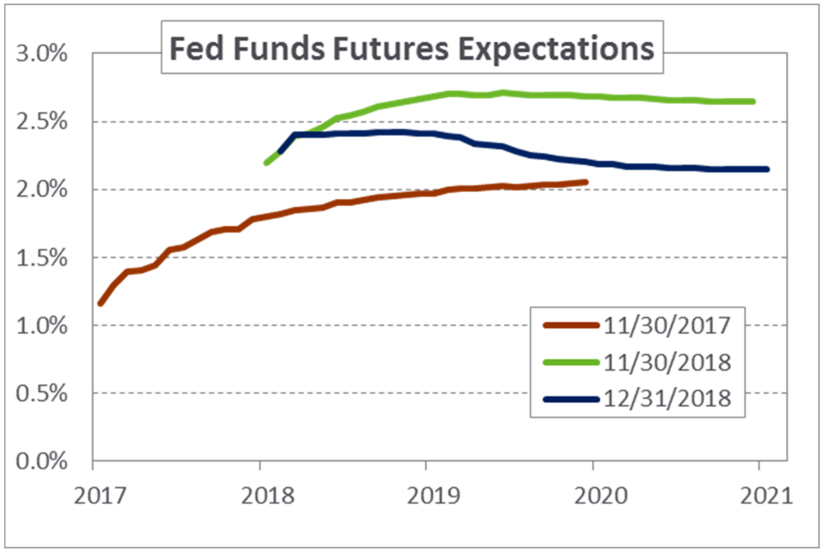
The longer-term cash assumption is a result of the inflation assumption in conjunction with our forecasted real interest rate path

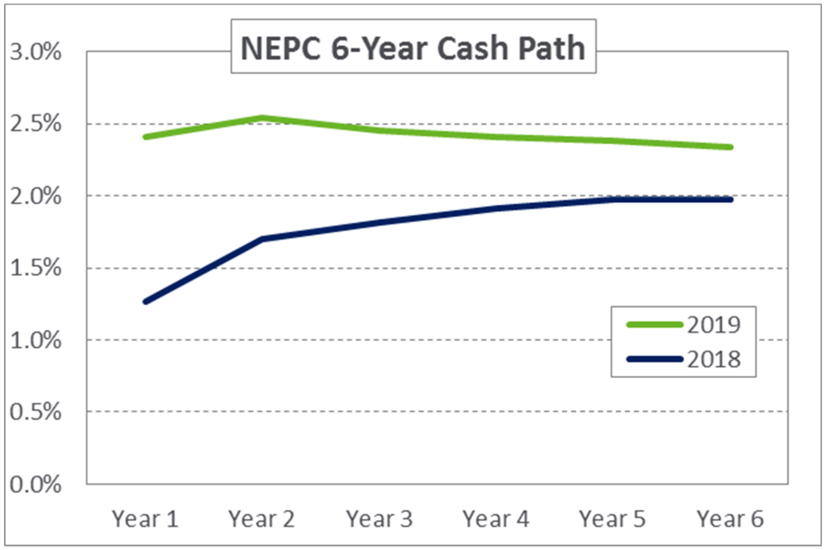
The Fed has shifted from a "lower for longer" policy to a more balanced posture of raising rates relative to changes in inflation

With Fed action impacting the front-end of the yield curve, a progressively flatter yield curve has formed as longer-term rate expectations remain muted

Markets are discounting a more muted pace of rate hikes relative to Fed projections, especially after December markets

Key risks to our overall investment outlook are an increased pace in Fed rate hikes or a Fed misstep disrupting capital markets





Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

US INTEREST RATE EXPECTATIONS

Real yields moved materially higher relative to last year with continued Fed rate hikes and subdued inflation

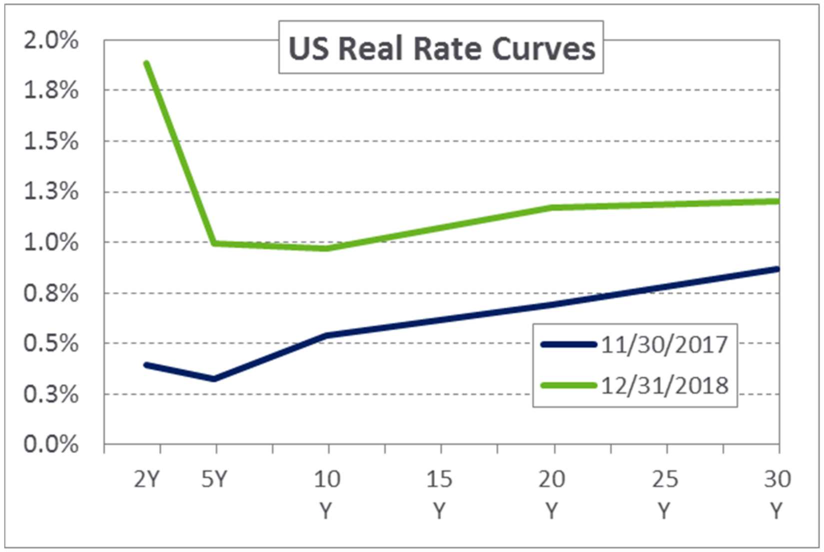
- The real yield curve flattened relative to last year, with an inversion at the 2 year point
- Late-cycle expectations of growth and continued Fed rate hikes increase market forward-looking expectations

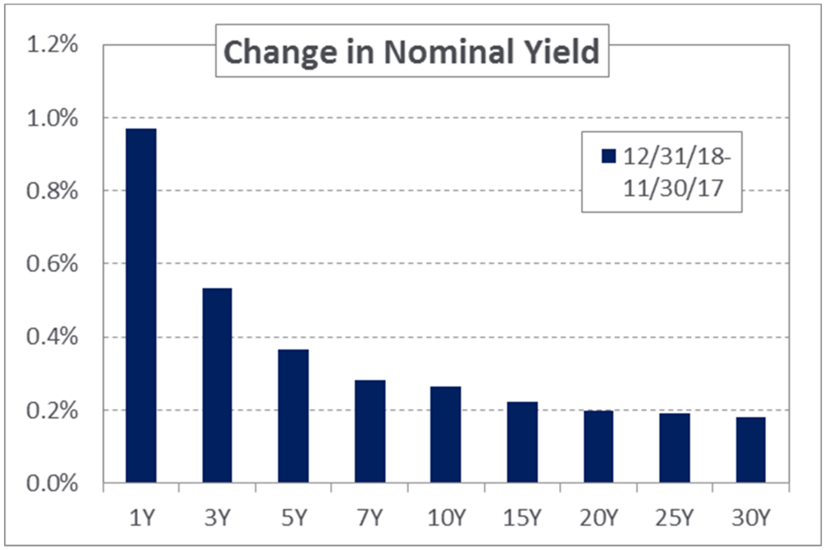
Long-term yields continue to rise but remain low relative to history in the US

- Low real rates depress the return outlook for risk assets over the long-term
- The flatter nominal curve is likely to invert during the late cycle

Uncertainty has surfaced surrounding the path of rates for 2019 and beyond

- The Fed has recently expressed a willingness to slow the pace via a wait-and-see approach should material risks to the US economy develop





Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

GLOBAL INTEREST RATE EXPECTATIONS

Government bond yields remain low across much of the developed world

European sovereign yields have increased relative to Germany due to political and economic concerns

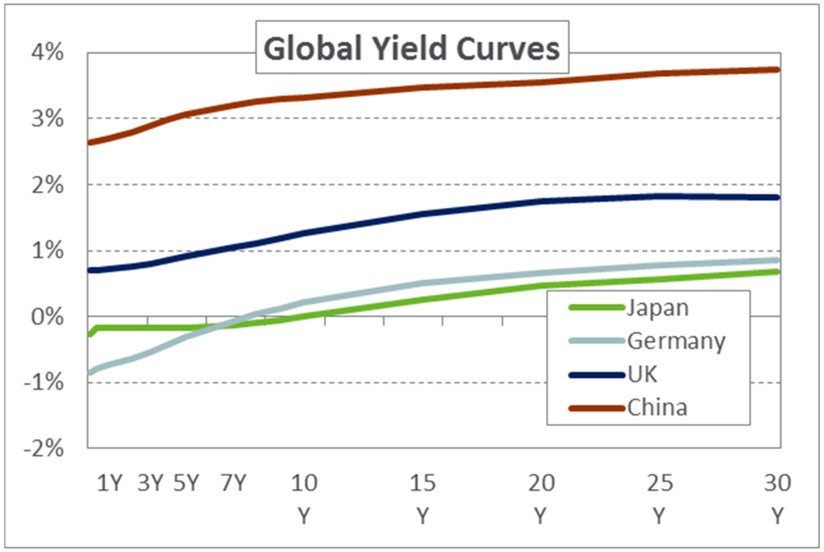
- Ongoing political turmoil in the UK and budget concerns in Italy caused periphery yields to increase during the year

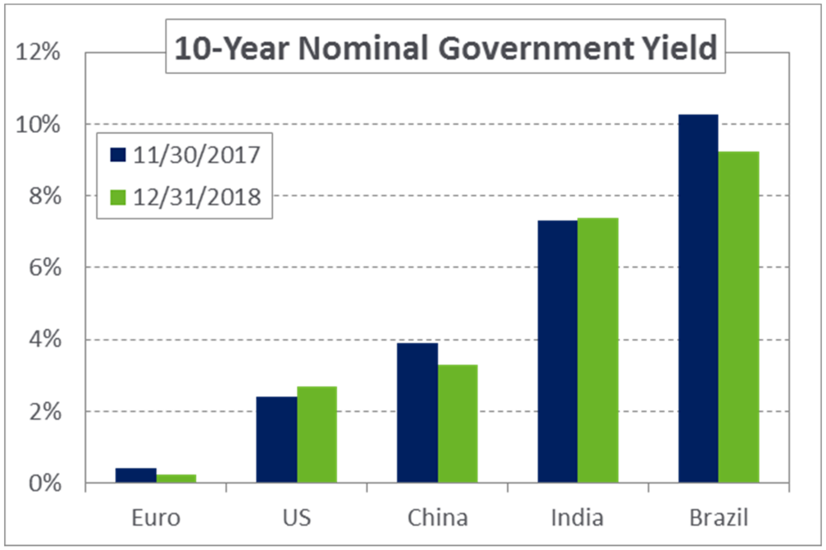
- German bund yields are lower due to heightened demand for safe-haven assets in Europe

Emerging market local interest rates are attractively priced as real yields remain elevated

- Emerging market yields continue to retain a healthy premia over developed world rates

- Additionally, positive real rates provide a larger cushion for EM central banks to cut interest rates and ease monetary conditions





Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

EQUITY ASSUMPTIONS

NEPC, LLC

EQUITY: ASSUMPTIONS

Equity Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	An input representing P/E multiple contraction or expansion relative to long-term trend
Inflation	Represents market-specific inflation derived from index country revenue contribution and region-specific forecasted inflation
Real Earnings Growth	Reflects market-specific real growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Dividend Yield	Informed by current income distributed to shareholders with adjustments made to reflect market conditions and trends

Asset Class	5-7 Year Return	Change 2019-2018
US Large Cap	**6.00%**	**+0.75%**
US Small/Mid-Cap	**6.25%**	**+0.50%**
US Micro Cap	**7.25%**	**N/A**
International (Unhedged)	**6.75%**	**-0.75%**
International Small Cap	**7.25%**	**-0.50%**
Emerging International	**9.25%**	**+0.25%**
Emerging Intl. Small Cap	**9.50%**	**+0.25%**
China Local	**9.50%**	**N/A**
Hedge Funds – Long/Short	**5.50%**	**-0.75%**
Global Equity	***6.99%***	***+0.11%***
Private Equity	***10.01%***	***+2.01%***

EQUITY: REAL EARNINGS GROWTH

US growth accelerated relative to the rest of the world during 2018

Strong earnings growth fueled by corporate tax cuts helped support US equities

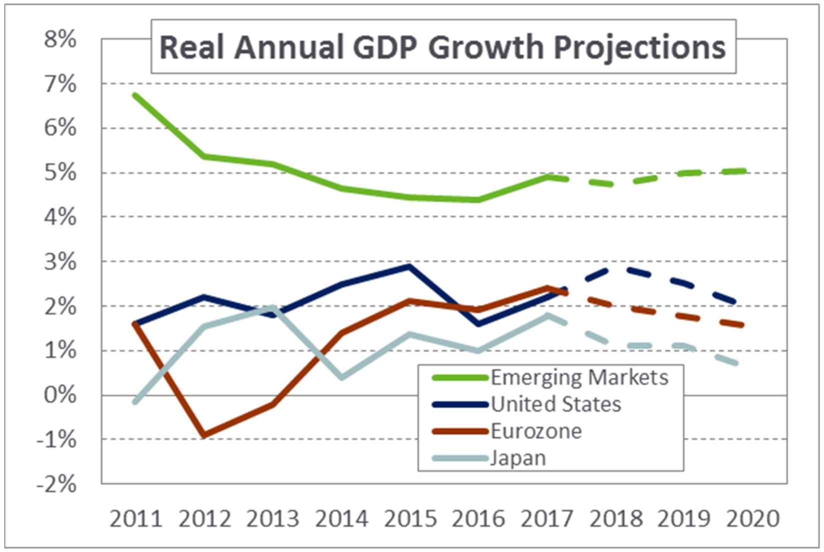
Additionally, fiscal stimulus and pre-purchases from China for tariffed goods fueled above-trend GDP growth

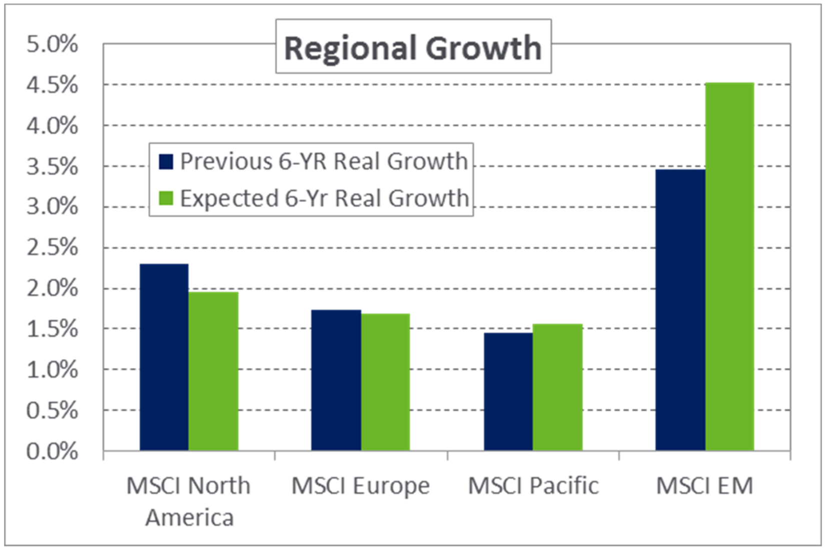
Global trade tensions and political-economic concerns regarding Europe have led to a weaker growth outlook for international developed economies

Strong economic growth is expected to continue in the emerging markets

However, China's real growth is expected to slow in future years as the country transitions to a consumption based model

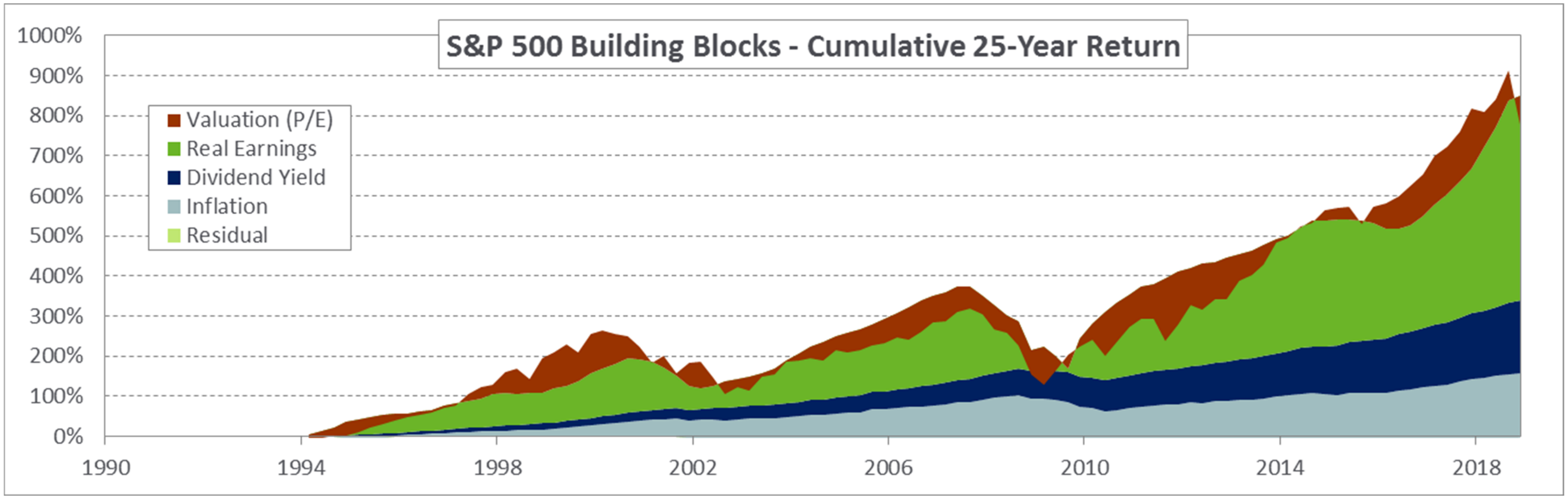
Ongoing reforms in southeast Asia and India are expected to boost investment, productivity, and per-capita growth





Source: (Top) Bloomberg, NEPC
Source: (Bottom) IMF, MSCI, Bloomberg, NEPC

EQUITY: DIVIDEND YIELD

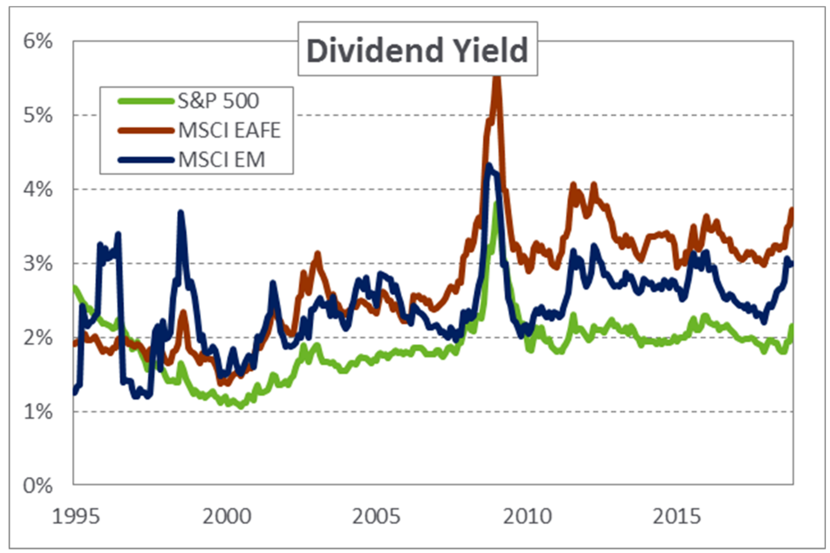


Global dividend payouts hit record levels this year

Much of the growth came from emerging markets following years of declining dividend yields

Corporate tax cuts in the US helped increase dividend payout rates

International and emerging markets continue to offer higher dividend yields relative to the US equity market



Source: (Top) S&P, Bloomberg, NEPC
Source: (Bottom) S&P, MSCI, Bloomberg, NEPC

EQUITY: VALUATION

US equities were an outlier relative to global equities this year

US equities benefited from an extended US economic cycle and added fuel from the fiscal stimulus package

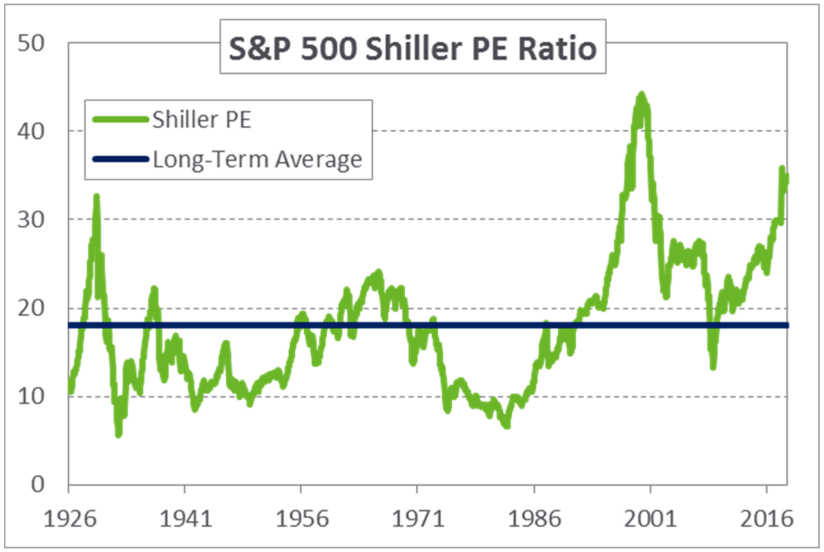
Strong earnings growth fueled by corporate tax cuts pushed valuations lower for large-cap US equities

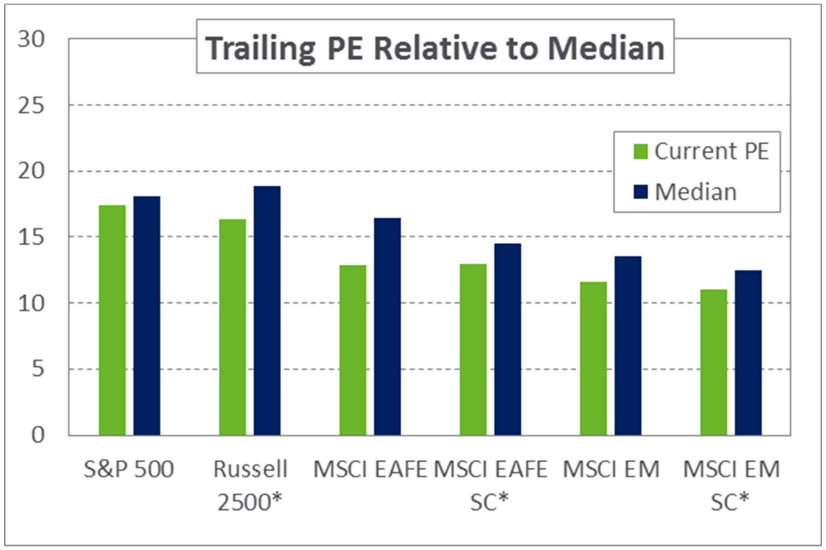
Increased volatility in December resulting from fears of a global slowdown erased gains made throughout the year

International and emerging market valuations fell despite strong earnings growth as price declines were fueled by negative sentiment and US-China trade tensions

We anticipate the negative sentiment and macro concerns weighing on emerging markets to moderate

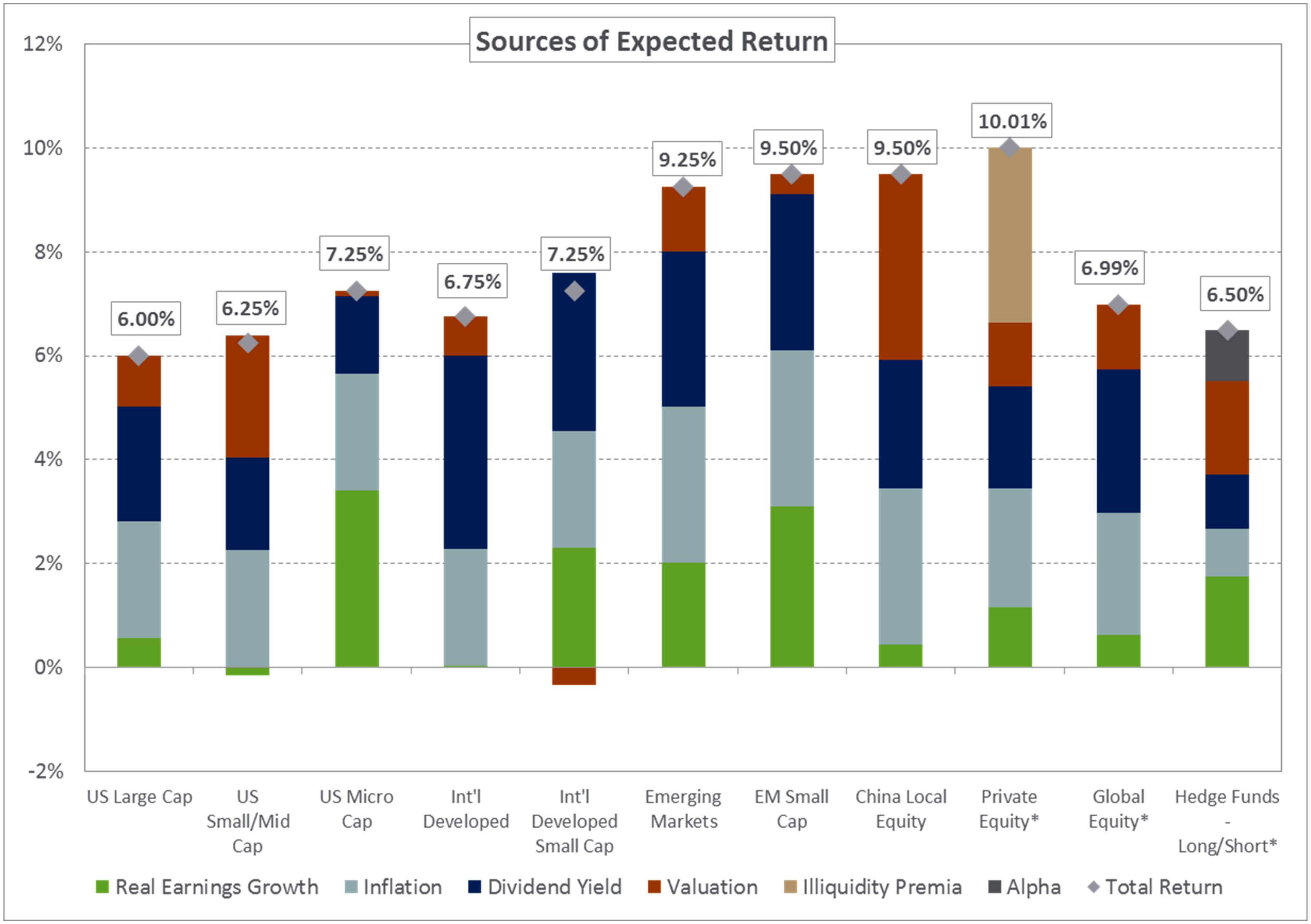
Attractive equity and currency valuations support an overweight to emerging markets due to the high total-return potential





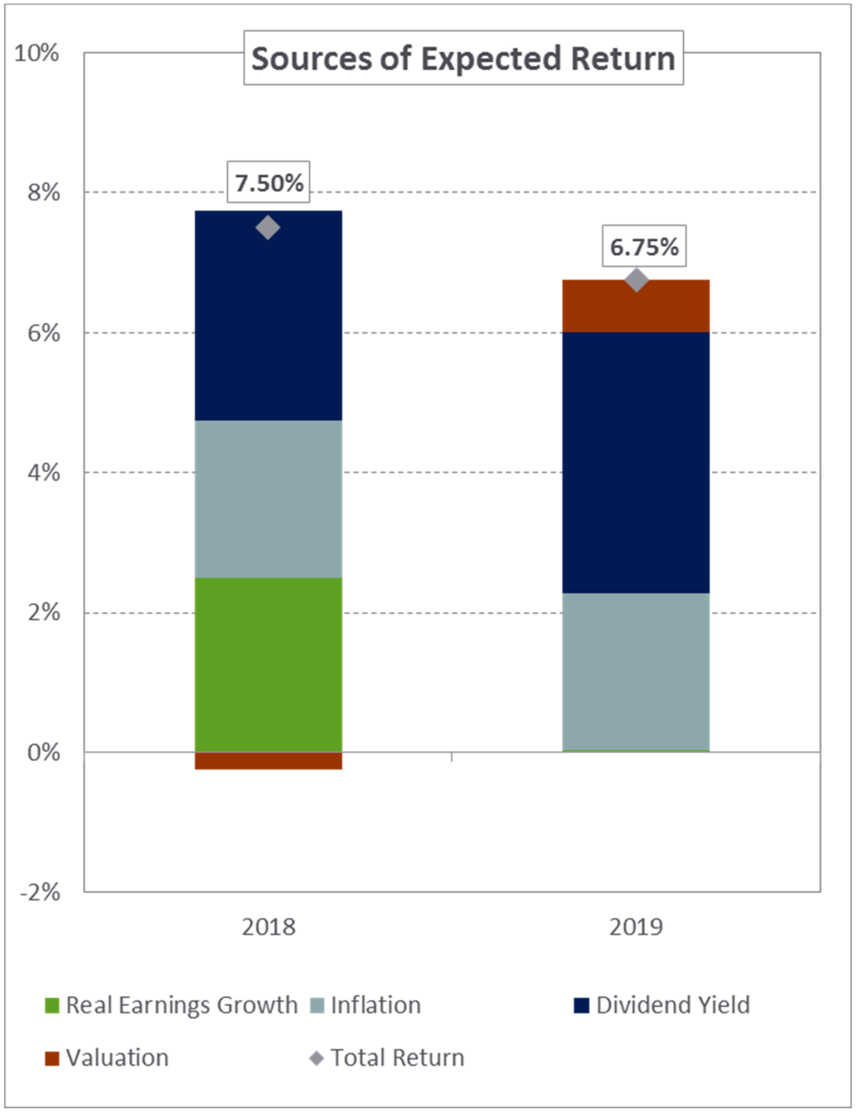
Source: (Top) S&P, Shiller, NEPC; long-term average beginning in 1926
Source: (Bottom) S&P, Russell, MSCI, Bloomberg, NEPC
**Small cap indices use index positive-adjusted earnings*

EQUITY: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC
*Calculated as a blend of other classes – see page 39 for additional details

EQUITY FOCUS: INTERNATIONAL EQUITY



Source: NEPC

2019 building blocks incorporate a weakening growth outlook for Europe and a downward adjustment to profit margins

Our thesis of improving fundamentals has come to fruition, but negative sentiment continues to weigh on valuations

- Globalization backlash, slowing growth, trade policy, and a constrained central bank have negatively impacted Europe
- This has been reflected in no P/E expansion, even though the equity risk premia warrants a higher multiple
- As a result, the bifurcation between Europe and Japan has become more pronounced as Japan remains an attractive opportunity

On a pure valuation basis, EAFE could still offer attractive returns should these underlying issues resolve, but we now believe that to be less likely

- We encourage investors to reduce any overweight to non-US developed equities

RATES & CREDIT ASSUMPTIONS

RATES & CREDIT: ASSUMPTIONS

Rate & Credit Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Government Rates Price Change	The valuation change resulting from a change in the current yield curve to forecasted rates
Spread Price Change	The valuation change resulting from a change in credit spreads over the duration of the investment and highly sensitive to economic cycles
Credit Deterioration	The average loss for credit securities associated with an expected default cycle and recovery rates
Credit Spread	Additional yield premium provided by securities with credit risk
Government Rates	The yield attributed to sovereign bonds that do not have credit risk associated with their valuation

Asset Class	5-7 Year Return	Change 2019-2018
TIPS	**3.00%**	**-0.25%**
Treasuries	**2.50%**	**+0.25%**
Investment-Grade Corporate Credit	**4.00%**	**+0.50%**
MBS	**2.75%**	**+0.25%**
High-Yield Bonds	**5.25%**	**+1.50%**
Bank Loans	**5.00%**	**+1.00%**
EMD (External)	**4.75%**	**+0.50%**
EMD (Local Currency)	**6.50%**	**+0.50%**
Non-US Bonds (Unhedged)	**0.75%**	**+0.25%**
Municipal Bonds (1-10 Year)	**3.00%**	**+0.50%**
High-Yield Municipal Bonds	**3.00%**	**-0.75%**
Hedge Funds – Credit	**5.50%**	**+0.50%**
Core Bonds	***3.04%***	***+0.29%***
Private Debt	***7.60%***	***+1.10%***

RATES & CREDIT: CREDIT SPREAD

Credit spreads rose across investment and speculative grade debt relative to 2018's below average spread levels

The later stages of an economic cycle often see an increase in credit spreads as the probability of defaults trend upward

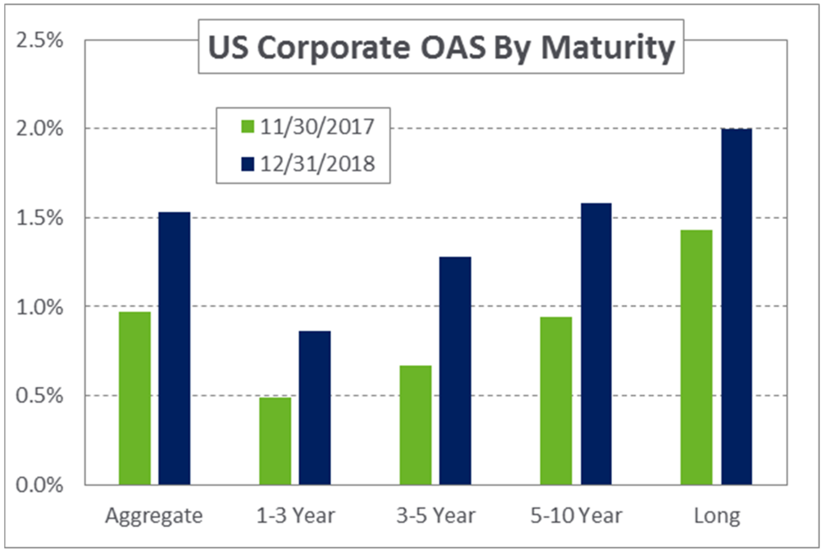
Lower-quality credit spreads increased most significantly during the year, partially due to the fall in the price of oil

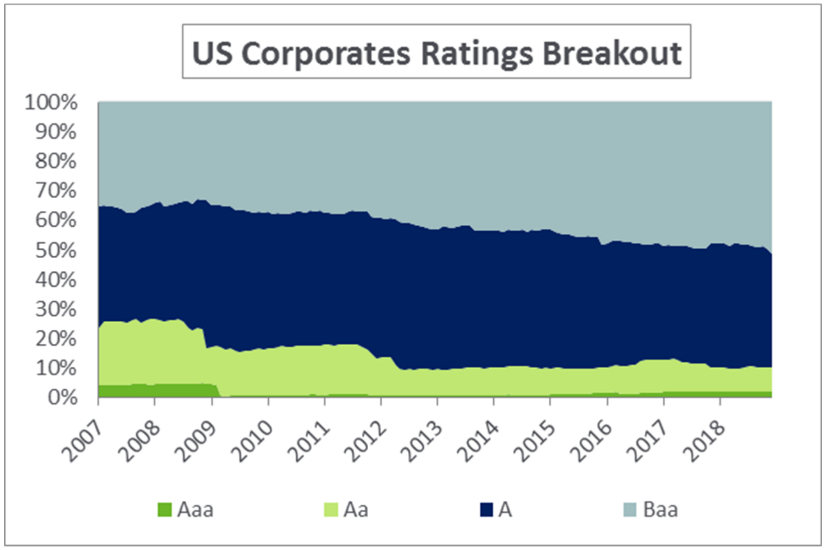
Higher credit spreads partially reflect the risk in investment grade credit

There are a record number of BBB-rated corporates – suggesting a greater risk of fallen angel downgrades

Corporate debt issuance has expanded rapidly in recent years with the majority of new debt rated BBB

As such, we advocate for a reduction in lower-quality credit that does not provide adequate compensation for the associated risk





Source: (Top) Barclays, Bloomberg, NEPC
Source: (Bottom) Barclays, Bloomberg, NEPC

RATES & CREDIT: RATES PRICE CHANGE

Government Rates Price Change: The change in the level of interest rates, shape of the curve, and roll down that impact the price of a bond

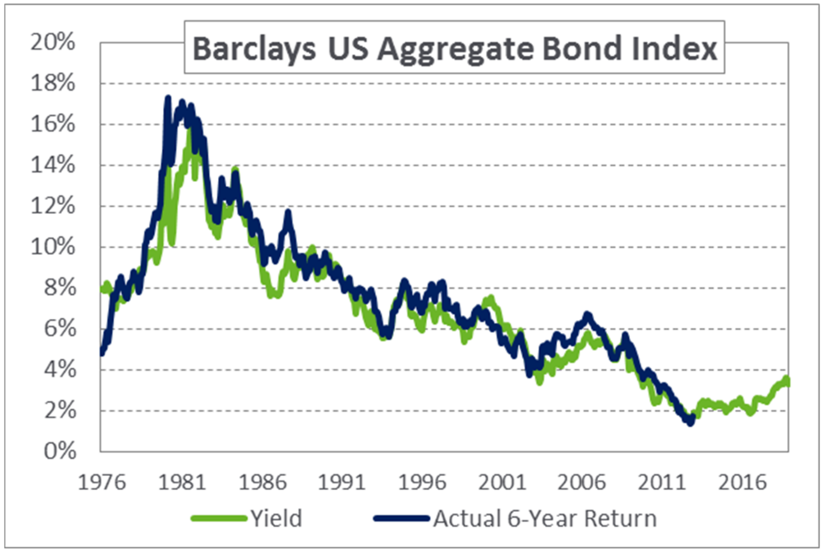
- Roll down refers to the price change due to the aging of a bond along the yield curve

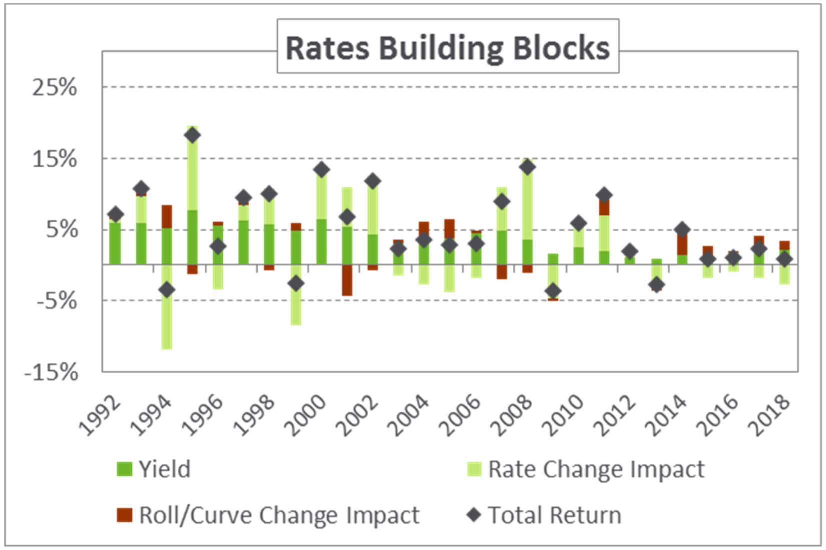
The rate price change is a significant component of total return and expectations of higher rates can drag on future year returns

- The path of interest rates for each market is tied to both central bank actions and inflation expectations

Roll down offers some relief to rising rates when yield curves are steep

- As the yield curve flattens the benefit of the roll down is muted, often pushing investors to shorter duration bonds





Source: (Top) Barclays, Bloomberg, NEPC
Source: (Bottom) Barclays, Bloomberg, NEPC

RATES & CREDIT: SPREAD PRICE CHANGE

Credit spreads broadly remain near historic medians

- Above-average credit spreads are generally associated with a late-cycle environment as credit default risks increase

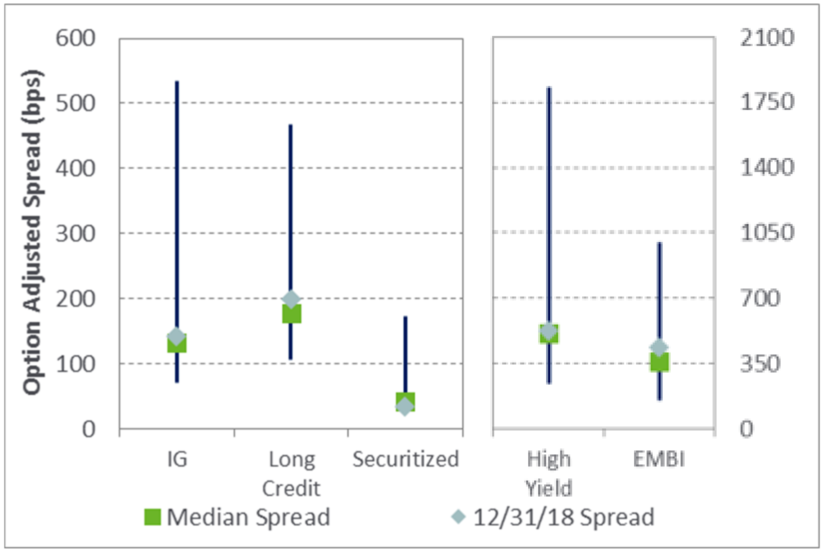
- Despite the spread increase relative to 2018, we do not believe lower-quality credit exposure compensates investors for the risk relative to safer alternatives

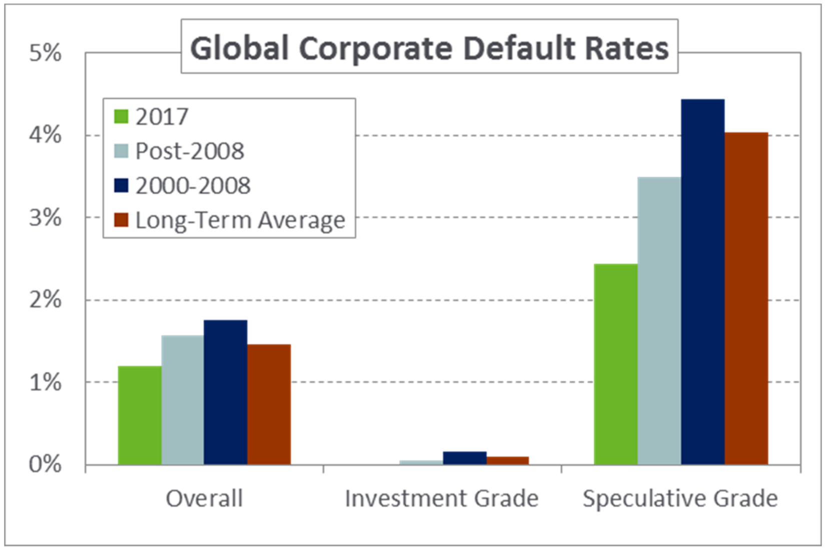
The number of defaults decreased last year to a three-year low despite residual stress from the energy sector and an uptick in retail defaults

Higher expected default rates were incorporated in our building blocks

- This can be attributed to the increase in lower-quality (BBB) credit as a percentage of the investment grade universe

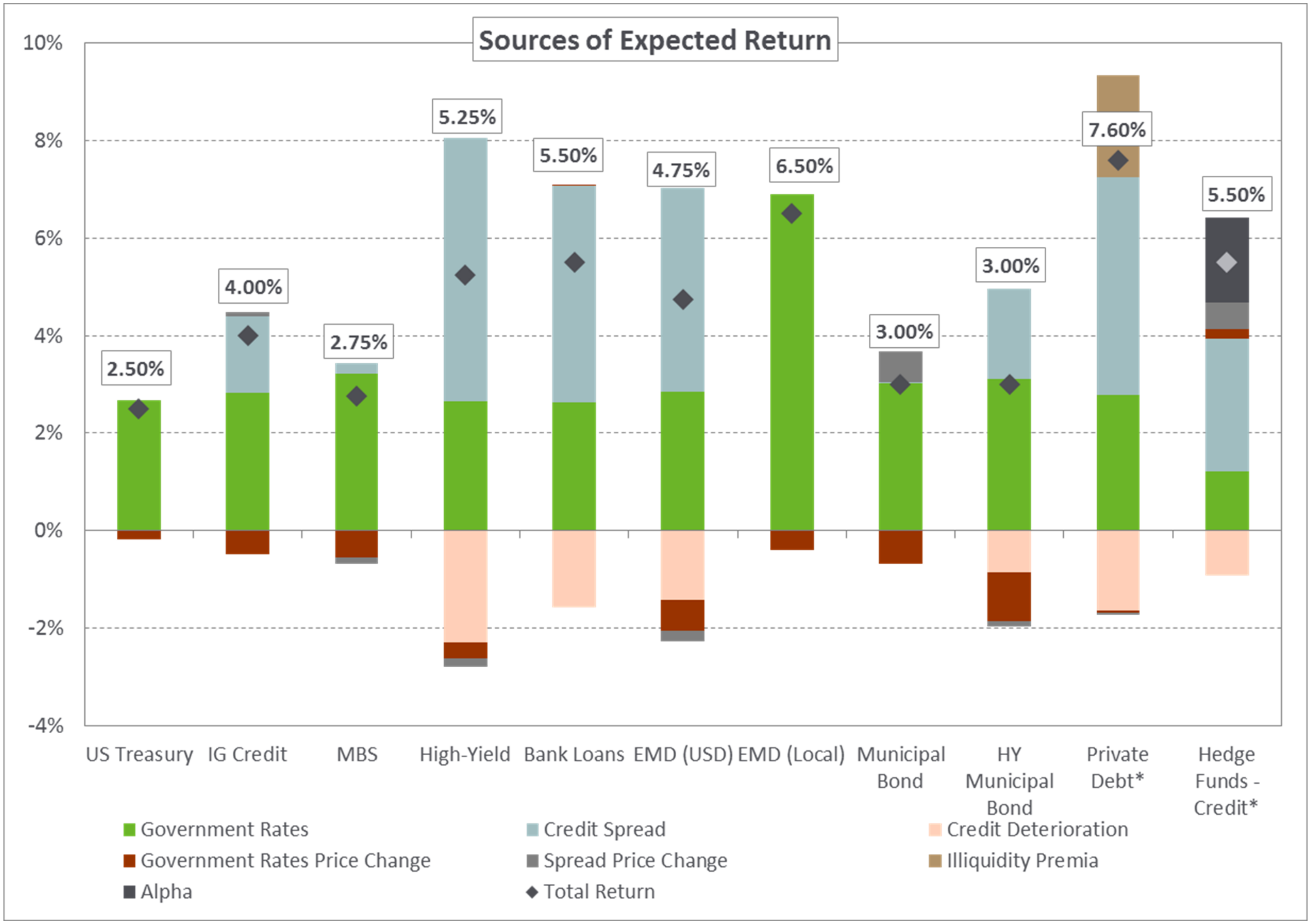
- This is also a reflection of the late cycle environment and the stress generally seen within the high yield market during these periods





Source: (Top) JPM, Bloomberg, NEPC. As of 01/31/2000
Source: (Bottom) S&P, NEPC

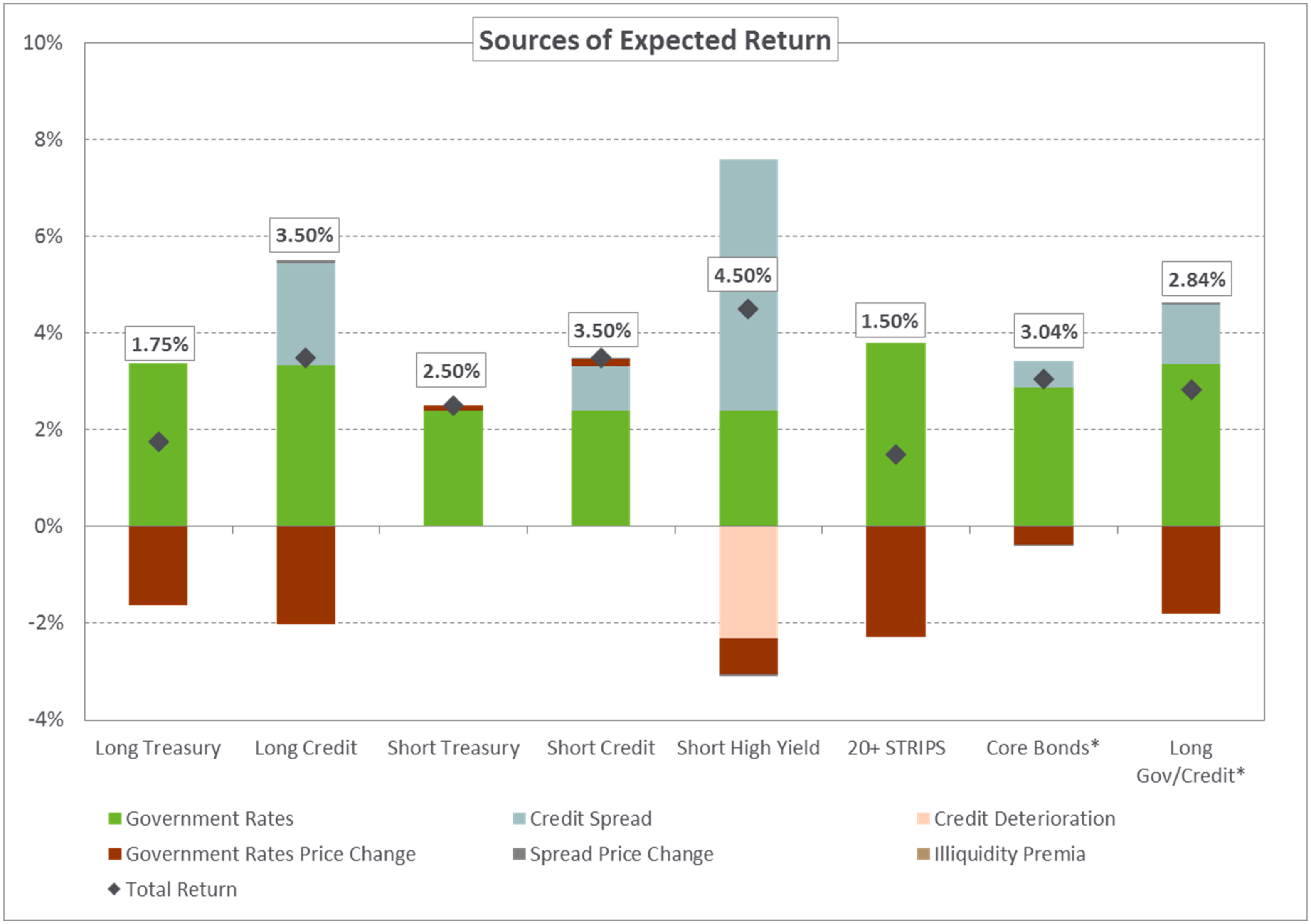
CREDIT: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC

**Calculated as a blend of other classes – see page 39 for additional details*

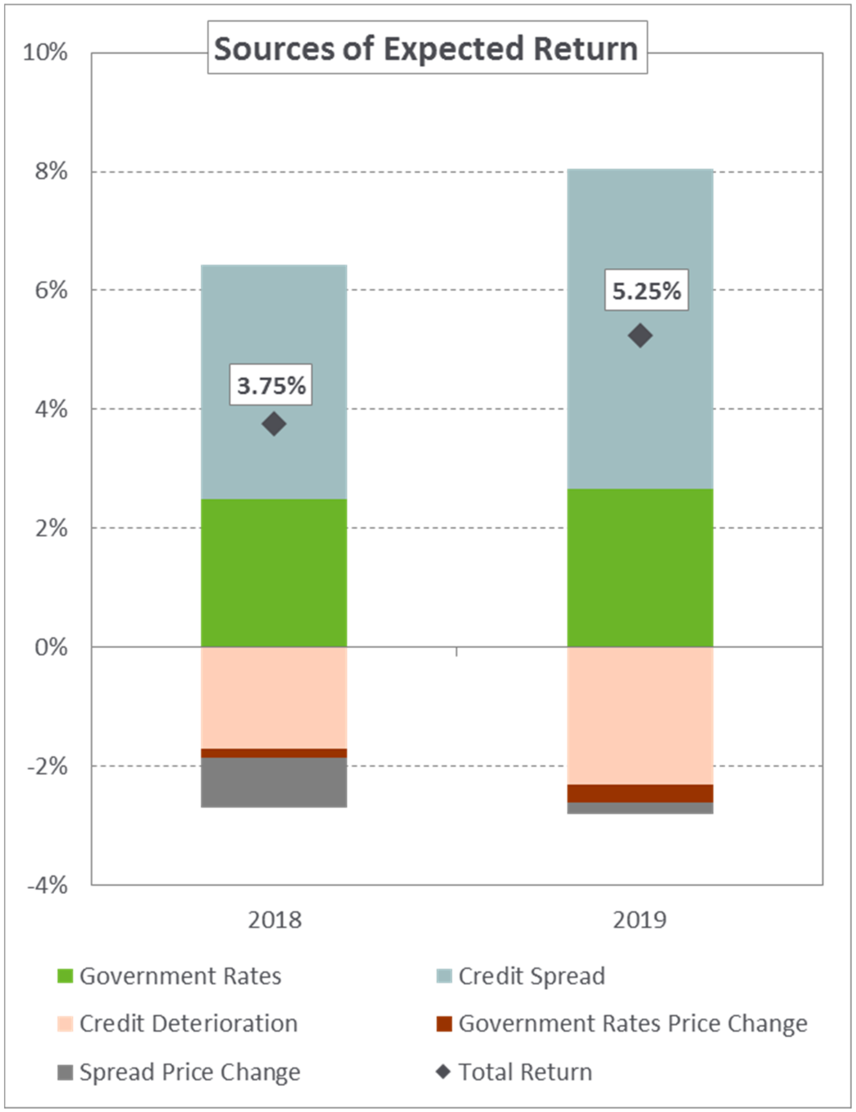
CREDIT: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC

**Calculated as a blend of other classes – see page 39 for additional details*

CREDIT FOCUS: US HIGH YIELD



Source: NEPC

2019 building blocks reflect higher interest rates, credit spreads, and default rates relative to last year

Higher default rates were incorporated to account for the late cycle

While the return assumption increased significantly, we are not constructive on lower-quality credit

Despite higher interest rates, with credit spreads near medians we encourage moving away from lower quality credit to safe-haven options

Lower-rated credit exposure is not adequately compensating for the added risk relative to safer alternative

We encourage reducing exposure to credit segments that have performed well over a prolonged period, such as high yield and bank loans

REAL ASSETS ASSUMPTIONS

NEPC, LLC

REAL ASSETS: ASSUMPTIONS

Real Assets Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	The expected change in price of the underlying asset reverting to a long-term real average or terminal value assumption
Inflation	Incorporates the inflation paths as defined by TIPS breakeven expectations and NEPC expected inflation assumptions
Real Earnings Growth	Reflects market-specific real growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Real Income	Represents the inflation-adjusted income produced by the underlying tangible or physical asset

Asset Class	5-7 Year Return	Change 2019-2018
Commodities	4.25%	-0.50%
Midstream Energy	8.25%	+1.00%
REITs	6.75%	+0.25%
Core Real Estate	6.00%	+0.25%
Non-Core Real Estate	7.00%	-
Private RE Debt	5.75%	N/A
Private Real Assets: Energy/Metals	9.50%	+1.50%
Private Real Assets: Infrastructure/Land	6.25%	+0.25%

REAL ASSETS: REAL INCOME

Equity-like real assets: Real income represents the inflation-adjusted dividend yield

Includes midstream energy, REITS, natural resource and global infrastructure equities

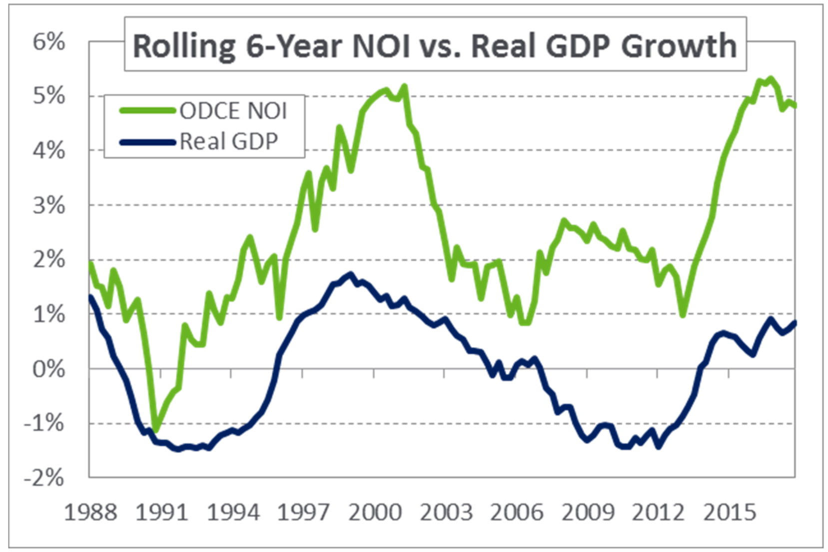
Midstream energy continues to offer an attractive yield relative to most other risk assets despite the downward trend in yields resulting from MLP industry simplification

Real Estate: Real income is a function of Net Operating Income (NOI)

NOI growth exhibits a cyclical economic pattern and appears to have peaked

Commodities: Real income is represented by collateral return

A cash proxy is used to represent the collateral and as such, it represents the return on cash over the investment horizon



Real Asset Yields	11/30/17	12/31/18
Midstream Energy	8.1%*	6.8%
Core Real Estate	4.7%	4.6%
US REITs	4.3%	4.8%
Global REITs	3.4%	3.9%
Global Infrastructure Equities	3.9%	4.4%
Natural Resource Equities	3.2%	4.1%
US 10-Yr Breakeven Inflation	1.9%	1.7%
Commodity Index Roll Yield	-1.4%	-6.1%

Source: (Top) Alerian, NAREIT, NCREIF, Bloomberg, NEPC;
**Represents Alerian MLP Index Dividend Yield*
Source: (Bottom) NCREIF, Alerian, NAREIT, S&P, Bloomberg, NEPC

REAL ASSETS: VALUATION

Commodity valuations are measured relative to the long-term real average of spot prices

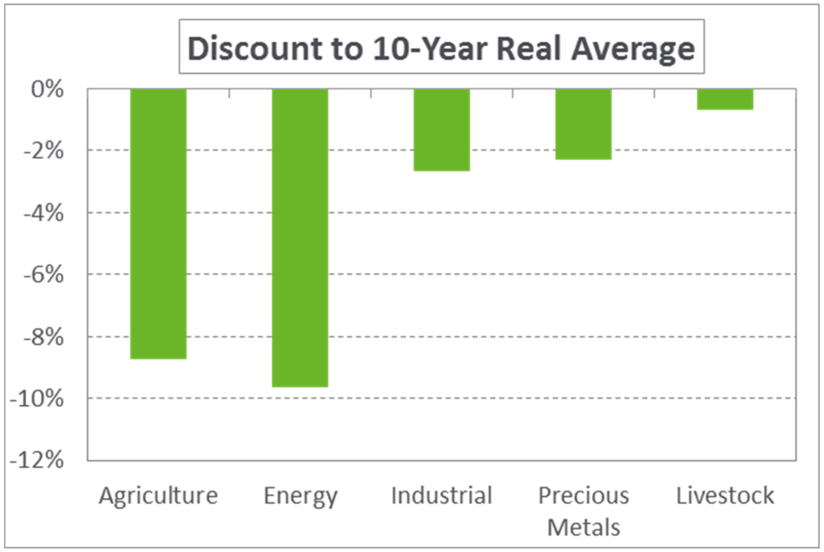
Commodity prices continue to trade below their long-term real averages, particularly in the energy and agriculture sectors

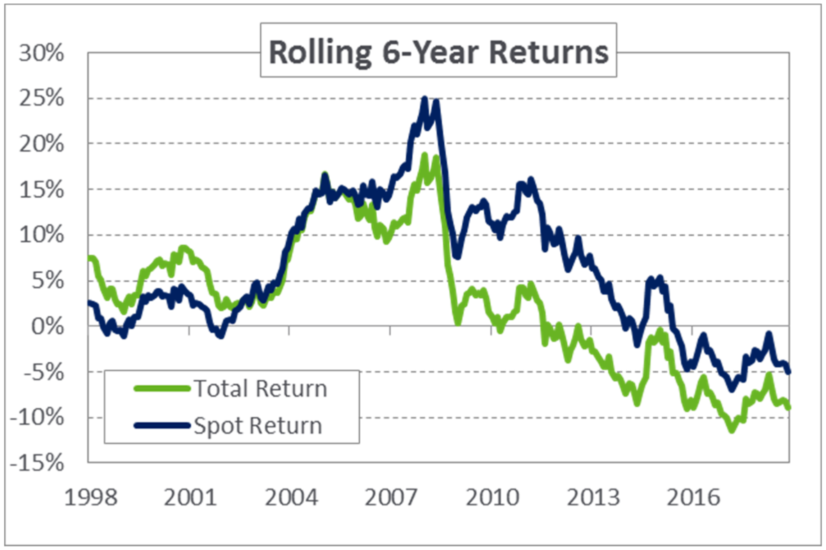
Roll yield continues to be a hurdle for investing in commodity futures

Post-2008, spot returns have had consistently higher returns than total return indices – demonstrating the impact of negative roll yield on overall investments

In the latter half of 2018, crude oil declined significantly from a glut of global supply

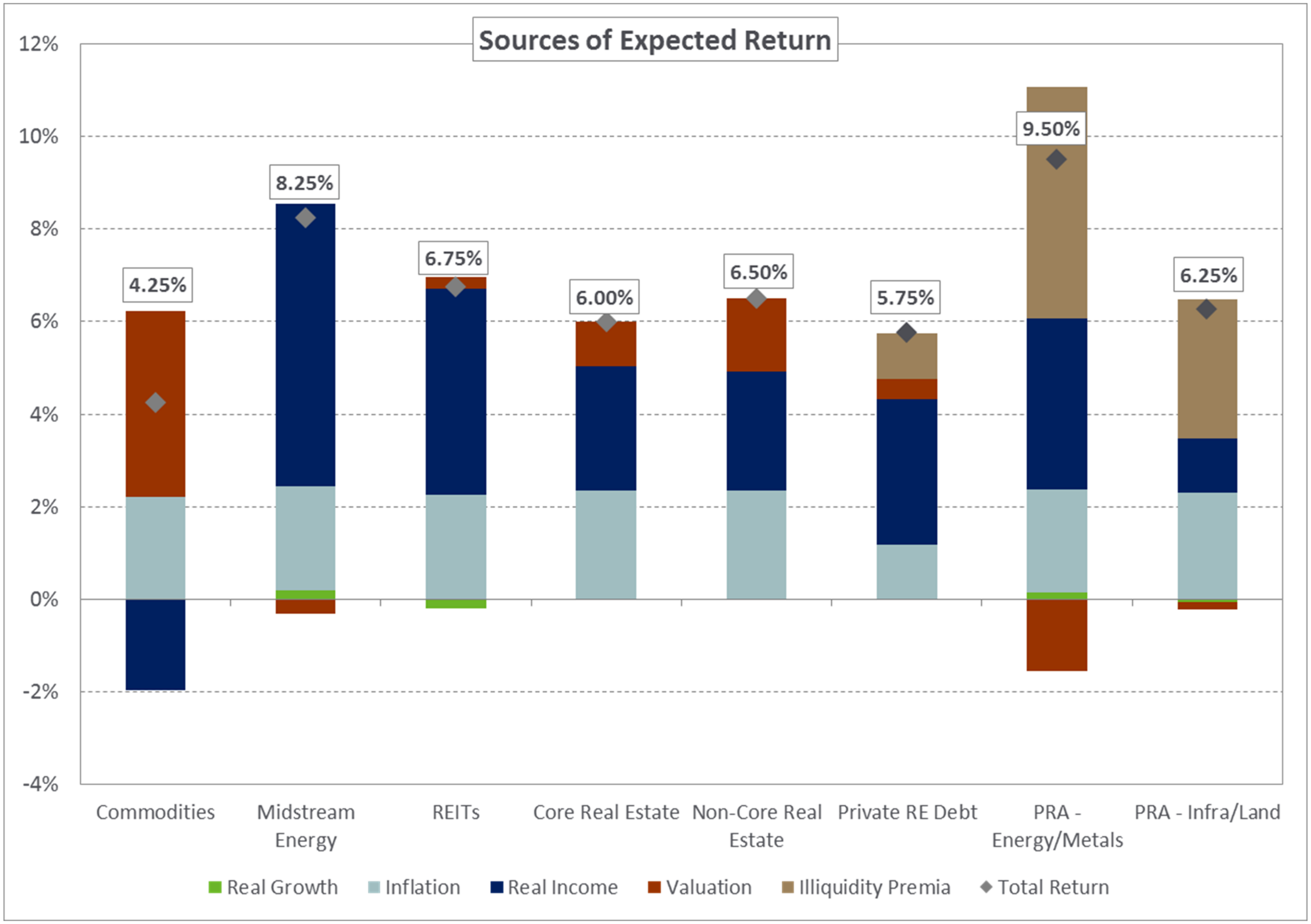
Natural gas represents the largest component of the Bloomberg Commodity index – the significant increase in natural gas prices during 2018 distorted the index roll yield relative to last year





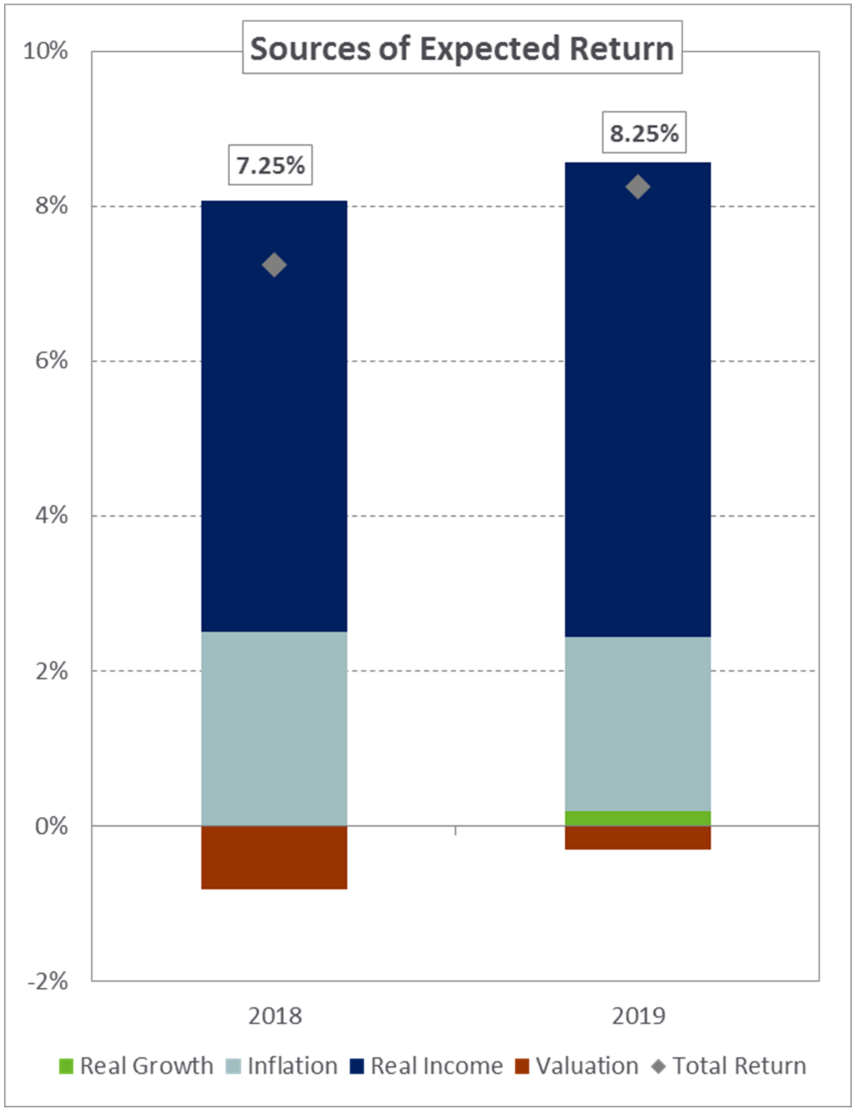
Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC

REAL ASSETS: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC

REAL ASSETS FOCUS: MIDSTREAM ENERGY



Source: NEPC

The assumption was constructed using the Alerian Midstream Energy Index as a reference, rather than the Alerian MLP Index, which was used in prior years

Shifting away from an exclusive MLP assumption reflects the full opportunity set for the midstream space as industry consolidation has reduced the number of MLPs relative to C-corporations

The Alerian MLP Index is now reflects a higher percentage of lower quality, higher yielding companies that have yet to simplify their operating structures

Distribution yields are likely to decline over time as MLPs transition to a corporate structure, but we believe midstream energy continues to offer a compelling total return

DERIVED COMPOSITES

NEPC, LLC

DERIVED COMPOSITES

Derived composites are the result of the sum of equity, credit, and real asset building blocks

Global 60/40: 60% global equity and 40% global bonds

US 60/40: 60% US equity and 40% core bonds

Risk Parity: Average of AQR GRP EL 10%, Bridgewater All Weather, Panagora Multi-Asset

Global Equity: Market-weighted blend of MSCI ACWI IMI (US, Non-US Developed, Emerging)

Private Equity: 34% US Buyout, 34% US Growth, 8.5% US Secondary, 8.5% US Venture, 15% Non-US PE

Core Bonds: Market weighted blend of Bloomberg Barclays US Aggregate Bond Index (Treasuries, IG Credit, MBS)

Private Debt: 50% Direct Lending, 25% Mezzanine, 25% Distressed

Real Assets (Liquid): Weighted blend of TIPS, global equities, REITs, and commodities

Hedge Funds: Weighted blend of 40% HF equity, 40% HF credit, and 20% HF macro

Asset Class	5-7 Year Return	Change 2019-2018
Global 60/40	5.08%	**+0.17%**
US 60/40	5.07%	**+0.53%**
Risk Parity	4.67%	**-0.44%**
Global Asset Allocation	5.73%	**+0.29%**
Global Equity	*6.99%*	***+0.11%***
Private Equity	10.01%	**+2.01%**
Core Bonds	*3.04%*	***+0.29%***
Private Debt	7.60%	**+1.10%**
Real Assets (Liquid)	5.79%	***-0.08%***
Hedge Funds	*5.74%*	***-0.09%***

PRIVATE MARKETS METHODOLOGY

In previous years, private equity and private debt assumptions were constructed using betas to public market assumptions with an added illiquidity premia

For 2019, sub-strategies were incorporated to offer a distinction among private market implementation options with different risk/return profiles

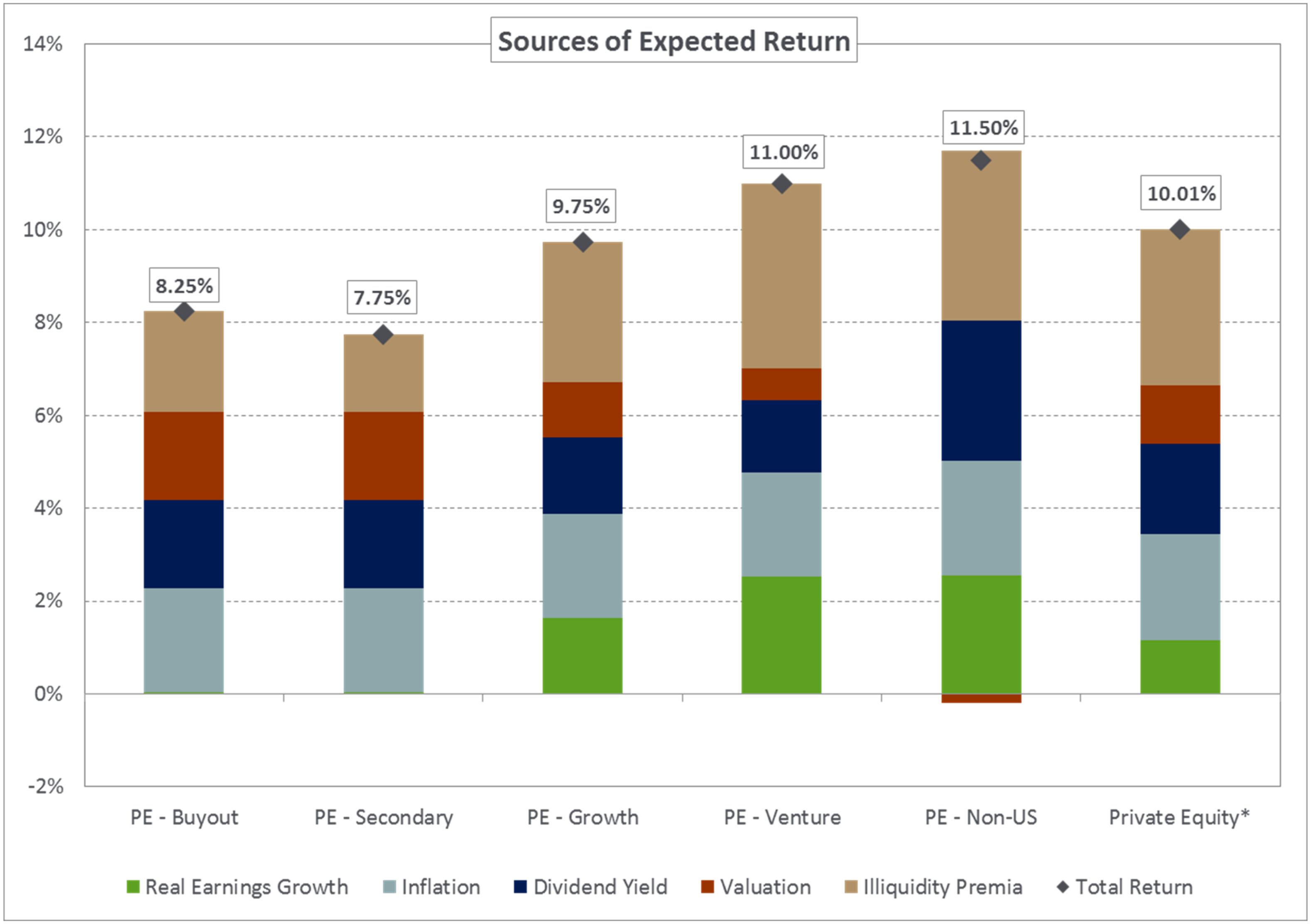
- The sub-strategies were constructed using the same build-up methodology using public market betas and an illiquidity premia based on historical returns analysis relative to appropriate public market equivalents

The composite Private Equity and Private Debt line items are derived from a custom blend of sub-strategies

- Private Equity: 34% Buyout, 34% Growth, 15 % Non-US, 8.5% Secondaries, 8.5% Venture
- Private Debt: 50% Direct Lending, 25% Mezzanine, 25% Distressed

The methodology change generally resulted in a higher return expectations from incorporating the granularity of the sub-strategies and including a non-US component

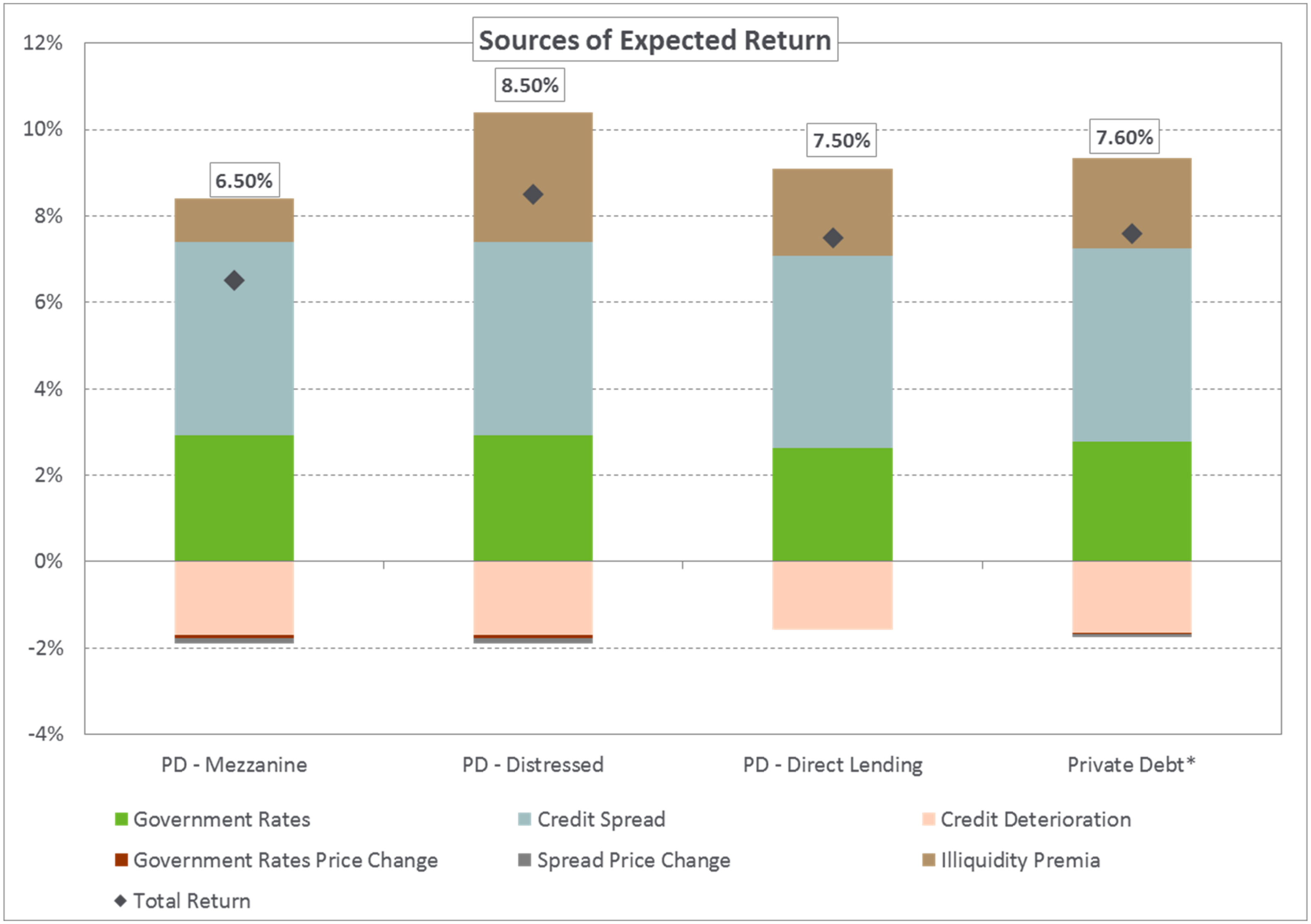
PRIVATE EQUITY: BUILDING BLOCKS (5-7 YEARS)



Source: NEPC

**Private Equity is a derived composite of 34% US Buyout, 34% US Growth, 8.5% US Secondary, 8.5% US Venture, 15% Non-US PE*

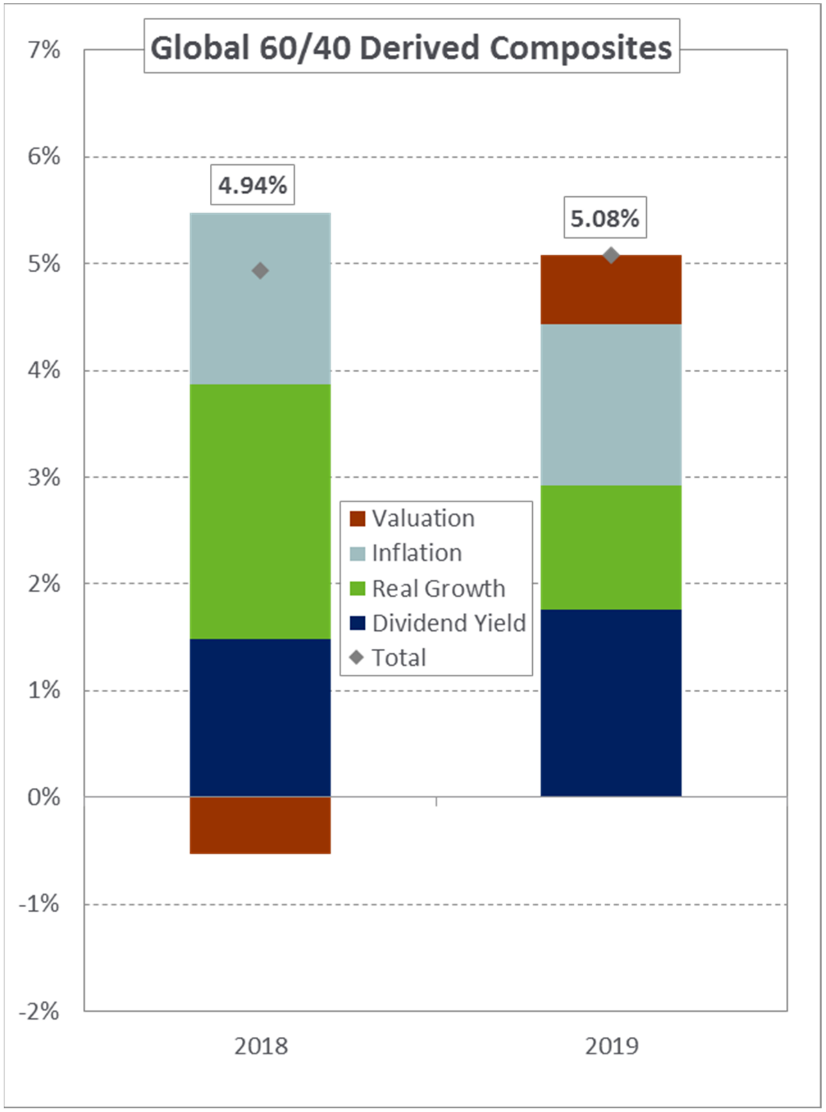
PRIVATE DEBT: BUILDING BLOCKS (5-7 YEARS)



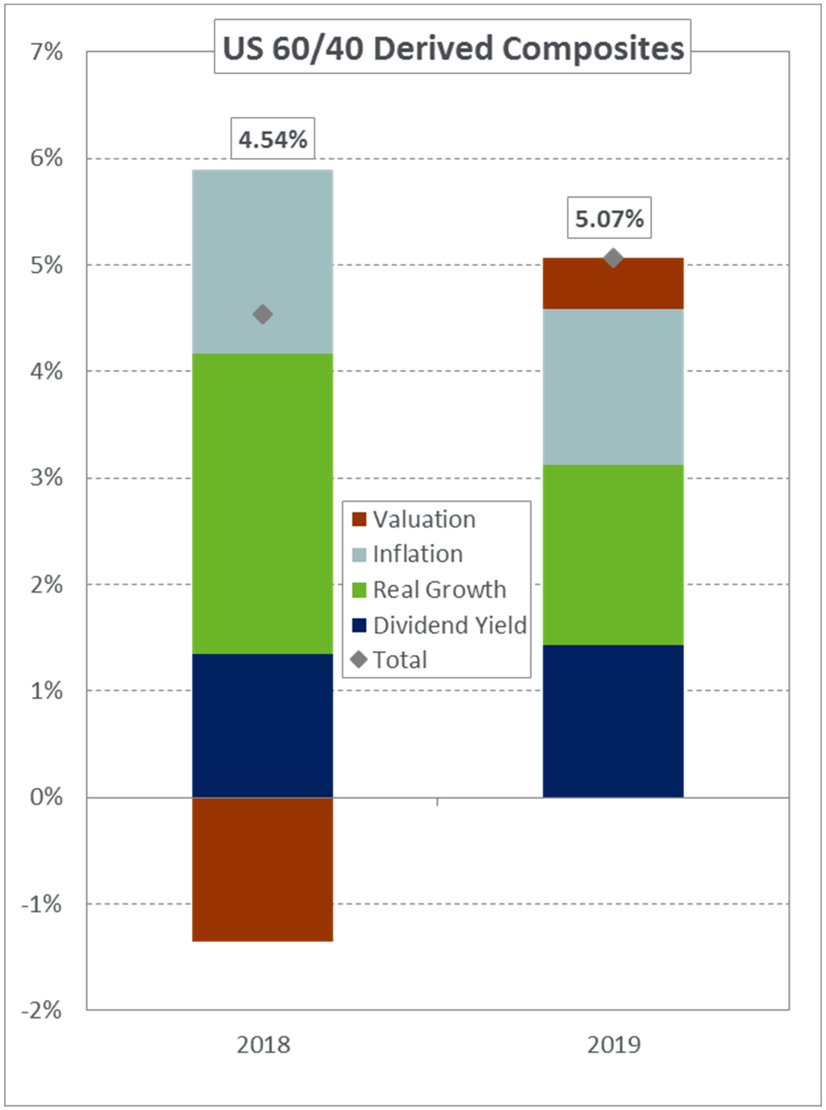
Source: NEPC

**Private Debt is a derived composite of 25% Mezzanine, 25% Distressed, 50% Direct Lending*

GLOBAL VS. US 60/40 DERIVED COMPOSITES



Source: NEPC



Source: NEPC

APPENDIX

NEPC, LLC

2019 5-7 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2019**	**2018**	**2019-2018**
Cash	2.50%	2.00%	+0.50%
Large Cap Equities	6.00%	5.25%	+0.75%
Small/Mid Cap Equities	6.25%	5.75%	+0.50%
Int'l Equities (Unhedged)	6.75%	7.50%	-0.75%
Int'l Sm Cap Equities (Unhedged)	7.25%	7.75%	-0.50%
Emerging Int'l Equities	9.25%	9.00%	+0.25%
Emerging Int'l Sm Cap Equities	9.50%	9.25%	+0.25%
Hedge Funds - Long/Short	5.50%	6.25%	-0.75%
TIPS	3.00%	3.25%	-0.25%
Treasuries	2.50%	2.25%	+0.25%
IG Corp Credit	4.00%	3.50%	+0.50%
MBS	2.75%	2.50%	+0.25%
High-Yield Bonds	5.25%	3.75%	+1.50%
Bank Loans	5.50%	4.50%	+1.00%
EMD (External)	4.75%	4.25%	+0.50%
EMD (Local Currency)	6.50%	6.00%	+0.50%
Municipal Bonds	3.00%	2.50%	+0.50%
High-Yield Municipal Bonds	3.00%	3.75%	-0.75%
Hedge Funds – Credit	5.50%	5.00%	+0.50%

2019 5-7 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2019**	**2018**	**2019-2018**
Long Treasuries	1.75%	2.00%	-0.25%
Long Credit	3.50%	4.00%	-0.50%
IG CLO	4.00%	N/A	N/A
HY CLO	6.00%	N/A	N/A
Commodities	4.25%	4.75%	-0.50%
Midstream Energy	8.25%	7.25%	+1.00%
REITs	6.75%	6.50%	+0.25%
Core Real Estate	6.00%	5.75%	+0.25%
Non-Core Real Estate	7.00%	7.00%	-
Private RE Debt	5.75%	N/A	N/A
Private Real Assets - Energy/Metals	9.50%	8.00%	+1.50%
Private Real Assets - Infra/Land	6.25%	6.00%	+0.25%
Hedge Funds - Macro	6.00%	6.25%	-0.25%
*Global Equity**	*6.99%*	*6.88%*	*+0.11%*
*Private Equity**	*10.01%*	*8.00%*	*+2.01%*
*Core Bonds**	*3.04%*	*2.75%*	*+0.29%*
*Private Debt**	*7.60%*	*6.50%*	*+1.10%*
*Long Govt/Credit**	*2.84%*	*3.26%*	*-0.42%*
*Hedge Funds**	*5.74%*	*5.83%*	*-0.09%*

*Multi-asset assumptions derived from the sum of underlying equity, credit, and real asset building blocks - see page 39 for additional detail.

2019 VOLATILITY FORECASTS

Volatility			
Asset Class	**2019**	**2018**	**2019-2018**
Cash	1.00%	1.00%	-
Large Cap Equities	16.50%	17.50%	-1.00%
Small/Mid Cap Equities	20.00%	21.00%	-1.00%
Int'l Equities (Unhedged)	20.50%	21.00%	-0.50%
Int'l Sm Cap Equities (Unhedged)	22.00%	22.00%	-
Emerging Int'l Equities	28.00%	28.00%	-
Emerging Int'l Sm Cap Equities	31.00%	31.00%	-
Hedge Funds - Long/Short	11.00%	11.00%	-
TIPS	6.50%	6.50%	-
Treasuries	5.50%	5.50%	-
IG Corp Credit	7.50%	7.50%	-
MBS	7.00%	7.00%	-
High-Yield Bonds	12.50%	13.00%	-0.50%
Bank Loans	9.00%	9.00%	-
EMD (External)	13.00%	13.00%	-
EMD (Local Currency)	13.00%	13.00%	-
Municipal Bonds	7.00%	7.00%	-
High-Yield Municipal Bonds	12.00%	12.00%	-
Hedge Funds - Credit	9.50%	9.50%	-

2019 VOLATILITY FORECASTS

Volatility			
Asset Class	**2019**	**2018**	**2019-2018**
Long Treasuries	12.00%	12.00%	-
Long Credit	12.00%	12.00%	-
IG CLO	7.50%	N/A	N/A
HY CLO	11.00%	N/A	N/A
Commodities	19.00%	19.00%	-
Midstream Energy	18.50%	19.00%	-0.50%
REITs	20.00%	21.00%	-1.00%
Core Real Estate	13.00%	13.00%	-
Non-Core Real Estate	17.00%	17.00%	-
Private RE Debt	11.00%	N/A	N/A
Private Real Assets - Energy/Metals	21.00%	21.00%	-
Private Real Assets - Infra/Land	12.00%	12.00%	-
Hedge Funds - Macro	9.50%	9.50%	-
*Global Equity**	*17.57%*	*18.22%*	*-0.65%*
*Private Equity**	*24.16%*	*23.00%*	*+1.16%*
*Core Bonds**	*6.10%*	*5.99%*	*+0.11%*
*Private Debt**	*11.97%*	*13.00%*	*-1.03%*
*Long Gov/Credit**	*11.26%*	*11.25%*	*+0.01%*
*Hedge Funds**	*8.15%*	*9.07%*	*-0.92%*

*Multi-asset assumptions derived from the sum of underlying equity, credit, and real asset building blocks - see page 39 for additional detail.

2019 30 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2019**	**2018**	**2019-2018**
Cash	3.00%	2.75%	+0.25%
Large Cap Equities	7.50%	7.50%	-
Small/Mid Cap Equities	7.75%	7.75%	-
Int'l Equities (Unhedged)	7.75%	7.75%	-
Int'l Sm Cap Equities (Unhedged)	8.00%	8.00%	-
Emerging Int'l Equities	9.25%	9.25%	-
Emerging Int'l Sm Cap Equities	9.50%	9.50%	-
Hedge Funds - Long/Short	6.50%	7.25%	-0.75%
TIPS	4.00%	3.75%	+0.25%
Treasuries	3.75%	3.25%	+0.50%
IG Corp Credit	5.75%	4.75%	+1.00%
MBS	3.75%	3.25%	+0.50%
High-Yield Bonds	6.50%	5.50%	+1.00%
Bank Loans	5.50%	5.50%	-
EMD (External)	6.25%	5.00%	+1.25%
EMD (Local Currency)	6.75%	6.50%	+0.25%
Municipal Bonds	3.75%	3.50%	+0.25%
High-Yield Municipal Bonds	5.25%	5.50%	-0.25%
Hedge Funds - Credit	6.75%	5.25%	+1.50%

2019 30 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	**2019**	**2018**	**2019-2018**
Long Treasuries	3.75%	3.50%	+0.25%
Long Credit	6.00%	5.25%	+0.75%
IG CLO	4.50%	N/A	N/A
HY CLO	6.25%	N/A	N/A
Commodities	5.50%	5.50%	-
Midstream Energy	7.50%	7.50%	-
REITs	7.00%	6.75%	+0.25%
Core Real Estate	6.25%	6.50%	-0.25%
Non-Core Real Estate	7.25%	7.50%	-0.25%
Private RE Debt	6.25%	N/A	N/A
Private Real Assets - Energy/Metals	9.50%	7.75%	+1.75%
Private Real Assets - Infra/Land	7.00%	6.25%	+0.75%
Hedge Funds - Macro	6.50%	6.25%	+0.25%
*Global Equity**	*8.18%*	*8.24%*	*-0.06%*
*Private Equity**	*11.15%*	*9.50%*	*+1.65%*
*Core Bonds**	*4.37%*	*3.75%*	*+0.62%*
*Private Debt**	*8.11%*	*7.50%*	*+0.61%*
*Long Gov/Credit**	*5.14%*	*4.62%*	*+0.52%*
*Hedge Funds**	*6.76%*	*6.34%*	*+0.42%*

*Multi-asset assumptions derived from the sum of underlying equity, credit, and real asset building blocks - see page 39 for additional detail.

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