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Market Charts

Turning data into knowledge

First Quarter 2019

All data shown in the charts as of Q4 2018 and reflect the most recent information available. *Please see disclosures for the risks associated with the asset classes and for the definitions of market-based and economic indices.*

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Economy highlights

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Macro

- Wells Fargo Investment Institute believes the global economy should grow in the range of 3.5% to 4% in 2019.
- Manufacturing continues to expand across most major economies.
- Concerns surrounding global trade persist. Some currency volatility is expected (for example, the U.S. dollar, euro, and yen).

Domestic

- There appears to be only a low chance of a near-term recession in the U.S.
- Although consumer confidence has weakened recently, the trajectory remains higher, and should continue supporting economic growth.
- Despite mixed signals, overall housing fundamentals remain strong. This is a positive factor for the U.S. economy.

International

- Growth rates across regions and countries are uneven. Developed economies expect solid growth, and emerging countries look to continue recovering in 2019.

Global economy scorecard

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Metric	World	U.S.	Eurozone	Japan	China
GDP growth (%YoY) as of 9/30/2018[1]	3.7	3.0	1.6	0.0	6.5
Inflation (%YoY) as of 11/30/2018[1]	3.1	2.2	1.9	0.8	2.2
Manufacturing Index level[2] as of 12/31/2018	51.5	57.5	51.4	52.4	49.4
Central bank rate (%) as of 12/31/2018	–	2.50	0.00	-0.10	4.35
Consumer Confidence Index level as of 12/31/2018	–	128.1 ↓	-6.2 ↓	41.5 ↓	119.1 =
Unemployment rate (%) as of 11/30/2018	–	3.7	7.9	2.5	3.8

Sources: Bloomberg, International Monetary Fund, and Wells Fargo Investment Institute. Consumer confidence scale differs by region/country. Up or down arrow indicates an increasing or decreasing level from the previous quarter. GDP = gross domestic product. YoY = year over year.

KEY TAKEAWAYS

- Manufacturing is expanding across most major economies. This should continue to support economic growth.
- Although consumer confidence has weakened recently, it still remains strong across many regions.

1. World data is as of December 31, 2017
2. Manufacturing Index level is the Institute for Supply Management (ISM) Manufacturing Index®, which is a composite index based on the diffusion indices of five of the indices with equal weights: new orders (seasonally adjusted), production (seasonally adjusted), employment (seasonally adjusted), supplier deliveries (seasonally adjusted), and inventories. An index value over 50 indicates expansion; below 50 indicates contraction. The values for the index can be between 0 and 100.

The world at a glance

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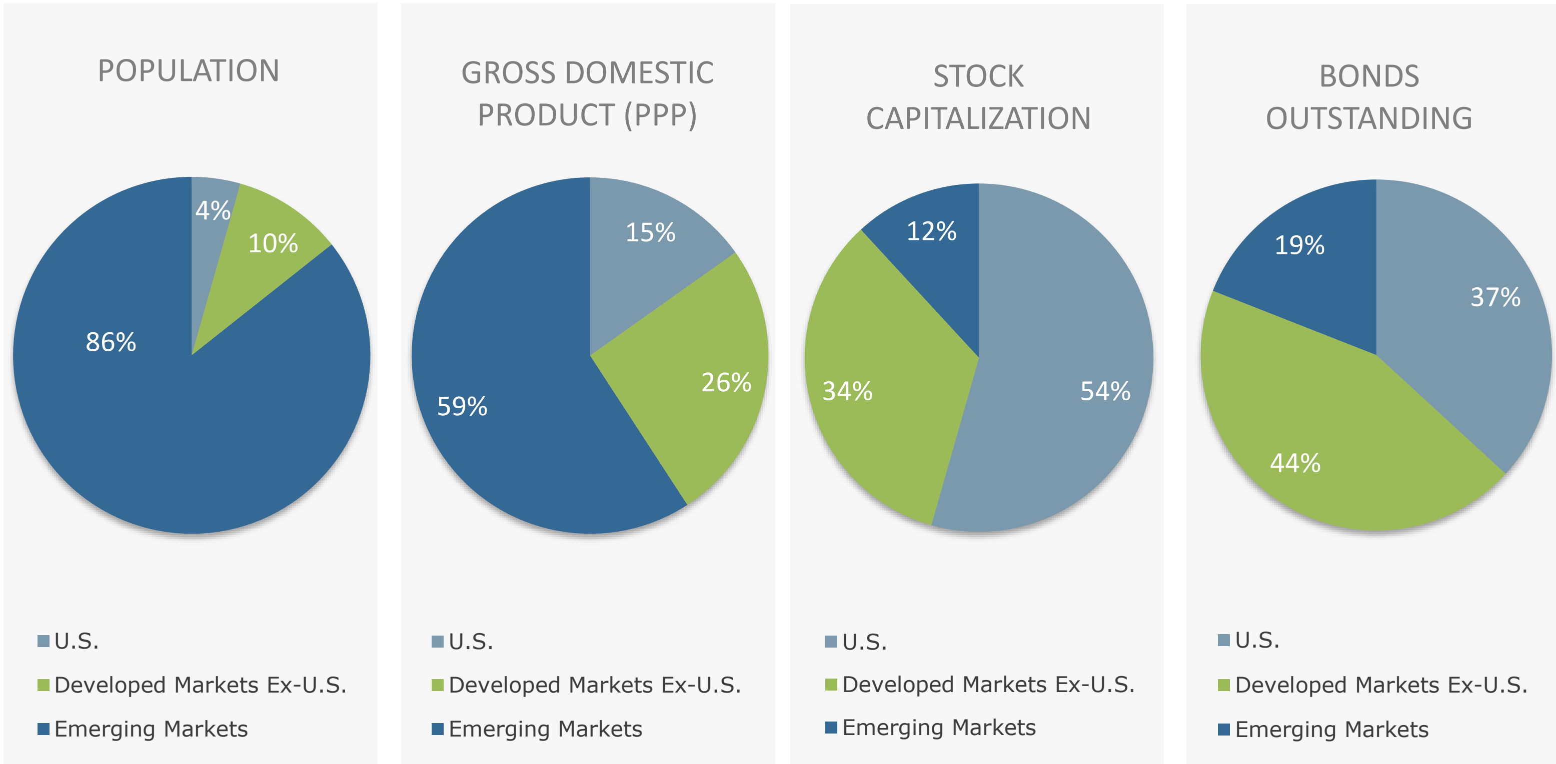

Sources: IMF Global Economic Outlook database, October 2018; MSCI, as of December 31, 2018; and Bank for International Settlements, as of June 30, 2018. Emerging markets includes frontier markets. Purchasing power parity (PPP) is a theory which states that exchange rates between currencies are in equilibrium when their purchasing power is the same in each of the two countries. Stock capitalization is based on country weightings in the MSCI All Country World Index.

KEY TAKEAWAYS

- The vast majority of the world's population resides in emerging and frontier markets. These regions comprise nearly 60% of the global economy but only about 10% of the world's equity markets.
- Emerging markets carry almost 20% of the global government debt.

Factors that affect the global economy

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Global economic forces

TAILWINDS

- No recession: global growth
- Pro-growth U.S. policies
- Low interest rates
- Continued positive earnings growth environment
- Consumer optimism and business investment remain positive

HEADWINDS

- Global populism
- Anti-trade, anti-immigration policies/sentiment
- Currency volatility
- Major central banks raise rates and trim bond purchases
- Rising geopolitical risks

Source: Wells Fargo Investment Institute, as of December 31, 2018

KEY TAKEAWAYS

- Concerns surrounding global trade have risen. Some currency volatility is expected (for example, the U.S. dollar, euro, and yen).
- Consumer spending remains the main source of global growth.

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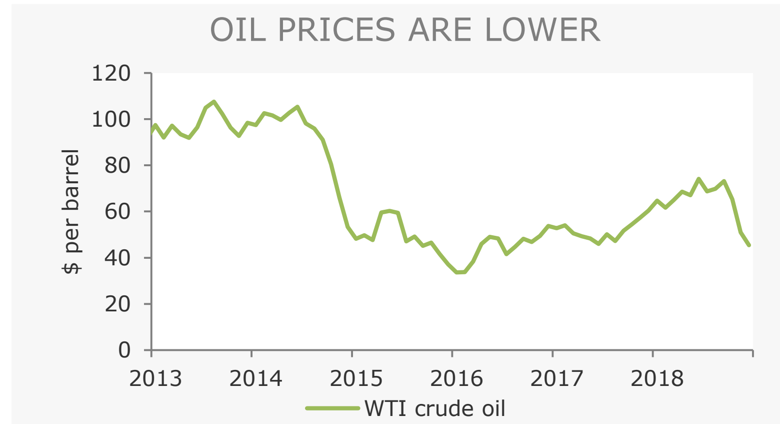
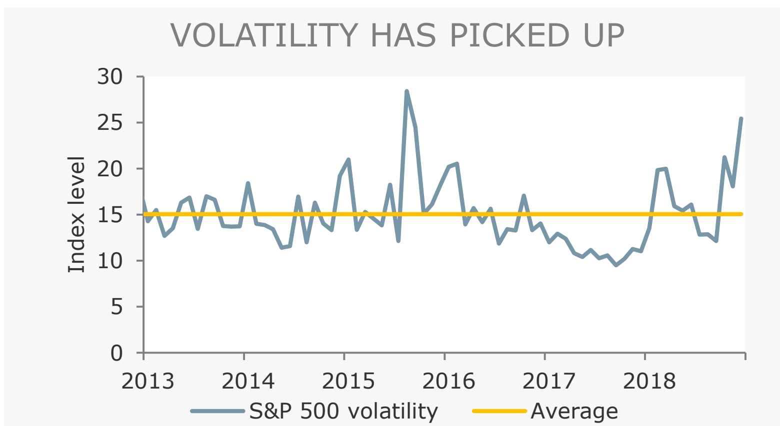
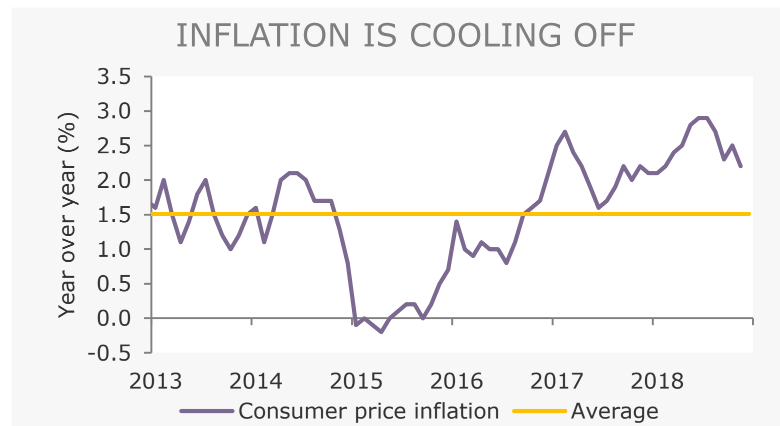
Where are we today?







Source: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. S&P 500 volatility is measured by the CBOE Volatility Index® (VIX®), which is a key measure of market expectations of near-term volatility conveyed by S&P 500 stock index option prices. The Consumer Price Index measures the average price of a basket of goods and services, as of November 30, 2018. West Texas Intermediate (WTI) is a grade of crude oil used as a benchmark in oil pricing. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Despite the rise in volatility across financial markets, the macroeconomic environment remains positive for risky assets.
- We see little risk of a recession over the next 12 months.

GDP growth forecasts for 2019

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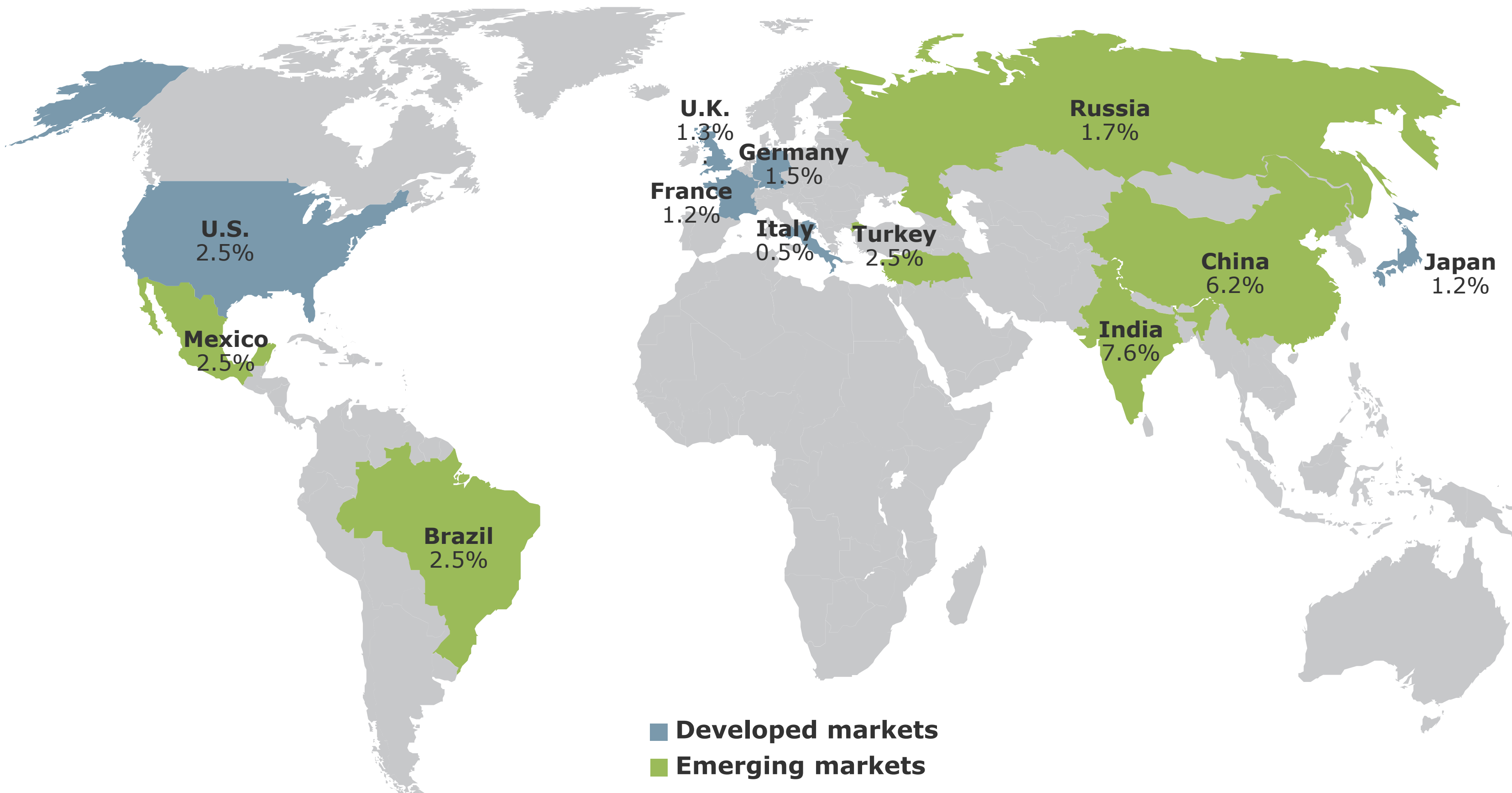

Source: Wells Fargo Investment Institute estimates for developed and emerging economies, as of January 9, 2019. Forecasts and estimates are based on our current view of market and economic conditions and are subject to change.

KEY TAKEAWAYS

- Wells Fargo Investment Institute expects that the global economy should expand 3.6% in 2019.
- Growth rates across regions and countries are uneven. We expect developed economies to generally grow more slowly than emerging countries in 2019.

Inflation diverging across regions

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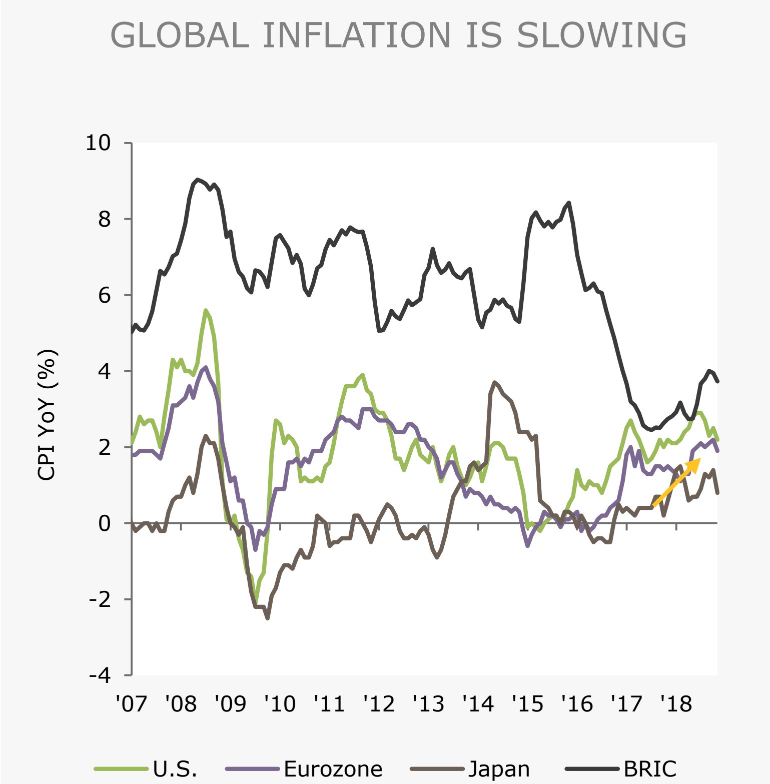

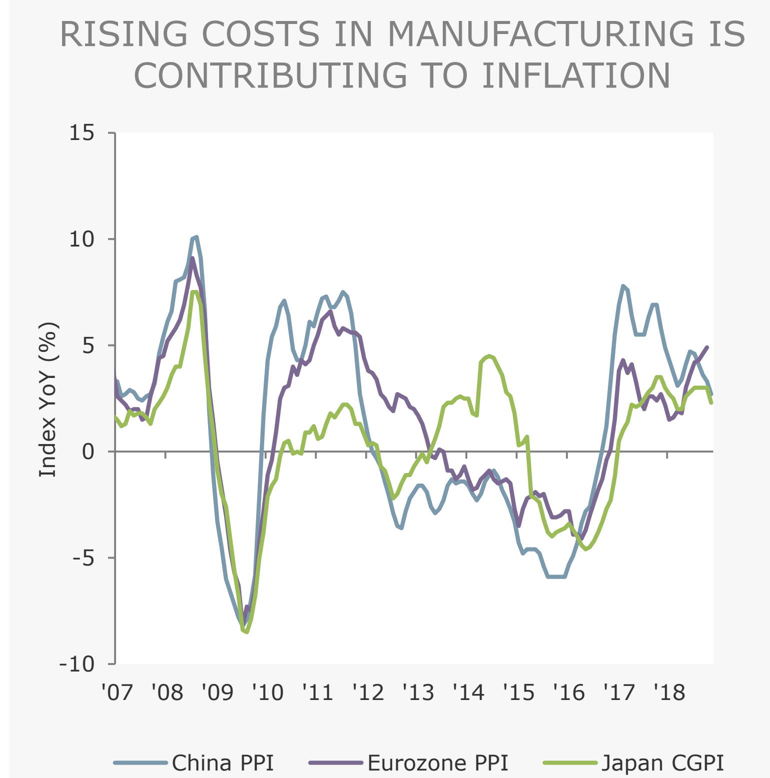

Sources: Bloomberg, FactSet, and Wells Fargo Investment Institute, as of November 30, 2018. BRIC is an acronym for the economies of Brazil, Russia, India, and China. CPI is the Consumer Price Index, which measures the price of a fixed basket of goods and services purchased by an average consumer. PPI is the Producer Price Index, which measures the average change over time in the selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services.

KEY TAKEAWAYS

- Global consumer price inflation slowed somewhat in the last months of 2018.
- Evidently, the normalization process is slow, but inflation rates have begun moving higher from the near-zero pace we were experiencing a few years ago.

Where are we headed?

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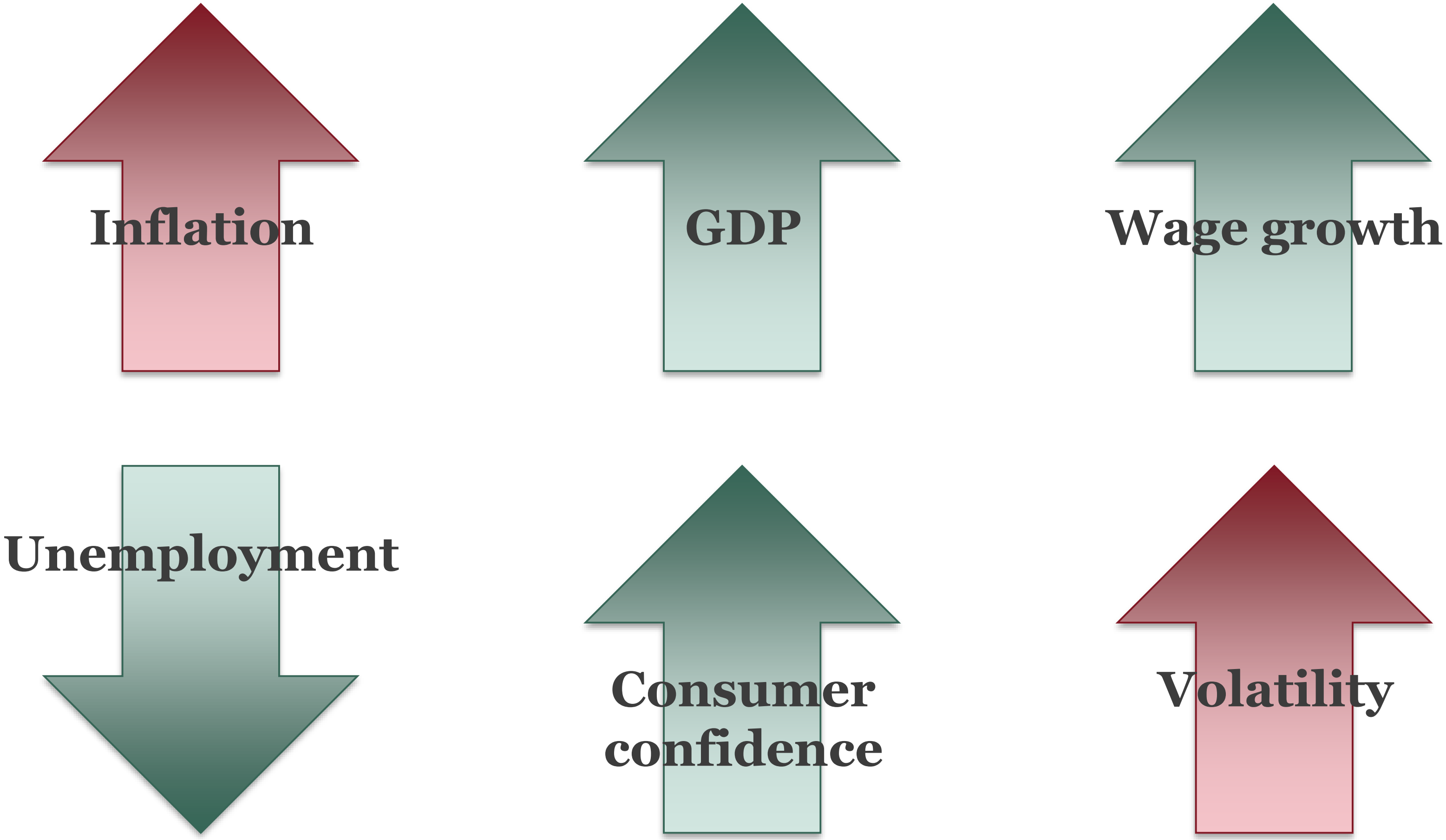

Source: Wells Fargo Investment Institute, as of December 31, 2018. Subject to change.

KEY TAKEAWAYS

- Healthy levels of U.S. employment and rising wages have helped increase consumer confidence.
- We expect the U.S. economy to continue expanding and inflation rates to gradually normalize.

Manufacturing is expanding

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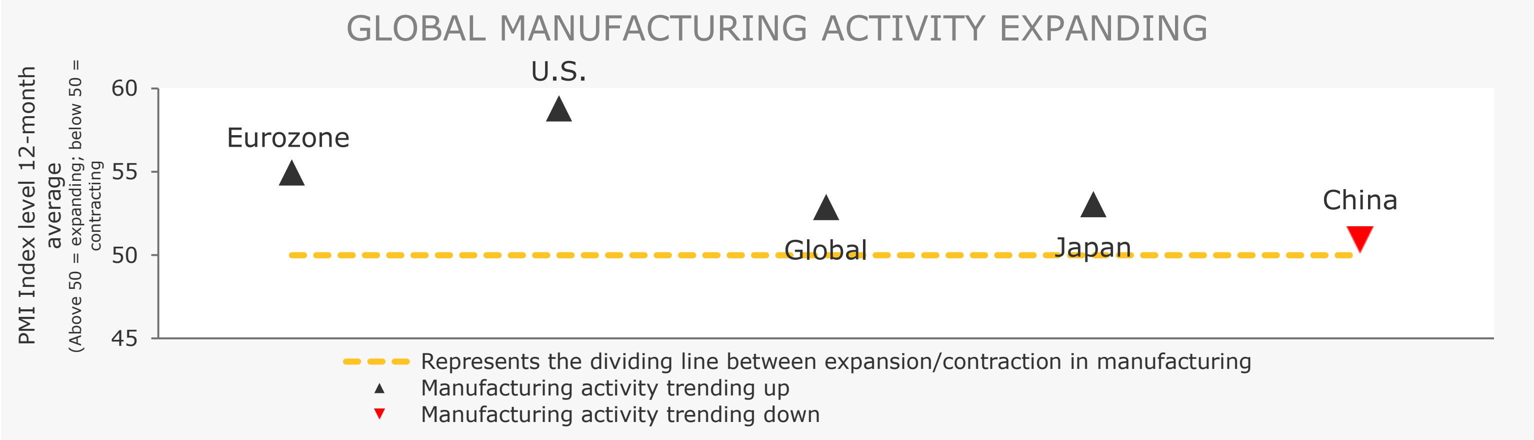

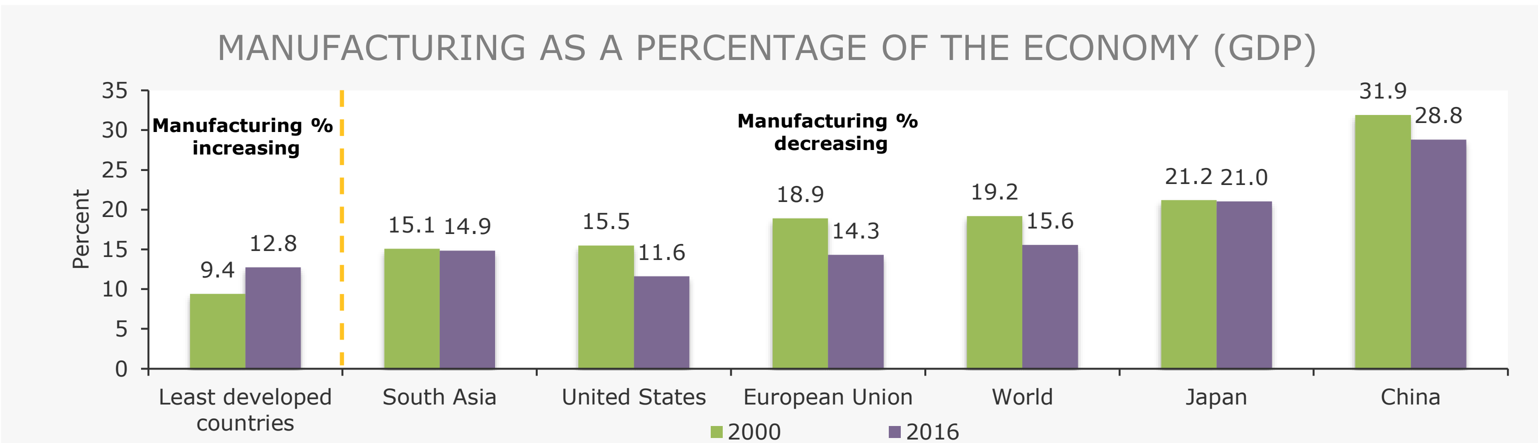

Sources: Bloomberg, HSBC Markit and Wells Fargo Investment Institute, as of December 31, 2018, World Bank national accounts data, and OECD National Accounts data files as of December 31, 2016. The PMI Index is an index developed from monthly business surveys used to monitor the condition of industries and businesses.

KEY TAKEAWAYS

- Rising wages in emerging economies have made certain manufacturing activities more viable in developed markets.
- Cost differentials remain; however, emerging economies should continue to play a key role in the global supply chain.

Global monetary policy in action

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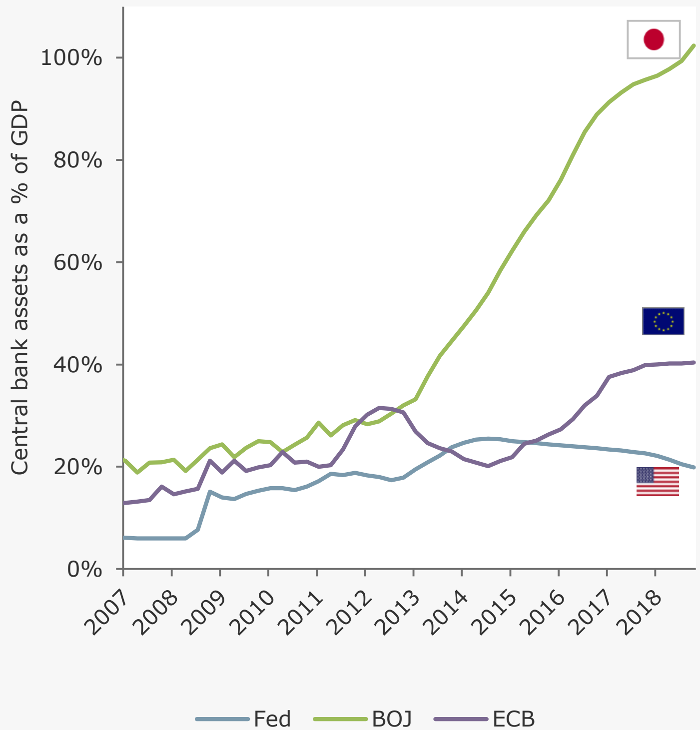
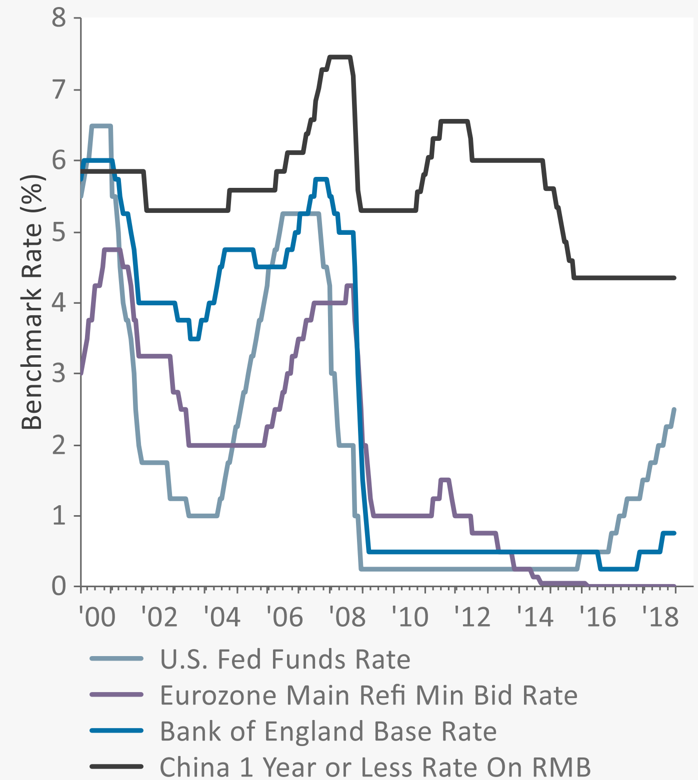
JAPAN HAS EXPANDED ITS BALANCE SHEET FAR MORE THAN THE U.S. AND THE EUROZONE



Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. BOJ = Bank of Japan. ECB = European Central Bank.

BENCHMARK RATES REMAIN LOW BUT ARE RISING IN THE U.S.



Sources: FactSet and Wells Fargo Investment Institute, as of December 31, 2018. Headline central bank policy rates of selected countries.

KEY TAKEAWAYS

- The Bank of Japan continues to emphasize easy monetary conditions to promote growth and reduce deflationary pressures, while the European Central Bank has ended its quantitative easing program.
- We expect the Federal Reserve (Fed) to finish with its hiking rate cycle by year-end 2019.

U.S. inflation is starting to meet expectations

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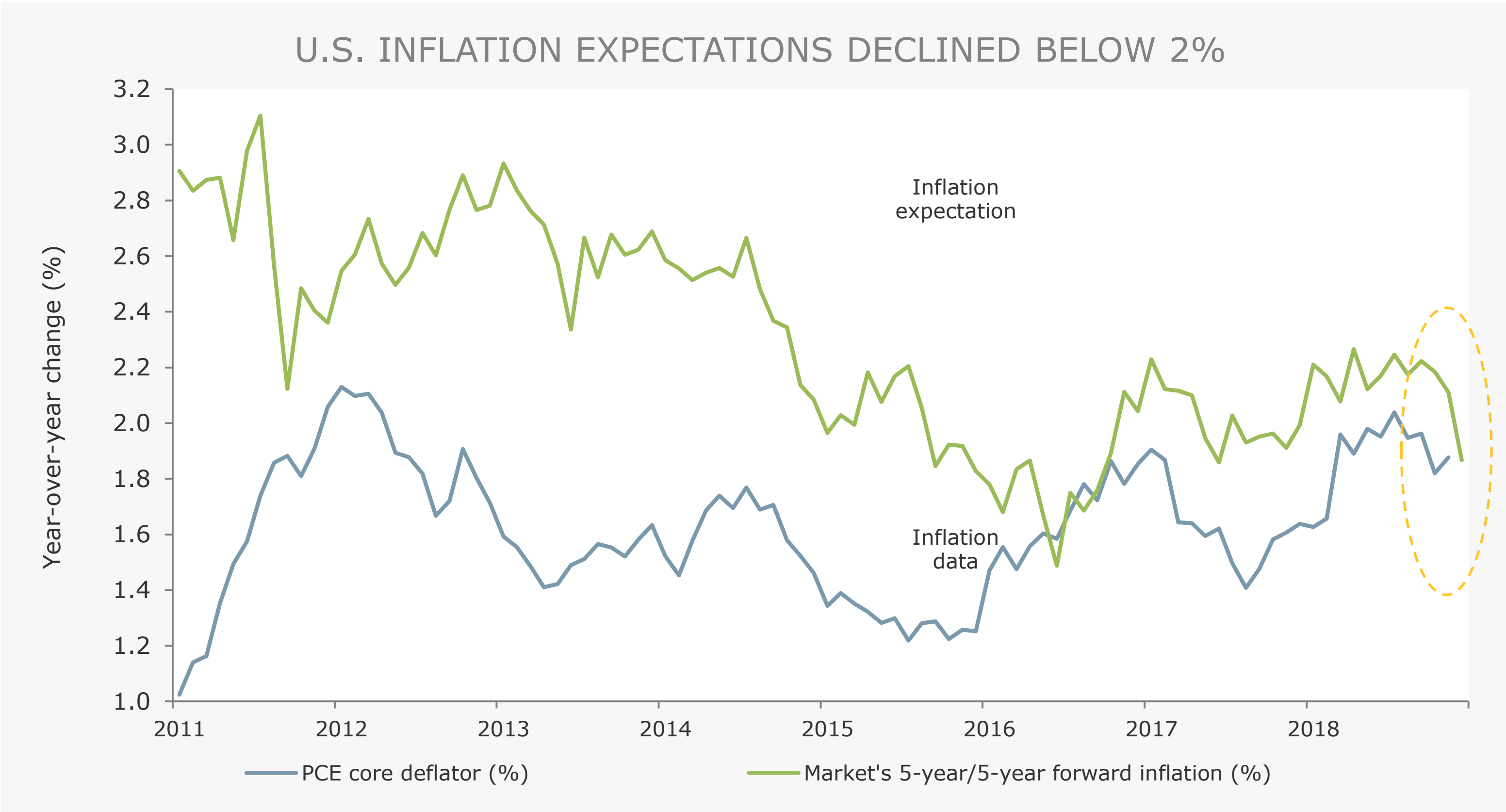

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. PCE deflators (or personal consumption expenditure deflators) track overall price changes for goods and services purchased by consumers. Deflators are calculated by dividing the appropriate nominal series by the corresponding real series and multiplying by 100. The market's 5-year/5-year forward inflation rate is a common measure that is used by central banks and dealers to look at the market's future inflation expectations.

KEY TAKEAWAYS

- U.S. inflation increased in 2018 and is hovering near the Fed's target of 2%.
- We expect inflation (as measured by the CPI) to rise to 2.2% in 2019.

Insight from U.S. leading indicators

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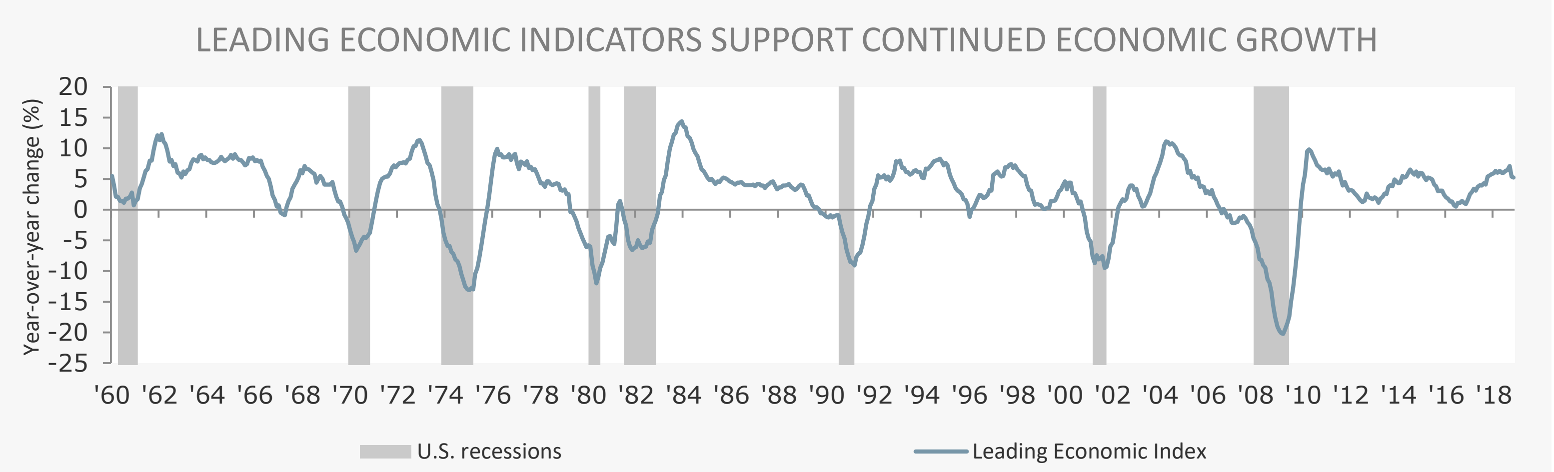


TRACKING THE COMPONENTS OF THE LEI

INDICATOR	SHORT-TERM TREND	LONG-TERM TREND
Leading Economic Index	Strengthening	Weakening
Average workweek	Neutral	Weakening
Unemployment claims (less are better)	Weakening	Weakening
New orders: consumer goods and materials	Strengthening	Strengthening
ISM New Orders Index	Strengthening	Weakening
New orders: nondefense capital goods excluding aircraft	Strengthening	Neutral
Building permits	Strengthening	Strengthening
S&P 500 Index	Weakening	Weakening
Leading Credit Index	Strengthening	Strengthening
Interest rate spread (10-year UST less federal funds)	Neutral	Weakening
Avg. consumer expectations for business and economic conditions	Weakening	Weakening

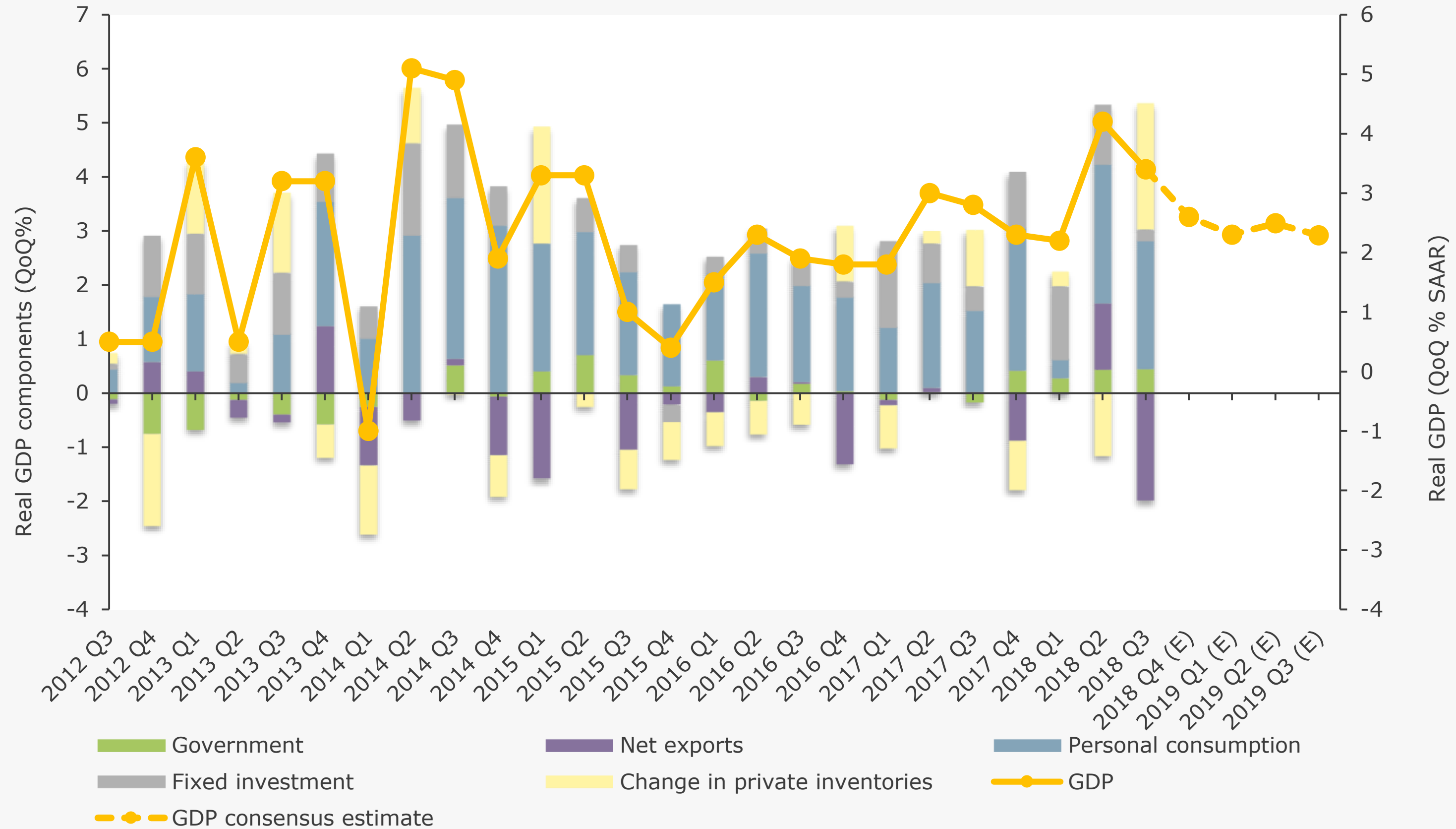
Sources: Bloomberg and Wells Fargo Investment Institute, as of November 30, 2018. The Conference Board Leading Economic Index® (LEI) is a composite average of 10 leading indicators in the U.S. It is one of the key elements in the Conference Board's analytic system, which is designed to signal peaks and troughs in the business cycle. The ISM Manufacturing Index® is a composite index based on five indicators with equal weight. Short-term trend = current versus three-month moving average. Long-term trend = current versus 12-month moving average.

KEY TAKEAWAYS

- Leading indicators can be useful for signaling future economic events, such as an economic slowdown.
- Leading indicators have slowed some but still suggest moderate growth ahead. A recession in 2019 does not seem likely.

Components of U.S. GDP

CONSUMPTION DRIVES U.S. GDP GROWTH



Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018
Wells Fargo Investment Institute estimates. Forecasts are not guaranteed and are subject to change. ***GDP consensus estimates come from Bloomberg****. QoQ = quarter over quarter. SAAR = seasonally adjusted annual rate.*

KEY TAKEAWAYS

- Strength in consumer spending and potential contributions from business and government spending continue to support U.S. economic growth in the near term.
- We expect the U.S. economy to grow by 2.5% in 2019.

Steady job gains have underpinned the U.S. economic recovery

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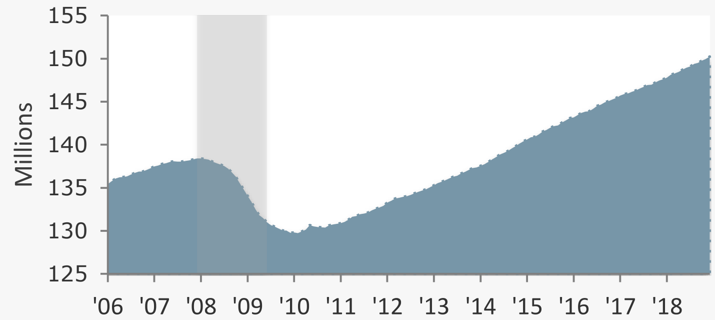
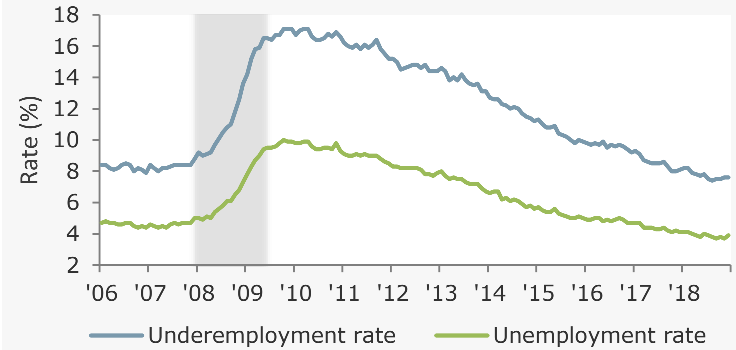
TOTAL NONFARM WORKERS AT NEW HIGH

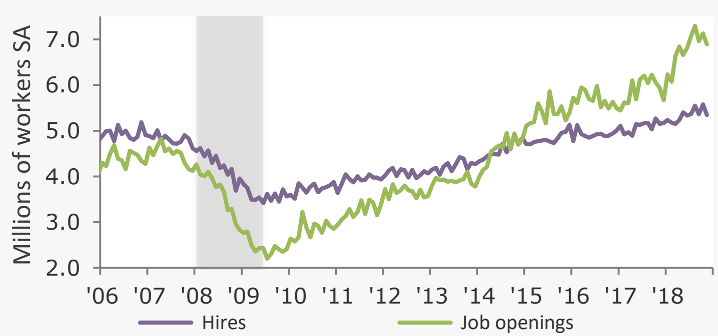


UNEMPLOYMENT AND UNDEREMPLOYMENT

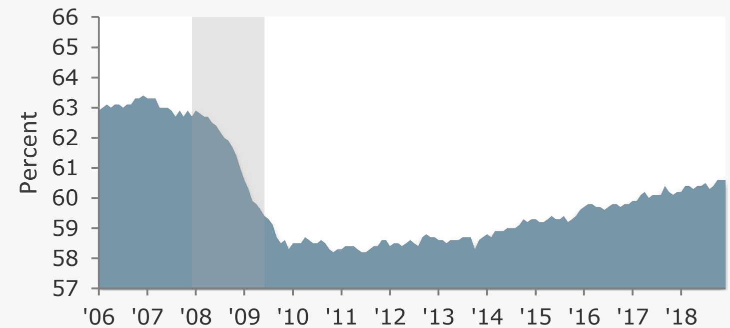


JOB OPENINGS REMAIN NEAR RECORD HIGHS

JOLTS survey: job openings and hires



TOTAL EMPLOYED AS A % OF POPULATION



Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. JOLTS data as of November 30, 2018. JOLTS = Job Openings and Labor Turnover Survey. Shaded area represents a U.S. economic recession. SA = seasonally adjusted.

KEY TAKEAWAYS

- The employment situation remains healthy with the unemployment rate low, job openings at recovery highs, and jobless claims signaling a healthy labor market.
- We find broad evidence that the U.S. economy is generating high- and low-wage jobs supportive of household formation and housing market improvement.

U.S. consumer in good shape

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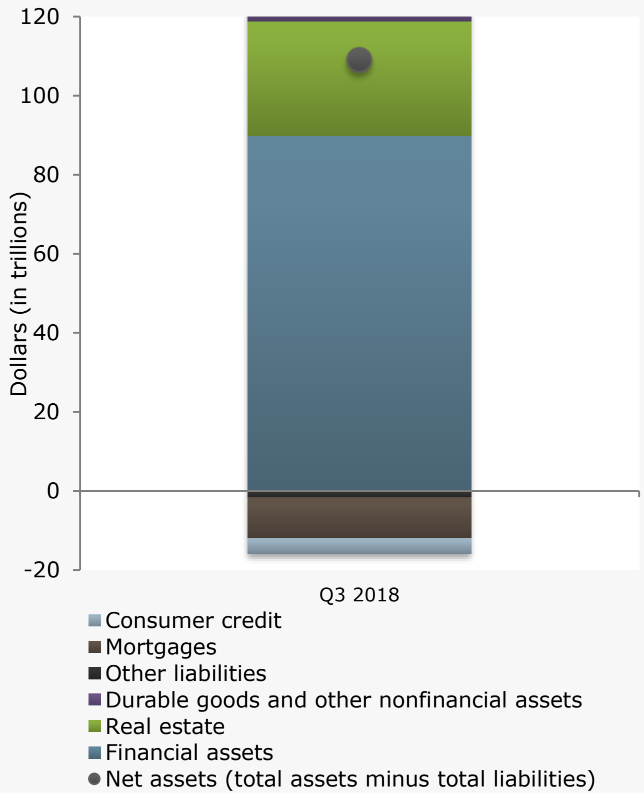
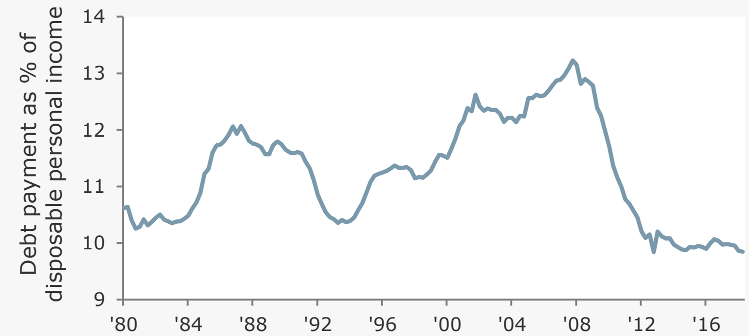
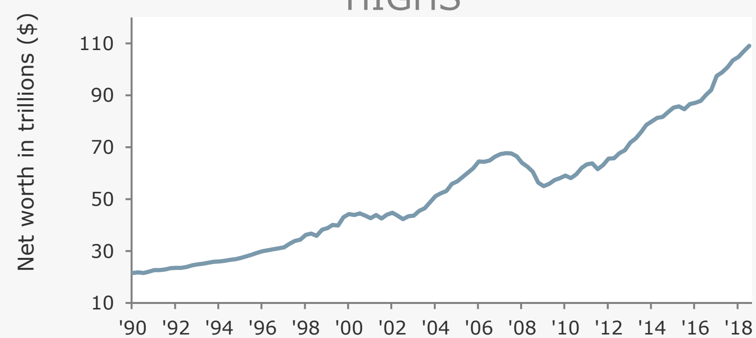
CONSUMER BALANCE SHEET SUGGESTS CONSUMPTION CONTINUES



HOUSEHOLD DEBT SERVICE RATIO NEAR ALL-TIME LOWS



HOUSEHOLD NET WORTH AT ALL-TIME HIGHS

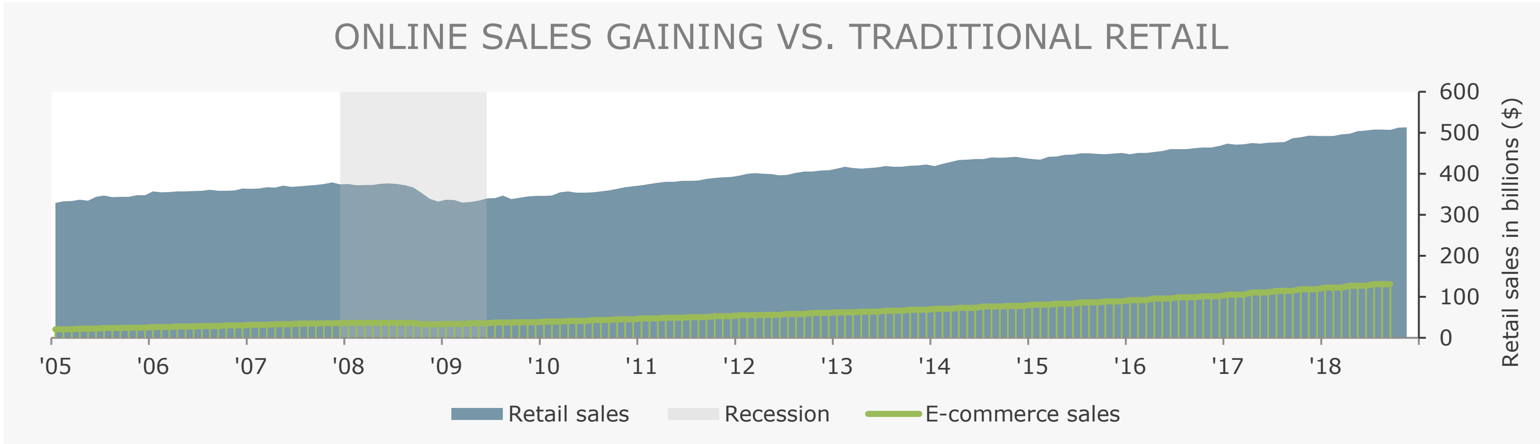


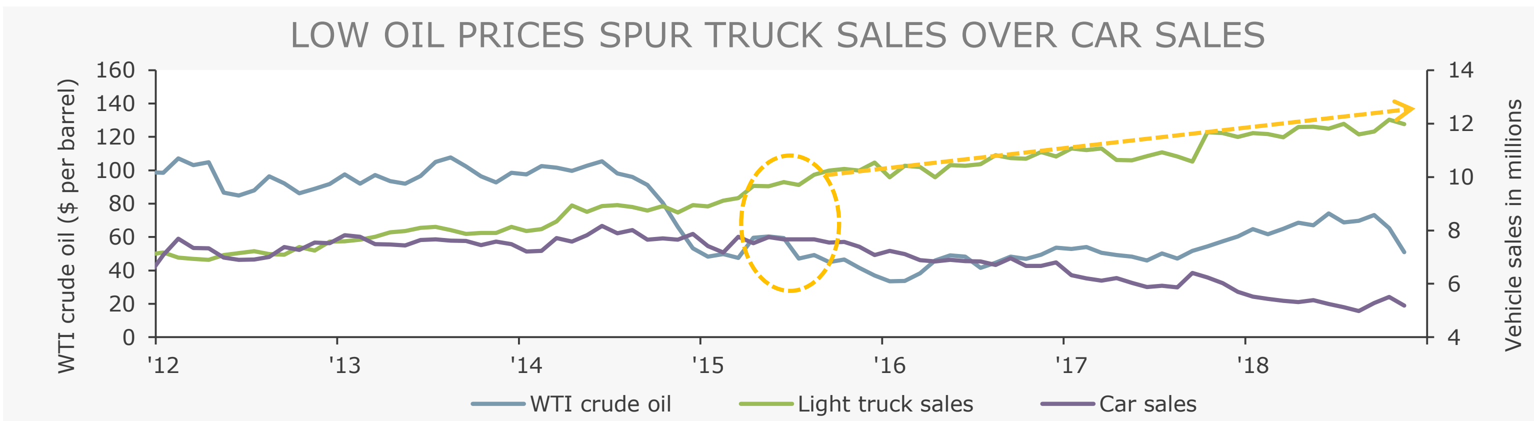
Sources: Bloomberg, Federal Reserve Board, FactSet, and Wells Fargo Investment Institute, as of September 30, 2018

KEY TAKEAWAYS

- Consumer confidence has improved as asset prices have recovered.
- Rising home prices and higher stock prices have led to a rebound in total U.S. household net worth. Total household net worth stands at $109 trillion.

Changing consumer behavior





Sources: Bloomberg, FactSet, and Wells Fargo Investment Institute, as of November 30, 2018. E-commerce sales as of September 30, 2018. West Texas Intermediate (WTI) is a grade of crude oil used as a benchmark in oil pricing.

KEY TAKEAWAYS

- Online sales are becoming a larger percentage of total retail sales.
- Lower oil prices may have an impact on the types of purchases consumers are making. For example, while car sales have been declining, truck and SUV sales have surged on lower gasoline prices.

Housing data is mixed

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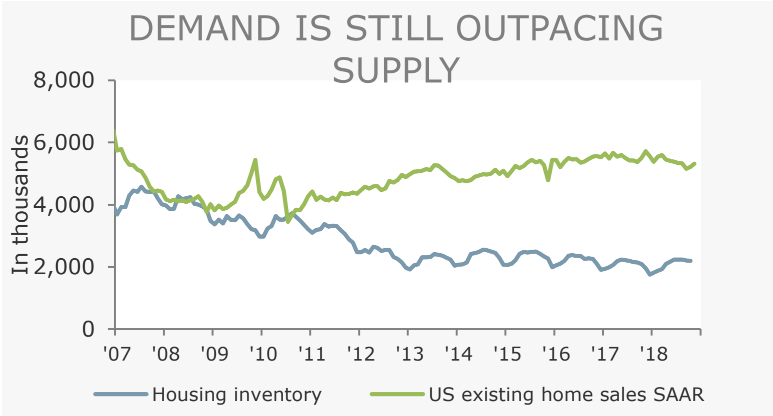

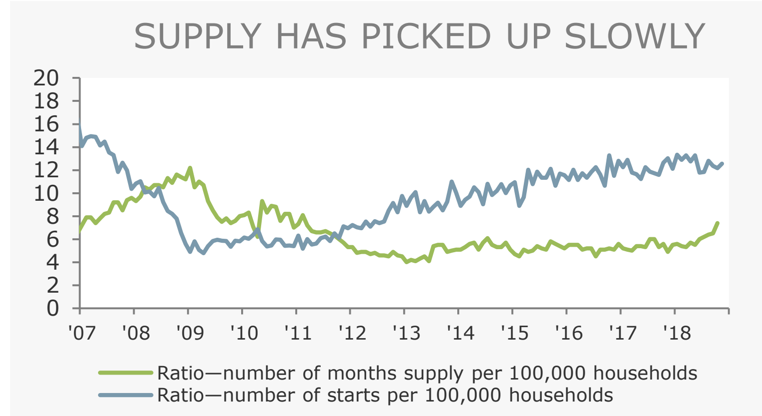

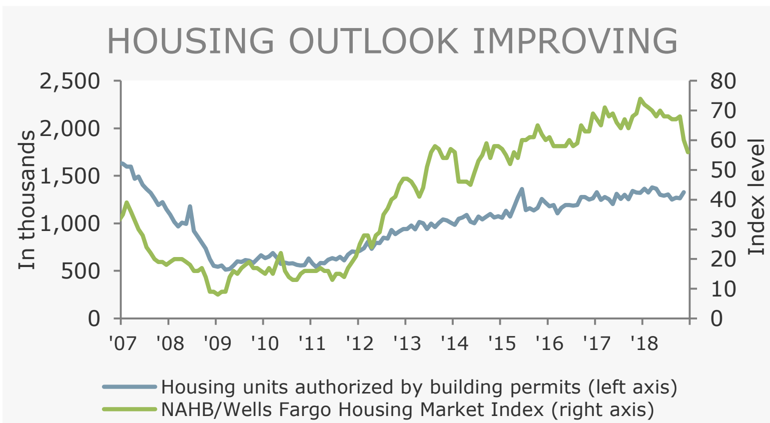

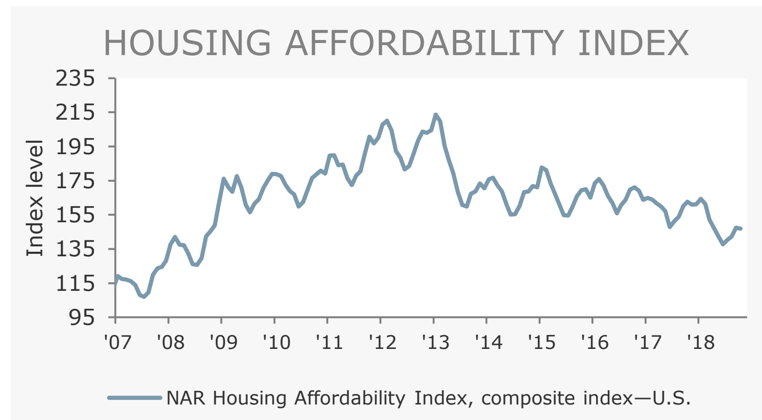

Sources: Bloomberg, FactSet, and Wells Fargo Investment Institute, as of November 30, 2018. SAAR = seasonally adjusted annual rate. NAHB (National Association of Home Builders)/Wells Fargo Housing Market Index is a widely watched gauge of the outlook for the U.S. housing sector. The NAR (National Association of Realtors®) Housing Affordability Index measures whether or not a typical family could qualify for a mortgage loan on a typical home.

KEY TAKEAWAYS

- The housing market currently remains solid, but as prices and interest rates rise, affordability has become a concern. Also, the recent adoption of the Tax Cuts and Jobs Act may have near-term effects on housing demand.
- Rising construction levels and home sales support moderate U.S. economic growth and inflation.

A changing tide for U.S. manufacturing

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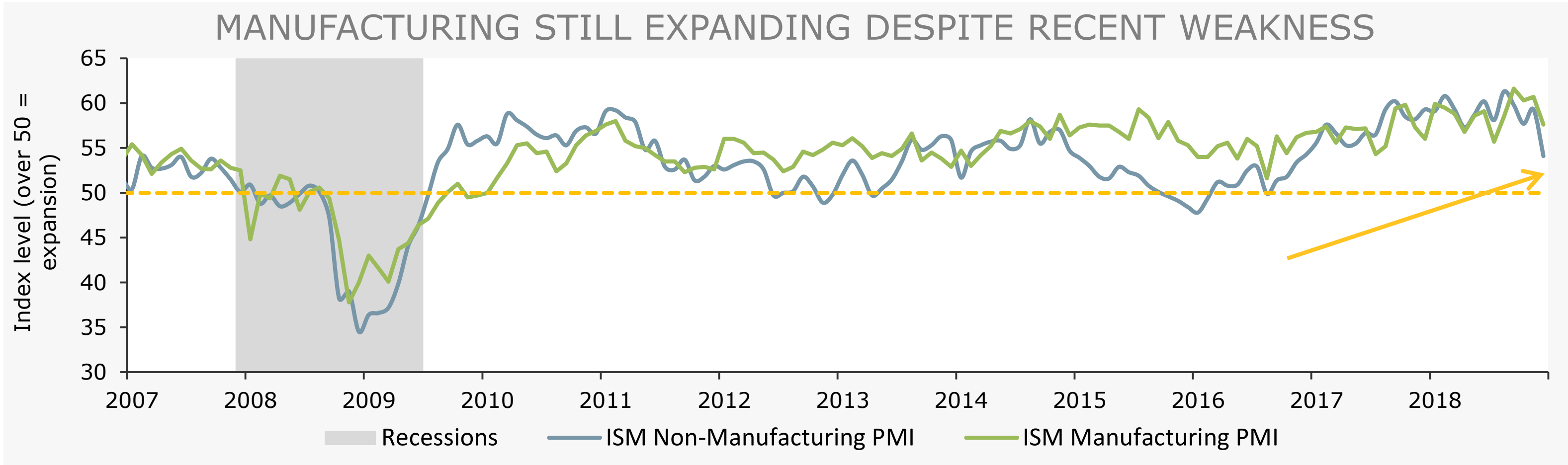

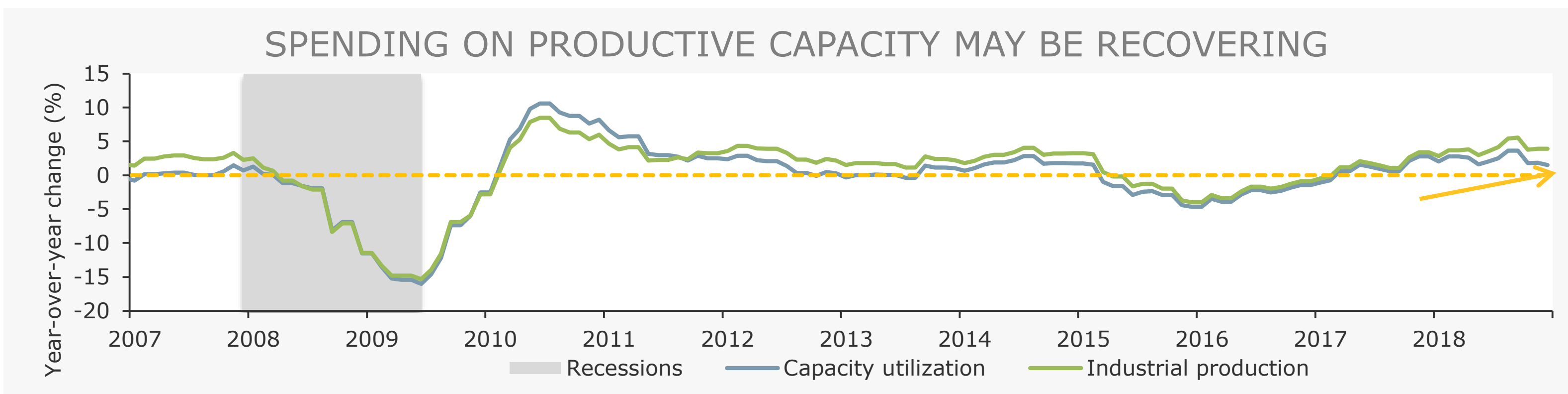

Sources: Bloomberg, Institute for Supply Management, FactSet, and Wells Fargo Investment Institute, as of December 31, 2018. The Institute for Supply Management (ISM) Manufacturing Index® is a composite index based on five indicators with equal weights. The ISM Non-Manufacturing Index® is a composite index based on four indicators with equal weights.

KEY TAKEAWAYS

- The ISM Manufacturing Index is near recovery highs. This reflects a solid outlook for manufacturing activity.
- Increased spending on productive capacity could foster future gains in productivity, a positive sign for wages and corporate earnings.

Higher profits usually lead to hiring

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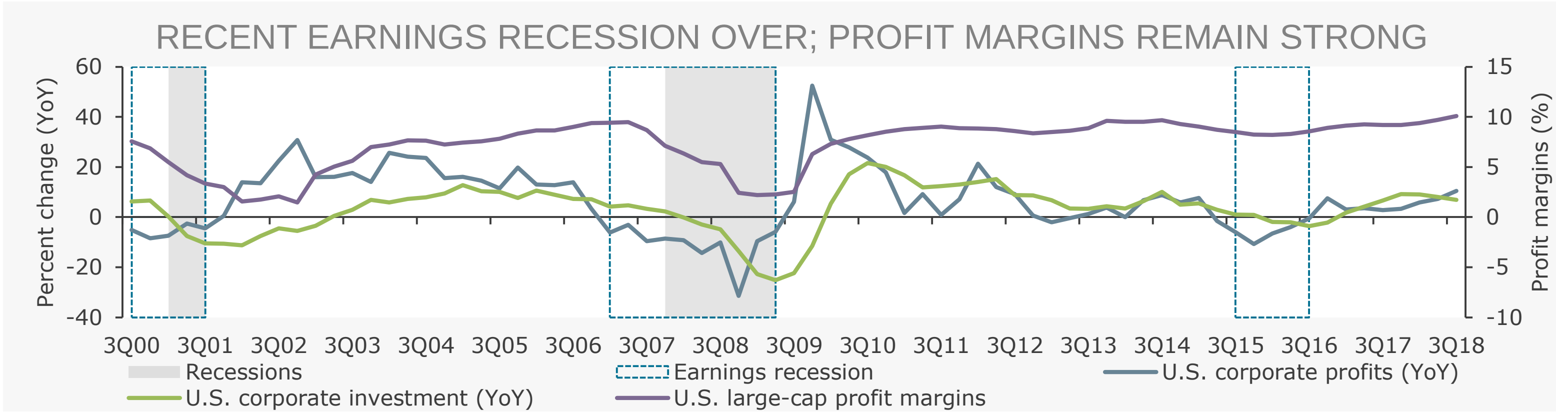

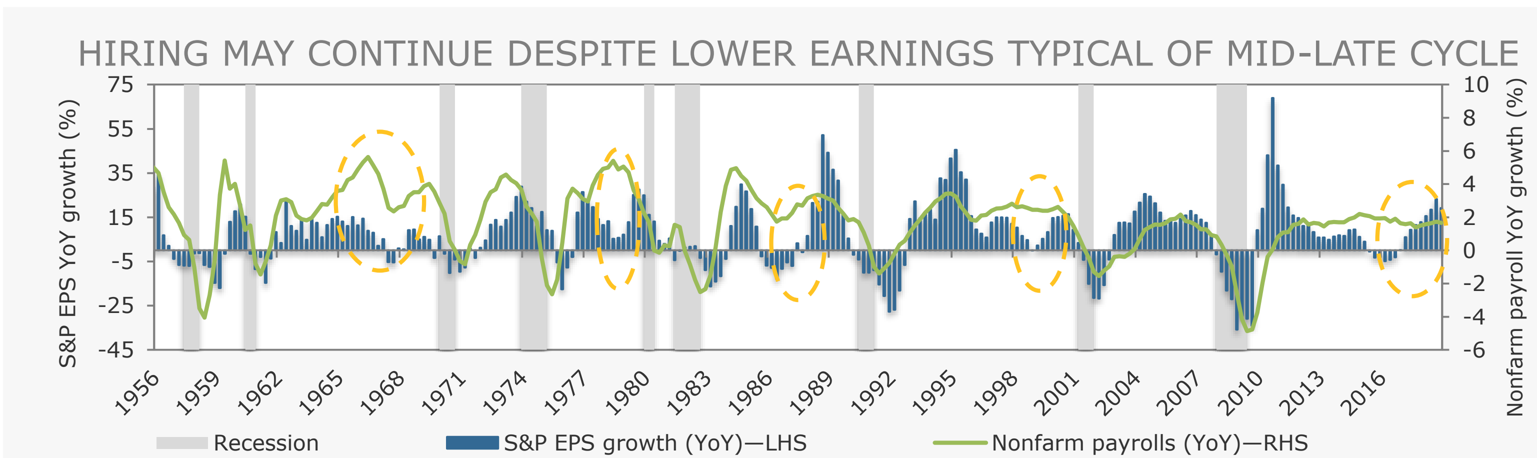

Sources: Bloomberg, Bureau of Economic Analysis, U.S. Department of Commerce, and Wells Fargo Investment Institute. Top chart as of September 30, 2018. Bottom chart as of December 31, 2018. EPS = earnings per share.

KEY TAKEAWAYS

- Although corporate earnings growth has hit its late cycle peak, profit margins continue to remain strong.
- Solid earnings growth should keep hiring at a healthy pace into 2019.

Companies favoring labor over capital

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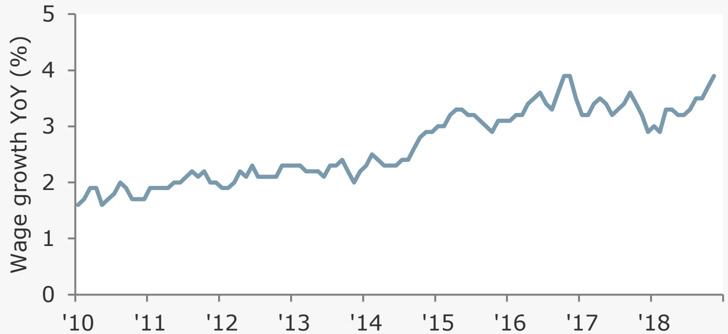
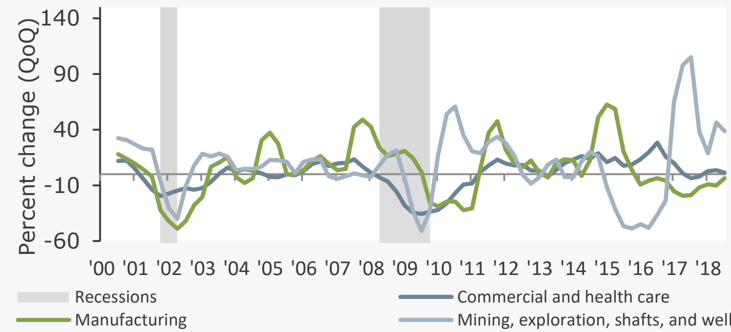
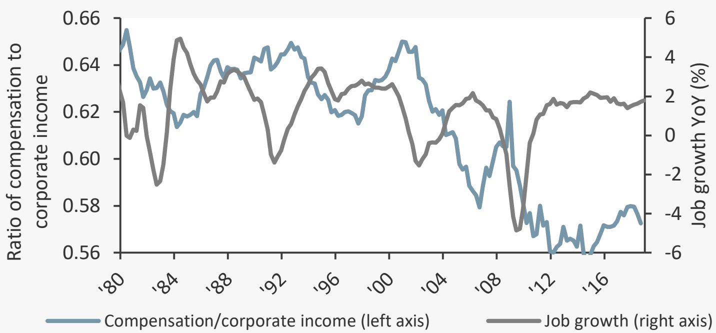
WAGE GROWTH IS RISING



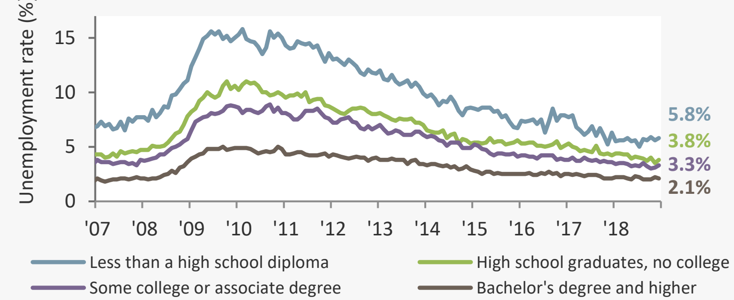
CAPITAL SPENDING



LOW WAGES/EARNINGS = MORE JOBS



JOB OPPORTUNITIES DEPEND ON EDUCATION



Sources: Bloomberg, Bureau of Economic Analysis, Bureau of Labor Statistics, FactSet, and Wells Fargo Investment Institute. Wage growth as of November 30, 2018. Compensation/corporate income and capital spending as of September 30, 2018. Job growth and unemployment rate as of December 31, 2018. Shaded area represents time frame of a U.S. economic recession.

KEY TAKEAWAYS

- Since the recession, companies have been steadily hiring workers but have inconsistently invested in capital.
- Workers with specific skills and higher educational levels fared better during the recession and currently have very low levels of unemployment.

Confidence builds despite uncertainty

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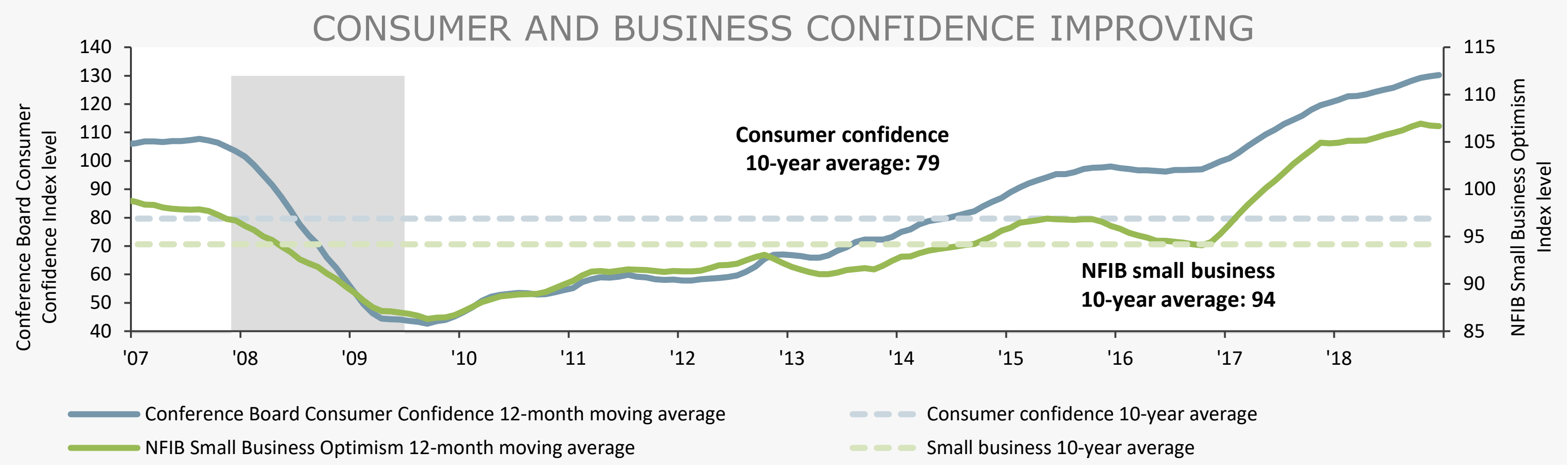
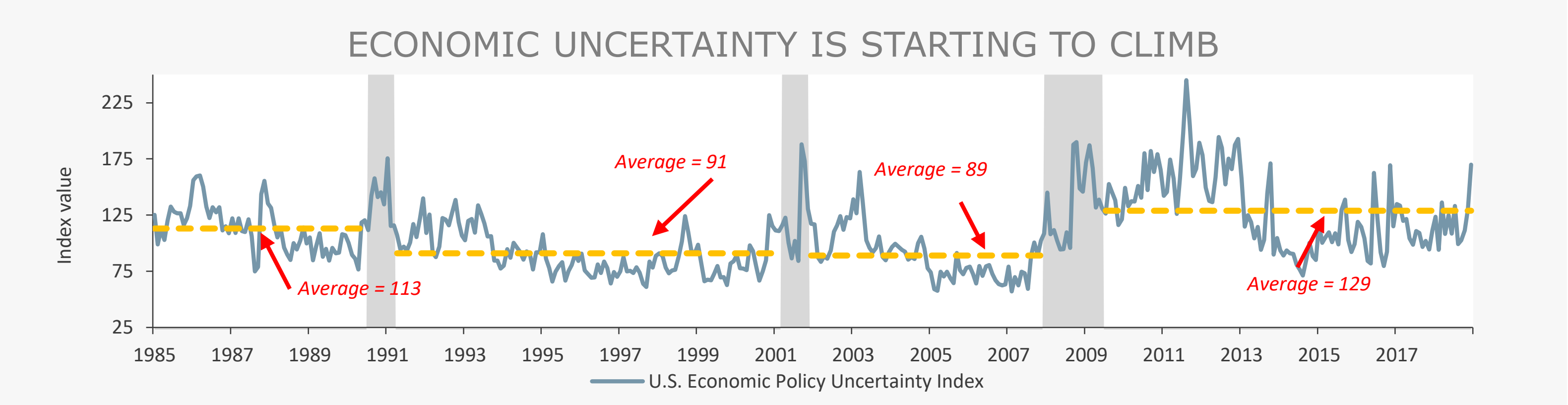


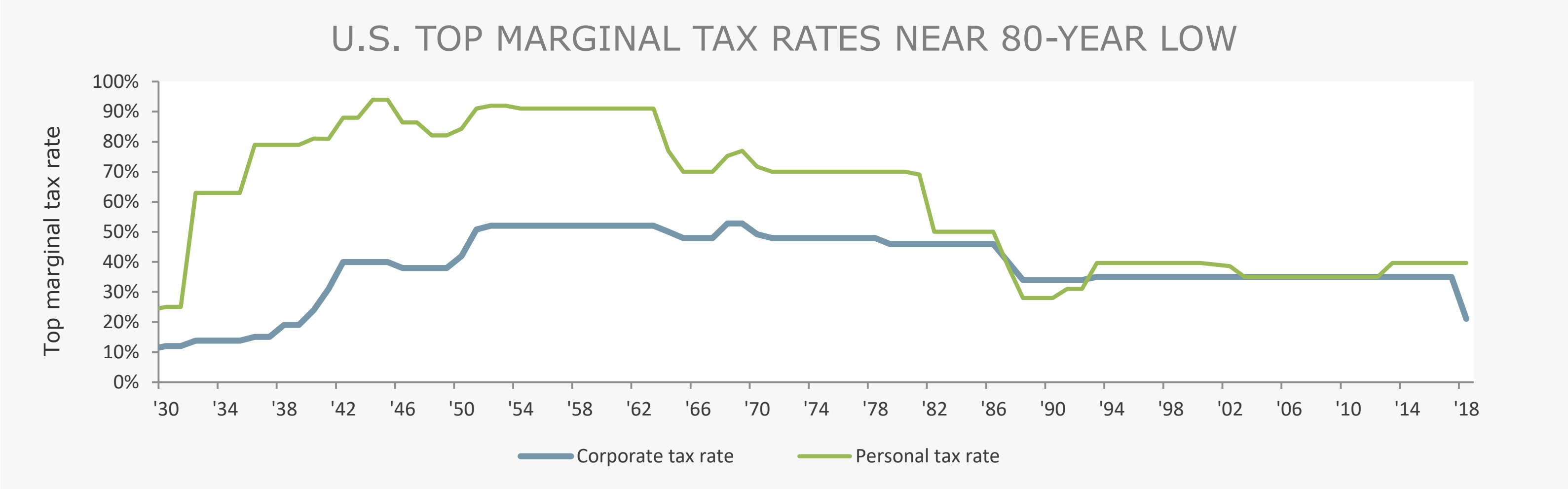


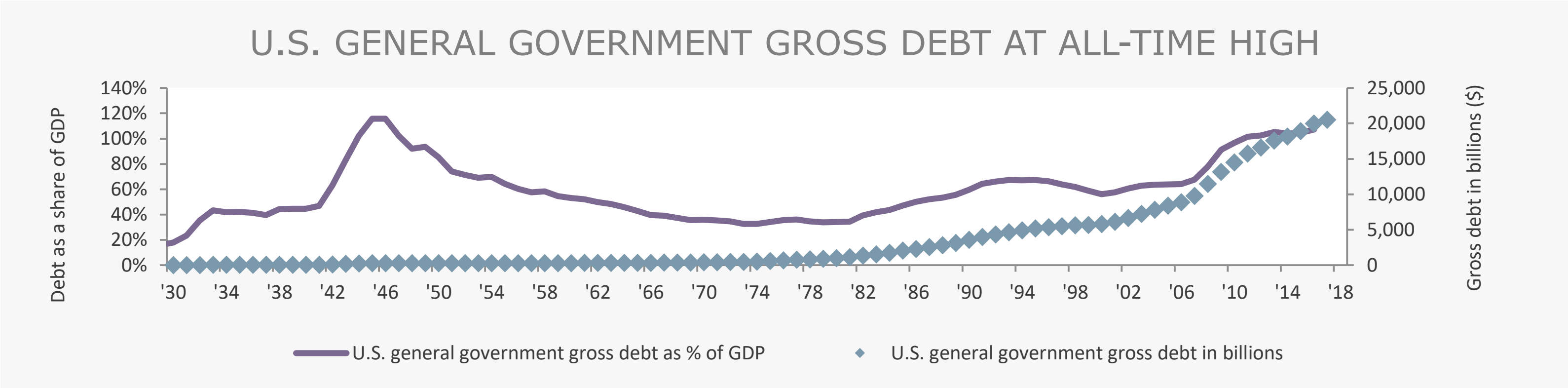
Sources: The Conference Board; National Federation of Independent Business (NFIB); Economic Policy Uncertainty Index—Baker, Bloom, and Davis; Bloomberg; and Wells Fargo Investment Institute, as of December 31, 2018. NFIB Small Business Optimism as of November 30, 2018. Shaded area represents a U.S. economic recession. The Consumer Confidence Index (CCI) tracks sentiment among households or consumers. The NFIB Small Business Index tracks the general state of the economy as it relates to businesses.

KEY TAKEAWAYS

- Coming out of the last recession, small-business owners were most concerned about poor sales and least concerned about labor quality. Today, those concerns have reversed.
- Consumer confidence remains close to the highest level in the recovery, and business sentiment benefits from U.S. tax reform.

Tax reform is complicated by debt





Sources: Internal Revenue Service, U.S. Department of Treasury, and Wells Fargo Investment Institute. Top chart as of December 31, 2018. Bottom chart as of December 31, 2017.

KEY TAKEAWAYS

- The new tax bill lowers the top corporate tax rate from 35% to 21% and allows for 100% expensing of capital equipment. This is positive news for U.S. corporate earnings.
- Rising deficits from tax reform and the congressional budget deal may pose risks further down the road.

Equities highlights

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General

- Volatility picked up and equity markets declined in the fourth quarter of 2018.
- We expect periods of market uncertainty in the near term, but realize that volatility can often present opportunities for investors.

Domestic

- Major U.S. equity indices corrected lower with U.S. small caps entering bear market territory.
- We expect greater volatility in 2019, but record high earnings should create a favorable environment for equities.
- Adjusting for tax-related earnings improvements, U.S. equity prices appear fairly valued at current levels.
- The current bull market is the longest in the history of the S&P 500 Index; however, we believe there is still more room for it to run.
- We currently favor the more cyclical sectors that are sensitive to the ebb and flow of the domestic economy.

International

- Looking ahead, earnings growth could push the MSCI EAFE Index higher.
- We continue to recommend seeking opportunities in emerging markets, particularly emerging Asia.

Equity scorecard

Asset class	4Q18 return (%)	2018 return (%)	P/E			Dividend yield (%)
			Current	20-year average	20-year median	
U.S. Large Cap Equities	-13.52	-4.38	17.12	19.25	18.08	2.15
U.S. Mid Cap Equities	-15.37	-9.06	18.32	21.96	21.47	2.28
U.S. Small Cap Equities	-20.20	-11.01	44.68	41.75	37.16	1.67
Developed Market Ex-U.S. Equities	-12.50	-13.36	13.45	25.38	18.33	3.72
Emerging Market Equities	-7.40	-14.25	11.56	14.72	13.46	2.99
Frontier Market Equities	-4.32	-16.20	10.91	–	–	3.98

Sources: Bloomberg, Morningstar Direct, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Large cap = S&P 500 Index. Mid cap = Russell Midcap Index. Small cap = Russell 2000 Index. Developed market Ex-U.S. = MSCI EAFE Index. Emerging market = MSCI Emerging Markets Index. Frontier market = MSCI Frontier Markets Index. P/E = price/earnings. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results****.*

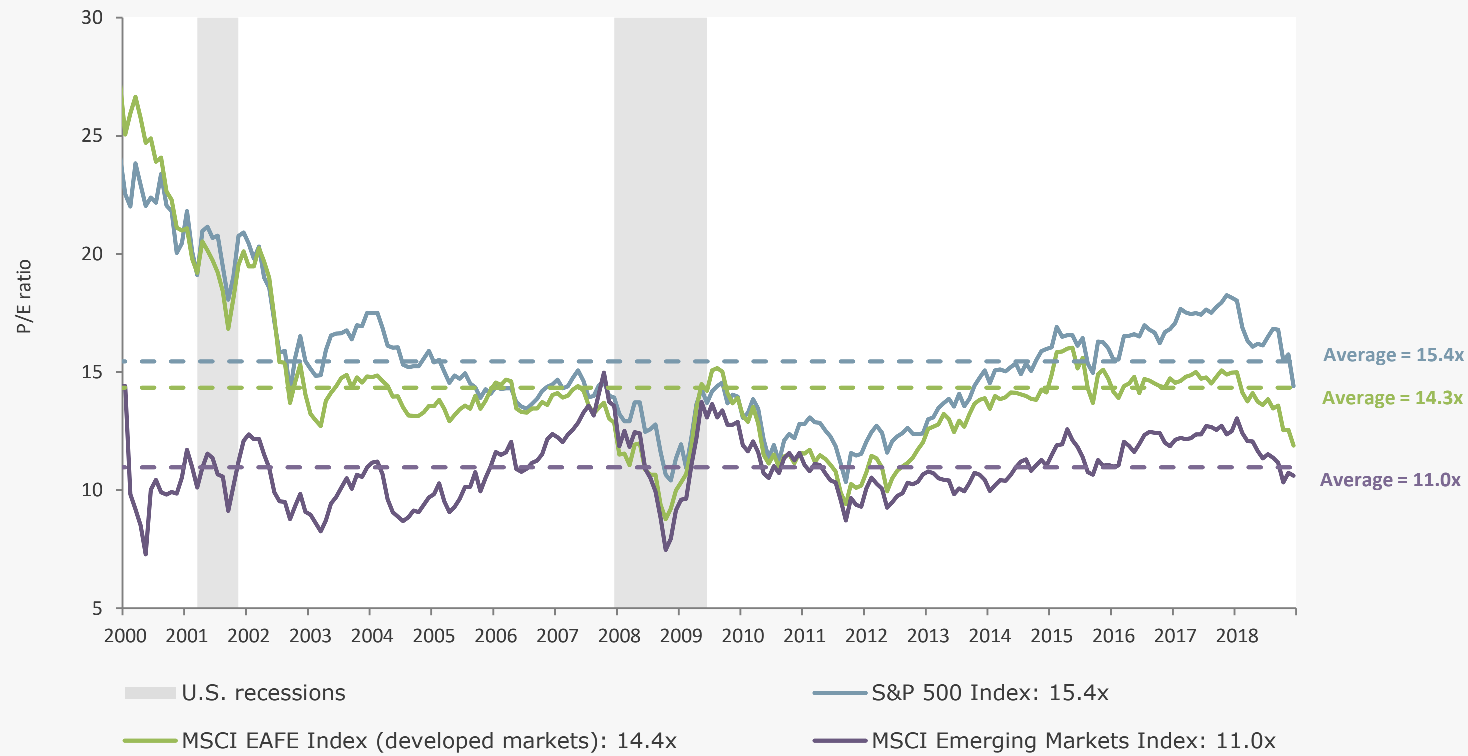
KEY TAKEAWAYS

- Volatility picked up and equities markets corrected lower in the fourth quarter of 2018 and were down for the year.
- Emerging market and frontier market equities outperformed U.S. and developed market equities in the fourth quarter of 2018.

**Note: March 2009 to June 2009 P/Es for small cap have been removed due to their outlier condition.*

Forward-looking valuations

FORWARD VALUATIONS ARE NEAR LONGER-TERM AVERAGES



Sources: FactSet and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. P/E ratios represent the total price of the index divided by its total earnings. The S&P 500 Index is a market-capitalization-weighted index considered representative of the U.S. stock market. The MSCI EAFE Index and the MSCI Emerging Markets Index are equity indices that capture large- and mid-cap representation across 21 developed market countries (excluding the U.S. and Canada) and 24 emerging market countries, respectively, around the world. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Adjusting for tax-related earnings benefits, U.S. equities appear fairly valued.
- Investors are focused on tax reform and the expected resulting earnings growth.

Returns during periods of rising rates

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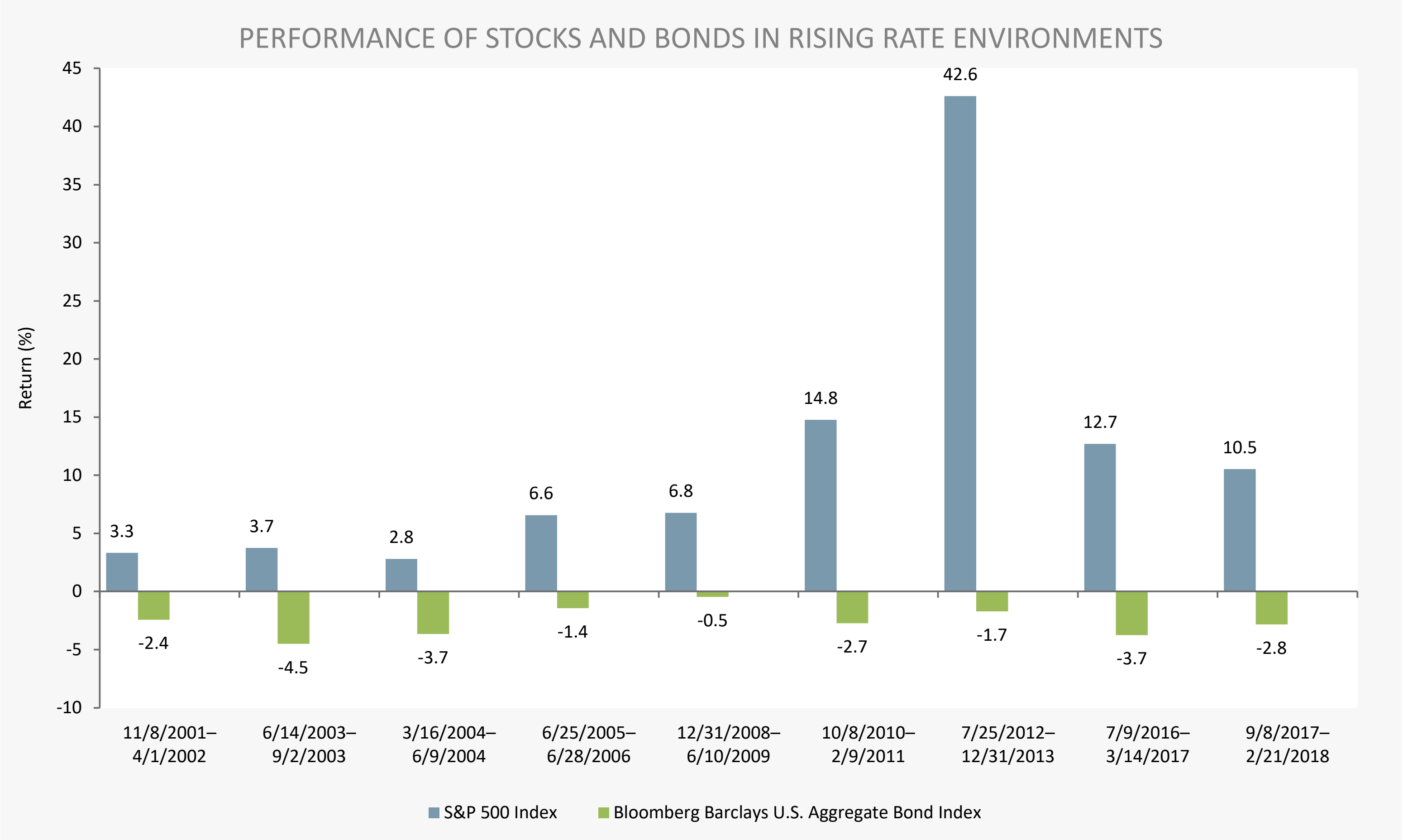

Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. ***Past performance is no guarantee of future results.*** *An index is unmanaged and not available for direct investment. There is no guarantee any asset class will perform in a similar manner in the future or in other rising rate environments.*

KEY TAKEAWAYS

- Historically, U.S. stocks have outperformed bonds while interest rates are rising.

Volatility spiked during uncertain times

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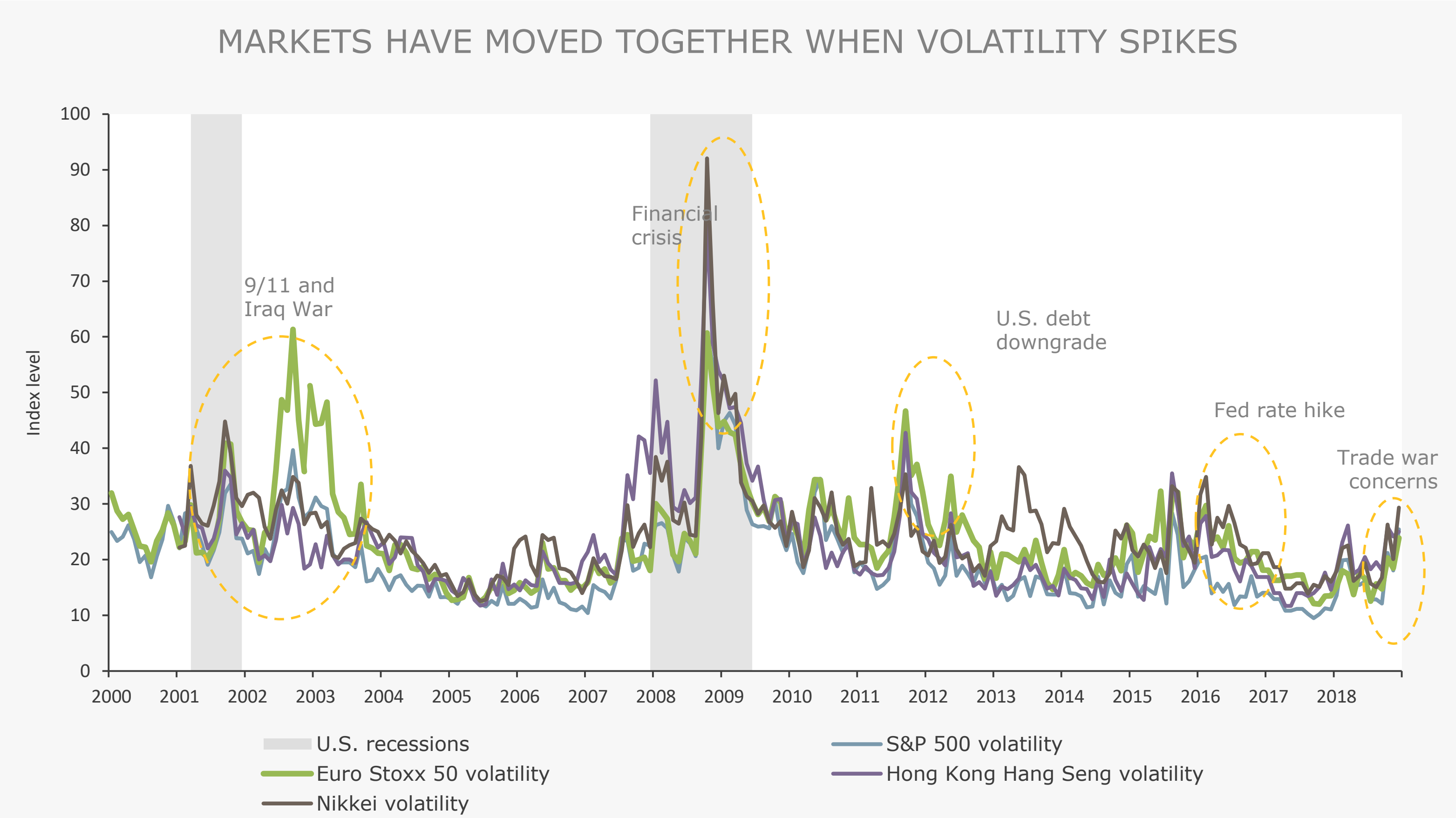

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. S&P 500 volatility measured by the CBOE Volatility Index® (VIX®). Euro STOXX 50 volatility measured by the VSTOXX Index. Hong Kong Hang Seng volatility measured by the HSI Volatility Index. Nikkei volatility measured by the VNKY Index. An index is unmanaged and not available for direct investing.

Past performance is no guarantee of future results.

KEY TAKEAWAYS

- Since the financial crisis, global equity markets have experienced periodic spikes in volatility due to a number of factors.
- We expect periods of market uncertainty in the coming year, but investors should realize that volatility can often present opportunities.

Equity sector compositions have changed over time

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Sectors Weights	S&P 500 Index			MSCI EAFE Index			MSCI EM Index		
	1997	2012	2018	1997	2012	2018	1997	2012	2018
Information Technology	13.28%	19.85%	20.12%	4.90%	4.62%	5.96%	0.58%	14.03%	14.27%
Financials	15.13%	14.26%	13.31%	26.64%	21.60%	19.49%	26.25%	23.16%	24.78%
Consumer Discretionary	11.41%	11.26%	9.94%	16.38%	10.87%	11.23%	13.26%	7.91%	10.42%
Materials	5.38%	3.38%	2.73%	8.06%	9.83%	7.37%	6.76%	13.08%	7.68%
Energy	9.00%	10.63%	5.32%	5.32%	8.36%	5.86%	8.96%	8.25%	7.92%
Consumer Staples	13.03%	11.41%	7.41%	6.95%	12.03%	11.57%	0.56%	12.38%	6.71%
Industrials	12.38%	10.49%	9.20%	13.40%	12.69%	14.31%	17.23%	6.47%	5.51%
Communication Services	6.22%	3.19%	10.12%	4.97%	5.57%	5.55%	14.94%	8.15%	14.11%
Health Care	11.04%	11.82%	15.54%	8.00%	10.10%	11.17%	–	1.12%	2.82%
Real Estate	–	–	2.96%	–	–	3.72%	11.46%	3.62%	3.03%
Utilities	3.12%	3.72%	3.34%	5.36%	4.32%	3.76%	–	1.83%	2.74%

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. The Telecommunications Services sectors was replaced with the Communications Services sector on September 28, 2018. The composition of the indexes in 1997 and 2012 still reflect the prior sector composition.

KEY TAKEAWAYS

- The information technology sector weight has increased in all three indices above—but most significantly in emerging markets.
- We expect less volatility in earnings from emerging markets due to this.

Market resilience

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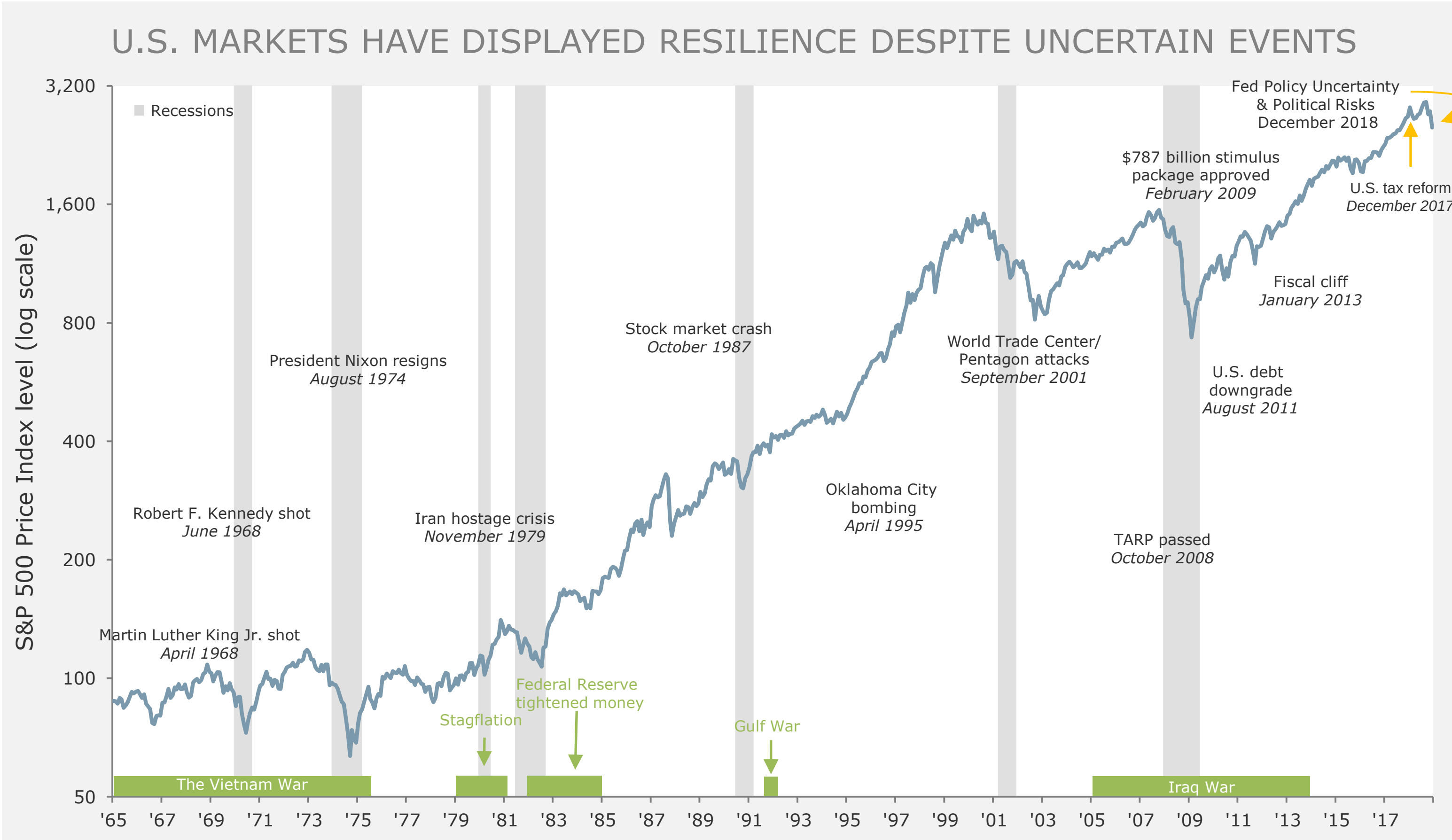

Sources: Wells Fargo Investment Institute, Bloomberg, Ned Davis Research, as of December 31, 2018. For illustrative purposes only. A price index is not a total return index and does not include the reinvestment of dividends. An index is unmanaged and not available for direct investment.

KEY TAKEAWAYS

- Market uncertainty is a fact of life, and volatility is a normal part of market behavior.

Staying the course

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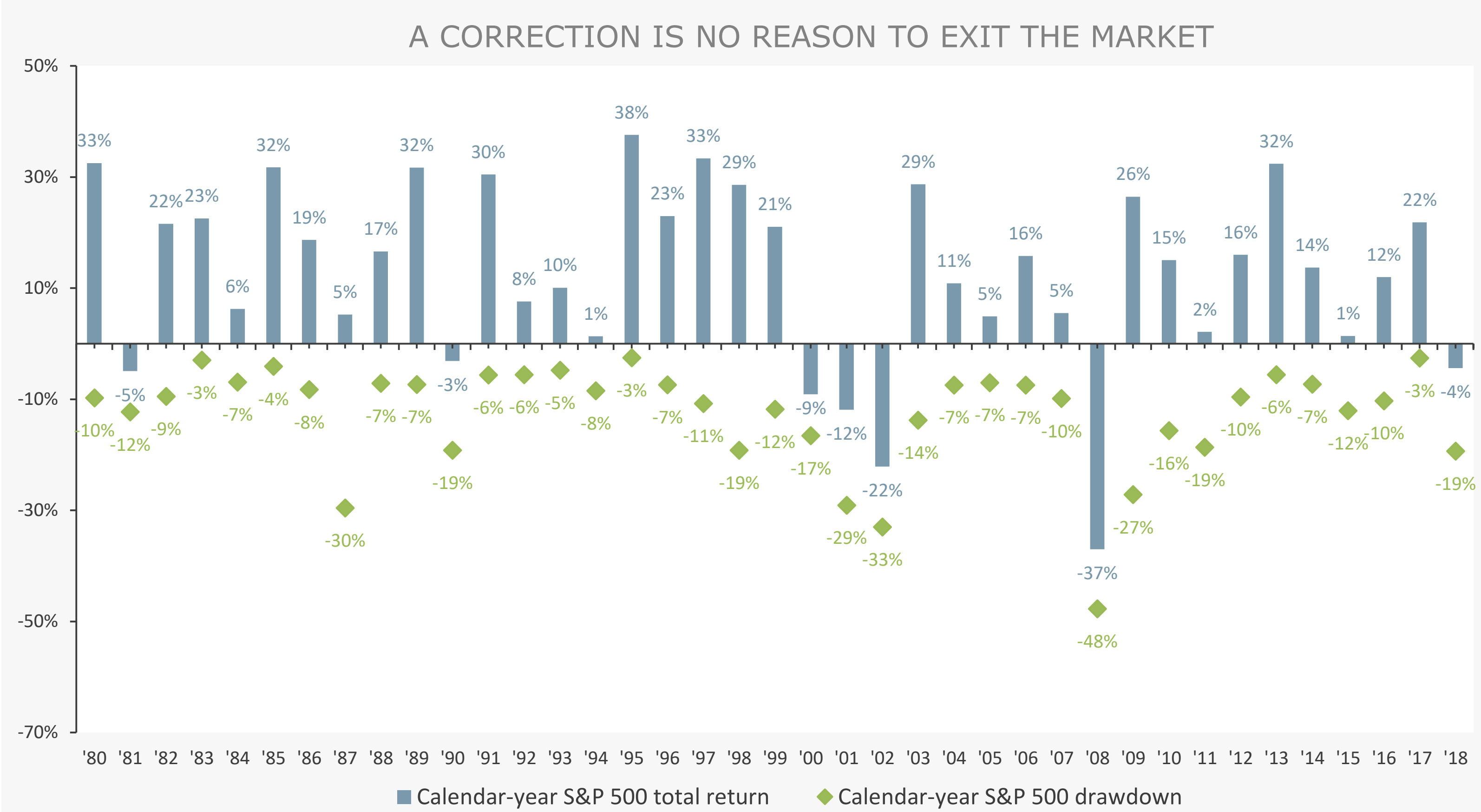

Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Severe intra-year corrections do not necessarily indicate subpar performance for the calendar year. Analysis was compiled using the daily price of the S&P 500 Total Return Index. Calendar-year drawdowns represent the largest market drops from peak to trough for each year. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Market corrections, albeit painful for some, can offer opportunities for investors to purchase high-quality stocks at reasonable prices.

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Room to run?

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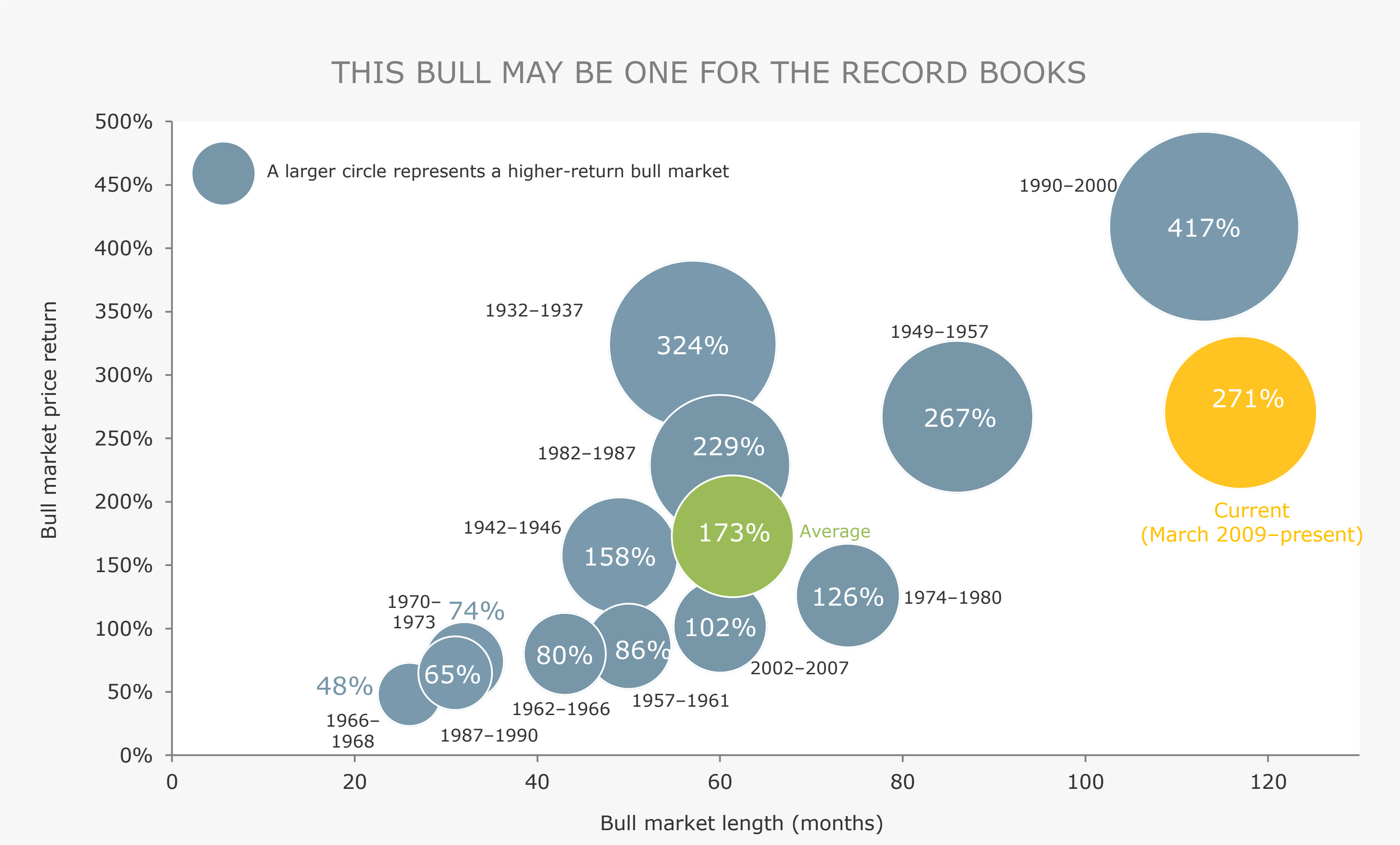

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. Market represented by the S&P 500 Index. For illustrative purposes only. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results****. A price index is not a total return index and does not include the reinvestment of dividends.*

KEY TAKEAWAYS

- The current recovery has surpassed the return and duration of the average bull market and now has become the longest bull market in history; however, we believe there is still more room for it to run.

Markets may exhibit seasonality

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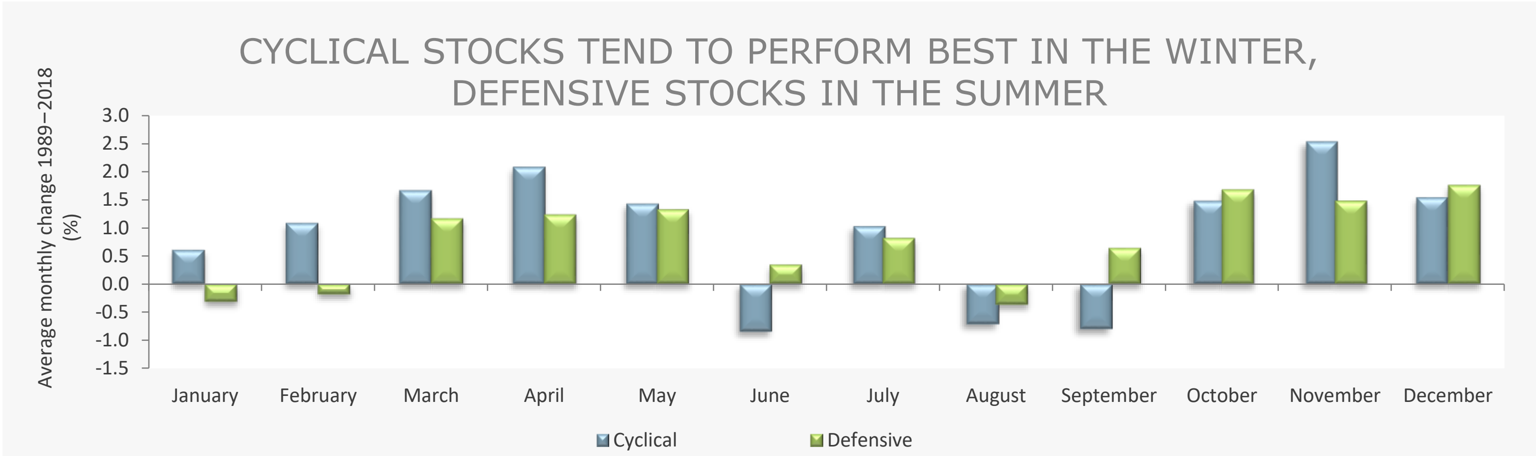

	Index Name	% weight	QTD % change	YTD % change	12-month forward P/E	Dividend yield %
	S&P 500	**100.0**	**-13.5**	**-4.4**	**15.0**	**2.2**
Cyclical	Consumer Discretionary	9.9	-16.4	0.8	18.8	1.5
Defensive	Consumer Staples	7.4	-5.2	-8.4	17.1	3.3
Defensive	Energy	5.3	-23.8	-18.1	13.7	3.8
Cyclical	Financials	13.3	-13.1	-13.0	10.7	2.4
Defensive	Health Care	15.5	-8.7	6.5	15.2	1.8
Cyclical	Industrials	9.2	-17.3	-13.3	14.0	2.5
Cyclical	Information Technology	20.1	-17.3	-0.3	15.6	1.8
Cyclical	Materials	2.7	-12.3	-14.7	14.4	2.1
Cyclical	Real Estate	3.0	-3.8	-2.2	38.4	3.7
Defensive	Communication Services	10.1	-13.2	-12.5	16.0	1.6
Defensive	Utilities	3.3	1.36	4.1	16.8	3.6

Sources: FactSet, Morningstar Direct, S&P Capital IQ, and Wells Fargo Investment Institute. Top chart: cyclical and defensive stocks according to the month of the year as of December 31, 2018. Bottom table as of December 31, 2018. QTD = quarter to date. P/E = price/earnings.. For illustrative purposes only. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- The January through April period historically has favored equities and cyclical holdings (over defensive ones) more than the June through mid-October period.
- We currently favor the more cyclical sectors that are sensitive to the ebb and flow of the domestic economy.

International regional views on equity markets

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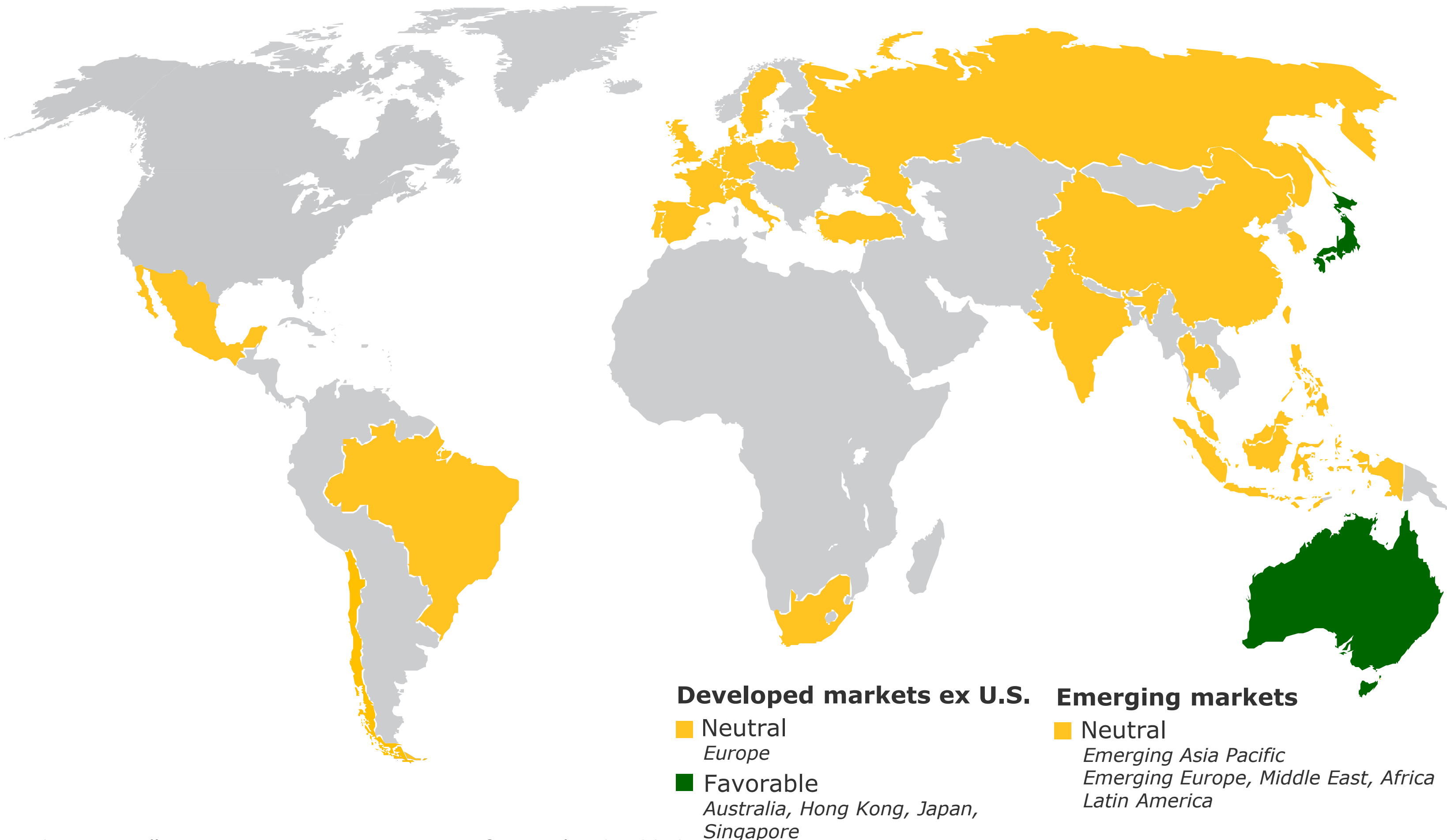

Source: Wells Fargo Investment Institute, as of December 31, 2018

KEY TAKEAWAYS

- We hold a neutral view on Europe, while we favor Pacific developed markets based on improving international trade and earnings fundamentals.
- Our neutral ratings across the emerging market regions reflects improving economic and earnings fundamentals balanced against stretched valuations in some markets.

International markets: bulls and bears

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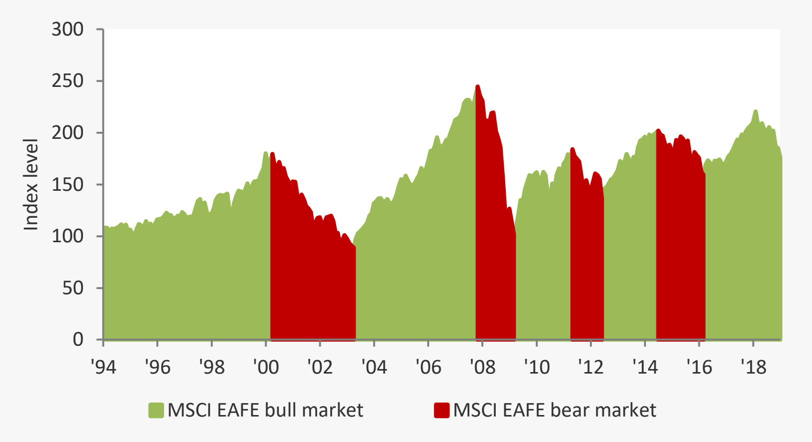
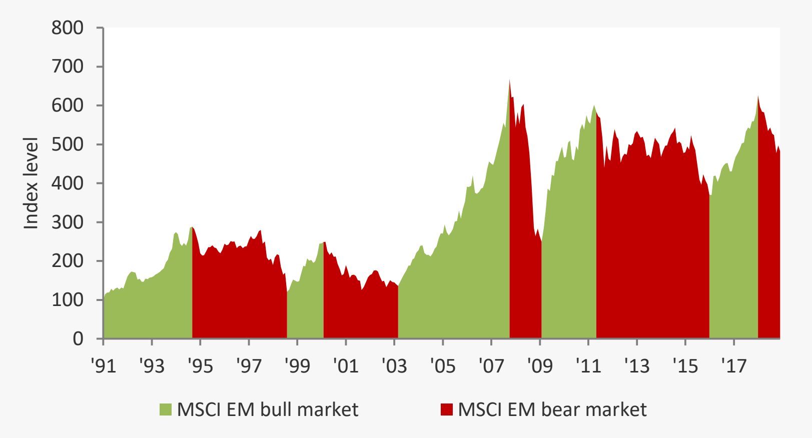
MSCI EAFE Index, Dec. 1993–Dec. 2018				
Bull start	Bull end	Duration—months	Returns—total	Returns—annualized
Dec-93	Mar-00	76	107%	12%
Mar-03	Oct-07	55	205%	28%
Feb-09	Apr-11	26	68%	27%
May-12	Jun-14	25	50%	22%
Feb-16	–	0	27%	9%
	Average	**36**	**91%**	**19%**



MSCI EM Index, Jan. 1991–Dec. 2018				
Bull start	Bull end	Duration—months	Returns—total	Returns—annualized
Jan-91	Sep-94	44	233%	39%
Aug-98	Feb-00	17	49%	31%
Mar-03	Oct-07	55	428%	44%
Feb-09	May-11	26	118%	42%
Jan-16	Jan-18	24	94%	39%
	Average	**33**	**184%**	**39%**



Sources: Bloomberg, Morningstar Direct, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only.The MSCI EAFE Index and the MSCI Emerging Markets Index are equity indices that capture large- and mid-cap representation across 21 developed market countries (excluding the U.S. and Canada) and 24 emerging market countries, respectively, around the world. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- International bull markets have become shorter in duration and more frequent than before.

Developed market divergence

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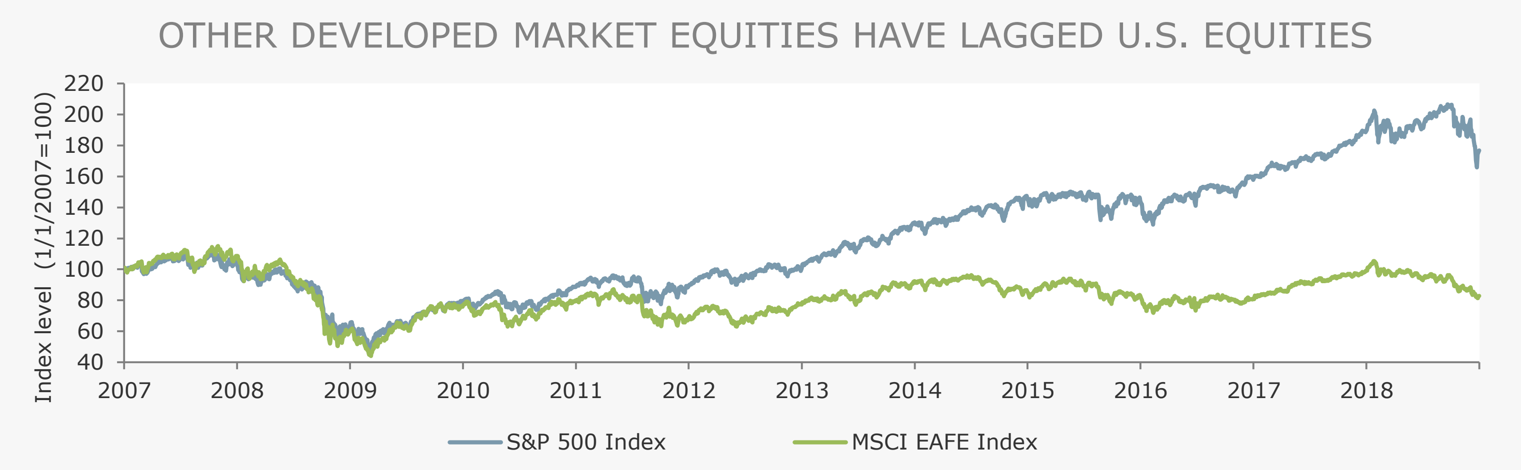

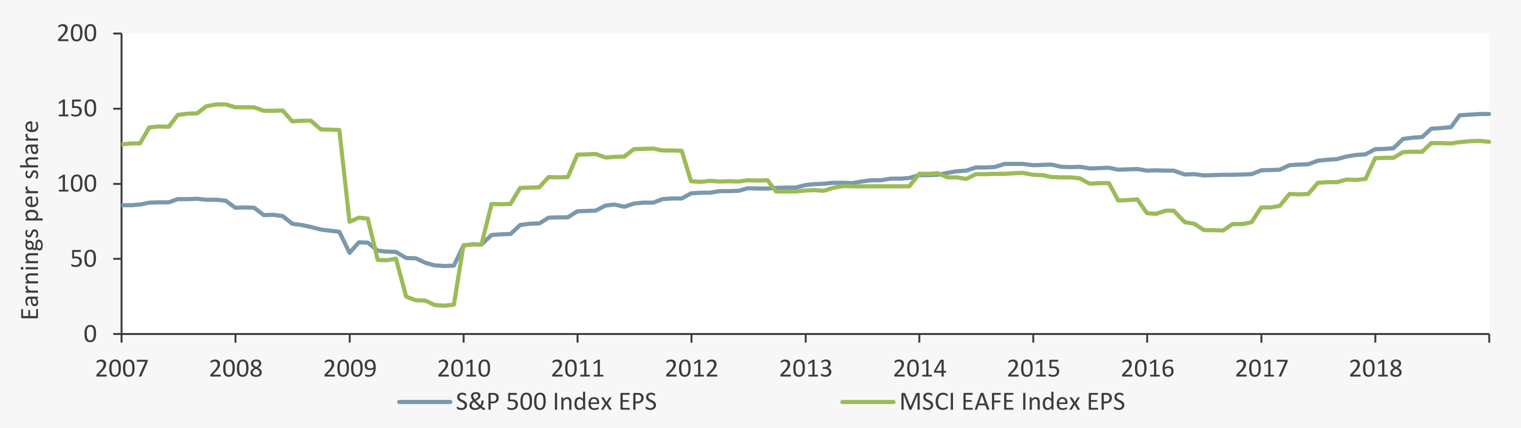

*Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. EPS = earnings per share. For illustrative purposes only. The MSCI EAFE Index is an equity index which captures large- and mid-cap representation across developed market countries around the world excluding the U.S. and Canada. The S&P 500 Index is a market-capitalization-weighted index considered representative of the U.S. stock market. An index is unmanaged and not available for direct investment. Past **performance is no guarantee of future results**.*

KEY TAKEAWAYS

- The performance of developed market equities excluding the U.S. (MSCI EAFE Index) and U.S. equity performance began to diverge in 2012.
- Looking ahead, earnings growth could push the MSCI EAFE Index higher.

Emerging market earnings recovery

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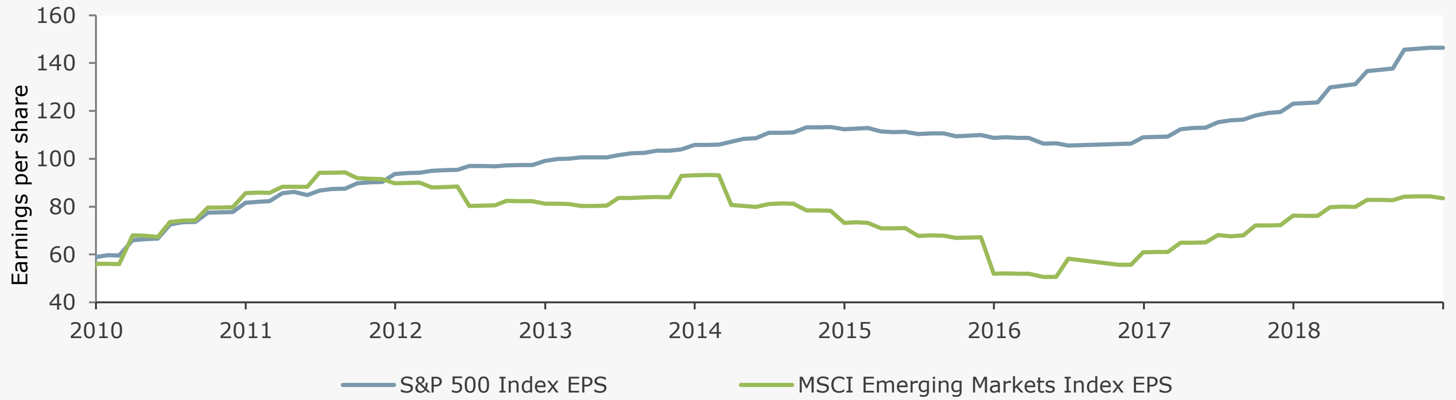
EMERGING MARKET EARNINGS ARE RISING



Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. EPS = earnings per share. For illustrative purposes only. The MSCI Emerging Markets Index is a free-float-adjusted market-capitalization-weighted index designed to measure equity market performance of emerging markets. The S&P 500 Index is a market-capitalization-weighted index considered representative of the U.S. stock market. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results***.

KEY TAKEAWAYS

- Since 2017, emerging market earnings have improved steadily.
- We continue to recommend seeking opportunities in emerging markets, particularly emerging Asia.

Fixed-income highlights

General

- Yields have risen from cycle lows as rates rise globally.
- Yields available in many segments of the bond market are still materially lower than investors have historically experienced.

Domestic

- U.S. bond yields have ticked lower on global growth concerns as the Fed continues to gradually raise interest rates.
- Although the U.S. Treasury yield curve continues to flatten, we do not see this foreshadowing a near-term economic downturn.
- High-yield corporate bond spreads have widened but we still see little risk-adjusted value in the asset class.

International

- Developed market government bond yields are rising from their five-year lows as deflationary concerns abate and the European Central Bank (ECB) prepares to end its quantitative easing measures.

Fixed-income scorecard

Asset class	4Q18 return (%)	2018 return (%)	Duration (years)	Yield (%)
U.S. Short Term Taxable Fixed Income	1.18	1.60	1.84	2.76
U.S. Intermediate Term Taxable Fixed Income	1.99	0.90	4.94	3.27
U.S. Long Term Taxable Fixed Income	0.90	-4.55	14.70	4.07
High Yield Taxable Fixed Income	-4.53	-2.08	3.92	8.00
Developed Market ex.-U.S. Fixed Income	1.55	-1.68	8.43	0.98
Emerging Market Fixed Income	-1.19	-4.61	6.65	7.06

Sources: FactSet, Morningstar Direct, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Bloomberg Barclays U.S. Aggregate 1–3 Year Bond Index, Bloomberg Barclays U.S. Aggregate 5–7 Year Bond Index, Bloomberg Barclays U.S. Aggregate 10+ Year Bond Index, Bloomberg Barclays U.S. Corporate High Yield Bond Index, J.P. Morgan Global Ex U.S. Index (Unhedged), J.P. Morgan EMBI Global Index (USD). Yields and returns represent past performance and fluctuate with market conditions. Current performance may be higher or lower than that quoted above. ***Past performance is no guarantee of future results.*** *An index is unmanaged and not available for direct investment.*

KEY TAKEAWAYS

- Emerging market bonds and high yield fixed income underperformed other asset classes in 2018.
- Longer-term U.S. bonds continue to underperform as shorter-term yields increase at a quicker pace.
- We currently favor U.S. fixed income over other developed markets, along with moving up in credit quality. We also favor short-term bonds over long-term fixed income.

Yields are off cycle lows

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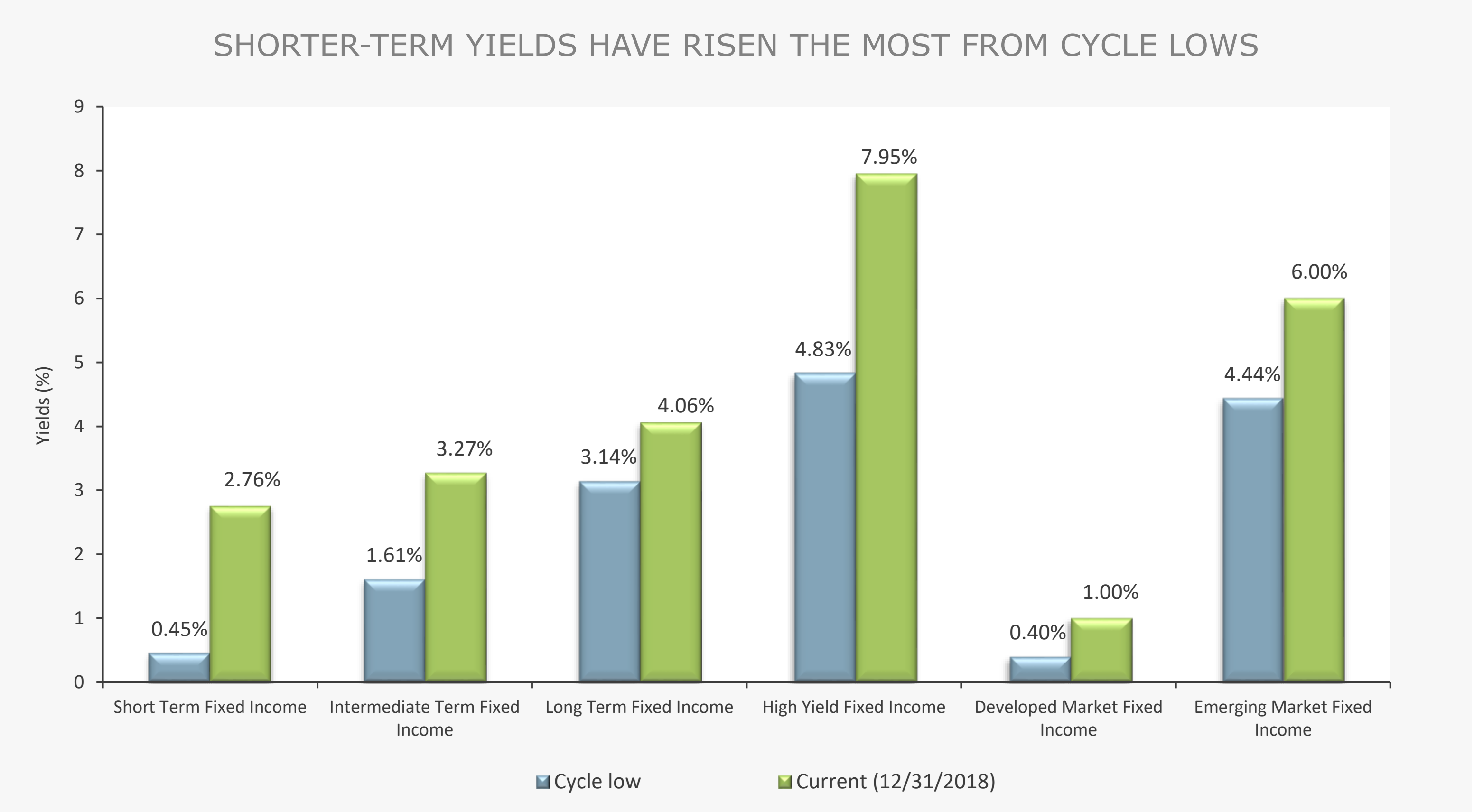

Sources: Bloomberg, FactSet, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Bloomberg Barclays U.S. Aggregate 1–3 Year Bond Index, Bloomberg Barclays U.S. Aggregate 5–7 Year Bond Index, Bloomberg Barclays U.S. Aggregate 10+ Year Bond Index, Bloomberg Barclays U.S. Corporate High Yield Bond Index, J.P. Morgan Global Ex U.S. Index (Unhedged), J.P. Morgan EMBI Global Index (USD). Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above. An index is unmanaged and not available for direct investment ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Yields have risen from cycle lows as rates rise globally.
- Yields are still materially lower than investors have historically experienced.

Developed market yields on the rise

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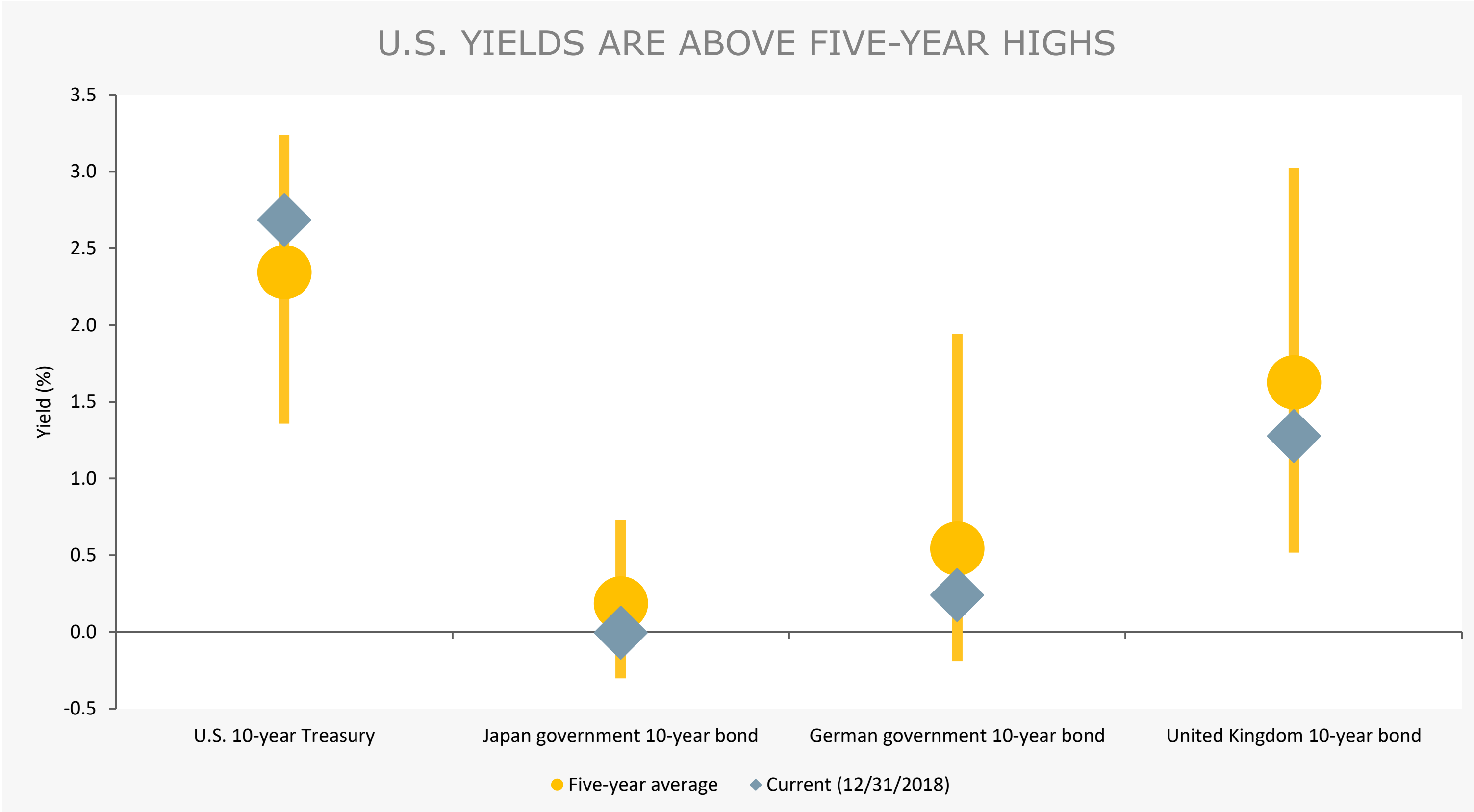

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Developed market government bond yields are rising from their five-year lows as deflationary concerns abate and the ECB prepares to end its quantitative easing measures.
- U.S. bond yields have ticked higher as the Fed continues to raise interest rates.

Yield curve and the tightening cycle

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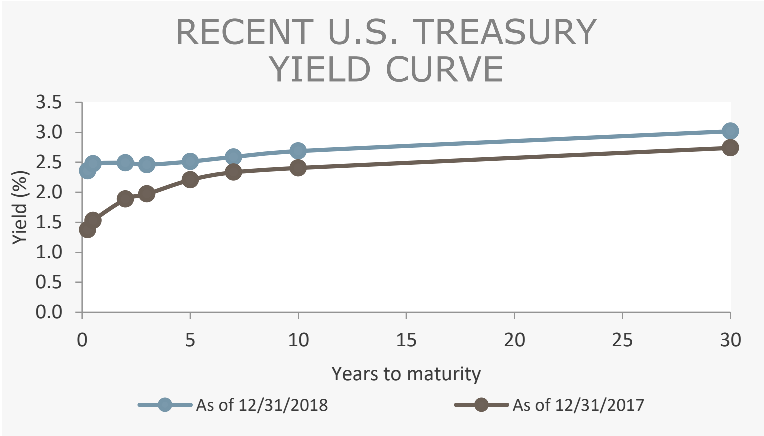

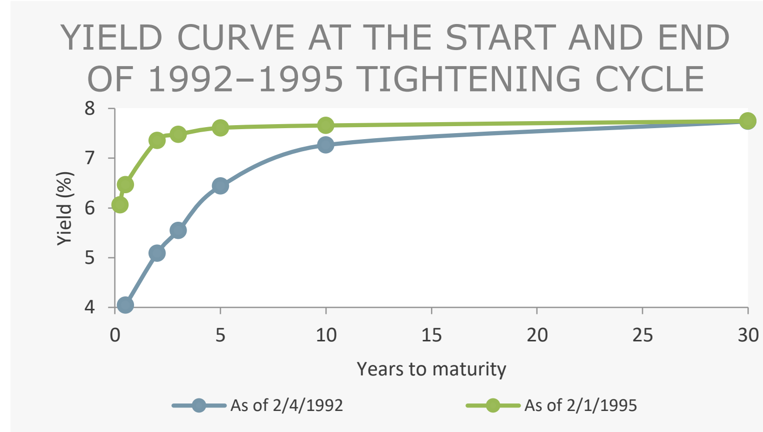

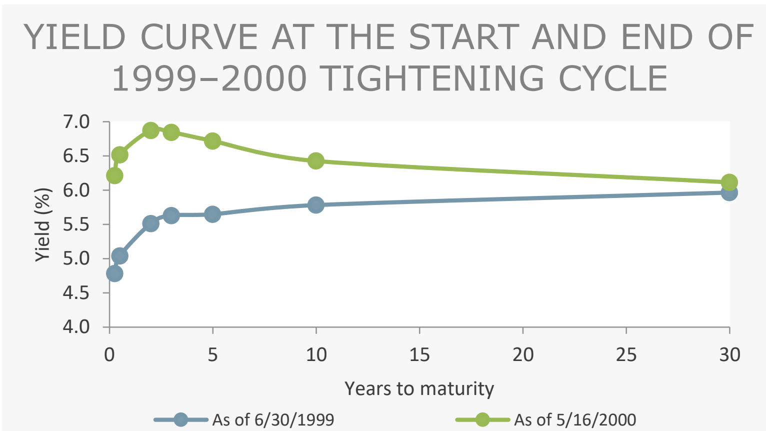

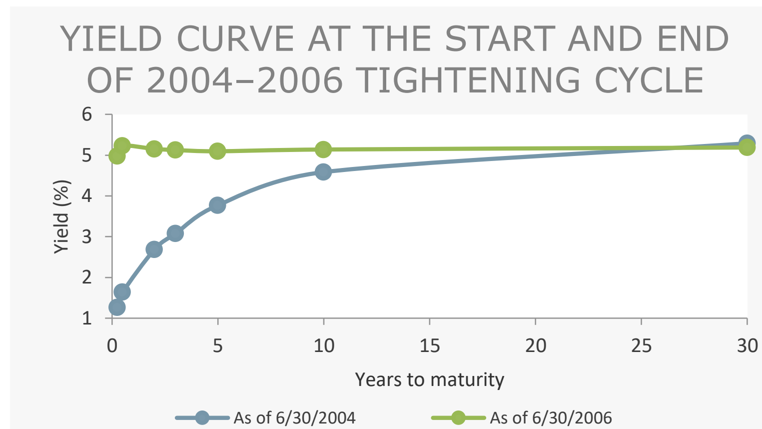

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above. ***Past performance is no guarantee of future results****.. A yield curve is a curve on a graph in which the yield of fixed-interest securities is plotted against the length of time they have to run to maturity.*

KEY TAKEAWAYS

- Yield curves tend to flatten/invert at the end of a tightening cycle.
- A steep interest rate curve often foreshadows a period of accelerating economic growth, while a flattening interest rate curve is a harbinger of declining growth.

Yield curve flattening but no recession

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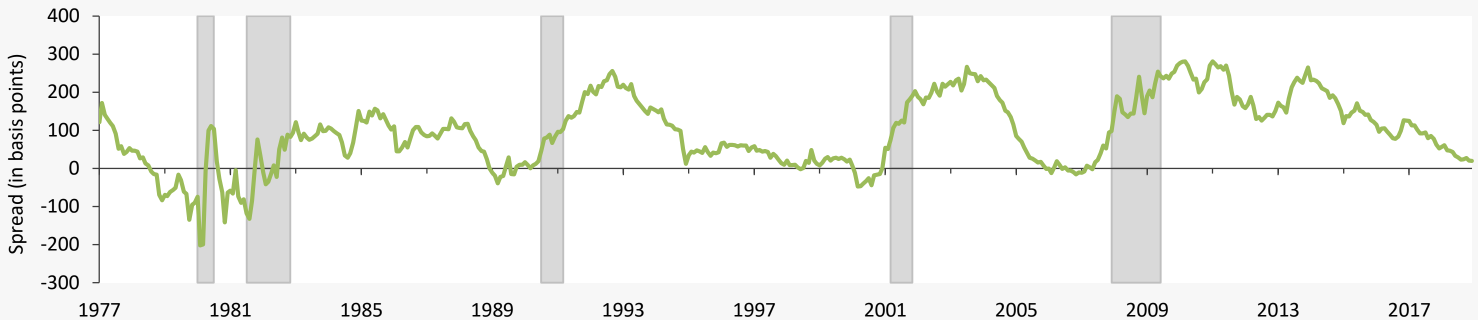
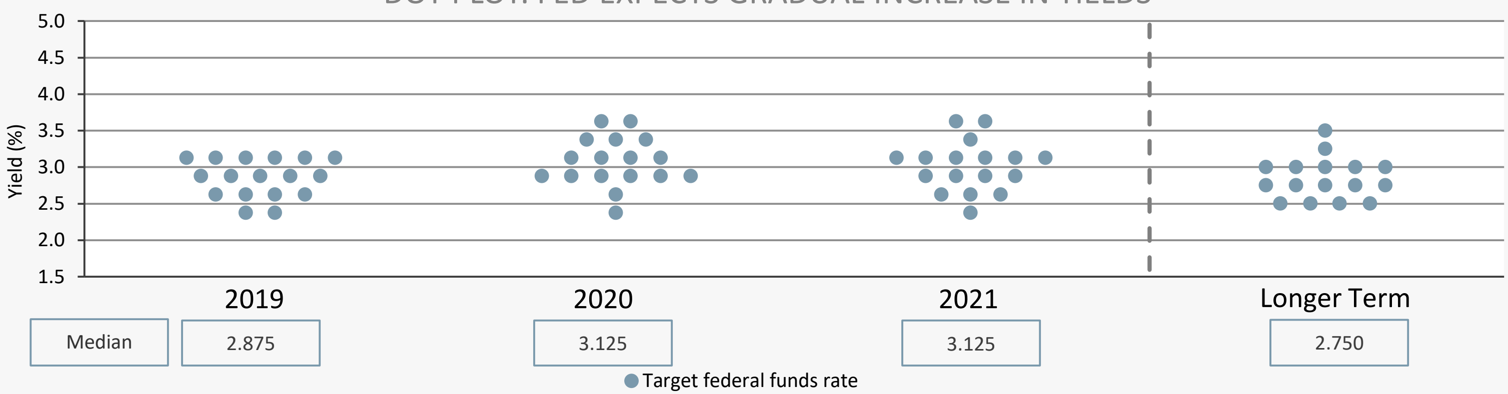
YIELD CURVE STEEPNESS: DIFFERENCE BETWEEN 10-YEAR AND 2-YEAR U.S. TREASURY YIELDS



DOT PLOT: FED EXPECTS GRADUAL INCREASE IN YIELDS



Note: The dot plot shows the projections of the 16 members of the Federal Open Market Committee (the rate-setting body within the Fed). Each dot represents a member's view on where the federal funds rate should be at the end of the various calendar years shown as well as in the long run.

Sources: Federal Reserve Board, Bloomberg, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Ten-Year Treasury Constant Maturity and the Two-Year Constant Maturity Indexes are published by the Federal Reserve Board and are based on the average yield of a range of Treasury securities, all adjusted to the equivalent of a 10-year maturity and the equivalent of a two-year maturity. Shaded area represents time frame of a U.S. economic recession. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above. ***Past performance is no guarantee of future results.*** *100 basis points equals 1%.*

KEY TAKEAWAYS

- The yield curve historically inverts (short-term rates higher than long-term rates) before a period of negative growth (a recession). The curve remains near its historical average, indicating that the current slow-growth environment is likely to remain intact for some time.
- The Fed raised interest rates at its December 2018 meeting. The revised dot plot implies two rate increases in 2019. Our current outlook is for two increases in 2019.

Opportunity in muni bonds

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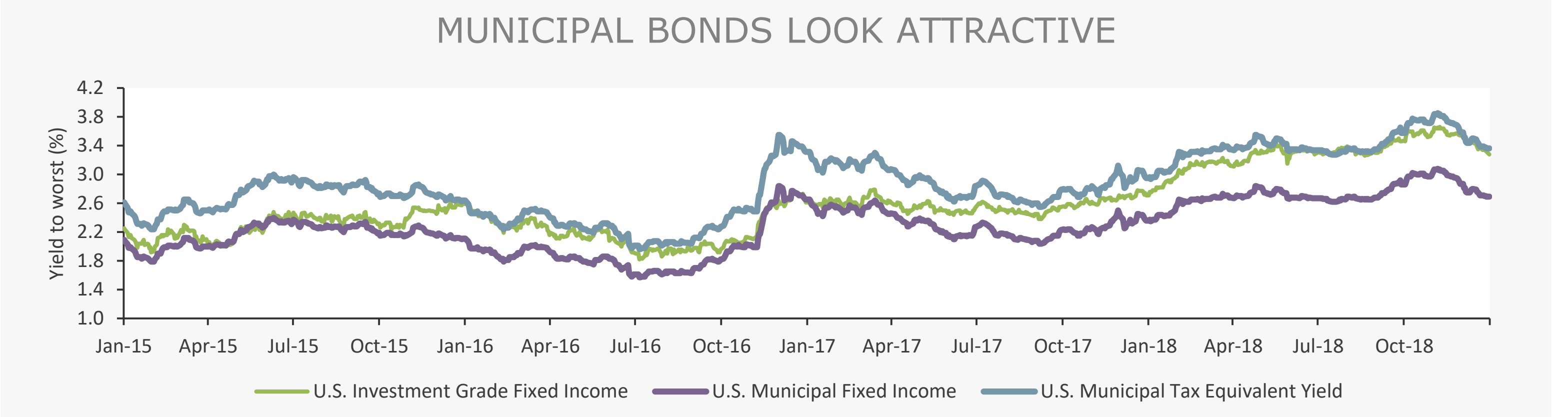

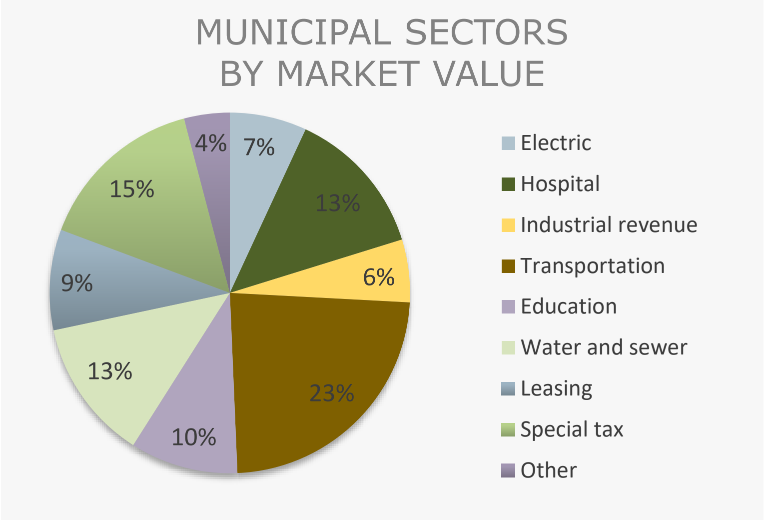

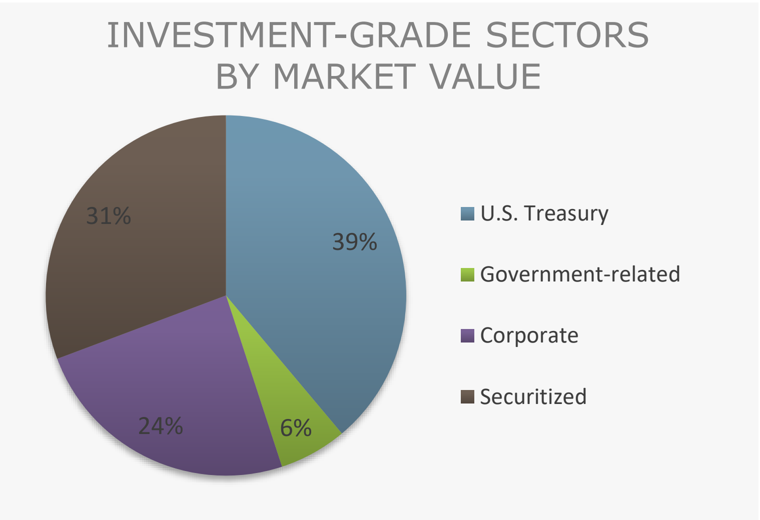

Sources: Bloomberg Barclays, FactSet, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Investment grade represented by Bloomberg Barclays U.S. Aggregate Bond Index and municipal represented by Bloomberg Barclays Municipal Bond Index. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above. ***Past performance is no guarantee of future results.*** *An index is unmanaged and not available for direct investment.*

KEY TAKEAWAYS

- We believe the new tax law could create an opportunity for outperformance of municipal bonds as demand rises.

Tax equivalent yield assumes a 20% effective tax rate. Yield to worst is the lowest potential yield that can be received on a bond without the issuer actually defaulting.

High-yield muni bonds are steady

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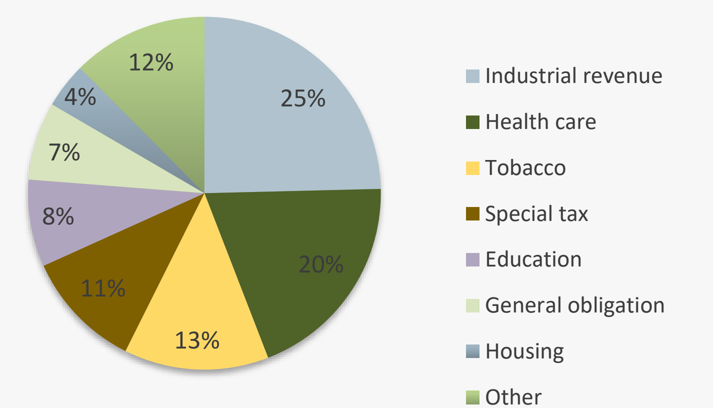
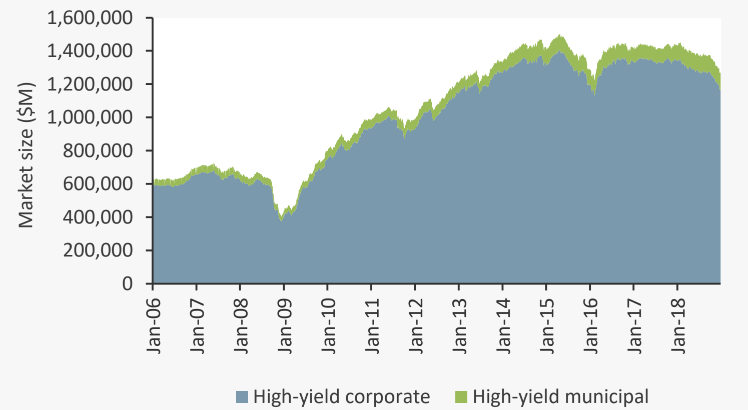
HIGH-YIELD CORPORATES ARE MORE VOLATILE

HIGH-YIELD MUNICIPAL SECTORS BY MARKET VALUE



CORPORATE HIGH-YIELD MARKET MAY BE MORE LIQUID DUE TO SIZE



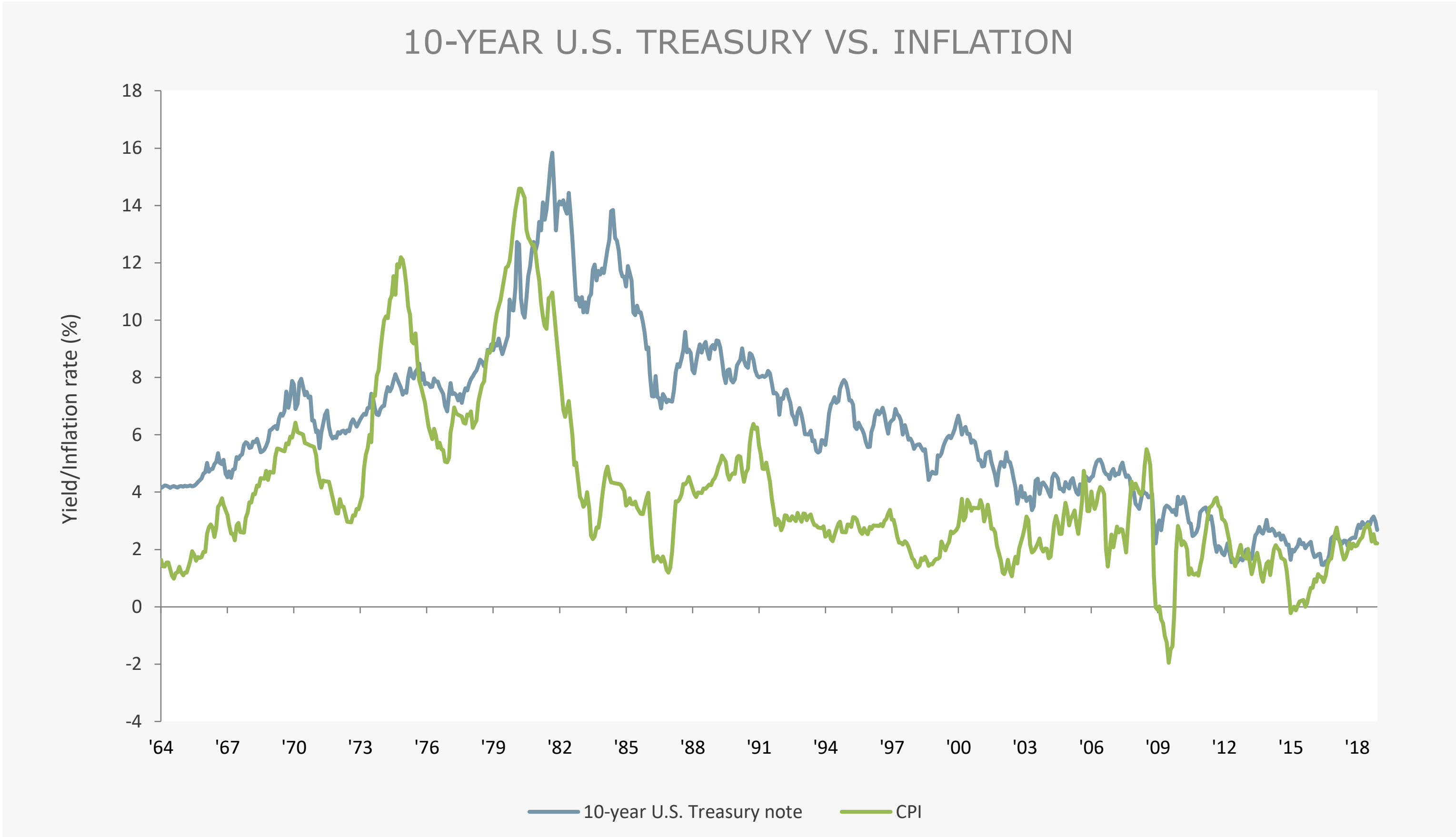
Sources: Bloomberg Barclays, FactSet, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. High-yield municipal = Bloomberg Barclays High Yield Municipal Bond Index. High-yield corporate = Bloomberg Barclays U.S. Corporate High Yield Bond Index. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above. ***Past performance is no guarantee of future results.*** *Yield to worst is the lowest potential yield that can be received on a bond without the issuer actually defaulting. An index is unmanaged and not available for direct investment.*

KEY TAKEAWAYS

- High-yield municipal bonds have performed relatively well despite headwinds from Puerto Rico and challenges experienced by their corporate counterparts.
- We recommend that investors reduce exposure to high-yield municipal debt and favor investment-grade municipal and/or taxable bonds as part of a well-diversified portfolio.

Inflation rate and T-bond yield converge

ECONOMY
EQUITIES
FIXED INCOME
REAL ASSETS
ALTERNATIVE INVESTMENTS
CURRENCIES
ASSET ALLOCATION
DISCLOSURES

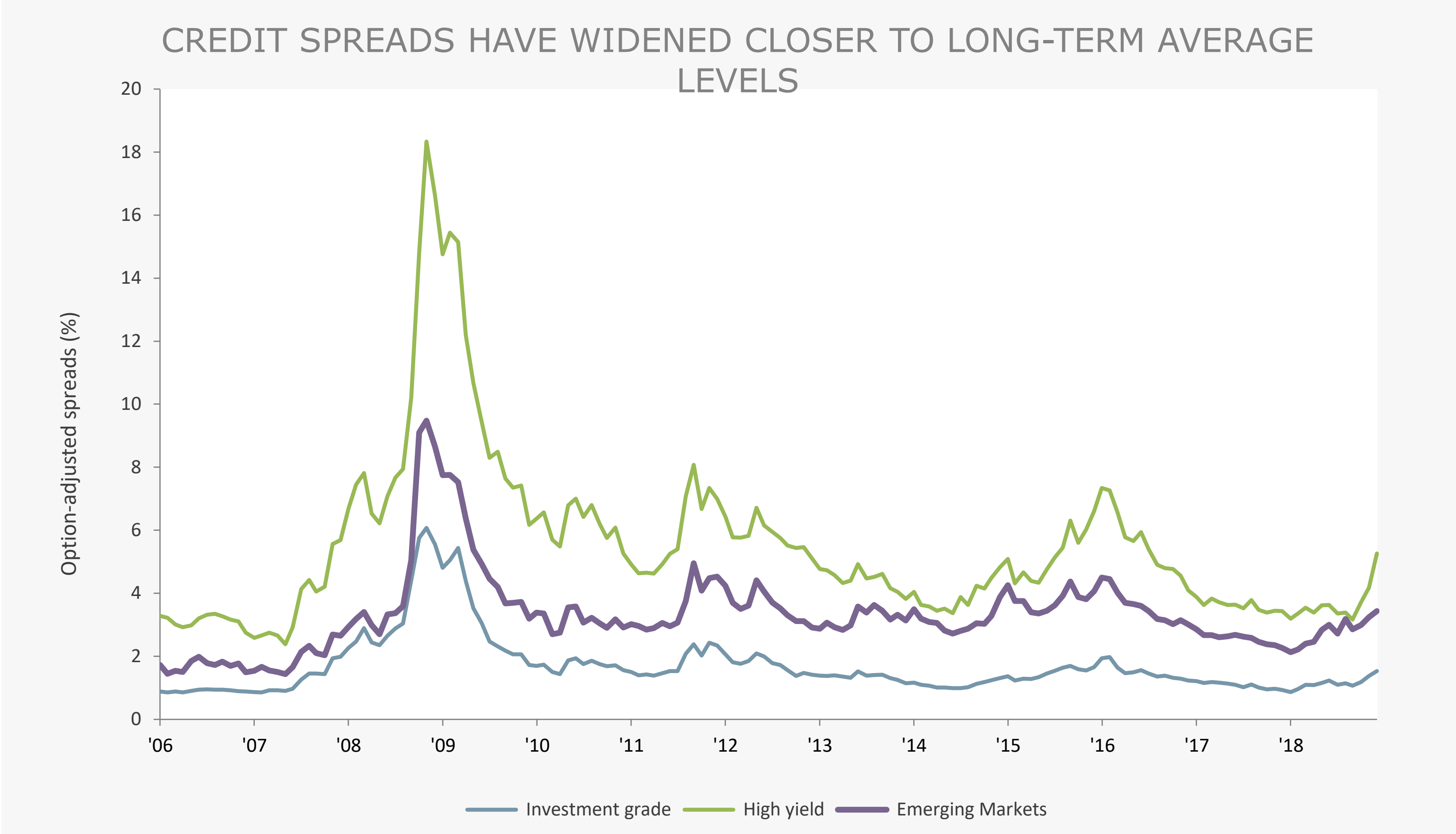


Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above.. ***Past performance is no guarantee of future results .*** *CPI is the Consumer Price Index. It measures the price of a fixed basket of goods and services purchased by an average consumer.*

KEY TAKEAWAYS

- Real yields on 10-year U.S. Treasury bonds continue to decline as inflation ticks up.
- An unexpected rise in inflation could benefit the Treasury Inflation-Protected Securities (TIPS) sector.

Credit market spreads



Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Option-adjusted spread is the difference in yield over equivalent-duration Treasuries. Investment grade represented by Bloomberg Barclays U.S. Aggregate Bond Index, high yield represented by Bloomberg Barclays U.S. Corporate High Yield Bond Index, emerging markets represented by J.P. Morgan Emerging Markets Bond Index Global (USD). ***Past performance is no guarantee of future results****. An index is unmanaged and not available for direct investment.*

KEY TAKEAWAYS

- Credit spreads on taxable bond sectors have tightened over the past couple of years as investors bet on fiscal stimulus and better economic growth.
- Credit spreads tend to increase during periods of uncertainty and decrease during periods of stability.

Real assets highlights

ECONOMY
EQUITIES
FIXED INCOME
REAL ASSETS
ALTERNATIVE INVESTMENTS
CURRENCIES
ASSET ALLOCATION
DISCLOSURES

General

- Commodities tend to move together as a family over the long term. These supercycles often run counter to stocks, which can provide diversification benefits. Commodity prices tend to move in overall bull and bear cycles, some lasting decades. These are supercycles.
- China's transition from an export-based to a consumer-based economy, coupled with a global slowdown in trade, has weighed on many commodity prices, keeping inflation low in most countries.
- We expect commodities to perform well in 2019 as the dollar weakens and oil and gold prices rise, but there could be a widening divergence in individual commodities performance.

Oil

- Oil supply has exceeded demand since the financial crisis. Today, the global supply of oil continues to outpace demand.
- Oil price volatility has picked up, but prices are likely to rise from current levels in the coming year.

Gold

- History suggests that gold prices should moderate and remain range-bound for the rest of a supercycle.

REITs

- Real estate investment trusts (REITs) have been inexpensive compared with fixed income for some time but look expensive compared to stocks.

Real assets scorecard

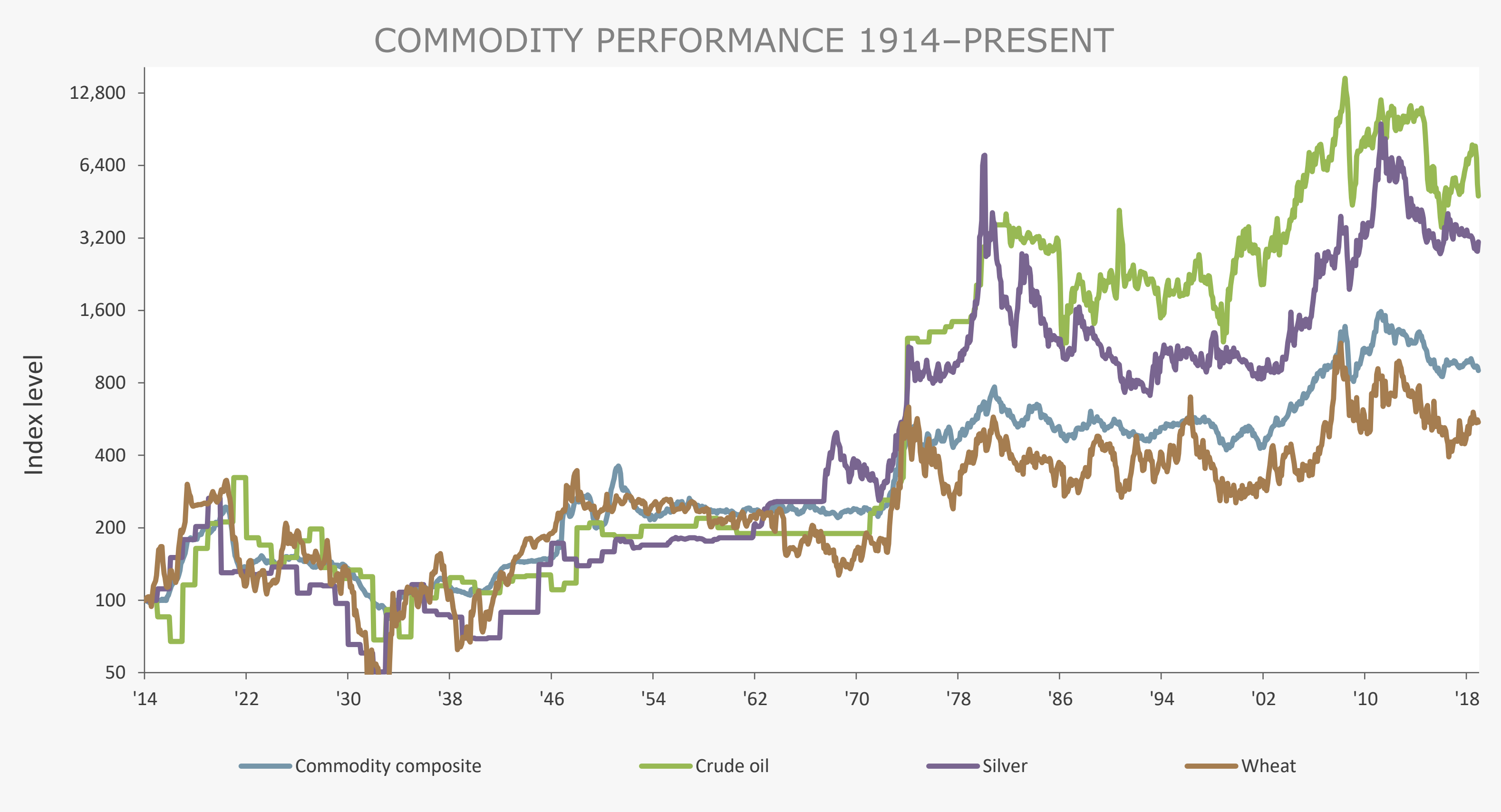
Asset class	4Q18 return (%)	2018 return (%)	Yield (%)
Commodities	-8.93	-11.25	–
Energy commodities	-25.32	-12.70	–
Agricultural commodities	-0.50	-10.79	–
Precious metals commodities	8.14	-4.57	–
Base metals commodities	-7.26	-19.48	–
Global REITs	-4.88	-4.74	4.40
U.S. REITs	-4.67	-4.04	4.40
International REITs	-5.35	-5.79	4.13

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Indices in order represented by Bloomberg Commodity Index, Bloomberg Energy Subindex, Bloomberg Agriculture Subindex, Bloomberg Precious Metals Subindex, Bloomberg Industrial Metals Subindex, FTSE All Equity REITs Index, FTSE EPRA/NAREIT Developed Index, FTSE EPRA NAREIT Developed ex-U.S. REITs Index. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above. ***Past performance is no guarantee of future results****. An index is unmanaged and not available for direct investment.*

KEY TAKEAWAYS

- Energy commodities underperformed other sectors as oil prices declined in the fourth quarter of 2018. Overall, we expect commodities to perform well in 2019 as the U.S. dollar weakens and oil and gold prices rise, but there may be a widening divergence in individual commodities performance.
- REITs offer the potential opportunity for capital appreciation and yields that surpass most sovereign bond yields.

Commodities tend to move together

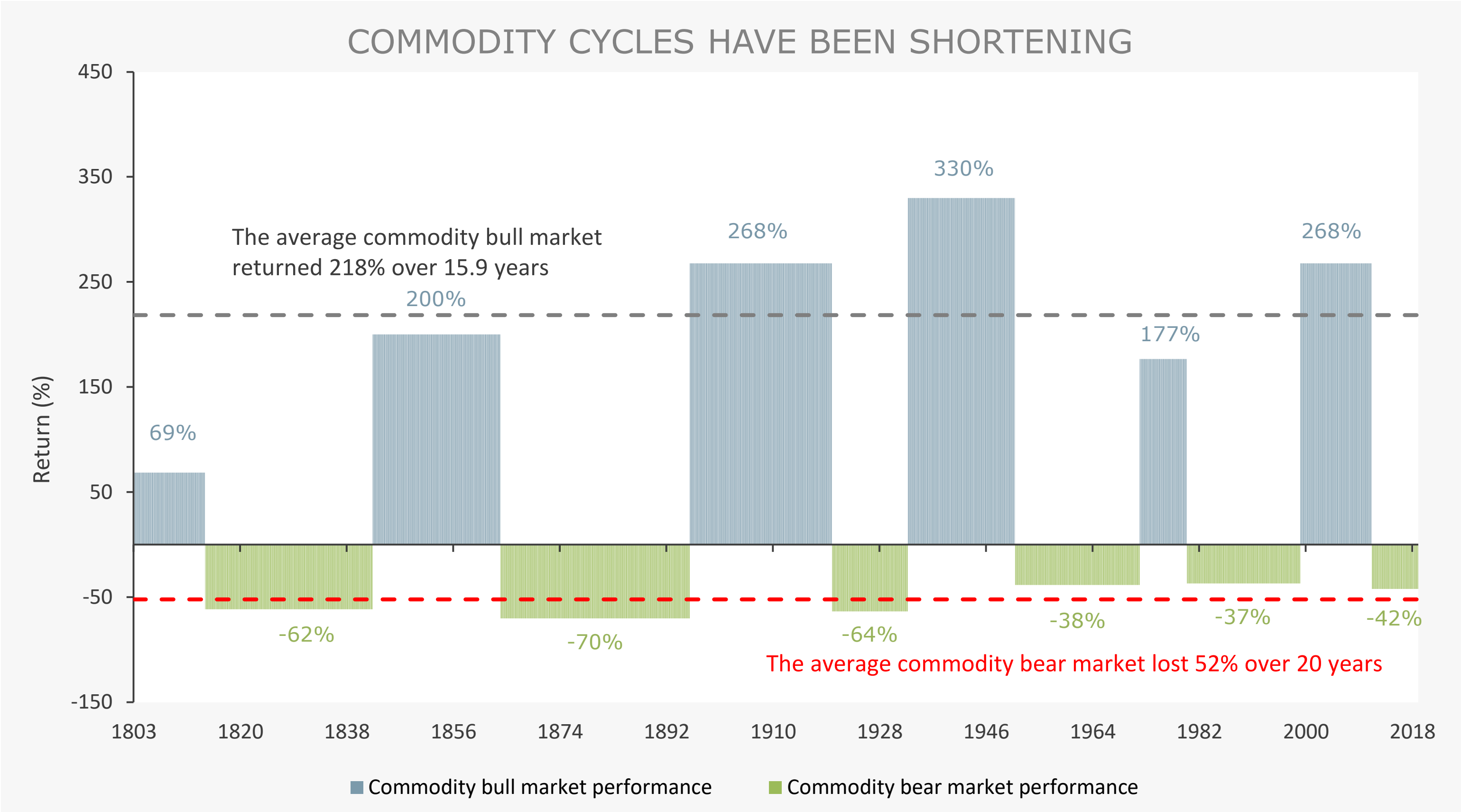


Sources: Bloomberg, Bureau of Labor Statistics, Federal Reserve Economic Data, Kitco, National Bureau of Economic Research, Prices by Warren and Pearson, U.S. Department of Agriculture, and Wells Fargo Investment Institute, as of December 31, 2018. Indexed to 100 as of January 31, 1914. For illustrative purposes only. Commodity composite measures a basket of commodity prices as well as inflation. It blends historical market data introduced by George F. Warren and Frank A. Pearson, former academics at Cornell; collected and published commodity price data in their book, Prices; *the Producer Price Index for commodities (PPI-Commodities); the National Bureau of Economic Research (NBER) Index of Spot Market Prices of 22 Commodities; and the Reuters Continuous Commodity Index. An index is unmanaged and not available for direct investing.* ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Commodities tend to move together as a family over the long term. These supercycles often run counter to stocks, which can provide diversification benefits.
- Commodities prices have started to stabilize, and demand is balancing better with supply. We are currently favorable on this asset class.

Commodity supercycles



Sources: Bloomberg, Ned Davis Research, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. NDR Commodity Composite used for December 1802–February 1972. Reuter's Continuous Commodity Index used for March 1972–December 2018. The Reuters Continuous Commodity Index is an equal-weighted geometric average of commodity price levels relative to the base year average price. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Commodity bear markets historically have lasted longer on average than bull markets, but the gains tend to be much greater than the losses.
- We are at the point in the supercycle where most of the downturn has happened and prices tend to move sideways.

The dragon roars

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FIXED INCOME

REAL ASSETS

ALTERNATIVE INVESTMENTS

CURRENCIES

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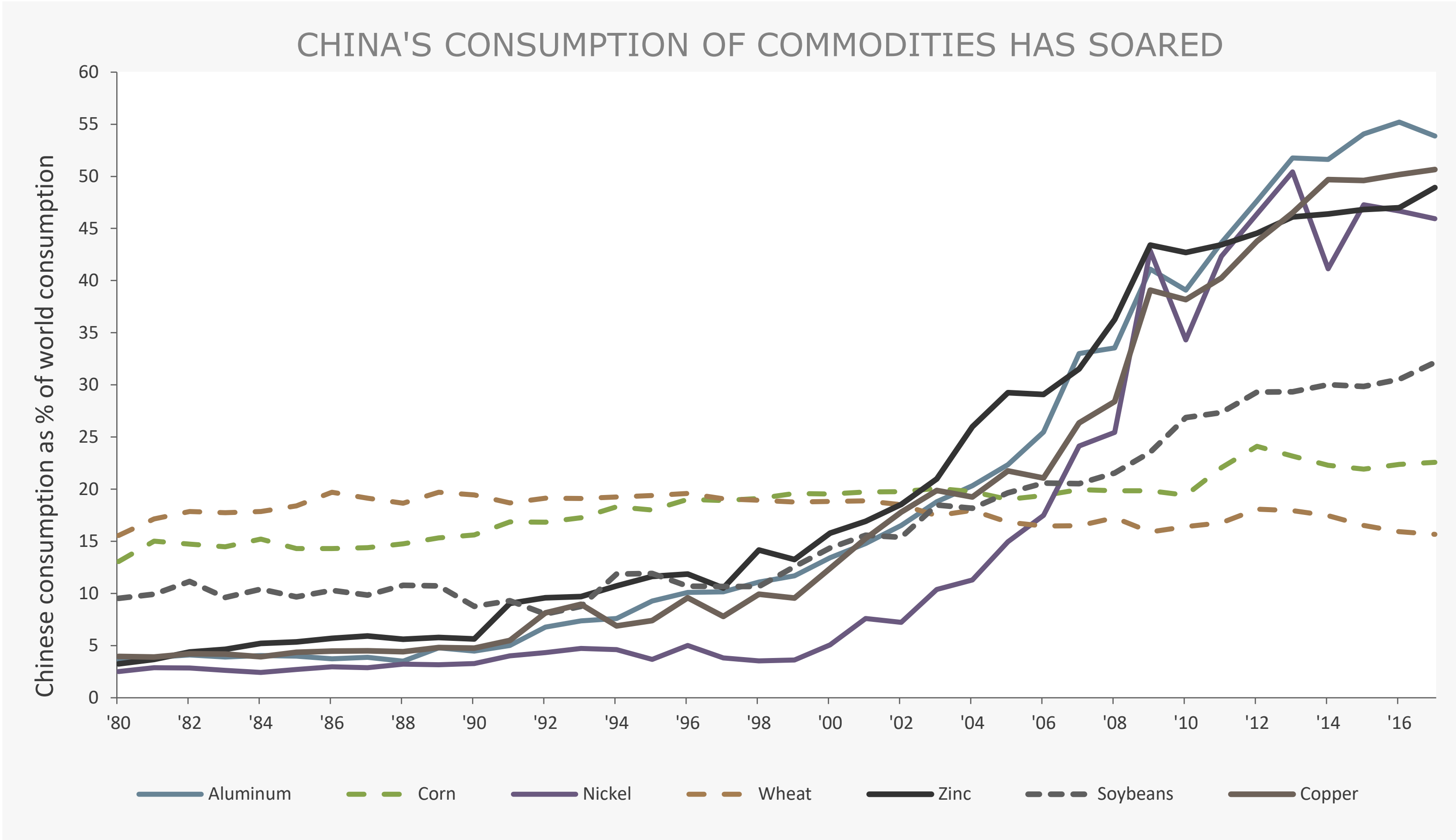
DISCLOSURES



Sources: Bloomberg, U.S. Department of Agriculture, World Bureau of Metal Statistics, and Wells Fargo Investment Institute, as of December 31, 2017

KEY TAKEAWAYS

- Chinese demand for commodities has outpaced the rest of the world in recent years.
- China's transition from an export-based to a consumer-based economy and an increase in supply has weighed on many commodity prices, which has helped keep inflation low in most countries.

Shifting west

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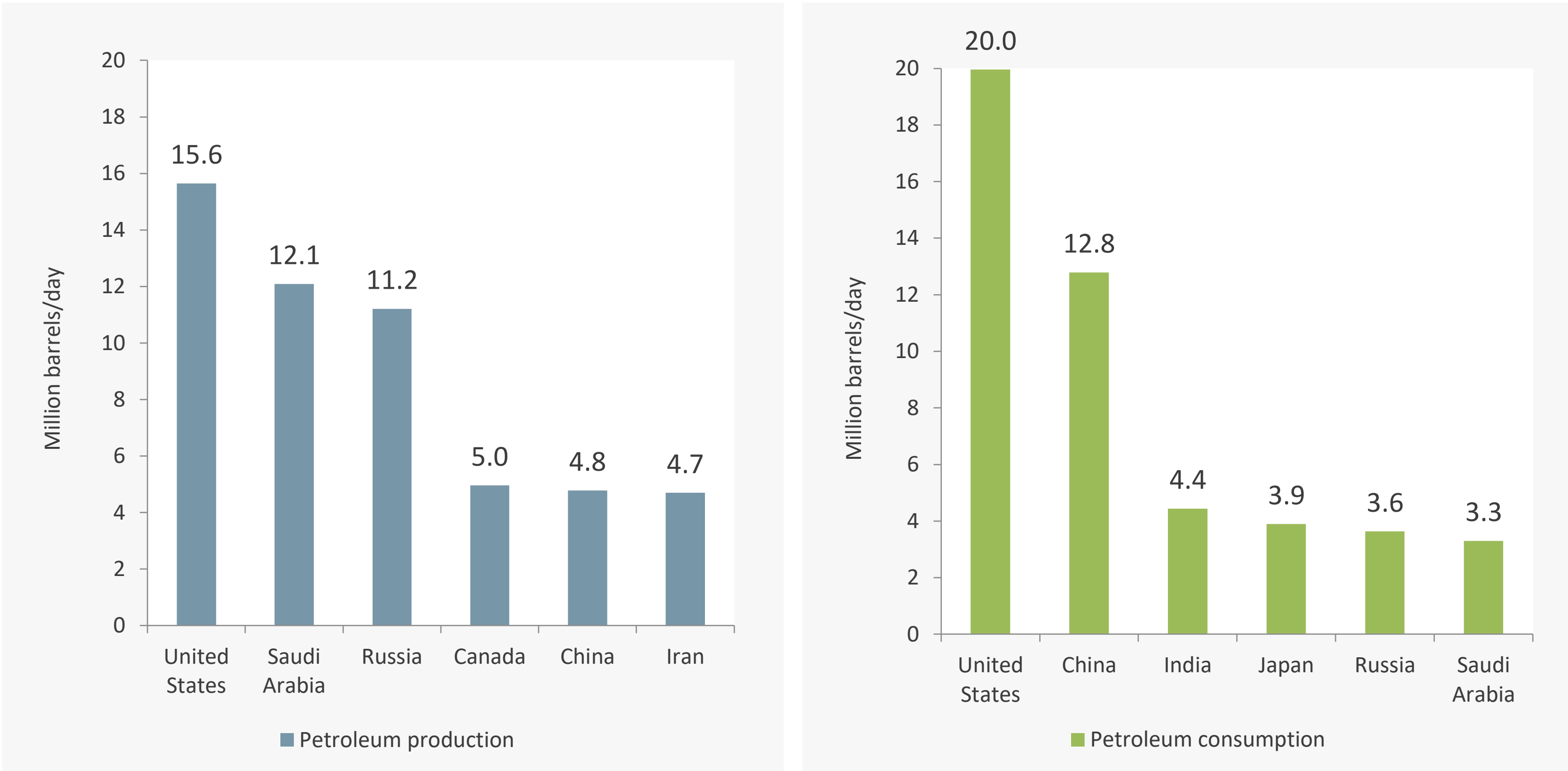
TOP GLOBAL PETROLEUM PRODUCERS AND CONSUMERS



Sources: U.S. Energy Information Administration and Wells Fargo Investment Institute, as of December 31, 2017. Chart data has up to a one-year lag for developed markets and up to a two-year lag for emerging markets. 2017 is the most recent available data for petroleum production and petroleum consumption for U.S. and Japan. 2016 is the most recent available data for petroleum consumption for China, India, Russia, and Saudi Arabia.

KEY TAKEAWAYS

- The U.S. is now the world's largest producer and consumer of petroleum.

Excess oil supply = lower prices

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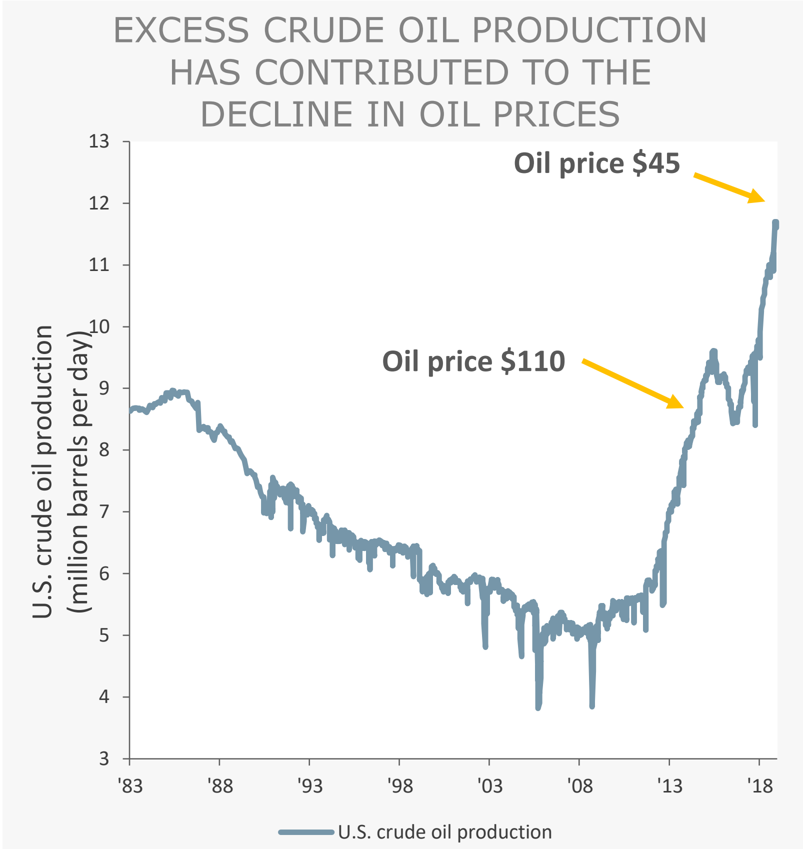

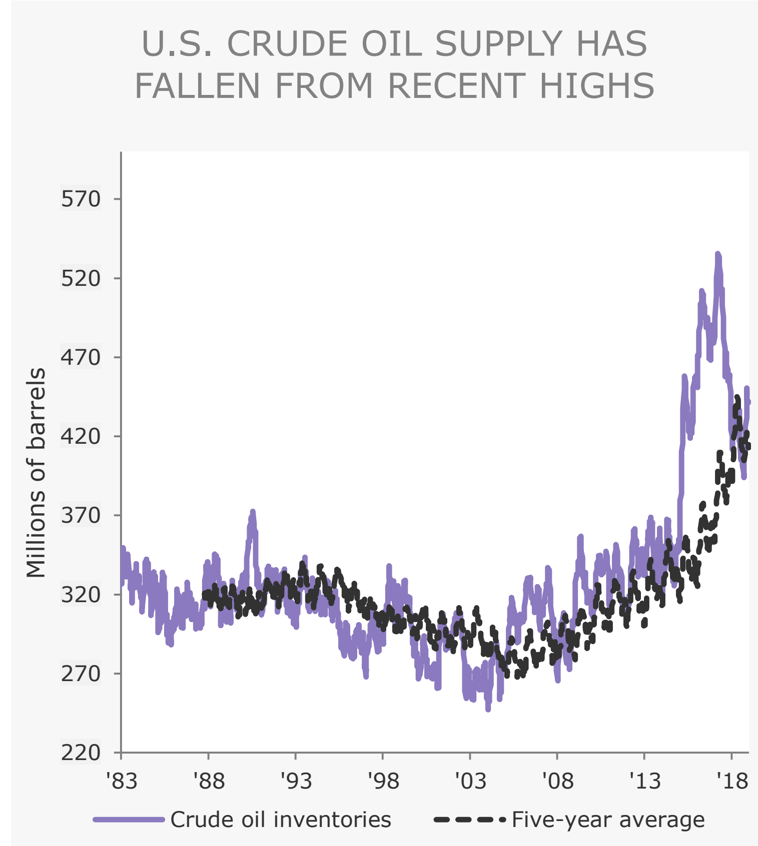

Sources: Bloomberg, Energy Intelligence Group, Energy Information Administration, and Wells Fargo Investment Institute, as of December 31, 2018. U.S. crude oil = West Texas Intermediate (WTI), also known as Texas light sweet, a grade of crude oil used as a benchmark in oil pricing.

KEY TAKEAWAYS

- Supply and production of crude oil began to outpace demand in mid-2014; oil prices quickly adjusted lower.
- We expect supply and demand to continue to balance over the coming years as oil prices firm. U.S. crude oil inventories have started to come down; however, global oil demand remains lower than supply.

Losing its luster

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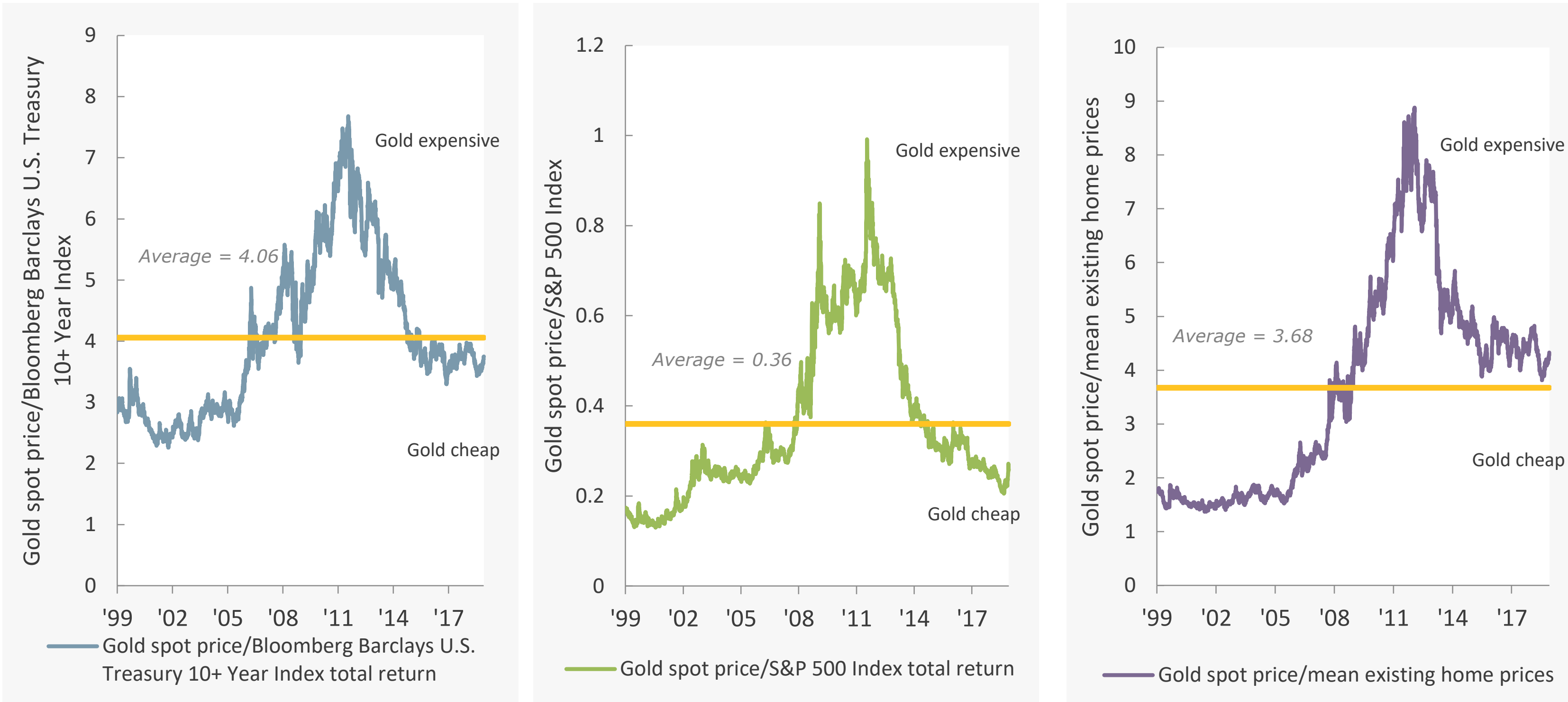
GOLD VS. BONDS, STOCKS, AND HOME PRICES



Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. Gold spot prices are New York Metals Exchange gold spot prices. Mean existing home prices are represented by the National Association of Realtors U.S. Existing Home Sales Average Price Not Seasonally Adjusted Index. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Gold valuations are mixed. Gold appears be fairly valued relative to bonds but inexpensive relative to stocks based on historical ratios.
- Gold appears somewhat pricey versus average home prices.

Gold supercycle: a comparison of two cycles

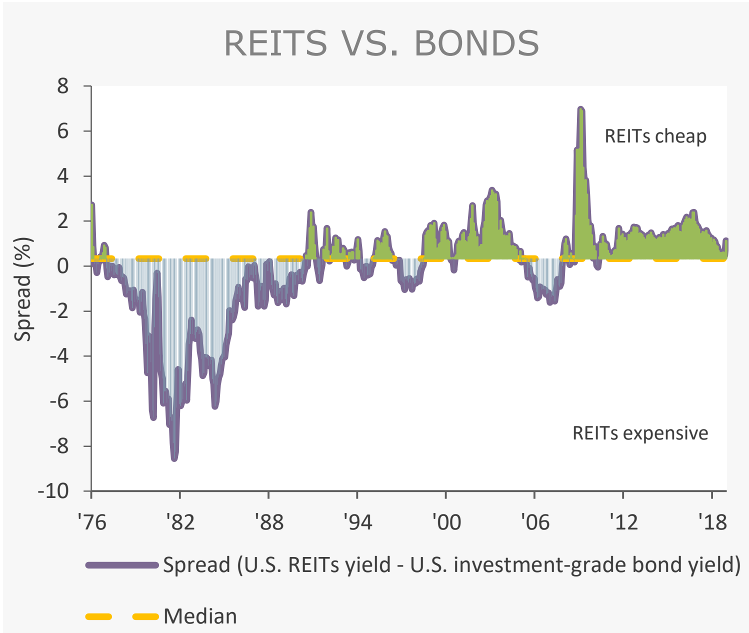
Sources: Bloomberg, London Bullion Market Association, and Wells Fargo Investment Institute, as of December 31, 2018

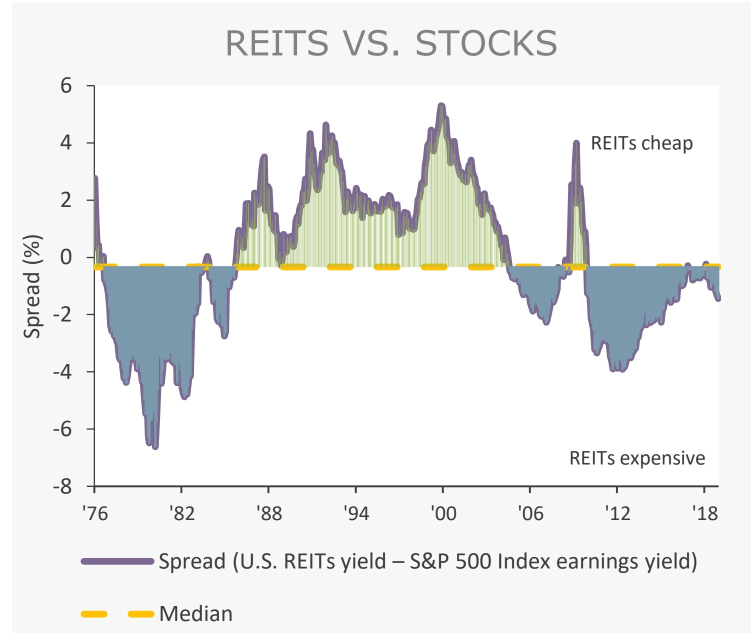
KEY TAKEAWAYS

- History suggests that gold prices should moderate and remain range-bound for the rest of a supercycle.

Reasonable valuations for REITs

U.S. REAL ESTATE INVESTMENT TRUST VALUATIONS ARE MIXED





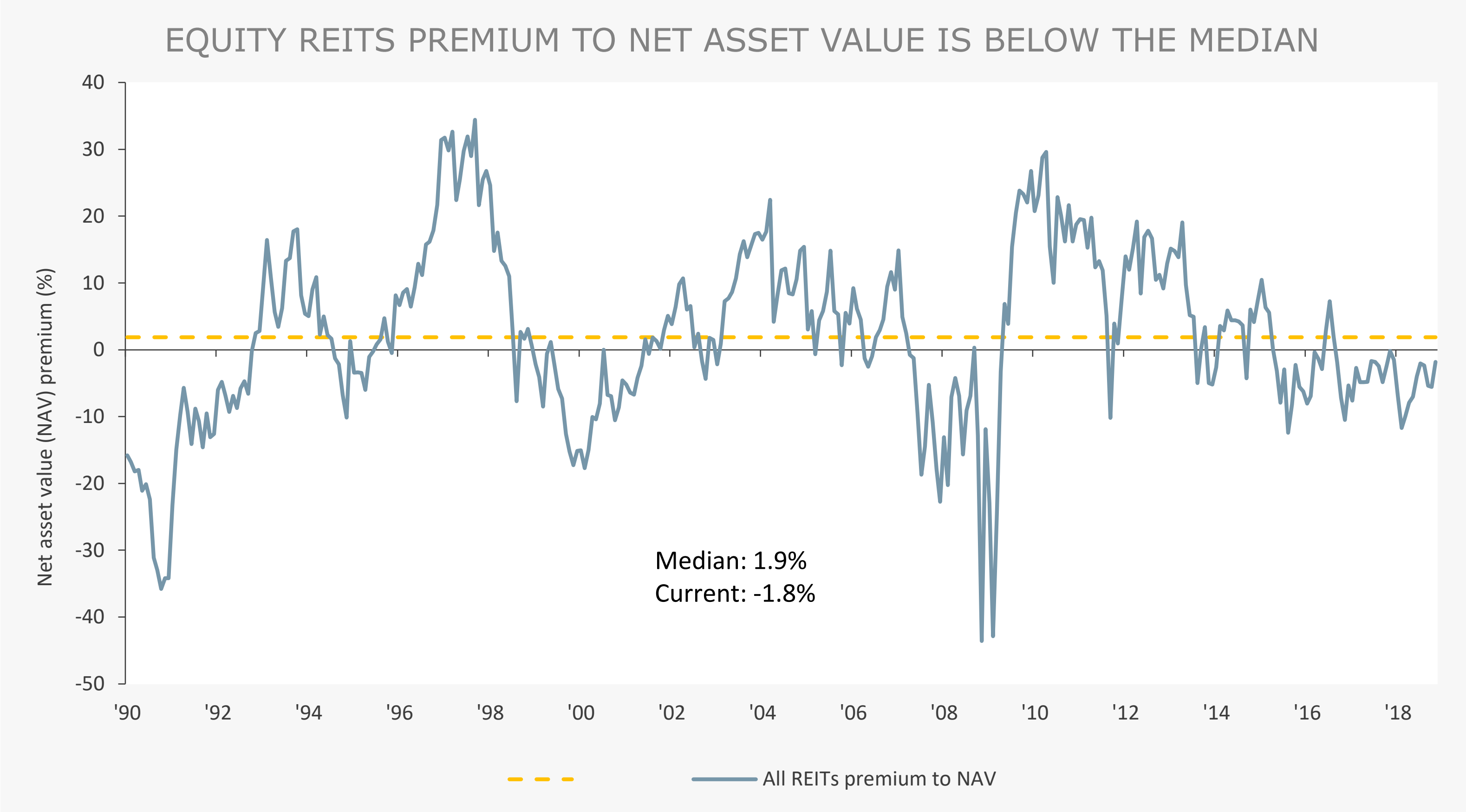
Sources: Bloomberg, National Association of Real Estate Investment Trusts, Morningstar, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. U.S. REITs are represented by the FTSE NAREIT All Equity REITs Index. U.S. investment-grade bonds are represented by the Bloomberg Barclays U.S. Aggregate Bond Index. Stocks are represented by the S&P 500 Index. Yields represent past performance and fluctuate with market conditions. Current yields may be higher or lower than those quoted above. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

Note: Yield is the sum of gross dividend per share amounts over the prior 12 months divided by the current index price. Gross and net dividend amounts are assumed to be the same when only one is reported. All cash dividend types are included in this yield calculation. Yields may be higher or lower than those quoted above. Yields will fluctuate as market conditions change. Earnings yield is the earnings per share for the most recent 12-month period divided by the current market price per share.

KEY TAKEAWAYS

- REITs have been inexpensive compared with fixed income for some time and still look expensive compared to stocks.
- REITs have moved closer to fair value compared with fixed income as rates rise.

REITs have been trading at a discount



Sources: Green Street Advisors and Wells Fargo Investment Institute, as of December 31, 2018
All REITs premium to NAV (net asset value) is a weighted average (weighted by NAV shares outstanding) of all U.S.-listed companies in Green Street's coverage universe, excluding hotels and those without a published opinion.

KEY TAKEAWAYS

- REITs generally trade at a premium to the value of their underlying real estate. Recently, though, REITs have traded at a steep discount.

Alternative investments highlights

Hedge funds

- Hedge funds could benefit from a reduction in equity correlations as well as greater dispersion among sectors, industries, and geographies.
- A traditional portfolio of stocks and bonds historically has seen increased returns and decreased risk by adding hedge funds.
- Hedge funds can potentially mitigate portfolio losses and participate in equity market upturns.
- Hedge funds, and active management in general, historically perform better in the latter stages of an economic and credit cycle.
- In an environment of falling equity correlations, hedge funds can potentially outperform.
- Historically, hedge funds have delivered higher returns than stocks and bonds over time, primarily due to their ability to limit drawdowns.

Private capital

- The majority of companies remain private, which inherently offers private capital strategies a robust opportunity set.
- Private equity funds have been able to deliver strong returns and have outperformed global equities in various time frames.
- Private real assets have historically outperformed public real estate (REITs) over a full market cycle.

Alternative investments scorecard

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Index	4Q18 Return (%)	3Q18 Return (%)	YTD Return (%)	YoY Return (%)
HFRI Fund Weighted Composite as of 12/31/2018	-5.35	0.53	-4.07	-4.07
HFRI Event Driven as of 12/31/2018	-4.43	0.81	-1.73	-1.73
HFRI Macro as of 12/31/2018	-1.43	-0.01	-3.21	-3.21
HFRI Relative Value as of 12/31/2018	-2.36	1.40	0.66	0.66
HFRI Equity Hedge as of 12/31/2018	-8.26	0.32	-6.90	-6.90
Cambridge Associates U.S. Private Equity as of 6/30/2018	–	–	27.17	18.22
Preqin Private Debt as of 3/31/2018	–	–	0.05	7.90
NCREIF Property as of 9/30/2018	–	1.67	5.27	7.16

Sources: Bloomberg, Morningstar Direct, Preqin, and Wells Fargo Investment Institute, as of December 31, 2018. YTD = year to date. YoY = year over year. For illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results; assume the reinvestment of dividends and other distributions; and do not reflect deductions for fees, expenses, or taxes applicable to an actual investment. Unlike most asset-class indices, HFR index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided, actual returns may be higher or lower than those reported. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

The Cambridge Index uses a horizon calculation based on data compiled from more than 1,400 institutional-quality buyout, growth equity, private equity energy, and subordinated capital funds formed between 1986 and 2017. The funds included in the index report their performance voluntarily and therefore the index may reflect a bias towards funds with records of success. ***More information on the limitations of utilizing this Index can be found at the end of this presentation.***

KEY TAKEAWAYS

- Hedge funds have benefited from a reduction in equity correlations as well as greater dispersion among sectors, industries, and geographies. Much of this is attributable to changes in monetary policy as well as rising interest rates.

Alternative investments scorecard

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Alternative investments, such as hedge funds and private equity/private debt funds, are not suitable for all investors and are only open to accredited or qualified investors within the meaning of the U.S. securities laws. They are speculative and involve a high degree of risk that is suitable only for those investors who have the financial sophistication and expertise to evaluate the merits and risks of an investment in a fund and for which the fund does not represent a complete investment program. While investors may potentially benefit from the ability of alternative investments to potentially improve the risk/reward profiles of their portfolios, the investments themselves can carry significant risks. There may be no secondary market for alternative investment interests, and transferability may be limited or even prohibited. Hedge fund strategies, such as Equity Hedge, Event Driven, Macro, and Relative Value may expose investors to risks such as short selling, leverage, counterparty, liquidity, volatility, the use of derivative instruments, and other significant risks.

REITS have special risks, including the possible illiquidity of the underlying properties, credit risk, interest rate fluctuations, and the impact of varied economic conditions.

Diversification benefits of hedge funds

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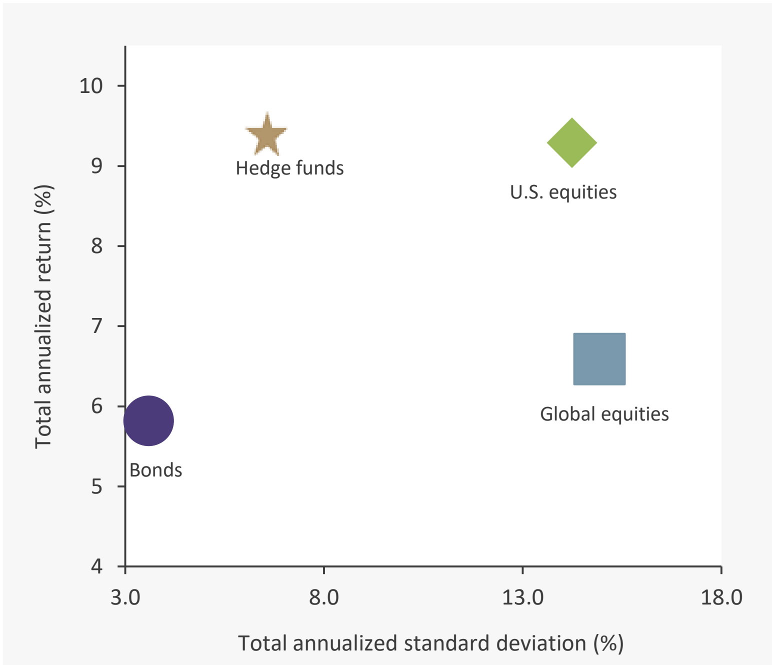
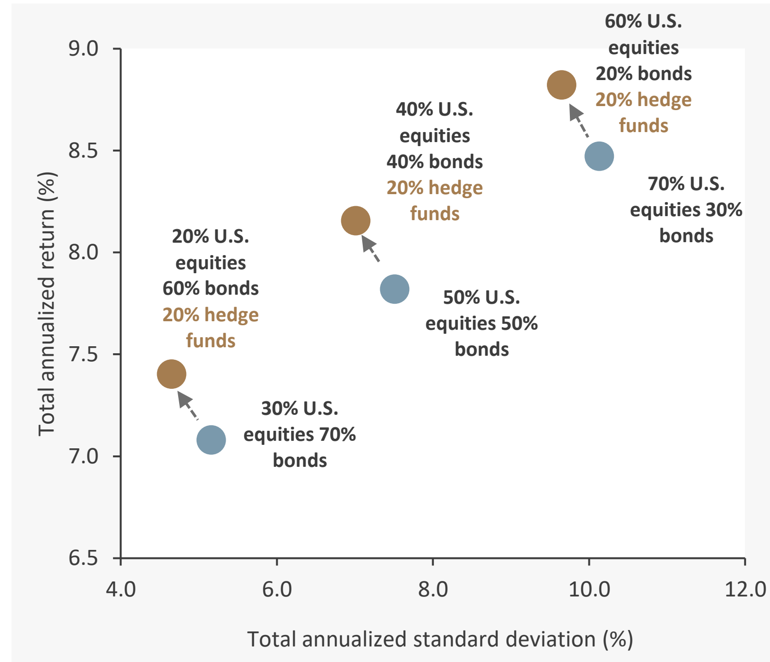
HEDGE FUNDS CAN POTENTIALLY REDUCE RISK IN A PORTFOLIO OF STOCKS AND BONDS





Sources: Morningstar Direct and Wells Fargo Investment Institute, January 1, 1990–December 31, 2018. Bonds = Bloomberg Barclays U.S. Aggregate Bond Index. U.S. equities = S&P 500 Index. Global equities = MSCI World Index. Hedge funds = HFRI Fund Weighted Composite Index. For illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. Unlike most asset class indices, HFR Index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided actual returns may be lower than those reported. An index is unmanaged and not available for direct investment ***Hypothetical and past performance is no guarantee of future results****.. Standard deviation is a measure of the volatility of returns. The higher the standard deviation, the greater volatility has been.*

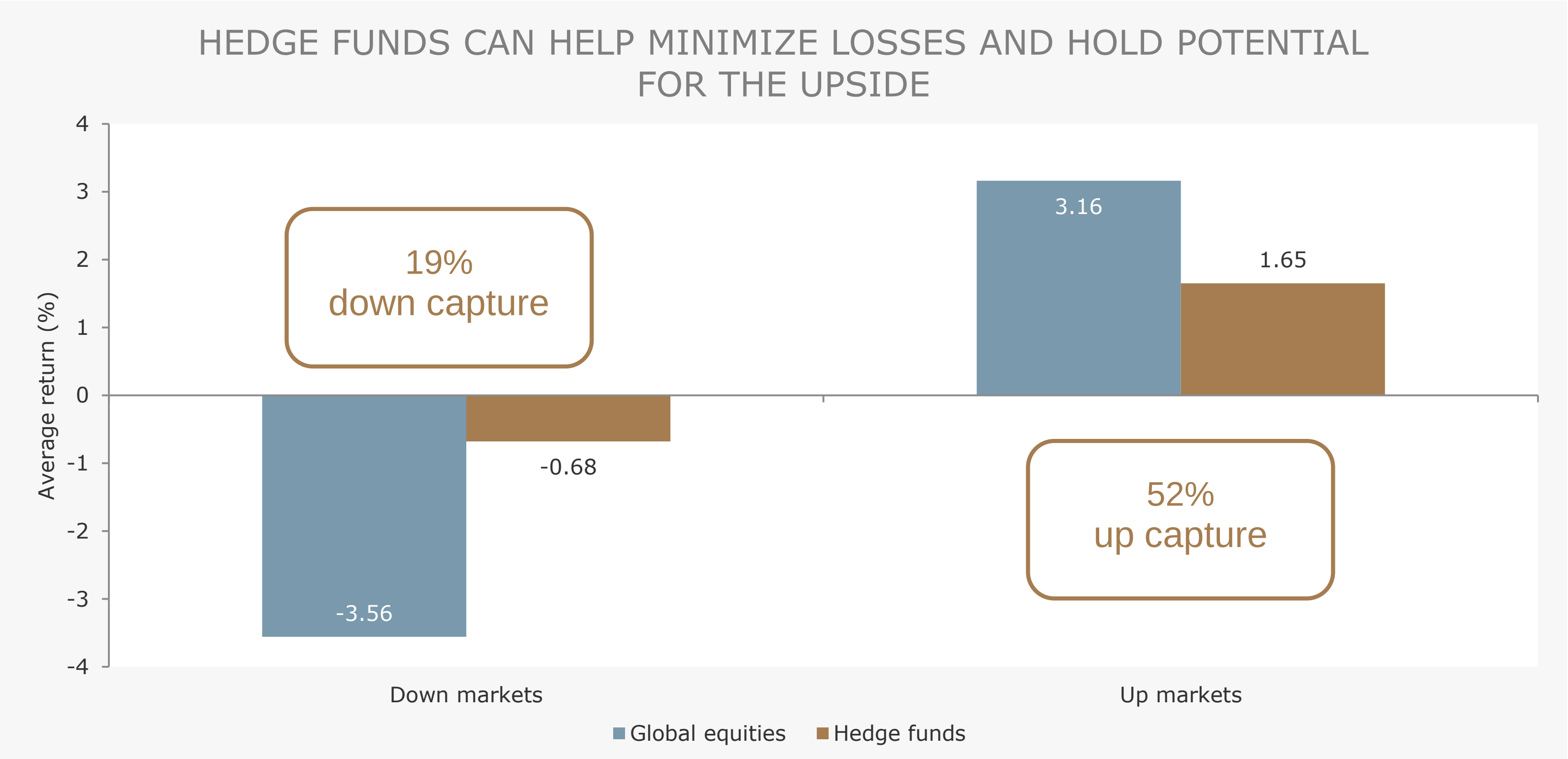
Alternative investments, such as hedge funds, are not suitable for all investors and are only open to accredited or qualified investors within the meaning of the U.S. securities laws. They are speculative and involve a high degree of risk that is suitable only for those investors who have the financial sophistication and expertise to evaluate the merits and risks of an investment in a fund and for which the fund does not represent a complete investment program.

KEY TAKEAWAYS

- Adding hedge funds to a traditional portfolio of stocks and bonds historically has increased returns and decreased risk.

Diversification strategies do not guarantee investment returns or eliminate the risk of loss.

Hedge funds may win by not losing



Sources: Morningstar Direct and Wells Fargo Investment Institute, January 1, 1990–December 31, 2018. Hedge funds represented by the HFRI Fund Weighted Composite Index. Global equities represented by the MSCI World Index. For illustrative purposes only Index do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. HFR Index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided actual returns may be lower than those reported. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results****.*

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KEY TAKEAWAYS

- Hedge funds can potentially minimize losses during periods of negative global equity market performance while maintaining participation in the upside.

Upside capture ratio measures a manager's performance in up markets relative to the market (benchmark) itself. It is calculated by taking the security's upside capture return and dividing it by the benchmark's upside capture return.
Downside capture ratio measures a manager's performance in down markets. In essence, it tells you what percentage of the down market was captured by the manager.

Active strategies tend to outperform late cycle

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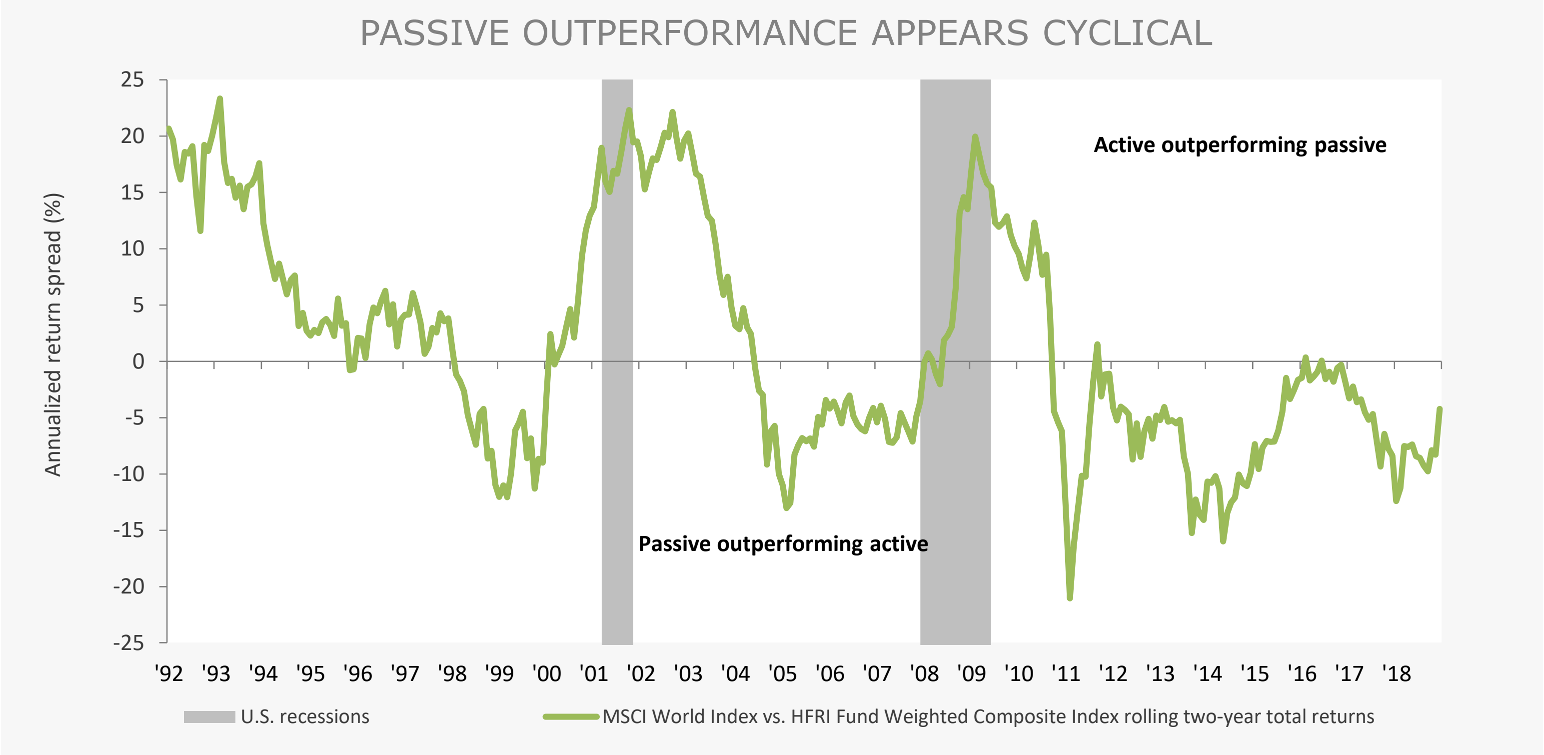

Sources: MPI Stylus and Wells Fargo Investment Institute, January 1, 1990–December 31, 2018. The chart shows the historical performance trends between active and passive investing. This is calculated by taking the rolling two-year return of the HFRI Fund Weighted Composite Index minus the rolling two-year return of the MSCI World Index. For illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. Unlike most asset class indices, HFR Index are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided actual returns may be lower than those reported. ***Past performance is no guarantee of future results.***

Alternative investments, such as hedge funds, are not suitable for all investors and are only open to accredited or qualified investors within the meaning of the U.S. securities laws. They are speculative and involve a high degree of risk that is suitable only for those investors who have the financial sophistication and expertise to evaluate the merits and risks of an investment in a fund and for which the fund does not represent a complete investment program.

KEY TAKEAWAYS

- Hedge funds, and active management in general, historically perform better in the latter stages of an economic and credit cycle.
- In the latter part of the cycle, certain active managers may outperform passive ones.

Equity correlations can affect hedge fund performance

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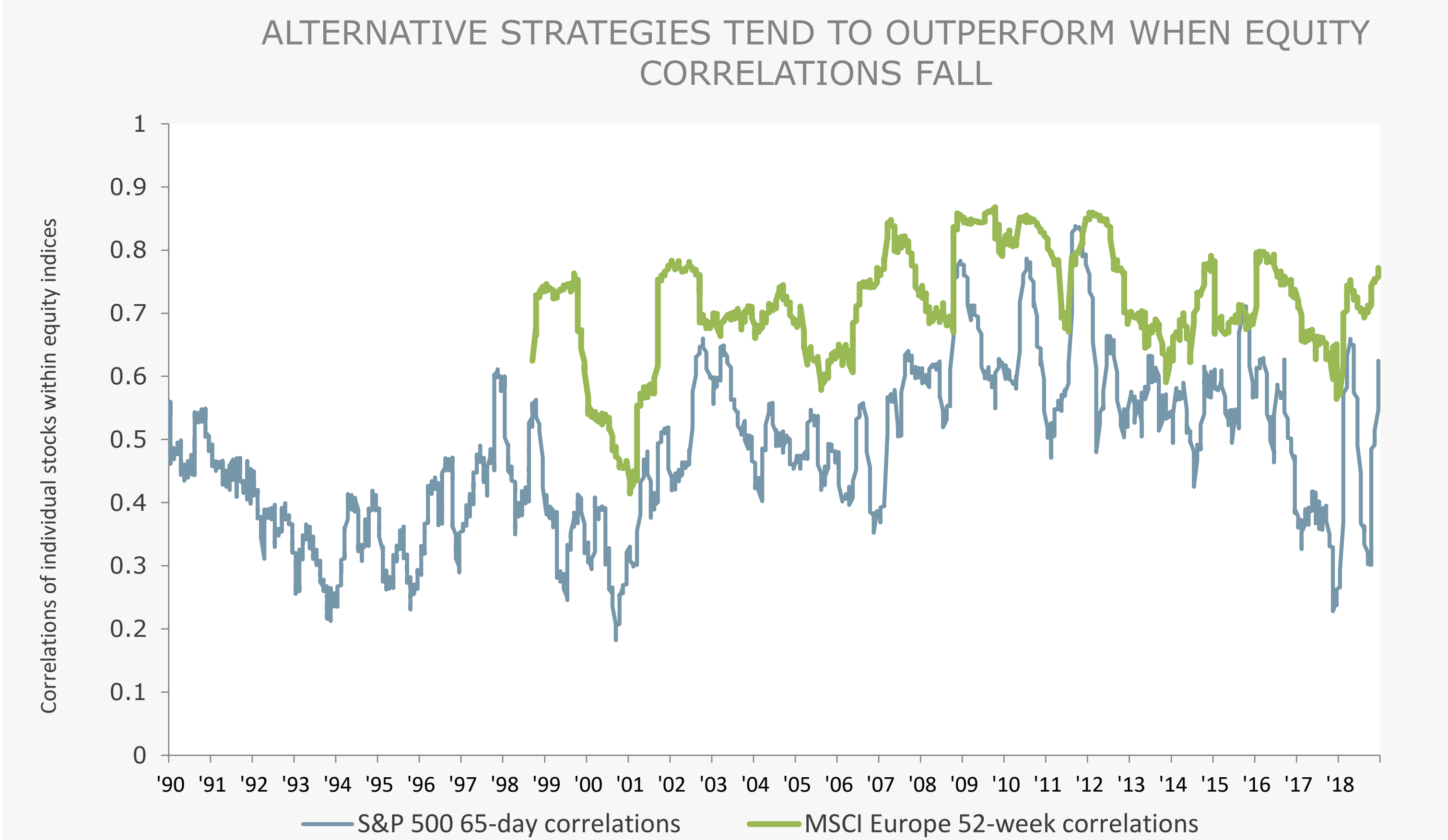

Sources: Strategas Research Partners and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. MSCI Europe Index is a free-float-adjusted market-capitalization-weighted index that is designed to measure developed market equity performance in Europe. The S&P 500 Index is a market capitalization-weighted index considered representative of the U.S. stock market. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. An index is unmanaged and not available for direct investment. Correlations represent past performance. ***Past performance is no guarantee of future results.*** *There is no guarantee future correlations between the indices will remain the same.*

KEY TAKEAWAYS

- U.S. and European equity correlations have risen amid increased market volatility.
- Hedge funds can potentially outperform in an environment of falling equity correlations.

Hedge funds can benefit as rates rise

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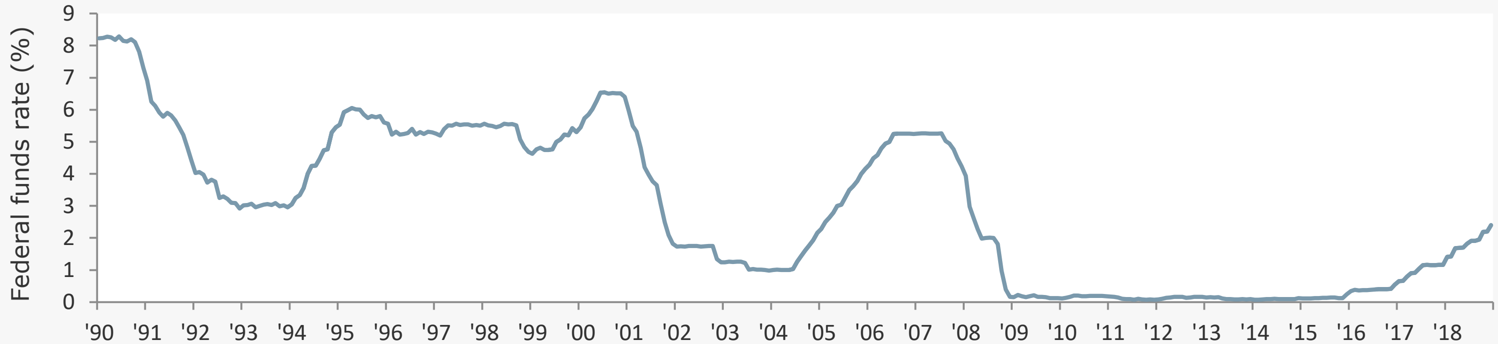
HEDGE FUNDS HISTORICALLY HAVE PERFORMED WELL DURING PERIODS OF RISING INTEREST RATES



	Start	End	# of days	Change in 10-year Treasury yield (basis points)	Hedge funds	Bonds
	Sep-93	Nov-94	455	2.46	**13.6%**	-3.3%
	Dec-95	Jun-96	210	1.01	**15.6%**	0.0%
	Sep-98	Jan-00	517	1.60	**43.6%**	1.6%
	Jun-03	May-06	1094	1.71	**41.3%**	6.1%
	Dec-08	Apr-10	515	0.92	**24.5%**	12.4%
	Oct-10	Feb-11	150	0.92	**7.1%**	-0.9%
	Jul-12	Dec-13	547	1.44	**14.1%**	-0.6%
	Jul-16	Mar-17	273	0.94	**6.8%**	-1.9%
Current period	**Sep-17**	**Dec-18**		**0.52**	**-1.0%**	**0.1%**
		Average		***1.28***	***18.4%***	***1.5%***

Sources: Bloomberg, Federal Reserve, and Wells Fargo Investment Institute. Top chart as of December 31, 2018. Bottom table as of November 30, 2018. Hedge funds represented by the HFRI Fund Weighted Composite Index. Bonds represented by the Bloomberg Barclays U.S. Aggregate Bond Index. For illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. Unlike most asset class indices, HFR Index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided actual returns may be lower than those reported. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results****. There is no guarantee any asset class will perform in a similar manner in the future or in other rising rate environments.*

KEY TAKEAWAYS

- Hedge funds historically have performed well during periods of rising interest rates.

Alternative investments, such as hedge funds, are not suitable for all investors and are only open to accredited or qualified investors within the meaning of the U.S. securities laws. They are speculative and involve a high degree of risk that is suitable only for those investors who have the financial sophistication and expertise to evaluate the merits and risks of an investment in a fund and for which the fund does not represent a complete investment program.

Opportunities in private equity

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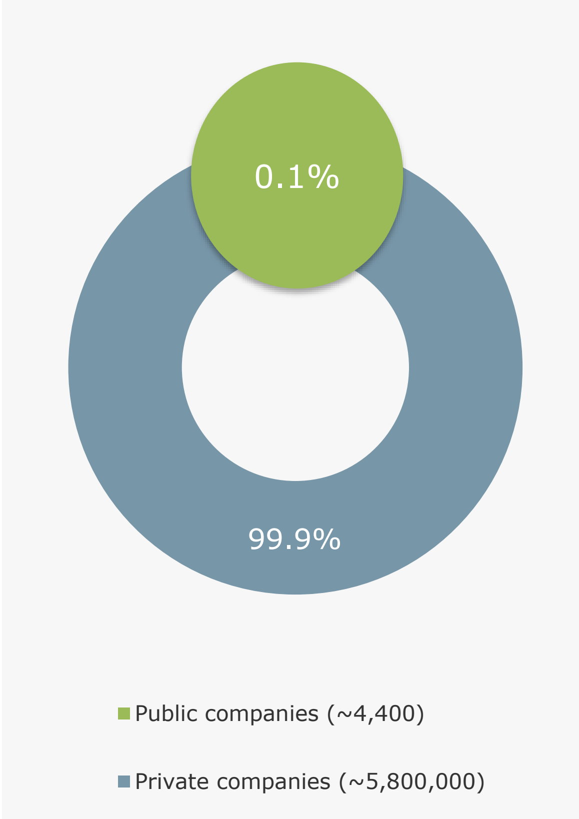

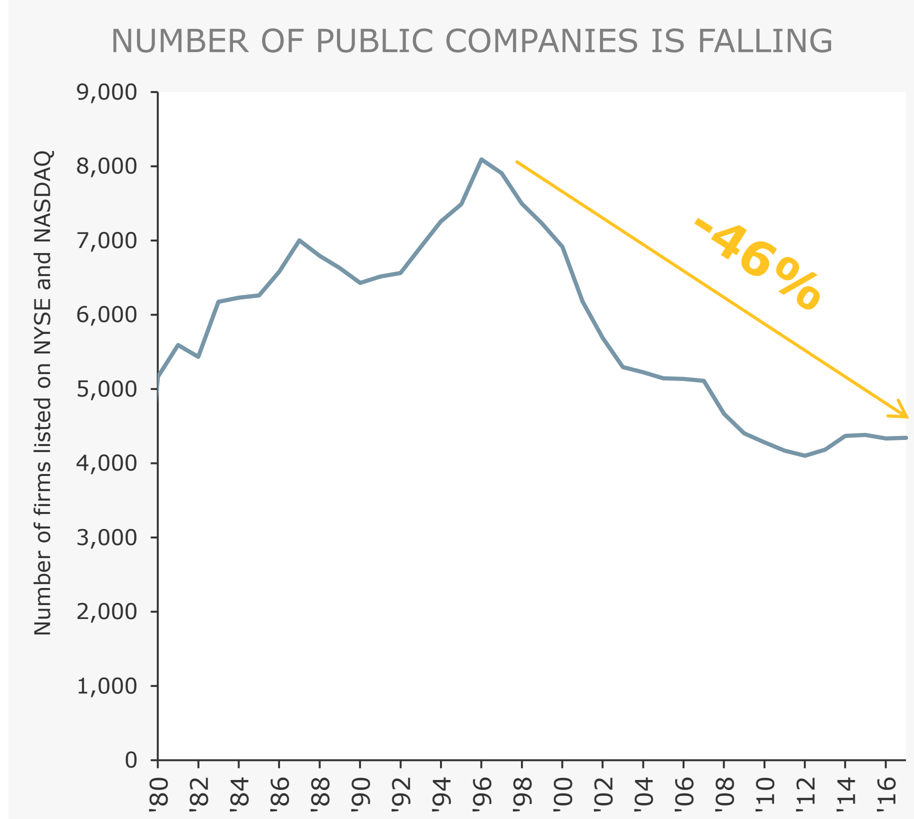

Sources: U.S. Census Bureau, World Federation of Exchanges, and Wells Fargo Investment Institute, as of December 31, 2017. NYSE = New York Stock Exchange. (~ = approximately). NASDAQ = National Association of Securities Dealers Automated Quotations.

KEY TAKEAWAYS

- The majority of companies remain private, which inherently offers private capital strategies a robust opportunity set.
- The delist rate since 2000 is due to an unusually high rate of acquisitions of publicly listed firms.

Opportunities in private equity

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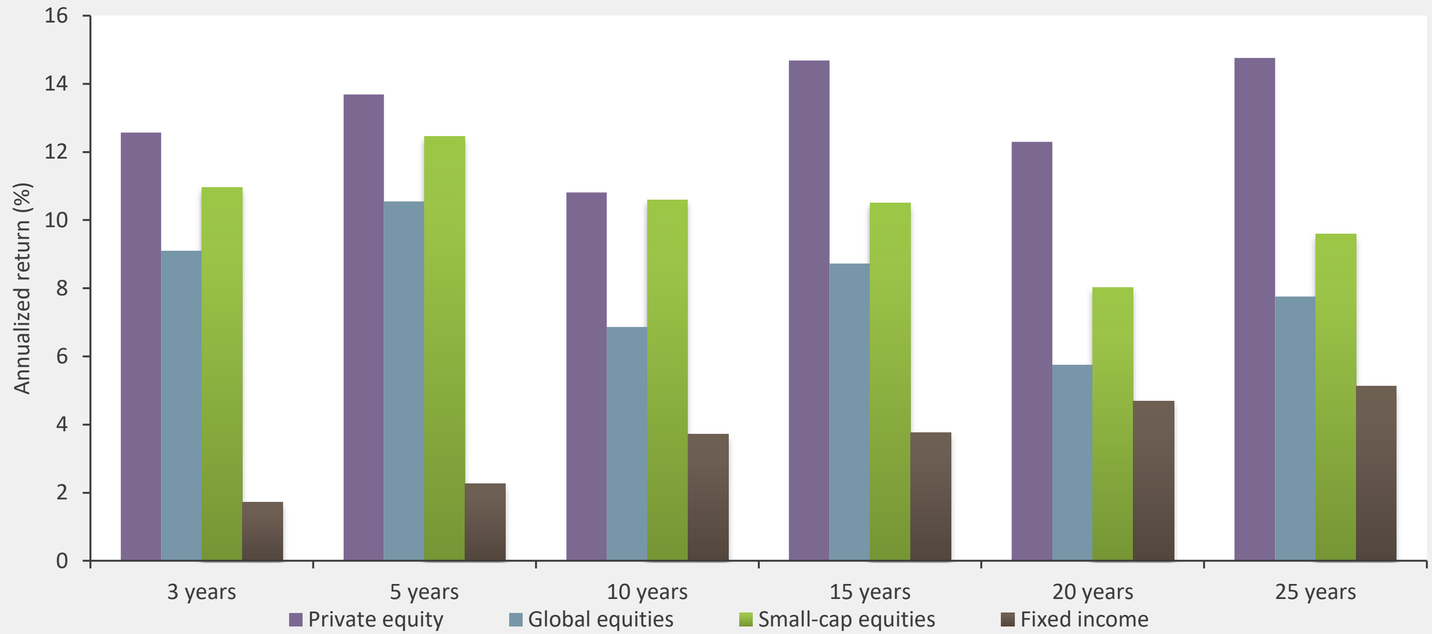
PRIVATE EQUITY HAS OUTPERFORMED GLOBAL EQUITIES



Sources: Morningstar Direct and Wells Fargo Investment Institute, as of June 30, 2018. Private equity = Cambridge Associates Private Equity. (Cambridge Index) Global equities = MSCI World Index. Small-cap equities = Russell 2000 Index. Fixed income = Bloomberg Barclays U.S. Aggregate Bond Index. For illustrative purposes only.

The Cambridge Index uses a horizon calculation based on data compiled from more than 1,400 institutional-quality buyout, growth equity, private equity energy, and subordinated capital funds formed between 1986 and 2017. The funds included in the index report their performance voluntarily and therefore the index may reflect a bias towards funds with records of success. ***More information on the limitations of utilizing this Index can be found at the end of this presentation.***

Alternative investments, such as private capital funds, are not suitable for all investors and are only open to accredited or qualified investors within the meaning of the U.S. securities laws. They are speculative and involve a high degree of risk that is suitable only for those investors who have the financial sophistication and expertise to evaluate the merits and risks of an investment in a fund and for which the fund does not represent a complete investment program.

KEY TAKEAWAYS

- Private equity funds strive to deliver significant capital appreciation for investors.
- Private equity funds have been able to deliver strong returns and have outperformed global equities in various time frames.

Private debt can provide an illiquidity premium

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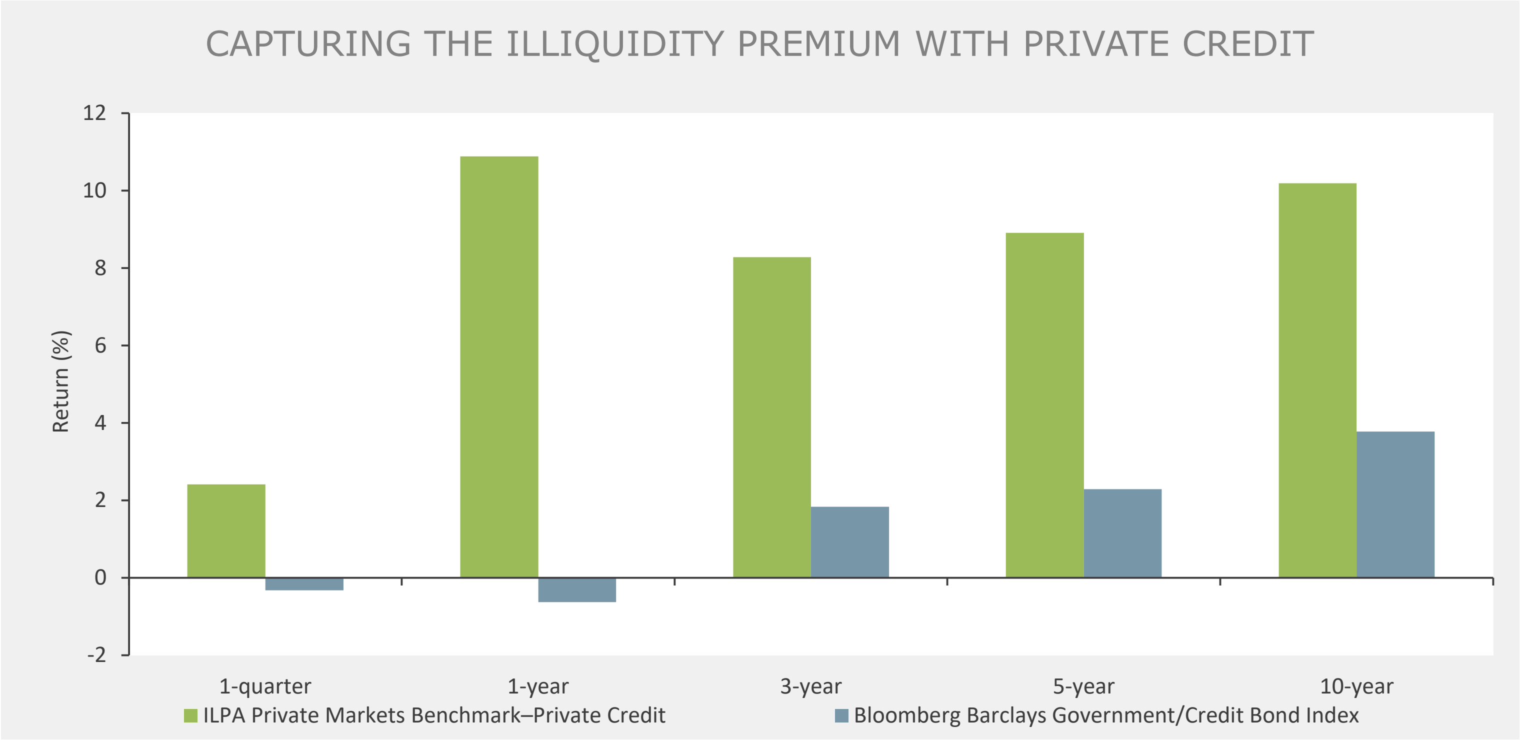


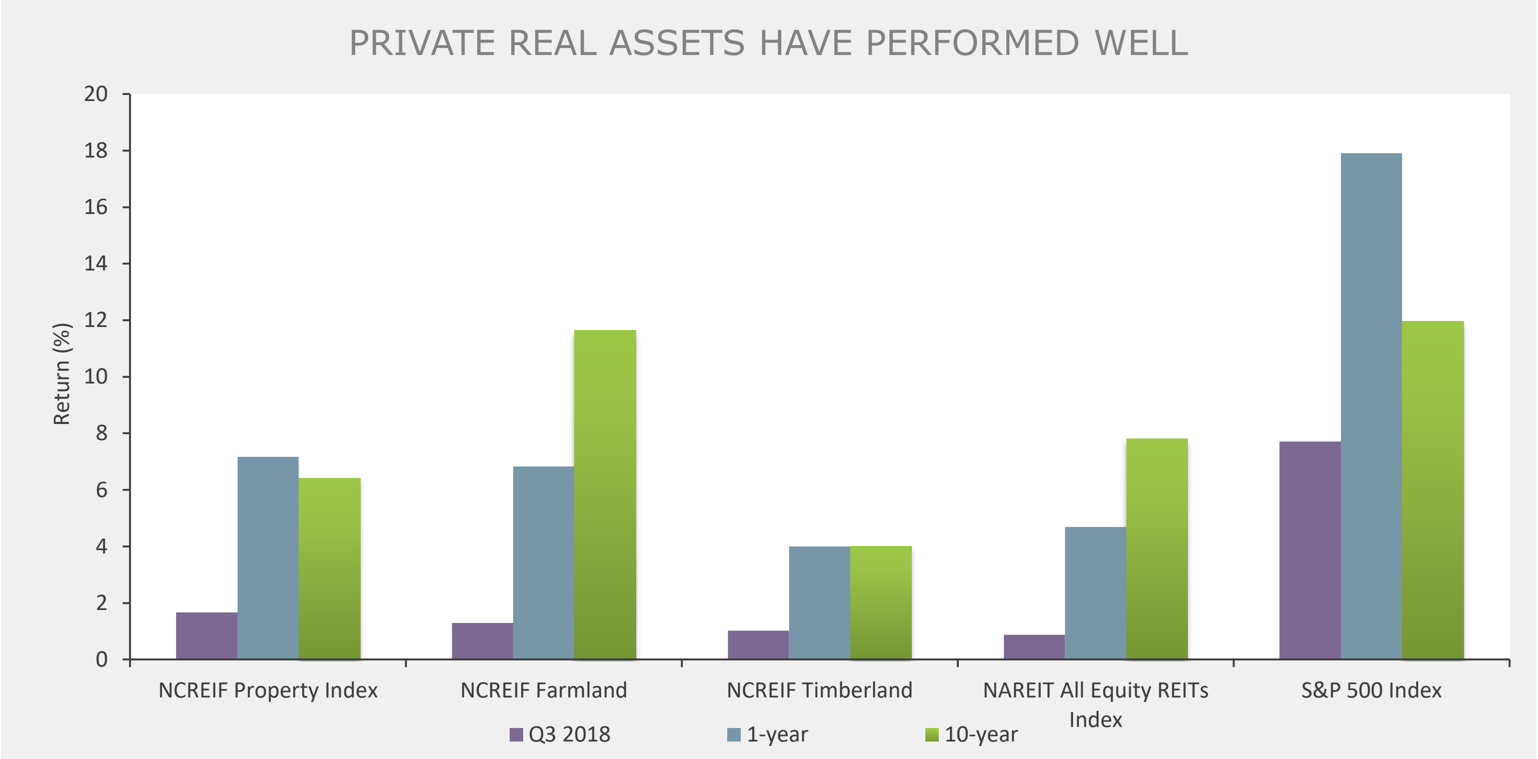
Sources: Bloomberg, Institutional Limited Partners Association (ILPA), and Wells Fargo Investment Institute, as of June 30, 2018. For illustrative purposes only. The ILPA Private Markets Benchmark – Private Credit Fund Index (ILPA) is a horizon calculation based on data complied from 269 private credit funds (credit opportunities and subordinated capital funds), including fully liquidated partnerships, formed between 1986 and 2017.. Bloomberg Barclays U.S. Government/Credit Index is a broad-based index that measures the non-securitized component of the Barclays U.S. Aggregate Index. It includes investment grade, US dollar-denominated, fixed-rate Treasuries, government-related and corporate securities. Broad based indices do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results*****.** ***More information on the limitations of utilizing ILPA can be found at the end of this presentation.***

KEY TAKEAWAYS

- Though less liquid than public credit, private credit historically has provided an attractive premium given the complexity of lending to entities that are unable to borrow from traditional capital market sources.

Alternative investments, such as private capital funds, are not suitable for all investors and are only open to accredited or qualified investors within the meaning of the U.S. securities laws. They are speculative and involve a high degree of risk that is suitable only for those investors who have the financial sophistication and expertise to evaluate the merits and risks of an investment in a fund and for which the fund does not represent a complete investment program.

Opportunities in private real assets



Sources: National Council of Real Estate Investment Fiduciaries (NCREIF) and Wells Fargo Investment Institute, as of September 30, 2018. For illustrative purposes only. NCREIF Property Index is a composite total return for private commercial real estate properties held for investment purposes only. NCREIF Farmland Index is a composite return measure of investment performance of a large pool of individual farmland properties acquired in the private market for investment purposes only. NCREIF Timberland Index is a composite return measure of investment performance of a large pool of individual timber properties acquired in the private market for investment purposes only. NAREIT All Equity REIT Index is considered representative of the equity REIT market. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Private real assets have historically outperformed public real estate (REITs) over a full market cycle.

Currencies highlights

U.S. dollar

- The U.S. dollar strengthened in 2018 after weakening for most of 2017.
- Despite the recent dollar strength, concerns over fiscal and trade deficits persist, which may pressure the dollar lower and increase volatility.

Developed currencies

- Despite recent euro depreciation, we expect the euro to strengthen over the next 12 months.
- The yen appreciated as the risk-averse global market reacted to ongoing trade disputes and geopolitical risks.

Emerging currencies

- Economic and political uncertainties in Argentina, Brazil, and Turkey have contributed to a sell-off in emerging market currencies. In our opinion, these developments are the exception rather than the rule, and we think movements in emerging markets currencies will be less volatile in 2019.
- Despite the risks from trade conflicts and political transitions in certain countries, we believe that an environment of continued global economic growth will support emerging market currencies.

Currencies scorecard

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Metric	4Q18	QoQ Change (%)	2018 Change (%)	Year-end 2017
DXY Index	96.173	1.09	4.40	92.12
Euro (dollars per euro)	$1.15	-1.18	-4.48	$1.20
Japanese yen (yen per dollar)	¥109.69	3.53	2.66	¥112.69
British pound sterling (dollar per pound)	$1.28	-2.13	-5.62	$1.35
Chinese renminbi (yuan per dollar)	¥6.88	-0.14	-5.71	¥6.51

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. QoQ = quarter over quarter. The DXY Index measures the value of the U.S. dollar relative to the majority of its most significant trading partners.

KEY TAKEAWAYS

- Our 12-month currency outlook implies a weaker dollar. We maintain a moderately positive view of emerging market currencies against the dollar. More radical trade and currency policies may add to volatility.
- Broad-based economic recovery in the eurozone and a central bank in the early stages of policy normalization should support the euro, and deficit fears may undercut the dollar.

The dollar continues to lose traction

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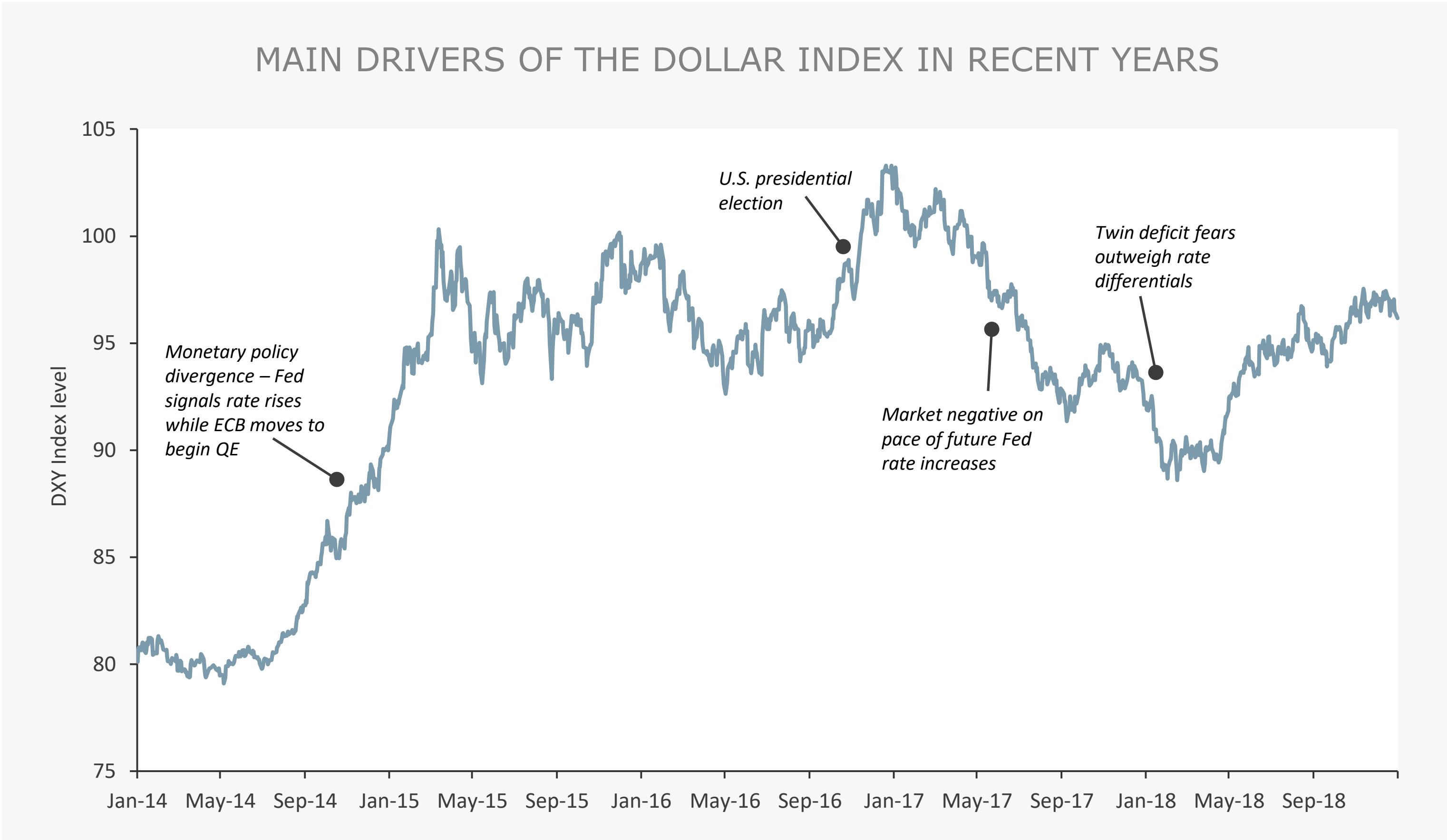
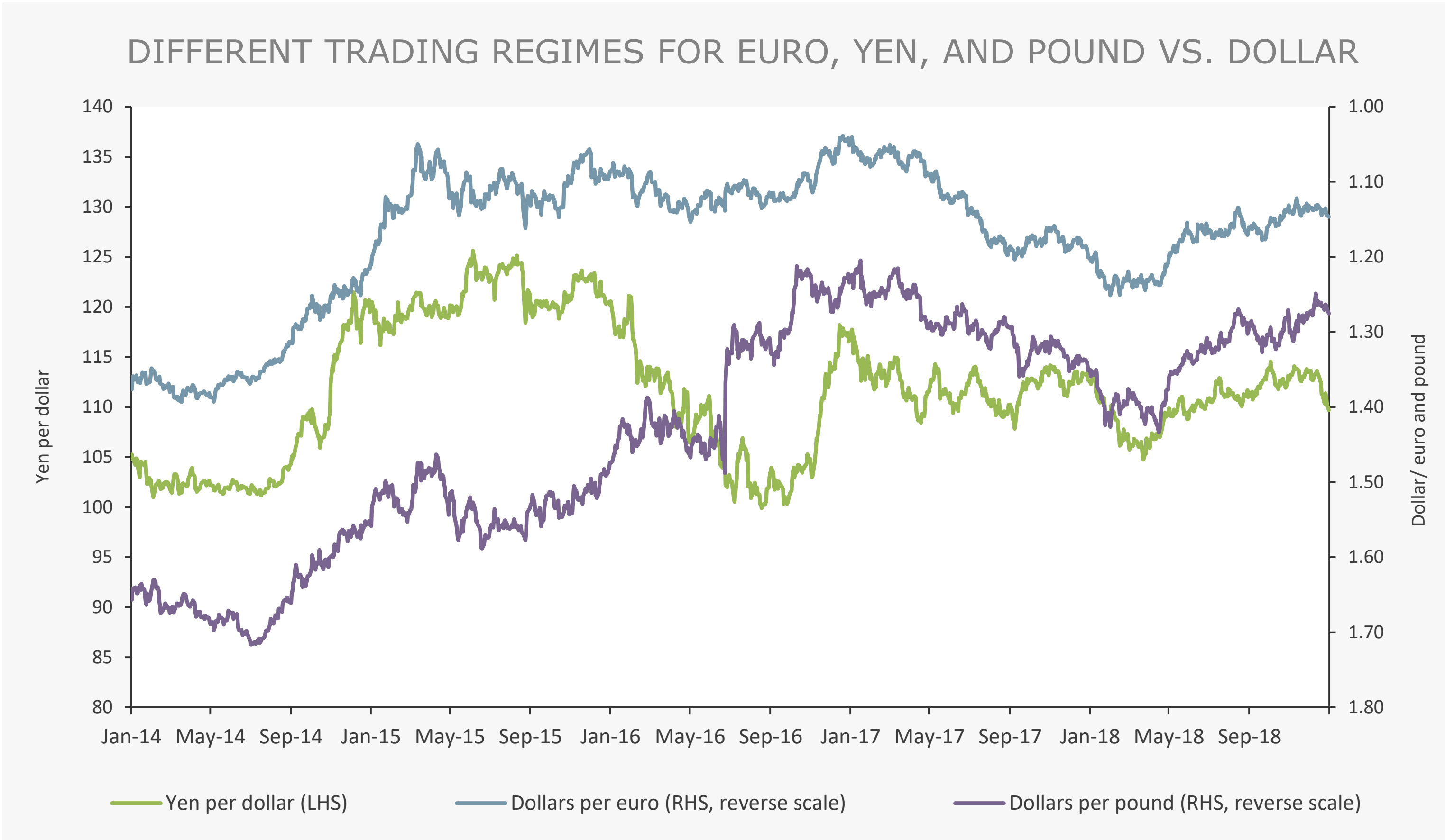


Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. The DXY Index measures the value of the U.S. dollar relative to the majority of its most significant trading partners.

KEY TAKEAWAYS

- The U.S. dollar strengthened in 2018, but we expect it to depreciate over the next 12 months.
- Additional dollar volatility may emerge as traders anticipate new U.S. policies and increased geopolitical risks.

Currency volatility



Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018

KEY TAKEAWAYS

- The euro recently weakened due to geopolitical risks, but we expect it to resume appreciating versus the dollar.
- The pound resumed weakening on continued fears of an economically damaging Brexit outcome and traders acknowledge uncertainty and downside risk ahead.
- After the big swings of 2016, the yen shows no clear direction in a relatively narrow trading range.

The euro and equities returns

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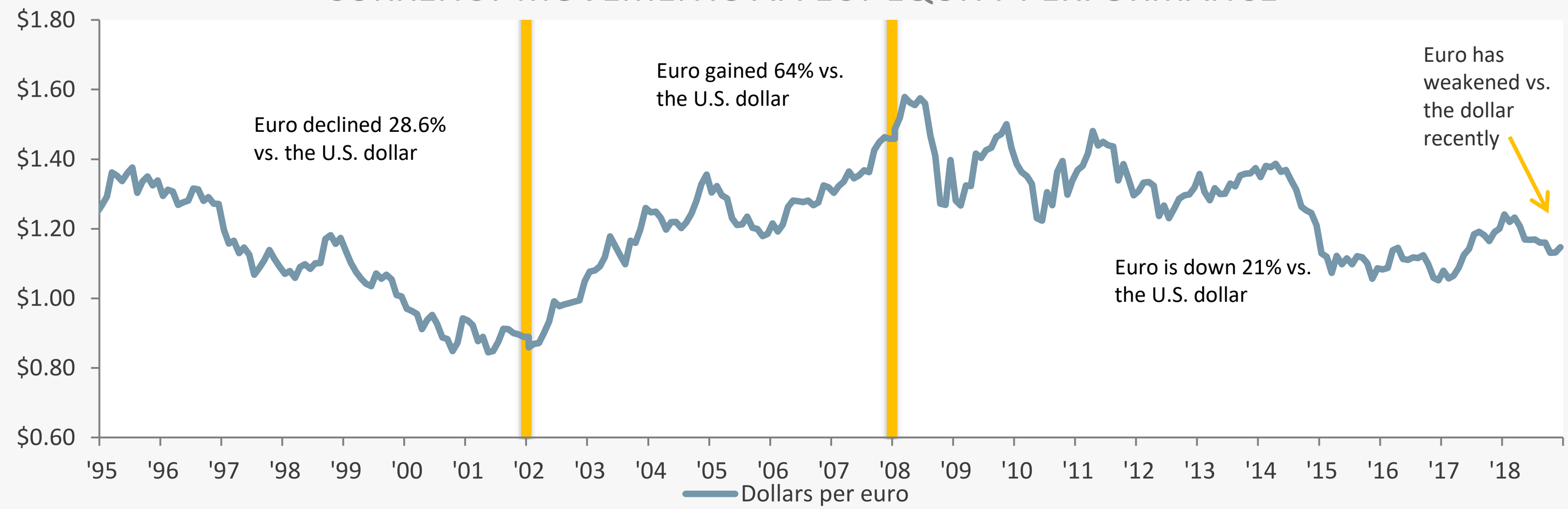
CURRENCY MOVEMENTS AFFECT EQUITY PERFORMANCE



ANNUAL EQUITY RETURNS FOR THE S&P 500 INDEX AND THE MSCI EAFE INDEX

	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
S&P 500	**38%**	**23%**	**33%**	**29%**	21%	**-9%**	**-12%**	-22%	29%	11%	5%	16%	5%	**-37%**	26%	**15%**	**2%**	16%	**32%**	**14%**	**1%**	**12%**	22%	**-4%**
MSCI EAFE	12%	6%	2%	20%	**27%**	-14%	-21%	**-16%**	**39%**	**21%**	**14%**	**27%**	**12%**	-43%	**32%**	8%	-12%	**18%**	23%	-4%	0%	2%	**26%**	-13%

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. The S&P 500 Index is a market-capitalization-weighted index generally considered representative of the U.S. stock market. The MSCI EAFE Index is a free-float-adjusted market-capitalization-weighted index that is designed to measure the equity market performance of 21 developed markets, excluding the U.S. and Canada. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- International equities tend to outperform U.S. equities when the euro is appreciating versus the dollar.

Impact of the U.S. dollar

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DOLLAR STRENGTH OR WEAKNESS IMPACT ON PROFITS, MANUFACTURING, AND EQUITY AND FIXED-INCOME RETURNS

	DOLLAR DEPRECIATION	DOLLAR APPRECIATION
Average quarterly change in corporate profits	1.12%	2.28%
Average quarterly change in U.S. manufacturing activity	-0.425	0.508
Average quarterly change in global manufacturing activity	0.139	-0.125
Average quarterly commodity total return	2.06%	-0.37%
Average quarterly global equity gross return (USD)	4.30%	0.24%
Average quarterly global equity gross return (LCL)	1.51%	1.19%
Average quarterly global fixed income total return (hedged)	1.31%	1.03%
Average quarterly global fixed income total return (unhedged)	3.02%	-0.72%

Sources: Bloomberg, Morningstar Direct, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Dollar represented by DXY Index (January 1, 1967–December 31, 2018). Corporate profits are seasonally adjusted (January 1, 1967–September 30, 2018). U.S. manufacturing represented by Institute for Supply Management Manufacturing PMI (January 1, 1967–December 31, 2018). Global manufacturing represented by J.P. Morgan Global Manufacturing Index (January 1,1998–December 31, 2018). Commodities represented by Bloomberg Commodity Index (January 1, 1990–December 31, 2018). Global equities represented by MSCI All Country World Index USD/Local Currency (March 1, 1988–December 31, 2018). Global fixed income represented by Bloomberg Barclays Multiverse Index Hedged/Unhedged (March 1, 1999–December 31, 2018). Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results****.*

KEY TAKEAWAYS

- An appreciating U.S. dollar tends to contribute to corporate profits and U.S. manufacturing activity.
- A falling dollar typically enhances global equity, commodity, and unhedged fixed-income performance.

Reversal in dollar, oil, and emerging market currencies

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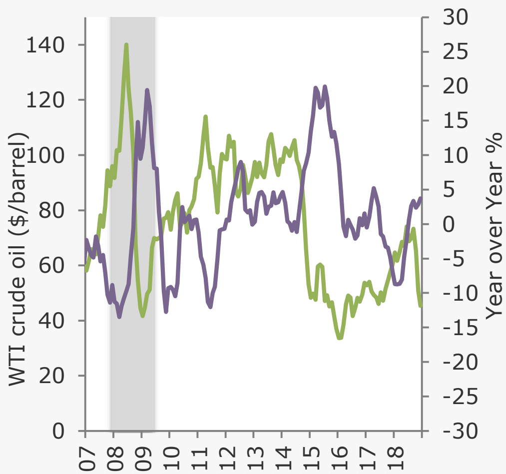
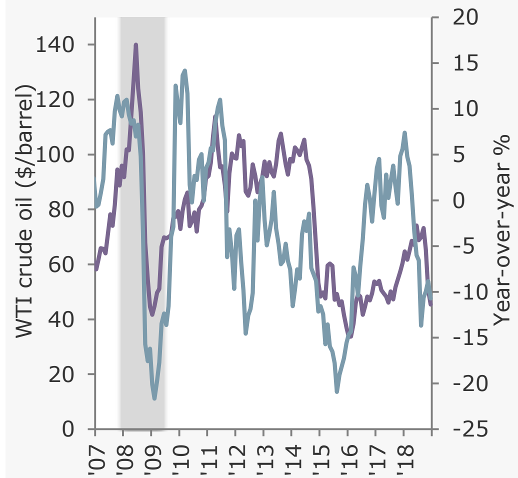
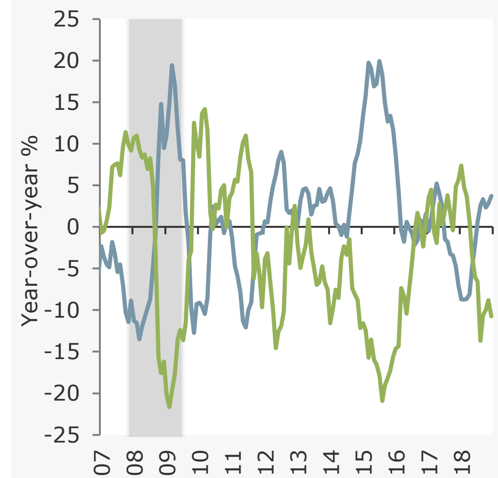
EMERGING MARKET CURRENCIES VS. CRUDE OIL



U.S. TRADE WEIGHTED DOLLAR INDEX VS. CRUDE OIL



U.S. DOLLAR COMPOSITE INDEX VS. EMERGING MARKET CURRENCIES



(%1 year) U.S. Trade Weighted Dollar Index

(%1 year) JP Morgan Emerging Markets Currency Index

WTI crude oil

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. Shaded areas represent periods of a U.S. economic recession.

KEY TAKEAWAYS

- Optimism about global growth prospects should support emerging market currencies and offset concerns about a potential protectionist trade policy.
- Despite the risks from trade conflicts and political transitions in certain countries, we believe that an environment of continued global economic growth will support emerging market currencies.

Asset allocation highlights

Background

- Investors may need to consider saving more or spending less in this environment to reach their financial goals.
- Historical performance may serve as a useful guide for investors, but markets frequently trade on factors outside of fundamental valuations for long periods of time.

Benefits of diversification and rebalancing

- Regularly rebalancing a portfolio can add value.
- Because each asset class has unique risk, return, and correlation characteristics, a diversified portfolio has the potential to provide more consistent returns with lower volatility.
- Attempting to reduce downside volatility is critical to long-term performance, as it can allow a portfolio to recover quicker in the event of a catastrophic event.
- It's important to recognize that the more you lose in a downturn, the longer it takes to recoup those losses.

Dangers of market timing

- Missing even a handful of days when the market achieves its best gains can dramatically reduce returns.
- We do not advocate market timing, but we do believe that modest tactical shifts have the potential to take advantage of short-term investment opportunities or help mitigate short-term risks.

Asset allocation scorecard

	4Q18 Return (%)	3Q18 Return (%)	2018 Return (%)
Moderate Income four-asset group without private capital	-2.27	1.18	-1.70
Moderate Growth and Income four-asset group w/o private capital	-7.10	2.38	-4.74
Moderate Growth four-asset group without private capital	-10.91	3.20	-7.33
60% MSCI ACWI/40% Bloomberg Barclays Multiverse	-7.18	2.32	-5.68
60% S&P 500 Index/40% Bloomberg Barclays U.S. Aggregate Bond Index	-7.46	4.63	-2.26

Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. Performance results for the Moderate Income, Moderate Growth and income and 60/40 portfolios are hypothetical and for illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results; assume the reinvestment of dividends and other distributions; and do not reflect deductions for fees, expenses, or taxes applicable to an actual investment. Unlike most asset-class indices, HFR index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided, actual returns may be higher or lower than those reported. An index is unmanaged and not available for direct investment. ***Hypothetical and past performance does not guarantee future results.*** *Compositions of the Moderate Income, Moderate Growth and Income, Moderate Growth Four-Asset Group without PC and 60/40 are provided on page 102.*

KEY TAKEAWAYS

- A diversified portfolio helps smooth out returns over time.
- Adding real assets and alternative investment strategies can help enhance returns and mitigate risk over a traditional portfolio consisting of stocks and bonds.

Diversification strategies do not guarantee investment returns or eliminate the risk of loss.

The bucket list: why you may own assets

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Catastrophe

- Cash
- U.S. IG fixed income
- Commodities
- Hedge funds
- Managed futures

Income

- U.S. IG bonds
- U.S. high-yield fixed income
- Int'l bonds (DM/EM)
- Large/mid cap equity
- DM equity
- Real estate/REITs

Volatility

- U.S. IG fixed income
- DM fixed income
- Hedge funds
- Managed futures

Liquidity

- Cash
- U.S. IG fixed income
- DM fixed income
- Large Cap equity
- DM equity

Inflation

- TIPS or short-term fixed income
- DM bonds
- Domestic equity
- Int'l equity (DM/EM)
- REITs
- Commodities

Growth

- U.S. high-yield fixed income
- EM fixed income
- U.S. equity
- Int'l equity (DM/EM)
- Real estate/REITs
- Private equity

Source: Wells Fargo Investment Institute, as of December 31, 2018

KEY TAKEAWAYS

- Certain asset classes can be appropriate under different circumstances or for different investment objectives.

Hedge Funds, Managed Futures, Real Estate and Private Equity funds are not suitable for all investors and are only open to "accredited" or "qualified" investors within the meaning of U.S. securities laws.

Expect lower returns for longer

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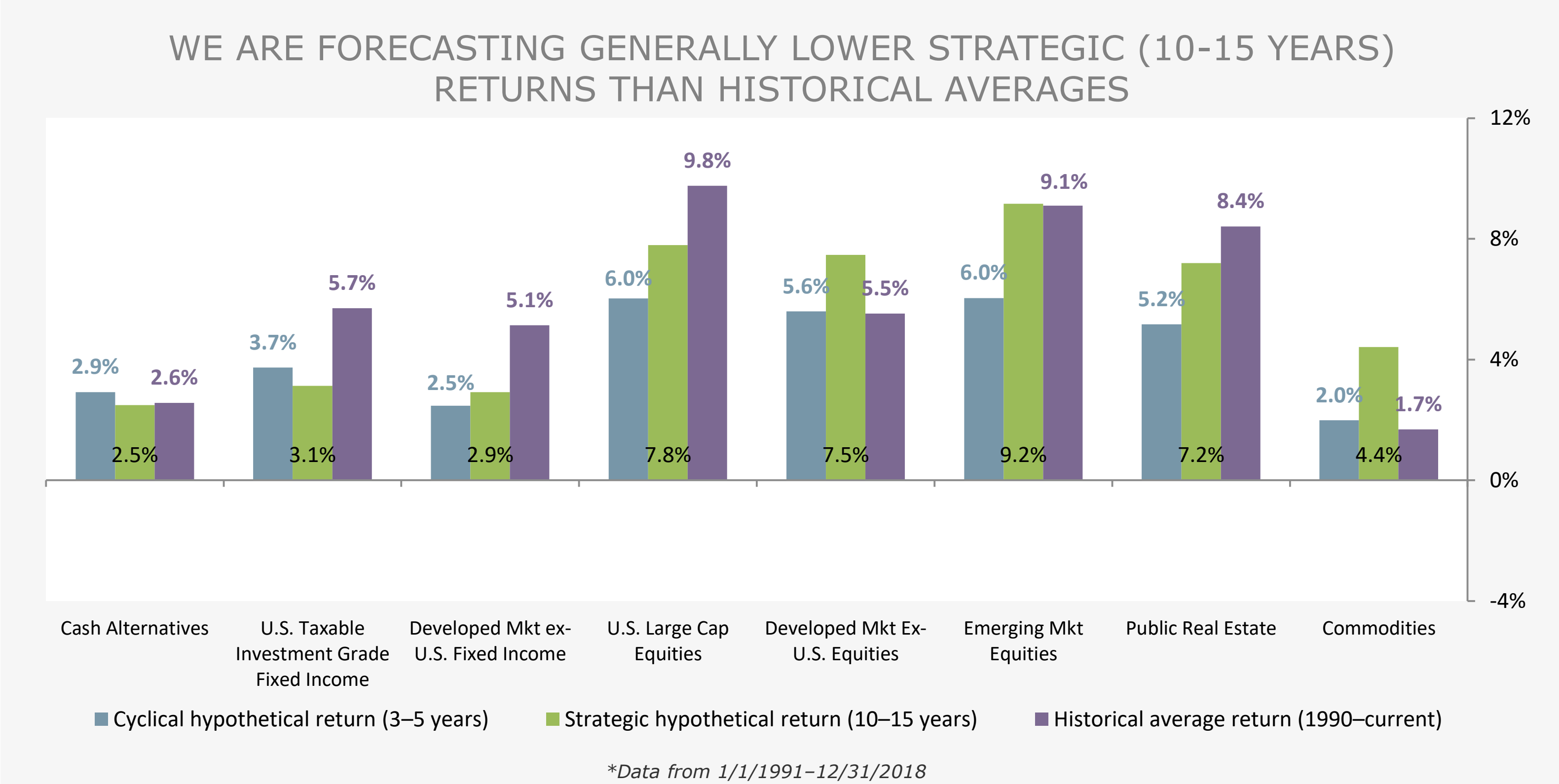

Sources: FactSet, Morningstar Direct, and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Cyclical return assumptions as of January 1, 2019. Strategic return assumptions are as of July 17, 2018. Cyclical and strategic hypothetical returns are forward-looking estimates from Wells Fargo Investment Institute of how asset classes and combinations of classes may respond during various market environments. Hypothetical returns do not represent the returns that an investor should expect in any particular year. They are not designed to predict actual performance and may differ greatly from actual performance. There are no assurances that any estimates given will be achieved. Historical average returns are for data from January 1991 to December 2018. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Investors may need to consider saving more or spending less in this environment to reach their financial goals.

Indices in order represented by Bloomberg Barclays U.S. Treasury Bill (1–3 Month) Index, Bloomberg Barclays U.S. Aggregate Bond Total Return Index, JP Morgan GBI Global Ex U.S. Total Return Index, S&P 500 Total Return Index, MSCI EAFE Total Return Index, MSCI Emerging Markets Total Return Index, FTSE EPRA/NAREIT Developed REITs Total Return Index, Bloomberg Commodity Index.

Diversification and rebalancing benefits

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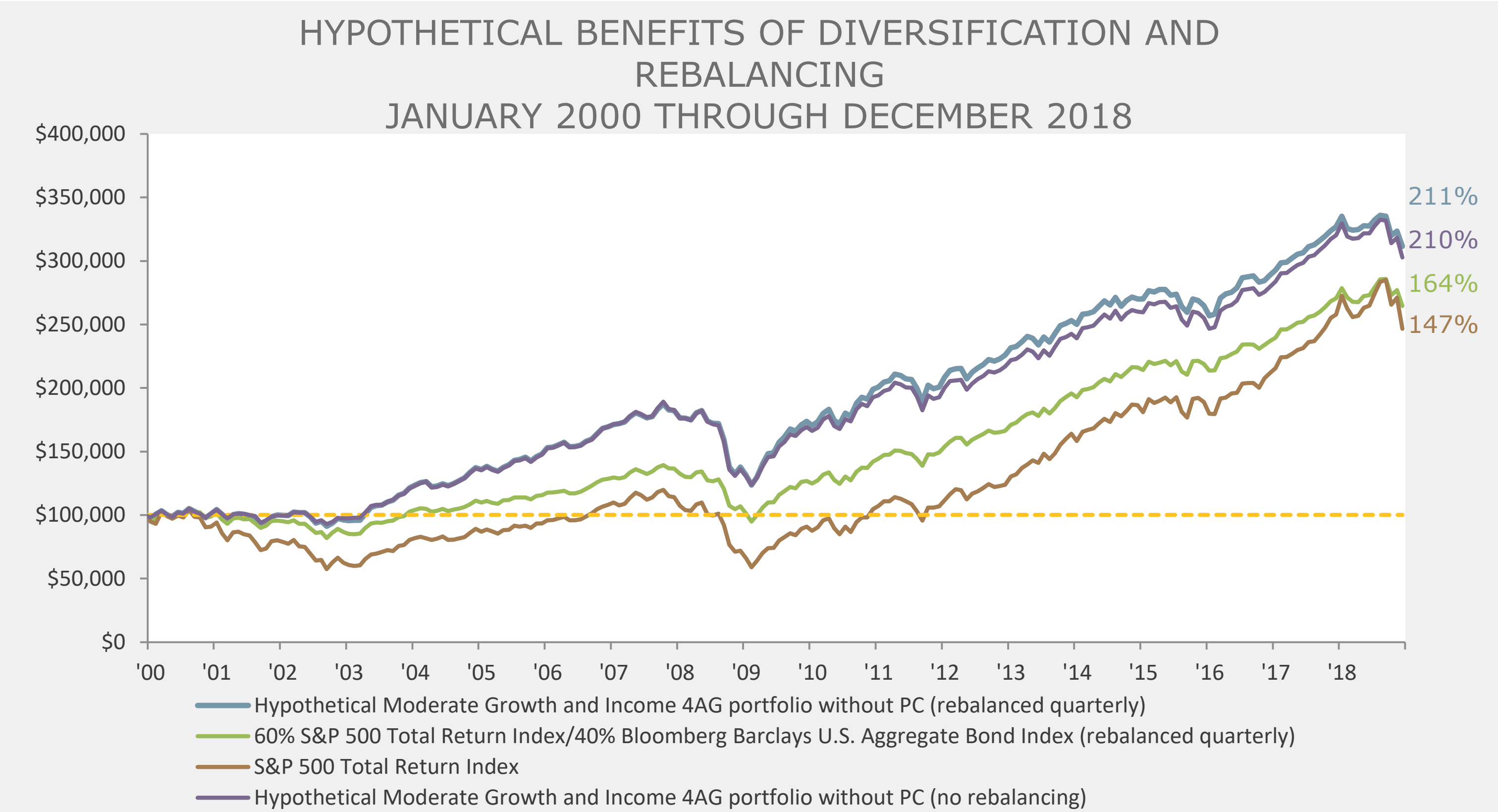

Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. Performance results for the Moderate Growth and Income 4AG portfolio without private capital (PC) and the 60/40 portfolios are hypothetical and for illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results; do not reflect actual portfolio returns or the experience of any investor; and do not reflect the impact of any fees, expenses, or taxes applicable to an actual investment. Unlike most asset-class indices, HFR index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided, actual returns may be higher or lower than those reported. An index is unmanaged and not available for direct investment. ***Hypothetical and past performance is no guarantee of future results****. Composition of the Portfolios provided on slide 102.*

KEY TAKEAWAYS

- Regularly rebalancing a portfolio can add value.
- The balanced portfolio that is rebalanced regularly outperformed all the others during this time period.

Diversification strategies do not guarantee investment returns or eliminate the risk of loss.

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Diversification may reduce downside risk

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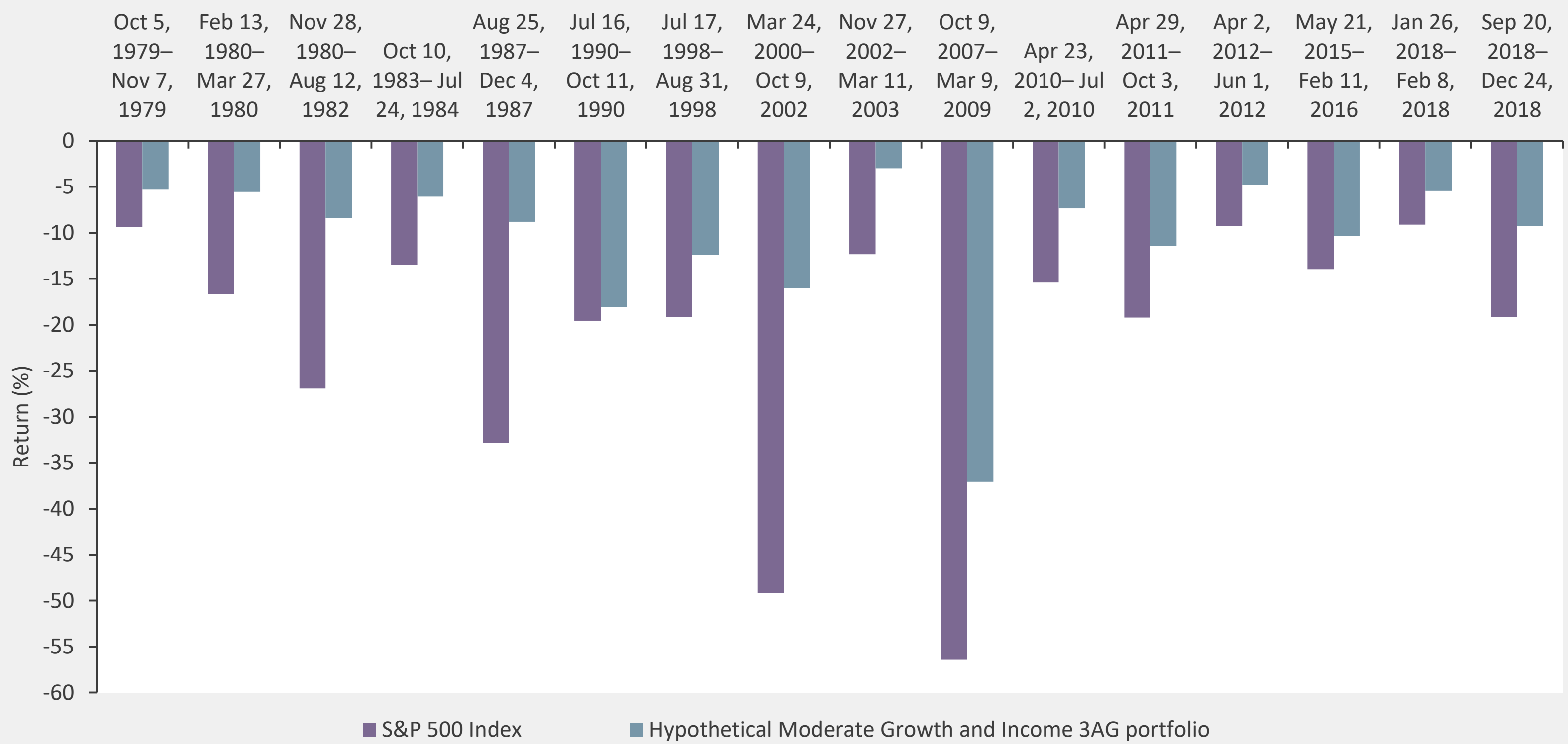
A DIVERSIFIED ALLOCATION MAY HELP LIMIT LOSSES IN DOWN MARKETS



Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. Performance results for the Moderate Growth and Income 3AG Portfolio is hypothetical and is presented for illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. *An index is unmanaged and not available for direct investment.* ***Hypothetical and past performance does not guarantee future results.*** *Composition of the Portfolios provided on slide 102.*

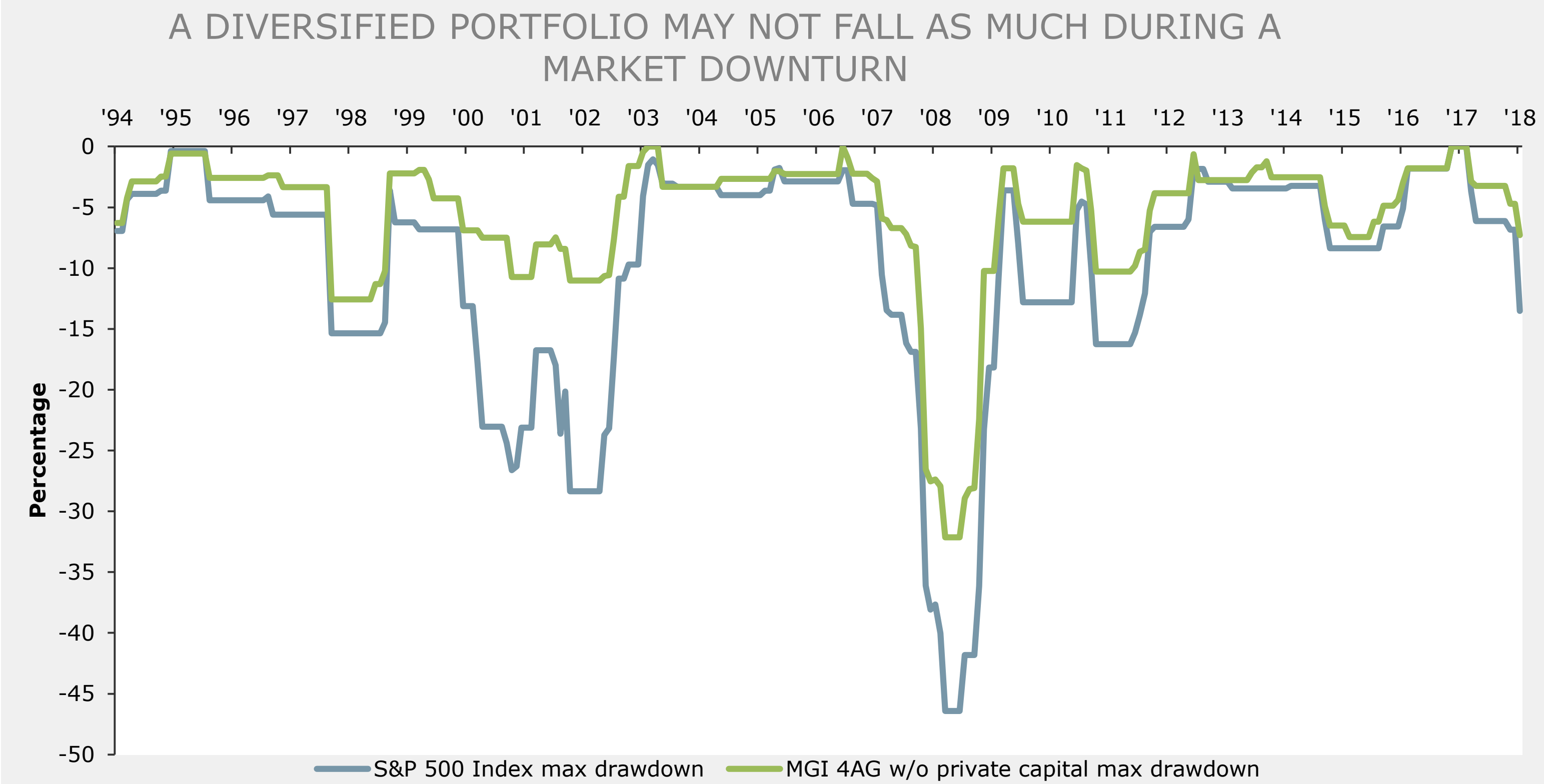
Note: Corrections are declines of 10% or more. Bear markets are declines of 20% or more.

KEY TAKEAWAYS

- A diversified allocation may not experience losses as sharp as an all-equity position during an equity correction or bear market.
- Attempting to reduce downside volatility is critical to long-term performance, as it can allow a portfolio to recover much quicker in the event of a catastrophic event.

Diversification strategies do not guarantee investment returns or eliminate the risk of loss.

Diversification may reduce downside risk



Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. Max drawdowns calculated based on percentage change from peak to valley in a rolling 12-month period. Time period ranges from January 1, 1994 to December 31, 2018. Calendar-year drawdowns represent the largest market drops from peak to trough for each year. Performance for the MGI 4AG w/o PC portfolio is hypothetical and for illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. An index is unmanaged and not available for direct investment. ***Hypothetical and past performance is no guarantee of future results.*** *Composition of the Portfolios provided on slide 102.*

KEY TAKEAWAYS

- History has shown a diversified portfolio can help mitigate downside risk during times of stress in financial markets.

Diversification strategies do not guarantee investment returns or eliminate the risk of loss.

Crisis events' impact on performance

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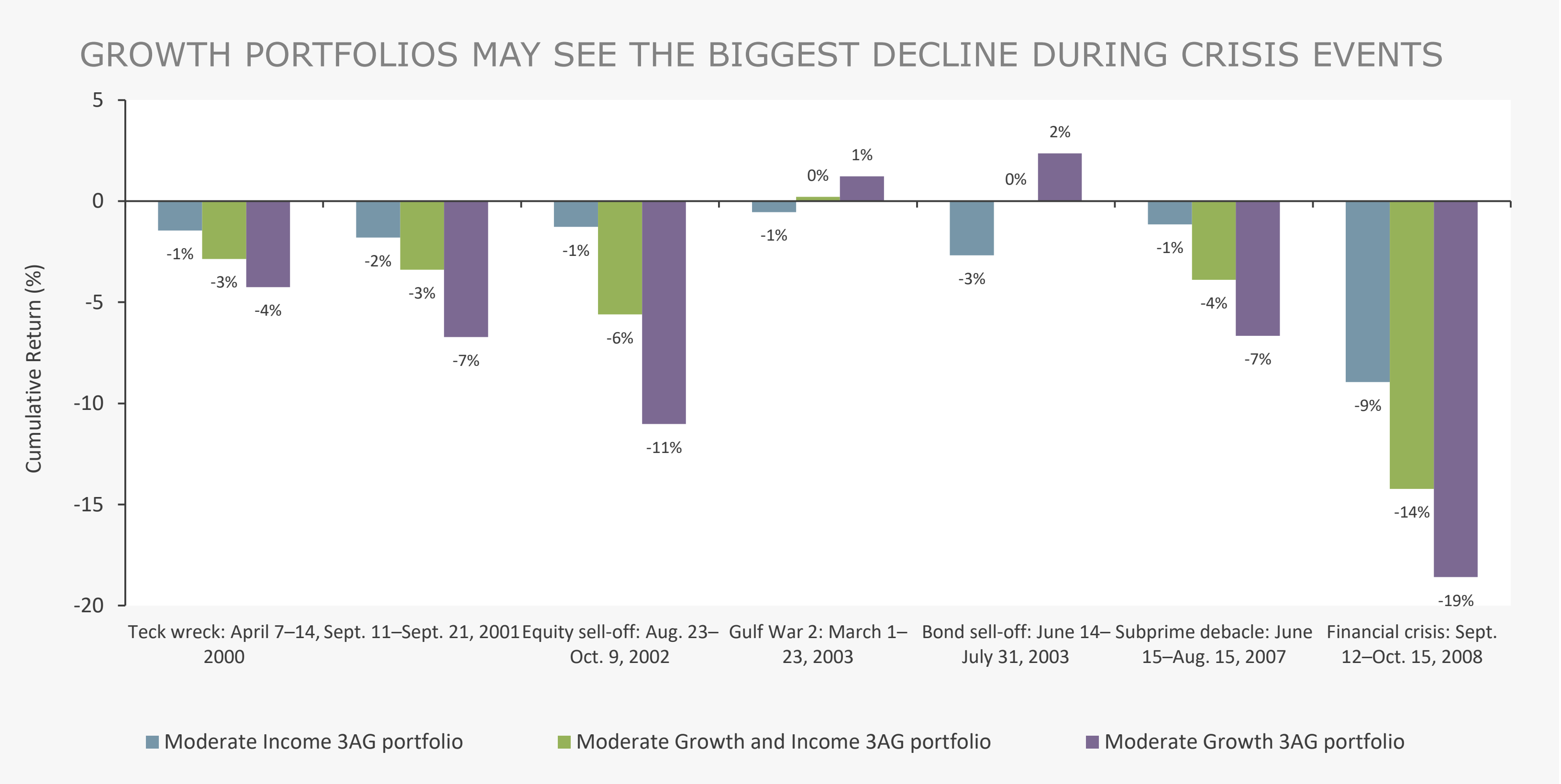
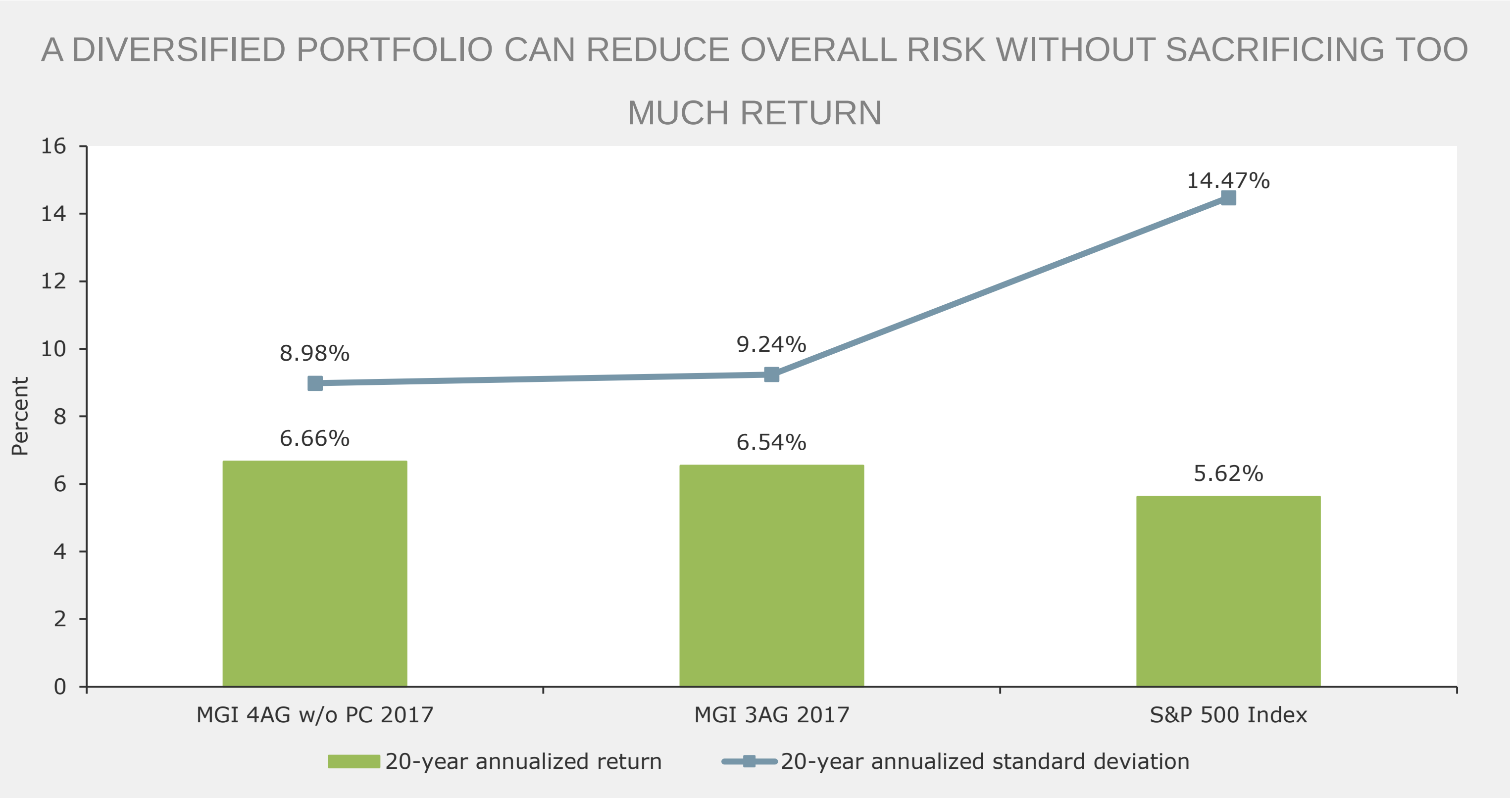


Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. Performance for the Moderate Income, Moderate Growth and income, and Moderate Growth 3AG Portfolios are hypothetical and for illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. An index is unmanaged and not available for direct investment. ***Hypothetical and past performance is no guarantee of future results.*** *Composition of the Portfolios provided on slide 102.*

KEY TAKEAWAYS

- During certain historical crisis events, growth-oriented allocations declined the most, income-oriented allocations tended to decline the least, and growth-and-income-oriented allocations experienced moderate declines.
- Growth allocations tend to rise more over time, but crisis events have had a bigger impact.

Diversification may improve risk-adjusted returns



Sources: Morningstar Direct and Wells Fargo Investment Institute, January 1, 1999–December 31, 2018. Performance for the MGI 4AG w/o PC and the MGI 3AG Portfolios are hypothetical and for illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. Unlike most asset class indices, HFR Index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided actual returns may be lower than those reported. An index is unmanaged and not available for direct investment. ***Hypothetical and past performance does not guarantee future results.*** *Standard deviation is a measure of the volatility of returns. The higher the standard deviation, the greater volatility has been. The risk associated with the representative asset classes and the definitions of the indices are provided at the end of the report. Diversification does not guarantee investment returns or eliminate risk of loss. Composition of the Portfolios provided on slide 102.*

KEY TAKEAWAYS

- Over time, a diversified portfolio can help mitigate volatility during times of market uncertainty and help smooth returns.
- Real assets and alternative investments add an element of diversification to a traditional portfolio comprised of stocks and bonds.

Diversification strategies do not guarantee investment returns or eliminate the risk of loss.

ECONOMY

EQUITIES

FIXED INCOME

REAL ASSETS

ALTERNATIVE INVESTMENTS

CURRENCIES

ASSET ALLOCATION

DISCLOSURES

The more you lose, the longer it takes to break even

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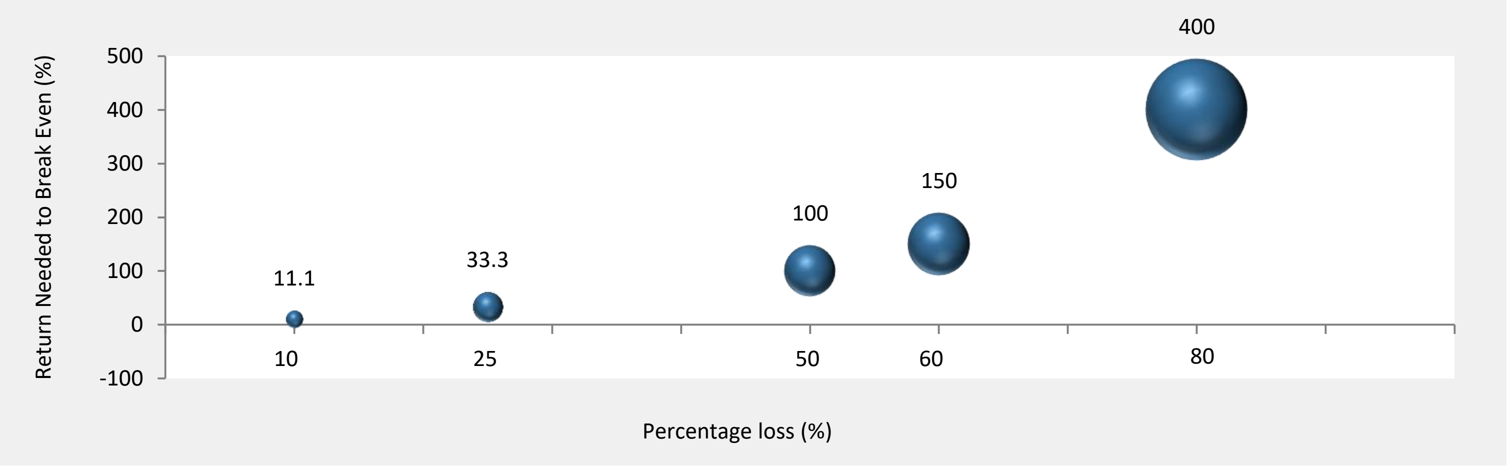
TO BREAK EVEN IN ONE PERIOD		PERIODS NECESSARY TO BREAK EVEN GIVEN A PERCENTAGE RETURN OF		
If you lose	**You need …**	**1%**	**5%**	**10%**
10%	11.1%	10.6	2.2	1.1
25%	33.3%	28.9	5.9	3.0
50%	100%	69.7	14.2	7.3
60%	150%	92.1	18.8	9.6
80%	400%	161.7	33.0	16.9



Source: Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. There is no guarantee it will be possible to break even. All investing involves risk including the possible loss of principal. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- It's important to recognize that the more you lose in a downturn, the longer it takes to recoup those losses.

Timing the market is risky

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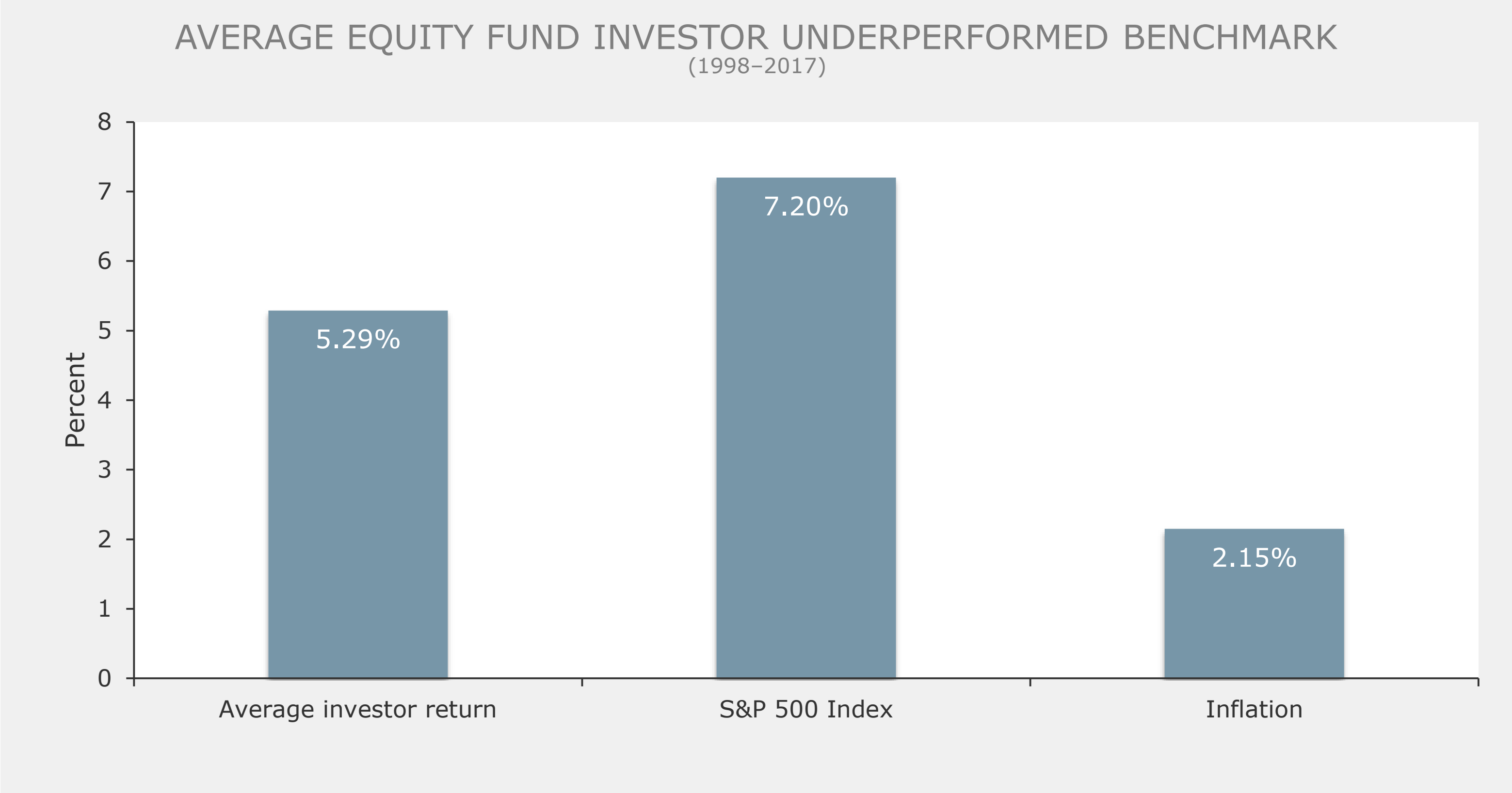
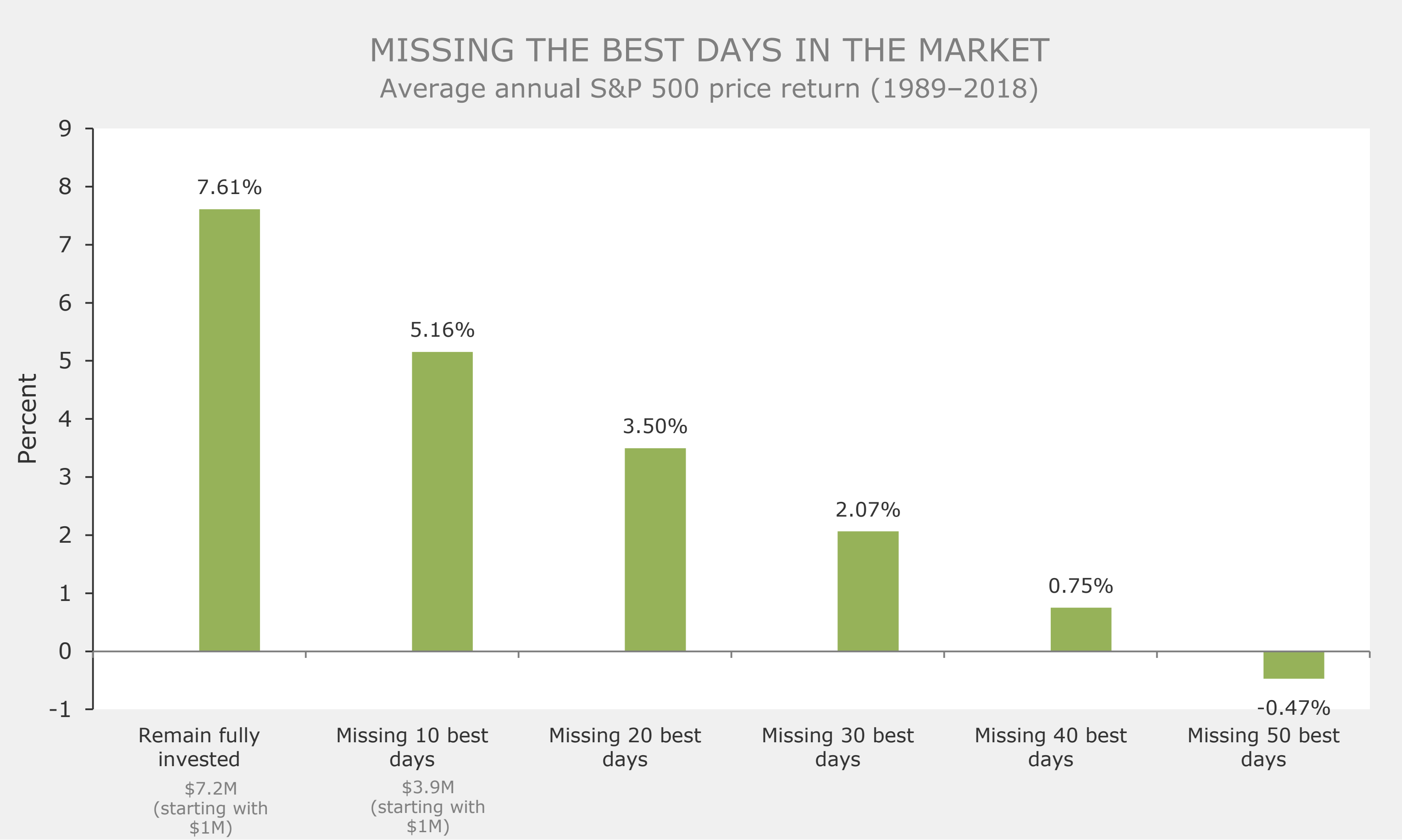


Source: Dalbar, Inc., 20 years from 1998–2017; "Quantitative Analysis of Investor Behavior," 2018, DALBAR, Inc., www.dalbar.com. Dalbar computed the average stock fund investor return by using industry cash flow reports from the Investment Company Institute. The average stock fund return figure represents the average return for all funds listed in Lipper's U.S. Diversified Equity fund classification model. All Dalbar returns were computed using the S&P 500 Index. Returns assume reinvestment of dividends and capital gain distributions. The fact that buy and hold has been a successful strategy in the past does not guarantee that it will continue to be successful in the future. The performance shown is not indicative of any particular investment. ***Past performance is not a guarantee of future results.***

KEY TAKEAWAYS

- Market timing is difficult. Investors who allow their emotions to get the best of them can suffer lower returns.

Timing the market is risky

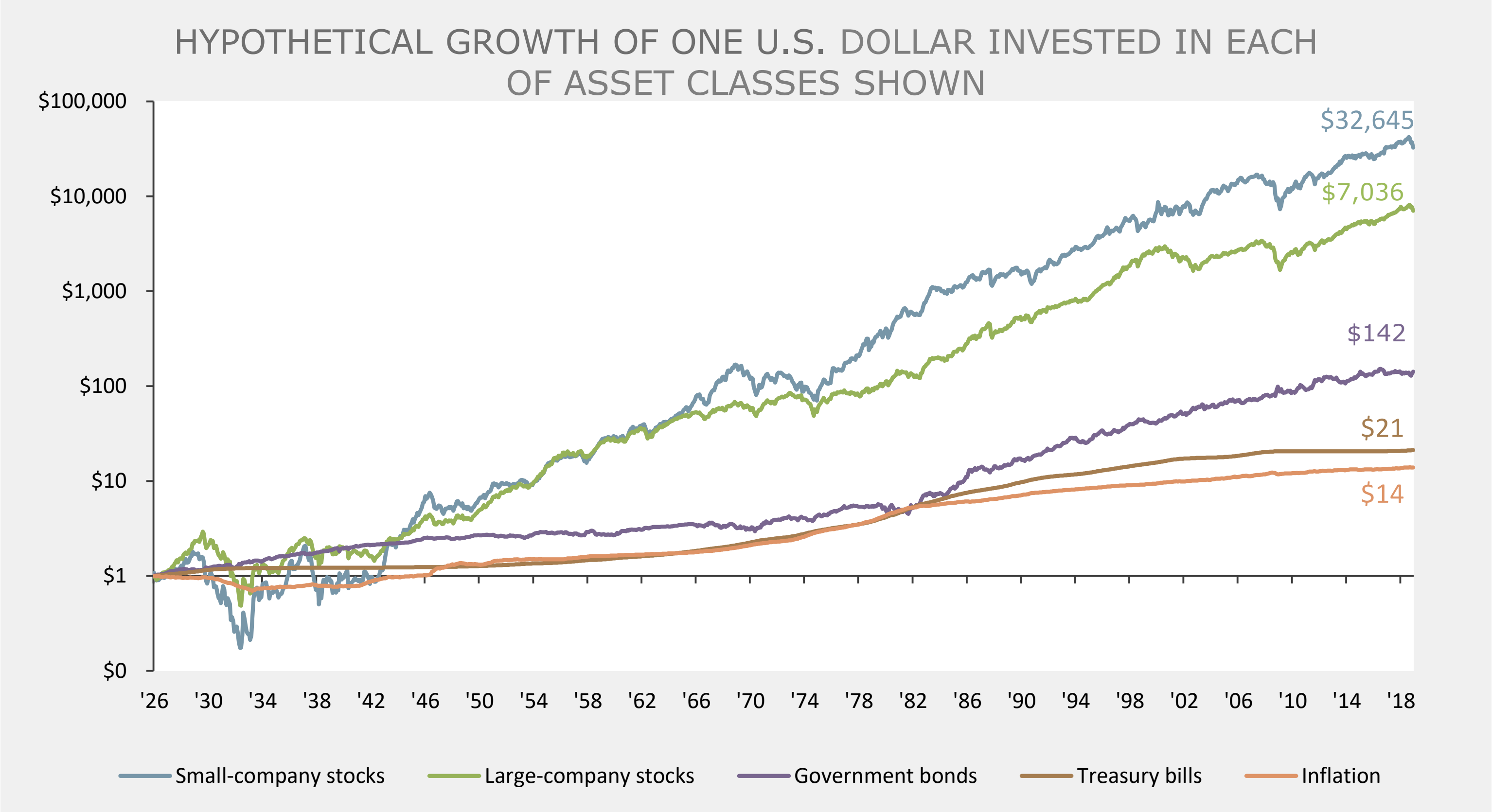


Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. An index is unmanaged and not available for direct investment. ***Past performance is no guarantee of future results.*** *A price index is not a total return index and does not include the reinvestment of dividends.*

KEY TAKEAWAYS

- We do not advocate market timing, but we do believe that modest tactical shifts have the potential to take advantage of short-term investment opportunities or help mitigate short-term risks.
- Missing even a handful of days when the market achieves its best gains can dramatically reduce returns.

Asset values have grown over time



Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. ***Small-company stocks:*** *IA SBBI U.S. Small Stock Index.* ***Large-company stocks****: S&P 500 Index.* ***Government bonds:*** *IA SBBI U.S. Long-Term Government Bond Index.* ***Treasury bills:*** *IA SBBI U.S. 30-Day Treasury Bill Index.* ***Inflation:*** *IA SBBI U.S. Inflation Index. For illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. An index is unmanaged and not available for direct investment.* ***Hypothetical and past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Since 1926, riskier assets have outperformed less risky assets.
- U.S. Treasury bills have tracked inflation fairly closely over this time frame. More recently, T-bill yields have been lower than inflation.

Net flows of mutual funds (MFs) and exchange-traded funds (ETFs)

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Billions ($)		YTD 2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Domestic equity	MF	-209	-236	-235	-170	-60	18	-159	-133	-81	-28
	ETF	107	188	170	70	132	129				
Int'l equity	MF	55	71	23	111	69	84	1	5	39	12
	ETF	51	160	21	109	46	65				
EM equity		10	13	-4	-4	7	33	17	12	27	22
Taxable bond	MF	61	234	84	-40	16	-12	256	129	221	301
	ETF	78	116	77	51	48	13				
Government bond		8	2	11	12	6	-51	34	3	4	19
High-yield bond		-15	-18	7	-37	-44	56	34	22	19	22
Tax-exempt bond	MF	6	26	23	15	28	-58	50	-12	12	70
	ETF	4	5	6	4	3	-1				
Money market		90	57	-30	21	6	15	0	-124	-525	-539

Sources: FactSet and Wells Fargo Investment Institute, as of November 30, 2018. Data compiled by Investment Company Institute (ICI). Data represents net new cash flows of mutual funds and net issuance of shares of ETFs. Numbers rounded to the nearest billion. For number of funds in each category according to ICI please refer to https://www.ici.org/research/stats/trends/trends_11_18. For definitions and components of each category according to ICI please refer to https://www.ici.org/research/stats/iob_update/iob_definitions.

KEY TAKEAWAYS

- U.S. equity outflows have outpaced taxable bond flows over the past three years.
- Mutual fund investors have continued to reduce their U.S. equity allocations this year. This has been an ongoing trend since 2014.

Asset performance—correlations

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	Cash	U.S. Taxable IG FI	HY Taxable FI	DM Ex-U.S. FI	EM FI	U.S. LC Equities	U.S. MC Equities	U.S. SC Equities	DM Ex-U.S. Equities	EM Equities	Public Real Estate	Commodity	Hedge Funds
Cash	1	0.23	-0.19	0.00	0.00	-0.20	-0.13	-0.13	-0.12	-0.07	0.00	0.15	0.02
U.S. Taxable IG FI		1	-0.11	0.57	0.32	-0.41	-0.37	-0.42	-0.29	-0.23	-0.02	-0.08	-0.28
HY Taxable FI			1	-0.02	0.71	0.70	0.74	0.67	0.68	0.76	0.70	0.50	0.75
DM Ex-U.S. FI				1	0.27	-0.10	-0.12	-0.15	0.15	0.07	0.18	0.14	-0.06
EM FI					1	0.48	0.54	0.44	0.51	0.63	0.59	0.42	0.57
U.S. LC Equities						1	0.96	0.93	0.88	0.80	0.76	0.36	0.82
U.S. MC Equities							1	0.95	0.89	0.83	0.81	0.46	0.90
U.S. SC Equities								1	0.84	0.78	0.77	0.34	0.83
DM Ex-U.S. Equities									1	0.88	0.80	0.48	0.87
EM Equities										1	0.71	0.52	0.90
Public Real Estate											1	0.46	0.71
Commodity												1	0.58
Hedge Funds													1

Source: Wells Fargo Investment Institute, January 1, 2000 to December 31, 2017. For illustrative purposes only. Correlation measures the degree to which asset classes move in sync; it does not measure the magnitude of that movement. There is no guarantee that future correlations between the indices will remain the same. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. Unlike most asset class indices, HFR Index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided actual returns may be lower than those reported. An index is unmanaged and not available for direct investment. Index correlations represent past performance. ***Past performance is no guarantee of future results.***

KEY TAKEAWAYS

- Correlations play an important role in portfolio diversification. In addition to risk and return, correlations are primary components of portfolio construction.

Indices in order represented by Bloomberg Barclays U.S. Treasury Bill 1–3 Month TR USD, Bloomberg Barclays U.S. Agg Bond TR USD, Bloomberg Barclays U.S. Municipal Index TR USD, Bloomberg Barclays U.S. Corporate High Yield Bond TR USD, Bloomberg Barclays High Yield Muni Index TR USD, JPM GBI Global Ex U.S. TR USD, JPM EMBI Global TR USD, IA SBBI S&P 500 TR USD, Russell Mid Cap, Russell 2000, MSCI EAFE GR USD, MSCI EM GR USD, FTSE EPRA/NAREIT Developed TR USD, Bloomberg Commodity Index, HFRI Fund Weighted Index. IG = investment grade. FI = fixed income. LC = large cap. MC = mid cap. SC = small cap. HY = high yield. DM = developed market. EM = emerging market.

Finding balance between risk and reward

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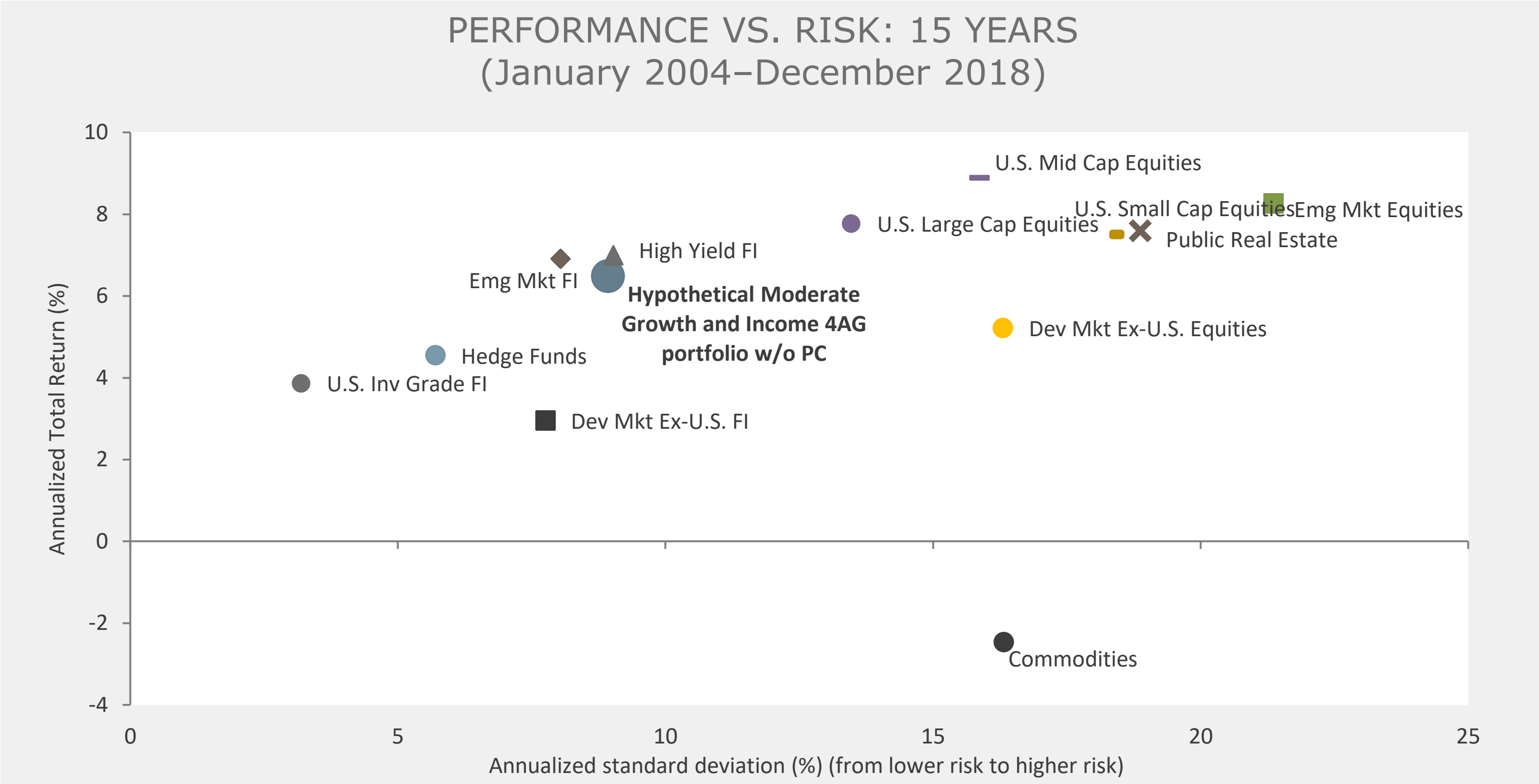


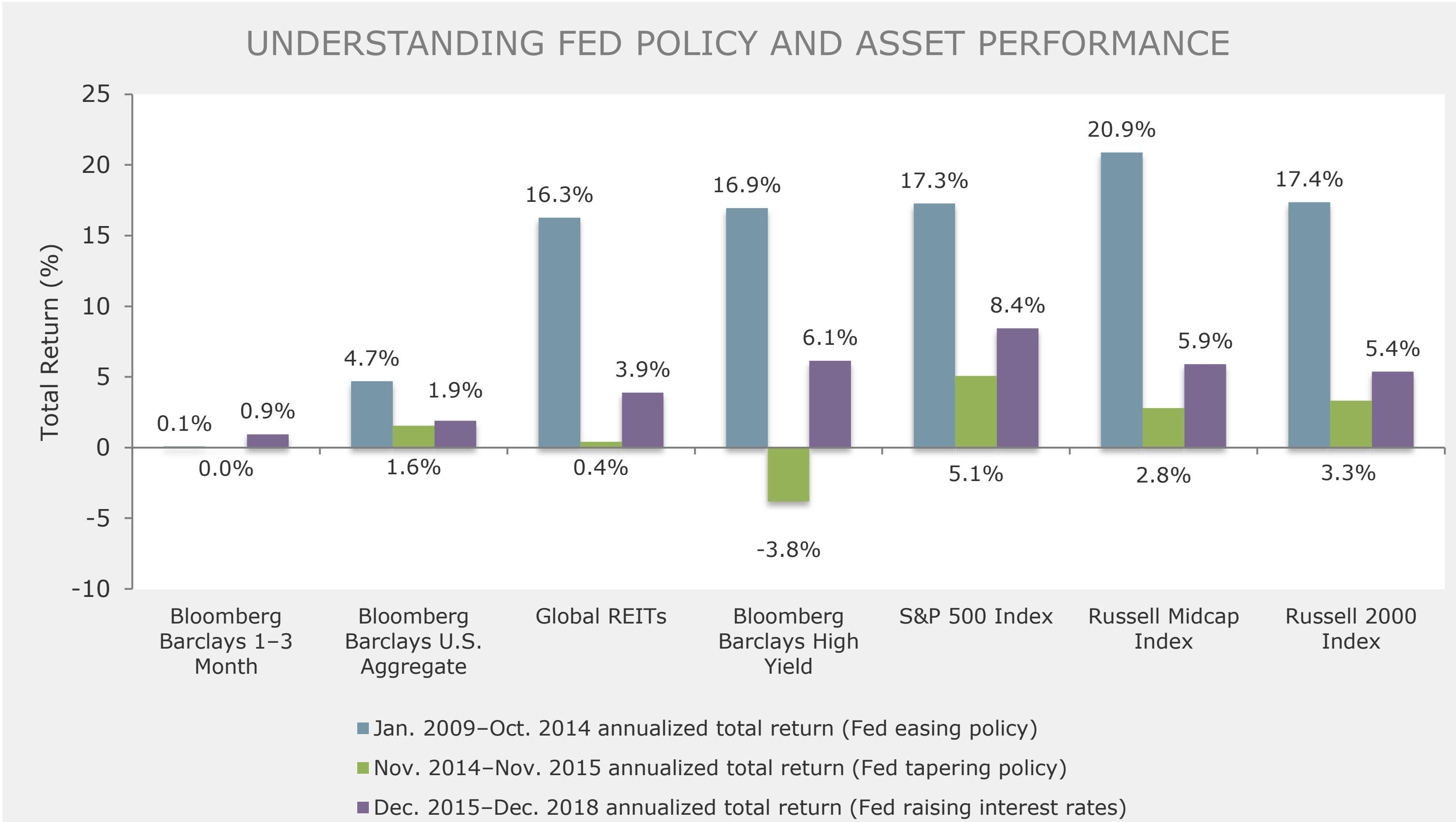
Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. Performance results for the MGI 4AG w/o PC Portfolio is hypothetical and is for illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. Unlike most asset class indices, HFR Index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided actual returns may be lower than those reported. *An index is unmanaged and not available for direct investment.* ***Hypothetical and past performance is no guarantee of future results***. *Standard deviation is a measure of the volatility of returns. The higher the standard deviation, the greater volatility has been. Composition of the MGI 4AG w/o PC provided on slide 102.*

KEY TAKEAWAYS

- A diversified portfolio may strike a good balance between risk and return.

Diversification strategies do not guarantee investment returns or eliminate the risk of loss. Indices represented: U.S. Investment Grade FI = Bloomberg Barclays U.S. Aggregate Bond Index. Hedge Funds = HFRI Fund Weighted Index. Emerging Market FI = JP Morgan EMBI Global Index. High Yield FI = Bloomberg Barclays U.S. Corporate HY Bond Index. U.S. Mid Cap Equities = Russell Midcap Index. U.S. Small Cap Equities = Russell 2000 Index. Developed Market Ex-U.S. FI = JP Morgan GBI Global Ex U.S. Index. U.S. Large Cap Equities = S&P 500 Index. Developed Market Ex-U.S. Equities = MSCI EAFE Index. Emerging Market Equities = MSCI Emerging Markets Index. Public Real Estate = FTSE EPRA/ NAREIT Developed REITs Index. Commodities = Bloomberg Commodity Index.

Don't fight the Fed



Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. For illustrative purposes only. Global REITs represented by FTSE EPRA/NAREIT Developed Index. Bloomberg Barclays High Yield represented by Bloomberg Barclays U.S. Corporate High Yield Bond Index. only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions, and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. *An index is unmanaged and not available for direct investment.* ***Past performance is no guarantee of future results.*** *There is no guarantee any asset class will perform in a similar manner in the future.*

KEY TAKEAWAYS

- As the next phase of monetary policy unfolds, our expectation is for investment gains to moderate from unsustainable levels experienced during the Fed's quantitative easing period to more normalized returns with the potential for higher volatility.

Broadly speaking…

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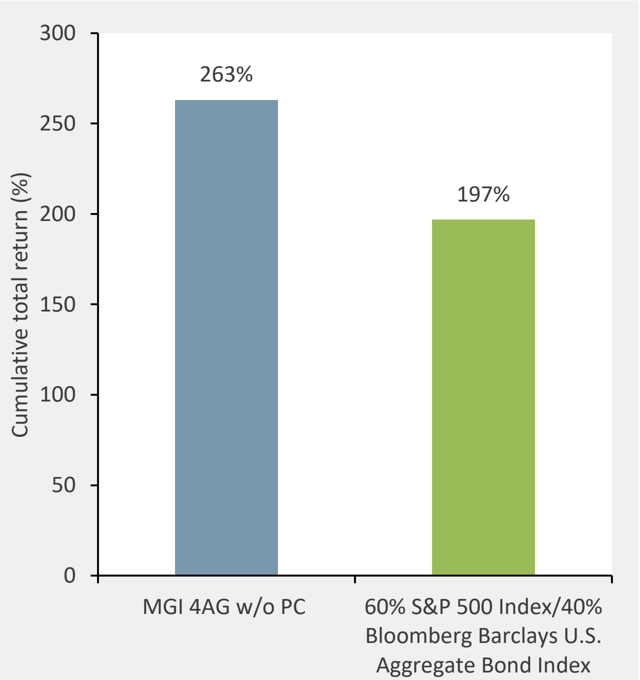
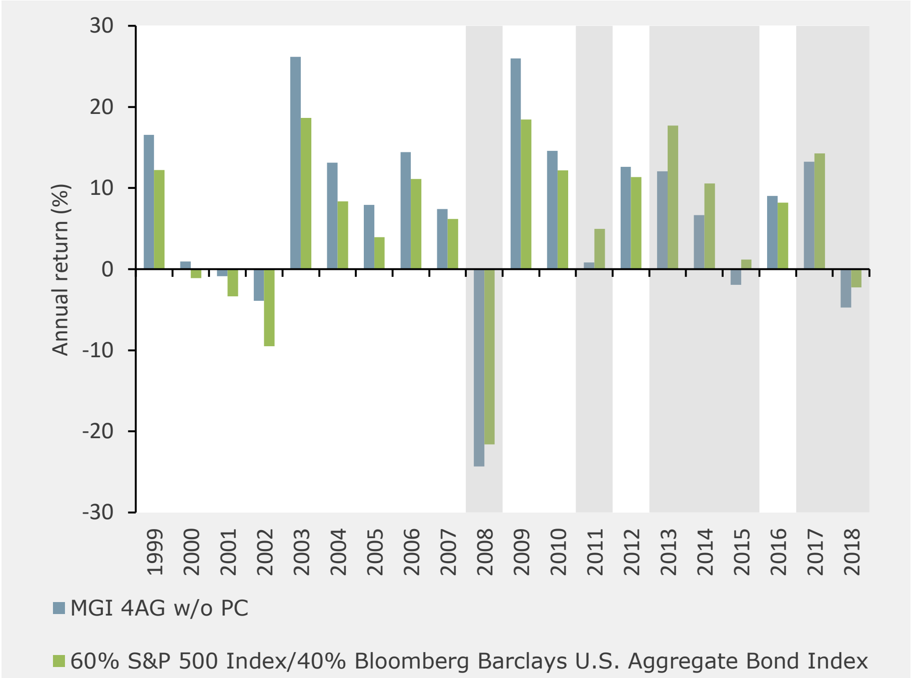
ECONOMY
EQUITIES
FIXED INCOME
REAL ASSETS
ALTERNATIVE INVESTMENTS
CURRENCIES
ASSET ALLOCATION
DISCLOSURES

BROAD DIVERSIFICATION STRATEGIES OUTPERFORMED IN 13 OF THE PAST 20 YEARS





Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018. Performance results for the MG&I 4AG w/o PC and the 60% S&P 500 Index/40% Bloomberg Barclays Aggregate Bond Index Portfolios are hypothetical and for illustrative purposes only. Index returns do not represent investment returns or the results of actual trading. Index returns reflect general market results, assume the reinvestment of dividends and other distributions and do not reflect deduction for fees, expenses or taxes applicable to an actual investment. Unlike most asset class indices, HFR Index returns are net of all fees. Because the HFR indices are calculated based on information that is voluntarily provided actual returns may be lower than those reported. *An index is unmanaged and not available for direct investment.* ***Hypothetical and past performance is no guarantee of future results****. Composition of the Portfolios provided at the end of this presentation.*

KEY TAKEAWAYS

- Historical performance may serve as a useful guide for investors, but markets frequently trade on factors outside of fundamental valuations for long periods of time.

Diversification strategies do not guarantee investment returns or eliminate the risk of loss.

Four-asset group w/o private capital—moderate growth and income

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2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	'04-'18 average
Public Real Estate 38.0%	Emg Mkt Equity 34.5%	Public Real Estate 42.4%	Emg Mkt Equity 39.8%	Dev ex US Fixed Inc 11.4%	Emg Mkt Equity 79.0%	US Small Cap Equity 26.9%	Emg-Mkt Fixed Inc 8.5%	Public Real Estate 28.7%	US Small Cap Equity 38.8%	Public Real Estate 15.9%	US Large Cap Equity 1.4%	US Small Cap Equity 21.3%	Emg Mkt Equity 37.8%	CPI 2.2%	US Mid Cap Equity 8.9%
Emg Mkt Equity 26.0%	Commod 21.4%	Emg Mkt Equity 32.6%	Commod 16.2%	Inv Grade Fixed Inc 5.2%	High Yield Fixed Inc 58.2%	US Mid Cap Equity 25.5%	Inv Grade Fixed Inc 7.8%	Emg Mkt Equity 18.6%	US Mid Cap Equity 34.8%	US Large Cap Equity 13.7%	Emg-Mkt Fixed Inc 1.2%	High Yield Fixed Inc 17.1%	Dev ex US Equity 25.6%	Cash Alternative 1.8%	Emg Mkt Equity 8.3%
Dev ex US Equity 20.7%	Public Real Estate 15.4%	Dev ex US Equity 26.9%	Dev ex US Equity 11.6%	Cash Alternative 1.8%	US Mid Cap Equity 40.5%	Public Real Estate 20.4%	Dev ex US Fixed Inc 5.9%	Emg-Mkt Fixed Inc 18.5%	US Large Cap Equity 32.4%	US Mid Cap Equity 13.2%	60%,40% Portf 1.2%	US Mid Cap Equity 13.8%	US Large Cap Equity 21.8%	Inv Grade Fixed Inc 0.0%	US Large Cap Equity 7.8%
US Mid Cap Equity 20.2%	Dev ex US Equity 14.0%	US Small Cap Equity 18.4%	Dev ex US Fixed Inc 11.3%	CPI 0.1%	Public Real Estate 38.3%	Emg Mkt Equity 19.2%	High Yield Fixed Inc 5.0%	Dev ex US Equity 17.9%	Dev ex US Equity 23.3%	60%,40% Portf 10.6%	CPI 0.7%	US Large Cap Equity 12.0%	US Mid Cap Equity 18.5%	Dev ex US Fixed Inc -1.7%	Public Real Estate 7.6%
US Small Cap Equity 18.3%	US Mid Cap Equity 12.7%	US Large Cap Equity 15.8%	Hedge Funds 10.0%	Emg-Mkt Fixed Inc -10.9%	Dev ex US Equity 32.5%	Commod 16.8%	60%,40% Portf 5.0%	US Mid Cap Equity 17.3%	60%,40% Portf 17.7%	Mod Grwth Inc Portf 6.6%	Inv Grade Fixed Inc 0.5%	Commod 11.8%	US Small Cap Equity 14.6%	High Yield Fixed Inc -2.1%	US Small Cap Equity 7.5%
Mod Grwth Inc Portf 13.1%	Emg-Mkt Fixed Inc 10.7%	US Mid Cap Equity 15.3%	Mod Grwth Inc Portf 7.4%	Hedge Funds -19.0%	Emg-Mkt Fixed Inc 28.2%	High Yield Fixed Inc 15.1%	CPI 3.0%	US Small Cap Equity 16.3%	Mod Grwth Inc Portf 12.1%	Inv Grade Fixed Inc 6.0%	Public Real Estate 0.1%	Emg Mkt Equity 11.6%	60%,40% Portf 14.3%	60%,40% Portf -2.3%	High Yield Fixed Inc 7.0%
Dev ex US Fixed Inc 12.0%	Hedge Funds 9.3%	Mod Grwth Inc Portf 14.5%	Inv Grade Fixed Inc 7.0%	60%,40% Portf -21.6%	US Small Cap Equity 27.2%	US Large Cap Equity 15.1%	US Large Cap Equity 2.1%	US Large Cap Equity 16.0%	Hedge Funds 9.1%	Emg-Mkt Fixed Inc 5.5%	Cash Alternative 0.0%	Emg-Mkt Fixed Inc 10.2%	Mod Grwth Inc Portf 13.2%	Hedge Funds -4.1%	Emg-Mkt Fixed Inc 6.9%
Emg-Mkt Fixed Inc 11.7%	Mod Grwth Inc Portf 7.9%	Hedge Funds 12.9%	Emg-Mkt Fixed Inc 6.3%	Mod Grwth Inc Portf -24.3%	US Large Cap Equity 26.5%	Mod Grwth Inc Portf 14.6%	Mod Grwth Inc Portf 0.8%	High Yield Fixed Inc 15.8%	High Yield Fixed Inc 7.4%	US Small Cap Equity 4.9%	Dev ex US Equity -0.4%	Mod Grwth Inc Portf 9.0%	Public Real Estate 11.4%	US Large Cap Equity -4.4%	60%,40% Portf 6.5%
High Yield Fixed Inc 11.1%	US Large Cap Equity 4.9%	High Yield Fixed Inc 11.8%	60%,40% Portf 6.2%	High Yield Fixed Inc -26.2%	Mod Grwth Inc Portf 26.0%	60%,40% Portf 12.2%	Cash Alternative 0.1%	Mod Grwth Inc Portf 12.6%	Public Real Estate 4.4%	Hedge Funds 3.0%	Hedge Funds -1.1%	60%,40% Portf 8.2%	Dev ex US Fixed Inc 9.9%	Emg-Mkt Fixed Inc -4.6%	Mod Grwth Inc Portf 6.5%
US Large Cap Equity 10.9%	US Small Cap Equity 4.6%	60%,40% Portf 11.1%	US Mid Cap Equity 5.6%	US Small Cap Equity -33.8%	Hedge Funds 20.0%	Emg-Mkt Fixed Inc 12.0%	US Mid Cap Equity -1.5%	60%,40% Portf 11.4%	CPI 1.5%	High Yield Fixed Inc 2.5%	Mod Grwth Inc Portf -1.9%	Hedge Funds 5.4%	Emg-Mkt Fixed Inc 9.3%	Mod Grwth Inc Portf -4.7%	Dev ex US Equity 5.2%
Commod 9.1%	60%,40% Portf 3.9%	Emg-Mkt Fixed Inc 9.9%	US Large Cap Equity 5.5%	Commod -35.6%	Commod 18.9%	Hedge Funds 10.2%	US Small Cap Equity -4.2%	Hedge Funds 6.4%	Cash Alternative 0.0%	CPI 0.8%	US Mid Cap Equity -2.4%	Public Real Estate 5.0%	Hedge Funds 8.6%	Public Real Estate -4.7%	Hedge Funds 4.5%
Hedge Funds 9.0%	CPI 3.4%	Dev ex US Fixed Inc 6.8%	Cash Alternative 4.8%	US Large Cap Equity -37.0%	60%,40% Portf 18.5%	Dev ex US Equity 8.2%	Hedge Funds -5.3%	Inv Grade Fixed Inc 4.2%	Inv Grade Fixed Inc -2.0%	Cash Alternative 0.0%	US Small Cap Equity -4.4%	Inv Grade Fixed Inc 2.6%	High Yield Fixed Inc 7.5%	US Mid Cap Equity -9.1%	Inv Grade Fixed Inc 3.9%
60%,40% Portf 8.4%	Cash Alternative 3.0%	Cash Alternative 4.8%	CPI 4.1%	US Mid Cap Equity -41.5%	Inv Grade Fixed Inc 5.9%	Dev ex US Fixed Inc 6.8%	Public Real Estate -5.8%	CPI 1.7%	Emg Mkt Equity -2.3%	Emg Mkt Equity -1.8%	High Yield Fixed Inc -4.5%	CPI 2.1%	Inv Grade Fixed Inc 3.5%	US Small Cap Equity -11.0%	Dev ex US Fixed Inc 3.0%
Inv Grade Fixed Inc 4.3%	High Yield Fixed Inc 2.7%	Inv Grade Fixed Inc 4.3%	High Yield Fixed Inc 1.9%	Dev ex US Equity -43.1%	Dev ex US Fixed Inc 3.9%	Inv Grade Fixed Inc 6.5%	Dev ex US Equity -11.7%	Dev ex US Fixed Inc 0.8%	Dev ex US Fixed Inc -5.1%	Dev ex US Fixed Inc -2.5%	Dev ex US Fixed Inc -4.8%	Dev ex US Fixed Inc 1.9%	CPI 2.1%	Commod -11.2%	CPI 2.1%
CPI 3.3%	Inv Grade Fixed Inc 2.4%	CPI 2.5%	US Small Cap Equity -1.6%	Public Real Estate -47.7%	CPI 2.7%	CPI 1.5%	Commod -13.3%	Cash Alternative 0.1%	Emg-Mkt Fixed Inc -6.6%	Dev ex US Equity -4.5%	Emg Mkt Equity -14.6%	Dev ex US Equity 1.5%	Commod 1.7%	Dev ex US Equity -13.4%	Cash Alternative 1.3%
Cash Alternative 1.2%	Dev ex US Fixed Inc -9.2%	Commod 2.1%	Public Real Estate -7.0%	Emg Mkt Equity -53.2%	Cash Alternative 0.1%	Cash Alternative 0.1%	Emg Mkt Equity -18.2%	Commod -1.1%	Commod -9.5%	Commod -17.0%	Commod -24.7%	Cash Alternative 0.3%	Cash Alternative 0.8%	Emg Mkt Equity -14.2%	Commod -2.5%

Data as of 12/31/2018

Sources: Morningstar Direct and Wells Fargo Investment Institute. Average is calculated as geometric mean. Average is calculated as 15 years from 2004–2018. Portfolios are rebalanced quarterly. The moderate growth and income and 60/40 portfolios are hypothetical. ***Hypothetical and past performance does not guarantee future results.*** *An index is unmanaged and not available for direct investment.*

Index definitions

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Performance results for the MGI 4AG w/o private capital and 60/40 portfolios are hypothetical and for illustrative purposes only. Hypothetical results do not represent actual trading, and the results achieved do not represent the experience of any individual investor. In addition, hypothetical results do not reflect the impact of any fees, expenses, or taxes applicable to an actual investment. Unlike most asset-class indices, HFR index returns are net of all fees. The indices reflect the historical performance of the represented assets and assume the reinvestment of dividends and other distributions. An index is unmanaged and not available for direct investment. ***Hypothetical and past performance does not guarantee future results*.** Definitions of the indices and descriptions of the risks associated with investment in these asset classes are provided below.

60%/40% portfolio: 60% S&P 500 Index and 40% Bloomberg Barclays U.S. Aggregate Bond Index

Moderate Growth and Income without Private Capital: 3% Bloomberg Barclays U.S. Treasury Bill 1–3 Month Index, 11% Bloomberg Barclays U.S. Aggregate (5–7 year) Bond Index, 6% Bloomberg Barclays U.S. Aggregate (10+ year) Bond Index, 6% Bloomberg Barclays U.S. Corporate High Yield Bond Index, 3% JPM GBI Global Ex-U.S. TR USD Index, 5% JPM EMBI Global TR USD Index, 20% S&P 500 Index, 8% Russell Mid Cap TR USD Index, 6% Russell 2000 Index, 5% MSCI EAFE GR USD Index, 5% MSCI EM GR USD, 5% FTSE EPRA/NAREIT Developed TR USD Index, 2% Bloomberg Commodities Index, 3% HFRI Relative Value Index, 6% HFRI Macro Index, 4% HFRI Event Driven Index, 2% HFRI Equity Hedge Index.

- **Investment Grade Fixed Income: Bloomberg Barclays U.S. Aggregate Bond Index** is composed of the Bloomberg Barclays U.S. Government/Credit Index and the Bloomberg Barclays U.S. Mortgage-Backed Securities Index and includes Treasury issues, agency issues, corporate bond issues, and mortgage-backed securities.
- **High Yield Fixed Income: Bloomberg Barclays U.S. Corporate High Yield Bond Index** covers the U.S.-dollar-denominated, non-investment-grade, fixed-rate, taxable corporate bond market. Securities are classified as high yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB= or below. Included issues must have at least one year until final maturity.
- **Cash Alternatives/Treasury bills: Bloomberg Barclays U.S. Treasury Bill (1–3 Month) Index** is representative of money markets.
- **Commodities: Bloomberg Commodity Index** is a broadly diversified index of commodity futures on 20 physical commodities, subdivided into energy, U.S. agriculture, livestock, precious metals, and industrial metals sectors. Commodity weights are derived in a manner that attempts to fairly represent the importance of a diversified group of commodities to the world economy.
- **Public Real Estate: FTSE EPRA/NAREIT Developed Index** is designed to track the performance of listed real estate companies and REITs in developed countries worldwide.
- **Hedge Funds: HFRI Fund Weighted Index** is a fund-weighted (equal-weighted) index designed to measure the total returns (net of fees) of the approximately 2,000 hedge funds that comprise the index. Constituent funds must have either $50 million under management or a track record of greater than 12 months. Substrategies include: HFRI Event Driven, Distressed/Restructuring Index, and HFRI Event Driven (Total) Index.
- **Developed Market Ex-U.S. Fixed Income: JP Morgan Global Ex U.S. Index (JPM GBI Global Ex-U.S.)** is a total return, market-capitalization-weighted index, rebalanced monthly, consisting of the following countries: Australia, Germany, Spain, Belgium, Italy, Sweden, Canada, Japan, the United Kingdom, Denmark, the Netherlands, and France.
- **Emerging Market Fixed Income: JPM EMBI Global Index** is a U.S.-dollar-denominated, investible, market-cap-weighted index representing a broad universe of emerging market sovereign and quasi-sovereign debt. While products in the asset class have become more diverse, focusing on both local currency and corporate issuance, there is currently no widely accepted aggregate index reflecting the broader opportunity set available, although the asset class is evolving. By using the same index provider as the one used in the developed market bonds asset class, there is consistent categorization of countries among developed international bonds (ex. U.S.) and emerging market bonds.
- **Developed Market Ex-U.S. Equities: MSCI EAFE Index (Europe, Australasia, Far East) Index** (MSCI EAFE GR) is a free-float-adjusted market-capitalization-weighted index designed to measure the equity market performance of developed markets, excluding the U.S. and Canada.
- **Emerging Market Equities: MSCI Emerging Markets Index** (MSCI EM GR) is a free-float-adjusted market-capitalization-weighted index designed to measure equity market performance of emerging markets.

Index definitions (continued)

- **U.S. Small Cap Equities: Russell 2000® Index** measures the performance of the 2,000 smallest companies in the Russell 3000® Index, which represents approximately 8% of the total market capitalization of the Russell 3000 Index.
- **U.S. Mid Cap Equities: Russell Midcap® Index** measures the performance of the 800 smallest companies in the Russell 1000® Index, which represent approximately 25% of the total market capitalization of the Russell 1000 Index.
- **U.S. Large Cap Equities: S&P 500 Index** consists of 500 stocks chosen for market size, liquidity, and industry group representation. It is a market-value-weighted index with each stock's weight in the index proportionate to its market value.
- **Inflation-CPI: IA SBBI U.S. Inflation Index** is a custom unmanaged index designed to track the U.S. inflation rate
- **HFRI Relative Value Index** maintains positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative, and other security types.
- **HFRI Equity Hedge Index** maintains positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations, and valuation ranges of typical portfolios.
- **HFRI Macro Index** is composed of a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency, and commodity markets. Managers employ a variety of techniques, both discretionary and systematic analysis, combinations of top-down and bottom-up theses, quantitative and fundamental approaches, and long- and short-term holding periods. Although some strategies employ RV techniques, macro strategies are distinct from RV strategies in that the primary investment thesis is predicated on predicted or future movements in the underlying instruments rather than realization of a valuation discrepancy between securities.
- **HFRI Event Driven Index** maintains positions in companies currently or prospectively involved in corporate transactions of a wide variety, including but not limited to mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance, and other capital structure adjustments. Security types can range from most senior in the capital structure to most junior or subordinated and frequently involve additional derivative securities. Event driven exposure includes a combination of sensitivities to equity markets, credit markets, and idiosyncratic, company-specific developments. Investment theses are typically predicated on fundamental characteristics (as opposed to quantitative) with the realization of the thesis predicated on a specific development exogenous to the existing capital structure.

While the HFRI Indices are frequently used, they have limitations (some of which are typical of other widely used indices). These limitations include survivorship bias (the returns of the indices may not be representative of all the hedge funds in the universe because of the tendency of lower performing funds to leave the index); heterogeneity (not all hedge funds are alike or comparable to one another, and the index may not accurately reflect the performance of a described style); and limited data (many hedge funds do not report to indices, and, therefore, the index may omit funds, the inclusion of which might significantly affect the performance shown. The HFRI Indices are based on information self-reported by hedge fund managers that decide on their own, at any time, whether or not they want to provide, or continue to provide, information to HFR Asset Management, L.L.C. Results for funds that go out of business are included in the index until the date that they cease operations. Therefore, these indices may not be complete or accurate representations of the hedge fund universe, and may be biased in several ways. Returns of the underlying hedge funds are net of fees and are denominated in USD.

NOTE: The 4 asset group without private capital Moderate Growth and Income Portfolio represents a balanced portfolio. A balanced portfolio composed of a variety of asset classes typically does not exhibit the same level of volatility as an individual asset class. This helps to smooth out portfolio performance over time.

Risk considerations

Asset allocation and diversification are investment methods used to help manage risk. They do not ensure a profit or protect against a loss. All investing involves risks, including the possible loss of principal. There can be no assurance that any investment strategy will be successful. Investments fluctuate with changes in market and economic conditions and in different environments due to numerous factors, some of which may be unpredictable. Each asset class has its own risk and return characteristics. Some of the risks associated with the representative index asset classes shown in the charts include:

Alternative investments: Alternative investments, including hedge funds and private capital funds, are speculative and entail significant risks, including those associated with potential lack of diversification, restrictions on transferring interests, no available secondary market, complex tax structures, delays in tax reporting, valuation of securities, and pricing. They trade in diverse complex strategies that are affected in different ways and at different times by changing market conditions. Strategies may, at times, be out of market favor for considerable periods with adverse consequences for the fund and the investor. An investment in these funds involves the risks inherent in an investment in securities and can include losses associated with speculative investment practices, including hedging and leveraging through derivatives, such as futures, options, swaps, short selling, investments in non-U.S. securities, junk bonds, and illiquid investments.

Commodities: The commodities markets are considered speculative, carry substantial risks, and have experienced periods of extreme volatility. Commodities may be affected by changes in overall market movements, commodity index volatility, changes in interest rates, or other factors affecting a particular industry or commodity. Investing in physical commodities, such as gold and other precious metals, exposes a portfolio to other risk considerations, such as potentially severe price fluctuations over short periods of time and storage costs that exceed the custodial and/or brokerage costs associated with a portfolio's other holdings. In addition to the risks of investing in commodities generally, investing in base metals carries additional risks. These metals are highly levered to the relative strength of the U.S. dollar, economic growth, and inflation. They cannot be held physically and are not easily converted to cash. Exposure to base metals is usually accessed through investments in stocks of mining companies, exchange-traded funds, mutual funds, or futures trading.

Currencies: Currency risk is the risk that foreign currencies will decline in value relative to that of the U.S. dollar. Exchange rate movement between the U.S. dollar and foreign currencies may cause the value of an investment to decline.

Risk considerations (continued)

Equity securities: Stocks are subject to market risk, which means their value may fluctuate in response to general economic and market conditions, the prospects of individual companies, and industry sectors. The prices of **small/mid-company stocks** are generally more volatile than large-company stocks. They often involve higher risks because smaller and midsize companies may lack the management expertise, financial resources, product diversification, and competitive strengths to endure adverse economic conditions.

Fixed income: Investments in fixed-income securities are subject to interest rate, credit/default, liquidity, inflation, and other risks. Bond prices fluctuate inversely to changes in interest rates. Therefore, a general rise in interest rates can result in a decline in the bond's price. Credit risk is the risk that an issuer will default on payments of interest and/or principal. This risk is heightened in lower-rated bonds. If sold prior to maturity, fixed-income securities are subject to market risk. All fixed-income investments may be worth less than their original cost upon redemption or maturity. High-yield fixed-income securities are considered speculative, involve greater risk of default, and tend to be more volatile than investment-grade fixed-income securities. **Municipal bonds** offer interest payments exempt from federal taxes, and potentially state and local income taxes. Municipal bonds are subject to credit risk and potentially the alternative minimum tax (AMT). Quality varies widely depending on the specific issuer. **U.S. government securities** are backed by the full faith and credit of the federal government as to payment of principal and interest if held to maturity. Although free from credit risk, they are subject to interest rate risk.

Foreign/emerging/frontier markets: Investing in foreign securities presents certain risks not associated with domestic investments, such as currency fluctuation, political and economic instability, and different accounting standards. This may result in greater share price volatility. These risks are heightened in emerging and frontier markets.

Real estate: Investing in real estate investment trusts (REITs) has special risks, including possible illiquidity of the underlying properties, credit risk, interest rate fluctuations, and the impact of varied economic conditions.

Treasury Inflation-Protected Securities (TIPS): TIPS are subject to interest rate risk, especially when real interest rates rise. This may cause the underlying value of the bond to fluctuate more than other fixed-income securities.

Portfolio compositions

Four-asset-group portfolios without private capital

Moderate Income:

3% U.S. Treasury Bill 1–3 Month Index, 14% Bloomberg Barclays U.S. Aggregate (1–3 year), 25% Bloomberg Barclays U.S. Aggregate (5–7 year), 7% Bloomberg Barclays U.S. Aggregate (10+ year), 7% Bloomberg Barclays U.S. Corporate High Yield Bond Index, 6% JPM GBI Global Ex-U.S. TR USD Index, 5% JPM EMBI Global TR USD Index, 10% S&P 500 Index, 2% Russell Mid Cap TR USD Index, 4% MSCI EAFE GR USD Index, 5% FTSE EPRA/NAREIT Developed TR USD Index, 4% HFRI Relative Value Arbitrage Index, 5% HFRI Macro Index, 3% HFRI Event Driven Index.

Moderate Growth and Income:

3% Bloomberg Barclays U.S. Treasury Bill 1–3 Month Index, 11% Bloomberg Barclays U.S. Aggregate (5–7 year) Bond Index, 6% Bloomberg Barclays U.S. Aggregate (10+ year) Bond Index, 6% Bloomberg Barclays U.S. Corporate High Yield Bond Index, 3% JPM GBI Global Ex-U.S. TR USD Index, 5% JPM EMBI Global TR USD Index, 20% S&P 500 Index, 8% Russell Mid Cap TR USD Index, 6% Russell 2000 Index, 5% MSCI EAFE GR USD Index, 5% MSCI EM GR USD, 5% FTSE EPRA/NAREIT Developed TR USD Index, 2% Bloomberg Commodities Index, 3% HFRI Relative Value Arbitrage Index, 6% HFRI Macro Index, 4% HFRI Event Driven Index, 2% HFRI Equity Hedge Index.

Moderate Growth:

2% Bloomberg Barclays U.S. Treasury Bill 1–3 Month Index, 2% Bloomberg Barclays U.S. Aggregate (10 year), 3% Bloomberg Barclays U.S. Corporate High Yield Bond Index, 3% JPM EMBI Global TR USD Index, 25% S&P 500 Index, 13% Russell Mid Cap TR USD Index, 12% Russell 2000 Index, 11% MSCI EAFE GR USD Index, 10% MSCI EM GR USD, 5% FTSE EPRA/NAREIT Developed TR USD Index, 2% Bloomberg Commodities Index, 2% HFRI Relative Value Arbitrage Index, 6% HFRI Macro Index, 2% HFRI Event Driven Index, 2% HFRI Equity Hedge Index.

Three-asset-group portfolios

Moderate Income:

3% U.S. Treasury Bill 1–3 Month Index, 19% Bloomberg Barclays U.S. Aggregate (1–3 year) Bond Index, 30% Bloomberg Barclays U.S. Aggregate (5–7 year) Bond Index, 7% Bloomberg Barclays U.S. Aggregate (10+ year) Bond Index, 6% Bloomberg Barclays U.S. Corporate High Yield Bond Index, 5% JPM GBI Global Ex-U.S. TR USD Index, 5% JPM EMBI Global TR USD Index, 12% S&P 500 Index, 2% Russell Mid Cap TR USD Index, 2% Russell 2000 Index, 4% MSCI EAFE GR USD Index, 5% FTSE EPRA/NAREIT Developed TR USD Index.

Moderate Growth and Income:

3% Bloomberg Barclays U.S. Treasury Bill 1–3 Month Index, 4% Bloomberg Barclays U.S. Aggregate (1–3 year), 16% Bloomberg Barclays U.S. Aggregate (5–7 year), 7% Bloomberg Barclays U.S. Aggregate (10+ year), 6% Bloomberg Barclays U.S. Corporate High Yield Bond Index, 3% JPM GBI Global Ex-U.S. TR USD Index, 5% JPM EMBI Global TR USD Index, 21% S&P 500 Index, 9% Russell Mid Cap TR USD Index, 8% Russell 2000 Index, 6% MSCI EAFE GR USD Index, 5% MSCI EM GR USD, 5% FTSE EPRA/NAREIT Developed TR USD Index, 2% Bloomberg Commodities Index.

Moderate Growth:

2% Bloomberg Barclays U.S. Treasury Bill 1–3 Month Index, 2% Bloomberg Barclays U.S. Aggregate (1–3 year), 3% Bloomberg Barclays U.S. Aggregate (5–7 year), 3% Bloomberg Barclays U.S. Aggregate (10+ year), 3% Bloomberg Barclays U.S. Corporate High Yield Bond Index, 2% JPM GBI Global Ex-U.S. TR USD Index, 3% JPM EMBI Global TR USD Index, 29% S&P 500 Index, 13% Russell Mid Cap TR USD Index, 13% Russell 2000 Index, 10% MSCI EAFE GR USD Index, 10% MSCI EM GR USD, 5% FTSE EPRA/NAREIT Developed TR USD Index, 2% Bloomberg Commodities Index.

Index definitions

Cash alternatives/Treasury bills:

Bloomberg Barclays U.S. Treasury Bills (1–3 Month) Index is representative of money markets**.**

IA SBBI U.S. 30-Day Treasury Bill Index is a custom index designed to measure the performance of U.S. Treasury bills maturing in 0 to 30 days.

Fixed income:

Bloomberg Barclays Corporate Bond BAA Index is a subset of the Bloomberg Barclays U.S. Corporates Index with an index rating of Baa1, Baa2, or Baa3.

Bloomberg Barclays Multiverse Index provides a broad-based measure of the global fixed-income bond market. The index represents the union of the Global Aggregate Index and the Global High-Yield Index and captures investment-grade and high-yield securities in all eligible currencies. Stand-alone indices such as the Euro Floating-Rate ABS Index and the Chinese Aggregate Index are excluded. The Multiverse Index family includes a wide range of standard and customized subindices by sector, quality, maturity, and country.

Short-term fixed income taxable:

Bloomberg Barclays U.S. Aggregate 1–3 Year Bond Index is unmanaged and is composed of the Bloomberg Barclays U.S. Government/Credit Index and the Bloomberg Barclays U.S. Mortgage-Backed Securities Index and includes Treasury issues, agency issues, corporate bond issues, and mortgage-backed securities with maturities of one to three years.

Intermediate-term fixed income taxable:

Bloomberg Barclays U.S. Aggregate 5–7 Year Bond Index is unmanaged and is composed of the Bloomberg Barclays U.S. Government/Credit Index and the Bloomberg Barclays U.S. Mortgage-Backed Securities Index and includes Treasury issues, agency issues, corporate bond issues, and mortgage-backed securities with maturities of five to seven years.

Long-term fixed income taxable:

Bloomberg Barclays U.S. Aggregate 10+ Year Bond Index is unmanaged and is composed of the Bloomberg Barclays U.S. Government/Credit Index and the Bloomberg Barclays U.S. Mortgage-Backed Securities Index and includes Treasury issues, agency issues, corporate bond issues, and mortgage-backed securities with maturities of 10 years or longer.

Investment-grade fixed income taxable:

Bloomberg Barclays U.S. Aggregate Bond Index is composed of the Bloomberg Barclays U.S. Government/Credit Index and the Bloomberg Barclays U.S. Mortgage-Backed Securities Index and includes Treasury issues, agency issues, corporate bond issues, and mortgage-backed securities.

U.S. municipal bond:

Bloomberg Barclays U.S. Municipal Index is considered representative of the broad market for investment-grade, tax-exempt bonds with a maturity of at least one year.

High-yield fixed income taxable:

Bloomberg Barclays U.S. Corporate High Yield Bond Index covers the U.S.-dollar-denominated, non-investment-grade, fixed-rate, taxable corporate bond market. Securities are classified as high yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB= or below. Included issues must have at least one year until final maturity.

Index definitions (continued)

High-yield municipal fixed income:

Bloomberg Barclays U.S. Municipal High Yield Index measures the non-investment-grade and nonrated U.S.-dollar-denominated, fixed-rate, tax-exempt bond market within the 50 United States and four other qualifying regions (Washington, D.C.; Puerto Rico; Guam; and the Virgin Islands). The index allows state and local general obligation, revenue, insured, and prerefunded bonds; however, historically, the index has been comprised of mostly revenue bonds. The U.S. Municipal High Yield Index is a stand-alone index with no crossover into other Bloomberg Barclays taxable indices, such as the U.S. High Yield Index.

Investment-grade corporate fixed income:

Bloomberg Barclays U.S. Investment Grade Bond Index measures the performance of the investment-grade corporate bond market.

Government bonds:

IA SBBI U.S. Long-Term Government Bond Index is a custom unmanaged index designed to measure the performance of long-term U.S. government bonds, which includes U.S. Treasury and U.S. government agency bonds with maturities of seven years or longer.

Bloomberg Barclays U.S. Government/Credit Index includes investment-grade, U.S.- dollar-denominated, fixed-rate, taxable corporate- and government-related bonds.

Bloomberg Barclays U.S. Treasury 10+ Year Bond Index includes public obligations of the U.S. Treasury with a remaining maturity of 10 years or more.

Emerging market fixed income:

J.P. Morgan EMBI Global Index (USD) is a U.S.-dollar-denominated, investible, market-cap-weighted index representing a broad universe of emerging market sovereign and quasi-sovereign debt. While products in the asset class have become more diverse, focusing on both local currency and corporate issuance, there is currently no widely accepted aggregate index reflecting the broader opportunity set available, although the asset class is evolving. By using the same index provider as the one used in the developed market bonds asset class, there is consistent categorization of countries among developed international bonds (ex-U.S.) and emerging market bonds.

J.P. Morgan Emerging Markets Global Index (**local currency**) is a comprehensive global local emerging market index and consists of regularly traded, liquid fixed-rate, domestic currency government bonds.

Developed market fixed income:

J.P. Morgan GBI Global ex-U.S. Index (Unhedged) in USD is an unmanaged index market representative of the total return performance in U.S. dollars on an unhedged basis of major non-U.S. bond markets.

J.P. Morgan Non-U.S. Global Government Bond Index (Hedged) is an unmanaged market index representative of the total return performance, on a hedged basis, of major non-U.S. bond markets. It is calculated in U.S. dollars.

Index definitions (continued)

Equities:

Global equities:

MSCI World Index is a free-float-adjusted market-capitalization-weighted index that is designed to measure the equity market performance of developed markets.

MSCI All Country World Index (ACWI) is a free-float-adjusted market-capitalization-weighted index that is designed to measure the equity market performance of 23 developed and 23 emerging markets.

U.S. equities:

MSCI U.S. Equity Indices are a domestic-only series—independent from MSCI's Global Equity Index family—which reflect the investment opportunities in the U.S. equity markets by market-capitalization size, by value and growth investment styles, and by sectors and industries.

Small-cap equities:

Russell 2000® Index measures the performance of the 2,000 smallest companies in the Russell 3000® Index, which represents approximately 8% of the total market capitalization of the Russell 3000 Index.

Mid-cap equities:

Russell Midcap® Index measures the performance of the 800 smallest companies in the Russell 1000® Index, which represents approximately 25% of the total market capitalization of the Russell 1000® Index.

Large-cap equities:

S&P 500 Index consists of 500 stocks chosen for market size, liquidity, and industry group representation. It is a market-value-weighted index with each stock's weight in the index proportionate to its market value.

Russell 1000® Index measures the performance of the 1,000 largest companies in the Russell 3000 Index, which represents approximately 92% of the total market capitalization of the Russell 3000 Index.

Emerging market equities:

MSCI Emerging Markets Index (MSCI EM GR) is a free-float-adjusted market-capitalization-weighted index designed to measure equity market performance of emerging markets.

Frontier market equities:

MSCI Frontier Markets Index (MSCI FM GR) is a free-float-adjusted market-capitalization-weighted index designed to measure equity market performance of the world's least developed capital markets.

Small-company stocks:

IA SBBI U.S. Small Stock Index is a custom index designed to measure the performance of small-capitalization U.S. stocks.

Index definitions (continued)

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Developed market ex-U.S. equities:

MSCI EAFE Index is a free-float-adjusted market-capitalization-weighted index designed to measure the equity market performance of developed markets, excluding the U.S. and Canada.

MSCI Europe Index captures large- and mid-cap representation across 15 developed market countries in Europe. With 444 constituents, the index covers approximately 85% of the free-float-adjusted market capitalization across the European developed market equity universe.

Nikkei 225 Index is the leading and most-respected index of Japanese stocks. It is a price-weighted index comprised of Japan's top 225 blue-chip companies on the Tokyo Stock Exchange. The Nikkei is equivalent to the Dow Jones Industrial Average Index in the U.S.

EURO STOXX 50 Index is Europe's leading blue-chip index for the eurozone and provides a blue-chip representation of supersector leaders in the eurozone. The index covers 50 stocks from 12 eurozone countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain.

Hong Kong Hang Seng Index is a market-capitalization-weighted index of 40 of the largest companies that trade on the Hong Kong Exchange. The Hang Seng Index is maintained by a subsidiary of Hang Seng Bank and has been published since 1969. The index aims to capture the leadership of the Hong Kong exchange and covers approximately 65% of its total market capitalization. The Hang Seng members are also classified into one of four subindices based on the main lines of business, including commerce and industry, finance, utilities, and properties.

Volatility indices:

VNKY Index: The Nikkei Stock Average Volatility Index is calculated by using prices of Nikkei 225 futures and Nikkei 225 options on the Osaka Securities Exchange. The real-time (every 15 seconds) calculation started from January 30, 2012. Final confirmation value (KAKUHOU) is 15:20 JPT.

VSTOXX Index is based on a new methodology jointly developed by Deutsche Borse and Goldman Sachs to measure volatility in the eurozone. VSTOXX is based on the EURO STOXX 50 Index options traded on Eurex. It measures implied volatility on options with a rolling 30-day expiry.

HSI Volatility Index aims to measure the 30-calendar-day expected volatility of the Hang Seng Index implicit in the prices of near-term and next-term Hang Seng Index Options, which are now trading on the Hong Kong Exchanges and Clearing Limited's derivatives market.

VIX: The Chicago Board Options Exchange Volatility Index reflects a market estimate of future volatility, based on the weighted average of the implied volatilities for a wide range of strikes. First- and second-month expirations are used until eight days from expiration, then the second and third are used.

Currencies:

U.S. Dollar Index (USDX/DXY) measures the value of the U.S. dollar relative to majority of its most significant trading partners. This index is similar to other trade-weighted indices, which also use the exchange rates from the same major currencies.

J.P. Morgan Emerging Market Currency Index tracks the performance of emerging market currencies relative to the U.S. dollar.

Index definitions (continued)

Commodities:

Bloomberg Commodity Index is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually, weighted two-thirds by trading volume and one-third by world production, and weight-caps are applied at the commodity, sector, and group level for diversification.

The Reuters Continuous Commodity Index is an equal-weighted geometric average of commodity price levels relative to the base-year average price.

Energy sector: Bloomberg Energy Subindex is a commodity group subindex of the Bloomberg Commodity Index. It is composed of futures contracts on crude oil, heating oil, unleaded gasoline, and natural gas. It reflects the return of underlying commodity futures price movements only and is quoted in USD.

Agriculture sector: Bloomberg Agriculture Subindex is a commodity group subindex of the Bloomberg Commodity Index. It is composed of futures contracts on coffee, corn, cotton, soybeans, soybean oil, soybean meal, sugar, and wheat. It reflects the return of underlying commodity futures price movements only and is quoted in USD.

Precious metals sector: Bloomberg Precious Metals Subindex is a commodity group subindex of the Bloomberg Commodity Index. It is composed of futures contracts on gold and silver. It reflects the return of underlying commodity futures price movements only and is quoted in USD.

Base metals sector: Bloomberg Industrial Metals Subindex is composed of futures contracts on aluminum, copper, nickel, and zinc. It reflects the return of underlying commodity futures price movements only and is quoted in USD.

REITs:

Global REITs/public real estate: FTSE EPRA/NAREIT Developed Index is designed to track the performance of listed real estate companies and REITs in developed countries worldwide.

Domestic REITs: FTSE NAREIT All Equity REITs Index is designed to track the performance of REITs representing equity interests in (as opposed to mortgages on) properties. It represents all tax-qualified REITs with more than 50% of total assets in qualifying real estate assets, other than mortgages secured by real property that also meet minimum size and liquidity criteria.

International REITs: FTSE EPRA/NAREIT Global Ex-U.S. Index is part of a range of indices designed to help U.S. investors benchmark their international investments. The index comprises large-, mid-, and small-cap stocks globally excluding the U.S. The index is derived from the FTSE Global Equity Index Series, which covers 98% of the world's investible market capitalization.

Index definitions (continued)

Hedge funds:

HFRI Fund Weighted Composite Index is a fund-weighted (equal-weighted) index designed to measure the total returns (net of fees) of the approximately 2,000 hedge funds that comprise the Index. Constituent funds must have either $50 million under management or a track record of greater than 12 months. Substrategies include HFRI Event-Driven, Distressed/Restructuring Index, and HFRI Event-Driven (Total) Index.

HFRI Event Driven Index maintains positions in companies currently or prospectively involved in corporate transactions of a wide variety, including but not limited to mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance, and other capital structure adjustments. Security types can range from most senior in the capital structure to most junior or subordinated and frequently involve additional derivative securities. Event driven exposure includes a combination of sensitivities to equity markets; credit markets; and idiosyncratic, company-specific developments. Investment theses are typically predicated on fundamental characteristics (as opposed to quantitative), with the realization of the thesis predicated on a specific development exogenous to the existing capital structure.

HFRI Relative Value Index maintains positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative, or other security types.

HFRI Macro Index consists of investment managers that trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed-income, hard currency, and commodity markets. Managers employ a variety of techniques, both discretionary and systematic analysis, combinations of top-down and bottom-up theses, quantitative and fundamental approaches, and long- and short-term holding periods. Although some strategies employ RV techniques, macro strategies are distinct from RV strategies in that the primary investment thesis is predicated on predicted or future movements in the underlying instruments rather than realization of a valuation discrepancy between securities. In a similar way, while both macro and equity hedge managers may hold equity securities, the overriding investment thesis is predicated on the impact that movements in underlying macroeconomic variables may have on security prices, as opposed to equity hedge, in which the fundamental characteristics on the company are the most significant are integral to the investment thesis.

HFRI Equity Hedge (Total) Index consists of investment managers that maintain positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations, and valuation ranges of typical portfolios. Equity hedge managers would typically maintain at least 50% (and may in some cases be substantially entirely invested) in equities, both long and short.

Index definitions (continued)

Private capital:

Private equity:

Private equity: Cambridge Associates LLC U.S. Private Equity Index® - The Cambridge Associates LLC U.S. Private Equity Index® uses a horizon calculation based on data compiled from more than 1,400 institutional-quality buyout, growth equity, private equity energy, and subordinated capital funds formed between 1986 and 2017. The funds included in the index report their performance voluntarily and therefore the index may reflect a bias towards funds with records of success. Funds report unaudited quarterly data to Cambridge and Associates when calculating the index. The index is not transparent and cannot be independently verified because Cambridge Associates does not identify the funds included in the index. Because Cambridge Associates recalculates the index each time a new fund is added, the historical performance of the index is not fixed, can't be replicated and will differ over time from the day presented. The returns shown are net of fees, expenses and carried interest. Index returns do not represent fund performance.

Private debt:

Private debt: Preqin Private Debt is a quarterly time series comprised of more than 378 Mezzanine fund managers that have been identified in the space.

Private credit: ILPA (Institutional Limited Partners Association) Private Markets Benchmark - Private Credit Fund Index is a horizon calculation based on data compiled from 269 private credit funds (credit opportunities and subordinated capital funds), including fully liquidated partnerships, formed between 1986 and 2017. The pooled horizon return is net of fees, expenses, and carried interest. The funds in the index are exclusively those that ILPA members have invested in; the goal of the ILPA private markets benchmark effort is to create a private markets benchmark that represents the investible universe and fund performance for global, institutional investors. The benchmark is issued on a quarterly basis, approximately 140 calendar days after quarter end. All data included in the ILPA Benchmark is derived from the quarterly and annual audited financial statements that general partners produce for their limited partners. Performance statistics include rates of return (net IRR & public market equivalents) and investment multiples (DPI, RVPI and TVPI). These statistics are expressed in terms of time period (since-inception, year-to-date, etc.), quartile ranking, vintage year, geography and strategy. As the benchmark same size expands, the number of statistics, composites and types of analysis is expected to increase. Index returns do not represent fund performance.

Private real assets:

Private real estate: NCREIF Property Index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only.

Farmland: NCREIF Farmland Index is a quarterly time series composite return measure of investment performance of a large pool of individual farmland properties acquired in the private market for investment purposes only.

Timberland: NCREIF Timberland Index is a quarterly time series composite return measure of investment performance of a large pool of individual timber properties acquired in the private market for investment purposes only.

Index definitions (continued)

Economic indices:

Institute for Supply Management (ISM) Manufacturing Index® is a composite index based on the diffusion indices of five of the indices with equal weights: new orders (seasonally adjusted), production (seasonally adjusted), employment (seasonally adjusted), supplier deliveries (seasonally adjusted), and inventories. An index value over 50 indicate expansion; below 50 indicates contraction. The values for the index can be between 0 and 100.

Institute for Supply Management (ISM) Non-Manufacturing Index is based on surveys of more than 400 non-manufacturing firms by the Institute for Supply Management. The ISM Non-Manufacturing Index tracks economic data.

Consumer Price Index (CPI) is a measure that examines the weighted average of prices of a basket of consumer goods and services, such as transportation, food, and medical care. It is calculated by taking price changes for each item in the predetermined basket of goods and averaging them.

Producer Price Index (PPI) program measures the average change over time in the selling prices received by domestic producers for their output.

IA SBBI U.S. Inflation Index is a custom unmanaged index designed to track the U.S. inflation rate.

NFIB Small Business Optimism Index is the small business optimism index compiled from a survey that is conducted each month by the National Federation of Independent Business (NFIB) of its members. The index is a composite of 10 seasonally adjusted components based on questions on the following: plans to increase employment, plans to make capital outlays, plans to increase inventories, expect economy to improve, expect real sales higher, current inventory, current job openings, expected credit conditions, now a good time to expand, and earnings trend.

Consumer Confidence Index (CCI) is designed to measure consumer confidence, which is defined as the degree of optimism on the state of the economy that consumers are expressing through their activities of savings and spending. Global consumer confidence is not measured.

Housing Marketing Index (HMI): The National Association of Home Builders (NAHB) Housing Market Index (HMI) is a weighted, seasonally adjusted statistic derived from ratings for present single-family sales, single-family sales in the next six months, and buyers traffic. A rating of 50 indicates that positive responses received from builders is about the same as the number of negative responses; ratings higher than 50 indicate more positive responses.

American Association of Individual Investors (AAII) U.S. Investor Sentiment survey measures the percentage of individual investors who are bullish, bearish, and neutral on the stock market short term.

U.S. Dollar Index (USDX/DXY) measures the value of the U.S. dollar relative to majority of its most significant trading partners. This index is similar to other trade-weighted indices, which also use the exchange rates from the same major currencies.

West Texas Intermediate (WTI) is a light, sweet (that is, low sulfur) crude oil and is the main type of U.S. crude oil traded in U.S. futures markets.

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