Asset Allocation Strategy

November 18, 2019

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Preparing for the next downturn

As of October 2019, the U.S. economy marked its longest expansion in U.S. recorded history since the mid-19th century. Over this 126-month period, the S&P 500 Index has gained nearly 350% on a total return basis. The sheer length of these two runs has raised investor concern that an end to the good times may be on the horizon.

Although bear markets are a normal part of the market cycle, they are difficult to time. After all, an equity market decline does not necessarily predict a bear market or an economic recession. The months leading up to an economic contraction often have been marked by heightened volatility, causing investor anxiety and market outflows. Yet, U.S. equity market returns typically have been at their peaks as the economy approaches a recession. Additionally, missing the 10 best days for the S&P 500 Index over the past 30-year period would have significantly reduced an investor's return potential. Because it is difficult for investors to time the market, we suggest planning for the next downturn, to avoid a fear-based reaction that could undermine long-term financial goals.

Bear markets have not always accompanied a recession. While they have tended to begin before recessions—they have not always done so. Of the past seven U.S. bear markets, six were accompanied by a recession. History often can guide investors, but each market cycle is unique—and this matters for managing portfolios. In our view, the current expansion has endured because consumer caution has constrained spending and prevented household debt (as a percent of gross domestic product, or GDP) from rising to prior peaks. Looking ahead, we do not expect these trends to continue indefinitely.

Risk factors for a potential downturn

Recessions are not easy to predict, but we believe that this cycle's headwinds provide investors with warning signs to monitor.

- *U.S. and international political disruption:* Geopolitical uncertainties such as the U.S.-China trade dispute, the growing U.S. political divide, Brexit, and Middle East and North Korea tensions may disrupt the U.S. and global economies.
- *Debt levels:* Absolute consumer and business debt levels have risen; household debt/GDP ratios are elevated compared to historical levels, but they remain lower than they were before the Great Recession.
- *Yield-curve inversion:* Rapidly growing demand for longer-term Treasury bonds recently drove long-term yields to levels below those of short-term debt securities. This often has been a predictive indicator for a recession and bears watching.
- *High-yield corporate debt spreads:* High-yield debt spreads (over Treasury yields) have fallen to very low levels as investors search for yield. We favor higher-quality assets today. It may be time to prepare portfolios for any deterioration in fundamentals of lower-rated companies.

Preparing portfolios for a potential downturn

Bear markets and recessions are normal parts of any economic cycle. Investors who react out of fear can severely impair potential returns and financial goals. Instead, we favor a more proactive approach, taking control of portfolio exposure by thoughtfully and regularly rebalancing—while considering where diverging valuation and price may create excessive risk.

When investing ahead of a downturn, we believe that investors should diversify assets to help mitigate risk. This includes selecting asset classes both in the U.S. and overseas. Consistently rebalancing portfolio allocations back to strategic goals can help to prepare a portfolio for a market correction. In addition, managing cash and knowing what you own can assist in nimbly and strategically deploying assets when allocating investments.

Global Economic Summary

United States

The advance release of third-quarter U.S. GDP beat expectations with a 1.9% annualized quarter-over-quarter (QoQ) growth rate—but reflecting some slowing from the 2.0% second-quarter pace. Personal consumption growth, at 2.9%, also beat expectations.

Nonfarm payrolls were strong in October—growing by 128,000 jobs—and prior months were revised higher. The unemployment rate edged up to 3.6%, while the labor force participation rate rose to 63.3%. Wage growth was steady at a 3.0% year-over-year (YoY) pace.

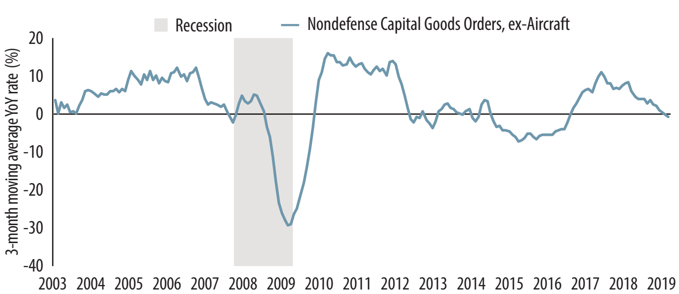
In October, the headline Consumer Price Index (CPI) exceeded market expectations—rising by 0.4% month-over-month (+0.3% was expected); the YoY increase was 1.8%. Excluding the volatile food and energy components, the core price index rose 2.3% YoY versus +2.4% in September.

The Institute for Supply Management (ISM) manufacturing index remained below 50 in October, although it ticked up to 48.3 from September's level of 47.8. (A reading below 50 signals contraction, while one above 50 suggests expansion.) The prices-paid subindex was particularly weak. Yet, the employment and new orders subindices rose slightly—although they remained in contractionary territory, below 50.

Despite manufacturing weakness, consumer confidence remains robust—although The Conference Board's Consumer Confidence Index edged slightly lower to 125.9 in October. The present-situation subindex rose to 172.3 from a revised 170.6 in September, but the expectations subindex indicated more caution as it ticked down to 94.9 from 96.8.

Housing remains firm, despite a headline-grabbing 9.4% September fall in housing starts, stemming from a large drop in multifamily unit starts. Single-home sales registered their fourth consecutive rise (+0.3%). Existing home sales fell by 2.2% in September, but YoY resales were 3.9% higher.

Capital goods orders reflect manufacturing slowdown



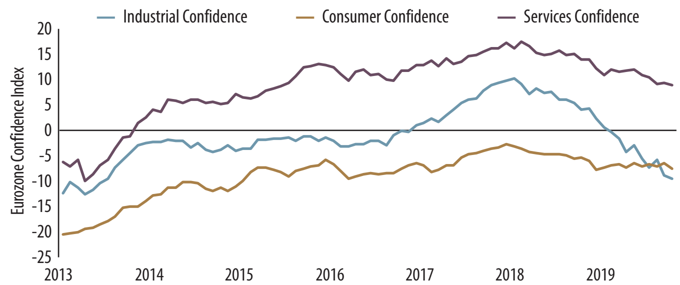
Sources: U.S. Census Bureau, Bloomberg, Wells Fargo Investment Institute, October 24, 2019. Data is through September 2019.

Europe

Euro-area economic growth in the third quarter beat low expectations, according to the advance GDP release showing a QoQ growth rate of 0.2% (versus consensus expectations of +0.1%). However, the sluggish YoY pace of expansion slowed to 1.1%—confirming to us that the region's economy is struggling to escape the influence of a sharp manufacturing slowdown in Germany—its largest member. Core inflation edged higher to 1.1% in October, but it remains far below the European Central Bank's target.

The trade-driven slowdown is apparent in Germany's manufacturing Purchasing Managers' Index (PMI), which remained deep in contractionary territory at 42.1 in October. At the eurozone level, October manufacturing PMIs were also weak, at 45.9, but the services and consumption sectors of the economy were more robust, as the eurozone service sector confidence chart illustrates.

Eurozone service sector confidence remains resilient



Sources: European Commission survey, Bloomberg, Wells Fargo Investment Institute, October 30, 2019. Data is through October 2019.

Asia

Along with the rebalancing of China's economy from externally driven production growth to domestically driven (consumer-oriented) growth, pressures from the U.S.-China trade dispute contributed to slowing in Chinese third-quarter GDP growth, from 6.2% YoY to 6.0% (according to advance data). This is the slowest growth rate seen in this series, which dates from 1992.

China's fixed asset investment growth, a capital spending proxy, slowed to 5.4% YoY in the first nine months of 2019, down from 5.5% in the first eight months of the year. This was largely driven by the continued downshifting in private investment, which reflects the pressures on manufacturing and exports. Yet, public sector investment accelerated in the third quarter, as fiscal policy remained supportive, limiting the overall slowdown.

Key economic statistics

Global real growth rates (%)	Q3 2019	Q2 2019	Q1 2019
U.S. economic growth (GDP)[1]	1.9	3.1	1.1
Eurozone economic growth[2]	1.1	1.3	1.2
Japanese economic growth[1]	0.9[a]	2.2	1.8
Chinese economic growth[2]	6.0	6.4	6.4
Key U.S. economic data	**10/19**	**9/19**	**10/18**
Unemployment rate (%)	3.6	3.5	3.8
Leading economic index (LEI) (%)	-0.1[a]	-0.1	-0.1
Durable goods orders (%)	—	-1.2	-4.4
ISM manufacturing	48.3	47.8	57.5
ISM service	54.7	52.6	60
Retail sales (%)	0.1[a]	-0.3	1.1
Consumer confidence	125.9	126.3	137.9
New home sales (thousands)	—	701	557
Existing home sales (millions)	5.5[a]	5.38	5.22
U.S. Dollar Index	97.35	99.38	97.13
U.S. inflation (%)	**10/19**	**9/19**	**YoY**
Consumer Price Index (CPI)	0.4	0.0	1.8
Core CPI	0.2	0.1	2.3
Producer Price Index (PPI)	0.2[a]	-0.3	0.9[a]
Core PPI	0.2[a]	-0.3	1.5[a]
Personal consumption expenditures (PCE)	—	0.0	1.3[b]
Core PCE	—	0.1	1.7[b]

Sources: Bloomberg, October 31, 2019. [1] Annualized QoQ % change; [2] Year-over-year % change; [a] Bloomberg survey estimate; [b] As of September 30, 2019. See end of report for important definitions and disclosures.

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Global Economic Summary

Wells Fargo Investment Institute forecasts

GDP growth: Data reports indicate that global economic growth remains weak, given ongoing policy uncertainty, lower business and consumer confidence, and weaker global trade. While our latest U.S. GDP forecast reflects still-positive growth, the assumptions underpinning our estimate suggest that the U.S. economy may be near the early stage of a broader downturn from a business-cycle perspective. Meanwhile, despite moderating trade activity, our work shows that a U.S. recession is unlikely in the near future, given our expectations for continued household spending and positive business investment growth.

Advance eurozone GDP figures for the third quarter marginally beat expectations. Yet, with global growth remaining subdued, there are few signs that Germany's manufacturing-led slowdown is bottoming, which likely would be required to achieve sustained improvement in regional growth. We expect the Japanese economy to expand at a rate of less than 1% this year. The weaker-than-expected global trade environment also has lowered our growth expectations for trade-sensitive (and export-oriented) developed-market locales, such as Hong Kong and Singapore.

Even as activity cools, our expectation that emerging markets will drive a significant portion of 2019 global growth is being realized. Several country specific factors have contributed to this view, along with generally weaker economic sentiment and trade activity. For China, despite slightly weaker-than-expected third quarter GDP growth, an increase in public-sector investment likely reflects Beijing's strong economic policy response. But this trend could be challenged as U.S.-China trade tensions ebb and flow in the foreseeable future. With that said, we still expect Chinese economic growth that is relatively close to policymakers' target of approximately 6% this year.

Inflation: We expect 2019 headline inflation rates in the U.S. and developed markets to be lower than they were last year. We also expect U.S. inflation growth in 2019 to be muted by a slower economic expansion, contained labor-cost pressure, and energy prices that have remained below last year's levels. Contained wage growth and weaker energy prices also are expected to be headwinds for inflation in international developed markets overall. Additionally, monetary policy in emerging markets is becoming less restrictive as regional inflationary pressures are easing.

Unemployment rate: The still-solid labor market is slowly raising wages and creating job openings broadly across the U.S. economy. This trend was reflected in the U.S. unemployment rate falling to a 50-year low in September. Looking forward, we expect growth in hiring activity to remain positive but to likely slow in coming months. Similar developments are underway in Europe and Japan, while labor-market conditions in China are softening.

Global economy

	2019 YE targets (%)	2018 (%)
Domestic GDP growth	2.3	2.9
Domestic inflation	1.7	1.9
Domestic unemployment rate	3.7	3.9
Global GDP growth	3.3	3.6
Developed market GDP growth	1.8	2.3
Developed market inflation	1.6	1.6
Emerging market GDP growth	4.4	4.5
Emerging market inflation	4.3	6.9
Eurozone GDP growth	1.2	1.2
Eurozone inflation	1.5	1.5

Sources: FactSet, Bloomberg, International Monetary Fund, October 31, 2019. The 2019 year-end (YE) targets are Wells Fargo Investment Institute forecasts, as of November 15, 2019. All 2018 data is as of December 31, 2018. GDP = gross domestic product. See end of report for important definitions and disclosures.

Forecasts are not guaranteed and based on certain assumptions and on views of market and economic conditions which are subject to change.

Fixed Income

Market summary

Most fixed-income classes gained in October as the Federal Reserve (Fed) reduced rates once again while signaling a rate-change pause. Mixed U.S. economic data reflected a slow-but-stabilizing economy, and the yield curve steepened as optimism rose over U.S.-China trade and the possibility that the Fed may have orchestrated a "soft landing."

Local-currency denominated emerging market (EM) debt led October returns (+3.2%) as EM bond prices rose and currencies gained versus the dollar. Investment-grade (IG) corporates and preferred stock also outperformed last month (+0.6%[1] and 0.7%[2], respectively) in a more "risk-on" environment. All fixed-income classes gained year to date (YTD), led by long-term taxable issues (+20.8%), IG and high-yield (HY) corporates (+13.9% and 11.7%[3], respectively), preferred stock (+15.8%), and EM debt (with returns exceeding 11%).

Market observations

U.S. fixed income: Intermediate-maturity taxable issues (+0.4%) outperformed shorter- (+0.3%) and longer-term (-0.1%) issues, bringing the YTD intermediate-taxable gain to 7.3%. The significant rate increase on the longer end of the curve and decline on shorter-term issues caused the curve to steepen. We believe that this yield-curve steepening is a healthy sign for markets. Yet, we do expect the curve to remain relatively flat going forward. Any further yield-curve steepening likely would come from a significant pickup in either growth or inflation; we believe that both are unlikely at this stage in the cycle.

IG corporates' 0.6% October return was led by Financials. We are favorable on IG corporates and believe that the Financials sector offers the best value today, given strong underlying fundamentals and the sector's higher-yield characteristics. HY corporates' 0.3% October return fell short of IG corporates' gain; the YTD HY return did as well. We believe that HY debt warrants caution as spreads are near cycle lows and underlying fundamentals are starting to deteriorate.

IG municipals' 0.2% October return brought the YTD gain to 6.9%. We remain favorable on IG municipals, despite the recent new-issuance increase; we expect demand to remain strong and be able to offset increased supply. We view any municipal rate increase as an opportunity for longer-term investors. We favor higher-credit-quality municipals in the short-to-intermediate maturity range. We prefer essential service revenue bonds over general obligation issues.

Developed markets: Yields continued to rise in October, so developed market (DM) bonds returned -0.8% in hedged terms, bringing the YTD return to 9.1%. Yet, a stronger euro and pound enhanced monthly returns for dollar-based investors, and unhedged DM bonds rose 0.8% (+6.3% YTD). In dollar terms, U.K. gilts performed best as the pound rose sharply on avoidance of a no-deal Brexit last month. Only Japanese government bonds underperformed U.S. Treasury securities last month, as the yen failed to rally with other DM currencies.

Emerging markets: EM bonds outperformed in October—with local-currency bonds returning 3.2% as bond prices rose and currencies gained versus the dollar (+11.4% YTD). Dollar-denominated issues gained less (+0.4%) as spreads continued to fall, but they are still outperforming YTD (+12.5%). Argentine bonds continued to underperform leading up to the month-end presidential election, but Mexico and Brazil saw gains, the latter benefiting from passage of important pension-reform legislation.

Fixed income index total returns (%)

	MTD	QTD	YTD	1 year	3 year	5 year
U.S. Taxable Inv Grade Fixed Income	0.3	0.3	8.8	11.5	3.3	3.2
U.S. Short Term Taxable	0.3	0.3	3.8	4.9	2.0	1.6
U.S. Intermediate Term Taxable	0.4	0.4	7.3	9.7	2.8	2.9
U.S. Long Term Taxable	-0.1	-0.1	20.8	26.1	6.5	6.3
U.S. Treasury Bills	0.2	0.2	1.9	2.3	1.5	1.0
U.S. Municipal Bonds	0.2	0.2	6.9	9.4	3.6	3.6
High Yield Taxable Fixed Income	0.3	0.3	11.7	8.4	6.0	5.2
DM Ex.-U.S. Fixed Income (Unhedged)	0.8	0.8	6.3	9.3	2.4	1.7
DM Ex.-U.S. Fixed Income (Hedged)	-0.8	-0.8	9.1	11.4	4.6	4.9
EM Fixed Income (U.S. dollar)	0.4	0.4	12.5	13.7	4.5	4.8
EM Fixed Income (Local currency)[1]	3.2	3.2	11.4	15.4	4.6	0.8

Sources: Bloomberg Barclays, J.P. Morgan, October 31, 2019. Inv Grade indicates Investment Grade; DM indicates Developed Market; EM indicates Emerging Market. Returns over one year are annualized. [1]Returns are converted to dollars for U.S. investors. An index is unmanaged and not available for direct investment. **Past performance is no guarantee of future results.**
See end of report for important definitions and disclosures.

Wells Fargo Investment Institute perspective

As short-term interest rates decrease while intermediate- and long-term rates rise, we believe that investors should lengthen the maturity profile of their fixed-income allocations. We also believe that investors should consider raising average credit quality.

We see little prospect of strong DM-debt returns over the coming year. Yields have reached historic lows (in many cases, negative), and they remain well below Treasury yields. We are broadly neutral on the dollar, and we do not believe that currency gains are likely to enhance limited income or appreciation prospects. We have an unfavorable DM-debt view, since foreign-exchange risk appears to be insufficiently compensated by income or capital-gain prospects (the strategic index is unhedged in terms of currency exposure).

We remain neutral on U.S.-dollar-denominated EM debt. Falling U.S. bond yields and tighter credit spreads have lowered index[4] yields, resulting in gains and making valuations less attractive. Although fiscal and credit fundamentals in many major index constituents remain firm, we now see risks as balanced for this fixed-income class, due to reduced EM growth expectations and the rise in global uncertainty stemming from U.S.-China trade tensions.

Asset class guidance	Guidance: Most unfavorable		Neutral		Most favorable
▼ Cash Alternatives	□	□	■	□	□
▲ U.S. Taxable Investment Grade Fixed Income	□	□	□	■	□
U.S. Short Term Taxable	□	□	□	■	□
▲ U.S. Intermediate Term Taxable	□	□	□	■	□
U.S. Long Term Taxable	□	□	■	□	□
High Yield Taxable Fixed Income	□	■	□	□	□
DM Ex.-U.S. Fixed Income	□	■	□	□	□
EM Fixed Income	□	□	■	□	□

Source: Wells Fargo Investment Institute, November 15, 2019.
▲/▼: recent change.

[1] Bloomberg Barclays U.S. Corporate Bond Index.
[2] S&P U.S. Preferred Stock Index.
[3] Bloomberg Barclays U.S. Corporate High-Yield Index.
[4] J.P. Morgan Emerging Markets Bond Index (EMBI Global).

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Fixed Income

Wells Fargo Investment Institute forecasts

Interest rates: Interest rates remain at low levels. Further, trade escalation has impacted the economic backdrop and is beginning to negatively affect macroeconomic data.

Our year-end target for the federal funds rate is 1.50%–1.75%. This implies a Fed pause through year-end. Our year-end yield targets for 10-year and 30-year U.S. Treasury securities are 1.50%–2.00% and 1.75%–2.25%, respectively.

We have moved our duration[1] stance to favorable from neutral. We recommend that investors consider positioning portfolio duration above that of their individually selected benchmarks.

Global fixed income (%)

	2019 YE targets	Current
10-year U.S. Treasury yield	1.50 - 2.00	1.69
30-year U.S. Treasury yield	1.75 - 2.25	2.18
Fed funds rate	1.50 - 1.75	1.75

Sources: FactSet, Bloomberg, International Monetary Fund, as of October 31, 2019. The 2019 targets are Wells Fargo Investment Institute forecasts, as of November 15, 2019. Forecasts are not guaranteed and based on certain assumptions and on our views of market and economic conditions, which are subject to change. See end of report for important definitions and disclosures.

Rolling 12-month forecasts

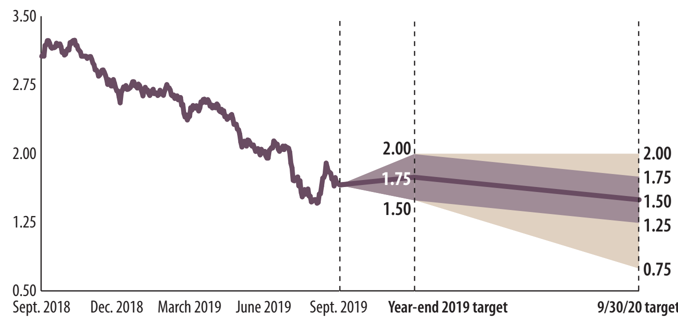
Conviction path definitions

Lower conviction range (upper): The upper range of the lower conviction path may occur if economic conditions surprise to the upside. Stronger-than-expected domestic growth occurs as a result of tax reform and fiscal stimulus drives confidence higher, leading to greater household spending and business investment. Global growth may exceed expectations, increasing trade and investment.

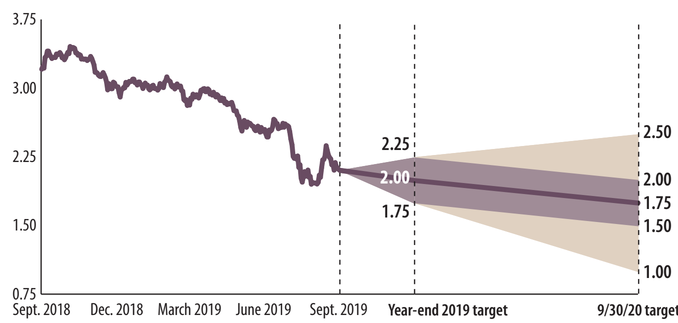
High conviction range: The high conviction middle path factors in our base-case economic forecasts through 2019 and into 2020. Domestic growth continues to be strong, supported by tax reform and fiscal stimulus, with inflation increasing moderately. Higher growth and a slight pickup in inflation is also expected in developed and emerging markets.

Lower conviction range (lower): The lower range of the lower conviction path may occur if events detrimental to the global economy occur. Further escalation of tariff activity, an unexpected surge in inflation, or more aggressive central bank policy would be detrimental to global growth. Eurozone political uncertainty or unexpected military action would also dampen growth prospects.

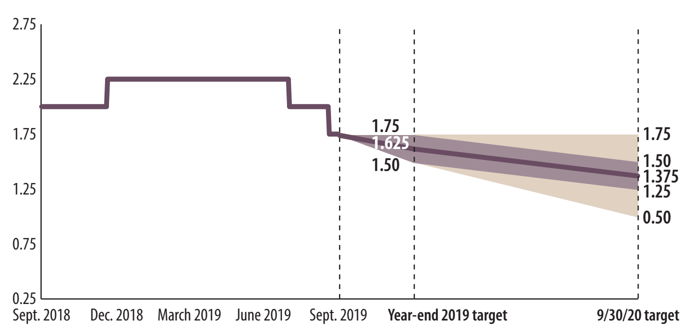
10-year Treasury yield (%)



30-year Treasury yield (%)



Fed funds rate (%)



[1] Duration is a measure of a bond's sensitivity to interest rates.

Past performance is no guarantee of future results.

Fixed Income

Sector strategy: U.S. investment-grade securities

Sector guidance

Sector	Most unfavorable		Neutral		Most favorable
▲ Duration	□	□	□	■	□
U.S. Government	□	■	□	□	□
Treasury Securities	□	□	■	□	□
Agencies	□	■	□	□	□
Inflation-Linked Fixed Income	□	□	■	□	□
Credit	□	□	□	■	□
Corporate Securities	□	□	□	■	□
Preferred Securities	□	□	□	■	□
Securitized	□	□	□	■	□
Residential MBS	□	□	□	■	□
Commercial MBS	□	□	■	□	□
Asset Backed Securities	□	■	□	□	□
U.S. Municipal Bonds	□	□	□	■	□
Taxable Municipal	□	□	□	■	□
State and Local General Obligation	□	□	■	□	□
Essential Service Revenue	□	□	□	■	□
Pre-Refunded	□	□	■	□	□

Source: Wells Fargo Investment Institute, November 15, 2019.
See end of report for important definitions and disclosures. ▲: recent change.

Total sector returns (%)

Sector	1 month	Year to date	12 months
U.S. Government	0.1	7.7	11.0
Credit	0.6	13.3	14.9
Securitized	0.4	6.0	8.9
U.S. Municipal Bonds	0.2	6.9	9.4

Source: FactSet, October 31, 2019.
Past performance is no guarantee of future results.

Duration (Favorable): Duration positioning is important for fixed-income investors. Bonds with shorter duration are less sensitive to interest-rate changes (assuming a parallel shift in the yield curve on all maturities, with the same number of basis points).[1] We recently moved to a favorable duration stance for both the taxable and tax-exempt bond sectors (from neutral). We believe that investors should position duration above that of their individually selected benchmarks.

U.S. Government (Unfavorable): We recommend that investors consider government-security allocations for their potential contribution to diversification, liquidity, and reducing portfolios' downside participation. Government securities may offer a hedge for unexpected geopolitical developments or an economic slowdown and generally have benefited from risk-off market events.

Investment-Grade (IG) Credit (Favorable): We have a favorable view of IG credit (and IG corporate bonds). High-quality IG credit can allow portfolios to generate excess yield through spread premium (also known as "carry") that is meant to compensate investors for perceived issuer credit risk. We believe that, at times, IG corporate debt offers investors better carry and liquidity per unit of risk than that of other fixed-income credit offerings, such as high-yield debt. We reiterate our bias toward higher quality in the current market.

Investment-Grade Securitized (Favorable): Yield is an important component of an investor's sector selection, and the securitized sector can offer investors potential income opportunities that cannot be found in many other highly rated, fixed-income securities. This sector can add diversification benefits to a fixed-income portfolio and generally has lower correlation to other sectors.

U.S. Municipal Bonds (Favorable): Both the municipal and Treasury yield curves steepened last month; the municipal yield curve ended the month at levels that were steeper than those of the Treasury curve. Municipal-to-Treasury yield ratios declined slightly—and ranged from approximately 72% on the 1-year maturity to 84% and 91% on 10-year and 30-year issues, respectively, in late October. We see particular value in the intermediate part of the municipal curve (between 8- and 14-year issues) today.

Demand for tax-exempt municipal debt remains strong as several tax deductions have been eliminated or reduced. In-state bonds have become a higher priority for buyers in high-tax states—as the federal deduction for state income taxes has been capped. As the presidential election season progresses, we will be watching for any developments in tax policy proposals which could influence municipal markets. If taxes were to rise, this could make municipal bonds' tax benefits even more attractive.

Despite the fall increase in issuance, the net supply of municipals is expected to remain negative for 2019 overall. Technical support is expected to continue, with strong demand. We view any municipal rate increase as an opportunity for longer-term investors. We favor selectivity, higher quality, and essential service revenue bonds with dedicated revenue streams.

[1] One hundred basis points equal 1.00%.

For more information, please request our most recent *Investment Strategy* report or our *Quarterly Fixed Income Guidance* report.

Equities

Market summary

Despite a somewhat rocky start, October ended as a broadly positive month for all of the major equity classes. Investors continued to focus on U.S.-China trade discussions and Fed monetary policy. The Fed cut rates for the third time this year and hinted that it was likely to pause. Equity investors appear to be pricing in positive trade news and a continuation of further global central bank easing. All of the major equity classes have posted double-digit YTD gains.

Last month, U.S. large caps, mid caps, and small caps gained 2.2%, 1.1%, and 2.6%, respectively. Internationally, U.S.-dollar-denominated EM and DM equities registered monthly gains of 4.2% and 3.6%, respectively.

Market observations

U.S. equities: U.S. large caps extended their September gains last month (+2.2% in October and +23.2% YTD). Health Care led large-cap returns with a 5.1% monthly gain (+11.0% YTD). Energy was the weakest sector last month and YTD, -2.3% and +3.6%, respectively. Defensive and rate-sensitive sectors also underperformed; Utilities returned -0.8% (+24.4% YTD), while Real Estate declined marginally.

Small caps were the best-performing U.S. equity class for the second consecutive month (+2.6%), while mid caps were weakest in October (+1.1%). For the Russell Midcap Index, Information Technology led with a 2.6% monthly return (+32.4% YTD). The weakest monthly performer was Energy, with a 3.6% loss (-5.5% YTD). Small-cap sectors mirrored the S&P 500 Index; Health Care led with a 4.5% gain (+10.2% YTD), while Energy was weakest, declining 5.0% (-17.8% YTD).

International equities: International equities outperformed U.S. stocks last month. U.S.-dollar-denominated EM equities (+4.2%) were the best-performing equity class in October, followed by DM equities denominated in dollars (3.6%). The outperformance of dollar-denominated equities over local-currency counterparts was supported by U.S.-dollar depreciation against major DM and EM currencies.

Sweden (+7.1% in U.S.-dollar terms) led DM-equity returns as reported third-quarter earnings beat analyst expectations. The MSCI Canada Index (-0.2% in U.S.-dollar terms) was the only major DM equity index to decline as Energy stocks weighed on performance.

The MSCI Russia Index (+8.7% U.S.-dollar terms) was the best performer among EM countries as foreign investors poured into the Russian market. Turkey (-8.3% U.S.-dollar terms) declined after escalation in Syria unsettled Turkish markets.

Wells Fargo Investment Institute perspective

Over the past month, some of the risks to our macro outlook have moderated. We continue to expect a modest growth/modest inflation economic environment. The potential for a minor trade deal or truce appear to have increased. At the same time, the probability of a no-deal Brexit appears to have decreased. However, we continue to take a somewhat conservative equity stance. Global headwinds still exist and complete clarity is not likely in the near term.

A bounce in commodity prices, a slightly weaker dollar, and somewhat better global growth news have combined to fuel EM outperformance over the past month. As the Fed has cut rates three times and low U.S. and global interest rates continue, we believe that global equities should receive some overall support. Our valuation assumptions are modest relative to history—as in low-rate environments, price/earnings (P/E) ratios typically have been higher than the historical average. We expect stock buybacks to remain strong as we move toward year-end 2019 and into 2020. Investors also are turning to equities in a reach for yield.

Equity index total returns (%)

	MTD	QTD	YTD	1 year	3 year	5 year
U.S. Large Cap Equities	2.2	2.2	23.2	14.3	14.9	10.8
U.S. Large Cap (Growth)	2.8	2.8	26.8	17.1	18.9	13.4
U.S. Large Cap (Value)	1.4	1.4	19.5	11.2	10.5	7.6
U.S. Mid Cap Equities	1.1	1.1	23.2	13.7	12.3	8.7
U.S. Mid Cap (Growth)	1.9	1.9	27.6	18.9	16.8	10.9
U.S. Mid Cap (Value)	0.5	0.5	20.1	10.1	8.9	6.9
U.S. Small Cap Equities	2.6	2.6	17.2	4.9	11.0	7.4
U.S. Small Cap (Growth)	2.8	2.8	18.6	6.4	13.2	8.4
U.S. Small Cap (Value)	2.4	2.4	15.5	3.2	8.6	6.2
DM Equities Ex-U.S. (USD)	3.6	3.6	17.4	11.6	9.0	4.8
DM Equities Ex-U.S. (Local)[1]	1.7	1.7	18.2	11.1	9.0	7.0
DM Small Cap Equity (USD)	4.6	4.6	17.6	9.3	9.0	7.8
DM Small Cap Equity (Local)[1]	2.7	2.7	18.3	8.6	9.2	9.8
EM Equities (USD)	4.2	4.2	10.7	12.3	7.8	3.3
EM Equities (Local)[1]	3.0	3.0	11.4	11.9	8.9	6.2
FM Equities (USD)	0.8	0.8	11.9	11.0	7.8	0.1
FM Equities (Local)[1]	0.3	0.3	12.4	11.2	8.6	3.1

Sources: Standard & Poor's, Russell Indexes, MSCI Inc., October 31, 2019. DM indicates Developed Market; EM indicates Emerging Market; FM indicates Frontier Market; USD indicates U.S. dollar. Returns over one year are annualized.
[1] Returns are in local currencies as experienced by local investors. U.S. investors would experience gains or losses on currency conversion. An index is unmanaged and not available for direct investment.

Past performance is no guarantee of future results.
See end of report for important definitions and disclosures.

Many central banks are continuing easy money policies, while EM government stimulus could be a stabilizer. Although this stimulus should help sentiment and valuations globally, the impacts vary across global equity classes. We expect comparatively more impact on U.S. large- and mid-cap equity markets, where there is more room to generate cash and complete corporate buybacks. U.S. small-cap firms generally lack the cash flow available to complete stock buybacks, and their earnings growth has been too slow (relative to expectations) in this cycle to compensate for their higher risk level relative to large caps and mid caps. We expect international markets to benefit comparatively less than U.S. equity markets, for several reasons—notably, the larger dependence on trade in the rest of the world and the correspondingly larger economic slowdown overseas. Trade frictions and global growth concerns likely will continue to take center stage in the near-to-intermediate term.

Asset class guidance

	Guidance				
	Most unfavorable		Neutral		Most favorable
U.S. Large Cap Equities	☐	☐	■	☐	☐
U.S. Mid Cap Equities	☐	☐	■	☐	☐
U.S. Small Cap Equities	☐	■	☐	☐	☐
DM Equities Ex-U.S.	☐	☐	■	☐	☐
EM Equities	☐	☐	■	☐	☐

Source: Wells Fargo Investment Institute, November 15, 2019.

Equities

Wells Fargo Investment Institute forecasts

U.S. equities: We believe that the Fed is likely to cut rates one more time next year, and it remains accommodative (along with other major central banks). While this is positive, U.S. economic growth may be too modest to fuel more than modest earnings growth—but it may support sentiment and valuations. With rates declining, investors are turning to equities in a reach for yield. Valuations are not stretched on a P/E basis relative to history, and price-to-free-cash-flow ratios are at a discount to average historical levels.

Global equities

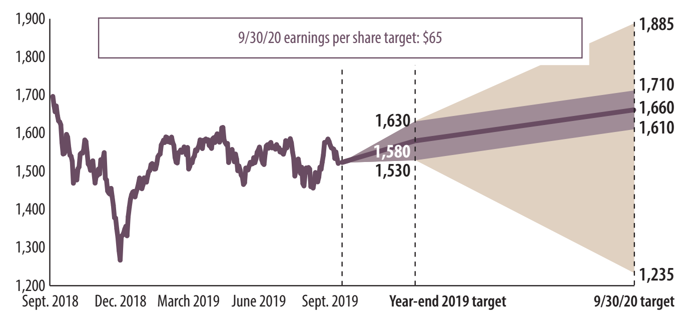
	2019 YE targets	Current
S&P 500 Index	2980 - 3080	3038
S&P 500 earnings per share ($)	167	162
Russell Midcap® Index	2310 - 2410	2257
Russell Midcap earnings per share ($)	128	124
Russell 2000 Index	1530 - 1630	1562
Russell 2000 earnings per share ($)	65	62
MSCI EAFE Index	1875 - 1975	1955
MSCI EAFE earnings per share ($)	135	132
MSCI Emerging Markets (EM) Index	960 - 1060	1042
MSCI EM earnings per share ($)	84	82

Sources: FactSet, Bloomberg, International Monetary Fund, as of October 31, 2019. The 2019 targets are Wells Fargo Investment Institute forecasts, as of November 15, 2019. The current earnings per share is as of December 31, 2018. Forecasts are based on certain assumptions and on our views of market and economic conditions, which are subject to change. See end of report for important definitions and disclosures.

A low interest-rate and inflation environment typically would push valuations above historical averages. Our current base case suggests that forward 12-month equity total returns likely will be in the mid-single-digit area.

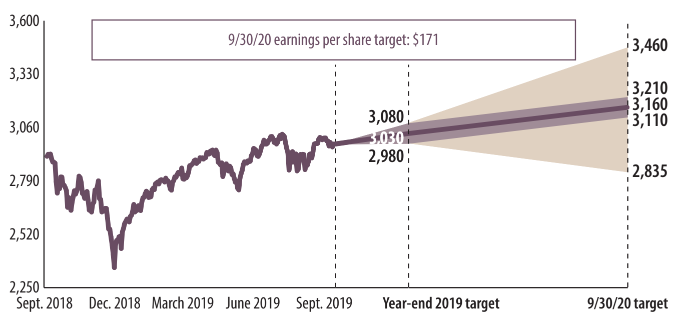
Foreign equities: U.S.-China trade tensions, falling global trade volumes, and economic-growth risks play into our neutral EM equity rating. EM equity prices appear inexpensive, but they are bearing the brunt of weakening global trade. Further, downward commodity price trends and the U.S.-dollar appreciation versus EM currencies have weighed on this equity class over the past year or more. Although fiscal and monetary stimulus likely will help sentiment and valuations globally, impacts vary across global equity classes. International markets should benefit comparatively less than U.S. equity markets, for several reasons—notably the steady (to stronger) U.S. dollar, the larger dependence on trade in overseas markets, and the correspondingly larger economic slowdown overseas. We are taking a conservative stance on valuations when determining our equity forecasts.

Russell 2000 Index

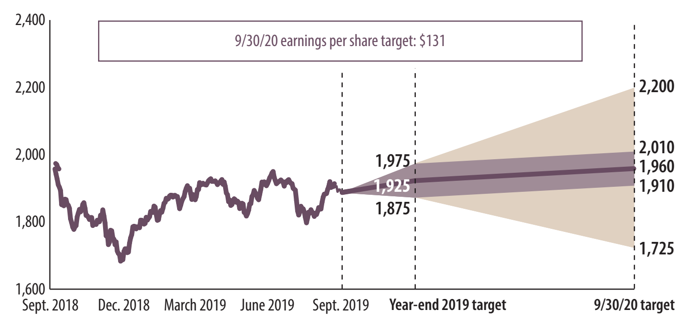


Rolling 12-month forecasts

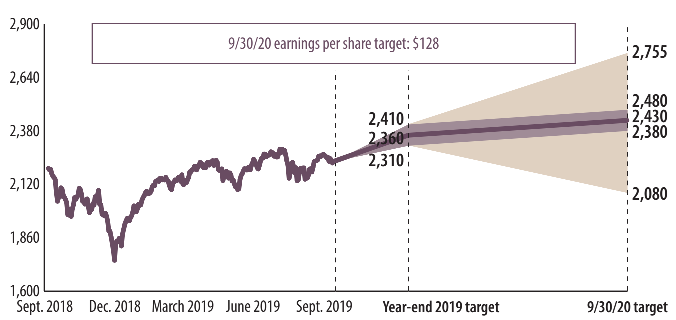
S&P 500 Index



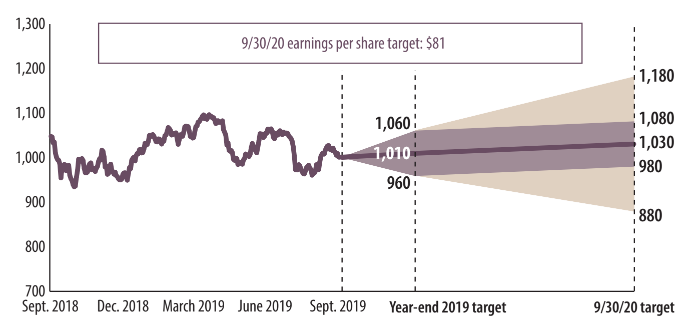
MSCI EAFE Index



Russell Midcap Index



MSCI Emerging Markets Index



Past performance is no guarantee of future results. Conviction range definitions are on page 5.

Equities

U.S. equity sector strategy

Sector guidance

Sector	S&P 500 Index weight (%)*	WFII guidance (%)	Guidance: Most unfavorable		Neutral		Most favorable
Communication Services	10.4	7.3	□	■	□	□	□
Consumer Discretionary	10.0	12.2	□	□	□	■	□
Consumer Staples	7.3	6.7	□	□	■	□	□
Energy	4.4	4.2	□	□	■	□	□
Financials	13.0	14.5	□	□	□	■	□
Health Care	13.9	14.6	□	□	■	□	□
Industrials	9.4	10.0	□	□	■	□	□
Information Technology	22.4	24.5	□	□	□	□	■
Materials	2.7	0.0	□	■	□	□	□
Real Estate	3.1	3.0	□	□	■	□	□
Utilities	3.5	3.0	□	□	■	□	□
Total	100.0	100.0					

Sources: Bloomberg, Wells Fargo Investment Institute (WFII). Weightings are as of October 31, 2019. WFII guidance is as of November 15, 2019.
*Sector weightings may not add to 100% due to rounding.

Total returns (%): S&P 500 Index sectors

Sector	1 month	Year to date	12 months
S&P 500 Index	2.2	23.2	14.3
Communication Services	3.0	25.4	15.5
Consumer Discretionary	0.3	22.9	15.8
Consumer Staples	-0.1	23.1	14.0
Energy	-2.3	3.6	-11.0
Financials	2.4	22.5	11.7
Health Care	5.1	11.0	8.6
Industrials	1.1	23.9	14.9
Information Technology	3.9	36.5	22.6
Materials	0.0	17.2	13.5
Real Estate	-0.1	29.6	26.7
Utilities	-0.8	24.4	23.7
WFII weighted guidance	2.3	24.2	15.0

Source: FactSet, October 31, 2019.
An index is unmanaged and not available for direct investment.
Past performance is no guarantee of future results.

Communication Services (Unfavorable): Communication Services ranks third lowest among S&P 500 sectors for its combined payout from dividends and share buybacks. Analyst forecast earnings dispersion is high, indicating low conviction in the average analyst forecast.

Consumer Discretionary (Favorable): We expect resilient consumer spending in the quarters ahead, fueled by our expectations for continued growth in the labor market and rising wages.

Consumer Staples (Neutral): Valuation indicators, such as the trailing 12-month P/E and price to free cash flow (P/FCF) ratios, rank in about the middle of the pack. Based on our Quality Pillar** factors, Consumer Staples ranks in the top half versus the other sectors. We believe that earnings revision momentum, analyst estimate dispersion, and return on equity (ROE) signal that a neutral rating is currently appropriate.

Energy (Neutral): We expect oil prices to be near current levels by mid-2020. Yet, Pillar factors such as leverage and liquidity have improved, and projected consensus earnings growth is higher than for any other U.S. equity sector. Valuations have become more compelling. However, increased macro risks likely will weigh on this sector. Oil and natural gas oversupply is a risk.

Financials (Favorable): Based on our Value Pillar**, which includes metrics such as the trailing P/E and P/FCF ratios, Financials rank highest relative to the other 10 sectors. Yet, our overall Quality Pillar factors rank near the middle of the pack. We expect modest economic growth and better loan demand ahead. The somewhat steepening yield curve over the past two months has meaningfully helped performance.

Health Care (Neutral): Analyst estimate dispersion ranks second relative to the other sectors. Leverage and liquidity measures rank fourth, while P/FCF remains attractive. Yet, political uncertainty has been a major headwind, and potential drug price controls remain a concern.

Industrials (Neutral): With ongoing trade frictions and their potentially negative effects on global growth, sentiment, and capital spending, we currently are neutral on Industrials. Like the Information Technology (IT) sector, this sector ranks highly (fourth overall) across our Pillar factors. Increased trade tensions and global growth headwinds represent the main risks for Industrials.

Information Technology (Most favorable): P/FCF remains attractive and 12-month forward earnings per share (EPS) growth remains in the middle of the pack. Longer-term fundamentals are compelling as IT companies are generating high cash flows and have maintained healthy leverage ratios. This sector also offers an attractive total yield. IT sector risks include trade frictions and political backlash in Congress.

Materials (Unfavorable): Materials companies' ROE is not attractive. Further, forecast total yield ranks last relative to the other 10 sectors. This sector has underperformed YTD.

Real Estate (Neutral): We are neutral on this largely defensive sector. Like Utilities, the Real Estate sector has an attractive dividend yield, which helps to explain its YTD performance. The low interest rates and potential growth headwinds that we expect could attract additional capital to this sector. The real estate investment trusts (REITs) in this sector typically are involved in longer-term lease contracts, which can help to somewhat insulate them from economic volatility.

Utilities (Neutral): Utilities are considered a defensive sector that offers an attractive dividend yield. We believe that significant geopolitical and economic uncertainty explains why the domestically focused Utilities sector has outperformed over the past year. Lower interest rates also could attract further capital to this sector.

Growth versus Value (Neutral): The IT and Consumer Discretionary sectors contain a heavy allotment of growth companies and have led the market higher over the past two years. Value sectors such as Financials and Energy have outperformed of late. For now, we remain neutral.

**For pillar definitions, see page 29.

For more information, please request our most recent *Investment Strategy* report.

Equities

International equity market strategy

Developed Market Ex.-U.S. Equities

Europe region (Neutral): We remain neutral on the Europe region. Valuations (and prices) have risen, making valuations less attractive, but they remain at reasonable levels. Overall economic growth remains soft.

Economic: Economic surprises continued to improve amid signs of stabilization in Europe. However, Germany remains a weak point as industrial firms struggle with tepid foreign demand.

Market valuations: Valuations generally are neutral. Political uncertainty across the region—along with global growth and trade concerns—have impacted equity markets.

Market internals: Market internals are neutral as sentiment improved in the face of a potential "phase one" trade deal between the U.S. and China.

Pacific region (Favorable): We maintain our favorable rating on the Pacific region. We look for valuations to continue improving.

Economic: Economic growth remains weak across much of the region; however, recent positive economic releases point to the potential for more positive activity ahead, particularly for Japan.

Market valuations: Valuations are generally neutral.

Market internals: Market breadth and sentiment measures remain neutral.

Emerging Market Equities

Asia (Neutral): We believe that equity markets in Emerging Asia remain attractive from a valuation perspective, but we remain neutral amid trade uncertainty. According to the Peterson Institute for International Economics, the potential direct impact of the trade war on China is 1-2% of China's GDP, depending on the timing of the latest round of U.S. tariffs. This is a small impact to overall Chinese GDP. However, the trade tensions' indirect effects—such as reduced business investment in China and the long-term impact of the U.S. restricting access to China's advanced technologies—are more difficult to measure and may lead to higher uncertainty.

Economic: Economic growth is weak across the region; however, economic surprises suggest a stabilizing economic outlook in most markets.

Market valuations: Valuations have improved across much of the region. More attractive valuations in China could be at risk of being offset by weaker growth.

Market internals: Market internals are neutral this month.

Europe, Middle East and Africa (EMEA) region (Favorable): Economic data remains neutral and shows signs of improvement. We maintain our favorable rating—while acknowledging that geopolitical concerns and commodity price volatility may continue to challenge investment sentiment in the region.

Economic: Indicators continue to reflect moderate economic activity, but data on economic surprises has begun to show some weakness.

Market valuations: Valuations appear attractive overall.

Market internals: Internals are neutral.

Latin America region (Neutral): Softer, yet positive, economic and earnings fundamentals recently led us to reduce our regional guidance to neutral.

Economic: Economic indicators have weakened across the region. Economic surprises have decreased but remain positive.

Market valuations: Equity valuations are neutral across the region.

Market internals: Market breadth has weakened; however, internals are neutral overall.

International equity guidance by region

Region	Benchmark weight (%)*	Regional guidance: Most unfavorable		Neutral		Most favorable
Developed Market Ex.-U.S. Equities		□	□	■	□	□
Europe	61	□	□	■	□	□
Pacific	39	□	□	□	■	□
Emerging Market Equities		□	□	■	□	□
Asia	76	□	□	■	□	□
Europe, Middle East and Africa	12	□	□	□	■	□
Latin America	12	□	□	■	□	□

Source: Wells Fargo Investment Institute, November 15, 2019.
* Benchmarks are MSCI EAFE for DM and MSCI Emerging Markets for EM.

We provide additional context for the regional guidance in our *International Strategy* reports.

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Real Assets

Market summary

October was a spooky month for master limited partnerships (MLPs), which had their worst monthly 2019 performance, despite flat oil prices. Yet, Commodities fared well with tailwinds that included a weaker dollar, positive trade headlines, and a more optimistic market growth outlook.

Master limited partnerships

Market observations

MLPs returned -6.2% last month—and continued the decline from their mid-September peak. Oil prices ended October relatively unchanged, but remained at levels below the September high. MLP results likely were hampered by unsupportive oil prices, concern over slowing U.S. oil and natural-gas production growth, and uncertainty over the 2020 outlook. MLPs could continue to face near-term headwinds as these uncertainties are unlikely to be resolved soon. Yet, as long as West Texas Intermediate (WTI) oil prices do not spend significant time below $50 per barrel, we expect the positive long-term fundamental backdrop for MLPs to remain intact—and anticipate that investors will grow more confident in the case for MLPs. Investors also may be drawn to MLPs for their compelling valuations, better alignment with investor interests than in the recent past, and attractive dividend yields (the current average dividend yield is above 9%). We hold a favorable view on MLPs and the midstream space more broadly (which includes midstream C-corporations and midstream MLPs), based on valuation; the need for additional energy infrastructure; burgeoning relative performance; and progress toward simplification and transition to a more self-funded model.

Wells Fargo Investment Institute perspective

MLPs and midstream corporations typically can provide income opportunities for investors. We believe that investors' search for yield, relative valuation, improving fundamentals, and the need for additional energy infrastructure are positives.

Commodities

Market observations

Ongoing geopolitical concerns and back-and-forth U.S.-China trade negotiations have contributed to modest commodity price gains YTD. Persistent concerns around global economic growth and demand for commodities have prevented a stronger price rally. All commodity sectors were positive in October, but precious-metals commodities led the way.

Metals: Precious metals continued to benefit from trade uncertainties and accommodative monetary policies around the world. Gold and silver prices rose in October—supported by a weaker dollar and high levels of negative yielding debt globally. Precious-metal prices could receive additional support if equity market volatility were to rise or trade and global growth concerns were to escalate.

Base-metal prices rose modestly in October as the market continued to weigh developments surrounding U.S.-China trade relations. Softening global manufacturing data and concerns over future demand for these metals have curtailed strength in base-metals prices, and prices weakened in late October. Metal prices have been volatile this year, and they are likely to remain so as investors digest U.S.-China trade developments and reflect concern over global-metal demand.

Energy: Energy prices also rose slightly last month. WTI crude oil was relatively flat as late-October declines nearly erased mid-month gains. Oil prices have been boosted by ongoing geopolitical risks, but expectations for weaker demand growth than production growth have tempered major oil-price gains recently. Global production remained strong despite production cuts from Russia and OPEC (Organization of the Petroleum Exporting Countries) as U.S. supplies continued to grow. Potentially slower global economic growth and weaker demand prospects in the face of trade and other uncertainties may weigh on prices in coming months. Natural-gas prices rose 13% in October due to a boost in weather-related demand. However, natural gas remains one of the worst-performing commodities YTD (falling by more than 10% YTD). Natural gas could continue to rally on weather events, yet we do not expect any such rally to be sustained—due to excess supply and strong supply growth during this stockpiling season.

Agriculture: Agriculture saw modest gains in October as many individual agriculture commodities performed well—led by cotton prices. Agriculture commodity prices continue to face pressure from ample global supplies and uncertainties over future demand, but they recently have benefited from unfavorable weather conditions. Inventory levels that are near historical highs could limit upside potential in this space. Trade uncertainties and lower global-growth expectations should fuel increased agriculture sector volatility going forward.

Wells Fargo Investment Institute perspective

A generally resilient global economy supported strong commodity performance in the first four months of 2019, but investors' deteriorating economic-growth outlook has erased some of those initial gains. We foresee balanced upside and downside risks over the tactical time horizon. We do not favor tactical positions in the commodity asset class at this time.

Real assets index total returns (%)

	MTD	QTD	YTD	1 year	3 year	5 year
Public Real Estate	2.5	2.5	23.7	21.5	9.6	6.9
U.S. REITs	1.1	1.1	29.9	25.3	11.3	9.4
International REITs	3.7	3.7	19.4	19.9	9.9	5.7
Master Limited Partnerships	-6.2	-6.2	4.2	-6.4	-3.1	-9.0
Global Infrastructure	1.5	1.5	22.7	21.1	9.6	5.7
Commodities (BCOM)	2.0	2.0	5.2	-2.6	-0.7	-6.7
Agriculture	1.7	1.7	-3.4	-5.3	-10.0	-8.5
Energy	1.6	1.6	7.3	-15.7	0.6	-15.0
Industrial Metals	1.8	1.8	9.2	5.5	6.0	-1.6
Precious Metals	3.8	3.8	17.1	24.1	3.7	3.7

Sources: Bloomberg, October 31, 2019. REITs=real estate investment trusts. Public Real Estate: FTSE EPRA/NAREIT Developed Index. Domestic REITs: FTSE NAREIT All Equity REITs Index. International REITs: FTSE EPRA/NAREIT Developed ex-U.S. Index. MLPs: Alerian MLP Index. Returns over one year are annualized. An index is unmanaged and not available for direct investment.
Past performance is no guarantee of future results.
See end of report for important definitions and disclosures.

Asset class guidance	Guidance: Most unfavorable		Neutral		Most favorable
Private Real Estate	□	■	□	□	□
Commodities	□	□	■	□	□

Source: Wells Fargo Investment Institute, November 15, 2019.

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Real Assets

Wells Fargo Investment Institute forecasts

Commodities: We are introducing targets for our benchmark commodity index, the Bloomberg Commodity Index (total return); our September 30, 2020 target range is 170–180. Trade and global growth developments likely will be the main macro commodity drivers for the balance of this year. Our year-end 2019 WTI crude-oil price target range is $50–$60 per barrel. We believe that the proper supply/demand balance for WTI oil prices is $40–$50 per barrel. We added a $10 per barrel expected premium for geopolitical concerns, along with planned and potential production cuts by key producers. A similar breakdown is evident in our Brent oil-price target range. Gold-price volatility could remain elevated as interest rate, currency, global growth, trade, and geopolitical uncertainties persist. Our year-end 2019 target range for gold prices is between $1,400 and $1,500 per troy ounce.

Global real assets ($)

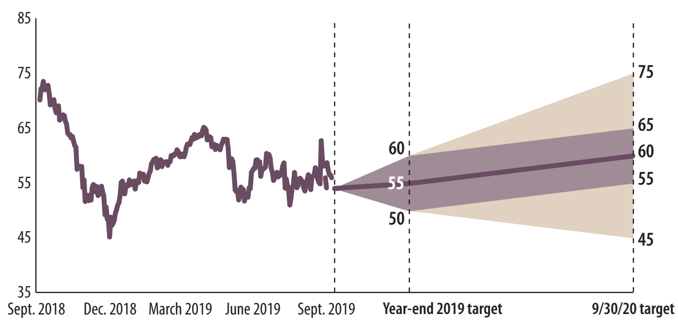
	2019 YE targets	Current
WTI crude oil price ($ per barrel)	50 - 60	54
Brent crude oil price ($ per barrel)	55 - 65	60
Gold price ($ per troy ounce)	1,400 - 1,500	1,515
Commodities	*	—

Sources: FactSet, Bloomberg, International Monetary Fund, as of October 31, 2019. The 2019 targets are Wells Fargo Investment Institute forecasts, as of November 15, 2019. Forecasts are based on certain assumptions and on our views of market and economic conditions, which are subject to change. See end of report for important definitions and disclosures. WTI is a grade of crude oil used as a benchmark in oil pricing.

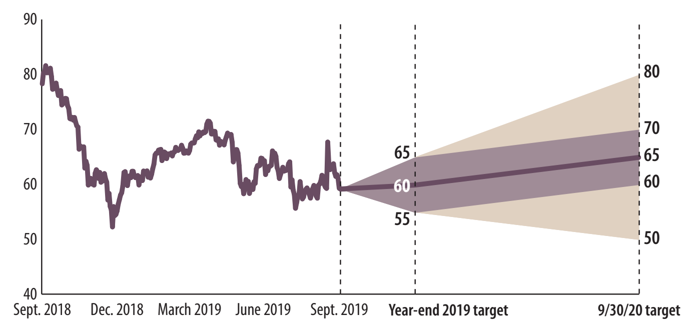
*Year-end target will commence in 2020.

Rolling 12-month forecasts

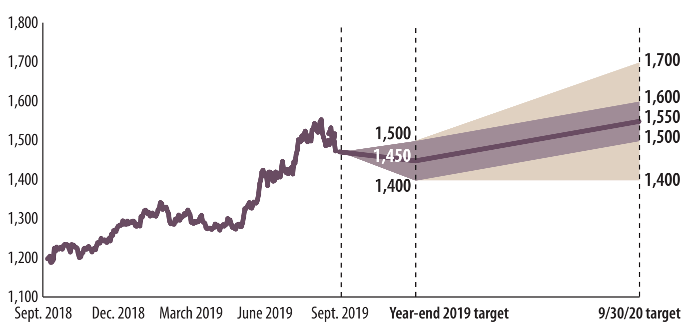
West Texas Intermediate crude oil ($)



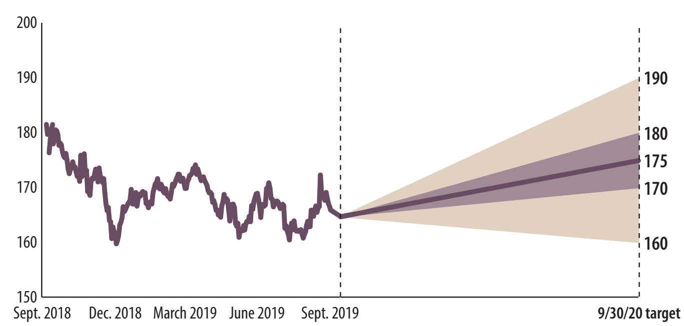
Brent crude oil ($)



Gold ($)



Bloomberg Commodity Index (total return)



Past performance is no guarantee of future results. Conviction range definitions are on page 5.

For more information, please request our most recent *Investment Strategy* report.

Alternative Investments*

Market summary

Early estimates from Hedge Fund Research, Inc. (HFR) indicate generally positive October returns. Equity Hedge managers rebounded from a difficult September—especially managers with sizable health care exposure. Within Relative Value, Structured Credit strategies generated slight gains, while the Distressed strategy underperformed within Event Driven. The Macro strategy also had a difficult month, driven by long fixed income positioning.

Relative Value: Within Structured Credit, non-agency residential mortgage-backed security (MBS) exposure drove returns, while collateralized loan obligation (CLO) exposure detracted from performance.[1]

Macro: Similar to September, Trend Following Macro strategies experienced losses from long fixed income positioning—as rising yields, particularly in Europe, were strong performance headwinds.

Event Driven: The Distressed strategy declined and lagged broader credit markets as energy exposure detracted from returns. Activist strategies had a second consecutive month with strong performance, supported by broad equity market gains.

Equity Hedge: Equity Hedge managers with sizable health care exposure generated outsized returns as the sector recovered from a difficult third quarter. In particular, the insurance and hospital sub-sectors supported performance.

Market observations

Since reaching a three-year low in late August, the long-short ratio for bank stocks has increased by nearly 10.5%, moving in tandem with the 2-year/10-year Treasury yield spread. To put this relationship in perspective, the correlation between global bank stocks' long-short ratio and the spread between 2-year and 10-year U.S. Treasury securities currently stands at 0.74—an increase from 0.67 in 2017–2018.[2]

Wells Fargo Investment Institute perspective

Relative Value: We remain favorable on Relative Value and recommend that qualified investors consider combining Structured Credit with Long/Short Credit strategies. Historically, Structured Credit has been less sensitive to geopolitical and other macro risks—as it relies more on the consumer and economic growth than on other factors. Long/Short Credit strategies can help to reduce downside participation; we are seeing increased opportunities to short securities of overleveraged companies as volatility increases and growth flattens.

Macro: We remain neutral overall; however, we are more constructive on Discretionary Macro managers' ability to navigate sudden sentiment reversals more quickly than Trend Following strategies. Additionally, we believe that non-Trend-Following Systematic Macro strategies can offer enhanced diversification (including for those strategies that are based on shorter-term pattern recognition, fundamental data, and machine learning).

Event Driven: While defaults remain near historical lows, we are seeing localized stresses rise in certain sectors and industries, particularly in energy, which could provide opportunities for Distressed managers. Global merger and acquisition volume remains robust, but it continues to be dominated by large deals ($20+ billion). North American and European merger spreads remain above their historical averages.

Alternative investments index/strategy total returns (%)

	MTD	QTD	YTD	1 year	3 year	5 year
Global Hedge Funds	0.4	0.4	7.2	4.1	4.1	3.1
Relative Value	0.4	0.4	6.0	3.7	4.1	3.5
Arbitrage	1.0	1.0	6.9	5.8	4.5	3.8
Long/Short Credit	0.6	0.6	7.9	5.8	5.1	4.2
Struct Credit/Asset-Backed	0.3	0.3	4.8	3.6	5.8	4.8
Macro	-1.3	-1.3	5.4	5.0	1.3	1.1
Systematic	-2.3	-2.3	6.2	7.0	0.5	0.5
Discretionary	0.9	0.9	4.5	2.9	1.5	0.8
Event Driven	0.8	0.8	5.3	2.2	4.7	3.5
Activist	1.7	1.7	11.7	3.6	4.3	4.4
Distressed Credit	-0.3	-0.3	2.8	-1.4	3.8	2.2
Merger Arbitrage	0.7	0.7	5.0	6.0	5.0	4.2
Equity Hedge	1.3	1.3	9.2	4.9	5.5	3.7
Directional Equity	0.9	0.9	8.6	4.2	4.2	3.1
Equity Market Neutral	-0.2	-0.2	1.7	0.7	2.3	2.6

Source: Hedge Fund Research, Inc., October 31, 2019.
Returns over one year are annualized. An index is unmanaged and not available for direct investment.
Past performance is no guarantee of future results.
See end of report for important definitions and disclosures.

Equity Hedge: We remain favorable on Equity Hedge as we view the equity security selection environment as supportive. However, challenges require monitoring, including position crowding and factor exposures. Dispersion is broadening and volatility is increasing, which we believe bodes well for trading-oriented Equity Hedge managers.

Private Equity: While we are neutral on Private Equity, we have high conviction in certain strategies and geographies where valuations are more attractive and capital-market funding is tighter. Opportunities within Private Equity have become more nuanced, and careful attention needs to be given to fund size, geographic exposure, and strategy. We believe opportunities do exist—but not indiscriminately.

Private Debt: We remain favorable on Private Debt funds, due to their historical ability to capitalize on illiquidity to deliver cash yields and returns at a premium to those available in public or broadly syndicated debt markets.

Private Real Estate: We are unfavorable on Private Real Estate (specifically, Core strategies), but we are reviewing the space, given interest-rate trends. However, we remain cautious as we expect to see: 1) higher property capitalization (cap) rates and lower returns due to slowing income growth; 2) pockets of illiquidity and distress; and 3) lower capital flows into U.S. real estate—particularly in core markets. Given the core real estate appreciation in recent years, and its slowing pace, we favor U.S. value-add and opportunistic funds over the next three to five years.

[1] Non-agency MBS are mortgage-backed securities that are not backed by Fannie Mae, Freddie Mac, or Ginnie Mae. They are sometimes called "private label" MBS.
[2] Source: Goldman Sachs Prime Services, October 2019.

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Alternative Investments*

Private placements and liquid alternatives

Alternative investment strategies outlook*

Private placements	Guidance: Most unfavorable		Neutral		Most favorable
Relative Value	□	□	□	■	□
Arbitrage	□	□	■	□	□
Long/Short Credit	□	□	□	■	□
Structured Credit/Asset-Backed	□	□	□	■	□
Macro	□	□	■	□	□
Systematic	□	■	□	□	□
Discretionary	□	□	□	■	□
Event Driven	□	□	■	□	□
Activist	□	□	■	□	□
Distressed Credit	□	□	□	■	□
Merger Arbitrage	□	□	■	□	□
Equity Hedge	□	□	□	■	□
Directional	□	□	□	■	□
Equity Market Neutral	□	□	■	□	□
Private Equity	□	□	■	□	□

Liquid alternatives	Guidance: Most unfavorable		Neutral		Most favorable
Relative Value	□	□	■	□	□
Macro	□	□	■	□	□
Event Driven	□	□	■	□	□
Equity Hedge	□	□	■	□	□

Sources: Wells Fargo Investment Institute, Wilshire Liquid Alternative Index family, November 15, 2019.

Notes on alternative investment structures

The core differences between our guidance for private placements versus liquid alternative mutual funds centers on the expected illiquidity premium and the expected complexity premium often associated with private placements. The illiquidity premium refers to the potential for incremental return or yield generated by owning securities that cannot be sold quickly without affecting the price. Certain securities may be illiquid for one month, quarter, several years or longer. This illiquidity may provide investment managers enhanced flexibility which may result in higher long-term returns. Illiquidity may be experienced in public and private credit securities that can include loans, securitized credit, and stressed and distressed corporate credit. However, equity strategies may also be illiquid for periods of time, especially after a corporate restructuring when debt is converted to equity or within strategies that require significant equity ownership such as Activism. A complexity premium may also be associated with illiquid securities as they often require specialized origination, underwriting and investing strategies. Because private placements do not offer daily liquidity to their investors, they potentially provide greater flexibility to invest in securities that may offer an illiquidity premium. Furthermore, private placements can have a larger concentration in illiquid securities.

The complexity premium potentially offered with private placements results from several structural limitations associated with mutual funds, including provisions of the Investment Company Act of 1940, as amended (1940 Act), that apply at the fund level and not the individual strategy level. The 1940 Act requires, among others, the following:

- Regular liquidity—Redemptions must be paid within seven calendar days
- Regular transparency
- Limits on leverage—300% asset coverage limits leverage to 33%; making loans; or investing in real estate or commodities
- Limits on concentration—75% of the value of its total assets cannot be invested more than 5% in any one issuer, 25% in one industry or 10% of the outstanding voting securities of the issuer
- Limits on illiquidity—No more than 15% can be invested in illiquid assets

In addition, under the Investment Advisers Act of 1940, performance-based fees must be symmetric.

As a result of the illiquidity and complexity premiums, performance returns and characteristics are expected to vary between liquid alternative mutual funds and private placements. In our view, when implementing liquid alternatives in a diversified portfolio, they should not be considered a one-to-one substitute for traditional hedge funds. Our new guidance will reflect these differences in product types.

It is important to remember that only "accredited investors" or "qualified purchasers" within the meaning of U.S. securities laws can invest in private placements. This means investors must have a minimum level of income, assets, or net worth to be eligible. They may also need to meet other qualification requirements. Like all mutual funds, liquid alternative funds are regulated under the 1940 Act, and are open to all investors. As such, they are regulated in their use of leverage and have required levels of liquidity and diversification. Mutual funds must value their portfolios and price their securities daily using fair value guidelines. Hedge funds, on the other hand, face less regulation and are not required to provide investors with periodic pricing or valuation. This allows them a great deal of flexibility but may increase the risks for investors. It is also important to note that liquid alternative mutual funds typically have higher fees than traditional mutual funds but their fees are lower than those of private placement hedge funds.

Liquid alternatives are designed to provide retail investors access to strategies utilized by hedge funds and provide investors an "alternative" way to add returns less correlated to traditional assets such as stock, bonds and cash and improve diversification. Relative to broad, long-only traditional asset class mutual funds, liquid alternatives may employ more complex strategies including hedging and leveraging through short selling and derivatives and might invest in assets such as global real estate, commodities, leveraged loans, start-up companies and unlisted securities. Although liquid alternatives may seek to mimic hedge fund strategies, these funds cannot fully duplicate the broad hedge fund industry. Moreover, the regulatory structure under which liquid alternatives are governed may affect their return potential. As noted above, among other things, their use of leverage, investments in illiquid securities and concentration limits are curtailed and thus they are not able to employ hedge fund strategies as fully as private placement vehicles.

Investors should fully understand the strategies and risks of any liquid alternative mutual fund they are considering and keep in mind that many of them have limited performance histories so it is not known how they might perform in a down market. Please see the end of this report for other risks associated with these funds and for a description of the hedge fund and liquid alternative hedge fund replication strategies.

Because of the illiquid and complex nature of private placement hedge funds, Wells Fargo Investment Institute will no longer provide tactical percentage guidance for these asset classes. We will instead provide guidance that may be incorporated into portfolios over a longer period of time.

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For more information, please request our most recent *Global Alternatives Outlook* or our *Investment Strategy* report.

Currency Guidance

The U.S. dollar versus developed market currencies

Market observations and outlook

The U.S. Dollar Index (DXY) corrected lower in October, ending the month -2.0% at 97.35. The dollar's weakness was in reaction to the pound's 5% surge as optimism grew that a no-deal Brexit would be avoided. The euro gained from Brexit optimism, and also from the continued rise in eurozone bond yields. The euro ended October 2.3% higher, at a level above 1.11. Only the yen failed to show strength against the dollar, ending the month little changed, near 108. By year-end, our forecast anticipates a euro range of 1.07–1.15 and a yen range of 101–111, versus the dollar. The DXY level implied by the midpoints of these ranges is near 98, which is close to current spot market trading levels. We expect that the dollar will remain within current broad trading ranges at year-end.

2019 year-end currency targets

	October 31, 2019	2019 YE forecasts	Expected return versus U.S. dollar
Dollars per euro	$1.12	$1.07-$1.15	-0.5%
Yen per dollar	¥108	¥101-¥111	1.9%

Source: Bloomberg, as of October 31, 2019. The 2019 targets are Wells Fargo Investment Institute forecasts, as of November 15, 2019. Forecasts are based on certain assumptions and on our views of market and economic conditions, which are subject to change. See end of report for important definitions and disclosures.

The U.S. dollar versus emerging market currencies

Market observations and outlook

With the dollar's broad weakness in October, most EM currencies did better. The JP Morgan Emerging Markets Currency Index (EMCI) gained 1.2%, and the Morgan Stanley Capital International (MSCI) Emerging Markets Currency Index (an index of currencies mirroring the weighting of the more manufacturing-based MSCI Emerging Markets Index) rose 1.9%. Central European currencies were the best performers—gaining with the euro—and Brazil's real jumped on passage of crucial pension reforms. Only the Argentine peso, on political concerns, and the Chilean peso, pressured by civil unrest, were significantly weaker versus the dollar. We are broadly neutral on EM currencies. It seems unlikely that EM currency indices can rally significantly in the current environment of slowing global growth and rising geopolitical risks, but the current mood of relative optimism on U.S.-China trade talks may limit the downside in the near term.

Currency hedging

Based on our views on the direction of the dollar, we provide our currency-hedging guidance in the matrix below. We no longer recommend strategic allocations to DM fixed income in local currency, and we do not favor taking tactical positions at this time. For those who wish to hold DM fixed income positions, we do not recommend hedging any portion of these holdings, since our outlook for DM currencies over the coming year is broadly neutral. While we acknowledge that wide currency swings remain possible in the current uncertain environment, our strategic benchmark is unhedged (that is, taking the exposure to DM currencies), so we would require greater conviction that the U.S. dollar would appreciate strongly before suggesting hedging some of this currency risk.

For EM fixed income, the strategic benchmark consists exclusively of dollar-denominated sovereign EM bonds—so our favorable stance on this debt class and our relatively neutral view on the dollar versus EM local currencies suggest that hedging is unnecessary.

Hedging matrix

Asset class	Strategic benchmark	Currency advice
Developed Market Ex-U.S. Fixed Income	N/A*	No hedge
Developed Market Ex-U.S. Equities	Local currency	No hedge
Emerging Market Fixed Income	U.S. dollar	No hedge
Emerging Market Equities	Local currency	No hedge

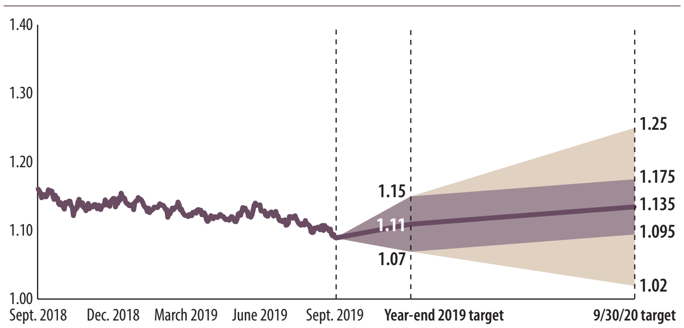
Source: Wells Fargo Investment Institute, November 15, 2019. The table above provides guidance for investors who want and are able to hedge against currency losses, or to take advantage of the dollar's move in either direction. Please note that implementation may vary according to the hedging instruments available to investors.

*We no longer recommend strategic allocations and do not favor tactical allocations at this time to Developed Market Ex-U.S. Fixed Income. Hedging guidance applies to those who wish to hold these assets.

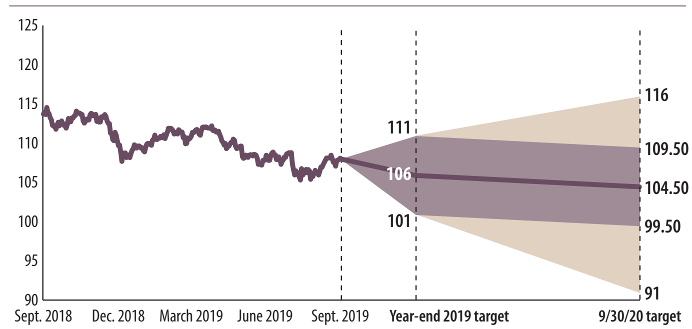
We do not favor hedging currency risk for equities at this time. The hurdle to hedging currency risk is higher for equities than for bonds because, in equity markets, currency movements have had a smaller influence on total return than for fixed income. Further, the cost and complexity of currency hedging for equities may be greater. It is important to consider that many actively managed mutual funds already may incorporate an element of currency hedging. In addition, the cost of hedging against losses from EM currencies is far higher than for those of DMs, and the availability of efficient hedging instruments is limited.

Rolling 12-month forecasts

Dollar/euro exchange rate ($)



Yen/dollar exchange rate (¥)



Past performance is no guarantee of future results. Conviction range definitions are on page 5.

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Investment Themes and Actions for 2019

Theme	Trends	Strategic (long-term investments)	Tactical (short-term opportunities)
China's Place in the World	The U.S.-China trade dispute highlights China's rising global prominence, prompting questions about its motivation and ability to displace U.S. global economic leadership. China's economic reforms have helped to raise the global reach of its financial markets and the yuan. As China's economy and global influence advance over the next few years, we anticipate continued anxiety in the West but also long-term opportunities.	For investors who seek to benefit from China's economic development, we recommend considering a diversified allocation to EMs. Newfound access to Chinese capital markets could enable investors to capitalize upon long-term growth opportunities as China's economy evolves. We expect that the yuan's low utilization as a trade, savings, and payment currency may hinder its long-term prospects as a dominant global store of value. Yet, this view could change as Beijing expands foreign access to its financial markets.	We currently hold a neutral view on EM equities. We believe that investors should align their EM equity exposure with their strategic allocations (and long-term goals).
Reimagining Retirement	Traditionally, retirement meant leaving behind a 9-to-5 job and spending time with family, volunteering, or traveling. But that may be changing. Today, as individuals evaluate (and plan for) retirement, many wonder if they can afford it. For some, a job may be necessary; for others, working part-time offers the opportunity to stay engaged and postpone dipping into savings. We believe today's retirees should consider plans for a long retirement, as many people could risk outliving their retirement assets without a well-crafted retirement plan.	For workers who truly want to retire, developing the habit of saving early makes the task of achieving that goal more attainable. We suggest a strategic asset allocation that includes fixed income, equities, real assets, and alternative investments, based on long-term objectives. We believe that younger workers should take advantage of time and start saving for retirement today. We recommend investors consider rebalancing portfolios regularly to account for shifts in sentiment and asset values.	We believe that equity holdings are vital for most retirement accounts. Investors may consider owning a mix of dividend-paying and value-tilted stocks for income, along with growth stocks for capital appreciation potential and to offset inflation. Workers nearing retirement age may be able to take advantage of annual "catch up" contributions in defined contribution plans. The IRS allows workers age 50 and older to make additional tax-deferred contributions to these plans.
How Bull Markets End	U.S. equity markets have been volatile in recent quarters—prompting many investors to wonder if the current bull market might soon come to an end. In October 2019, the U.S. economic expansion reached 126 months, its longest expansion since the mid-19th century. This expansion has been accompanied by the longest bull market on record. Since bear markets are a normal part of the market cycle, investors should expect to experience them periodically—and plan accordingly.	We recommend considering a mix of active and passive strategies suitable for current market trends and investor situations. We believe that most investors should maintain equity exposure, since the latter years of an economic cycle and bull market have tended to be strong. Investors also may want to hold global exposure, as overseas markets appear more attractively valued. We recommend investors consider using high-quality bonds for income and to help offset market volatility. We believe that investors should properly diversify their portfolios. Further, regularly rebalancing back to strategic weights can help to prepare a portfolio for a market correction or economic downturn.	Investors may want to hold appropriate levels of cash alternatives and deploy cash selectively—as volatility can create opportunities. As the expansion matures, we recommend investors consider more selectivity in fixed-income holdings, by raising average credit quality and positioning portfolio duration above that of their individually selected benchmarks. At this point in the cycle, we favor the Financials and Information Technology sectors. We also favor the Consumer Discretionary sector, which should benefit from solid consumer spending.

Tactical Guidance

Recommended tactical guidance

Raised U.S. Taxable Investment Grade Fixed Income and U.S. Intermediate Term Taxable Fixed Income to favorable from neutral. Reduced Cash Alternatives to neutral.

The strategic (neutral) asset allocations are based on long-term strategies. However, capital markets tend to move in cycles, and there may be short-term opportunities to enhance the risk/return relationship within a portfolio by temporarily adjusting the strategic allocations. The tactical asset allocation adjustments are designed to provide guidance on shorter-term (6–18 months) weightings in the portfolio. The minimum position of any asset class is zero, meaning that no short selling is permitted. The maximum position of all asset classes together is 100%, meaning that no leverage is permitted. The actual extent of the recommended tactical adjustments is a judgment call. It should be enough to make a difference without crowding out other assets or creating a vacuum. Also, all the tactical recommendations have to be considered together. It would not be mathematically possible to underallocate two asset groups while maintaining over-allocations in the other two. Adjustments must be made to bring all the broad asset classes into a proper relationship. These are guidelines to be used prudently for investors with temperaments that agree with a more aggressive, tactical investment style.

Additional asset class guidance

Consider long/short equity strategies: These strategies can provide diversification in an equity portfolio by utilizing both long and short exposures to the asset class. While they can provide diversification, investors should expect higher tracking error (extent to which the strategy's returns have differed from its benchmark) to traditional benchmarks from these strategies. Prudent use through controlled allocations is recommended.

Most unfavorable	Unfavorable	Neutral	Favorable	Most favorable
		Cash and fixed income		
	High Yield Taxable Fixed Income Developed Market Ex.-U.S. Fixed Income	Cash Alternatives** Emerging Market Fixed Income U.S. Long Term Taxable Fixed Income	U.S. Short Term Taxable Fixed Income U.S. Taxable Investment Grade Fixed Income** U.S. Intermediate Term Taxable Fixed Income**	
		Equities		
	U.S. Small Cap Equities	Developed Market Ex.-U.S. Equities Emerging Market Equities U.S. Large Cap Equities U.S. Mid Cap Equities		
		Real assets		
	Private Real Estate	Commodities		
		Alternative investments*		
		Hedge Funds–Macro Hedge Funds–Event Driven Private Equity	Hedge Funds–Relative Value Hedge Funds–Equity Hedge	

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**Changed this month.

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Tactical Guidance

Tactical guidance summary

	Asset class	Guidance: Most unfavorable		Guidance: Neutral		Guidance: Most favorable	Rationale and further detail
FIXED INCOME	▲ U.S. Taxable Investment Grade Fixed Income	□	□	□	■	□	Our economic growth and inflation expectations remain modest. While we believe that total return expectations should be tempered, high-quality fixed income remains an important diversifier and can provide a portfolio shock absorber in times of market stress.
	U.S. Short Term Taxable	□	□	□	■	□	Short-term interest rates have fallen in recent months as the Fed has cut the fed funds rate. We are favorable, and we continue to see U.S. Short Term Taxable Fixed Income as an attractive alternative to excess holdings of cash alternatives in portfolios.
	▲ U.S. Intermediate Term Taxable	□	□	□	■	□	Modest growth and inflation expectations, along with a dovish Fed, support our favorable view on U.S. Intermediate Term Taxable Fixed Income.
	U.S. Long Term Taxable	□	□	■	□	□	Modest growth and inflation expectations, along with a dovish Fed, also support our neutral allocation to U.S. Long Term Taxable Fixed Income. Long-dated, high-quality fixed income can be a portfolio diversifier that historically has tended to perform well during periods of market stress.
	High Yield Taxable Fixed Income	□	■	□	□	□	We favor higher-quality holdings today. Any "risk-off positioning" driven by market uncertainty, or an unexpected growth slowdown, could result in underperformance. We believe that investors have better risk-adjusted return opportunities elsewhere.
	Developed Market Ex-U.S. Fixed Income	□	■	□	□	□	Sovereign yields (outside the U.S.) should remain low relative to Treasury yields. We no longer recommend strategic allocations to this bond class. In this context, a rating of unfavorable means that we do not favor tactically allocating to this fixed-income class at this time.
	Emerging Market Fixed Income	□	□	■	□	□	With valuations having moderated and slightly reduced EM growth expectations, we are now neutral, although relatively high yields and a resilient macro environment should provide some support.
EQUITIES	U.S. Large Cap Equities	□	□	■	□	□	We are neutral on large-cap equities, and we have taken a more conservative sector stance over the past six months. Trade tensions and global growth could negatively affect equity markets, sentiment, and capital expenditures. We expect volatility to be elevated in the near term.
	U.S. Mid Cap Equities	□	□	■	□	□	This equity class differs from other U.S. classes, because it offers better financial metrics than small caps overall (i.e., stronger balance sheets and more stable earnings), while mid-cap revenues are more U.S.-centric than those of large caps.
	U.S. Small Cap Equities	□	■	□	□	□	Small caps dramatically missed earnings estimates in the past few quarters. Small-cap companies tend to be more susceptible to costs from rising wages and tariff-induced input price increases than larger firms typically are. Weaker balance sheets and less share buyback potential are among other challenges.
	Developed Market (DM) Ex.-U.S. Equities	□	□	■	□	□	The outlook for this equity class is highly dependent on trade negotiations and global growth, and it would likely benefit from any resolution or an easing of trade tensions. DMs remain challenged by slow economic growth and political uncertainty.
	Emerging Market Equities	□	□	■	□	□	Most EM economies are heavily export-based and closely tied to global growth. They also tend to be negatively affected by a stronger U.S. dollar. EM equities historically have been correlated to commodity prices, which have been declining. Continued risks to the international outlook have overshadowed fundamental positives.
REAL ASSETS	Commodities	□	□	■	□	□	Commodities continue to stagnate, and we foresee balanced upside and downside risks over the next 12 months. We do not favor tactical positions at this time.
	Private Real Estate*	□	■	□	□	□	We believe that risks are rising in the aging economic cycle—and that they have the potential to negatively impact this sector. Private Real Estate funds feature a variety of strategies with differing risk/return profiles. At this point in the cycle, we are more constructive on value-add and opportunistic strategies that emphasize investment in multifamily real estate.
ALTERNATIVE INVESTMENTS*	Hedge Funds–Relative Value*	□	□	□	■	□	We favor the less-directional nature of Relative Value at a time when we see credit risk increasing. In times of stress, investors often favor securitized products, which can benefit managers focused on asset-backed securities.
	Hedge Funds–Macro*	□	□	■	□	□	We maintain a neutral view on Macro strategies. Over a full market cycle, we believe that investors can benefit from the strategy's low correlation to traditional long-only stock and bond investments. We remain more constructive on the Discretionary strategy, given its more tactical, nimble approach.
	Hedge Funds–Event Driven*	□	□	■	□	□	We are neutral on Event Driven strategies. We favor the Distressed strategy as we see a number of idiosyncratic opportunities that may lead to attractive entry points, especially as we approach the latter stages of the cycle.
	Hedge Funds–Equity Hedge*	□	□	□	■	□	We believe that the environment for equity security selection is supportive. While we remain cognizant of global equity risks, we believe that established trends, such as stocks reacting to fundamentals, are likely to be performance tailwinds.
	Private Equity*	□	□	■	□	□	We maintain a neutral view on Private Equity; however, we see opportunities within niche strategies focused on Asia and certain idiosyncratic sectors, such as Energy.

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Capital Market Assumptions

Fixed income, equities, real assets and alternative investments

Annual update; as of July 2019

Capital market and asset class assumptions are estimates of how asset classes may respond during various market environments. For example, **downside risk** is based on our assumptions about average returns and the variability of returns. It represents the minimum return that would be statistically likely in 95% of annual returns. In other words, in 19 out of 20 years, performance would likely be better than this figure and in the twentieth year it would likely be worse. There is no guarantee that any particular 20-year period would follow this pattern. **Hypothetical returns** represent our estimate of likely average returns over the next several market cycles. They do not represent the returns that an investor should expect in any particular year. **Geometric return** is the compounded annual growth rate of an investment (asset class or portfolio) over a specified period of time longer than one year. **Standard deviation** is a measure of volatility. It reflects the degree of variability surrounding the outcome of an investment decision; the higher the standard deviation, the greater the risk. **Yield** on a bond assumes constant maturity. **Dividend yield** on an equity or real-asset investment represents the projected dividend as a percentage of the purchase price. The assumptions are not designed to predict actual performance, and there are no assurances that any estimates used will be achieved. The information given has been provided as a guide to help with investment planning and does not represent the maximum loss a portfolio could experience.

Capital market assumptions (%)

	Asset class	Hypothetical arithmetic return	Hypothetical geometric return	Hypothetical standard deviation or risk	Yield or dividend yield	Downside risk
	Inflation	2.25				
	Cash Alternatives	2.25	2.2	1.0	2.2	0.6
FIXED INCOME	U.S. Short Term Taxable Fixed Income	2.7	2.7	1.5	2.7	0.2
	U.S. Intermediate Term Taxable Fixed Income	3.6	3.5	3.8	3.5	-2.4
	U.S. Long Term Taxable Fixed Income	4.3	3.8	9.5	3.8	-10.6
	High Yield Taxable Fixed Income	6.4	5.8	11.5	5.8	-11.4
	Short Term Tax Exempt Fixed Income	2.3	2.3	1.8	2.3	-0.6
	Intermediate Term Tax Exempt Fixed Income	3.1	3.0	4.3	3.0	-3.8
	Long Term Tax Exempt Fixed Income	3.6	3.5	5.5	3.5	-5.2
	High Yield Tax Exempt Fixed Income	5.5	5.1	8.3	5.1	-7.5
	Developed Market ex.-U.S. Fixed Income	3.2	2.9	8.3	2.9	-9.7
	Emerging Market Fixed Income	6.8	6.2	11.5	6.2	-11.0
	Inflation-Linked Fixed Income	3.2	3.0	6.5	3.0	-7.1
	Preferred Stock	4.6	3.9	12.0	3.9	-13.9
EQUITIES	U.S. Large Cap Equities	8.6	7.4	16.0	2.1	-15.6
	U.S. Mid Cap Equities	9.6	8.3	17.0	1.8	-16.0
	U.S. Small Cap Equities	10.3	8.5	20.0	1.5	-19.3
	Developed Market ex.-U.S. Equities	8.7	7.4	17.0	3.0	-16.9
	Developed Market ex.-U.S. Small Cap Equities	9.7	7.9	20.0	2.5	-19.9
	Emerging Market Equities	11.5	9.2	23.0	2.5	-22.0
	Frontier Market Equities	10.4	8.4	21.0	3.5	-20.5
REAL ASSETS	Public Real Estate	7.9	6.5	17.5	4.0	-18.3
	Private Real Estate*	8.7	7.7	15.0	5.5	-14.1
	Infrastructure	8.3	7.1	16.0	4.3	-15.9
	Master Limited Partnerships	9.2	7.9	17.0	6.3	-16.4
	Timberland	5.3	5.0	7.5	3.0	-6.6
	Commodities	5.5	4.4	15.0	0.0	-17.3
ALTERNATIVE INVESTMENTS*	Hedge Funds—Relative Value	5.3	5.1	5.1	0.0	-2.9
	Hedge Funds—Macro	4.8	4.6	6.0	0.0	-4.8
	Hedge Funds—Event Driven	5.4	5.2	6.5	0.0	-5.0
	Hedge Funds—Equity Hedge	6.1	5.7	8.8	0.0	-7.7
	Global Liquid Alternatives	2.6	2.5	3.5	0.0	-3.1
	Private Equity	11.9	10.1	20.0	0.0	-17.7
	Private Debt	8.9	8.1	14.0	6.8	-12.5

*Alternative investments are not suitable for all investors. 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. Please see end of this report for important definitions and disclosures.

Strategic Allocation

Client Goals	INCOME			GROWTH & INCOME			GROWTH		
Risk Tolerance	Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive

Efficient frontier

An efficient frontier represents the theoretical set of diversified portfolios that attempt to maximize return given a specific level of risk.

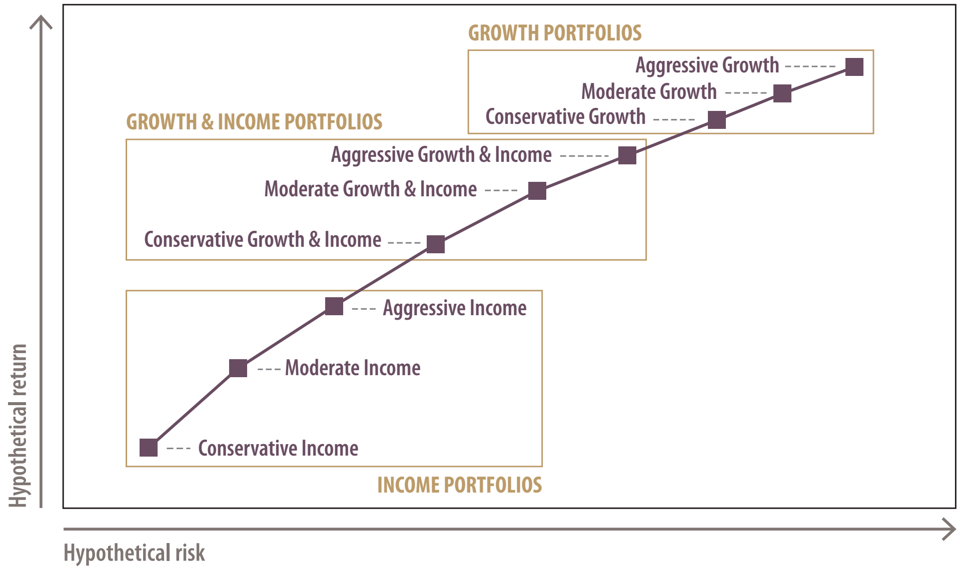


Chart is conceptual and is not meant to reflect any actual returns or represent any specific asset classifications.

Source: Wells Fargo Investment Institute, July 2019

Hedge fund allocations are based on private hedge fund capital market assumptions.

Investment objectives definitions

INCOME

Income portfolios emphasize current income with minimal consideration for capital appreciation and usually have less exposure to more volatile growth assets but can still experience losses.

Conservative Income investors generally assume lower risk, but may still experience losses or have lower expected income returns.

Moderate Income investors are willing to accept a modest level of risk that may result in increased losses in exchange for the potential to receive modest income returns.

Aggressive Income investors seek a higher level of returns and are willing to accept a higher level of risk that may result in greater losses.

GROWTH & INCOME

Growth & Income portfolios emphasize a blend of current income and capital appreciation and usually have some exposure to more volatile growth assets.

Conservative Growth & Income investors generally assume a lower amount of risk, but may still experience losses or have lower expected returns.

Moderate Growth & Income investors are willing to accept a modest level of risk that may result in increased losses in exchange for the potential to receive modest returns.

Aggressive Growth & Income investors seek a higher level of returns and are willing to accept a higher level of risk that may result in greater losses.

GROWTH

Growth portfolios emphasize capital appreciation with minimal consideration for current income and usually have significant exposure to more volatile growth assets.

Conservative Growth investors generally assume a lower amount of risk, but may still experience increased losses or have lower expected growth returns.

Moderate Growth investors are willing to accept a modest level of risk that may result in significant losses in exchange for the potential to receive higher returns.

Aggressive Growth investors seek a higher level of returns and are willing to accept a higher level of risk that may result in more significant losses.

Strategic and Tactical Asset Allocation,

Three asset groups: fixed income, equities, real assets

		CONSERVATIVE			MODERATE			AGGRESSIVE		
		Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
INCOME	CASH ALTERNATIVES	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
	TOTAL FIXED INCOME	85.0	85.0	0.0	72.0	72.0	0.0	64.0	64.0	0.0
	U.S. Taxable Investment Grade Fixed Income	77.0	79.0	2.0	61.0	65.0	4.0	48.0	52.0	4.0
	U.S. Short Term Taxable	28.0	28.0	0.0	19.0	19.0	0.0	8.0	9.0	1.0
	U.S. Intermediate Term Taxable	44.0	46.0	2.0	35.0	38.0	3.0	30.0	33.0	3.0
	U.S. Long Term Taxable	5.0	5.0	0.0	7.0	8.0	1.0	10.0	10.0	0.0
	High Yield Taxable Fixed Income	5.0	3.0	-2.0	6.0	2.0	-4.0	8.0	4.0	-4.0
	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Emerging Market Fixed Income	3.0	3.0	0.0	5.0	5.0	0.0	8.0	8.0	0.0
	TOTAL EQUITIES	12.0	12.0	0.0	25.0	25.0	0.0	33.0	33.0	0.0
	U.S. Large Cap Equities	6.0	6.0	0.0	12.0	14.0	2.0	15.0	17.0	2.0
	U.S. Mid Cap Equities	4.0	4.0	0.0	5.0	5.0	0.0	7.0	7.0	0.0
	U.S. Small Cap Equities	0.0	0.0	0.0	4.0	2.0	-2.0	6.0	4.0	-2.0
	Developed Market Ex-U.S. Equities	2.0	2.0	0.0	4.0	4.0	0.0	5.0	5.0	0.0
	Emerging Market Equities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL REAL ASSETS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GROWTH & INCOME	CASH ALTERNATIVES	3.0	4.0	1.0	3.0	3.0	0.0	3.0	3.0	0.0
	TOTAL FIXED INCOME	53.0	53.0	0.0	43.0	44.0	1.0	35.0	36.0	1.0
	U.S. Taxable Investment Grade Fixed Income	42.0	46.0	4.0	32.0	36.0	4.0	22.0	27.0	5.0
	U.S. Short Term Taxable	7.0	10.0	3.0	4.0	8.0	4.0	2.0	7.0	5.0
	U.S. Intermediate Term Taxable	25.0	28.0	3.0	21.0	23.0	2.0	16.0	18.0	2.0
	U.S. Long Term Taxable	10.0	8.0	-2.0	7.0	5.0	-2.0	4.0	2.0	-2.0
	High Yield Taxable Fixed Income	6.0	2.0	-4.0	6.0	3.0	-3.0	7.0	3.0	-4.0
	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Emerging Market Fixed Income	5.0	5.0	0.0	5.0	5.0	0.0	6.0	6.0	0.0
	TOTAL EQUITIES	44.0	43.0	-1.0	54.0	53.0	-1.0	62.0	61.0	-1.0
	U.S. Large Cap Equities	17.0	19.0	2.0	21.0	23.0	2.0	25.0	27.0	2.0
	U.S. Mid Cap Equities	10.0	10.0	0.0	12.0	12.0	0.0	14.0	14.0	0.0
	U.S. Small Cap Equities	8.0	5.0	-3.0	8.0	5.0	-3.0	8.0	5.0	-3.0
	Developed Market Ex-U.S. Equities	5.0	5.0	0.0	6.0	6.0	0.0	7.0	7.0	0.0
	Emerging Market Equities	4.0	4.0	0.0	7.0	7.0	0.0	8.0	8.0	0.0
	TOTAL REAL ASSETS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Strategic allocations are updated annually; last update was July 16, 2019. Tactical allocations are updated periodically; last update was November 15, 2019.

See next page for Growth data and Portfolio allocations across the efficient frontier, strategic and tactical.

Strategic and Tactical Asset Allocation

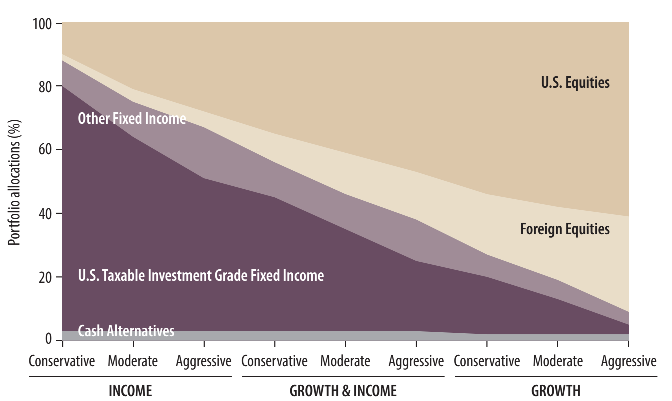
Three asset groups: fixed income, equities, real assets (continued)

GROWTH	CONSERVATIVE			MODERATE			AGGRESSIVE		
	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
CASH ALTERNATIVES	2.0	2.0	0.0	2.0	2.0	0.0	2.0	3.0	1.0
TOTAL GLOBAL FIXED INCOME	25.0	27.0	2.0	17.0	19.0	2.0	7.0	9.0	2.0
U.S. Taxable Investment Grade Fixed Income	18.0	24.0	6.0	11.0	16.0	5.0	3.0	7.0	4.0
Short Term Taxable	4.0	7.0	3.0	2.0	5.0	3.0	0.0	0.0	0.0
Intermediate Taxable	10.0	13.0	3.0	6.0	8.0	2.0	0.0	3.0	3.0
Long Term Taxable	4.0	4.0	0.0	3.0	3.0	0.0	3.0	4.0	1.0
High Yield Taxable Fixed Income	4.0	0.0	-4.0	3.0	0.0	-3.0	2.0	0.0	-2.0
Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Emerging Market Fixed Income	3.0	3.0	0.0	3.0	3.0	0.0	2.0	2.0	0.0
TOTAL GLOBAL EQUITIES	73.0	71.0	-2.0	81.0	79.0	-2.0	91.0	88.0	-3.0
U.S. Large Cap Equities	29.0	31.0	2.0	29.0	31.0	2.0	27.0	29.0	2.0
U.S. Mid Cap Equities	15.0	15.0	0.0	16.0	16.0	0.0	18.0	17.0	-1.0
U.S. Small Cap Equities	10.0	6.0	-4.0	13.0	9.0	-4.0	16.0	12.0	-4.0
Developed Market Ex-U.S. Equities	9.0	9.0	0.0	10.0	10.0	0.0	14.0	14.0	0.0
Emerging Market Equities	10.0	10.0	0.0	13.0	13.0	0.0	16.0	16.0	0.0
TOTAL GLOBAL REAL ASSETS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

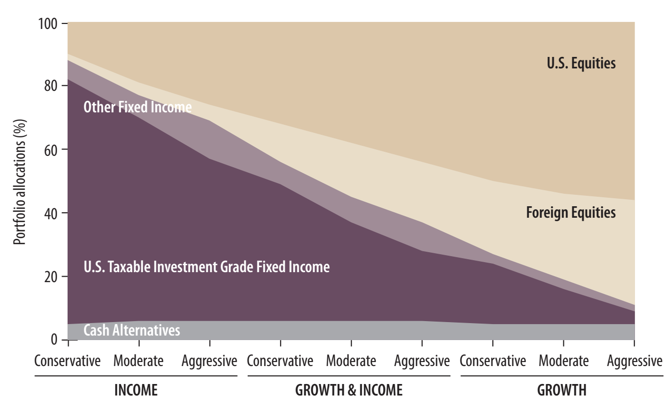
Strategic allocations are updated annually; last update was July 16, 2019. Tactical allocations are updated periodically; last update was November 15, 2019.

These allocations span the set of investments available to investors, utilizing broad diversification to help manage portfolio risk. Special issues such as liquidity, cash flow, and taxability would be taken into consideration in the choice of investment vehicles for each asset class. Depending on their tax bracket and on market conditions, investors may elect taxable or municipal bonds to implement their fixed-income allocation.

Portfolio allocations across the efficient frontier–**strategic**



Portfolio allocations across the efficient frontier–**tactical**



Strategic and Tactical Asset Allocation

Four asset groups: fixed income, equities, real assets, alternative investments (without Private Capital)

		CONSERVATIVE			MODERATE			AGGRESSIVE		
		Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
INCOME	CASH ALTERNATIVES	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
	TOTAL FIXED INCOME	75.0	75.0	0.0	64.0	64.0	0.0	56.0	57.0	1.0
	U.S. Taxable Investment Grade Fixed Income	67.0	69.0	2.0	52.0	56.0	4.0	40.0	45.0	5.0
	U.S. Short Term Taxable	21.0	21.0	0.0	14.0	16.0	2.0	4.0	7.0	3.0
	U.S. Intermediate Term Taxable	41.0	43.0	2.0	31.0	34.0	3.0	26.0	29.0	3.0
	U.S. Long Term Taxable	5.0	5.0	0.0	7.0	6.0	-1.0	10.0	9.0	-1.0
	High Yield Taxable Fixed Income	5.0	3.0	-2.0	7.0	3.0	-4.0	8.0	4.0	-4.0
	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Emerging Market Fixed Income	3.0	3.0	0.0	5.0	5.0	0.0	8.0	8.0	0.0
	TOTAL EQUITIES	13.0	13.0	0.0	21.0	21.0	0.0	29.0	28.0	-1.0
	U.S. Large Cap Equities	7.0	7.0	0.0	10.0	10.0	0.0	11.0	13.0	2.0
	U.S. Mid Cap Equities	4.0	4.0	0.0	5.0	5.0	0.0	9.0	9.0	0.0
	U.S. Small Cap Equities	0.0	0.0	0.0	2.0	2.0	0.0	5.0	2.0	-3.0
	Developed Market Ex-U.S. Equities	2.0	2.0	0.0	4.0	4.0	0.0	4.0	4.0	0.0
	Emerging Market Equities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL REAL ASSETS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL ALTERNATIVE INVESTMENTS*	9.0	9.0	0.0	12.0	12.0	0.0	12.0	12.0	0.0
	Hedge Fund–Relative Value	6.0	6.0	0.0	4.0	4.0	0.0	4.0	4.0	0.0
	Hedge Fund–Macro	3.0	3.0	0.0	5.0	5.0	0.0	5.0	5.0	0.0
	Hedge Fund–Event Driven	0.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
	Hedge Fund–Equity Hedge	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		CONSERVATIVE			MODERATE			AGGRESSIVE		
		Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
GROWTH AND INCOME	CASH ALTERNATIVES	3.0	4.0	1.0	3.0	4.0	1.0	3.0	4.0	1.0
	TOTAL FIXED INCOME	43.0	43.0	0.0	33.0	33.0	0.0	25.0	25.0	0.0
	U.S. Taxable Investment Grade Fixed Income	34.0	36.0	2.0	22.0	25.0	3.0	13.0	17.0	4.0
	U.S. Short Term Taxable	4.0	5.0	1.0	0.0	2.0	2.0	0.0	3.0	3.0
	U.S. Intermediate Term Taxable	21.0	24.0	3.0	16.0	19.0	3.0	8.0	11.0	3.0
	U.S. Long Term Taxable	9.0	7.0	-2.0	6.0	4.0	-2.0	5.0	3.0	-2.0
	High Yield Taxable Fixed Income	5.0	3.0	-2.0	6.0	3.0	-3.0	6.0	2.0	-4.0
	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Emerging Market Fixed Income	4.0	4.0	0.0	5.0	5.0	0.0	6.0	6.0	0.0
	TOTAL EQUITIES	40.0	39.0	-1.0	49.0	48.0	-1.0	57.0	56.0	-1.0
	U.S. Large Cap Equities	13.0	15.0	2.0	20.0	22.0	2.0	22.0	24.0	2.0
	U.S. Mid Cap Equities	10.0	10.0	0.0	10.0	10.0	0.0	12.0	12.0	0.0
	U.S. Small Cap Equities	8.0	5.0	-3.0	8.0	5.0	-3.0	10.0	7.0	-3.0
	Developed Market Ex-U.S. Equities	5.0	5.0	0.0	6.0	6.0	0.0	7.0	7.0	0.0
	Emerging Market Equities	4.0	4.0	0.0	5.0	5.0	0.0	6.0	6.0	0.0
	TOTAL REAL ASSETS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL ALTERNATIVE INVESTMENTS*	14.0	14.0	0.0	15.0	15.0	0.0	15.0	15.0	0.0
	Hedge Fund–Relative Value	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
	Hedge Fund–Macro	6.0	6.0	0.0	6.0	6.0	0.0	6.0	6.0	0.0
	Hedge Fund–Event Driven	3.0	3.0	0.0	4.0	4.0	0.0	4.0	4.0	0.0
	Hedge Fund–Equity Hedge	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0

Strategic allocations are updated annually; last update was July 16, 2019. Tactical allocations are updated periodically; last update was November 15, 2019. Hedge fund allocations are based on private hedge fund capital market assumptions.

See next page for Growth data and Portfolio allocations across the efficient frontier, strategic and tactical.

*Alternative investments are not suitable for all investors. 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. Please see end of this report for important definitions and disclosures.

Strategic and Tactical Asset Allocation

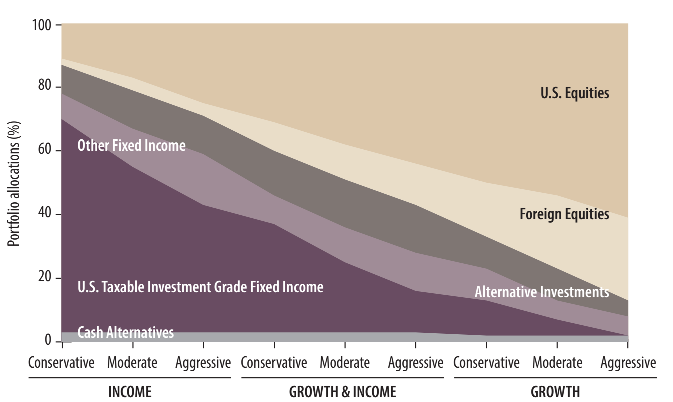
Four asset groups: fixed income, equities, real assets, alternative investments (without Private Capital) (continued)

		CONSERVATIVE			MODERATE			AGGRESSIVE		
		Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
GROWTH	CASH ALTERNATIVES	2.0	2.0	0.0	2.0	3.0	1.0	2.0	2.0	0.0
	TOTAL FIXED INCOME	21.0	23.0	2.0	11.0	12.0	1.0	6.0	8.0	2.0
	U.S. Taxable Investment Grade Fixed Income	11.0	18.0	7.0	5.0	9.0	4.0	0.0	5.0	5.0
	U.S. Short Term Taxable	0.0	6.0	6.0	0.0	4.0	4.0	0.0	2.0	2.0
	U.S. Intermediate Term Taxable	8.0	10.0	2.0	3.0	5.0	2.0	0.0	3.0	3.0
	U.S. Long Term Taxable	3.0	2.0	-1.0	2.0	0.0	-2.0	0.0	0.0	0.0
	High Yield Taxable Fixed Income	5.0	0.0	-5.0	3.0	0.0	-3.0	3.0	0.0	-3.0
	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Emerging Market Fixed Income	5.0	5.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
	TOTAL EQUITIES	67.0	65.0	-2.0	77.0	75.0	-2.0	87.0	85.0	-2.0
	U.S. Large Cap Equities	24.0	26.0	2.0	25.0	27.0	2.0	25.0	27.0	2.0
	U.S. Mid Cap Equities	14.0	14.0	0.0	15.0	15.0	0.0	19.0	19.0	0.0
	U.S. Small Cap Equities	12.0	8.0	-4.0	14.0	10.0	-4.0	17.0	13.0	-4.0
	Developed Market Ex-U.S. Equities	9.0	9.0	0.0	11.0	11.0	0.0	13.0	13.0	0.0
	Emerging Market Equities	8.0	8.0	0.0	12.0	12.0	0.0	13.0	13.0	0.0
	TOTAL REAL ASSETS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL ALTERNATIVE INVESTMENTS*	10.0	10.0	0.0	10.0	10.0	0.0	5.0	5.0	0.0
	Hedge Fund–Relative Value	2.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0
	Hedge Fund–Macro	6.0	6.0	0.0	6.0	6.0	0.0	3.0	3.0	0.0
	Hedge Fund–Event Driven	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Hedge Fund–Equity Hedge	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0

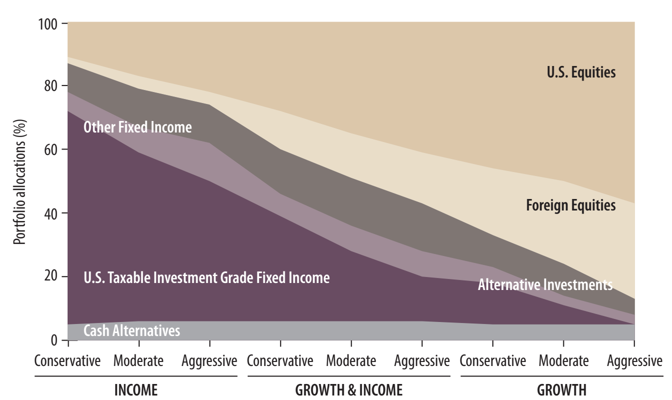
Strategic allocations are updated annually; last update was July 16, 2019. Tactical allocations are updated periodically; last update was November 15, 2019. Hedge fund allocations are based on private hedge fund capital market assumptions.

These allocations span the set of investments available to investors, utilizing broad diversification to help manage portfolio risk. Special issues such as liquidity, cash flow, and taxability would be taken into consideration in the choice of investment vehicles for each asset class. Depending on their tax bracket and on market conditions, investors may elect taxable or municipal bonds to implement their fixed income allocation. The tactical asset allocation overweights and underweights are designed to provide guidance on shorter-term (6–18 months) weightings in the portfolio.

Portfolio allocations across the efficient frontier–**strategic**



Portfolio allocations across the efficient frontier–**tactical**



*Alternative investments are not suitable for all investors. 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. Please see end of this report for important definitions and disclosures.

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Strategic and Tactical Asset Allocation

Four asset groups: fixed income, equities, real assets, alternative investments

		CONSERVATIVE			MODERATE			AGGRESSIVE		
		Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
INCOME	CASH ALTERNATIVES	3.0	3.0	0.0	3.0	4.0	1.0	3.0	3.0	0.0
	TOTAL FIXED INCOME	71.0	71.0	0.0	60.0	59.0	-1.0	52.0	52.0	0.0
	U.S. Taxable Investment Grade Fixed Income	62.0	64.0	2.0	48.0	49.0	1.0	36.0	40.0	4.0
	U.S. Short Term Taxable	20.0	20.0	0.0	12.0	13.0	1.0	2.0	3.0	1.0
	U.S. Intermediate Term Taxable	37.0	40.0	3.0	29.0	29.0	0.0	25.0	28.0	3.0
	U.S. Long Term Taxable	5.0	4.0	-1.0	7.0	7.0	0.0	9.0	9.0	0.0
	High Yield Taxable Fixed Income	6.0	4.0	-2.0	7.0	5.0	-2.0	8.0	4.0	-4.0
	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Emerging Market Fixed Income	3.0	3.0	0.0	5.0	5.0	0.0	8.0	8.0	0.0
	TOTAL EQUITIES	10.0	10.0	0.0	20.0	20.0	0.0	27.0	27.0	0.0
	U.S. Large Cap Equities	6.0	6.0	0.0	10.0	12.0	2.0	11.0	13.0	2.0
	U.S. Mid Cap Equities	2.0	2.0	0.0	4.0	4.0	0.0	8.0	8.0	0.0
	U.S. Small Cap Equities	0.0	0.0	0.0	2.0	0.0	-2.0	4.0	2.0	-2.0
	Developed Market Ex-U.S. Equities	2.0	2.0	0.0	4.0	4.0	0.0	4.0	4.0	0.0
	Emerging Market Equities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL REAL ASSETS	5.0	5.0	0.0	6.0	6.0	0.0	7.0	7.0	0.0
	Private Real Estate*	5.0	5.0	0.0	6.0	6.0	0.0	7.0	7.0	0.0
	Commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL ALTERNATIVE INVESTMENTS*	11.0	11.0	0.0	11.0	11.0	0.0	11.0	11.0	0.0
	Hedge Funds–Relative Value	5.0	5.0	0.0	5.0	5.0	0.0	5.0	5.0	0.0
	Hedge Funds–Macro	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
	Hedge Funds–Event Driven	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
	Hedge Funds–Equity Hedge	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Private Equity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GROWTH AND INCOME	CASH ALTERNATIVES	3.0	4.0	1.0	3.0	3.0	0.0	3.0	4.0	1.0
	TOTAL FIXED INCOME	42.0	41.0	-1.0	33.0	34.0	1.0	26.0	26.0	0.0
	U.S. Taxable Investment Grade Fixed Income	31.0	34.0	3.0	21.0	28.0	7.0	14.0	20.0	6.0
	U.S. Short Term Taxable	4.0	6.0	2.0	0.0	6.0	6.0	0.0	4.0	4.0
	U.S. Intermediate Term Taxable	20.0	21.0	1.0	16.0	19.0	3.0	9.0	11.0	2.0
	U.S. Long Term Taxable	7.0	7.0	0.0	5.0	3.0	-2.0	5.0	5.0	0.0
	High Yield Taxable Fixed Income	6.0	2.0	-4.0	6.0	0.0	-6.0	6.0	0.0	-6.0
	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Emerging Market Fixed Income	5.0	5.0	0.0	6.0	6.0	0.0	6.0	6.0	0.0
	TOTAL EQUITIES	34.0	34.0	0.0	41.0	40.0	-1.0	48.0	47.0	-1.0
	U.S. Large Cap Equities	14.0	16.0	2.0	18.0	20.0	2.0	22.0	24.0	2.0
	U.S. Mid Cap Equities	8.0	8.0	0.0	8.0	8.0	0.0	8.0	8.0	0.0
	U.S. Small Cap Equities	4.0	2.0	-2.0	5.0	2.0	-3.0	6.0	3.0	-3.0
	Developed Market Ex-U.S. Equities	5.0	5.0	0.0	6.0	6.0	0.0	7.0	7.0	0.0
	Emerging Market Equities	3.0	3.0	0.0	4.0	4.0	0.0	5.0	5.0	0.0
	TOTAL REAL ASSETS	5.0	5.0	0.0	6.0	6.0	0.0	6.0	6.0	0.0
	Private Real Estate*	5.0	5.0	0.0	6.0	6.0	0.0	6.0	6.0	0.0
	Commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL ALTERNATIVE INVESTMENTS*	16.0	16.0	0.0	17.0	17.0	0.0	17.0	17.0	0.0
	Hedge Funds–Relative Value	4.0	4.0	0.0	3.0	3.0	0.0	2.0	2.0	0.0
	Hedge Funds–Macro	4.0	4.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
	Hedge Funds–Event Driven	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
	Hedge Funds–Equity Hedge	0.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
	Private Equity	6.0	6.0	0.0	7.0	7.0	0.0	8.0	8.0	0.0

Strategic allocations are updated annually; last update was July 16, 2019. Tactical allocations are updated periodically; last update was November 15, 2019. Hedge fund allocations are based on private hedge fund capital market assumptions.

See next page for Growth data and Portfolio allocations across the efficient frontier, strategic and tactical.

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Strategic and Tactical Asset Allocation

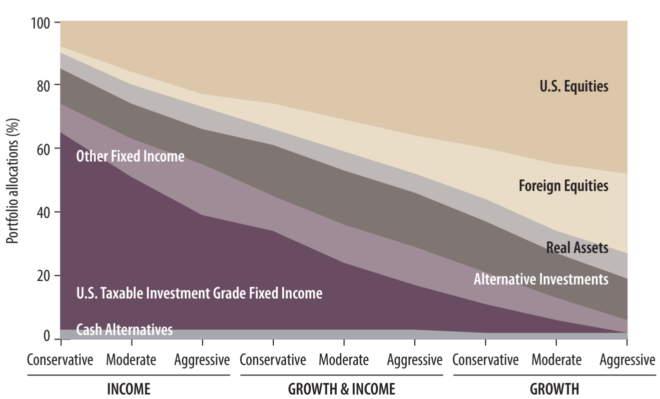
Four asset groups: fixed income, equities, real assets, alternative investments (continued)

GROWTH	CONSERVATIVE			MODERATE			AGGRESSIVE		
	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
CASH ALTERNATIVES	2.0	3.0	1.0	2.0	3.0	1.0	2.0	3.0	1.0
TOTAL FIXED INCOME	19.0	20.0	1.0	11.0	13.0	2.0	4.0	6.0	2.0
U.S. Taxable Investment Grade Fixed Income	9.0	15.0	6.0	4.0	9.0	5.0	0.0	4.0	4.0
U.S. Short Term Taxable	0.0	4.0	4.0	0.0	4.0	4.0	0.0	4.0	4.0
U.S. Intermediate Term Taxable	7.0	9.0	2.0	2.0	5.0	3.0	0.0	0.0	0.0
U.S. Long Term Taxable	2.0	2.0	0.0	2.0	0.0	-2.0	0.0	0.0	0.0
High Yield Taxable Fixed Income	5.0	0.0	-5.0	4.0	0.0	-4.0	2.0	0.0	-2.0
Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Emerging Market Fixed Income	5.0	5.0	0.0	3.0	4.0	1.0	2.0	2.0	0.0
TOTAL EQUITIES	56.0	54.0	-2.0	66.0	63.0	-3.0	73.0	70.0	-3.0
U.S. Large Cap Equities	24.0	26.0	2.0	24.0	26.0	2.0	24.0	26.0	2.0
U.S. Mid Cap Equities	9.0	9.0	0.0	13.0	12.0	-1.0	15.0	14.0	-1.0
U.S. Small Cap Equities	7.0	3.0	-4.0	8.0	4.0	-4.0	9.0	5.0	-4.0
Developed Market Ex-U.S. Equities	9.0	9.0	0.0	11.0	11.0	0.0	12.0	12.0	0.0
Emerging Market Equities	7.0	7.0	0.0	10.0	10.0	0.0	13.0	13.0	0.0
TOTAL REAL ASSETS	7.0	7.0	0.0	7.0	7.0	0.0	8.0	8.0	0.0
Private Real Estate*	7.0	7.0	0.0	7.0	7.0	0.0	8.0	8.0	0.0
Commodities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL ALTERNATIVE INVESTMENTS*	16.0	16.0	0.0	14.0	14.0	0.0	13.0	13.0	0.0
Hedge Funds–Relative Value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hedge Funds–Macro	3.0	3.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0
Hedge Funds–Event Driven	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hedge Funds–Equity Hedge	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Private Equity	9.0	9.0	0.0	10.0	10.0	0.0	11.0	11.0	0.0

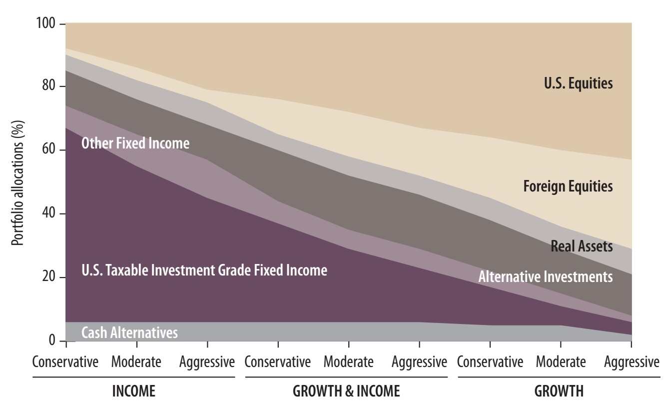
Strategic allocations are updated annually; last update was July 16, 2019. Tactical allocations are updated periodically; last update was November 15, 2019. Hedge fund allocations are based on private hedge fund capital market assumptions.

These allocations span the set of investments available to investors, utilizing broad diversification to help manage portfolio risk. Special issues such as liquidity, cash flow, and taxability would be taken into consideration in the choice of investment vehicles for each asset class. Depending on their tax bracket and on market conditions, investors may elect taxable or municipal bonds to implement their fixed income allocation. The tactical asset allocation overweights and underweights are designed to provide guidance on shorter-term (6–18 months) weightings in the portfolio.

Portfolio allocations across the efficient frontier–strategic



Portfolio allocations across the efficient frontier–tactical



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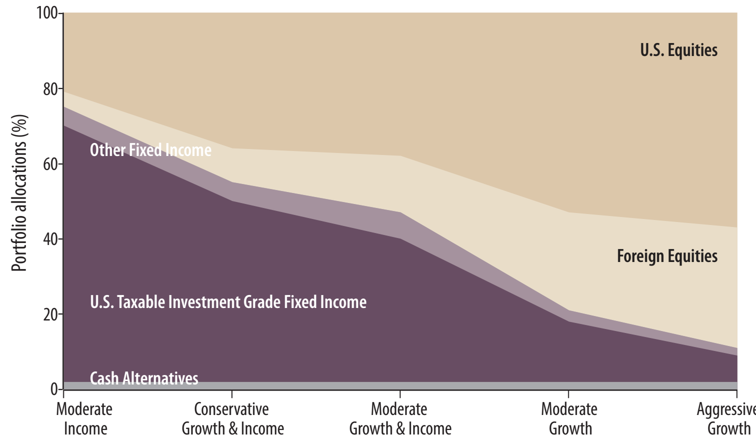
Cyclical Asset Allocation

Three asset groups: fixed income, equities, real assets

Quarterly update; as of October 2019

Our cyclical asset allocation process is based on a rolling three-year outlook—which means that the Global Investment Strategy Committee evaluates how the portfolios are expected to perform over the next 36 months based on asset valuations as well as economic and market outlooks. The cyclical approach is driven by fundamental valuations, which can lead to entering and exiting positions as opportunities arise. Over time, this approach may help avoid chasing unsustainable market swings driven by fear and greed near the end of cyclical declines or advances.

Portfolio allocations across the efficient frontier



Cyclical asset allocation mixes (%)

		Moderate Income	Conservative Growth & Income	Moderate Growth & Income	Moderate Growth	Aggressive Growth
	Cash Alternatives	2	2	2	2	2
FIXED INCOME	Total Fixed Income	75	55	46	21	11
	U.S. Short Term Taxable Fixed Income	23	11	8	5	5
	U.S. Intermediate Term Taxable Fixed Income	33	23	18	3	0
	U.S. Long Term Taxable Fixed Income	8	12	9	6	2
	High Yield Taxable Fixed Income	6	4	6	4	2
	Developed Market Ex-U.S. Fixed Income	–	–	–	–	–
	Emerging Market Fixed Income	5	5	5	3	2
EQUITIES	Total Equities	23	43	52	77	87
	U.S. Large Cap Equities	16	21	25	33	32
	U.S. Mid Cap Equities	5	10	12	16	18
	U.S. Small Cap Equities	0	5	4	7	10
	Developed Market Ex-U.S. Equities	2	3	4	8	11
	Emerging Market Equities	0	4	7	13	16
REAL ASSETS	Total Real Assets	0	0	0	0	0
	Commodities	–	–	–	–	–
Total Portfolio		100%	100%	100%	100%	100%

For more information, please request our most recent *Cyclical Asset Allocation Quarterly Report*.

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Disclosures

Forecasts, targets, and estimates are not guaranteed and are based on certain assumptions and on our views of market and economic conditions which are subject to change.

Risk considerations

Past performance does not indicate future results. The value or income associated with a security or an investment may fluctuate. There is always the potential for loss as well as gain. Investments discussed in this report may be unsuitable for some investors depending on their specific investment objectives and financial position.

Asset allocation and diversification are investment methods used to manage risk. They do not assure or guarantee better performance and cannot eliminate the risk of investment losses. Your individual allocation may be different than the strategic long-term allocation above due to your unique individual circumstances, but is targeted to be in the allocation ranges detailed. The asset allocation reflected above may fluctuate based on asset values, portfolio decisions, and account needs.

Liquid alternative mutual funds are subject to market and investment specific risks. Investment returns, volatility and risk vary widely among them. They employ aggressive techniques not employed by traditional stock and bond mutual funds, including the use of short sales, leverage and derivatives. Short sales involve leverage and theoretically unlimited loss potential since the market price of securities sold short may continuously increase. The use of leverage in a portfolio varies by investment strategy. The use of leverage can magnify any price movements resulting in high volatility and potentially significant loss of principal. Derivatives generally have implied leverage and entail risks such as market, interest rate, credit, counterparty and management risks. Some of the strategies employed by liquid alternative mutual funds include equity hedge, event driven, macro and relative value. These strategies may, at times, be out of market favor for considerable periods which can result in adverse consequences for the investor and the fund.

Alternative investments, such as hedge funds, private capital funds, and private real estate funds, carry specific investor qualifications and involve the risk of investment loss, including the loss of the entire amount invested. 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. Government regulation and monitoring of these types of investments may be minimal or nonexistent. There may be no secondary market for alternative investment interests and transferability may be limited or even prohibited.

Private debt strategies seek to actively improve the capital structure of a company often through debt restructuring and deleveraging measures. Such investments are subject to potential default, limited liquidity, the creditworthiness of the private company, and the infrequent availability of independent credit ratings for private companies.

The use of **alternative investment strategies**, such as Equity Hedge, Event Driven, Macro and Relative Value, are speculative and involve a high degree of risk. These strategies may expose investors to risks such as short selling, leverage risk, counterparty risk, liquidity risk, volatility risk, the use of derivatives and other significant risks. Distressed credit strategies invest in, and might sell short, the securities of companies where the security's price has been, or is expected to be, affected by a distressed situation. This may involve reorganizations, bankruptcies, distressed sales, and other corporate restructurings. Investing in distressed companies is speculative and involves a high degree of risk. Because of their distressed situation, these securities may be illiquid, have low trading volumes, and be subject to substantial interest rate and credit risks. Structured credit strategies aim to generate returns via positions in the credit sensitive area of the fixed income markets. The strategy generally involves the purchase of corporate bonds with hedging of interest rate exposure. The use of alternative investment strategies may require a manager's skill in assessing corporate events, the anticipation of future movements in securities prices, interest rates, or other economic factors. No assurance can be given that a manager's view of the economy will be correct which may result in lower investment returns or higher return volatility. Long/short credit strategies seek to mitigate interest rate and credit risks regardless of market environment through investment in credit-related and structured debt vehicles. These strategies involve the use of market hedges and involve risks associated with the use of derivatives, fixed income, foreign investment, currency, hedging, leverage, liquidity, short sales, loss of principal and other material risks.

Equity sector risks: *Communication services* companies are vulnerable to their products and services becoming outdated because of technological advancement and the innovation of competitors. Companies in the communication services sector may also be affected by rapid technology changes; pricing competition, large equipment upgrades, substantial capital requirements and government regulation and approval of products and services. In addition, companies within the industry may invest heavily in research and development which is not guaranteed to lead to successful implementation of the proposed product. Risks associated with the *Consumer Discretionary sector* include, among others, apparel price deflation due to low-cost entries, high inventory levels and pressure from e-commerce players; reduction in traditional advertising dollars; increasing household debt levels that could limit consumer appetite for discretionary purchases. *Consumer Staples industries* can be significantly affected by competitive pricing particularly with respect to the growth of low-cost emerging market production, government regulation, the performance of overall economy, interest rates, and consumer confidence. The *Energy sector* may be adversely affected by changes in worldwide energy prices, exploration, production spending, government regulation, and changes in exchange rates, depletion of natural resources and risks that arise from extreme weather conditions. Investing in *Financial Services companies* will subject a portfolio to adverse economic or regulatory occurrences affecting the sector. Some of the risks associated with investment in the *Health Care sector* include competition on branded products, sales erosion due to cheaper alternatives, research & development risk, government regulations and government approval of products anticipated to enter the market. Risks associated with investing in the *Industrial sector* include the possibility of a worsening in the global economy, acquisition integration risk, operational issues, failure to introduce to market new and innovative products, further weakening in the oil market, potential price wars due to any excesses industry capacity, and a sustained rise in the dollar relative to other currencies. *Materials industries* can be significantly affected by the volatility of commodity prices, the exchange rate between foreign currency and the dollar, export/import concerns, worldwide competition, procurement and manufacturing and cost containment issues. *Technology and Internet-related stocks*, especially of smaller, less-seasoned companies, tend to be more volatile than the overall market. *Real estate* has special risks including the possible illiquidity of underlying properties, credit risk, interest rate fluctuations and the impact of varied economic condition. *Utilities* are sensitive to changes in interest rates and the securities within the sector can be volatile and may underperform in a slow economy.

Investing in **commodities** is not suitable for all investors. Exposure to the commodities markets may subject an investment to greater share price volatility than an investment in traditional equity or debt securities. Investments in commodities may be affected by changes in overall market movements, commodity index volatility, changes in interest rates or factors affecting a particular industry or commodity. Products that invest in commodities may employ more complex strategies which may expose investors to additional risks.

Investments in **fixed-income securities** are subject to market, 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 the decline in the bond's price. Credit risk is the risk that an issuer will default on payments of interest and principal. **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). Municipal securities are also subject to legislative and regulatory risk which is the risk that a change in the tax code could affect the value of taxable or tax-exempt interest income.

Mortgage-related and asset-backed securities are subject to the risks associated with investment in debt securities. In addition, they are subject to prepayment and call risks. Changes in prepayments may significantly affect yield, average life and expected maturity. If called prior to maturity, similar yielding investments may not be available for the Fund to purchase. These risks may be heightened for longer maturity and duration securities.

Currency hedging is a technique used to seek to reduce the risk arising from the change in price of one currency against another. The use of hedging to manage currency exchange rate movements may not be successful and could produce disproportionate gains or losses in a portfolio and may increase volatility and costs.

Equity securities are subject to market risk which means their value may fluctuate in response to general economic and market conditions and the perception of individual issuers. Investments in equity securities are generally more volatile than other types of securities.

Disclosures *(continued)*

There is no guarantee that **dividend-paying stocks** will return more than the overall stock market. Dividends are not guaranteed and are subject to change or elimination. There are no guarantees that **growth** or **value** stocks will increase in value or that their intrinsic values will eventually be recognized by the overall market. The return and principal value of stocks fluctuate with changes in market conditions. The growth and value type of investing tends to shift in and out of favor.

Investing in **foreign securities** presents certain risks that may not be present in domestic securities. For example, investments in foreign, emerging and frontier markets present special risks, including currency fluctuation, the potential for diplomatic and potential instability, regulatory and liquidity risks, foreign taxation and differences in auditing and other financial standards.

Investing in **gold**, **silver** or other precious metals involves special risk considerations such as severe price fluctuations and adverse economic and regulatory developments affecting the sector or industry.

Investing in long/short strategies is not suitable for all investors. Short selling involves sophisticated investment techniques that can add additional risk, and involves the risk of potentially unlimited increase in the market value of the security sold short, which could result in potentially unlimited loss for the Fund.

Master Limited Partnerships (MLPs) involves certain risks which differ from an investment in the securities of a corporation. MLPs may be sensitive to price changes in oil, natural gas, etc., regulatory risk, and rising interest rates. A change in the current tax law regarding MLPs could result in the MLP being treated as a corporation for federal income tax purposes which would reduce the amount of cash flows distributed by the MLP. Other risks include the volatility associated with the use of leverage; volatility of the commodities markets; market risks; supply and demand; natural and man-made catastrophes; competition; liquidity; market price discount from Net Asset Value and other material risks.

There are special risks associated with investing in **preferred securities**. Preferred securities are subject to interest rate and credit risks and are generally subordinated to bonds or other debt instruments in an issuer's capital structure, subjecting them to a greater risk of non-payment than more senior securities. In addition, the issue may be callable which may negatively impact the return of the security. Preferred dividends are not guaranteed and are subject to deferral or elimination.

Investing in **real estate** involves special risks, including the possible illiquidity of the underlying property, credit risk, interest rate fluctuations and the impact of varied economic conditions.

Privately offered **real estate** funds are speculative and involve a high degree of risk. Investments in real estate and real estate investments trusts have special risks, including the possible illiquidity of the underlying properties, credit risk, interest rate fluctuations, and the impact of varied economic conditions. There can be no assurance a secondary market will exist and there may be restrictions on transferring interests.

The prices of **small and mid-size company** stocks are generally more volatile than large company stocks. They often involve higher risks because smaller companies may lack the management expertise, financial resources, product diversification and competitive strengths to endure adverse economic conditions.

Sovereign debt are bonds issued by a national government in a foreign currency and are used to finance a country's growth. In addition to the risks associated with investing in international and emerging markets, sovereign debt involves the risk that the issuing entity may not be able or willing to repay principal and/or interest when due in accordance with the terms of the debt agreement.

Treasury Inflation-Protected Securities (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. TIPS have special tax consequences, generating phantom income on the "inflation compensation" component of the principal. A holder of TIPS may be required to report this income annually although no income related to "inflation compensation" is received until maturity.

Wells Fargo Investment Institute Equity Sector Pillar definitions

Value Pillar: Our Value Pillar considers the premium or discount that the sector has to the S&P 500 Index and to other S&P 500 sectors. It considers forecast total yield, the 12-month trailing price-to-earnings ratio, and the price-to-free cash flow ratio.

Quality Pillar: Our Quality Pillar examines and reflects a sector's current and past operating performance (profitability and leverage) and can be indicative of future operating performance. It may be a reliable quality measure for sectors, regardless of the level of earnings. It compares the 11 sectors using a leverage and liquidity measure; return on equity; and analyst estimate dispersion.

Growth Pillar: Our Growth Pillar attempts to identify sectors with above-average growth prospects and with growth potential that is not reflected in the current price. It compares sectors using a composite revision ratio, the forecast for next 12 months' earnings growth and the dividend growth trend.

Economic Pillar: Our Economic Pillar seeks to pinpoint where the U.S. economy is within the current economic cycle (expansion, contraction, etc.) and then uses historical performance tendencies to determine which sectors may outperform or underperform at that given point in the cycle.

Economic index definitions

An index is unmanaged and not available for direct investment.

Inflation is the change in the **Consumer Price Index (CPI)**. The CPI measures the price of a fixed basket of goods and services purchased by an average consumer.

Core inflation is the change in the core **Consumer Price Index (CPI)**. The core CPI measures the price of a fixed basket of goods and services—excluding the volatile food and energy components—purchased by an average consumer.

Conference Board's Leading Economic Index (LEI) is a composite average of ten leading indicators in the U.S. It one of the key elements in the Conference Board's analytic system, which is designed to signal peaks and troughs in the business cycle.

Consumer Confidence Index measures 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. The Present Situation Index is based on overall consumer assessment of current business and labor market conditions and present economic situation. It is a major determinant for the CCI.

JPMorgan Emerging Market Currency Index tracks the performance of emerging-market currencies relative to the U.S. dollar.

The Morgan Stanley Capital International (MSCI) Emerging Markets Currency Index is an index of emerging market currencies versus the dollar, where the weight of each currency within the index matches the relevant country weight within the Morgan Stanley Capital International (MSCI) Emerging Markets Equity Index.

The MSCI Canada Index is designed to measure the performance of the large and mid cap segments of the Canada market. With 90 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in Canada.

The MSCI Russia Index is designed to measure the performance of the large and mid cap segments of the Russian market. With 23 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in Russia.

Purchasing Managers' Index (PMI) is an indicator of the economic health of the manufacturing sector. The PMI index is based on five major indicators: new orders, inventory levels, production, supplier deliveries and the employment environment.

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

The Institute of Supply Management (ISM) Purchasing Manager's Index gauges internal demand for raw materials/goods that go into end-production. An Index value over 50 indicates expansion; below 50 indicates contraction. The values for the index can be between 0 and 100.

The **US Dollar Index (USDX, DXY)** is an index (or measure) of the value of the United States dollar relative to a basket of foreign currencies, often referred to as a basket of U.S. trade partners' currencies.

Institute for Supply Management (ISM) Manufacturing Index is based on surveys of more than 300 manufacturing firms by the Institute of Supply Management. The ISM Manufacturing Index monitors employment, production inventories, new orders and supplier deliveries.

The Institute of Supply Management (ISM) Non-manufacturing Index (ISM Services Survey) measures the rate and direction of change in activity in the nonmanufacturing industries. An index with a score over 50 indicates that the industry is expanding, and a score below 50 shows a contraction. The values for the index can be between 0 and 100.

Personal consumption expenditures (PCE) is the primary measure of consumer spending on goods and services in the U.S. economy. It accounts for about two-thirds of domestic final spending, and thus it is the primary engine that drives future economic growth.

Disclosures *(continued)*

Alternative investments—strategy definitions

Private Equity. **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.

Global Hedge Funds. **HFRI Fund Weighted Composite Index.** A global, equal-weighted index of over 2,000 single-manager funds that report to HFR Database. Constituent funds report monthly net-of-all-fees performance in U.S. Dollars and have a minimum of $50 Million under management or a 12-month track record of active performance. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.

Relative Value. **HFRI Relative Value (Total) Index.** Strategy 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. Fixed income strategies are typically quantitatively driven to measure the existing relationship between instruments and, in some cases, identify attractive positions in which the risk adjusted spread between these instruments represents an attractive opportunity for the investment manager. RV position may be involved in corporate transactions also, but as opposed to ED exposures, the investment thesis is predicated on realization of a pricing discrepancy between related securities, as opposed to the outcome of the corporate transaction.

Arbitrage. **HFRI RV: Fixed Income Sovereign Index.** Includes strategies predicated on realization of a spread between related instruments in which one or multiple components of the spread is a sovereign fixed income instrument. Strategies employ an investment process designed to isolate attractive opportunities between a variety of fixed income instruments, typically realizing an attractive spread between multiple sovereign bonds or between a corporate and risk free government bond. Fixed Income Sovereign typically employ multiple investment processes including both quantitative and fundamental discretionary approaches and relative to other Relative Value Arbitrage sub-strategies, these have the most significant top-down macro influences, relative to the more idiosyncratic fundamental approaches employed.

Long/Short Credit. **HFRI RV: Fixed Income—Corporate Index.** Includes strategies predicated on realization of a spread between related instruments in which one or multiple components of the spread is a corporate fixed-income instrument. Strategies are designed to isolate attractive opportunities between a variety of fixed income instruments, typically realizing an attractive spread between multiple corporate bonds or between a corporate and risk free government bond. They typically involve arbitrage positions with little or no net credit market exposure, but are predicated on specific, anticipated idiosyncratic developments.

Structured Credit/Asset Backed. **HFRI RV: Fixed Income—Asset Backed Index.** Includes strategies predicated on realization of a spread between related instruments in which one or multiple components of the spread is a fixed-income instrument backed by physical collateral or other financial obligations (loans, credit cards) other than those of a specific corporation. Strategies are designed to isolate attractive opportunities between a variety of fixed income instruments specifically securitized by collateral commitments, which frequently include loans, pools and portfolios of loans, receivables, real estate, machinery or other tangible financial commitments. Investment thesis may be predicated on an attractive spread given the nature and quality of the collateral, the liquidity characteristics of the underlying instruments and on issuance and trends in collateralized fixed-income instruments, broadly speaking. In many cases, investment managers hedge, limit, or offset interest-rate exposure in the interest of isolating the risk of the position to strictly the disparity between the yield of the instrument and that of the lower-risk instruments.

Macro. **HFRI Macro (Total) Index.** Encompass a broad range of strategies 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 on 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 movements in underlying macroeconomic variables may have on security prices, as opposed to EH, in which the fundamental characteristics on the company are the most significant are integral to investment thesis.

Systematic Macro. **HFRI Macro: Systematic Diversified Index.** Diversified strategies employing mathematical, algorithmic and technical models, with little or no influence of individuals over the portfolio positioning. Strategies are designed to identify opportunities in markets exhibiting trending or momentum characteristics across individual instruments or asset classes. Strategies typically employ quantitative processes which focus on statistically robust or technical patterns in the return series of the asset, and they typically focus on highly liquid instruments and maintain shorter holding periods than either discretionary or mean-reverting strategies. Although some strategies seek to employ counter-trend models, strategies benefit most from an environment characterized by persistent, discernible trending behavior. Typically have no greater than 35% of portfolio in either dedicated currency or commodity exposures over a given market cycle.

Discretionary Macro. **HFRI Macro: Discretionary Thematic Index.** Strategies primarily rely on the evaluation of market data, relationships and influences, as interpreted by individuals who make decisions on portfolio positions; strategies employ an investment process most heavily influenced by top-down analysis of macroeconomic variables. Investment Managers may trade actively in developed and emerging markets, focusing on both absolute and relative levels on equity markets, interest rates/fixed income markets, currency and commodity markets; they frequently employ spread trades to isolate a differential between instrument identified by the Investment Manager as being inconsistent with expected value. Portfolio positions typically are predicated on the evolution of investment themes the Manager expects to develop over a relevant time frame, which in many cases contain contrarian or volatility-focused components.

Event Driven. **HFRI Event Driven (Total) Index.** Maintains positions in companies currently or prospectively involved in corporate transactions of a wide variety including mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance or 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. Exposure includes a combination of sensitivities to equity markets, credit markets and idiosyncratic, company-specific developments. Investment theses are typically predicated on fundamental (as opposed to quantitative) characteristics, with the realization of the thesis predicated on a specific development exogenous to the existing capital structure.

Activist. **HFRI ED: Activist Index.** Strategies may obtain or attempt to obtain representation on the company's board of directors in an effort to impact the firm's policies or strategic direction and in some cases may advocate activities such as division or asset sales, partial or complete corporate divestiture, dividends or share buybacks, and changes in management. Strategies employ an investment process primarily focused on opportunities in equity and equity-related instruments of companies that are currently or prospectively engaged in a corporate transaction, security issuance/repurchase, asset sales, division spin-off or other catalyst-oriented situation. These involve both announced transactions and situations in which no formal announcement is expected to occur. Activist strategies would expect to have greater than 50% of the portfolio in activist positions, as described.

Disclosures *(continued)*

Distressed Credit. **HFRI ED: Distressed/Restructuring Index.** Strategies focus on corporate fixed-income instruments, primarily corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceedings or financial-market perception of near-term proceedings. Managers are typically actively involved with the management of these companies; they are frequently involved on creditors' committees in negotiating the exchange of securities for alternative obligations, either swaps of debt, equity or hybrid securities. Managers employ fundamental credit processes focused on valuation and asset coverage of securities of distressed firms; in most cases portfolio exposures are concentrated in instruments that are publicly traded, in some cases actively and in others under reduced liquidity but in general for which a reasonable public market exists. Strategies employ primarily debt (greater than 60%) but also may maintain related equity exposure.

Merger Arbitrage. **HFRI ED: Merger Arbitrage Index.** Strategies primarily focus on opportunities in equity and equity-related instruments of companies that are currently engaged in a corporate transaction. Merger Arbitrage involves primarily announced transactions, typically with limited or no exposure to situations in which no formal announcement is expected to occur. Opportunities are frequently presented in cross-border, collared, and international transactions that incorporate multiple geographic regulatory institutions, typically with minimal exposure to corporate credits. Strategies typically have over 75% of positions in announced transactions over a given market cycle.

Equity Hedge. **HFRI Equity Hedge (Total) Index.** Equity Hedge: Investment Managers who 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. EH managers would typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities, both long and short.

Directional Equity. **HFRX EH: Multi-Strategy Index.** Managers 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, holding period, concentrations of market capitalizations, and valuation ranges of typical portfolios. Managers typically do not maintain more than 50% exposure to any one Equity Hedge sub-strategy.

Equity Market Neutral. **HFRI EH: Equity Market Neutral Index.** Strategies employ sophisticated quantitative techniques to analyze price data to ascertain information about future price movement and relationships between securities. These can include both Factor-based and Statistical Arbitrage/Trading strategies. Factor-based investment strategies include strategies predicated on the systematic analysis of common relationships between securities. In many cases, portfolios are constructed to be neutral to one or multiple variables, such as broader equity markets in dollar or beta terms, and leverage is frequently employed to enhance the return profile of the positions identified. Statistical Arbitrage/Trading strategies consist of strategies predicated on exploiting pricing anomalies which may occur as a function of expected mean reversion inherent in security prices; high-frequency techniques may be employed; trading strategies may also be based on technical analysis or designed opportunistically to exploit new information that the investment manager believes has not been fully, completely, or accurately discounted into current security prices. Strategies typically maintain characteristic net equity market exposure no greater than 10% long or short.

Note: 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 hedge fund managers 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.

Liquid alternatives—index definitions

Liquid alternatives are represented by the **Wilshire Liquid Alternative Index**. The Wilshire Liquid Alternative Index measures the collective performance of the five Wilshire Liquid Alternative strategies that make up the Wilshire Liquid Alternative Universe. The Wilshire Liquid Alternative Index is designed to provide a broad measure of the liquid alternative market by combining the performance of the Wilshire Liquid Alternative Equity Hedge Index, Wilshire Liquid Alternative Global Macro Index, Wilshire Liquid Alternative Relative Value Index, Wilshire Liquid Alternative Multi-Strategy Index and the Wilshire Liquid Alternative Event Driven Index.

Wilshire Liquid Alternative Equity Hedge Index measures the performance of the equity hedge strategy component of the Wilshire Liquid Alternative Index. Equity hedge investment strategies predominantly invest in long and short equities.

Wilshire Liquid Alternative Event Driven Index measures the performance of the event driven strategy component of the Wilshire Liquid Alternative Index. Event driven strategies predominantly invest in companies involved in corporate transactions such as mergers, restructuring, distressed, buy backs, or other capital structure changes.

Wilshire Liquid Alternative Global Macro Index measures the performance of the global macro strategy component of the Wilshire Liquid Alternative Index. Global macro strategies predominantly invest in situations driven by the macro-economic environment across the capital structure as well as currencies and commodities.

Wilshire Liquid Alternative Relative Value Index measures the performance of the relative value strategy component of the Wilshire Liquid Alternative Index. Relative value strategies are focused on the valuation discrepancy in the relationships between markets or securities.

Asset class index definitions

Fixed income representative indices

U.S. Taxable Investment Grade Fixed Income. B**loomberg Barclays US Aggregate Bond Index** is a broad-based measure of the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market.

Short Term Taxable Fixed Income. **Bloomberg Barclays US Aggregate 1-3 Year Bond Index** is the one to three year component of the Barclays US Aggregate Index, which represents fixed-income securities that are SEC-registered, taxable, dollar-denominated, and investment-grade.

Intermediate Term Taxable Fixed Income. **Bloomberg Barclays US Aggregate 5-7 Year Bond Index** is composed of the Bloomberg Barclays US Government/Credit Index and the Bloomberg Barclays US Mortgage-Backed Securities Index, and includes Treasury issues, agency issues, corporate bond issues, and mortgage-backed securities with maturities of 5-7 years.

Long Term Taxable Fixed Income. **Bloomberg Barclays US Aggregate 10+ Year Bond Index** is composed of the Bloomberg Barclays US Government/Credit Index and the Bloomberg Barclays US Mortgage-Backed Securities Index, and includes Treasury issues, agency issues, corporate bond issues, and mortgage-backed securities with maturities of 10 years or more.

Cash Alternatives/Treasury Bills. **Bloomberg Barclays US Treasury Bills (1–3M) Index** is representative of money markets.

U.S. Treasury. **Bloomberg Barclays US Treasury Index** includes public obligations of the U.S. Treasury with a remaining maturity of one year or more.

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

U.S. TIPS. **Bloomberg Barclays US TIPS Index** represents Inflation-Protection securities issued by the U.S. Treasury.

U.S. Government. **Bloomberg Barclays US Government Bond Index** includes U.S.-dollar-denominated, fixed-rate, nominal U.S. Treasury securities and U.S. agency debentures.

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

Securitized. **Bloomberg Barclays US Mortgage Backed Securities (MBS) Index** includes agency mortgage backed pass-through securities (both fixed-rate and hybrid ARM) guaranteed by Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC).

High Yield Taxable Fixed Income. **Bloomberg Barclays US Corporate High-Yield Index** covers the universe of fixed-rate, non-investment-grade debt.

Disclosures *(continued)*

Developed Market Ex-U.S. Fixed Income (Unhedged). **J.P. Morgan GBI Global ex-US 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.

Developed Market Ex-U.S. Fixed Income (Hedged). **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.

Emerging Market Fixed Income (U.S. dollar). **J.P. Morgan Emerging Markets Bond Index (EMBI Global)** currently covers more than 60 emerging market countries. Included in the EMBI Global are U.S.-dollar-denominated Brady bonds, Eurobonds, traded loans, and local market debt instruments issued by sovereign and quasi-sovereign entities.

Emerging Market Fixed Income (Local Currency). **J.P. Morgan Government Bond Index-Emerging Markets Global (USD Unhedged)** is a comprehensive global local emerging markets index, and consists of regularly traded, liquid fixed-rate, domestic currency government bonds.

U.S. Investment Grade Corporate Fixed Income. **Bloomberg Barclays US Corporate Bond Index** measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD denominated securities publicly issued by US and non-US industrial, utility and financial issuers.

Preferred Stock. **S&P U.S. Preferred Stock Index** is designed to measure the performance of the U.S. preferred stock market. Preferred stocks pay dividends at a specified rate and receive preference over common stocks in terms of dividend payments and liquidation of assets.

Equity representative indices

U.S. Large Cap Equities. **S&P 500 Index** is a capitalization-weighted index calculated on a total return basis with dividends reinvested. The index includes 500 widely held U.S. market industrial, utility, transportation and financial companies.

U.S. Large Cap Equities (Growth). **Russell 1000 Growth Index** measures the performance of the large-cap growth segment of the U.S. equity universe. It includes those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

U.S. Large Cap Equities (Value). **Russell 1000 Value Index** measures the performance of the large-cap value segment of the U.S. equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower expected growth values.

U.S. Mid Cap Equities. **Russell Midcap Index** measures the performance of the mid-cap segment of the U.S. equity universe.

U.S. Mid Cap Equities (Growth). **Russell Midcap Growth Index** measures the performance of the mid-cap growth segment of the U.S. equity universe. It includes those Russell Midcap Index companies with higher price-to-book ratios and higher forecasted growth values.

U.S. Mid Cap Equities (Value). **Russell Midcap Value Index** measures the performance of the mid-cap value segment of the U.S. equity universe. It includes those Russell Midcap Index companies with lower price-to-book ratios and lower forecasted growth values.

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. Small Cap Equities (Growth). **Russell 2000 Growth Index** measures the performance of the small-cap growth segment of the U.S. equity universe. It includes those Russell 2000 companies with higher price-to-value ratios and higher forecasted growth values.

U.S. Small Cap Equities (Value). **Russell 2000 Value Index** measures the performance of the small-cap value segment of the U.S. equity universe. It includes those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

Developed Market Ex-U.S. Equities (U.S. dollar)/(Local). **MSCI EAFE Index** is a free float-adjusted market capitalization index that is designed to measure the equity market performance of 21 developed markets, excluding the U.S. and Canada.

Developed Market Small Cap Equity (U.S. Dollar). The **MSCI EAFE Small Cap Gross Total Return USD (M2EASC Index)** is an equity index which captures small cap representation across developed markets countries around the world, excluding the U.S. and Canada. With 2,358 constituents, the index covers approximately 14% of the free float-adjusted market capitalization in each country. Returns measured in U.S. Dollars.

Developed Market Small Cap Equity (Local Currency). The **MSCI EAFE Small Cap Gross Total Return Local Index (GCLDEAFE Index)** is an equity index which captures small cap representation across developed markets countries around the world, excluding the U.S. and Canada. With 2,358 constituents, the index covers approximately 14% of the free float-adjusted market capitalization in each country. Priced in MSCI LCL Currency.

Emerging Market Equities (U.S. dollar)/(Local). **MSCI Emerging Markets Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance of 23 emerging markets.

Frontier Market Equities (U.S. dollar)/(Local). **MSCI Frontier Markets Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance of 24 frontier (least developed) markets.

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Real assets representative indices

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 US 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 Developed ex US Index** is designed to track the performance of listed real estate companies in developed countries worldwide other than the United States.

Infrastructure. The **S&P Global Infrastructure Index** is designed to track 75 companies from around the world chosen to represent the listed infrastructure industry while maintaining liquidity and tradability. To create diversified exposure, the index includes three distinct infrastructure clusters: energy, transportation, and utilities.

MLPs. **Alerian MLP Index** is a composite of the 50 most prominent energy Master Limited Partnerships (MLPs) that provides investors with an unbiased, comprehensive benchmark for this emerging asset class. The index, which is calculated using a float-adjusted, capitalization-weighted methodology, is disseminated real-time on a price-return basis and on a total-return basis.

Commodities (BCOM). **Bloomberg Commodity Index** is a broadly diversified index comprised of 22 exchange-traded futures on physical commodities and represents 20 commodities weighted to account for economic significance and market liquidity.

Bloomberg Commodity Indices are a family of financial benchmarks designed to provide liquid and diversified exposure to physical commodities via futures contracts. The index currently represents 20 commodities which are weighted to account for economic significance and market liquidity and 22 exchange traded futures contracts.

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