WELLS FARGO
Investment Institute

Asset Allocation Strategy

February 15, 2024

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Stock-bond correlation impact on markets and portfolios

Following a year when the S&P 500 Index surged 26%, the trend has continued into 2024 with U.S. large-cap stocks rising by 1.7% through January. Investors remain focused on better-than-expected economic data, with expectations that the Federal Reserve (Fed) will cut policy interest rates up to four times this year[1] possibly commencing at either the May or June FOMC (Federal Open Market Committee) meeting. Yet, with the S&P 500 Index already within our year-end target range of 4800-5000, we believe a market pullback is likely. One concern at present is that richly valued equities face the possibility of an economic slowdown due to the long and variable lags of monetary policy, chronic fiscal deficits, and geopolitical risks across the globe — leaving little margin for error in a market that is priced for favorable macroeconomic conditions.

Correlations aim to measure how much asset classes have moved together and are based on historical observations.[2] During periods of stock market weakness, bonds have traditionally served as a cushion, often a perceived "flight-to-safety" to help offset equity market losses. However, the correlation between equities and fixed income has increased significantly over the past two years. In 2022, inflation rapidly accelerated, and capital markets faced an aggressively hawkish Fed, resulting in double-digit losses for both stocks and bonds. Last year, as inflation decelerated the Fed paused its tightening campaign, prompting investor expectations to pivot to future rate cuts, benefiting both asset classes.

Historical perspective

While the stock-bond correlation has remained negative for much of the past 20 years (excluding 2022-23), it was frequently positive during the 30 years prior to the year 2000. Recognizing that the stock-bond correlation regime can change, it is useful to examine two key macroeconomic factors that historically have driven the performance of stocks and bonds: economic growth and inflation.

- *Economic growth* – Positive growth data raises expectations of future earnings and hence, equity prices – and vice versa. It also raises expectations for higher interest rates (lower bond prices). Thus, stocks and bonds have opposite sensitivities to economic growth.
- *Inflation* – Rising inflation reduces the value of bonds' fixed cash flows and leads to higher interest rates, reducing the value of existing bonds locked in at lower rates. But rising inflation is also associated with falling stock prices, as P/E (price-to-earnings) multiples contract, coinciding with competition from higher bond yields. Stocks and bonds, therefore, share similar sensitivities to inflation trends and expectations of inflation trends, both rising (negative) and falling (positive).

Although growth can affect stock-bond correlations, inflation historically has been the main driver on the relationship between equities and fixed income. The chart below shows the influence of inflation on stock and bond market correlations since 1970.

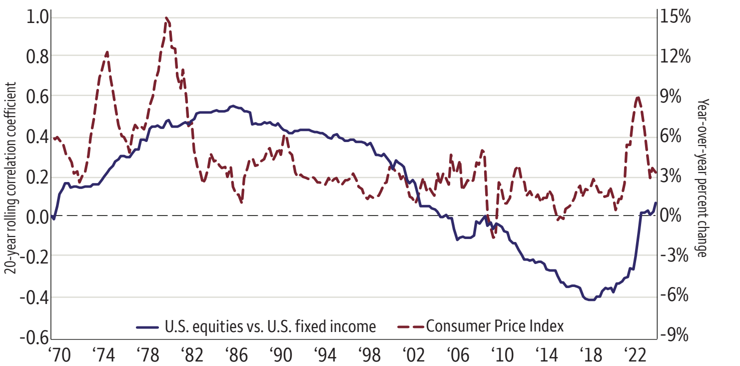
1.Source: Bloomberg World Interest Rate Probability, February 14, 2024

2. Correlation measures how two asset classes or investments move in relation to each other. A positive correlation indicates the extent to which those asset classes increase or decrease together; a negative correlation indicates the extent to which one asset class increases as the other decreases.

(Continued on the next page.)

Stock-bond correlation impact on markets and portfolios (continued)

Chart 1. Stock-bond correlations versus inflation (CPI), 1970-present



Sources: Bloomberg, © 2024 - Morningstar Direct, All Rights Reserved*, and Wells Fargo Investment Institute. Quarterly data from January 1, 1970 to February 5, 2024. U.S. equities represented by S&P 500 Index. U.S. fixed income represented by a blend of IA SBBI U.S. Long-Term Government Bond Index and IA SBBI U.S. Long-Term Corporate Bond Index until 1976, and then the Bloomberg U.S. Aggregate Bond Index. Correlations are calculated using monthly total returns. **Past performance is no guarantee of future results.** An index is unmanaged and not available for direct investment. CPI = Consumer Price Index.

From the chart, we observe the following trends over the past 50 years:

- *1970s* – Headline consumer inflation was extremely high and volatile, accelerating to nearly 15% year-over-year by the end of the decade. Bond yields spiked and PE multiples contracted, hindering both stocks and bonds resulting in a positive correlation.
- *1980–2000* – The significant inflation of the previous decade unwound and stabilized in the 2% to 3% range, producing overlapping bull markets for both stocks and bonds. Between 1992 and 1998, positive stock-bond correlations occurred in the low and stable inflationary environment. During this period, long-term U.S. Treasury yields were cut in half, from around 8% to 4%, as investors became more convinced that inflationary pressures had stabilized while real bond yields had declined significantly. As a result, both stocks and bonds benefitted as declining yields supported fixed income, while P/E ratios expanded.
- *2000–2020* – Inflation stabilized at low levels along with interest rates. The relative movements of stock and bond prices switched focus toward accelerating/decelerating growth rates, which tended to drive stocks and bonds in opposite directions.

Overall, during most periods when inflation was relatively elevated (1970–1991 and 2021–2023), stocks and bonds have been positively correlated. During periods when inflation was more consistently running near or below the Fed's 2.0% target (1998–2020), the stock-bond correlation has generally been negative or near zero, as investor focus turns to economic growth which tends to drive equity and bond performance in opposite directions.

What it means for investors

We attribute the rise in stock-bond correlations over the last two years to the spike in inflation followed by rapid disinflation versus the stable inflationary environment prior to the pandemic. Our current forecast is that inflation will continue slowing, albeit less rapidly, and will likely stabilize at levels slightly above those of the pre-pandemic period. We also expect interest rates to remain near current levels or even slightly higher for the next few years. As a result, we envision that the stock-bond correlation will revert to being negative or near zero in the coming years. Based on historical performance, low correlations have helped to mitigate portfolio risk in uncertain market environments.[3] If our forecast is correct, bonds should provide the typical diversification benefits during periods of increased stock market volatility.

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3. See "Why Asset Allocation Matters in Uncertain Times," Wells Fargo Investment Institute, February 9, 2023.

Global economic summary

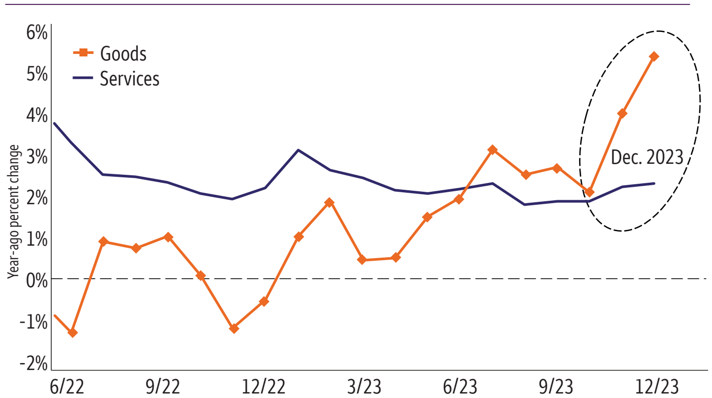
United States

Surprisingly strong U.S. economic activity at the end of last year was sustained into 2024. Fourth-quarter gross domestic product (GDP) growth of 3.3% was all the more impressive atop the third-quarter's brisk 4.9% clip. The latest batch of robust economic data was punctuated by a 353,000 increase in January non-farm payrolls, nearly twice consensus estimates and accompanied by sizeable upward revisions during the second half of the year. Solid job growth reflects a slow rebalance from post-pandemic distortions, boosting consumer confidence and spending directly and indirectly, by lifting year-over-year wage inflation to the September 2023 peak of 4.5%.

Strong economic growth has become more balanced as manufacturing and housing regain momentum, benefiting from gains in inflation-adjusted incomes and, in the case of housing, recent declines in mortgage rates. Manufacturing is being supported by accelerated growth of consumer spending on goods and by knock-on support to inventory rebuilding as sales recover.

Lower inflation has been a key driver of consumer-led growth. Both the Consumer Price Index (CPI) and the Personal Consumption Expenditures (PCE) deflator have fallen below the Federal Reserve's (Fed's) 2% target on a three-month annualized basis, helped by lower energy prices, goods deflation, and slow but steady improvements in services costs and rents. However, January's CPI report confirmed further disinflation progress may prove difficult due to sticky price pressures within rents and other services. Headline CPI rose 3.1% on a 12-month basis in January, while core CPI (excluding food and energy) held steady at 3.9% on its biggest monthly increase since May (+0.4%).

Consumer spending rebalancing toward goods



Sources: Bureau of Economic Analysis, Personal Consumption Expenditures (PCE) data, as of January 26, 2024.

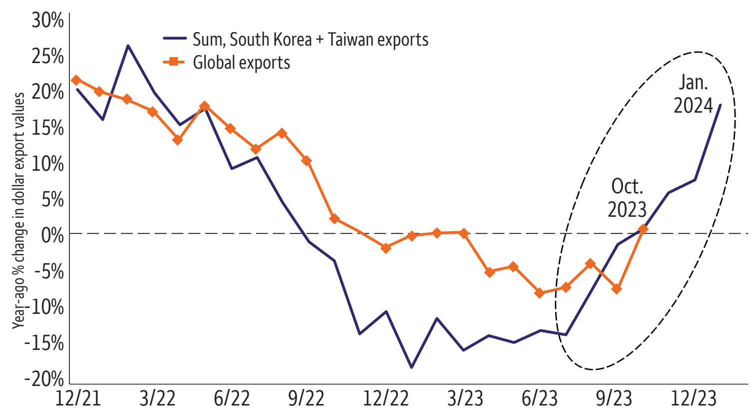
Europe

Europe skirted a recession in 2023 with flat fourth-quarter GDP. Firmer growth in Spain and Italy late last year offset a contraction in Germany that contributed to its steepest annual decline (-0.3%) in 20 years (excluding 2009 and 2020). We believe a deeper downturn will be avoided as a composite index of eurozone business activity stabilized at a low level in January. Europe's manufacturing recession moved a step toward bottoming out, but remains hampered by weak global trade, while the service sector contracted for a sixth straight month. Elevated fuel costs, geopolitical flare-ups, and tight credit conditions are among headwinds constraining growth. Disinflation appears to be buoying consumer purchasing power, but slower progress toward lower inflation likely will delay European Central Bank (ECB) rate cuts until mid-year unless signs of a recession reemerge. Eurozone CPI inflation eased less than anticipated in January, rising 2.8% on a 12-month basis, up from a recent trough of 2.4% in November.

Asia

Manufacturing activity in trade-sensitive north Asia steadied in January, with improved demand in key markets offsetting China's slowing economy. South Korea's factory sector expanded for the first time since June 2022, while business surveys showed firming demand in Taiwan's important semiconductor sector cushioning the slowdown there. In Southeast Asia, an uptick in Vietnam's factory output added to ongoing support from Singapore, the Philippines and Indonesia amid increased exports. A pickup in Japan was driven by strengthening service-sector growth masking ongoing weakness in manufacturing. In China, broad sluggishness across manufacturing and services persists amid disappointing domestic demand, tepid global trade, and ongoing property market turmoil — all increasing the likelihood of more fiscal stimulus to combat weak economic growth and deflation despite government officials wary of high debt loads.

Moving toward a recovery in global trade



Sources: Taiwan Ministry of Finance, Korea Ministry of Trade, Industry, Energy, via Bloomberg Financial News, LLC. Data as of February 7, 2024.

Key economic statistics

Global growth rates[1]	4Q23	3Q23	2Q23
U.S. real economic growth	3.3	4.9	2.1
Eurozone real economic growth	0.0	-0.4	0.4
Japanese real economic growth	–	-2.9	3.6
Chinese real economic growth	4.1	6.1	2.4

U.S. economic data	1/24	12/23	1/23
Unemployment rate (%)	3.7%	3.7%	3.4%
ISM Manufacturing PMI	49.1	47.1	47.4
ISM Services PMI	53.4	50.5	54.7
Retail sales (%)	-	0.6%	3.0%
Consumer confidence (1985 = 100)	114.8	108.0	106.0
Housing starts (millions; annualized)	–	1.46	1.34
U.S. Dollar Index[2]	103.3	101.3	102.1
U.S. Consumer Price Index (CPI) (%)	3.1	3.4	6.4
U.S. core CPI (%)	3.9	3.9	5.5
Personal consumption expenditures (PCE) deflator (%)	–	2.6	5.5

Sources: Bloomberg, Wells Fargo Investment Institute, February 13, 2024. [1]Annualized gross domestic product quarter-to-quarter percent change. [2]End of period. An index is unmanaged and not available for direct investment. 2Q = second quarter. 3Q = third quarter. 4Q = fourth quarter. **Past performance is no guarantee of future results.** See pages 27-32 for important definitions and disclosures.

Wells Fargo Investment Institute forecasts

Gross domestic product (GDP) growth: This business cycle is being ironed out by the economy's latest show of strength at the turn of the year, raising the possibility of our forecasted shallow economic cycle becoming a period of moderate-but-steady growth in 2024. Broadening strength described earlier adds resilience to an economy facing geopolitical turbulence and election-year uncertainties, not to mention potential upside surprises on inflation, interest rates, and financial stress.

Early-cycle characteristics, like the twin recoveries in manufacturing and housing, lower inflation, and declining interest rates, have led some to believe that the economy is poised for extended growth in a new business cycle. Our view is that recent strength is sustaining a late phase of the post-COVID cycle with greater vulnerability to outside shocks or to disappointing news on inflation, interest rates, and economic policy. The economy has gone through few of the requisite adjustments for a new growth recovery, including deleveraging, pent-up demand from deferred spending, and accumulating economic slack keeping a lid on inflation characteristic of past recessions.

What is unusual is late-cycle support to the economy from an unusually early peak in inflation, declining interest rates, and solid gains in employment. All are now tied to the aftereffects of the pandemic, the hallmark of this economic cycle. Support from each delays adjustment to financial and economic imbalances, leaving the economy more vulnerable to shocks as growth progresses this year.

Inflation: Continued disinflation in a still-vibrant economy is the central outlook issue, in our view. Headwinds to still lower fuel costs have been created by disturbances in the Mideast, OPEC+[4] output discipline, and by an unwinding slowdown in global manufacturing and trade. An emerging manufacturing recovery, combined with accelerating consumer-goods spending and inventory building supporting it, is bending the curve on other goods deflation in the U.S. We believe that rental inflation will be nudged lower over the coming months by an earlier bulge in construction but turn higher later this year as the market responds to a more recent construction pullback. Lastly, wage inflation, supported by a strong job market, risks making other labor-intensive services inflation stickier in coming months.

Structural changes risk adding to inflation's cyclical restraints in steadying inflation at 2.5–3% from the near-3% rate in January. Labor's market power is being enhanced by slowing workforce growth in an aging population, reinforced by increased unionization. Higher interest rates are restricting entry and expansion by raising financing costs, and reshoring and supply-chain fragmentation away from efficient, low-cost China are eroding globalization's cost-cutting potential.

Labor market conditions: Solid job growth at the turn of the year is raising the possibility of an even shallower employment cycle during 2024. Remarkably, solid increases in employment have been accompanied by strong productivity gains in supporting brisk economic growth during the second half of 2023. Job growth still is expected to be slowed by reduced catch-up hiring as the labor market rebalances from COVID-related distortions. Unemployment has climbed noticeably even during mild slowdowns in the past. We believe that will be repeated in the shallow slowdown we anticipate in 2024 and into 2025, lifting the unemployment rate to nearly 5% sometime next year. Softening labor market conditions may be needed to reverse a recent backup in wage inflation, which climbed to a September 2023 high in January. Wage increases at that pace are a double-edged sword for the economy, supporting higher real incomes and consumer-led growth but limiting disinflation in labor-intensive services industries.

4. Organization of the Petroleum Exporting Countries and their allies.

Global economy

	Latest (%)[1]	2024 YE target (%)[1]
U.S. GDP growth	2.5 (Q4)	1.3
U.S. inflation[2]	3.1 (Jan.)	2.8 (Dec.)
U.S. unemployment rate[3]	3.7 (Jan.)	4.7 (Dec.)
Global GDP growth[4]	3.1 (Q3)	2.4
Global inflation[4]	4.5 (Q4)	3.3
Developed-market GDP growth	2.0 (Q3)	1.0
Developed-market inflation	5.5 (Q4)	2.4
Emerging market GDP growth	4.0 (Q3)	3.3
Emerging market inflation	3.7 (Q4)	4.0
Eurozone GDP growth	0.5 (Q4)	0.6
Eurozone inflation[2]	2.8 (Jan.)	2.0 (Dec.)

Sources: Bloomberg, Wells Fargo Investment Institute (WFII). All latest numbers from Bloomberg as of February 13, 2024. Targets are based on forecasts by Wells Fargo Investment Institute as of February 15, 2024 and provide a forecast direction over a tactical horizon. The closer the current date is to the year-end, the more WFII guidance focuses on the following year's target. YE = year-end. Q3 = third quarter. Q4 = fourth quarter.

[1]Average % change in the latest four quarters from the same year-ago period, unless otherwise noted. [2]Latest month percent change from a year ago. [3]Three-month average as of the date indicated, percent of labor force. [4]Global GDP and global inflation are calculated using GDP weights for developed market and emerging market economies.

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

Wells Fargo Investment Institute forecasts (continued)

Interest rates: In our opinion, the near-term path of longer-term rates is highly dependent on the state of the economy, particularly on the trajectory of inflation. We anticipate that if an economic slowdown accelerates, interest rates will fall as investors seek out the perceived safety of high-quality Treasury securities. However, given our expectation of a moderate slowdown followed by renewed economic growth in 2024, we project that long-term rates will move higher by year-end 2024.

Also, the recent decline in yields has been largely influenced by the expectation of a Fed pivot in 2024. But we still believe the Fed may be hesitant to cut the federal funds rate early in 2024, especially if the economy remains resilient.

We expect modest policy rate cuts beginning in the second quarter of 2024 as the Fed works to slowly move the federal funds rate closer to a neutral level. Given these expectations, our year-end 2024 federal funds rate target is now 4.50%–4.75%. Our new target implies a Fed that will cut rates three times this year as the Fed begins a long process of rate normalization.

Our year-end 2024 10-year U.S. Treasury yield target is now 4.25%–4.75%, and our year-end 2024 30-year U.S. Treasury yield target is now 4.50%–5.00%, on the expectation of better economic growth in the second half of 2024.

Equities: If the economy continues to weaken as we expect in the coming months, we anticipate pressure on equity earnings and prices. This will likely create bouts of weakness, and range trading. We remain defensively positioned, preferring high-quality assets and believe investors should continue to favor U.S. Large Cap Equities. However, we expect that after near-term headwinds abate, stocks will rally into year-end. We will look to position for the eventual early cycle rebound we forecast as opportunities present themselves.

We have increased our 2024 year-end S&P 500 Index earnings and price targets, which marks the first adjustment we have made to the key benchmark since our targets were first introduced in April 2023. We also increased all other asset class benchmark price targets and select earnings targets. An improved economic outlook and the surprise dovish December Fed announcement and the related increased likelihood of multiple Fed rate cuts this year support the moves. The S&P 500 Index earnings target is raised from $220 to $230 and the price target range for year-end 2024 is now 4800-5000. See the table to the right for the complete list of target changes.

We expect the path to these targets to be a choppy one with earnings and sentiment likely tested as the global economy weakens during the first part of 2024.

Commodities: Commodities underperformed U.S. equities, but outperformed U.S. bonds, as the Bloomberg Commodity Index (BCOM) ended January with a 0.4% total return. We suspect that commodity performance will be modest in the coming months as the global economy tilts toward shallow slowdown in 2024. Looking through the slowdown, we expect strong commodity performance as demand picks up and many commodities remain structurally undersupplied — further driving the bull super-cycle.[5] For 2024, we lowered our year-end targets due to the effects of an impending economic dip, while leaving modest upside from current prices as we expect tight supply to drive prices higher by year-end. Our 2024 year-end targets are $85–$95 per barrel for West Texas Intermediate (WTI), $90–$100 per barrel for Brent crude, $2,100–$2,200 per troy ounce for gold, and 235–255 for the BCOM.

Global fixed income (%)	Latest	2024 YE target
10-year U.S. Treasury yield	3.91	4.25–4.75
30-year U.S. Treasury yield	4.17	4.50–5.00
Fed funds rate	5.25–5.50	4.50–4.75

Currencies	Latest	2024 YE target
Dollar/euro exchange rate	$1.08	$1.08–$1.12
Yen/dollar exchange rate	¥146.92	¥136–¥140
ICE U.S. Dollar Index*	103.3	99–103

*We are initiating coverage of a dollar composite exchange rate index against its principal developed-market competitor currencies. Please see the following disclosure for more detail concerning the index.

The Intercontinental Exchange (ICE) U.S. Dollar Index is a weighted average of the value of the U.S. dollar relative to a basket of U.S. trade partner currencies, comprised of the euro, Japanese yen, pound sterling, Canadian dollar, Swedish krona, and Swiss franc. A higher index value indicates dollar appreciation.

Global equities	Latest	2024 YE target
S&P 500 Index	4846	4800–5000
S&P 500 earnings per share ($)	223	230
Russell Midcap Index	3066	3200–3400
Russell Midcap earnings per share ($)	151	160
Russell 2000 Index	1947	2000–2200
Russell 2000 earnings per share ($)	73	65
MSCI EAFE Index	2248	2200–2400
MSCI EAFE earnings per share ($)	153	160
MSCI Emerging Markets (EM) Index	976	950–1150
MSCI EM earnings per share ($)	84	75

Latest EPS (earnings per share) figures are consensus estimates as of December 31, 2022.

Global real assets	Latest	2024 YE target
WTI crude oil price ($ per barrel)	$76	$85–$95
Brent crude oil price ($ per barrel)	$82	$90–$100
Gold price ($ per troy ounce)	$2,040	$2,100–$2,200
Commodities	$227	235–255

Sources: Bloomberg, Wells Fargo Investment Institute, as of January 31, 2024. Targets are Wells Fargo Investment Institute forecasts, as of February 15, 2024 and provide a forecast direction over a tactical horizon. The closer the current date is to the year-end, the more WFII guidance focuses on the following year's target. YE = year end. Forecasts are based on certain assumptions and on our views of market and economic conditions, which are subject to change. See pages 27-32 for important definitions and disclosures. WTI is a grade of crude oil used as a benchmark in oil pricing.

5. Super-cycles are an extended period of time where all commodity prices tend to move together. In bull super-cycles, all commodity prices tend to move upward together over multiple years.

Fixed income

Market observations

Many major U.S. fixed-income asset class indexes underperformed in January as yields rose on the long end of the curve. Preferred stock (+3.7%) outperformed other major fixed income asset classes, while long-term taxable fixed income fell the most (-1.5%). International bond markets also struggled as the U.S. dollar strengthened.

The Fed remained on pause at its end of January meeting, recognizing that inflation has been slowing down; however, it mentioned that it needs more evidence of this trend before acting. Chair Powell also downplayed the possibility of a rate cut in March. The Fed's expected number of rate cuts remain in contrast relative to the four or five rate cuts priced in by the market for 2024. The Fed continues unwinding its balance sheet at almost $95 billion per month, shedding over $1 trillion in securities over the past year.

U.S. fixed income: Decreasing optimism of Fed rate cuts from December highs continued to influence U.S. Treasury yield movements this past month along with better-than-expected economic news. Although Treasury yields moved higher on the long end of the yield curve and fell slightly on the short end, the U.S. Treasury yield curve remains inverted.

Investor appetite for credit exposure was moderate in January. U.S. investment-grade (IG) corporate fixed income (-0.2%) underperformed high yield (HY) taxable fixed income (0.0%). Credit spreads for IG were mostly flat, while HY spreads moved higher on the last trading day driven by concerns on the regional banking space but would otherwise have finished the month lower. Still, both spreads continued to trade below long-term averages. We recommend maintaining a neutral position to IG corporates, particularly for investors seeking income potential; however, we remain unfavorable on HY.

Municipal bond yields increased substantially across the curve, being a key contributor to the negative performance (-0.5%) for municipals during January. The municipal yield curve remains inverted (10-year minus 1-year) following the inversion of the U.S. Treasury yield curve with no signs of un-inverting in the near term. We remain favorable on municipals, especially as they have historically been resilient during an economic slowdown. For investors in higher effective tax brackets, we believe municipal securities are an important part of fixed-income positioning.

Developed markets (DM): Unhedged DM bond returns (-3.0%) fell following a strong performance in December as the yen, pound, and euro all depreciated against the U.S. dollar in January. Hedged DM bonds also struggled (-0.6%). The rise of the U.S. dollar relative to most major developed market currencies caused widespread struggles in international bonds. Bonds from Italy, Spain, and Denmark fell the least.

Emerging markets (EM): Falling EM foreign exchange rates against the U.S. dollar impacted local-currency-denominated EM bonds, which fell -0.9% in January. While a rise in long-term U.S. Treasury yields also caused negative returns (-1.2%) for the month in the dollar-denominated EM bonds. Performance was negative across several of the largest EM countries, with Turkey, Indonesia, and Saudi Arabia being key detractors.

Wells Fargo Investment Institute perspective

We expect U.S. Treasury yields to remain volatile in 2024. In our view, the year ahead will be the tale of two halves: a decline in yields during the first half of 2024 as the economic slowdown deepens, and the Fed pivots away from tightening monetary policy, followed by a climb in yields in the second half as the recovery begins to take shape. We still recommend exposure in short-term fixed income and in municipal bonds and are now neutral on intermediate and long-term taxable fixed income. We believe these sectors have the potential to offer investors sustainable yield potential, which we view as a key driver of fixed-income performance.

We believe the eurozone will struggle with a recession and persistent fiscal policy challenges, while Japanese yields remain artificially low. Furthermore, the U.S. dollar should remain strong, at least in the first half of 2024. With yields generally below those available in the U.S., and currency returns seen as negative, we continue to have no strategic or tactical allocation to developed-market ex-U.S. bonds.

The global environment also remains challenging for EM debt as sluggish Chinese growth, and a stronger U.S. dollar weigh on these markets. Higher-for-longer U.S. yields and potential sovereign EM credit-spread widening may also dent performance. Should rates move lower in the first half of 2024, the longer maturities inherent in the EM debt sector may help lift the sector's performance. These crosscurrents leave our outlook neutral on EM sovereign debt denominated in dollars, but we believe the outlook may brighten in the second half of 2024 as the global economy begins to recover.

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	-0.3	2.1	-3.2	0.8
U.S. Short Term Taxable	0.4	0.4	0.4	4.2	0.2	1.5
U.S. Intermediate Term Taxable	0.0	0.0	0.0	2.7	-2.6	1.1
U.S. Long Term Taxable	-1.5	-1.5	-1.5	-1.6	-8.5	0.2
U.S. Treasury Bills	0.4	0.4	0.4	5.2	2.4	1.9
U.S. Municipal Bonds	-0.5	-0.5	-0.5	2.9	-0.8	2.0
High Yield Taxable Fixed Income	0.0	0.0	0.0	9.3	1.9	4.4
DM Ex.-U.S. Fixed Income (Unhedged)	-3.0	-3.0	-3.0	-2.2	-10.2	-4.0
DM Ex.-U.S. Fixed Income (Hedged)	-0.6	-0.6	-0.6	5.2	-2.5	0.5
EM Fixed Income (U.S. dollar)	-1.2	-1.2	-1.2	5.9	-3.1	0.8
EM Fixed Income (Local currency)[1]	-1.5	-1.5	-1.5	6.4	-3.3	-0.2

Sources: Bloomberg, J.P. Morgan, Wells Fargo Investment Institute, January 31, 2024. MTD = month to date. QTD = quarter to date. YTD = year to date. 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 pages 27-32 for important definitions and disclosures.

Fixed income tactical guidance*

	Guidance
Cash Alternatives	Neutral
U.S. Taxable Investment Grade Fixed Income	Favorable
U.S. Short Term Taxable	Most Favorable
U.S. Intermediate Term Taxable	Neutral
U.S. Long Term Taxable	Neutral
High Yield Taxable Fixed Income	Unfavorable
DM Ex.-U.S. Fixed Income	Neutral
EM Fixed Income	Neutral

Source: Wells Fargo Investment Institute, February 15, 2024. *Tactical horizon is 6-18 months.

Fixed income

Sector strategy: U.S. investment-grade securities

Sector tactical guidance* and total returns (%)

Sector	Guidance	1 month	Year to date
Duration	Neutral	–	–
U.S. Government	Favorable	-0.3	-0.3
Treasury Securities	Favorable	-0.3	-0.3
Agencies	Neutral	0.3	0.3
Inflation-Linked Fixed Income	Neutral	0.2	0.2
Credit	Neutral	-0.2	-0.2
Corporate Securities	Neutral	-0.2	-0.2
Preferred Securities	Neutral	3.7	3.7
Leveraged Loans	Unfavorable	0.7	0.7
Securitized	Neutral	-0.4	-0.4
Residential MBS	Neutral	-0.5	-0.5
Commercial MBS	Unfavorable	0.7	0.7
Asset Backed Securities	Neutral	0.5	0.5
U.S. Municipal Bonds	Favorable	-0.5	-0.5
Taxable Municipal	Neutral	-0.1	-0.1
State and Local General Obligation	Favorable	-0.6	-0.6
Essential Service Revenue	Neutral	-0.5	-0.5
Pre-refunded	Neutral	0.1	0.1
High Yield Municipal	Unfavorable	-0.5	-0.5

Sources: Total returns: Bloomberg as of January 31, 2024. Guidance: Wells Fargo Investment Institute, as of February 15, 2024. *Tactical horizon is 6-18 months. An index is unmanaged and not available for direct investment. **Past performance is no guarantee of future results.** MBS = mortgage-backed securities. Duration is a measure of a bond's interest rate sensitivity. See pages 27-32 for important definitions and disclosures.

Duration (Neutral): We believe long-term rates have already peaked for this cycle in line with historical patterns as long-term rates tend to peak before the end of a Fed's tightening cycle. We also believe that the terminal policy rate for this cycle has been reached and that the Fed is likely to cut rates in 2024 as inflation continues to trend lower. Our duration guidance is now neutral for both taxable and tax-exempt (municipal) bond sectors. We believe interest rates have the potential to move higher toward year-end 2024 under a soft-landing scenario that fuels inflation higher or if the economic slowdown ends and a recovery takes hold into the end of the year. Given our interest rate outlook for 2024, we also believe now is a good opportunity to reduce duration exposure and return to a neutral stance.

U.S. Government (Favorable): We remain favorable on government securities, as they historically have tended to be more resilient than other fixed-income asset classes during economic slowdowns. We view holdings of Treasury securities as a high-credit-quality hedge during periods of market volatility, which we still expect in the coming quarters. We believe that as the anticipated slowdown nears, investor appetite for credit risk will tend to diminish in lieu of securities considered perceived safe havens, supporting our view that U.S. Treasuries may have the potential to benefit.

Investment-Grade Credit (Neutral): We have a neutral view of IG credit (and IG corporate bonds). High-quality IG credit may allow portfolios to generate excess yield (also known as carry) through spread premium that is meant to compensate investors for perceived issuer credit risk. IG credit spreads remain relatively narrow, and the attractiveness of IG corporates has diminished; we believe widening may occur as an anticipated economic downturn nears. Still, the higher yields available in these sectors relative to many other IG fixed income options support our neutral guidance. We reiterate our bias toward selectivity.

Preferred Stock (Neutral): We maintain a neutral position on preferred securities, especially as we expect a continued economic slowdown. A neutral allocation still implies a full allocation to preferred securities. Income-oriented investors with a longer-term perspective could continue to accumulate preferred securities as prices decline. The current market highlights that preferred securities come with heightened risks relative to high-quality, traditional fixed-income sectors. More specifically, given that preferred securities have an innate long-dated (perpetual) nature, issues with low coupons can experience greater losses than those with higher coupons during a relatively high interest rate environment. Investors participating in this income-oriented sector should understand the risks and complexities inherent in many preferred securities.

Investment-Grade Securitized (Neutral): We remain neutral on the securitized sector given that a large portion of the securitized sector is in the residential mortgage-backed securities (RMBS) sub-sector, and we also remain neutral on RMBS. We believe that the securitized sector may be positioned to offer value relative to other fixed-income asset classes as they provide better credit quality and liquidity especially as we move through an economic downturn.

On the other hand, we remain unfavorable on commercial mortgage-backed securities (CMBS). The prospects of an economic slowdown increase risks for commercially leased space. Sentiment also remains largely negative, especially on concerns on how smaller regional banks will handle struggling debt. We believe credit spreads on CMBS could remain around current levels or could move higher, especially while interest rates remain elevated.

U.S. Municipal Bonds (Favorable): Municipal markets struggled in January as yields decreased across the curve. Still, we maintain a favorable view of municipal bonds and believe that investors view this asset class as a perceived safe haven of general credit stability. In early February, municipal-to-Treasury yield ratios (MTYR) stood at 60% for 10-year issues and at 84% for 30-year bonds, slightly higher from early January. From a historical valuation perspective using MTYR, both 10-year and 30-year municipal bonds still appear to be somewhat rich as they are both below long-term averages.

We currently favor the 11- to 15-year maturity range where investors can potentially pick up incremental yield, with a bias toward the longer end of this range. We favor a premium coupon structure and find value in the additional spread pickup offered in 4% coupons over 5% coupons. Bonds with a lower coupon structure will have longer duration, and the yield-spread pick-up is reflective of that. Municipal credit spreads have been relatively tight due to limited supply and are currently at their 12-month lows. We believe that an emphasis on quality and selectivity remains essential. Municipal investors should also undertake meticulous credit research or access professional management.

Equities

Market observations

U.S. equities: After a strong two-month rally, stocks struggled for direction in January. The best performing asset class benchmark, the S&P 500 Index, only managed a +1.7% January return. The other four asset class benchmarks were flat or negative on the month. A tempering of market expectations for early and aggressive Fed rate cuts was a headwind. The three main themes of 2023 — AI (artificial intelligence), the Fed, and the economy — will likely continue to be dominant return drivers in 2024.

The preference for quality in January was clear in the asset class stack rank as U.S. large caps (+1.7%) outperformed mid caps (-1.4%), which in turn outperformed small caps (-3.9%). Within the S&P 500 Index, the Communication Services (+5.0%) and Information Technology (+3.9%) sectors outperformed. Both sectors benefited from well received earnings reports by some key constituent companies. Real Estate (-4.7%), Materials (-3.9%), and Consumer Discretionary (-3.5%) were the worst performing sectors last month.

Only two Russell Midcap Index sectors — Telecommunications (+2.4%) and Financials (+1.3%) — posted positive January performance, while only one Russell 2000 Index sector — Technology (+0.1%) — did the same. Real Estate (-4.8%) and Energy (-3.7%) were the worst mid-cap sector performers last month, while Basic Materials (-8.5%) and Telecommunications (-10.6%) small-cap sectors underperformed to the greatest extent.

International equities[6]: U.S. dollar-denominated DM equities (+0.6%) outperformed EM equities (-4.6%) last month. The currency conversion into U.S. dollars was a drag on returns to both asset classes as the U.S. dollar broadly strengthened.

Regarding DM performance, the Pacific region (+1.9%) outperformed the Europe region (-0.1%) in January. In the Pacific, Japan (+4.6%) outperformed, while Hong Kong (-9.7%) underperformed last month. In Europe, the Netherlands (+6.1%) and Ireland (+5.2%) outperformed, while Norway (-5.7%) and Sweden (-4.1%) underperformed in January.

Within EM, Latin America (-4.8%), Asia (-5.2%) as well as Europe, Middle East, and Africa (-1.0%) were down on the month. Turkey (+10.3%), and India (+2.4%) were two of the few countries to post positive returns, while China stocks' struggles continued in January (-10.6%). South Korea (-10.0%) and Chile (-11.0%) also substantially underperformed.

Wells Fargo Investment Institute perspective

As the markets face tight Fed policy, sticky inflation, slowing economic growth, and geopolitical tensions, we recommend focusing on quality in investment portfolios. Within the U.S., we prefer higher quality, large- and mid-cap companies with consistent earnings growth and low leverage. We are favorable on U.S. Large Cap Equities, neutral on U.S. Mid Cap Equities, and most unfavorable on U.S. Small Cap Equities. Our quality bias extends to international equities where we prefer Developed Market ex-U.S. Equities (neutral) over Emerging Markets Equities (unfavorable).

Our view is that earnings for all equity classes will be weighed down as the economy weakens, and revenue growth stalls before staging a modest rebound alongside the economy in the back half of the year. In the near term, we expect pressure on earnings as well as prices with bouts of weakness and range trading. Once the economic slowdown appears to be fully priced into market valuations, we likely will look for an opportunity to position for an emerging early cycle recovery later in 2024. As is most often the case, that time will likely come while the economy is still within the grips of the slowdown. More cyclically oriented equities should benefit if the economy gains its footing and corporate earnings begin to grow again, as we expect.

Equity index total returns (%)

	MTD	QTD	YTD	1 year	3 year	5 year
U.S. Large Cap Equities	1.7	1.7	1.7	20.8	11.0	14.3
U.S. Large Cap (Growth)	2.5	2.5	2.5	35.0	10.0	18.0
U.S. Large Cap (Value)	0.1	0.1	0.1	6.1	9.2	9.3
U.S. Mid Cap Equities	-1.4	-1.4	-1.4	6.7	5.5	10.1
U.S. Mid Cap (Growth)	-0.5	-0.5	-0.5	15.1	1.2	11.2
U.S. Mid Cap (Value)	-1.8	-1.8	-1.8	2.4	7.8	8.6
U.S. Small Cap Equities	-3.9	-3.9	-3.9	2.4	-0.8	6.8
U.S. Small Cap (Growth)	-3.2	-3.2	-3.2	4.5	-6.0	6.2
U.S. Small Cap (Value)	-4.5	-4.5	-4.5	-0.1	4.5	6.7
DM Equities Ex-U.S. (USD)	0.6	0.6	0.6	10.6	5.1	7.4
DM Equities Ex-U.S. (Local)[1]	2.6	2.6	2.6	12.7	10.3	9.4
EM Equities (USD)	-4.6	-4.6	-4.6	-2.5	-7.1	1.4
EM Equities (Local)[1]	-3.5	-3.5	-3.5	-0.1	-4.5	3.6

Sources: Bloomberg, Standard & Poor's, Russell Indexes, MSCI Inc., Wells Fargo Investment Institute, January 31, 2024. MTD = month to date. QTD = quarter to date. YTD = year to date. DM indicates Developed Market; EM indicates Emerging 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 pages 27-32 for important definitions and disclosures.

Equity tactical guidance*

	Guidance
U.S. Large Cap Equities	Favorable
U.S. Mid Cap Equities	Neutral
U.S. Small Cap Equities	Most unfavorable
DM Equities Ex-U.S.	Neutral
EM Equities	Unfavorable

Source: Wells Fargo Investment Institute, February 15, 2024. *Tactical horizon is 6-18 months.

International equity tactical guidance* by region

Region	Benchmark weight (%)**	Guidance
DM Equities Ex.-U.S.		Neutral
Europe	66	Neutral
Pacific	34	Favorable
EM Equities		Unfavorable
Asia	77	Neutral
Europe, Middle East, and Africa	13	Most unfavorable
Latin America	9	Neutral

Sources: Bloomberg, Wells Fargo Investment Institute (WFII). *Tactical horizon is 6-18 months. Weightings are as of January 31, 2024. WFII guidance is as of February 15, 2024. **Benchmarks are MSCI EAFE Index for DM and MSCI Emerging Markets Index for EM. Weightings may not add to 100% due to rounding. An index is unmanaged and not available for direct investment.

6. Regional and country returns are measured using the total U.S. dollar returns of their respective MSCI Index. Please see the end of the report for the definitions of the representative indexes.

Equities

U.S. equity sector strategy

S&P 500 Index sector tactical guidance* and total returns (%)

Sector	S&P 500 Index weight (%)**	Guidance***	MTD	QTD	YTD	1 year	3 year	5 year
Communication Services	9.2	Neutral	5.0	5.0	5.0	42.9	6.6	12.2
Consumer Discretionary	10.4	Unfavorable	-3.5	-3.5	-3.5	19.4	2.3	10.7
Consumer Staples	6.1	Neutral	1.5	1.5	1.5	3.0	8.3	10.1
Energy	3.7	Favorable	-0.4	-0.4	-0.4	-4.4	34.4	11.0
Financials	12.9	Unfavorable	3.0	3.0	3.0	8.1	12.4	10.8
Health Care	12.7	Favorable	3.0	3.0	3.0	7.1	8.6	11.2
Industrials	8.6	Favorable	-0.9	-0.9	-0.9	12.9	11.9	11.6
Information Technology	29.8	Neutral	3.9	3.9	3.9	50.1	17.0	26.2
Materials	2.2	Favorable	-3.9	-3.9	-3.9	-0.8	7.4	11.5
Real Estate	2.3	Unfavorable	-4.7	-4.7	-4.7	-2.6	4.8	5.7
Utilities	2.2	Neutral	-3.0	-3.0	-3.0	-8.0	2.8	5.7
Total	100.0							

Sources: S&P 500 Index weight and total returns: Bloomberg, as of January 31, 2024. Guidance: Wells Fargo Investment Institute, as of February 15, 2024. *Tactical horizon is 6-18 months. MTD = month to date. QTD = quarter to date. YTD = year to date. An index is unmanaged and not available for direct investment. **Past performance is no guarantee of future results.**

**Sector weightings may not add to 100% due to rounding.

***To reposition allocations for consistency with our guidance, add two percentage points of exposure to market weight for favorables, subtract two for unfavorables, and hold market weight for neutrals.

Communication Services (Neutral): Although we believe several long-term trends remain largely intact, including cord-cutting, 5G network buildout, social media usage, and now AI, headwinds have emerged across the sector. Ad-tracking and privacy changes have disrupted advertising platforms, while secular changes within the cable, wireless, and broadband industries have forced investors to reassess growth expectations.

Consumer Discretionary (Unfavorable): We expect low consumer confidence and a likely economic slowdown to depress discretionary spending and lead to sector underperformance. AI optimism has been a near-term tailwind, which we believe has stretched valuations and left the sector more vulnerable to disappointment.

Consumer Staples (Neutral): We expect defensive characteristics, such as relatively predictable sales and earnings growth, as well as its attractive return on equity, to potentially provide support in the slowing economy.

Energy (Favorable): The fundamental case for the sector is attractive as oil supply remains tight, OPEC+ seemingly is committed to keeping it that way, and U.S. oil producers' capital discipline and preference for shareholder returns versus production growth is likely to aid in that mission. Recent underperformance has brought valuations near historically cheap levels, and we see significant upside in oil prices. As a result, we have upgraded the sector.

Financials (Unfavorable): We believe the recent Financials rally caused prices to get ahead of fundamentals. The sector will likely feel the brunt of the economic slowdown if conditions tighten, demand weakens, and deal and payments activity slows, as we expect.. The earnings outlook ranks near the bottom, valuations remain uncompelling, and the sector screens poorly on common quality metrics as well. Throwing in a heightened regulatory environment on top of the aforementioned headwinds paints a dim picture for the sector.

Health Care (Favorable): We believe that the sector's low leverage and high return on equity fit nicely into our quality theme. The sector's fundamentals appear solid, notably as we believe strong pent-up demand and stable earnings likely will support prices in a downturn.

Industrials (Favorable): Tailwinds for the sector include multiple stimulus programs that are projected to fund in 2024, the energy transition, re-shoring, data center expansion, easing input cost pressures, and continued supply chain normalization. Sector valuations are fair in our view, and the recent underperformance during this year's growth rally provided an attractive opportunity to upgrade Industrials to favorable.

Information Technology (Neutral): We still believe that Information Technology's quality characteristics should serve it well if the economy rolls over, as we expect. However, the sector's AI-driven outperformance has lifted valuations to levels that we find unattractive at present.

Materials (Favorable): Outside of the Energy sector, Materials is the most levered sector to the overarching trends that we expect, including higher commodity prices, China's ongoing reopening, and a flat to weaker dollar over the coming 6–18 months. The sector scores well on quality metrics, such as low debt ratios, and enjoys attractive valuations, in our view.

Real Estate (Unfavorable): Higher for longer interest rates suggest that the interest rate sensitive Real Estate sector will face headwinds over the tactical time horizon. Likely tighter credit conditions after the mini banking crisis should weigh on this credit-hungry sector as well, supporting our unfavorable rating.

Utilities (Neutral): We believe Utilities' fundamental outlook and the potential for more defensive market posturing remain supportive for the sector; however, elevated debt levels as well as high fixed costs along with limited pricing power are headwinds.

Growth versus Value (Balanced): In our view, the value-growth descriptors are too blunt and broad, and instead we prefer to pick sectors in an effort to enhance equity returns. There is not a straightforward way to sort sector preferences into growth or value styles, but our current sector preferences tilt toward value (we hold a favorable rating on the Energy, Industrials, Materials, and Health Care sectors, and an unfavorable rating on Consumer Discretionary, Financials, and Real Estate sectors).

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

Equities

Equity sector and sub-sector preferences

Sector	Sector tactical guidance*	Favorable sub-sectors	Unfavorable sub-sectors
Energy	Favorable	Integrated Oil; Midstream Energy	Refining
Health Care		Life Sciences Tools & Services; Managed Health Care; Health Care Equipment & Supplies	Health Care Services
Industrials		Aerospace & Defense; Commercial & Professional Services; Multi-Industrials**; Rail Transportation	Passenger Airlines
Materials		Construction Materials; Industrial Gases; Specialty Chemicals	Containers & Packaging
Communication Services	Neutral	Interactive Home Entertainment; Interactive Media & Services	Alternative Carriers; Publishing
Consumer Staples		Beverages; Consumer Staples Merchandise Retail; Household Products	Tobacco
Information Technology		IT Services; Communications Equipment; Semiconductor Materials & Equipment; Software	Electronic Equipment & Instruments
Utilities		Electric Utilities; Multi-Utilities; Renewable Electricity	Independent Power Producers & Energy Traders
Consumer Discretionary	Unfavorable	Broadline Retail; Hotels, Restaurants & Leisure; Specialty Retail	Leisure Products
Financials		Asset Management & Custody Banks; Diversified Banks; Insurance Brokers; Property & Casualty Insurance; Transaction & Payment Processing Services	Business Development Companies; Consumer Finance; Life & Health Insurance; Mortgage Real Estate Investment Trusts (REITs)
Real Estate		Data Center REITs; Industrial REITs; Self-Storage REITs; Telecommunications REITs	Diversified REITs; Lodging/Resort REITs; Office REITs; Specialty REITs; Timberland REITs

Source: Wells Fargo Investment Institute; favored sub-sectors by Global Securities Research (GSR) group and favored sectors by Global Investment Strategy. As of February 15, 2024.
*Tactical horizon is 6-18 months.
**Multi-industrials includes conglomerates, electrical equipment, industrial machinery, and trading companies and distributors.

For more information, please request our most recent *Equity Recommendations* report.

Real assets

Master limited partnerships (MLPs)

Market observations

MLPs outperformed the broader market in January, with a 4.4% total return (as measured by the Alerian MLP Index) versus a 1.7% return for the S&P 500 Index. West Texas Intermediate (WTI) crude oil prices gained 5.9% during the month. We note that MLPs typically have low direct business exposure to energy commodity prices as business models are primarily fee-based.

Investor concerns over environmental, social, and governance (ESG) issues have emerged as a persistent headwind over the past several years, stoking fears of stranded assets amid a gradual shift away from fossil fuels. Countering this, recent geopolitical events have emphasized the importance of energy security. As the U.S. energy industry continues to mature, MLPs have largely been focused on right sizing their asset portfolios and becoming more selective on deploying capital toward growth. As a result, many high-quality MLPs now have stronger balance sheets and potential for sustainable payouts, in our view.

Wells Fargo Investment Institute perspective

We prefer high-quality midstream energy companies which have had stable operating results and solid distribution coverage. These companies tend to be relatively large and well diversified. We also believe that midstream C-corporations[7] typically have stronger corporate governance and a wider institutional investor base relative to midstream companies structured as MLPs.

Commodities

Market observations

Energy: The Bloomberg Commodity Energy Subindex increased by 2.8% in January, outperforming the broader Bloomberg Commodity Index. WTI and Brent crude prices strengthened and rose by 5.9% and 6.1%, respectively.

The U.S. recently achieved record production levels of 13.3 million barrels per day, which acted as a strong headwind in the latter months of 2023. Despite higher U.S. production, though, supply disruptions are still a risk as conflicts in the Middle East continue, and as OPEC (Organization of the Petroleum Exporting Countries) extends its restrictive production policy through Q1 2024. Additionally, U.S. production growth is expected to slow in 2024, which will likely support prices. Our year-end targets are $85–$95 per barrel for WTI and $90–$100 per barrel for Brent crude.

Metals: Precious metals underperformed the Bloomberg Commodity Index with a -1.3% return in January. Gold prices dipped by 1.1%, while silver prices declined by 3.8% for the month. Despite underperformance, though, gold continued to trade near all time-highs, and ended January at $2,039 per troy ounce. Fundamentals also appeared to strengthen, as recent World Gold Council data showed that central bank purchases were strong again in Q4 2023 and are poised to continue showing strength throughout 2024. In addition to strong central bank demand, we believe gold's performance will improve in 2024 as the Federal Reserve is expected to cut interest rates in 2024.

Industrial metals underperformed the Bloomberg Commodity Index, with a -1.9% return in January. Copper was the top performer (+0.4%), while aluminum was the worst performer (-4.2%). We suspect the sector will continue to face headwinds as China continues to struggle with contractions in manufacturing activity and a struggling property sector. If the slowdown is shallower than expected, we believe industrial metals could revert and become strong performers.

Agriculture: Agricultural commodity prices decreased by 1.0% in January, underperforming the Bloomberg Commodity Index, but there was still a wide dispersion in individual performance. Sugar was the top performer (+17.3%), while soybeans (-5.5%) and wheat (-5.2%) were among the worst. Though some agricultural commodities showed strong performance, we caution that adequate supply growth and an easing of supply chain disruptions appear to be strong headwinds for prices across the agricultural complex.

Real assets index total returns (%)

	MTD	QTD	YTD	1 year	3 year	5 year
Public Real Estate	-4.0	-4.0	-4.0	-2.4	1.0	0.8
U.S. REITs	-4.9	-4.9	-4.9	-3.7	4.0	4.2
International REITs	-3.7	-3.7	-3.7	-3.2	-4.7	-2.5
Master Limited Partnerships	4.4	4.4	4.4	24.0	31.8	10.3
Global Infrastructure	-3.1	-3.1	-3.1	-1.5	5.7	4.9
Commodities (BCOM)	0.4	0.4	0.4	-7.1	10.0	6.2
Agriculture	-1.0	-1.0	-1.0	-7.5	9.7	9.7
Energy	2.8	2.8	2.8	-10.8	16.5	-0.4
Industrial Metals	-1.9	-1.9	-1.9	-17.6	4.3	5.5
Precious Metals	-1.3	-1.3	-1.3	3.6	1.1	7.7
Commodities (S&P GSCI)	4.5	4.5	4.5	0.1	19.0	7.8
Commodities (RICI)	1.6	1.6	1.6	-3.3	16.2	9.6

Sources: Bloomberg, Wells Fargo Investment Institute, January 31, 2024. MTD = month to date. QTD = quarter to date. YTD = year to date. REITs = real estate investment trusts. 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 pages 27-32 for important definitions and disclosures.

Wells Fargo Investment Institute perspective

Overall, commodities (measured by the Bloomberg Commodity Index) rose by 0.4% in January, driven by stronger energy prices. Over recent months, most individual commodities have seen significant corrections, driven by demand concerns of a looming slowdown. We view recent weakness as an opportunity for investors. Therefore, we remain favorable on a broad basket of commodities, as we believe long-term supply imbalances and a commodity bull super-cycle will continue to support positive long-term performance.

Private Real Estate: Private Real Estate continues to face headwinds. Higher interest rates, an economic slowdown, and tighter credit conditions pose challenges across most property types. Market signals remain mixed in the single and multifamily residential sectors, yet housing affordability recently reached multi-decade lows amid the rising cost of capital. The office sector remains weak as a tight labor market creates a headwind for the return-to-office movement — returns fell by 3.7% during the third quarter of 2023 according to the NCREIF Office Property Index. Since the 2023 banking crisis, lending standards in the commercial real estate market have tightened considerably. Although longer-term trends in the Industrials sector remain positive given the shift to online retail and accompanying need for distribution centers and delivery services, the dynamics of a forthcoming slowdown have tempered our outlook in the near term.

Real asset tactical guidance*

Guidance

Commodities	Favorable
Energy	Favorable
Precious Metals	Favorable
Agriculture	Neutral
Industrial Metals	Neutral

Private Real Estate	Neutral
Core	Neutral
Value-Add	Neutral
Opportunistic	Neutral

Source: Wells Fargo Investment Institute, February 15, 2024. *Tactical horizon is 6-18 months.

7. A C-corporation is a legal structure for a corporation in which the owners, or shareholders, are taxed separately from the entity.

Alternative investments*

Market observations

In January, global yields rose on the back of better-than-expected payroll and retail sales data in the U.S. and as global central banks pushed back against the aggressive pace of rate cuts priced by investors. The yield increases, along with narrowing credit spreads, underpinned flat returns in investment-grade and high-yield fixed income and mixed equity performance. Within U.S. equities, large-cap stocks, as well as higher quality Information Technology and Communication Services sectors led the way up, whereas mid- and small-cap equities and cyclical sectors marched lower. The relative strength in U.S. growth and interest rates buoyed the U.S. dollar for the month. As a result, international bonds and stocks registered flat-to-lower single-digit losses. The Bloomberg Commodity Index returned 0.4% for the month, as the weakness in metals and agricultural commodities largely offset the gain from energy.

Relative Value strategies registered a profit of 0.6% for the month, mostly driven by long/short credit and structured credit strategies. Declining credit and structured spreads were constructive for many relative value managers. However, interest rate volatility was a headwind especially for Arbitrage strategies.

Macro strategies marched up by 0.4% in January. Systematic strategies generated a 0.6% return for the month, benefiting from both commodity and stock holdings. Long positions in energy were additive to returns, as the price of crude oil rose owing to Middle East tensions and the outlook of strong demands. Further, ample supplies of wheat and soybean from global suppliers weighed on price and benefited manager's short positions. Additional profits attributable to equity positions were largely driven by long Japanese and short Chinese stock holdings. However, long fixed income holdings detracted from returns, as global yields climbed. During the month, the strategies reestablished long positions in the U.S. dollar and scaled back long fixed income holdings. Systematic strategies also maintained the long positions in equities, metals, and energy, and continued short holdings in agricultural commodities. For the month, Discretionary strategies had a loss of 0.6%.

Event Driven declined by 0.3% for the month. Activist and merger arbitrage strategies suffered from losses of 2.2% and 1.0%, respectively, whereas distressed credit strategies recorded a gain of 0.7%. Merger Arbitrage managers struggled with widened deal spreads and deal terminations due to regulatory challenges and shareholder resistance. For distressed credit, the opportunity set has expanded, yet it remains modest versus historical distressed cycles. We expect the number of distressed situations to grow as businesses with over-leveraged balance sheets become more stressed under the weight of increasing debt-service levels and slower growth.

Equity Hedge strategies ended with a 0.2% return in January and trailed the MSCI All Country World Index. The positive return was driven by both equity market and security selection impacts. Throughout the month, the strategies increased positions in Europe and Asia, as well as Information Technology and cyclical sectors and continued to emphasize mega-cap stocks. Conversely, the managers reduced holdings in North America. Equity market neutral strategies resulted in a return of 1.9%. As dispersion among stocks remains elevated and market sentiment grows more optimistic, we expect the environment for long/short (L/S) equity and market neutral strategies to turn more constructive.

Alternative investments index/strategy total returns (%)

	MTD	QTD	YTD	1 year	3 year	5 year
Global Hedge Funds	0.3	0.3	0.3	5.6	4.2	6.4
Relative Value	0.6	0.6	0.6	5.7	4.3	4.5
Arbitrage	0.1	0.1	0.1	4.2	3.9	4.5
Long/Short Credit	1.1	1.1	1.1	6.9	3.1	4.9
Struct. Credit/Asset-Backed	0.7	0.7	0.7	6.9	4.7	4.0
Macro	0.4	0.4	0.4	-0.3	5.5	5.6
Systematic	0.6	0.6	0.6	-1.2	5.2	5.2
Discretionary	-0.6	-0.6	-0.6	2.7	2.7	5.3
Event Driven	-0.3	-0.3	-0.3	6.8	4.9	6.0
Activist	-2.2	-2.2	-2.2	6.4	4.3	6.5
Distressed Credit	0.7	0.7	0.7	8.6	5.6	6.5
Merger Arbitrage	-1.0	-1.0	-1.0	3.6	4.9	5.6
Equity Hedge	0.2	0.2	0.2	7.5	3.4	7.4
Directional Equity	0.0	0.0	0.0	7.4	3.1	7.7
Equity Market Neutral	1.9	1.9	1.9	7.9	5.6	3.4

Source: Hedge Fund Research, Inc., January 31, 2024. (Preliminary numbers released by HFR on February 7, 2024.) MTD = month to date. QTD = quarter to date. YTD = year to date. 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 pages 27-32 for important definitions and disclosures.

Wells Fargo Investment Institute perspective

Relative Value (Favorable): We believe L/S credit and Arbitrage strategies should benefit from their defensive characteristics during economic slowdowns and market drawdowns. Moreover, we expect credit dispersion to increase as we anticipate the economy to slow further, which we believe should bode well for Relative Value strategies.

Macro (Favorable): We consider stronger, more stable trends in commodities and currencies, as well as elevated cross-asset volatility, to be tailwinds for Macro strategies. Additionally, Macro strategies have historically been the least correlated to global risk assets, which we believe can be additive to portfolios as the cycle matures.

Event Driven (Neutral): We maintain our neutral guidance in Event Driven and continue our favorable view in the Distressed Credit subcategory. As higher interest rates flow through the economy, we believe higher debt-service levels and slower growth will meaningfully impact many small and mid-sized businesses. We expect the opportunity set to expand as the cycle matures, and distressed strategies will likely benefit as businesses recapitalize, restructure, and reemerge to a more favorable market.

Equity Hedge (Neutral): We expect more muted returns from Equity Hedge strategies compared with recent years. As the cycle matures, we anticipate managers will maintain a more defensive bias, which should help to mitigate downside risk but will likely limit upside.

Private Equity (Neutral): 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. We believe that opportunities do exist — especially in secondaries, middle market, growth equity, and infrastructure investments.

Private Debt (Neutral): We upgraded our guidance on Distressed and Special Situations from neutral to favorable in June 2023. The number of distressed opportunities is expected to expand in the coming quarters, as the effects of elevated interest rates, slower economic growth, and tightened lending standards continue to weigh on small- and middle-market businesses. We maintain our neutral rating on Direct Lending based on growing risks for middle-market lending and an ongoing recalibration of private equity valuations.

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Alternative investments*

Private placements

Alternative investment strategies outlook*

Private placements	Tactical guidance**
Relative Value	Favorable
Arbitrage	Favorable
Long/Short Credit	Favorable
Structured Credit/Asset-Backed	Neutral
Macro	Favorable
Systematic	Favorable
Discretionary	Favorable
Event Driven	Neutral
Activist	Unfavorable
Distressed Credit	Favorable
Merger Arbitrage	Unfavorable
Equity Hedge	Neutral
Directional	Neutral
Equity Market Neutral	Neutral
Private Equity	Neutral
Large Cap Buyout	Neutral
Small / Mid Cap Buyout	Favorable
Growth Equity	Favorable
Venture	Neutral
Private Debt	Neutral
Direct Lending	Neutral
Distressed / Special Situations	Favorable

Sources: Wells Fargo Investment Institute, February 15, 2024.

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**Tactical horizon is 6-18 months.

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.

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.

Currency guidance

The U.S. dollar versus developed market currencies

Market observations and outlook

The dollar moved higher in January with the U.S. Dollar Index (DXY) increasing by 1.1% to end the month at 103.27. Expectations of a rapid Fed pivot toward interest rate cuts in 2024 declined in January, which pushed the dollar higher as interest rate differentials between the U.S. and other developed countries increased. Fed policy actions in comparison to other major central banks over the next few months will likely remain a key point for the dollar's near-term levels. Developed market (DM) currencies fell versus the dollar on the back of central bank actions, with the euro falling by 2.1% versus the dollar and ending the month around the 1.08 level. The yen similarly fell by 4.3% for the month. The pound was volatile throughout January, ending the month slightly down 0.3%.

We expect the dollar to trade in a range or to rise slightly through the first half of 2024, supported by still-elevated U.S. interest rates and a somewhat resilient economy in comparison to Europe. We believe the market is too optimistic on the speed and severity of Fed rate cuts and the dollar may experience continued support if the market outlook changes to align with messaging from the Fed. We believe that the euro may be supported by the European Central Bank's (ECB) reluctance to cut rates, but that higher U.S. rates will give the dollar an edge if the ECB moves to cut rates ahead of the Fed. The dollar may stay elevated for the first half of 2024, then start a downtrend in the latter half of the year as capital flows may diversify away from the U.S. in a potential risk-on environment for the global economy. For year-end 2024, we see ranges of $1.08–$1.12 per euro and 136–140 yen per dollar.

Year-end currency targets

	Latest	YE24 targets
Dollars per euro	$1.08	$1.08–$1.12
Yen per dollar	¥147	¥136–¥140
ICE U.S. Dollar Index*	103.2	99–103

Source: Bloomberg, as of January 31, 2024. Targets are Wells Fargo Investment Institute forecasts, as of February 15, 2024 and provide a forecast direction over a tactical horizon. The closer the current date is to the year-end, the more WFII guidance focuses on the following year's target. YE = year end.

*We are initiating coverage of a dollar composite exchange rate index against its principal developed-market competitor currencies. Please see the following disclosure for more detail concerning the index.

The ICE U.S. Dollar Index is a weighted average of the value of the U.S. dollar relative to a basket of U.S. trade partner currencies, comprised of the euro, Japanese yen, pound sterling, Canadian dollar, Swedish krona, and Swiss franc. A higher index value indicates dollar appreciation.

Forecasts are based on certain assumptions and on our views of market and economic conditions, which are subject to change. See pages 27-32 for important definitions and disclosures.

The U.S. dollar versus emerging market currencies

Market observations and outlook

The dollar's strength in January was also negative for emerging market (EM) currencies, with the J.P. Morgan Emerging Markets Currency Index (EMCI) finishing the month 1.1% lower and the MSCI Emerging Markets Currency Index (an index of currencies mirroring the weighting of the more manufacturing-based MSCI Emerging Markets Index, heavily weighted toward Asia) down 1.0%. This reverses November and December rebounds, which followed several months of weakness for EM currencies. The Chinese yuan fell slightly after its rebound in November and December following months of concerns surrounding a still-lagging Chinese economic recovery. Most currencies elsewhere in Asia also fell. The Indian rupee was one of the few positive performers in EM as Prime Minister Modi prepared to release an interim budget at the beginning of February. The Argentine peso continued its fall following the election of Javier Milei, who campaigned on a promise of dollarizing Argentina, but was outpaced by losses in other EM currencies like the Thai baht and Chilean peso. We continue to believe that sustained stronger performance in EM currencies may not be seen until 2024's recovery cycle, with rates dropping in developed economies.

Currency hedging

Based on our views on the direction of the U.S. dollar, we provide our currency-hedging guidance in the matrix below. We have revised our view on DM bonds from unfavorable to neutral, but, because we no longer recommend strategic allocations to DM fixed income in local currency, we still do not favor taking tactical positions at this time. For those investors with exposure to these bonds we have revised our hedging guidance from "hedge" to "no hedge;" since we believe the dollar appears poised to weaken as we approach year-end 2024, we do not expect large currency losses to be a long-term drag on returns. For EM fixed income, the strategic benchmark consists exclusively of dollar-denominated sovereign EM bonds, so we currently believe hedging is unnecessary.

Hedging matrix

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

Source: Wells Fargo Investment Institute, February 15, 2024. 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. We think 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.

Tactical guidance

Recommended tactical guidance

No changes this month.

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.

Cash Alternatives and Fixed Income

Most Unfavorable	Unfavorable	Neutral	Favorable	Most Favorable
	High Yield Taxable Fixed Income	Cash Alternatives Developed Market Ex.-U.S. Fixed Income Emerging Market Fixed Income U.S. Long Term Taxable Fixed Income U.S. Intermediate Term Taxable Fixed Income	U.S. Taxable Investment Grade Fixed Income	U.S. Short Term Taxable Fixed Income

Equities

Most Unfavorable	Unfavorable	Neutral	Favorable	Most Favorable
U.S. Small Cap Equities	Emerging Market Equities	Developed Market Ex.-U.S. Equities U.S. Mid Cap Equities	U.S. Large Cap Equities	

Real Assets

Most Unfavorable	Unfavorable	Neutral	Favorable	Most Favorable
		Private Real Estate	Commodities	

Alternative Investments*

Most Unfavorable	Unfavorable	Neutral	Favorable	Most Favorable
		Hedge Funds–Equity Hedge Hedge Funds–Event Driven Private Debt Private Equity	Hedge Funds–Macro Hedge Funds–Relative Value	

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Tactical guidance*

Tactical guidance summary

FIXED INCOME	U.S. Taxable Investment Grade	Favorable	Slowing economic growth coupled with declining but still-elevated inflation levels is expected in the near term. We favor a more balanced approach between risk-oriented asset classes (equities) and U.S. Taxable Investment Grade Fixed Income. As we move capital between short-, intermediate-, and long-term fixed income, we believe a favorable view of U.S. Taxable Investment Grade Fixed Income is warranted.
	U.S. Short Term Taxable	Most favorable	Short-term fixed income should provide investors an attractive yield even if the Fed begins to cut rates in 2024 as we anticipate. Additionally, we believe short-term fixed income remains attractive given its low volatility and capacity to hold stable in most macro environments.
	U.S. Intermediate Term Taxable	Neutral	We are reallocating from long-term fixed income into intermediate-term fixed income and upgrading the U.S. Intermediate Term Taxable Fixed Income asset class from unfavorable to neutral. Intermediate-term fixed income is also providing an attractive yield and is less rate sensitive should interest rates increase later this year toward our year-end 2024 targets.
	U.S. Long Term Taxable	Neutral	We believe long-term yields have peaked for this cycle. We are now neutral on longer duration bonds. We view the risk-return trade-off in long-term fixed income as neutral as we believe yields will remain mostly range-bound with a bias to the upside by year-end.
	High Yield Taxable	Unfavorable	While yields on these bonds should exceed those on more traditional fixed-income asset classes, the spreads on high yield bonds historically have tended to widen; these bonds have typically underperformed investment-grade bonds, once a recession approached and financial conditions tightened. Of course, past performance is not a guarantee of future results.
	Developed Market Ex-U.S.	Neutral	Currency losses are still weighing on returns while yields are closer to their peak as eurozone rates anticipate the end of the central bank's hiking cycle, so we are now neutral on this fixed-income class.
	Emerging Market	Neutral	Dollar-denominated debt is a small portion of sovereign borrowing and is insulated from EM currency volatility, although vulnerable to rises in U.S. yields, given its longer duration.
EQUITIES	U.S. Large Cap	Favorable	We view U.S. Large Cap Equities as the highest quality major equity class, with strong company balance sheets compared to other equity classes. We believe the equity class is well positioned to withstand volatility as the economy rolls over.
	U.S. Mid Cap	Neutral	U.S. Mid Cap Equities offer investors higher quality compared to small-cap equities and a reasonable amount of exposure to many economically sensitive sectors that may allow investors to participate in cyclical rallies.
	U.S. Small Cap	Most unfavorable	The Russell 2000 Index (a benchmark for U.S. Small Cap Equities) has struggled with persistently elevated non-earning firms. As the economy slows and credit conditions tighten, we believe these firms will find it challenging to maintain profitability and healthy cash positions.
	Developed Market (DM) Ex.-U.S.	Neutral	Europe still faces an uncertain energy future and likely recession, but we suspect sentiment has passed its nadir and the upturn should support higher absolute and relative valuations which currently sit near 17-year lows.
	Emerging Market	Unfavorable	Ongoing political risks from Chinese regulatory reform, U.S.-China diplomatic and economic strains, and China's shift to emphasize domestic consumption as well as our desire for quality keep us unfavorable on EM equities.
REAL ASSETS	Commodities	Favorable	We expect performance to moderate as expectations of a shallow slowdown soften demand for many cyclically sensitive commodities. As the economy rebounds, we expect to see strong performance across the commodity complex, as the structural undersupply of many commodities should continue to drive the long-term bull super-cycle.
	Private Real Estate**	Neutral	We maintain our neutral guidance on Core, Value-Add, and Opportunistic due to higher rates and slowing growth. In addition, we maintain a neutral view on Private Real Estate overall, remaining cautious as higher interest rates impact financing costs and further downside in valuations remains to align with current market conditions.
ALTERNATIVE INVESTMENTS*	Hedge Funds–Relative Value**	Favorable	We remain favorable on the Long/Short Credit and Arbitrage strategies given the defensive attributes, as we expect greater market volatility and a weakening economy in the near term.
	Hedge Funds–Macro**	Favorable	We maintain our favorable guidance on Macro strategies, as longer-term macro trends driven largely by interest rates, commodities, and foreign exchange markets are likely reestablished.
	Hedge Funds–Event Driven**	Neutral	We continue to see early signals that the environment for distressed debt strategies is improving. Higher rates are impacting small- and middle-market businesses, as debt service levels grow, wage pressures persist, and consumer demand slows. Conversely, we maintain our unfavorable rating on Merger Arbitrage as deal activity slows and the time to closings lengthens.
	Hedge Funds–Equity Hedge**	Neutral	Performance is likely to soften as we expect to enter an economic slowdown and managers shift to a more defensive bias. We may look to shift our guidance once the economy recovers, stock markets inflect, and the security selection environment improves.
	Private Equity**	Neutral	We maintain our neutral cyclical guidance for Private Equity. Valuations have declined from 2021 highs and deal activity has slowed. As the expected economic downturn evolves and valuations reach a bottom, we expect the opportunity to invest new money will improve.
	Private Debt**	Neutral	We upgraded Distressed and Special Situations to favorable to capitalize on our expectations for credit market stress and dislocations. We remain neutral on Direct Lending considering the growing risks in lower quality middle-market borrowers.

*Tactical horizon is 6-18 months.

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Capital market assumptions

Fixed income, equities, real assets, and alternative investments

Annual update; as of July 2023

Capital market and asset class assumptions are estimates of how asset classes may perform over the long term, covering multiple economic and market cycles. 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. **Expected 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	Expected arithmetic return	Expected geometric return	Expected standard deviation or risk	Yield or dividend yield	Downside risk
	Inflation	2.5				
	Taxable Cash Alternatives	2.5	2.5	0.5	2.5	1.7
	Tax Exempt Cash Alternatives	2.1	2.1	0.5	2.1	1.3
FIXED INCOME	U.S. Taxable Investment Grade Fixed Income	3.9	3.9	3.8	3.9	-2.1
FIXED INCOME	U.S. Short Term Taxable Fixed Income	3.1	3.1	1.5	3.1	0.7
FIXED INCOME	U.S. Intermediate Term Taxable Fixed Income	3.9	3.9	3.5	3.9	-1.7
FIXED INCOME	U.S. Long Term Taxable Fixed Income	5.4	5.0	9.0	5.0	-8.7
FIXED INCOME	High Yield Taxable Fixed Income	7.2	6.7	9.5	6.7	-7.7
FIXED INCOME	U.S. Tax Exempt Investment Grade Fixed Income	3.4	3.3	4.3	3.3	-3.5
FIXED INCOME	Short Term Tax Exempt Fixed Income	2.7	2.6	1.8	2.6	-0.2
FIXED INCOME	Intermediate Term Tax Exempt Fixed Income	3.4	3.3	4.0	3.3	-3.1
FIXED INCOME	Long Term Tax Exempt Fixed Income	4.6	4.5	5.3	4.5	-3.8
FIXED INCOME	High Yield Tax Exempt Fixed Income	6.1	5.8	7.5	5.8	-5.8
FIXED INCOME	Developed Market ex-U.S. Fixed Income	3.0	2.7	8.0	2.7	-9.6
FIXED INCOME	Emerging Market Fixed Income	7.0	6.5	10.0	6.5	-8.7
FIXED INCOME	Inflation-Linked Fixed Income	3.8	3.5	7.5	3.5	-8.1
FIXED INCOME	Preferred Stock	5.1	4.4	11.5	4.4	-12.7
EQUITIES	U.S. Large Cap Equities	8.9	7.8	16.0	1.9	-15.2
EQUITIES	U.S. Mid Cap Equities	9.6	8.3	17.0	1.7	-16.0
EQUITIES	U.S. Small Cap Equities	9.8	8.0	20.0	1.4	-19.8
EQUITIES	Developed Market ex-U.S. Equities	8.2	6.9	17.0	2.9	-17.3
EQUITIES	Emerging Market Equities	9.9	8.0	21.0	2.7	-20.9
REAL ASSETS	Private Real Estate	8.9	8.1	13.0	5.0	-11.1
REAL ASSETS	Private Infrastructure	8.8	8.2	12.0	4.3	-9.7
REAL ASSETS	Master Limited Partnerships (MLPs)	10.0	8.5	18.0	7.5	-16.9
REAL ASSETS	Commodities	8.7	7.5	16.0	0.0	-15.5
ALTERNATIVE INVESTMENTS*	Global Hedge Funds	6.1	5.9	6.5	0.0	-4.2
ALTERNATIVE INVESTMENTS*	Hedge Funds – Relative Value	5.9	5.7	7.0	0.0	-5.2
ALTERNATIVE INVESTMENTS*	Hedge Funds – Macro	5.9	5.6	8.0	0.0	-6.8
ALTERNATIVE INVESTMENTS*	Hedge Funds – Event Driven	6.4	6.2	7.5	0.0	-5.5
ALTERNATIVE INVESTMENTS*	Hedge Funds – Equity Hedge	6.5	6.1	8.5	0.0	-6.9
ALTERNATIVE INVESTMENTS*	Global Liquid Alternatives	3.5	3.4	4.0	0.0	-3.0
ALTERNATIVE INVESTMENTS*	Private Equity	14.0	12.1	21.0	0.0	-17.0
ALTERNATIVE INVESTMENTS*	Private Debt	9.9	9.1	13.5	7.5	-10.8

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Strategic asset 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.

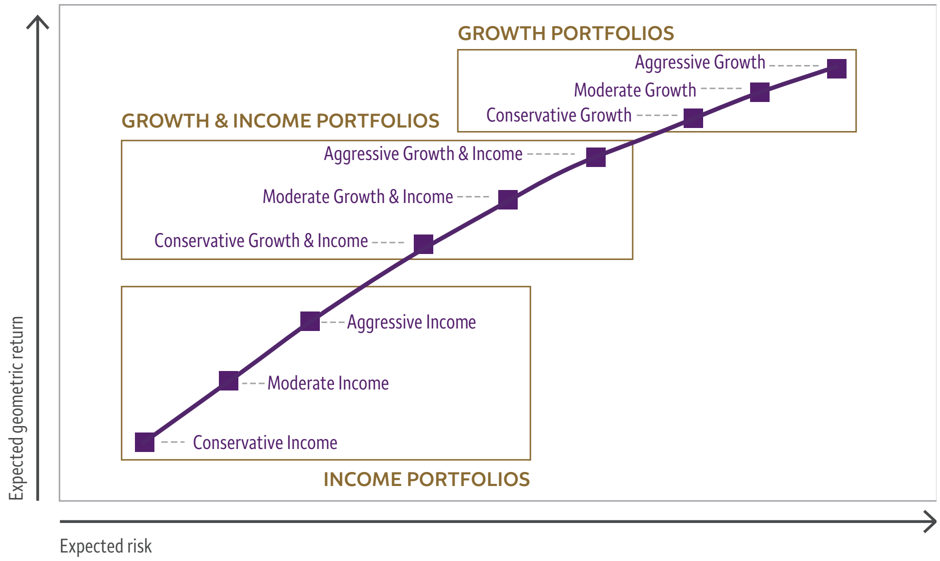


Chart is conceptual and is not meant to reflect any actual returns or represent any specific asset classifications.
Source: Wells Fargo Investment Institute, July 2023

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: Liquid

May include fixed income, equities, and real assets

		CONSERVATIVE			MODERATE			AGGRESSIVE		
		Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
INCOME	TAXABLE CASH ALTERNATIVES	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
	TOTAL GLOBAL FIXED INCOME	82.0	86.0	4.0	69.0	72.0	3.0	61.0	64.0	3.0
	U.S. Taxable Investment Grade Fixed Income	76.0	83.0	7.0	60.0	67.0	7.0	47.0	54.0	7.0
	Short Term Taxable*	17.0	23.0	6.0	13.0	19.0	6.0	10.0	17.0	7.0
	Intermediate Term Taxable*	45.0	45.0	0.0	36.0	36.0	0.0	29.0	29.0	0.0
	Long Term Taxable*	14.0	15.0	1.0	11.0	12.0	1.0	8.0	8.0	0.0
	High Yield Taxable Fixed Income	3.0	0.0	-3.0	4.0	0.0	-4.0	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	3.0	3.0	0.0	5.0	5.0	0.0	8.0	8.0	0.0
	TOTAL GLOBAL EQUITIES	14.0	8.0	-6.0	27.0	23.0	-4.0	35.0	30.0	-5.0
	U.S. Large Cap Equities	12.0	8.0	-4.0	16.0	16.0	0.0	19.0	19.0	0.0
	U.S. Mid Cap Equities	2.0	0.0	-2.0	5.0	3.0	-2.0	7.0	4.0	-3.0
	U.S. Small Cap Equities	0.0	0.0	0.0	2.0	0.0	-2.0	2.0	0.0	-2.0
	Developed Market Ex-U.S. Equities	0.0	0.0	0.0	4.0	4.0	0.0	7.0	7.0	0.0
	Emerging Market Equities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL GLOBAL REAL ASSETS	2.0	4.0	2.0	2.0	3.0	1.0	2.0	4.0	2.0
	Commodities	2.0	4.0	2.0	2.0	3.0	1.0	2.0	4.0	2.0
GROWTH AND INCOME	TAXABLE CASH ALTERNATIVES	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
	TOTAL GLOBAL FIXED INCOME	50.0	54.0	4.0	41.0	45.0	4.0	33.0	37.0	4.0
	U.S. Taxable Investment Grade Fixed Income	39.0	47.0	8.0	30.0	38.0	8.0	20.0	28.0	8.0
	Short Term Taxable*	9.0	16.0	7.0	7.0	14.0	7.0	4.0	11.0	7.0
	Intermediate Term Taxable*	23.0	23.0	0.0	18.0	18.0	0.0	12.0	12.0	0.0
	Long Term Taxable*	7.0	8.0	1.0	5.0	6.0	1.0	4.0	5.0	1.0
	High Yield Taxable Fixed Income	6.0	2.0	-4.0	6.0	2.0	-4.0	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 GLOBAL EQUITIES	44.0	38.0	-6.0	53.0	46.0	-7.0	61.0	55.0	-6.0
	U.S. Large Cap Equities	20.0	22.0	2.0	24.0	27.0	3.0	28.0	32.0	4.0
	U.S. Mid Cap Equities	8.0	9.0	1.0	10.0	11.0	1.0	12.0	12.0	0.0
	U.S. Small Cap Equities	5.0	0.0	-5.0	6.0	0.0	-6.0	6.0	0.0	-6.0
	Developed Market Ex-U.S. Equities	7.0	7.0	0.0	8.0	8.0	0.0	9.0	9.0	0.0
	Emerging Market Equities	4.0	0.0	-4.0	5.0	0.0	-5.0	6.0	2.0	-4.0
	TOTAL GLOBAL REAL ASSETS	4.0	6.0	2.0	4.0	7.0	3.0	4.0	6.0	2.0
	Commodities	4.0	6.0	2.0	4.0	7.0	3.0	4.0	6.0	2.0
GROWTH	TAXABLE CASH ALTERNATIVES	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
	TOTAL GLOBAL FIXED INCOME	19.0	25.0	6.0	11.0	16.0	5.0	0.0	8.0	8.0
	U.S. Taxable Investment Grade Fixed Income	16.0	25.0	9.0	8.0	16.0	8.0	0.0	8.0	8.0
	Short Term Taxable*	4.0	11.0	7.0	2.0	10.0	8.0	0.0	8.0	8.0
	Intermediate Term Taxable*	9.0	9.0	0.0	6.0	6.0	0.0	0.0	0.0	0.0
	Long Term Taxable*	3.0	5.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
	High Yield Taxable Fixed Income	3.0	0.0	-3.0	3.0	0.0	-3.0	0.0	0.0	0.0
	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL GLOBAL EQUITIES	74.0	66.0	-8.0	82.0	75.0	-7.0	93.0	83.0	-10.0
	U.S. Large Cap Equities	30.0	34.0	4.0	31.0	34.0	3.0	31.0	33.0	2.0
	U.S. Mid Cap Equities	13.0	13.0	0.0	14.0	14.0	0.0	16.0	16.0	0.0
	U.S. Small Cap Equities	8.0	0.0	-8.0	10.0	4.0	-6.0	13.0	7.0	-6.0
	Developed Market Ex-U.S. Equities	14.0	14.0	0.0	15.0	15.0	0.0	18.0	18.0	0.0
	Emerging Market Equities	9.0	5.0	-4.0	12.0	8.0	-4.0	15.0	9.0	-6.0
	TOTAL GLOBAL REAL ASSETS	5.0	7.0	2.0	5.0	7.0	2.0	5.0	7.0	2.0
	Commodities	5.0	7.0	2.0	5.0	7.0	2.0	5.0	7.0	2.0

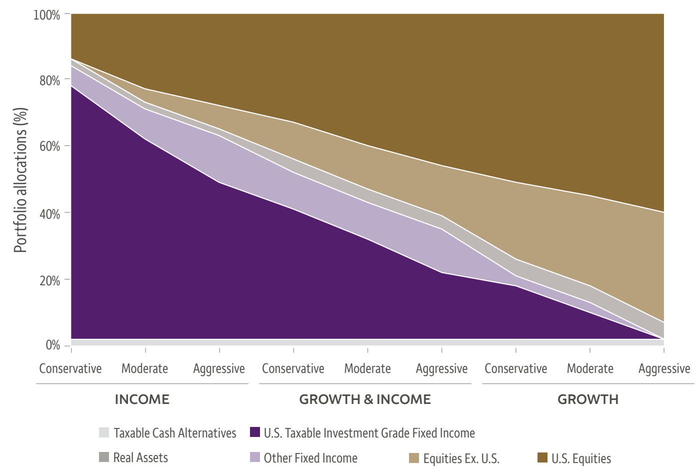
Strategic allocations are updated annually; last update was July 18, 2023. Tactical allocations are updated periodically; last update was January 10, 2024.
The U.S. Taxable Investment Grade Fixed Income encompasses the allocations to Short Term, Intermediate Term, and Long Term. *Wells Fargo Advisors only.
See next page for Portfolio allocations across the efficient frontier, strategic and tactical.

Strategic and tactical asset allocation: Liquid

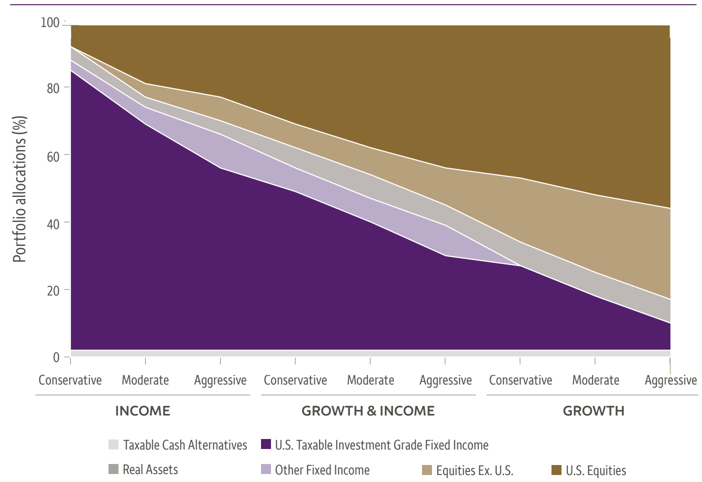
May include fixed income, equities, and real assets (continued)

These allocations span the set of liquid 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 certain asset classes. Depending on their tax circumstances, investors may wish to utilize the tax-efficient asset allocation guidance. 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



Strategic and tactical asset allocation: Illiquid

May include fixed income, equities, real assets, and alternative investments

		CONSERVATIVE			MODERATE			AGGRESSIVE		
		Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
INCOME	TAXABLE CASH ALTERNATIVES	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
	TOTAL GLOBAL FIXED INCOME	68.0	70.0	2.0	55.0	57.0	2.0	47.0	49.0	2.0
	U.S. Taxable Investment Grade Fixed Income	63.0	70.0	7.0	48.0	52.0	4.0	35.0	41.0	6.0
	Short Term Taxable*	14.0	22.0	8.0	11.0	15.0	4.0	8.0	13.0	5.0
	Intermediate Term Taxable*	38.0	37.0	-1.0	28.0	28.0	0.0	21.0	21.0	0.0
	Long Term Taxable*	11.0	11.0	0.0	9.0	9.0	0.0	6.0	7.0	1.0
	High Yield Taxable Fixed Income	2.0	0.0	-2.0	2.0	0.0	-2.0	4.0	0.0	-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	0.0	-3.0	5.0	5.0	0.0	8.0	8.0	0.0
	TOTAL GLOBAL EQUITIES	8.0	4.0	-4.0	20.0	16.0	-4.0	25.0	21.0	-4.0
	U.S. Large Cap Equities	8.0	4.0	-4.0	12.0	10.0	-2.0	15.0	13.0	-2.0
	U.S. Mid Cap Equities	0.0	0.0	0.0	4.0	2.0	-2.0	6.0	4.0	-2.0
	U.S. Small Cap Equities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Developed Market Ex-U.S. Equities	0.0	0.0	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 GLOBAL REAL ASSETS	7.0	9.0	2.0	8.0	10.0	2.0	9.0	11.0	2.0
	Private Real Estate**	5.0	5.0	0.0	6.0	6.0	0.0	7.0	7.0	0.0
	Commodities	2.0	4.0	2.0	2.0	4.0	2.0	2.0	4.0	2.0
	TOTAL ALTERNATIVE INVESTMENTS**	15.0	15.0	0.0	15.0	15.0	0.0	17.0	17.0	0.0
	Global Hedge Funds	11.0	11.0	0.0	11.0	11.0	0.0	11.0	11.0	0.0
	Private Equity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Private Debt	4.0	4.0	0.0	4.0	4.0	0.0	6.0	6.0	0.0
GROWTH AND INCOME	TAXABLE CASH ALTERNATIVES	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
	TOTAL GLOBAL FIXED INCOME	38.0	41.0	3.0	29.0	32.0	3.0	23.0	26.0	3.0
	U.S. Taxable Investment Grade Fixed Income	31.0	38.0	7.0	21.0	28.0	7.0	14.0	20.0	6.0
	Short Term Taxable*	7.0	11.0	4.0	5.0	9.0	4.0	3.0	8.0	5.0
	Intermediate Term Taxable*	18.0	18.0	0.0	12.0	12.0	0.0	9.0	9.0	0.0
	Long Term Taxable*	6.0	9.0	3.0	4.0	7.0	3.0	2.0	3.0	1.0
	High Yield Taxable Fixed Income	4.0	0.0	-4.0	4.0	0.0	-4.0	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	3.0	3.0	0.0	4.0	4.0	0.0	6.0	6.0	0.0
	TOTAL GLOBAL EQUITIES	32.0	27.0	-5.0	39.0	34.0	-5.0	46.0	41.0	-5.0
	U.S. Large Cap Equities	16.0	17.0	1.0	18.0	20.0	2.0	22.0	25.0	3.0
	U.S. Mid Cap Equities	6.0	5.0	-1.0	8.0	8.0	0.0	8.0	6.0	-2.0
	U.S. Small Cap Equities	2.0	0.0	-2.0	3.0	0.0	-3.0	4.0	0.0	-4.0
	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	0.0	-3.0	4.0	0.0	-4.0	5.0	3.0	-2.0
	TOTAL GLOBAL REAL ASSETS	9.0	11.0	2.0	10.0	12.0	2.0	10.0	12.0	2.0
	Private Real Estate**	5.0	5.0	0.0	6.0	6.0	0.0	6.0	6.0	0.0
	Commodities	4.0	6.0	2.0	4.0	6.0	2.0	4.0	6.0	2.0
	TOTAL ALTERNATIVE INVESTMENTS**	19.0	19.0	0.0	20.0	20.0	0.0	19.0	19.0	0.0
	Global Hedge Funds	10.0	10.0	0.0	10.0	10.0	0.0	7.0	7.0	0.0
	Private Equity	6.0	6.0	0.0	7.0	7.0	0.0	9.0	9.0	0.0
	Private Debt	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0

Strategic allocations are updated annually; last update was July 18, 2023. Tactical allocations are updated periodically; last update was January 10, 2024. The U.S. Taxable Investment Grade Fixed Income encompasses the allocations to Short Term, Intermediate Term, and Long Term. Hedge fund allocations are based on private hedge fund capital market assumptions.
*Wells Fargo Advisors only.

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: Illiquid

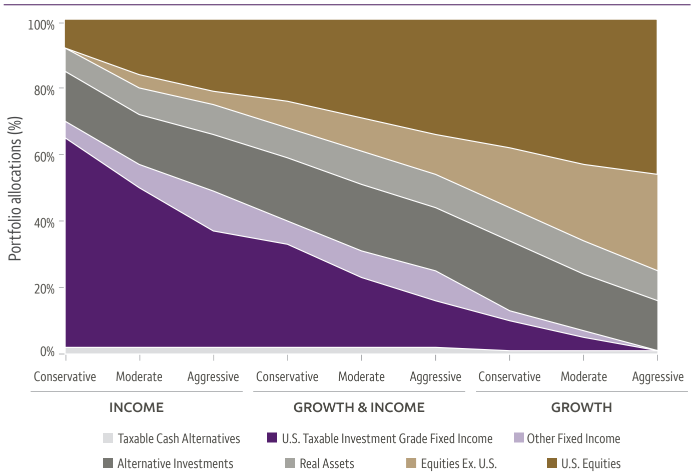
May include fixed income, equities, real assets, and alternative investments (continued)

		CONSERVATIVE			MODERATE			AGGRESSIVE		
		Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)	Strategic (%)	Tactical (%)	Difference (%)
GROWTH	TAXABLE CASH ALTERNATIVES	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
	TOTAL GLOBAL FIXED INCOME	12.0	17.0	5.0	6.0	12.0	6.0	0.0	6.0	6.0
	U.S. Taxable Investment Grade Fixed Income	9.0	17.0	8.0	4.0	12.0	8.0	0.0	6.0	6.0
	Short Term Taxable*	2.0	8.0	6.0	0.0	6.0	6.0	0.0	6.0	6.0
	Intermediate Term Taxable*	5.0	5.0	0.0	4.0	6.0	2.0	0.0	0.0	0.0
	Long Term Taxable*	2.0	4.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
	High Yield Taxable Fixed Income	3.0	0.0	-3.0	2.0	0.0	-2.0	0.0	0.0	0.0
	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL GLOBAL EQUITIES	56.0	49.0	-7.0	66.0	58.0	-8.0	75.0	67.0	-8.0
	U.S. Large Cap Equities	24.0	25.0	1.0	24.0	27.0	3.0	24.0	27.0	3.0
	U.S. Mid Cap Equities	9.0	10.0	1.0	13.0	13.0	0.0	15.0	13.0	-2.0
	U.S. Small Cap Equities	5.0	0.0	-5.0	6.0	0.0	-6.0	7.0	3.0	-4.0
	Developed Market Ex-U.S. Equities	12.0	12.0	0.0	14.0	13.0	-1.0	17.0	17.0	0.0
	Emerging Market Equities	6.0	2.0	-4.0	9.0	5.0	-4.0	12.0	7.0	-5.0
	TOTAL GLOBAL REAL ASSETS	10.0	12.0	2.0	10.0	12.0	2.0	9.0	11.0	2.0
	Private Real Estate**	5.0	5.0	0.0	5.0	5.0	0.0	4.0	4.0	0.0
	Commodities	5.0	7.0	2.0	5.0	7.0	2.0	5.0	7.0	2.0
	TOTAL ALTERNATIVE INVESTMENTS**	21.0	21.0	0.0	17.0	17.0	0.0	15.0	15.0	0.0
	Global Hedge Funds	7.0	7.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0
	Private Equity	11.0	11.0	0.0	12.0	12.0	0.0	15.0	15.0	0.0
	Private Debt	3.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0

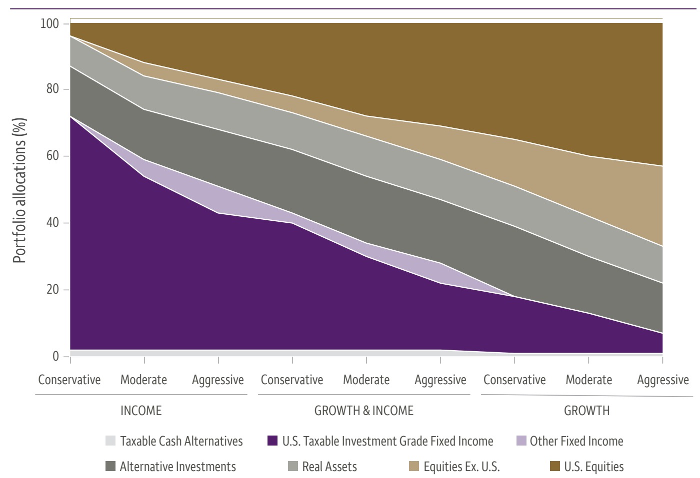
Strategic allocations are updated annually; last update was July 18, 2023. Tactical allocations are updated periodically; last update was January 10, 2024. The U.S. Taxable Investment Grade Fixed Income encompasses the allocations to Short Term, Intermediate Term, and Long Term. Hedge fund allocations are based on private hedge fund capital market assumptions.
*Wells Fargo Advisors only.

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 certain asset classes. Depending on their tax circumstances, investors may wish to utilize the liquid tax-efficient asset allocation guidance. 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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Strategic asset allocation: Tax-efficient illiquid

May include fixed income, equities, real assets, and alternative investments

		CONSERVATIVE Strategic (%)	MODERATE Strategic (%)	AGGRESSIVE Strategic (%)
INCOME	TAX EXEMPT CASH ALTERNATIVES	2.0	2.0	2.0
	TOTAL GLOBAL FIXED INCOME	80.0	65.0	57.0
	U.S. Tax Exempt Investment Grade FI	80.0	58.0	43.0
	Short Term Tax Exempt*	18.0	13.0	9.0
	Intermediate Term Tax Exempt*	48.0	35.0	26.0
	Long Term Tax Exempt*	14.0	10.0	8.0
	High Yield Tax Exempt Fixed Income	0.0	7.0	14.0
	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0
	Emerging Market Fixed Income	0.0	0.0	0.0
	TOTAL GLOBAL EQUITIES	6.0	21.0	30.0
	U.S. Large Cap Equities	6.0	16.0	19.0
	U.S. Mid Cap Equities	0.0	5.0	6.0
	U.S. Small Cap Equities	0.0	0.0	0.0
	Developed Market Ex-U.S. Equities	0.0	0.0	5.0
	Emerging Market Equities	0.0	0.0	0.0
	TOTAL GLOBAL REAL ASSETS	7.0	7.0	7.0
	Private Real Estate**	7.0	7.0	7.0
	Commodities	0.0	0.0	0.0
	TOTAL ALTERNATIVE INVESTMENTS**	5.0	5.0	4.0
	Global Hedge Funds	5.0	5.0	4.0
	Private Equity	0.0	0.0	0.0
	Private Debt	0.0	0.0	0.0
GROWTH AND INCOME	TAX EXEMPT CASH ALTERNATIVES	2.0	1.0	1.0
	TOTAL GLOBAL FIXED INCOME	45.0	35.0	29.0
	U.S. Tax Exempt Investment Grade FI	38.0	30.0	23.0
	Short Term Tax Exempt*	8.0	7.0	5.0
	Intermediate Term Tax Exempt*	23.0	18.0	14.0
	Long Term Tax Exempt*	7.0	5.0	4.0
	High Yield Tax Exempt Fixed Income	7.0	5.0	6.0
	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0
	Emerging Market Fixed Income	0.0	0.0	0.0
	TOTAL GLOBAL EQUITIES	35.0	43.0	51.0
	U.S. Large Cap Equities	19.0	22.0	25.0
	U.S. Mid Cap Equities	6.0	7.0	9.0
	U.S. Small Cap Equities	3.0	3.0	4.0
	Developed Market Ex-U.S. Equities	7.0	9.0	10.0
	Emerging Market Equities	0.0	2.0	3.0
	TOTAL GLOBAL REAL ASSETS	7.0	7.0	7.0
	Private Real Estate**	7.0	7.0	7.0
	Commodities	0.0	0.0	0.0
	TOTAL ALTERNATIVE INVESTMENTS**	11.0	14.0	12.0
	Global Hedge Funds	4.0	4.0	0.0
	Private Equity	7.0	10.0	12.0
	Private Debt	0.0	0.0	0.0

Tax-efficient strategic allocations are updated annually; last update was July 18, 2023. Tactical allocations are updated periodically. The U.S. Tax Exempt Investment Grade Fixed Income encompasses the allocations to Short Term, Intermediate Term, and Long Term. Hedge fund allocations are based on private hedge fund capital market assumptions.

*Wells Fargo Advisors only.

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

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Strategic asset allocation: Tax-efficient illiquid

May include fixed income, equities, real assets, and alternative investments (continued)

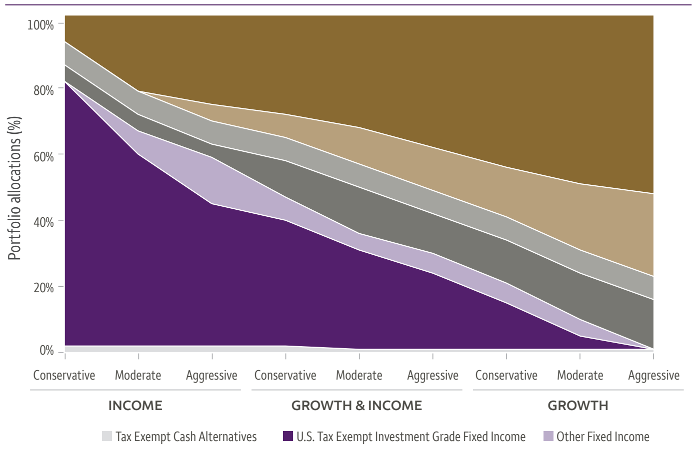
GROWTH	CONSERVATIVE Strategic (%)	MODERATE Strategic (%)	AGGRESSIVE Strategic (%)
TAX EXEMPT CASH ALTERNATIVES	1.0	1.0	1.0
TOTAL GLOBAL FIXED INCOME	20.0	9.0	0.0
U.S. Tax Exempt Investment Grade FI	14.0	4.0	0.0
Short Term Tax Exempt*	3.0	0.0	0.0
Intermediate Term Tax Exempt*	9.0	4.0	0.0
Long Term Tax Exempt*	2.0	0.0	0.0
High Yield Tax Exempt Fixed Income	6.0	5.0	0.0
Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0
Emerging Market Fixed Income	0.0	0.0	0.0
TOTAL GLOBAL EQUITIES	59.0	69.0	77.0
U.S. Large Cap Equities	28.0	32.0	33.0
U.S. Mid Cap Equities	11.0	11.0	13.0
U.S. Small Cap Equities	5.0	6.0	6.0
Developed Market Ex-U.S. Equities	11.0	12.0	12.0
Emerging Market Equities	4.0	8.0	13.0
TOTAL GLOBAL REAL ASSETS	7.0	7.0	7.0
Private Real Estate**	7.0	7.0	7.0
Commodities	0.0	0.0	0.0
TOTAL ALTERNATIVE INVESTMENTS**	13.0	14.0	15.0
Global Hedge Funds	0.0	0.0	0.0
Private Equity	13.0	14.0	15.0
Private Debt	0.0	0.0	0.0

Tax-efficient strategic allocations are updated annually; last update was July 18, 2023. Tactical allocations are updated periodically. The U.S. Tax Exempt Investment Grade Fixed Income encompasses the allocations to Short Term, Intermediate Term, and Long Term. Hedge fund allocations are based on private hedge fund capital market assumptions. The tactical asset allocation overweights and underweights are designed to provide guidance on shorter-term (6–18 months) weightings in the portfolio.

*Wells Fargo Advisors only.

These allocations span the set of investments available to investors, utilizing broad diversification to help manage portfolio risk. Special consideration is given to the taxable implications of investing in various asset classes. Taxability may also be taken into consideration in determining the choice of investment vehicles for certain asset classes. Liquidity and cash flow preferences may also be reflected in the choice of investment vehicles for certain asset classes. We suggest that investors who are highly tax-sensitive generally should elect 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 and also take taxation into consideration, therefore, some tactical ideas may not be implemented in these allocations.

Portfolio allocations across the efficient frontier–strategic



**Alternative investments are not appropriate for all investors. They are speculative and involve a high degree of risk that is appropriate 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 pages 27-32 for important definitions and disclosures.

Strategic asset allocation: Tax-efficient liquid

May include fixed income, equities, and real assets

		CONSERVATIVE Strategic (%)	MODERATE Strategic (%)	AGGRESSIVE Strategic (%)
INCOME	TAX EXEMPT CASH ALTERNATIVES	3.0	3.0	2.0
INCOME	TOTAL GLOBAL FIXED INCOME	91.0	74.0	66.0
INCOME	U.S. Tax Exempt Investment Grade FI	91.0	68.0	50.0
INCOME	Short Term Tax Exempt*	20.0	15.0	11.0
INCOME	Intermediate Term Tax Exempt*	55.0	41.0	30.0
INCOME	Long Term Tax Exempt*	16.0	12.0	9.0
INCOME	High Yield Tax Exempt Fixed Income	0.0	6.0	16.0
INCOME	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0
INCOME	Emerging Market Fixed Income	0.0	0.0	0.0
INCOME	TOTAL GLOBAL EQUITIES	6.0	23.0	32.0
INCOME	U.S. Large Cap Equities	6.0	14.0	17.0
INCOME	U.S. Mid Cap Equities	0.0	5.0	7.0
INCOME	U.S. Small Cap Equities	0.0	0.0	0.0
INCOME	Developed Market Ex-U.S. Equities	0.0	4.0	8.0
INCOME	Emerging Market Equities	0.0	0.0	0.0
INCOME	TOTAL GLOBAL REAL ASSETS	0.0	0.0	0.0
INCOME	Commodities	0.0	0.0	0.0
GROWTH AND INCOME	TAX EXEMPT CASH ALTERNATIVES	2.0	2.0	2.0
GROWTH AND INCOME	TOTAL GLOBAL FIXED INCOME	53.0	43.0	32.0
GROWTH AND INCOME	U.S. Tax Exempt Investment Grade FI	45.0	35.0	25.0
GROWTH AND INCOME	Short Term Tax Exempt*	10.0	8.0	6.0
GROWTH AND INCOME	Intermediate Term Tax Exempt*	27.0	21.0	15.0
GROWTH AND INCOME	Long Term Tax Exempt*	8.0	6.0	4.0
GROWTH AND INCOME	High Yield Tax Exempt Fixed Income	8.0	8.0	7.0
GROWTH AND INCOME	Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0
GROWTH AND INCOME	Emerging Market Fixed Income	0.0	0.0	0.0
GROWTH AND INCOME	TOTAL GLOBAL EQUITIES	45.0	55.0	66.0
GROWTH AND INCOME	U.S. Large Cap Equities	17.0	23.0	27.0
GROWTH AND INCOME	U.S. Mid Cap Equities	10.0	12.0	14.0
GROWTH AND INCOME	U.S. Small Cap Equities	6.0	6.0	6.0
GROWTH AND INCOME	Developed Market Ex-U.S. Equities	8.0	9.0	13.0
GROWTH AND INCOME	Emerging Market Equities	4.0	5.0	6.0
GROWTH AND INCOME	TOTAL GLOBAL REAL ASSETS	0.0	0.0	0.0
GROWTH AND INCOME	Commodities	0.0	0.0	0.0

Tax-efficient strategic allocations are updated annually; last update was July 18, 2023. Tactical allocations are updated periodically. The U.S. Tax Exempt Investment Grade Fixed Income encompasses the allocations to Short Term, Intermediate Term, and Long Term.

*Wells Fargo Advisors only.

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

Strategic asset allocation: Tax-efficient liquid

May include fixed income, equities, and real assets (continued)

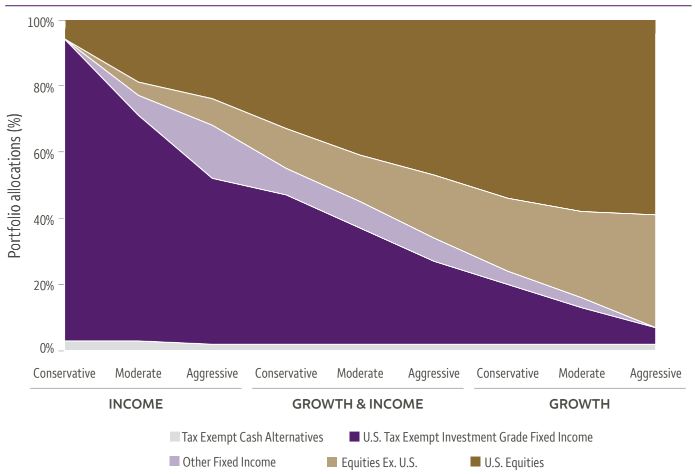
GROWTH	CONSERVATIVE Strategic (%)	MODERATE Strategic (%)	AGGRESSIVE Strategic (%)
TAX EXEMPT CASH ALTERNATIVES	2.0	2.0	2.0
TOTAL GLOBAL FIXED INCOME	22.0	14.0	5.0
U.S. Tax Exempt Investment Grade FI	18.0	11.0	5.0
Short Term Tax Exempt*	4.0	2.0	0.0
Intermediate Term Tax Exempt*	11.0	7.0	5.0
Long Term Tax Exempt*	3.0	2.0	0.0
High Yield Tax Exempt Fixed Income	4.0	3.0	0.0
Developed Market Ex-U.S. Fixed Income	0.0	0.0	0.0
Emerging Market Fixed Income	0.0	0.0	0.0
TOTAL GLOBAL EQUITIES	76.0	84.0	93.0
U.S. Large Cap Equities	31.0	31.0	27.0
U.S. Mid Cap Equities	15.0	16.0	18.0
U.S. Small Cap Equities	8.0	11.0	14.0
Developed Market Ex-U.S. Equities	14.0	13.0	18.0
Emerging Market Equities	8.0	13.0	16.0
TOTAL GLOBAL REAL ASSETS	0.0	0.0	0.0
Commodities	0.0	0.0	0.0

Tax-efficient strategic allocations are updated annually; last update was July 18, 2023. Tactical allocations are updated periodically. The U.S. Tax Exempt Investment Grade Fixed Income encompasses the allocations to Short Term, Intermediate Term, and Long Term. The tactical asset allocation overweights and underweights are designed to provide guidance on shorter-term (6–18 months) weightings in the portfolio.

*Wells Fargo Advisors only.

These allocations span the set of liquid investments available to investors, utilizing broad diversification to help manage portfolio risk. Special consideration is given to the taxable implications of investing in various asset classes. Taxability may also be taken into consideration in determining the choice of investment vehicles for certain asset classes. Liquidity and cash flow preferences may also be reflected in the choice of investment vehicles for certain asset classes. We suggest that investors who are highly tax-sensitive generally should elect 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 and also take taxation into consideration, therefore, some tactical ideas may not be implemented in these allocations.

Portfolio allocations across the efficient frontier–strategic



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 inappropriate 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.

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.

Private debt refers to loans to companies which are not provided by banks or public markets, and instead are provided by private investors and private markets.

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, and 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 *Industrials 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 conditions. *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 appropriate 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. Although **Treasuries** are considered free from credit risk they are subject to other types of risks. These risks include interest rate risk, which may cause the underlying value of the bond to fluctuate.

Leveraged loans are generally below investment grade quality ("high-yield" securities or "junk" bonds). Investing in such securities should be viewed as speculative and investors should review their ability to assume the risks associated with investments which utilize such securities.

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.

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.

Disclosures *(continued)*

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 appropriate 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.

Merger arbitrage involves investing in event driven situations such as reorganizations, spin-offs, mergers, and bankruptcies, and involves the risks that the proposed opportunities in which the fund may invest may not materialized as planned or may be renegotiated or terminated which can result in losses to the fund.

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. Other risks associated with investing in listed **REITs** include the use of leverage, unexpected reductions in common dividends, increases in property taxes, and the impact to listed REITs from new property development.

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.

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.

Consumer Confidence Index measures and details consumer confidence, which is the degree of optimism or pessimism toward the state of the economy.

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

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.

MSCI All Country World Index (MSCI ACWI) is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of 23 developed and 26 emerging markets.

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.

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.

U.S. 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.

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.

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. Relative Value (RV) position may be involved in corporate transactions also, but as opposed to Event Driven (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.

Disclosures *(continued)*

Arbitrage. **HFRI RV: Multi-Strategy Index:** multi-strategies employ an investment thesis predicated on realization of a spread between related yield instruments in which one or multiple components of the spread contains a fixed income, derivative, equity, real estate, MLP or combination of these or other instruments. 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.

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 Equity Hedge (EH), in which the fundamental characteristics on the company are the most significant are integral to investment thesis.

Systematic Macro. **HFRI Trend Following Directional Index** is a global, equal-weighted index of single-manager funds that report to the HFR Database. The HFRI Trend Following Directional Index is comprised of funds that employ trend following strategies such as Macro: Currency – Systematic, Macro: Systematic Diversified, certain Macro: Multi-Strategy funds and other Macro funds that utilize, to some degree, trend following.

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.

Distressed Credit. **HFRI Event Driven Directional Index** is a global, equal-weighted index of single-manager funds that report to the HFR Database. The HFRI Event Driven Directional Index is comprised of Event Driven Funds that are classified as Special Situations, Credit Arbitrage and Distressed funds..

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. **HFRI EH: Long/Short Directional Index** is a global, equal-weighted index of single-manager funds that report to the HFR Database. The HFRI EH: Long/Short Directional Index is comprised of Equity Hedge funds that are not considered Equity Market Neutral. The HFRI EH: Long/Short Directional Index includes funds that are classified as Fundamental Growth, Fundamental Value, Multi-Strategy, Quantitative Directional and sector-focused (i.e., Energy/Basic Materials, Healthcare and Technology).

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 indexes). These limitations include survivorship bias (the returns of the indexes 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 indexes, 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

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indexes 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.

Asset class index definitions

Fixed income representative indexes

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

Intermediate Term Taxable Fixed Income. **Bloomberg U.S. Aggregate 5-7 Year Bond Index** is composed of the Bloomberg U.S. Government/Credit Index and the Bloomberg U.S. 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 U.S. Aggregate 10+ Year Bond Index** is composed of the Bloomberg U.S. Government/Credit Index and the Bloomberg U.S. Mortgage-Backed Securities Index, and includes Treasury issues, agency issues, corporate bond issues, and mortgage-backed securities with maturities of 10 years or more.

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

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

U.S. Municipal Bond. **Bloomberg 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. Commercial Mortgage Backed Securities. **Bloomberg U.S. CMBS Index** measures the investment-grade market of US Agency and US Non-Agency conduit and fusion CMBS deals.

U.S. Investment Grade Corporate Fixed Income. **Bloomberg U.S. 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.

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

U.S. Government Agencies. **Bloomberg U.S. Agency Index** includes native currency agency debentures from issuers such as Fannie Mae, Freddie Mac, and Federal Home Loan Bank.

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

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

Securitized. **Bloomberg U.S. 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 U.S. Corporate High-Yield Index** covers the universe of fixed-rate, non-investment-grade debt.

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

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 Diversified** tracks the performance of bonds issued by emerging market governments and denominated in the local currency of the issuer.

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.

Leveraged Loans. **S&P/LSTA Leveraged Loan Index** is a market value-weighted index designed to measure the performance of the U.S. leveraged loan market based upon market weightings, spreads and interest payments.

Asset-Backed Securities. **Bloomberg U.S. ABS Index** measures the investment-grade market of US Credit Card, Auto and Student Loan asset backed securities deals.

IA SBBI U.S. Long-Term Corporate Bond Index is a custom index designed to measure the performance of long-term U.S. corporate bonds.

IA SBBI U.S. Long-Term Government Bond Index is a custom index designed to measure the performance of long-term U.S. government bonds.

Equity representative indexes

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. **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.

Communication Services Index (Comm Svc): The Communication Services Index comprises those companies included in the S&P 500 that are classified as members of the GICS® communication services sector.

Consumer Discretionary Index (Cons Disc): The Consumer Discretionary Index comprises those companies included in the index that are classified as members of the GICS® consumer discretionary sector.

Consumer Staples Index (Cons Stap): The Consumer Staples Index comprises those companies included in the index that are classified as members of the GICS® consumer staples sector.

Energy Index: The Energy Index comprises those companies included in the index that are classified as members of the GICS® energy sector.

Financials Index (Fncls): The Financials Index comprises those companies included in the index that are classified as members of the GICS® financials sector.

Health Care Index (HC): The Health Care Index comprises those companies included in the index that are classified as members of the GICS® health care sector.

Industrials Index (Indust): The Industrials Index comprises those companies included in the index that are classified as members of the GICS® industrials sector.

Information Technology Index (IT): The Information Technology Index comprises

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those companies included in the index that are classified as members of the GICS® information technology sector.

Materials Index (Matrls): The Materials Index comprises those companies included in the index that are classified as members of the GICS® materials sector.

Utilities Index (Utils): The Utilities Index comprises those companies included in the index that are classified as members of the GICS® utilities sector.

Real Estate Index: The Real Estate Index comprises those companies included in the index that are classified as members of the GICS® real estate sector.

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). **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). **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.

MSCI Japan Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the Japan market.

MSCI Hong Kong Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the Hong Kong market.

MSCI Netherlands Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the Netherlands market.

MSCI Ireland Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the Ireland market.

MSCI Norway Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the Norway market.

MSCI Sweden Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the Sweden market.

MSCI Turkey Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the Turkey market.

MSCI India Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the India market.

MSCI China Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the China market.

MSCI South Korea Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the South Korea market.

MSCI Chile Index is a capitalization-weighted stock index designed to measure the performance of the large and mid cap segments of the Chile market. .

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Real assets representative indexes

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.

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

NCREIF Office Property Index is a sub-index of NCREIF Property Index. It only contains office properties.

Domestic REITs. **FTSE NAREIT U.S. 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 U.S. 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 comprised of 23 exchange-traded futures on physical commodities weighted to account for economic significance and market liquidity.

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

Bloomberg Energy Subindex is a commodity group subindex of the Bloomberg Commodity Index. It is composed of futures contracts on crude oil, ultra-low sulfur diesel, unleaded gasoline, low sulphur gasoil, and natural gas. It reflects the return of the underlying commodity futures and is quoted in USD.

Bloomberg Industrial Metals Subindex is a commodity group subindex of the Bloomberg Commodity Index. It is composed of futures contracts on aluminum, copper, nickel and zinc. It reflects the return of the underlying commodity futures and is quoted in USD.

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

Commodities (S&P GSCI). **S&P Goldman Sachs Commodity Index** serves as a benchmark for investment in the commodity markets and as a measure of commodity performance over time. It is a tradable index that is readily available to market participants of the Chicago Mercantile Exchange. The index was originally developed by Goldman Sachs.

Commodities (RICI). **Rogers International Commodity Index** is a U.S. dollar based index representing the value of a basket of commodities consumed in the global economy. Representing futures contracts on 37 physical commodities, it is designed to track prices of raw materials not just in the U.S. but around the world.

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