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Investment Strategy

Weekly guidance from our Investment Strategy Committee — May 6, 2024

Asset Allocation Spotlight: Update on commodity correlations versus stocks and bonds 2

- The rapid increase in correlation between equities and fixed income since the onset of the pandemic in 2020, which we believe will prove transitory, has not permeated to commodity correlations.
- We continue to believe that a broad exposure to commodities can offer investors diversification benefits that can help reduce portfolio volatility and improve the consistency of returns over time.

Equities: AI likely to continue driving hyperscaler spending 4

- We believe there will be significant data center capacity brought online over the next few years, driven by the rapid growth of artificial intelligence (AI) applications and sustainable data center demand.
- In our view, hyperscale data center operators should continue spending large amounts of capital building out data center infrastructure as more complex AI-specific applications like ChatGPT develop and are utilized on a larger scale.

Fixed Income: Demand challenges continue for private colleges 5

- Our outlook on private U.S. colleges and universities has been negative for several years, and we now expect demographic trends to increase demand-related challenges, especially in the northeast.
- We continue to advise credit-conscious bondholders looking to increase exposure in the higher education sector to focus on large, public universities rated double-A and better.

Real Assets: Equities not always an effective proxy for commodities 6

- When it comes to investing in commodities, owning stocks in commodity producers has often generated significantly different returns than the underlying commodities.
- For investors seeking to implement a commodity allocation in a portfolio, we recommend products that invest directly in commodities rather than equities.

Alternatives: Secondaries becoming mainstream 7

- For investors new to private markets, secondary funds may offer several benefits relative to primary funds, including diversification, faster capital deployment, and potential pricing discount.
- We remain constructive on secondary strategies and believe they are an important tool for investors to achieve a diversified private capital allocation.

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Investment and Insurance Products: ➤ NOT FDIC Insured ➤ NO Bank Guarantee ➤ MAY Lose Value

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Asset Allocation Spotlight

Douglas Beath
Global Investment Strategist

Jeremy Folsom
Investment Strategy Analyst

Update on commodity correlations versus stocks and bonds

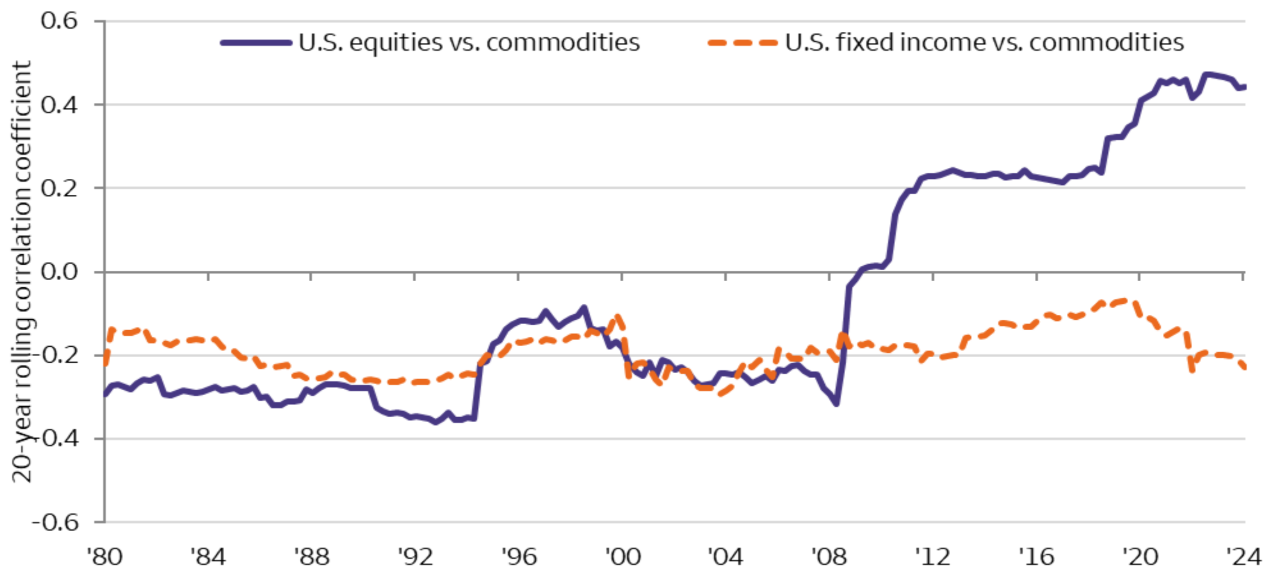
In previous reports we highlighted that the rapid increase in correlation between equities and fixed income has come in stark contrast to the period of extremely low — and even negative at times — correlation over most of the past two decades.

We attribute the rise in stock-bond correlations over the past 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. As a result, we envision that that stock-bond correlation will revert to being negative or near zero in the coming years.

Commodities and correlations

Commodities have historically offered diversification benefits since commodity bull cycles[1] have often occurred during stock or bond bear cycles and vice versa. Over rolling 20-year periods from 1980 to the present, bond-commodity correlations consistently ranged between zero and negative, while stock-commodity correlations hovered around -0.2 until the Great Financial Crisis (GFC), and then gradually increased to their long-term average of +0.46 (see Chart 1).

Chart 1. Commodity correlations versus stocks and bonds



Sources: © 2024 – Morningstar Direct, All Rights Reserved(i), Bloomberg, and Wells Fargo Investment Institute. Quarterly data from March 31, 1980, to March 31, 2024. U.S. equities represented by S&P 500 Index. U.S. fixed income represented by the Bloomberg U.S. Aggregate Bond Index. Commodities represented by Bloomberg Commodity Index. Correlations are calculated using quarterly total returns. An index is unmanaged and not available for direct investment. **Past performance is no guarantee of future results.** Please see the end of the report for index definitions and risk considerations.

1. Commodity super-cycles are an extended period of time, historically between 10-20 years where commodity prices tend to move together. These cycles can either be a bull super-cycle, in which prices rise together, or a bear super-cycle, in which prices move lower.

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Impact of the GFC on correlations

A more in-depth analysis of commodity returns and the two major asset classes over rolling 20-year periods indicate the following as it pertains to the GFC.

1. Both stock and bond correlations versus commodities increased during the GFC, with stock correlations spiking significantly.
2. From the GFC era through the onset of the pandemic (2009 – 2020), 20-year rolling correlations between stocks and commodities were volatile, but steadily rose from negative to moderately positive territory.
3. After initially rising during the GFC, correlations between bonds and commodities steadily moved higher but remained in negative territory.

The spike in correlation between commodities and equities during the GFC was the result of the decline in aggregate demand and fears of deflation, adversely affecting risk asset classes. In the meantime, the benchmark Bloomberg U.S. Aggregate Bond Index, after initially increasing when Treasury yields fell to record low levels due to their perceived flight-to-safety feature, later rebounded again in conjunction with commodities and stocks after the announcement of quantitative easing (QE).

The history of commodity super-cycles could be another potential explanation for the rise in stock-commodity correlations. The latest bear commodity super cycle (2008 – 2020) commenced during the GFC — precisely when the rolling 20-year commodity-stock correlation increased from -0.3 to +0.4. However, commodities in the previous bear super-cycle (1980 – 1999) displayed consistently negative correlations with both stocks and bonds, as falling real asset prices and inflation sparked a 20-year bull market for both stocks and bonds.

The pandemic and commodity correlations

The rapid increase in correlation between equities and fixed income since the onset of the pandemic in 2020, which we believe will prove transitory, has not permeated to commodity correlations. As shown in the table below, annual correlations between commodities versus both stocks and bonds have ranged between slightly positive to deeply negative since the pandemic.

Year	U.S. equities vs. commodities 20-year correlation	U.S. equities vs. commodities one-year correlation	U.S. fixed income vs. commodities 20-year correlation	U.S. fixed income vs. commodities one-year correlation
2020	0.46	0.92	-0.14	-0.73
2021	0.46	-0.28	-0.14	0.27
2022	0.47	0.22	-0.19	-0.26
2023	0.44	-0.93	-0.21	-0.81

Sources: © 2024 – Morningstar Direct, All Rights Reserved(i), Bloomberg, and Wells Fargo Investment Institute. U.S. equities represented by S&P 500 Index. U.S. fixed income represented by the Bloomberg U.S. Aggregate Bond Index. Commodities represented by Bloomberg Commodity Index. Correlations shown are for December 31 of the rolling quarterly 20-year or 1-year correlations in the specified year calculated using total returns. An index is unmanaged and not available for direct investment. **Past performance is no guarantee of future results.** Please see the end of the report for index definitions and risk considerations.

What it means for investors

Commodities' low to negative correlation with bonds has remained consistent over time. Over rolling 20-year observations, commodity correlations to stocks increased from negative to moderately positive territory up to the pandemic. However, commodity correlations with stocks and bonds have been mostly low to deeply negative during the new bull cycle that commenced with the pandemic in 2020.

We continue to believe that a broad exposure to commodities can offer investors diversification benefits that can help reduce portfolio volatility and improve the consistency of returns over time.

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Equities

Tom Christopher
Equity Sector Analyst, Communication Services

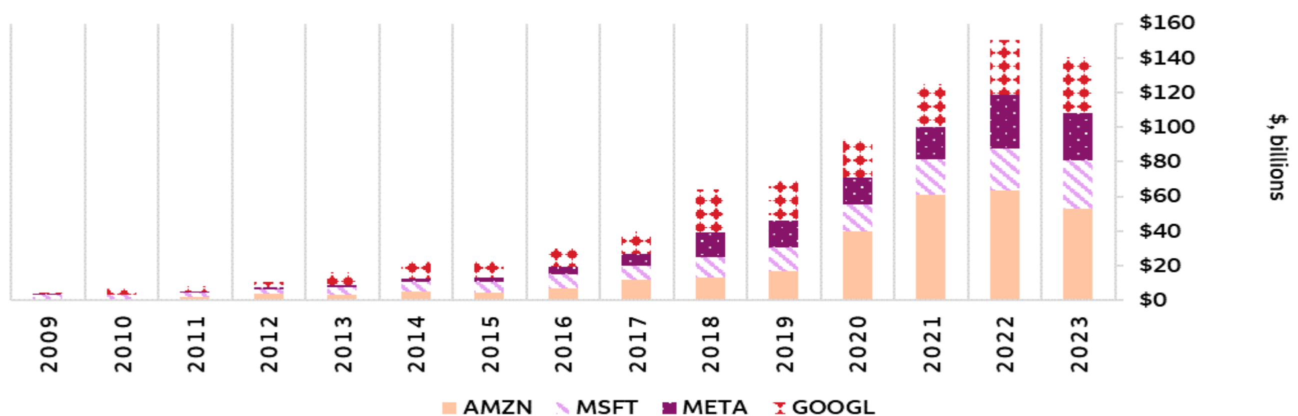
AI likely to continue driving hyperscaler spending

The importance of data centers has grown tremendously — they have become an overlooked but critical component in many aspects of our everyday lives. Data centers are viewed as the backbone of technology infrastructure, enabling data storage, processing, and cloud services. In our view, we are in the early stages of a multi-decade transition to the cloud. The digital transformation has altered the role of data centers, increasing their importance along the way. This generational shift has allowed enterprises to realize efficiency gains and economic benefits by moving large amounts of data and applications from on-premise facilities to the cloud.

We believe there will be significant data center capacity brought online over the next few years, driven by the rapid growth of artificial intelligence (AI) applications and data center demand. However, building and managing a data center is quite complex and capital intensive. The costs related to building out the infrastructure is rather high, particularly as critical components like generators, liquid cooling equipment, and transformers remain in high demand.

Data centers are typically owned and operated by co-location companies or large technology firms, including cloud vendors and hyperscale operators. Hyperscale data centers are simply large versions of enterprise data center facilities, equipped to process massive workloads. In our view, as more complex AI-specific applications like ChatGPT develop and are utilized on a larger scale, data centers will require an increasing amount of storage, compute capacity, and cooling technologies. Combined, capital expenditures from the four largest hyperscale operators increased at approximately a 28% compounded annual growth rate since 2009, surpassing $140 billion in 2023 (see chart below). We expect these hyperscale operators to continue spending outsized amounts of capital to support cloud demand and scale the AI infrastructure. We see this as a tailwind for select areas of a range of sectors, including Information Technology, Communication Services, Consumer Discretionary, Industrials, and Materials.[2]

Capital expenditures of largest hyperscale data center operators have grown rapidly



Sources: Wells Fargo Investment Institute, FactSet, company reports. Data as of April 23, 2024. AMZN = Amazon.com Inc., MSFT = Microsoft Corp., META = Meta Platforms, Inc., GOOGL = Alphabet, Inc. **Past performance is no guarantee of future results.**

2. For further detail, please see our recently published digital report titled "Generative AI transforming data center landscape".

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Fixed Income

Sara Kisner
Municipal Analyst

Demand challenges continue for private colleges

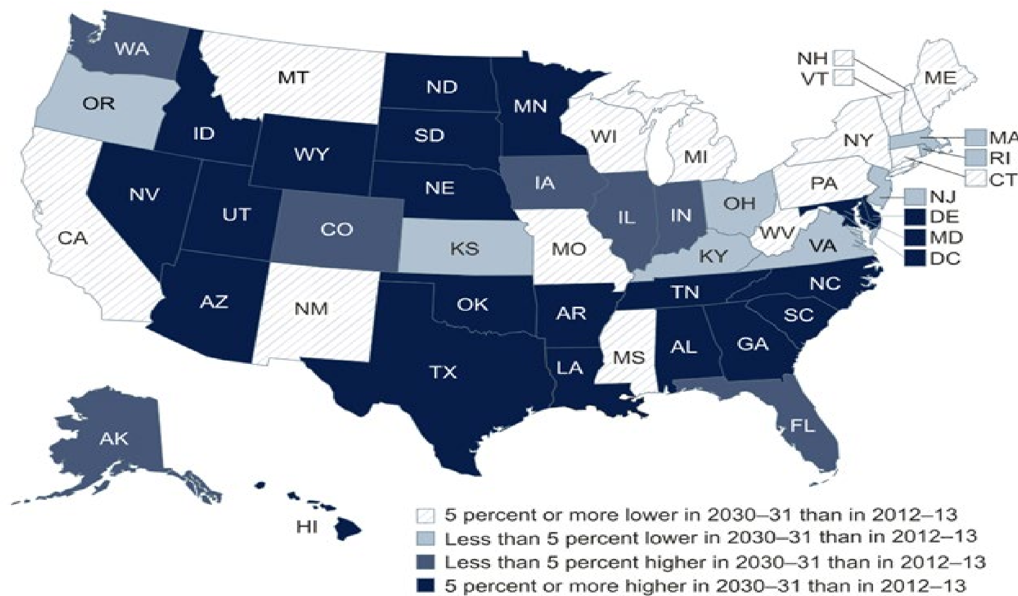
The Global Securities Research municipal research team's outlook on private colleges has remained negative for several years. At the core of a financially strong private college or university is typically robust demand characteristics. Unlike public universities, private schools do not receive ongoing state funding. As a result, private school revenues are generally less diverse and highly dependent on student enrollment.

Current rating data as of April 30 from Standard & Poor's (S&P) reflects the increased risk in the private university sector. Of the 305 private institutions of higher education rated by S&P, 152 (50%) are rated BBB+ or lower. Of those, 32 have a negative outlook. In contrast, just 24 (11%) of the 223 public colleges and universities rated by S&P are BBB+ or lower. Of those 24 schools, two currently have a negative outlook.

Competition for students is one of the biggest challenges facing the private higher education sector. For some regions, we expect competition to increase even more over the next five to six years based on high school graduate trends. According to demographic data from the National Center for Education Statistics (see chart below), many states in the northeast are expected to see the number of high school graduates decline 5% or more between 2013 and 2031. The need to attract students could lead some private schools to offer more tuition discounts in order to stabilize enrollment. This may negatively impact their revenues and credit trends overall.

While there are certainly private universities with large endowments and ultra-strong demand, we continue to advise credit-conscious bondholders looking to increase exposure in the higher education sector to focus on large, public universities rated double-A and better.

Number of public high school graduates expected to decline 5% or more in many northeast states



Sources: National Center for Education Statistics, "Projections of Education Statistics to 2030", February 2024. Percent change based on the 2012 – 2013 school year relative to the projected 2030 – 2031 school year.

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Real Assets

Ian Mikkelsen, CFA
Equity Sector Analyst, Energy

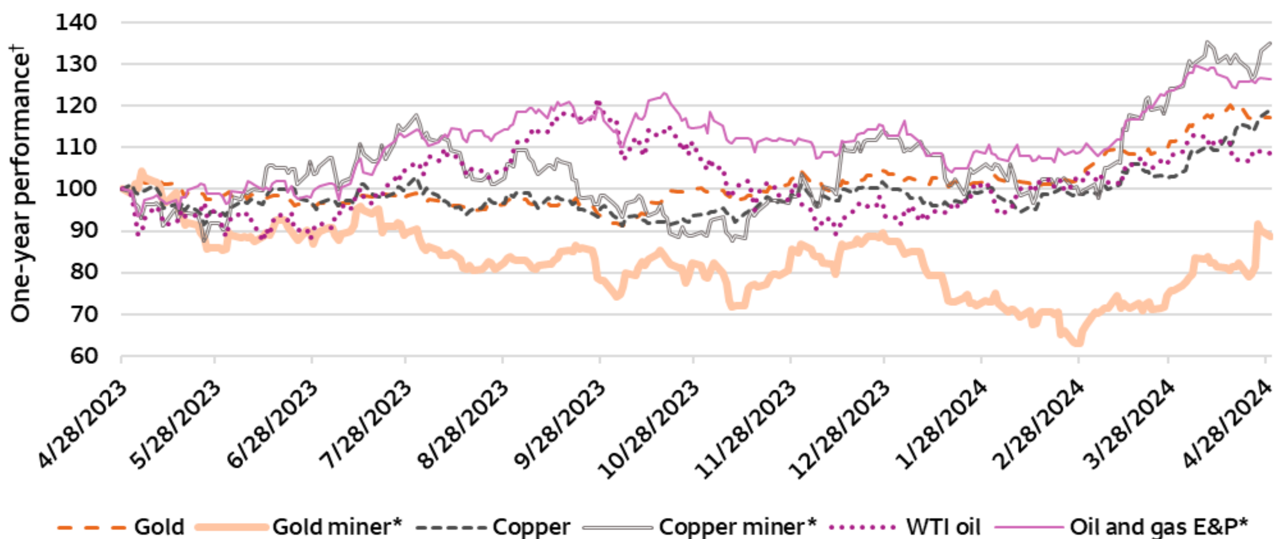
Equities not always an effective proxy for commodities

When it comes to implementing a commodities allocation within an investment portfolio, owning equities in commodity producers may generate returns that differ significantly from the underlying commodities produced. While Global Securities Research maintains equity recommendations in some commodity-related companies, Wells Fargo Investment Institute's guidance generally suggests that investors achieve more direct exposure to commodities through products which invest directly in commodities (such as exchange-traded funds).

To illustrate, the chart below shows the one-year indexed performance of gold, copper, and oil relative to the performance of the largest U.S. based producer of each commodity (for oil production, we use the largest independent oil and gas exploration and production company). The takeaway is clear: while company performance has tended to move directionally with the underlying commodity at times, company-specific fundamentals have tended to drive variations in performance over longer periods of time.

There are multiple reasons for the performance of commodity producer equities to differ from underlying commodities. The prices that companies receive for the commodities they produce are often different from benchmark commodity prices due to regional pricing differentials, variations in production quality, and hedging strategies. Commodity producers typically utilize varying degrees of leverage in their financial structure, which can make their financial health more sensitive to longer term changes in commodity prices. Additionally, commodity producers are exposed to a number of unique risks which tend to be unpredictable in nature, including regulatory, geopolitical, and operational risks. In the context of a commodities super cycle, we would remind investors that some forms of supply disruptions that result in higher commodity prices may also have negative implications for commodity producers.

Performance of select commodities compared to largest U.S. producer of each commodity



Sources: FactSet. †Performance indexed to 100 as of April 28, 2023. WTI = West Texas Intermediate. E&P = exploration & production. *Represents largest U.S. based producer of each commodity — gold miner is Newmont Corporation (NEM); copper miner is Freeport McMoran (FCX); oil and gas E&P is ConocoPhillips (COP). The gold, copper, and WTI oil prices used are based on New York Mercantile Exchange continuous futures prices. **Past performance is no guarantee of future results.**

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Alternatives

Chao Ma, PhD, CFA, FRM
Global Portfolio and Investment Strategist

Secondaries becoming mainstream

Private capital secondary markets have grown and matured in recent years. In the past three years, the secondary market has registered record transaction volumes that have eclipsed $100 billion annually, according to Pitchbook. In addition, according to Jefferies' estimation, capital committed to secondary strategies has doubled from 2017 to 2023 to over $250 billion.

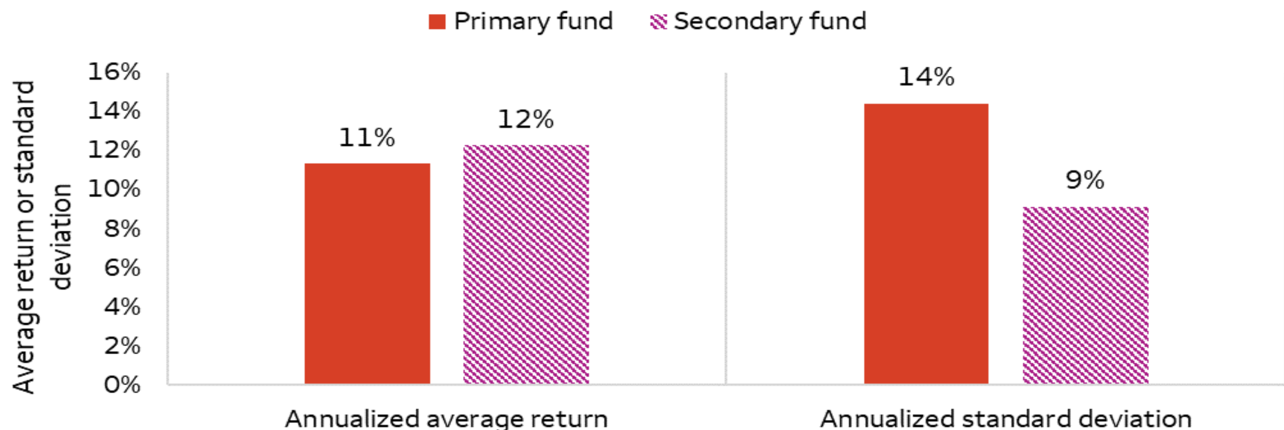
This significant growth has likely been driven by the desire from investors and fund managers alike for liquidity, especially given the recent slowdown in private capital exit activities. Some existing investors needed to sell their interests in private capital to realign their portfolios to allocation targets. Fund managers, on the other hand, also felt the pressure to generate liquidity and return cash to existing investors.

For investors new to private markets, secondary funds may offer several benefits relative to primary funds.

- *Diversification:* Secondary funds often provide exposures across managers, industries, strategies, vintage years, and geography. Relative to primary funds, secondary managers have generated a lower historical return standard deviation, while offering a comparable long-term average return (see chart below).
- *Faster capital deployment*: As secondary holdings are generally more mature, investors may receive distributions earlier than primary fund investors.
- *Potential pricing discount*: Existing investors often offer a discount to sell their interests in the fund, which can provide some comfort to secondary investors. Since 2017, existing investors on average have sold assets 12% below net asset value, according to Jefferies. This discount can be more significant during periods of economic uncertainties.

We remain constructive on secondary strategies and believe they are an important tool for investors to achieve a diversified private capital allocation.

Private capital secondary and primary fund historical return and standard deviation



Sources: Wells Fargo Investment Institute and Burgiss. Data as of September 30, 2023. Primary funds are private capital funds that directly invest in underlying companies. Secondary funds are funds that invest in other private capital funds. The chart covers the 25-year period from the fourth quarter of 1998 to the third quarter of 2023. **Past performance is no guarantee of future results.**

Alternative investments, such as hedge funds, private equity, private debt, and private real estate funds are not appropriate for all investors and are only open to "accredited" or "qualified" investors within the meaning of U.S. securities laws.

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Tactical guidance*

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	U.S. Mid Cap Equities Developed Market Ex-U.S. 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—Event Driven Hedge Funds—Equity Hedge Private Equity Private Debt	Hedge Funds—Relative Value Hedge Funds—Macro	

Source: Wells Fargo Investment Institute, May 6, 2024.

*Tactical horizon is 6-18 months

**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 end of report for important definitions and disclosures.

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Risk considerations

Asset allocation and diversification are investment methods used to help manage risk. They do not guarantee investment returns or eliminate risk of loss including in a declining market.

Each asset class has its own risk and return characteristics. The level of risk associated with a particular investment or asset class generally correlates with the level of return the investment or asset class might achieve. **Stock markets**, especially foreign markets, are volatile. Stock values may fluctuate in response to general economic and market conditions, the prospects of individual companies, and industry sectors. **Foreign investing** has additional risks including those associated with currency fluctuation, political and economic instability, and different accounting standards. These risks are heightened in emerging markets. **Small- and mid-cap stocks** are generally more volatile, subject to greater risks and are less liquid than large company stocks. **Bonds** are subject to market, interest rate, price, credit/default, liquidity, inflation and other risks. Prices tend to be inversely affected by changes in interest rates. **High yield (junk) bonds** have lower credit ratings and are subject to greater risk of default and greater principal risk. The **commodities** markets are considered speculative, carry substantial risks, and have experienced periods of extreme volatility. Investing in a volatile and uncertain commodities market may cause a portfolio to rapidly increase or decrease in value which may result in greater share price volatility. **Real estate** has special risks including the possible illiquidity of underlying properties, credit risk, interest rate fluctuations and the impact of varied economic conditions.

Alternative investments, such as hedge funds, private equity/private debt and private real estate funds, 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. They entail significant risks that can include losses due to leveraging or other speculative investment practices, lack of liquidity, volatility of returns, restrictions on transferring interests in a fund, potential lack of diversification, absence and/or delay of information regarding valuations and pricing, complex tax structures and delays in tax reporting, less regulation and higher fees than mutual funds. Hedge fund, private equity, private debt and private real estate fund investing involves other material risks including capital loss and the loss of the entire amount invested. A fund's offering documents should be carefully reviewed prior to investing.

Hedge fund strategies, such as Equity Hedge, Event Driven, Macro and Relative Value, may expose investors to the risks associated with the use of short selling, leverage, derivatives and arbitrage methodologies. Short sales involve leverage and theoretically unlimited loss potential since the market price of securities sold short may continuously increase. The use of leverage in a portfolio varies by strategy. Leverage can significantly increase return potential but create greater risk of loss. Derivatives generally have implied leverage which can magnify volatility and may entail other risks such as market, interest rate, credit, counterparty and management risks. Arbitrage strategies expose a fund to the risk that the anticipated arbitrage opportunities will not develop as anticipated, resulting in potentially reduced returns or losses to the fund.

Definitions

Bloomberg Commodity Index is comprised of 22 exchange-traded futures on physical commodities and represents 20 commodities weighted to account for economic significance and market liquidity.

Bloomberg U.S. Aggregate Bond Index is a broad-based measure of the investment grade, US dollar-denominated, fixed-rate taxable bond market.

S&P 500 Index is a market capitalization-weighted index composed of 500 widely held common stocks that is generally considered representative of the U.S. stock market.

An index is unmanaged and not available for direct investment.

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