

Negative Correlations, Positive Allocations

AUTHORS



Erin Browne
Portfolio Manager
Asset Allocation



Emmanuel Sharef
Portfolio Manager
Asset Allocation
and Multi Real Asset

The inverse correlation between bonds and stocks has returned, broadening potential for risk-adjusted returns in multi-asset portfolios.

EXECUTIVE SUMMARY

- As major central banks lower interest rates, both equity and bond markets are positioned to benefit. In multi-asset portfolios, we favor equities in the U.S., as well as high quality core fixed income, where today's starting yields offer compelling return potential, diversification, and downside mitigation.
- The return of the inverse relationship between bonds and stocks allows for complementary and more diversified positions across asset classes. Multi-asset portfolios may be better positioned to target attractive returns while limiting volatility.
- Quantitative techniques that combine traditional metrics, advanced analytics, and risk assessment can be used to help smooth returns in an equity allocation and play a critical role in disciplined investing across market cycles.

If the prevailing theme in asset allocation since early 2023 has been that bonds are back, a nascent theme today is correlation: Specifically, the negative relationship between stocks and bonds has reemerged as inflation and economic growth moderate.

This is great news for multi-asset investors: It means they can increase and broaden their allocation to risk assets, seeking potentially higher returns with the potential for adding little to no additional volatility within the overall portfolio. Equities and bonds can complement each other in portfolio construction, and both are likely to benefit in our baseline economic outlook for a soft landing amid continued central bank rate cuts.

PIMCO's multi-asset portfolios therefore focus both on equities, with a slight overweight in the U.S., and on fixed income – especially in high quality core bonds, which we believe offer notable risk-adjusted return potential. Strategic investments in options and real assets can help manage risks, and systematic equity trades may enhance returns and help mitigate risks.

Investors are also considering the potential impact of U.S. policy under the second Trump administration and a narrowly unified Republican Congress. Bond markets had largely anticipated the Trump victory, and given the prevailing economic landscape, we expect bond yields will remain in an attractive

range amid the transition to new leadership in Washington. In equity allocations, investors may want to consider U.S. companies that don't rely as heavily on imports (given potentially higher tariffs), as well as those likely to be buoyed by deregulation and more favorable tax policies. Finally, an allocation to inflation-linked bonds or other real assets could help hedge against the potential risks of increasing inflationary pressures arising from fiscal policy or tariffs.

In our view, staying invested in core, high-conviction trades within a well-balanced portfolio can help investors achieve target objectives while navigating unexpected twists ahead.

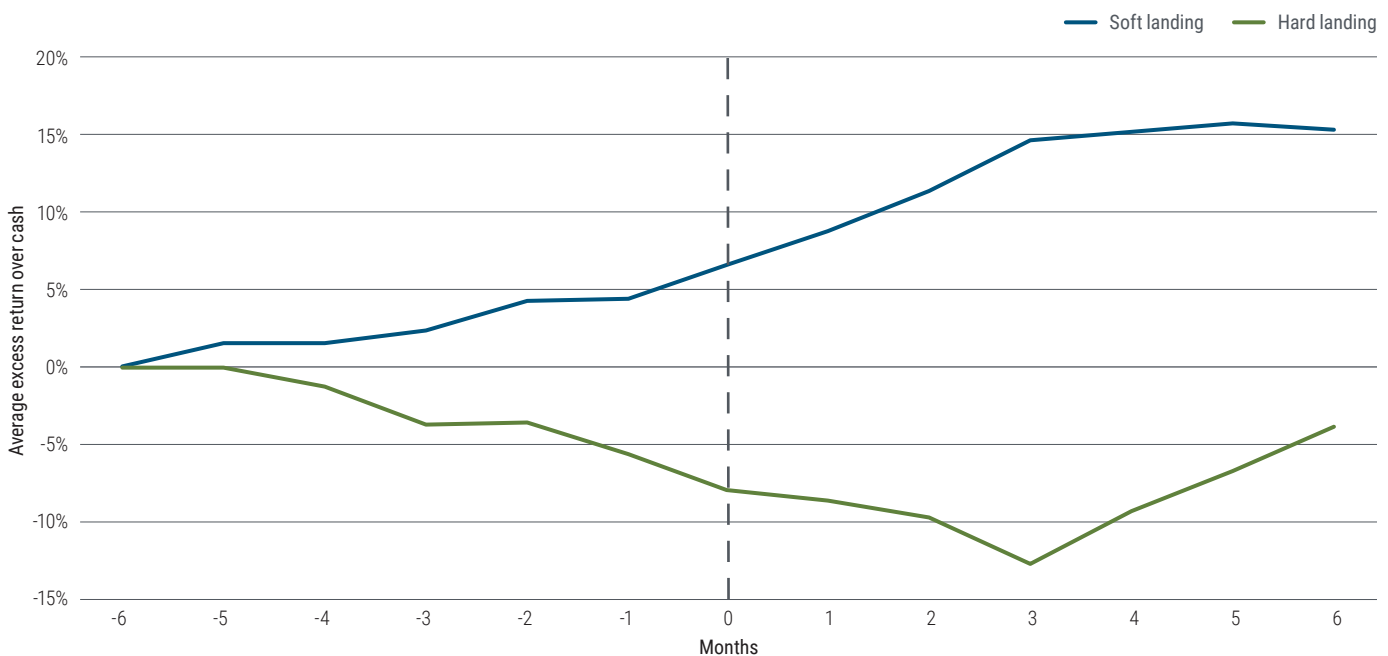
EQUITY MARKETS IN RATE-CUTTING CYCLES

While this business cycle has experienced pandemic-related surprises, inflation has now moved down the list of concerns. The precise trajectory of monetary policy may vary, but the Federal Reserve and most major central banks have clearly indicated their intentions to lower interest rates toward neutral. (Learn more in our latest *Cyclical Outlook*, "[Securing the Soft Landing](#).")

How do rate cuts affect stocks? Basic principles of asset valuation teach that, all else equal, lower central bank rates (as proxies for "risk-free" rates) lead to higher equity prices.

Figure 1: Historical U.S. equity market performance during rate-cut cycles depended on economic backdrop

MSCI USA Index before and after first Fed rate cut



Source: MSCI data and PIMCO calculations through September 2020. **Past performance is not a guarantee or a reliable indicator of future results.** Hard landings are defined as periods in which U.S. unemployment increases at least 0.5 percentage points from six months prior to six months after the first Fed rate cut.

Yet all else is rarely equal, and our historical analysis shows that economic activity has been the dominant driver of equity returns during rate-cutting cycles. If an economy slides into recession, rate cuts alone may not prevent stock market losses. However, if economic activity stays buoyant, rate cuts have potential to boost stock valuations.

There is no guarantee, of course, that these historical patterns will continue, but they can offer a guide. In Figure 1, we focus on the performance of the MSCI USA Index, a broad measure of large and mid cap equities, six months before and after the Fed's first rate cut in cycles from 1960 through 2020 (the most recent rate-cut cycle prior to the one that began this year). This dataset encompasses nine soft landings and 10 hard landings. In the median soft landing, U.S. equities rallied through the first Fed cut, but performance tapered off three months after the cuts began. In the median hard landing, U.S. equities declined both before and after the first cut, bottoming about three months after the cuts began.

In both hard and soft landings, the initial rate cut typically led to stronger equity performance, at least in the first month or so, as cuts generally boost sentiment and real economic activity. However, before long, equity markets usually start to reflect the prevailing macro environment.

Examining historical equity market performance by factor and sector in the six months after the first rate cut shows that, on average, growth outperformed value, large caps outperformed small caps, and dividend yield and quality offered positive returns overall. Homing in on the six rate-cutting cycles accompanied by soft landings since 1984, we find that later in the rate-cut cycle (approaching 12 months), small caps began to overtake large caps as economic growth accelerated. Additionally, technology, healthcare, and consumer staples generally outperformed, while energy, communications, and financials lagged.

Every cycle is different, as is the macro environment that accompanies it. However, the historical pattern suggests that an equity allocation today could effectively combine secular growth themes with more defensive, rate-sensitive beneficiaries, such as real estate investment trusts (REITs).

BOND MARKETS IN RATE-CUTTING CYCLES

Historical analysis also shows that bond returns have been positive during Fed rate-cutting cycles across a range of macroeconomic environments. Moreover, analysis indicates that the starting yields of high quality core fixed income securities are strongly correlated ($r = 0.94$) with five-year forward returns.¹ Thus, today's attractive starting yields bode well for fixed income investments.

As the Fed proceeds with rate cuts, bond investors may benefit from capital appreciation and earn more income than what money market funds provide. In multi-asset portfolios, conservative investors can seek higher risk-adjusted returns by stepping out of cash and onto the curve, while balanced portfolios can increase duration exposure. Of course, high quality bonds may also offer downside mitigation in the event of a hard landing.

Within fixed income, high quality credit and mortgages can enhance yields and serve as diversifiers. In particular, agency mortgage-backed securities (MBS) appear attractively valued, with spreads over U.S. Treasuries near historical highs, making them a liquid alternative to corporate credit.² Historically, agency MBS have also provided attractive downside resilience for portfolios: During recessionary periods, they have delivered an average 12-month excess return of 0.91 percentage points above like-duration U.S. Treasuries, versus -0.41 percentage points for investment grade corporates.³

NEGATIVE STOCK/BOND CORRELATION: PORTFOLIO IMPLICATIONS

The stock/bond correlation tends to turn lower and then negative as inflation and GDP growth moderate, as is the case in the U.S. and many other major economies today. Analysis of monthly measures of stock/bond correlation data since 1960 tracked against inflation rates indicates a clear trend: When inflation is at or near central bank targets (around 2%), as has generally been the case in developed markets since the 1990s, the stock/bond correlation has been negative or very narrowly positive.

In practice, a low or negative stock/bond correlation means that the two asset classes can complement each other in multi-asset portfolios, enabling investors to broaden and diversify their exposures while targeting return objectives.

For instance, investors with a specific risk budget can own a greater range and number of risk assets while staying within their tolerance, while investors with a predefined asset allocation mix can target lower volatility, smaller drawdowns, and higher Sharpe ratios (a measure of risk-adjusted return).

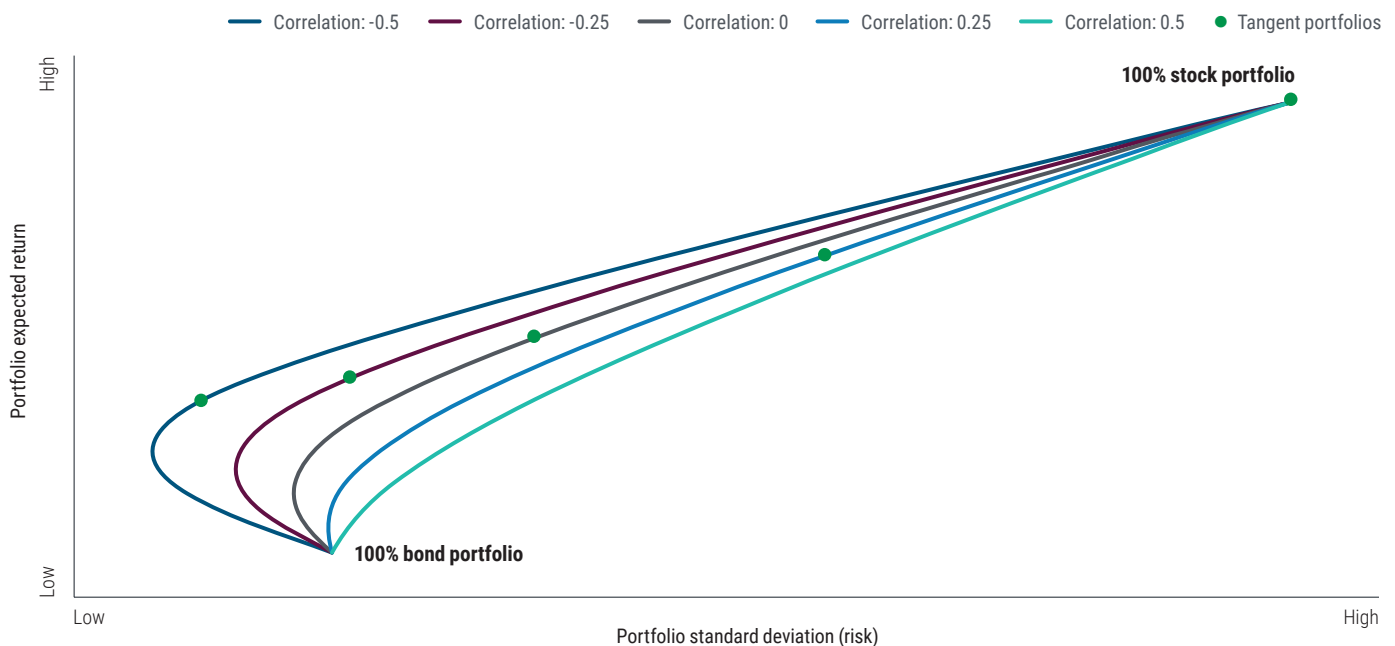
In general, negative correlations can enable asset mixes that experience lower volatility than any individual asset, while still targeting attractive returns. A hypothetical efficient frontier exercise helps illustrate this (see Figure 2): When the stock/

bond correlation is negative, there are regions along the lower-risk portions of the frontier where investors may target an asset mix that offers a somewhat higher potential return profile despite a drop in expected volatility.

A lower volatility from portfolio beta could also free up space for more exposure to alpha strategies, such as systematic equities – more on this later.

For multi-asset investors able to access leverage, negative stock/bond correlations could allow even higher total notional levels for a given risk target, as long as the portfolio returns exceed borrowing costs. The value of leverage in a diversified portfolio tends to be greater when correlations are negative.

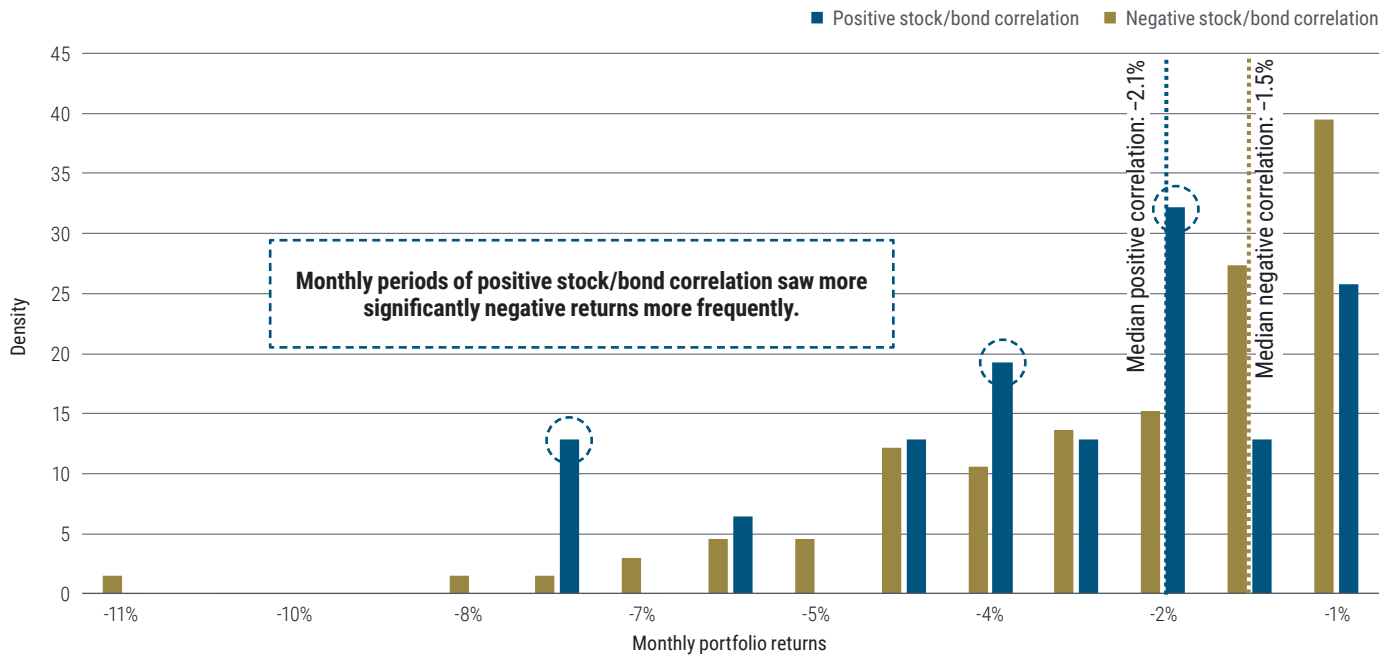
Figure 2: Hypothetical efficient frontier for stock/bond portfolios



Source: PIMCO as of 31 October 2024. **For illustrative purposes only. Figure is not indicative of the past or future results of any PIMCO product or strategy. There is no assurance that the stated results will be achieved.** This figure shows simple hypothetical two-asset efficient frontiers for different assumed stock (proxied by the S&P 500 Index) / bond (proxied by the 10-year U.S. Treasury) correlations. The efficient frontier models represented in this report are bound by the data sets and date ranges used in those models. Different time periods or data sets may produce different results. Past performance is not a guarantee or a reliable indicator of future results. Certain assumptions were made in this analysis, which have resulted in the returns detailed herein. Changes to the assumptions may have an impact on any returns detailed. Transaction costs (such as commissions or other fees) are not included in the calculation of returns reflected. If these fees and charges were included the performance results would be lower.

Figure 3: Periods of negative stock/bond correlation historically have seen less severe underperformance in a typical 60/40 portfolio

Left tails of 60/40 portfolio returns (since 2000)



Source: Bloomberg data and PIMCO calculations as of October 2024. **Past performance is not a guarantee or a reliable indicator of future results.** Data is based on a portfolio of 60% stocks (proxied by the S&P 500 Index) and 40% bonds (proxied by the Bloomberg US Aggregate Index). Density is defined as the normalized frequency of negative return periods under both negative and positive stock/bond correlation environments.

A look at the historical extreme (“tail”) scenarios of negative returns in a simple multi-asset portfolio consisting of 60% stocks and 40% bonds further illustrates the beneficial characteristics of a negative stock/bond correlation (see Figure 3). Periods with positive stock/bond correlation have typically seen more severe (worse) left-tail outcomes for multi-asset portfolios than periods with negative correlations. This is true even though most recessions have had deeply negative stock/bond correlations, because equity drawdowns were partially offset by gains in the fixed income allocation.

MITIGATING RISKS

While the opportunity set for multi-asset portfolios is rich, elevated risks related to public policy, geopolitics, and monetary policy mean that investors should consider designing portfolios capable of withstanding unlikely but extreme tail events. Even as one of the biggest global election

years in history (by voting population) concludes, uncertainty remains about how policies could affect inflation, growth, and interest rates. Additionally, ongoing conflicts in the Middle East and between Russia and Ukraine, and potential for geopolitical unrest elsewhere, could roil markets.

While the negative stock/bond correlation means portfolios may be better positioned to navigate downturns, it can’t prevent and may not mitigate all the risks of tail events. But investors have other strategies available, such as dedicated tail risk management. Active drawdown mitigation may include selectively using options when volatility is reasonably priced. The availability of volatility-selling strategies in recent years, including the rapid growth of options-selling ETFs, has increased the supply of volatility options, especially in the short end of the yield curve. This trend can make downside hedging more economical during opportune times.

We also believe it is prudent to hedge multi-asset portfolios against upside risks to inflation. Although restrictive central bank rates have brought inflation levels down close to targets, the long-term fiscal outlook in the U.S. includes continued high deficits, and geopolitical surprises could cause a spike in oil prices or snarl supply chains. Trade policies, such as tariffs, and deglobalization trends could also pressure inflation higher. We believe inflation-linked bonds (ILBs) remain an attractively priced hedge, offering compelling return potential as long-term real yields are currently near their highest levels in 15 years. Furthermore, long-term breakeven inflation rates are priced around or below the Fed's target, reflecting little to no risk premia despite the recent memory of a sharp inflation spike.

SPOTLIGHT ON STRUCTURAL ALPHA: EQUITY FACTORS

In any investing environment, it's helpful to step back from the analysis of risks and opportunities to assess one's investment process. At PIMCO, in addition to our investment views based on macro and bottom-up research, we use quantitative methods to help identify equity market inefficiencies and target structural alpha. Our process emphasizes diversification, minimizes concentration risk, and seeks to overcome behavioral biases.

First, we research and assign a composite score to a stock based on four key themes: momentum, growth, quality, and value. By integrating traditional metrics, such as earnings growth, with alternative data, such as insights from earnings transcripts and customer-supplier relationships, we aim to identify companies with potential for long-term outperformance.

The composite scores are then combined with considerations of risk and transaction costs to construct a highly diversified allocation that reflects conviction levels while adhering to various constraints. These include limits on active risk, market beta exposure, and concentration risk at the country, sector, and individual company levels, ensuring only modest deviations from the broad market.

With a systematic approach, rigorous research, and advanced analytical tools, including proprietary techniques, our strategies are designed to offer consistent excess return potential across different market conditions.

TAKEAWAYS

Investors can position multi-asset portfolios thoughtfully to seek to benefit from market trends while managing risks in an uncertain environment. As central banks continue to cut rates amid an outlook for a soft landing, both equities and bonds may do well. High quality core fixed income should be especially well-positioned.

A lower or negative stock/bond correlation allows for complementary and more diversified cross-asset positioning, especially for those with access to leverage. A robust options market can help investors hedge downside risks. Finally, making use of quantitative techniques and innovative tools can help smooth returns and lay the foundation for disciplined investing across market cycles.

The authors wish to thank Brendon Shvetz and Rico Fung for their contributions to this article.

1 Source: Bloomberg, PIMCO as of 30 September 2024 based on the Bloomberg US Aggregate Bond Index.

2 Liquidity refers to normal market conditions.

3 Sources: Bloomberg, National Bureau of Economic Research (NBER), and PIMCO calculations. Date range is October 1998 – October 2024; recessionary periods during this range are per NBER. Agency MBS is represented by the Bloomberg US Fixed Rate MBS Index and investment grade corporates are represented by the Bloomberg US Corporate Index.

The “risk-free” rate can be considered the return on an investment that, in theory, carries no risk. Therefore, it is implied that any additional risk should be rewarded with additional return. All investments contain risk and may lose value.

Past performance is not a guarantee or a reliable indicator of future results.

Investing in the **bond market** is subject to risks, including market, interest rate, issuer, credit, inflation risk, and liquidity risk. The value of most bonds and bond strategies are impacted by changes in interest rates. Bonds and bond strategies with longer durations tend to be more sensitive and volatile than those with shorter durations; bond prices generally fall as interest rates rise, and low interest rate environments increase this risk. Reductions in bond counterparty capacity may contribute to decreased market liquidity and increased price volatility. Bond investments may be worth more or less than the original cost when redeemed. **Inflation-linked bonds (ILBs)** issued by a government are fixed income securities whose principal value is periodically adjusted according to the rate of inflation; ILBs decline in value when real interest rates rise. **Mortgage- and asset-backed securities** may be sensitive to changes in interest rates, subject to early repayment risk, and their value may fluctuate in response to the market’s perception of issuer creditworthiness; while generally supported by some form of government or private guarantee, there is no assurance that private guarantors will meet their obligations. **Equities** may decline in value due to both real and perceived general market, economic and industry conditions. **REITs** are subject to risk, such as poor performance by the manager, adverse changes to tax laws or failure to qualify for tax-free pass-through of income. An **option** is a type of derivative. A derivative is a security whose price is dependent upon or derived from one or more underlying assets; the derivative itself is merely a contract between two or more parties. Derivatives may involve certain costs and risks, such as liquidity, interest rate, market, credit, management and the risk that a position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested. The **use of leverage** may cause a portfolio to liquidate positions when it may not be advantageous to do so to satisfy its obligations or to meet segregation requirements. Leverage, including borrowing, may cause a portfolio to be more volatile than if the portfolio had not been leveraged. **Tail risk hedging** may involve entering into financial derivatives that are expected to increase in value during the occurrence of tail events. Investing in a tail event instrument could lose all or a portion of its value even in a period of severe market stress. A tail event is unpredictable; therefore, investments in instruments tied to the occurrence of a tail event are speculative. **Diversification** does not ensure against loss.

Statements concerning financial market trends or portfolio strategies are based on current market conditions, which will fluctuate. There is no guarantee that these investment strategies will work under all market conditions or are appropriate for all investors and each investor should evaluate their ability to invest for the long term, especially during periods of downturn in the market. Investors should consult their investment professional prior to making an investment decision. Outlook and strategies are subject to change without notice.

The credit quality of a particular security or group of securities does not ensure the stability or safety of an overall portfolio. The quality ratings of individual issues/issuers are provided to indicate the credit-worthiness of such issues/issuer and generally range from AAA, Aaa, or AAA (highest) to D, C, or D (lowest) for S&P, Moody’s, and Fitch respectively.

Alpha is a measure of performance on a risk-adjusted basis calculated by comparing the volatility (price risk) of a portfolio vs. its risk-adjusted performance to a benchmark index; the excess return relative to the benchmark is alpha. **Beta** is a measure of price sensitivity to market movements. Market beta is 1. **Correlation** is a statistical measure of how two securities move in relation to each other. The correlation of various indexes or securities against one another or against inflation is based upon data over a certain time period. These correlations may vary substantially in the future or over different time periods that can result in greater volatility. The **Sharpe Ratio** measures the risk-adjusted performance. The risk-free rate is subtracted from the rate of return for a portfolio and the result is divided by the standard deviation of the portfolio returns.

Hypothetical illustrations have many inherent limitations, some of which are described below. No representation is being made that any account will or is likely to achieve results similar to those shown. In fact there are frequently sharp differences between hypothetical results and actual results subsequently achieved by any particular trading program. One of the limitations of hypothetical results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical scenarios do not involve financial risk, and no hypothetical illustration can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or to adhere to a particular trading program in spite of trading losses are material points which can also adversely affect actual trading results. There are numerous other factors related to the markets in general or to the implementation of any specific trading program which cannot be fully accounted for in the preparation of a hypothetical illustration and all of which can adversely affect actual results.

Forecasts, estimates and certain information contained herein are based upon proprietary research and should not be considered as investment advice or a recommendation of any particular security, strategy or investment product. There is no guarantee that results will be achieved.

PIMCO does not provide legal or tax advice. Please consult your tax and/or legal counsel for specific tax or legal questions and concerns.

Bloomberg U.S. Aggregate Index represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis. The **Bloomberg U.S. Corporate Index** covers USD-denominated, investment-grade, fixed-rate, taxable securities sold by industrial, utility and financial issuers. It includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements. Securities in the index roll up to the U.S. Credit and U.S. Aggregate indices. The U.S. Corporate Index was launched on January 1, 1973. **Bloomberg U.S. MBS Fixed-Rate Index** covers the mortgage-backed pass-through securities and hybrid ARM pools of Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC). The MBS Index is formed by grouping individual fixed rate MBS pools into generic aggregates. The **MSCI USA Index** is designed to measure the performance of the large and mid cap segments of the US market. With 593 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in the US. **S&P 500 Index** is an unmanaged market index generally considered representative of the stock market as a whole. The Index focuses on the large-cap segment of the U.S. equities market. It is not possible to invest directly in an unmanaged index.

This material contains the current opinions of the manager and such opinions are subject to change without notice. This material is distributed for informational purposes only and should not be considered as investment advice or a recommendation of any particular security, strategy or investment product. Information contained herein has been obtained from sources believed to be reliable, but not guaranteed.

PIMCO as a general matter provides services to qualified institutions, financial intermediaries and institutional investors. Individual investors should contact their own financial professional to determine the most appropriate investment options for their financial situation. This is not an offer to any person in any jurisdiction where unlawful or unauthorized. | **Pacific Investment Management Company LLC**, 650 Newport Center Drive, Newport Beach, CA 92660 is regulated by the United States Securities and Exchange Commission. | **PIMCO Europe Ltd (Company No. 2604517, 11 Baker Street, London W1U 3AH, United Kingdom)** is authorised and regulated by the Financial Conduct Authority (FCA) (12 Endeavour Square, London E20 1JN) in the UK. The services provided by PIMCO Europe Ltd are not available to retail investors, who should not rely on this communication but contact their financial adviser. Since PIMCO Europe Ltd services and products are provided exclusively to professional clients, the appropriateness of such is always affirmed. | **PIMCO Europe GmbH (Company No. 192083, Seidlstr. 24-24a, 80335 Munich, Germany)**, **PIMCO Europe GmbH Italian Branch (Company No. 10005170963, via Turati nn. 25/27 (angolo via Cavalieri n. 4), 20121 Milano, Italy)**, **PIMCO Europe GmbH Irish Branch (Company No. 909462, 57B Harcourt Street Dublin D02 F721, Ireland)**, **PIMCO Europe GmbH UK Branch (Company No. FC037712, 11 Baker Street, London W1U 3AH, UK)**, **PIMCO Europe GmbH Spanish Branch (N.I.F. W2765338E, Paseo de la Castellana 43, Oficina 05-111, 28046 Madrid, Spain)** and **PIMCO Europe GmbH French Branch (Company No. 918745621 R.C.S. Paris, 50-52 Boulevard Haussmann, 75009 Paris, France)** are authorised and regulated by the German Federal Financial Supervisory Authority (BaFin) (Marie-Curie-Str. 24-28, 60439 Frankfurt am Main) in Germany in accordance with Section 15 of the German Securities Institutions Act (WpIG). The Italian Branch, Irish Branch, UK Branch, Spanish Branch and French Branch are additionally supervised by: (1) Italian Branch: the Commissione Nazionale per le Società e la Borsa (CONSOB) (Giovanni Battista Martini, 3 - 00198 Rome) in accordance with Article 27 of the Italian Consolidated Financial Act; (2) Irish Branch: the Central Bank of Ireland (New Wapping Street, North Wall Quay, Dublin 1 D01 F7X3) in accordance with Regulation 43 of the European Union (Markets in Financial Instruments) Regulations 2017, as amended; (3) UK Branch: the Financial Conduct Authority (FCA) (12 Endeavour Square, London E20 1JN); (4) Spanish Branch: the Comisión Nacional del Mercado de Valores (CNMV) (Edison, 4, 28006 Madrid) in accordance with obligations stipulated in articles 168 and 203 to 224, as well as obligations contained in Title V, Section I of the Law on the Securities Market (LSM) and in articles 111, 114 and 117 of Royal Decree 217/2008, respectively and (5) French Branch: ACPR/Banque de France (4 Place de Budapest, CS 92459, 75436 Paris Cedex 09) in accordance with Art. 35 of Directive 2014/65/EU on markets in financial instruments and under the surveillance of ACPR and AMF. The services provided by PIMCO Europe GmbH are available only to professional clients as defined in Section 67 para. 2 German Securities Trading Act (WpHG). They are not available to individual investors, who should not rely on this communication. According to Art. 56 of Regulation (EU) 565/2017, an investment company is entitled to assume that professional clients possess the necessary knowledge and experience to understand the risks associated with the relevant investment services or transactions. Since PIMCO Europe GmbH services and products are provided exclusively to professional clients, the appropriateness of such is always affirmed. | **PIMCO (Schweiz) GmbH (registered in Switzerland, Company No. CH-020.4.038.582-2, Brandschenkestrasse 41 Zurich 8002, Switzerland)**. According to the Swiss Collective Investment Schemes Act of 23 June 2006 ("CISA"), an investment company is entitled to assume that professional clients possess the necessary knowledge and experience to understand the risks associated with the relevant investment services or transactions. Since PIMCO (Schweiz) GmbH services and products are provided exclusively to professional clients, the appropriateness of such is always affirmed. The services provided by PIMCO (Schweiz) GmbH are not available to retail investors, who should not rely on this communication but contact their financial adviser. | **PIMCO Asia Pte Ltd** (8 Marina View, #30-01, Asia Square Tower 1, Singapore 018960, Registration No. 199804652K) is regulated by the Monetary Authority of Singapore as a holder of a capital markets services licence and an exempt financial adviser. The asset management services and investment products are not available to persons where provision of such services and products is unauthorised. | **PIMCO Asia Limited** (Suite 2201, 22nd Floor, Two International Finance Centre, No. 8 Finance Street, Central, Hong Kong) is licensed by the Securities and Futures Commission for Types 1, 4 and 9 regulated activities under the Securities and Futures Ordinance. PIMCO Asia Limited is registered as a cross-border discretionary investment manager with the Financial Supervisory Commission of Korea (Registration No. 08-02-307). The asset management services and investment products are not available to persons where provision of such services and products is unauthorised. | **PIMCO Investment Management (Shanghai) Limited**. Office address: Suite 7204, Shanghai Tower, 479 Lujiazui Ring Road, Pudong, Shanghai 200120, China (Unified social credit code: 91310115MA1K41MU72) is registered with Asset Management Association of China as Private Fund Manager (Registration No. P1071502, Type: Other). | **PIMCO Australia Pty Ltd** ABN 54 084 280 508, AFSL 246862. This publication has been prepared without taking into account the objectives, financial situation or needs of investors. Before making an investment decision, investors should obtain professional advice and consider whether the information contained herein is appropriate having regard to their objectives, financial situation and needs. To the extent it involves Pacific Investment Management Co LLC (PIMCO LLC) providing financial services to wholesale clients, PIMCO LLC is exempt from the requirement to hold an Australian financial services licence in respect of financial services provided to wholesale clients in Australia. PIMCO LLC is regulated by the Securities and Exchange Commission under US laws, which differ from Australian laws. | **PIMCO Japan Ltd**, Financial Instruments Business Registration Number is Director of Kanto Local Finance Bureau (Financial Instruments Firm) No. 382. PIMCO Japan Ltd is a member of Japan Investment Advisers Association, The Investment Trusts Association, Japan and Type II Financial Instruments Firms Association. All investments contain risk. There is no guarantee that the principal amount of the investment will be preserved, or that a certain return will be realized; the investment could suffer a loss. All profits and losses incur to the investor. The amounts, maximum amounts and calculation methodologies of each type of fee and expense and their total amounts will vary depending on the investment strategy, the status of investment performance, period of management and outstanding balance of assets and thus such fees and expenses cannot be set forth herein. | **PIMCO Taiwan Limited** is an independently operated and managed company. The reference number of business license of the company approved by the competent authority is (112) Jin Guan Tou Gu Xin Zi No. 015. The registered address of the company is 40F., No.68, Sec. 5, Zhongxiao East Rd., Xinyi District, Taipei City 110, Taiwan (R.O.C.), and the telephone number is +886 2 8729-5500. | **PIMCO Canada Corp.** (199 Bay Street, Suite 2050, Commerce Court Station, P.O. Box 363, Toronto, ON, M5L 1G2) services and products may only be available in certain provinces or territories of Canada and only through dealers authorized for that purpose. | **Note to Readers in Colombia:** This document is provided through the representative office of Pacific Investment Management Company LLC located at Carrera 7 No. 71-52 TB Piso 9, Bogota D.C. (Promoción y oferta de los negocios y servicios del mercado de valores por parte de Pacific Investment Management Company LLC, representada en Colombia.). **Note to Readers in Brazil:** PIMCO Latin America Administradora de Carteiras Ltda. Av. Brg. Faria Lima, 3477 Itaim Bibi, São Paulo - SP 04538-132 Brazil. **Note to Readers in Argentina:** This document may be provided through the representative office of PIMCO Global Advisors LLC AVENIDA CORRIENTES, 299, Buenos Aires, Argentina. | No part of this publication may be reproduced in any form, or referred to in any other publication, without express written permission. PIMCO is a trademark of Allianz Asset Management of America LLC in the United States and throughout the world. ©2024, PIMCO.