

2026 Diversification Landscape

A look at how key asset classes performed in 2025, how correlations have changed, and the implications for portfolio building.

Portfolio and Planning Research

April 14, 2026

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Key Takeaways

- ▶ Portfolio diversification had its most decisive win in several years during 2025's turbulent but generally positive market environment. Our "diversified" test portfolio gained 18.3%, compared with 13.3% for the plain-vanilla version of a 60/40 portfolio (made up of US stocks and US investment-grade bonds). International stocks and gold were key contributors to the stronger showing.
- ▶ Even so, the basic 60/40 portfolio has been tough to beat over longer periods. It came out ahead of more broadly diversified portfolios over most of the past 20 years and generated better risk-adjusted returns than an equity-only benchmark in about 80% of the rolling periods going back to 1976. The enduring (and often prematurely written off) strength of the 60/40 portfolio suggests that investors looking to build diversified portfolios don't necessarily need to venture too far beyond a basic mix of larger-cap stocks and high-quality bonds.
- ▶ Correlations between the United States and other developed markets around the world have been trending down as major shifts in tariff policy have made the world more fragmented and less globalized. Escalating geopolitical risks could also upend many previously established performance patterns.
- ▶ Correlations between stocks and investment-grade bonds remain elevated over the trailing three-year period but shifted back into negative territory for 2025. Investors who were previously worried that bonds would become less reliable portfolio diversifiers can take some comfort in this return to form. Cash has also continued to stand out as one of the best portfolio diversifiers.
- ▶ Although correlations for major cryptocurrencies such as bitcoin and ethereum have trended higher in recent years, gold, commodities, and some alternative investment strategies have continued to excel as portfolio diversifiers.
- ▶ As always, diversification strategies that have worked in the past may not work in the future. That's particularly true in bear markets and corrections, when correlations for many asset classes typically move higher.

Introduction

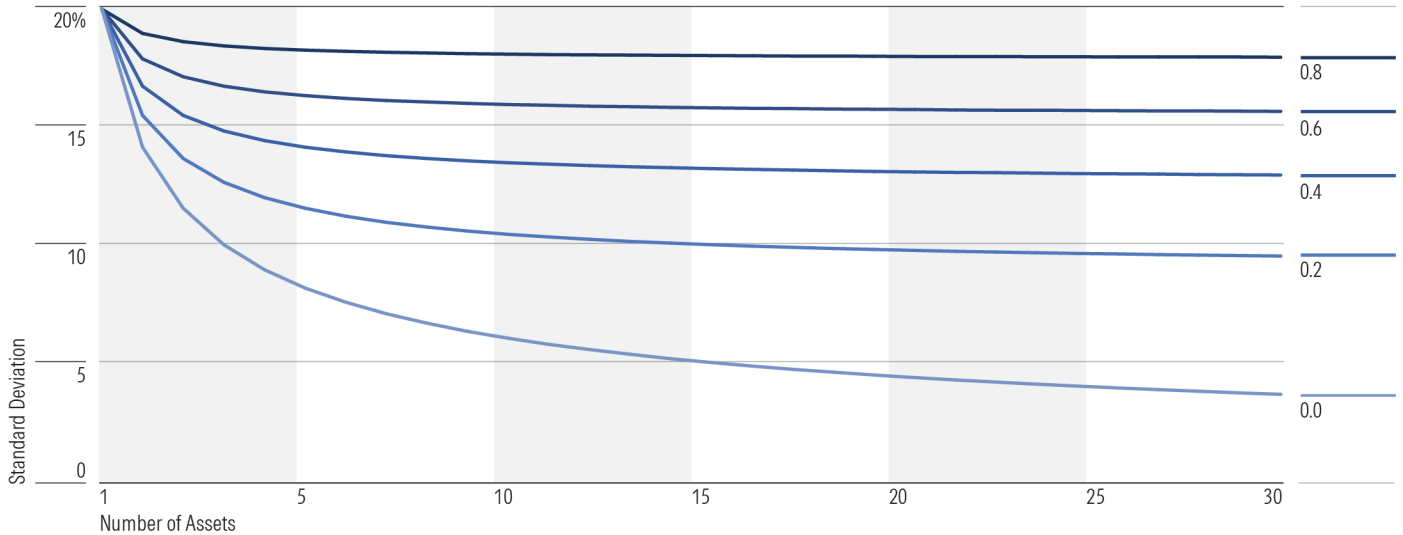
Diversification has often been called the only free lunch in investing. As Harry Markowitz first established in his landmark research¹ in 1952, a portfolio's risk level isn't just the sum of its individual components, but it also depends on how the holdings interact with each other. This interaction is referred to as *correlation*, which is a statistical measure that captures how two securities move in relation to each other (although it captures only the direction, not the magnitude, of returns). A

¹ Markowitz, H. 1952. "Portfolio Selection." *J. Finance*, Vol. 7, P. 77.

correlation coefficient of 1 means the two securities have historically moved in lockstep in the same direction, while a coefficient of negative 1 means they moved in lockstep but in opposite directions. A correlation coefficient of 0 means the two securities have historically had no relationship.

Combining asset classes that have correlations below 1.0 can reduce the portfolio's overall risk profile. It is one of the few cases where the whole can be more than the sum of the parts: A well-constructed portfolio can have better risk-adjusted returns than its components. Exhibit 1 below shows the basic math of diversification. The lower the correlation, the greater the reduction in volatility from adding additional assets.

Exhibit 1 Risk Reduction From Additional Assets



Source: Morningstar analysts. Chart shows portfolio volatility by number of assets assuming a correlation coefficient of 0.0, 0.2, 0.4, 0.6, or 0.8.

The problem is that correlation coefficients shift over time, so what worked in the past won't necessarily work in the future. In addition, adding asset classes to reduce volatility can also drag down returns, sometimes over multiyear periods. Moreover, correlations between many assets spike during periods of market crisis—in other words, exactly when you need diversification the most. The catalysts for crisis periods that lead to equity market declines can also vary dramatically. Economic weakness and other unforeseen events can drive declines (as they did during 2008 and early 2020), but so can rising interest rates, higher inflation, uncertainty about the impact of tariff policy, and so on. Those underlying conditions can affect which diversifiers fare best.

In this paper, we dig into the diversification benefits of adding various asset classes and investment types to a US equity portfolio, including taxable and municipal bonds in the US, international equity,

commodities, alternatives, sector-specific indexes, investment styles, factor indexes, private investments, and cryptocurrencies.

Methodology

We used Morningstar's indexes to measure correlations whenever possible. The correlation metrics are based on monthly returns during each period in all sections except for the one dedicated to private investments, in which case only quarterly returns are available. In a few cases, we used third-party indexes or fund categories as proxies for different investment areas. Unless otherwise noted, all benchmark returns referenced in this report are total returns denominated in US dollars.

We approached diversification from the perspective of a US-based investor and measured correlations relative to the Morningstar US Market Index (all equities) as a primary benchmark. Investors often construct portfolios with a foundation of US equities, which currently make up about two-thirds of the global stock market. As a result, it is likely that most investors could use other holdings that would help balance their US equity exposure.

To test the value of portfolio diversification, we created a portfolio made up of 11 different asset classes. We allocated 20% of the portfolio to larger-cap domestic stocks; 10% each to developed- and emerging-markets stocks, Treasuries, US core bonds, global bonds, and high-yield bonds; and 5% each to US small-cap stocks, commodities, gold, and REITs.²

² Our test portfolio is just one of many potential portfolios that could be tested. We focused on the asset classes most commonly used for diversification purposes and assigned the allocations in simple proportions based on our best estimates of how investors typically use these assets in practice. We assumed annual rebalancing for the sake of simplicity and to align with how everyday investors manage their portfolios.

2025 Overview and Long-Term Trends

Portfolio diversification had its most decisive victory in several years during 2025's turbulent but generally bullish market environment. Even though US stocks notched yet another year of above-average returns, non-US stocks fared even better, and gold surged by nearly 70%. As a result, our "diversified" test portfolio gained about 18.3% for the year, compared with a 13.3% return for a basic 60/40 portfolio (made up of US stocks and US investment-grade bonds). That 5-percentage-point advantage was the biggest win for portfolio diversification since 2009.

Thanks to lower correlations for many of the "diversified" asset classes, the diversified portfolio would have also done a better job reducing risk during 2025, especially during turbulent periods such as tariff turmoil in the spring and some less extreme market jitters toward the end of the year. As a result, the diversified portfolio finished the year with far better risk-adjusted returns than both the basic 60/40 portfolio and Morningstar US Market and US Core Bond indexes.

Exhibit 2 Effect of Diversification in 2025

	Total Return %	Standard Deviation	Sharpe Ratio
Morningstar US Market	17.35	11.34	1.10
Morningstar US Core Bond	7.12	2.85	0.96
60/40 Portfolio	13.25	6.76	1.26
Diversified Portfolio	18.27	4.09	3.13

Source: Morningstar Direct. Data as of Dec. 31, 2025. The 60/40 portfolio consists of a 60% weighting in the Morningstar US Market Index and 40% in the Morningstar US Core Bond Index. The diversified portfolio includes a 20% weighting in larger-cap domestic stocks; 10% each in developed- and emerging-markets stocks, Treasuries, core bonds, global bonds, and high-yield bonds; and 5% each in small-cap stocks, commodities, gold, and REITs.

However, more diversified portfolio strategies haven't fared as well over longer periods, at least over the past two decades. Returns for the diversified portfolio fell behind a plain-vanilla mix of domestic stocks and bonds over most trailing periods. Diversification helped reduce risk but not enough to result in better risk-adjusted returns, as measured by the Sharpe ratio.

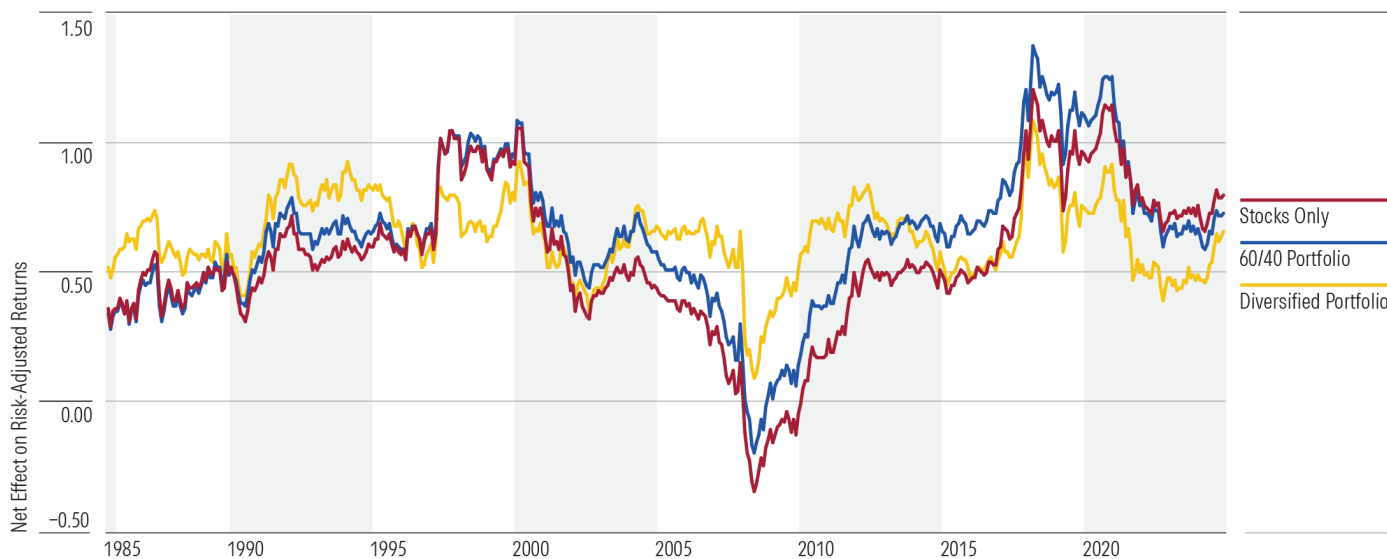
Exhibit 3 Effect of Diversification Over Trailing Periods

	3 Years			5 Years			10 Years			15 Years			20 Years		
	Total Return (%)	Std Dev	Sharpe Ratio	Total Return (%)	Std Dev	Sharpe Ratio	Total Return (%)	Std Dev	Sharpe Ratio	Total Return (%)	Std Dev	Sharpe Ratio	Total Return (%)	Std Dev	Sharpe Ratio
Morningstar US Market	22.56	12.44	1.32	13.29	15.37	0.68	14.40	15.57	0.85	14.44	0.86	0.86	10.92	15.49	0.64
Morningstar US Core Bond	4.57	5.93	-0.04	-0.43	6.27	-0.59	1.96	4.96	-0.07	4.31	0.21	0.21	3.25	4.16	0.38
60/40 Portfolio	15.40	9.21	1.08	7.97	11.01	0.45	9.55	10.23	0.76	9.29	0.85	0.85	8.22	9.68	0.69
Diversified Portfolio	13.99	7.96	1.08	7.01	9.51	0.41	8.19	9.16	0.72	8.73	0.63	0.63	7.13	9.74	0.58

Source: Morningstar Direct. Data as of Dec. 31, 2025.

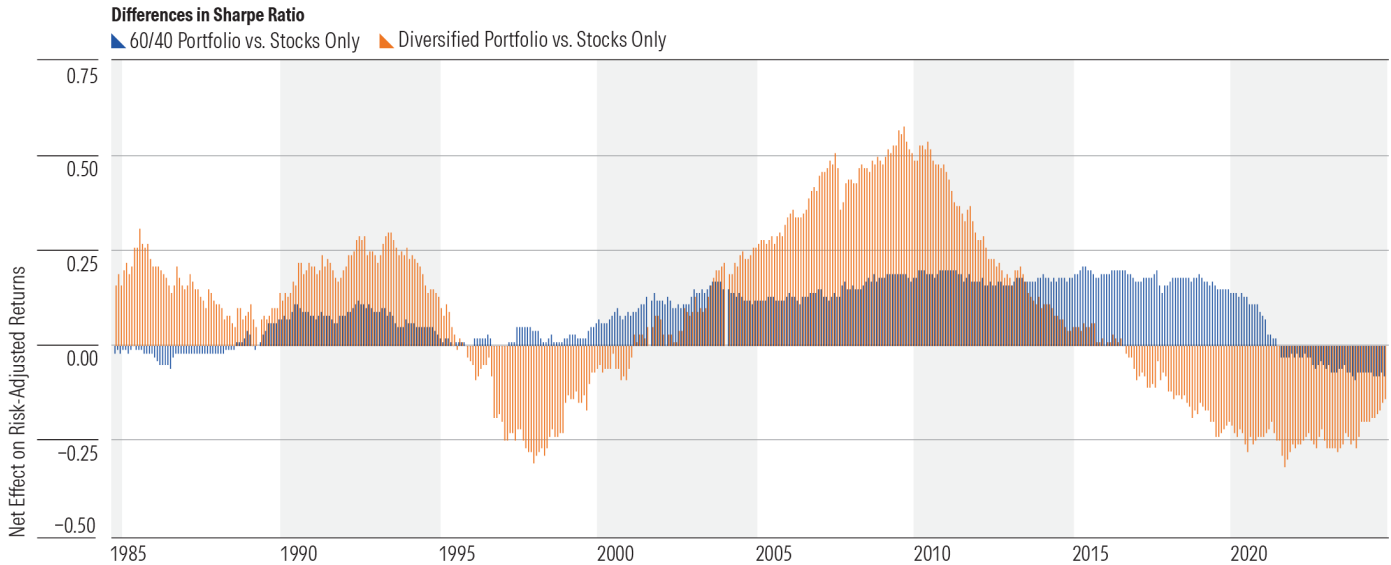
To test the value of diversification over longer periods, we used US stocks and US investment-grade bonds as a baseline for a basic 60/40 portfolio. We used the same asset classes cited in Exhibit 2 to test the performance of a more diversified portfolio over rolling 10-year periods starting in 1976.

Exhibit 4 Risk-Adjusted Returns (Sharpe Ratio)



Source: Morningstar Direct. Data as of Dec. 31, 2025. The rolling 10-year Sharpe ratios are for stocks only, a 60/40 portfolio, and a fully diversified portfolio. Both portfolios assume annual rebalancing.

Although a broadly diversified portfolio improved risk-adjusted returns (as measured by the Sharpe ratio) versus an all-stock portfolio during most rolling 10-year periods between January 1976 and August 2017, the diversified portfolio posted weaker risk-adjusted returns over most periods since then. The basic 60/40 portfolio, on the other hand, fared better than the stocks-only benchmark in about 80% of the rolling periods going back to 1976 and came out ahead of the more broadly diversified version in every rolling 10-year period since early 2005.

Exhibit 5 Net Effect on Risk-Adjusted Returns

Source: Morningstar Direct. Data as of Dec. 31, 2025. The chart shows the difference in rolling 10-year Sharpe ratios for a 60/40 portfolio and a fully diversified portfolio versus a stocks-only benchmark. Both portfolios assume annual rebalancing.

Diversification's previous struggles mainly reflect the confluence of strong returns for US stocks and core US bonds and weaker results for international stocks and more specialized assets during most of the period from 2000 through 2024. In addition, market correlations often converge during periods of market crisis, which happened across most major asset classes (when stocks tumbled in 2022 and early 2020).

That said, correlations for some major asset classes have shown some signs of loosening in recent years. Correlations between US and non-US stocks, for example, have trended a bit lower as the dollar has weakened and shifts in tariff policy have cast doubt on the future of global trade. Correlations for other major asset classes, such as REITs, have also eased down from previous peaks. As a result, the correlation between the diversified portfolio and the Morningstar US Market Index has trended lower than it was in some previous periods; the correlation coefficient between the two stood at about 0.87 for the three-year period ended in December 2025, down from as high as 0.97 previously.

Exhibit 6 Rolling Three-Year Correlation Trend: Diversified Portfolio vs. Morningstar US Market Index

Source: Morningstar Direct. Data as of Dec. 31, 2025.

The key question now is: Will portfolio diversification continue to dominate, or will a plain-vanilla mix of stocks and bonds return to the fore? The answer depends partly on the macro environment, which went through a significant shift starting in late 2021. In contrast to the low inflation and declining interest rates that defined most of the previous three decades, both inflation and interest rates have reversed course. As a result, correlations between stocks and bonds remained positive for the trailing three-year period ended in 2025, although they shifted back into negative territory more recently.

As we discuss in the sections devoted to historical contexts, positive stock/bond correlations would probably persist during an extended period of higher interest rates and/or inflation. Even during periods when stock and bond correlations are positive, however, Treasuries and other high-quality bonds can still improve risk-adjusted returns when added to an equity-only portfolio. The upshot: Investors looking to build diversified portfolios don't necessarily need to venture too far beyond the basic mix of larger-cap stocks and high-quality bonds.

Key Portfolio Implications

- ▶ Cash has diversified portfolios better than Treasuries in recent years, especially when interest rates were trending up. Retirees who are in drawdown mode should consider employing cash and short-term bonds alongside their intermediate- and longer-duration core bond holdings.
- ▶ Lower-quality bonds have been poor diversifiers for stocks and are best used as supplemental holdings or equity alternatives. Even municipal bonds have had a fairly high correlation with stocks, suggesting that investors who value their tax-saving features should consider augmenting them with cash and US government bonds for diversification and ballast during equity market shocks.
- ▶ After a long period of underperformance, international stocks pulled ahead by a wide margin in 2025. Ongoing weakness in the US dollar—as well as lower valuations in many non-US markets—are potential tailwinds that could help international diversification remain a net positive. In addition, non-US stocks have shown some signs of delinking from domestic stocks, which is beneficial for investors seeking diversification benefits.
- ▶ In contrast to correlation trends for most other asset classes, correlations for commodities have trended down in recent years. However, the wide range of returns for various commodities in any given year often makes them difficult to use effectively in a portfolio.
- ▶ Performance for most equity investment styles, sectors, and factor indexes has been closely aligned with the overall market, limiting their usefulness as portfolio diversifiers.
- ▶ Not every asset type with a low correlation coefficient is worth adding to a diversified portfolio. For example, cryptocurrency's extreme volatility makes it difficult to live with, while private investments' inherent lack of liquidity makes them impractical for investors planning to fund a goal at a specific point in time.

Learning From History

Correlation patterns are far from static, and the continuous shifts in how various asset classes perform relative to each other are one of the biggest challenges investors face in building well-diversified portfolios. As the well-worn adage goes, all correlations go to 1 in a bear market—exactly when more-diversified performance patterns would be the most valuable. The overall macroeconomic regime can also influence correlations across asset classes. In this section, we'll examine correlation trends in different types of environments for interest rates, economic growth, and inflation. Although no regime is exactly the same, looking at how asset classes have fared in previous periods gives investors a starting point for thinking about how their portfolios might perform in similar environments going forward.

Interest Rate Pivots

Until recently, investors had grown used to a steady decline in interest rates, punctuated by modest Federal Reserve efforts at recalibrating them. It wasn't until 2022 that a sudden spike in inflation led to seven substantial hikes to the federal-funds rate, followed by four more-modest hikes in 2023. Despite widespread market expectations for multiple rate cuts in 2024, the US central bank ended up reducing rates only three times during the year, bringing the rate down to a range of 4.25% to 4.50%.

The Fed made three additional rate cuts in 2025, with the final reduction occurring in December. These cuts brought the benchmark federal-funds rate to a target range of 3.50% to 3.75% by the end of the year. The yield on the 10-year US Treasury closed 2025 at about 4.1%, down from about 4.5% at the end of 2024. With the recent downtrend in rates, correlations between stocks and bonds once again dropped slightly below zero in 2025, although the correlation between the two remained positive for the trailing three-year period.

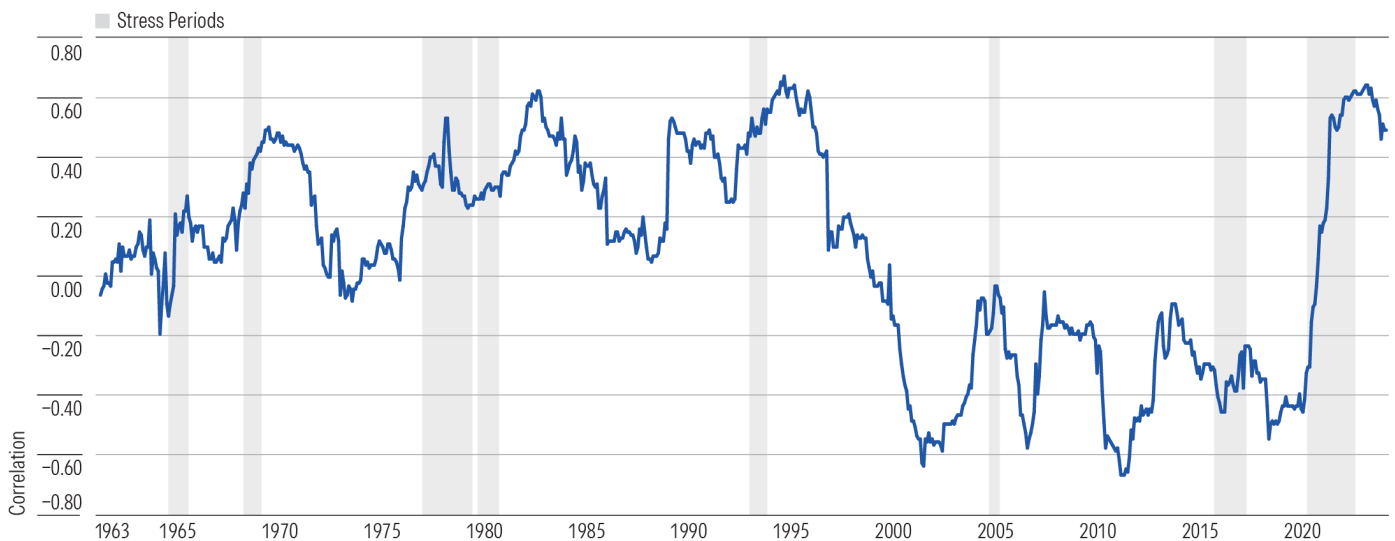
Over longer periods, correlations between stocks and bonds have been dynamic, and the relationship between stocks and bonds varies depending on context.

During the five-plus decades before the coronavirus pandemic, policymakers sought to keep the economy stable during four widely acknowledged monetary policy regimes—the Great Inflation, Volcker Reform, the Great Moderation, and the Zero Interest Rate Policy known as ZIRP—but each did so in different ways.³ During the Great Inflation, targeted interest rate hikes helped stabilize the business

³ These periods are based on William T. Gavin's "Monetary Policy Regimens and the Real Interest Rate" published in the Federal Reserve Bank of St. Louis Review, Second-Quarter 2018.

cycle but led to double-digit inflation. Federal Reserve Chair Paul Volcker inherited this situation and aggressively tightened monetary policy to moderate inflation and restore trust in prices; his dramatic action unapologetically slowed the economy and is referred to as the period of *Volcker Reform*.

Exhibit 7 Historical Fixed-Income Correlations and Interest Rate Pivots



Source: Morningstar Direct. Data as of Dec. 31, 2025. The rolling three-year correlation is between the IA SBBI US IT Government Index and the IA SBBI US Large Stock Index through 2002; data after that point is based on the rolling three-year correlation between the Morningstar US 5-10 Year Treasury Index and the Morningstar US Market Index.

The next 25 or so years saw the Federal Reserve move to simultaneously stabilize prices and maintain lower inflation levels, but this Great Moderation coincided with significant financial deregulation. Ultimately, it culminated in the proliferation of complex derivative investments that magnified debts, stoked mistrust in banks, and led to a liquidity crunch starting in 2007. To stabilize the economy and slow the crisis, the Federal Reserve dropped short-term rates to near zero. In a further effort to keep bond market yields low, it also aggressively bought up US Treasuries and (unprecedented up until that point) agency mortgages. ZIRP and successive rounds of quantitative easing led to a nearly 15-year period of low borrowing costs. Outside the US, some central banks even experimented with negative interest rates.

How Interest Rate Pivots Affect Correlations

As shown in Exhibit 8, correlations have varied widely across these monetary policy regimes. In three of the four described, the correlation coefficient was positive, though noticeably more modest (0.02) during the Great Moderation than during the Volcker Reform (0.35). As expected, the correlation was negative during ZIRP, given the precipitous decline in rates. Over the single six-plus-decade period, the correlation coefficient between stocks and bonds registered at a modest but positive 0.08.

But during a more concentrated period, such as 2022, 2023, and early 2024, correlations between stocks and bonds can be much higher. That's because broader monetary policy regimes include concentrated periods of interest rate pivots. These pivots are short, intentional, and reflect a realized increase in borrowing costs. Essentially, the rate regime resets. Here, we've defined these periods as months when both the 10-year US Treasury yield and the effective Federal Open Market Committee rate increased by 10% or more, year over year. There have been eight of these pivots in the past six decades or so. Except for the ZIRP era, in each of the other established monetary policy periods, pivot correlations are often noticeably higher than their respective regimes. These are moments when rates move higher, bond prices move lower, and correlations rearrange.

Exhibit 8 Risk, Returns, and Correlations: Interest Rate Pivots

	Great Inflation			Volcker Reform			Great Moderation			ZIRP		Postpandemic Era	
	Jan 1965 to Oct 1979	Pivot 1 June 1966 to Jan 1967	Pivot 2 Aug 1969 to Jul 1970	Nov 1979 to Oct 1982	Pivot 3 Aug 1978 to Jan 1981	Pivot 4 May 1981 to Mar 1982	Nov 1982 to Dec 2008	Pivot 5 Sept 1994 to June 1995	Pivot 6 June 2006 to Jan 2007	Jan 2009 to Feb 2022	Pivot 7 June 2017 to Mar 2019	Mar 2022 to Dec 2025	Pivot 8 Mar 2022 to Apr 2024
Average Federal-Funds Rate (%)	6.5	5.4	8.5	14.2	12.0	15.8	5.4	5.6	5.2	0.5	1.7	1.3	3.9
Correlation Coefficient													
Stocks	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bonds	0.24	0.51	0.57	0.35	0.24	0.67	0.02	0.80	0.20	-0.24	-0.29	0.64	0.71
60/40 Portfolio	0.98	0.99	0.98	0.94	0.94	0.96	0.97	0.99	0.93	0.99	0.99	0.98	0.99
Diversified Portfolio	n/a	n/a	n/a	0.85	0.80	0.88	0.86	0.94	0.57	0.94	0.95	0.91	0.94
Total Return % (Ann)													
Stocks	5.15	4.14	-19.60	15.60	16.63	-12.32	10.41	21.15	22.53	15.04	11.38	13.38	7.63
Bonds	5.07	7.41	2.99	14.34	4.05	15.32	8.00	10.89	6.32	2.40	1.44	0.76	-3.87
60/40 Portfolio	5.44	5.87	-10.47	15.52	11.81	-1.78	10.02	17.03	16.02	10.18	7.60	8.44	3.12
Diversified Portfolio	n/a	n/a	n/a	13.05	14.21	-4.10	9.85	10.28	14.46	8.54	5.33	7.64	1.39
Standard Deviation													
Stocks	14.73	15.71	18.87	17.00	16.04	12.61	15.04	8.98	3.57	14.64	13.07	16.20	19.51
Bonds	4.50	4.22	7.44	11.88	10.78	10.02	4.82	5.32	2.44	3.31	2.87	6.91	8.28
60/40 Portfolio	9.23	10.20	12.86	12.56	11.66	10.65	9.30	7.27	2.55	8.48	7.77	11.69	14.23
Diversified Portfolio	n/a	n/a	n/a	12.20	11.77	10.41	8.02	5.89	3.25	8.88	6.99	10.26	12.75
Sharpe Ratio													
Stocks	0.01	0.00	-0.96	0.18	0.36	-2.08	0.40	1.58	4.35	1.00	0.75	0.59	0.26
Bonds	-0.20	0.51	-0.37	0.11	-0.59	0.06	0.63	0.93	0.44	0.58	-0.12	-0.50	-0.96
60/40 Portfolio	-0.02	0.11	-0.92	0.19	0.09	-1.43	0.53	1.45	3.91	1.13	0.75	0.38	-0.01
Diversified Portfolio	n/a	n/a	n/a	0.02	0.27	-1.68	0.59	0.75	2.65	0.91	0.52	0.35	-0.16

Source: Morningstar Direct. Data as of Dec. 31, 2025. Stock performance is based on the IA SBBI US Large Stock Index prior to Jan. 1, 2000, and the Morningstar US Market Index after that date. Bond performance is based on the IA SBBI US IT Government Index prior to Jan. 1, 2000, and the Morningstar US 5-10 Year Treasury Index after that date. Returns for periods greater than one year are annualized.

As the Federal Reserve began aggressively raising rates in 2022 (spanning a period from March to December), the correlation coefficient between stocks and bonds immediately turned positive. Rather than maintain a period of low rates indefinitely, the Federal Reserve moved quickly to reset rates, faster and higher than it had in decades. While rate increases in 2023 were more moderate and started to reverse course in 2024, the recalibration remained a significant driver behind higher stock and bond correlations. We refer to this proposed distinct monetary policy regime, which begins with the most

recent interest rate pivot in our dataset, as the Postpandemic Era. Similar to the four monetary policy regimes previously described, the contours of this one reflect the unique challenges of its era: excessive inflation and asset bubbles fueled by excessively low borrowing costs.

Paradoxically, investors should find interest rate pivots encouraging. Although painful, without these, bonds would lose their long-term diversification benefits. Inflation combined with persistently low rates detracts from a US Treasury bond's income-generating ability. And when rates sit at or near zero, the expectation that they must rise to restore elements of economic equilibrium fuels volatility in bond prices, too. Nobody wants to hold a bond knowing that aggressive rate increases are on the horizon. A higher rate reset now creates better opportunities for bonds later. Indeed, higher bond yields heading into 2023 helped offset losses from continued rate increases during the first seven months of the year.

In addition, painful interest rate pivots are typically short. Indeed, the rolling three-year correlation between stocks and bonds equaled or exceeded 0.30 in only about one-third of the six-plus decades of monthly data points analyzed here. That's attractive relative to other asset classes often used as portfolio diversifiers, such as REITs, high-yield bonds, and international equities. And between the interest rate pivots identified in Exhibit 8, it took rolling three-year correlations anywhere from one to eight years to reset to a lower level, but they did eventually fall. Well-diversified portfolios with long time horizons benefit from patience.

Performance Trends

Across the five major interest rate regimes, asset-class performance has varied widely. Overall, the Great Inflation from the mid-1960s through October 1979 was the most challenging. Many asset classes failed to keep pace with inflation, and the period from August 1969 through July 1970 was particularly difficult. The Volcker Reform era also had its share of turmoil, particularly during the period from May 1981 through March 1982. Thanks to low or declining interest rates and the Fed's accommodative stance, the Great Moderation and ZIRP periods were both relatively benign for most asset classes. The Postpandemic Era has been painful for long-term bonds, but returns for most other major asset classes were positive from March 2022 through December 2025.

As expected, fixed-income securities have been the most sensitive to shifts in interest rate policy. Long-term Treasuries suffered sharp losses of more than 15% per year during the most acute period of rate hikes from March 2022 through April 2024. Core bonds also suffered during that period, although they've enjoyed positive returns more recently. Cash has been the most reliable bulwark against bond market turmoil across interest rate regimes, given its short duration and ability to quickly reset to match prevailing interest rates. High-yield bonds have held up well during most periods of rising rates, as their below-average credit quality means prices are mainly driven by company-specific factors and trends in economic growth.

On the stock side, performance during interest rate shocks has been a mixed bag. From a purely mechanical perspective, higher interest rates make a company's future cash flows worth less when translated back into present-value terms. Both large- and small-cap stocks suffered double-digit losses

when rates sharply increased in late 1969 and 1970, as well as in 1981 through early 1982. More recently, stocks have held up well amid rising interest rates, although small-cap stocks generated anemic returns during the most recent round of interest rate hikes that started in March 2022.

Most other asset classes aren't directly affected by changes in interest rates, but gold and REITs can be exceptions at times. Gold has historically had a negative relationship with real (after inflation) interest rates, partly because it is viewed as a competing asset for more conservative investors. When real interest rates rise, the opportunity cost of holding gold instead of income-generating assets increases. That relationship didn't hold true during the most recent interest rate pivot, though, as gold benefited from macroeconomic uncertainty and increased buying activity as central banks around the world sought to "de-dollarize" their assets. REITs can also suffer during periods of rising rates because higher rates on investment-grade bonds make REIT yields less competitive.

Exhibit 9 Asset-Class Returns (%) During Interest Rate Pivots

Asset Class	Great Inflation			Volcker Reform			Great Moderation			ZIRP		Postpandemic Era	
	Pivot 1	Pivot 2		Pivot 3	Pivot 4		Pivot 5	Pivot 6		Pivot 7	Pivot 8		
	Jan 1965 to Oct 1979	June 1966 to Jan 1967	Aug 1969 to Jul 1970	Nov 1979 to Oct 1982	Aug 1978 to Jan 1981	May 1981 to Mar 1982	Nov 1982 to Dec 2008	Sept 1994 to June 1995	Jun 2006 to Jan 2007	Jan 2009 to Feb 2022	June 2017 to Mar 2019	Mar 2022 to Dec 2025	Mar 2022 to Apr 2024
Average Federal-Funds Rate (%)	6.5	5.4	8.5	14.2	12	15.8	5.4	5.6	5.2	0.5	1.7	1.3	3.9
Cash	5.79	3.30	7.02	12.21	10.43	12.41	4.90	4.52	3.24	0.47	1.73	4.19	4.05
Commodities	n/a	n/a	n/a	0.28	19.06	-5.84	7.27	5.71	-2.78	0.31	0.60	3.21	-1.35
Core Bonds	5.07	4.91	4.30	14.34	4.05	13.96	8.07	8.96	5.23	3.39	2.23	0.76	-3.87
Developed-Markets Stocks	n/a	n/a	n/a	3.10	13.77	-15.43	10.40	-1.40	15.63	7.78	2.58	11.24	5.77
Emerging-Markets Stocks	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-16.26	21.99	8.53	5.70	8.14	-2.01
Gold	n/a	n/a	-14.71	3.48	44.94	-33.71	2.79	0.34	-0.38	6.16	1.25	24.09	9.11
High-Yield Bonds	3.05	2.90	-8.49	15.15	1.70	8.89	8.33	12.08	9.26	10.13	4.15	5.55	2.37
Long-Term Treasuries	n/a	n/a	n/a	11.83	-2.03	12.99	10.43	16.27	6.94	4.64	3.34	-6.82	-15.11
REITs	n/a	n/a	n/a	17.20	26.02	-4.72	10.79	3.76	36.43	12.95	9.85	0.35	-6.80
US Large-Cap Stocks	5.15	2.76	-11.84	15.60	16.66	-11.36	10.41	17.25	14.60	15.03	11.37	14.08	8.45
US Small-Cap Stocks	13.29	8.25	-34.36	29.00	27.77	-10.60	10.51	19.16	9.60	13.94	6.37	7.64	2.90

Source: Morningstar Direct. Data as of Dec. 31, 2025. Returns for periods greater than one year are annualized.

Portfolio Implications

Although rising interest rates lead to closer links between stocks and bonds, anticipating the magnitude of a rate rise and the length of time for the climb is difficult. In fact, many professional investors keep their portfolios' durations neutral relative to their chosen benchmarks, given the difficulty in calling interest rate changes. Instead of attempting to forecast these moves, retirees who are in drawdown mode should consider employing cash and short-term bonds alongside their other bond holdings. That way, they can pull from investments that are unlikely to experience significant losses in a period of rising rates.

It's also useful to consider diversifying within the bond portfolio. It's challenging to do that without introducing other risks, but investors can often benefit from an actively managed bond strategy with a shrewd, well-resourced manager and a disciplined process. Portfolio managers with the right tools can adjust their bond portfolios in small but meaningful ways (such as adding broader diversification across sectors or geographies), while an index fund has far less flexibility to sidestep the inevitable.

As interest rate pivots wind down, it's worth keeping an eye on the changing opportunity set. Despite recent rate cuts, yields on cash remain significantly higher than they were heading into 2022. Investors, therefore, have an opportunity to derisk their portfolios without giving up too much in returns, at least in the short term. And most importantly, it is helpful to keep in mind that diversification benefits accrue, slowly and steadily, over decades and through interest rate pivots. That is the secret sauce behind the enduring strength of the basic 60/40 portfolio, which has typically generated more attractive risk-adjusted returns than a portfolio of only stocks or bonds over the past six decades.

Recessionary Periods

Building a portfolio that will be resilient in varying economic conditions, including recessions, is a key reason investors diversify their portfolios. Businesses often pull back on capital outlays and hiring during periods of economic weakness, and consumers often rein in their spending, too. All those factors can negatively affect corporate profitability and, in turn, share prices,

Economic growth slowed during the fourth quarter of 2025, owing to a combination of the 2025 government shutdown and moderating consumer spending. However, it's too soon to say if a recession is in the offing, as recessions are only apparent with enough data in the rearview mirror. Recession also loomed as a risk factor in 2023 and into 2024, as some market watchers believed that the Federal Reserve would overshoot in its efforts to stamp out very high inflation in the postpandemic period. The yield curve inverted, meaning that yields on longer-term bonds dropped below those of shorter-term bonds; such an inversion had historically been a harbinger of recession. Yet recessionary worries generally declined through 2024 and much of 2025, thanks to still-robust gross domestic product growth and still-high levels of employment, and the yield curve returned to a more normal pattern of longer-term bonds yielding more than shorter-term ones.

Examining Risk/Return During Recessionary Periods

The economy's inherent cyclical nature points to the virtue of building a portfolio that's resilient in the face of varying economic conditions. It's therefore valuable to assess which assets have helped diversify US equity exposure in periods of economic weakness in the US.

To do so, we examined eight recessionary periods in US history. It's worth noting that the definition of a recession varies. While "recession" is often defined as two successive quarters of negative GDP growth, the National Bureau of Economic Research defines a recession as "a significant decline in economic activity that is spread across the economy and that lasts more than a few months."

Some of those economic downturns were abbreviated, such as the start of the pandemic in February/March 2020, and some were more prolonged, such as the Great Depression in the late 1920s and early 1930s, which stretched on for 3.5 years. For each period, we examined the returns, volatility, and correlations of US large-cap stocks, US Treasury bonds, a 60/40 mix of the two assets, and a diversified portfolio including the asset classes discussed earlier.

Exhibit 10 Risk, Returns, and Correlations: Recessionary Periods

	Aug 1929 to March 1933	Nov 1973 to March 1975	Jan 1980 to July 1980	July 1981 to Nov 1982	July 1990 to March 1991	March 2001 to Nov 2001	Dec 2007 to June 2009	Feb 2020 to April 2020 ¹
GDP Decline % (Peak to Trough)	-26.7	-3.2	-2.2	-2.7	-1.4	-0.3	-5.1	-19.2
Correlation Coefficient								
Stocks	1.00	1.00	1.00	1.00	1.00	1.00	1.00	n/a
Bonds	0.07	-0.02	0.16	0.65	0.55	-0.56	0.34	n/a
60/40 Portfolio	0.99	0.99	0.88	0.97	1.00	0.99	0.99	n/a
Diversified Portfolio	n/a	n/a	0.87	0.90	0.92	0.95	0.94	n/a
Total Return % (Annualized)								
Stocks	-31.13	-13.12	16.39	10.00	7.64	-7.26	-23.63	-10.10
Bonds	4.94	5.80	8.01	24.76	9.10	6.43	5.14	2.98
60/40 Portfolio	-17.21	-4.36	13.04	15.90	8.60	-1.50	-11.36	-4.81
Diversified Portfolio	n/a	n/a	12.21	12.07	6.53	-2.91	-10.00	-6.93
Standard Deviation								
Stocks	46.27	26.28	20.06	18.66	18.29	21.29	24.71	n/a
Bonds	3.13	4.68	20.17	9.81	3.20	4.03	4.86	n/a
60/40 Portfolio	25.52	14.61	15.65	13.71	11.51	10.83	14.83	n/a
Diversified Portfolio	n/a	n/a	19.19	12.30	9.95	9.47	17.70	n/a
Sharpe Ratio								
Stocks	n/a	-0.70	0.80	-0.06	0.24	-0.53	-1.00	n/a
Bonds	n/a	-0.40	0.17	1.04	1.48	1.24	0.80	n/a
60/40 Portfolio	n/a	-0.75	0.66	0.25	0.40	-0.45	-0.81	n/a
Diversified Portfolio	n/a	n/a	0.50	-0.01	0.19	-0.73	-0.57	n/a

Source: Morningstar Direct. Data as of Dec. 31, 2025. Stock performance is based on the IA SBBI US Large Stock Index prior to Jan. 1, 2000, and the Morningstar US Market Index after that date. Bond performance is based on the IA SBBI US IT Government Index prior to Jan. 1, 2000, and the Morningstar US 5-10 Year Treasury Index after that date.

Not surprisingly, stocks frequently contracted during past recessions, losing value in five of the eight periods we examined. Some of those losses were severe, such as the 24% annualized loss for US large-cap stocks during the global financial crisis recession. (Stocks' peak-to-trough losses were even worse during that crisis, but 24% corresponds with the period in which the US economy was officially in recession.)

In that same vein, bonds logged positive gains in all eight of those same periods of economic contraction. The explanation for bonds' strength during recessionary periods is twofold. The Federal Reserve often cuts interest rates during such periods, which boosts bond prices. Moreover, investors often retreat to safety, stability, and liquidity in periods of economic insecurity (high-quality bonds and cash) and away from higher-risk assets (equities).

Bonds' role as ballast for equities is borne out by correlation data as well. Bonds' correlation coefficient with equities during recessionary environments ranged from strongly negative (negative 0.56 from March 2001 to November 2001) to more positive but still well below 1.0 (0.65 from July 1981 to November 1982). Bonds have therefore provided significant diversification, even when stock/bond correlations were relatively high.

The 60/40 and diversified portfolios' returns and volatility levels, as measured by standard deviation, tended to fall between those two extremes during economic downturns. The balanced and diversified portfolios didn't lose as much as the equity-only portfolio, nor did they fare as well as an all-bond portfolio would have done during those economic stress periods. The diversified portfolio outperformed the plain-vanilla 60% US large-cap equity/40% intermediate-term government-bond portfolio in some recessionary environments, but not consistently. For example, the diversified portfolio performed worse than the basic 60/40 during the 2020 pandemic as well as in the early 2000s.

Performance Trends

As noted earlier, stocks lost ground in five of the eight recessionary periods examined. While small-cap stocks are often characterized as more cyclical than large and therefore more likely to suffer in a recession, the data paint a mixed picture. Smaller stocks have indeed performed horribly in some economic contractions, such as during the pandemic's onset. However, they've outperformed large-cap stocks in other periods of economic weakness, such as in the early 2000s, when investors rotated out of then-overvalued large caps in favor of smaller and more value-oriented stocks. Developed- and emerging-market stocks have posted losses in line with or even worse than the US market's in economic downdrafts in the US, as non-US economies are typically vulnerable to weakness stateside.

As noted earlier, core bonds have been consistently resilient in periods of economic contraction and so have long-term Treasury bonds. Yet even as government bonds have historically exhibited some of the lowest correlations with equities over long time horizons (see the section on taxable bonds), the data are mixed about which fixed-income type is preferable in recessions. In some periods, such as mid-1981 to late 1982 and early in the pandemic, long-term Treasuries have been the clear winners. In other recessionary periods, the core bond index, encompassing a diversified mix of Treasury and agency-backed bonds, asset-backed securities, and high-quality corporate bonds, has won. High-yield bonds have been unreliable in most recessions, however, typically performing in sympathy with stocks.

The data also burnish gold's status as a safe-haven asset, with the metal gaining significant ground in every recession we examined. Other commodities have been much less reliable, however, posting massive losses during the three most recent recessions. Similarly, REITs have sometimes fallen in step with equities in economic downturns while holding up decently in other recessions.

Exhibit 11 Asset-Class Returns (%) During Recessionary Periods

	Aug 1929 to March 1933	Nov 1973 to March 1975	Jan 1980 to July 1980	July 1981 to Nov 1982	July 1990 to March 1991	March 2001 to Nov 2001	Dec 2007 to June 2009	Feb 2020 to April 2020
GDP Decline % (Peak to Trough)	-26.7	-3.2	-2.2	-2.7	-1.4	-0.3	-5.1	-19.2
Asset Class								
Cash	n/a	7.44	6.25	11.73	5.08	2.40	1.08	0.16
Commodities	n/a	22.31	9.99	2.15	27.29	-15.56	-19.85	-18.48
Core Bonds	4.94	5.79	8.01	24.79	9.10	6.43	5.14	2.98
Developed-Markets Stocks	n/a	-11.27	13.21	-6.50	-6.18	-15.29	-27.31	-15.91
Emerging-Markets Stocks	n/a	n/a	n/a	n/a	3.71	-13.74	-24.56	-12.48
Gold	n/a	51.97	17.22	1.65	0.98	3.30	11.77	7.48
High-Yield Bonds	-15.31	-4.75	8.09	26.45	6.47	-2.95	-2.16	-8.78
Long-Term Treasuries	n/a	3.25	1.89	29.00	8.44	4.25	5.41	15.45
REITs	n/a	-13.80	15.46	10.38	8.21	11.86	-33.90	-17.72
US Large-Cap Stocks	-31.13	-13.09	16.39	10.01	7.64	-7.18	-24.16	-9.26
US Small-Cap Stocks	-40.67	-7.46	17.78	9.71	-0.79	8.72	-22.95	-21.80

Source: Morningstar Direct. Data as of Dec. 31, 2025. Returns for periods greater than one year are annualized.

Portfolio Implications

Of course, each economic downturn is different. Overall, though, high-quality fixed-income assets have been a boon to portfolios in most recessionary environments. That is largely due to lower yields and investors' desire for the stability and safety of fixed income and cash assets during periods of economic turbulence, both of which boost bond prices. While high-quality bonds won't cushion stock losses in every market environment (see: 2022, when interest rates rose), they have historically been reliable in periods of economic weakness. Gold has also proved its worth as a diversifying, safe-haven asset in recessionary environments.

On the flip side, diversifying within equities hasn't provided much of a defense during recessions. Smaller stocks and non-US stocks have often fallen in line with large-cap US stocks during economic downdrafts.

Inflationary Periods

The resurgence in inflation that started in May 2021 made market conditions much more challenging. Supply chain disruptions, a tight labor market, the war in Ukraine, and strong economic growth all conspired to push up inflation from its previously benign levels. The Consumer Price Index rose by more than 7% year over year by the end of 2021 and reached as high as 9% by mid-2022. Inflationary pressures eased from 2023 through 2025, but inflation remained above the Federal Reserve's stated target of 2%.

This higher-inflation environment has marked a sharp reversal from the previous regime. For most of the previous 30 years, inflation was unusually benign. Aside from a brief increase in the mid-2000s, inflation had been running well below its long-term historical average of about 3%. Cooler-than-average

inflation, in turn, created close to ideal conditions for stock/bond correlations. As discussed earlier, rolling three-year correlations between stocks and bonds were consistently negative (or barely above zero) from November 2000 through 2020.

With those conditions now a distant memory, it shouldn't come as a surprise that correlations between stocks and bonds sharply increased starting in 2021. The recent uptrend in correlations has been unusually dramatic but not unprecedented, though. The stock/bond correlation has often been positive over other periods of high inflation, defined as periods when year-over-year inflation increased by at least 5% and remained high for at least six months.⁴

As shown in Exhibit 12, correlations between stocks and bonds rose during some but not all periods. In general, correlations increased the most during periods when inflation was both high (in the double digits) and protracted (lasting at least three years). The post-World War II era saw an unusually high spike in inflation (driven by the removal of wartime wage and price controls, combined with large numbers of troops coming home), but the increase in consumer prices lasted only about a year. More recently, surging economic growth in China fueled rising consumer prices in 2007 and 2008, but inflation remained below 6% and lasted less than a year.

⁴ Inflationary periods are based on the parameters described in Neville, H., Draaisma, T., Funnell, B., Harvey, C.R., & Van Hemert, O. 2021. "The Best Strategies for Inflationary Times." <https://ssrn.com/abstract=3813202>.

Exhibit 12 Risk, Returns, and Correlations: Inflationary Periods

	April 1941 to May 1942	March 1946 to March 1947	Aug 1950 to Feb 1951	Feb 1966 to Jan 1970	July 1972 to Dec 1974	Feb 1977 to March 1980	Feb 1987 to Nov 1990	Sept 2007 to July 2008	June 2021 to March 2023
Cumulative Inflation Rate (%)	14.79	20.99	6.64	18.87	24.46	36.92	20.32	5.79	12.13
Correlation Coefficient									
Stocks	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Bonds	0.18	-0.06	0.02	0.26	-0.08	0.28	0.17	-0.46	0.68
60/40 Portfolio	1.00	1.00	1.00	0.98	0.98	0.97	0.99	0.99	0.99
Diversified Portfolio	n/a	n/a	n/a	n/a	n/a	0.81	0.89	0.88	0.94
Total Return % (Annualized)									
Stocks	-8.88	-7.50	28.93	1.04	-13.24	5.40	7.99	-11.34	-1.56
Bonds	1.53	0.61	0.45	2.42	5.33	1.33	7.55	5.34	-5.46
60/40 Portfolio	-4.69	-4.25	17.63	1.84	-5.38	3.85	7.94	-4.80	-2.83
Diversified Portfolio	n/a	n/a	n/a	n/a	n/a	10.56	6.75	0.51	-3.71
Standard Deviation									
Stocks	16.55	15.41	7.86	13.11	18.34	14.37	18.50	14.24	19.81
Bonds	1.31	0.76	0.38	4.16	4.57	5.67	4.87	2.92	7.46
60/40 Portfolio	9.79	9.24	4.87	8.39	9.98	9.55	12.20	8.01	14.03
Diversified Portfolio	n/a	n/a	n/a	n/a	n/a	9.49	8.73	8.98	12.30
Sharpe Ratio									
Stocks	-0.49	-0.46	5.50	-0.28	-1.06	-0.14	0.12	-1.03	-0.08
Bonds	1.03	0.29	-1.65	-0.72	-0.38	-1.16	0.03	1.14	-0.97
60/40 Portfolio	-0.46	-0.47	5.52	-0.39	-1.19	-0.42	0.10	-0.96	-0.27
Diversified Portfolio	n/a	n/a	n/a	n/a	n/a	0.23	-0.04	-0.19	-0.40

Source: Morningstar Direct. Data as of Dec. 31, 2025. Stock performance is based on the IA SBBI US Large Stock Index prior to Jan. 1, 2000, and the Morningstar US Market Index after that date. Bond performance is based on the IA SBBI US IT Government Index prior to Jan. 1, 2000, and the Morningstar US 5-10 Year Treasury Index after that date.

The most dramatic correlation upturns took place in the periods from February 1966 through January 1970 (driven by low unemployment and surging economic growth) and February 1977 through March 1980 (driven by soaring oil prices, the oil embargo and related price shocks, and expansionary monetary policies). Correlations ended up in a similar range (0.26 and 0.28, respectively) in both periods. Thanks to the rapidly shifting landscape for both interest rates and inflation, the recent upturn in stock/bond correlations has been even more pronounced.

Performance Trends

Higher inflation typically makes for a more challenging environment for stocks, as it leads to higher operating costs in the form of raw materials, components, wages, and other expenses. On average, US large-cap stocks have posted nominal returns of about 3% per year across the inflationary periods we examined—well below the average inflation rate in the same periods. Stocks tend to fare even worse when inflation is extremely high and/or unexpected, such as the period from July 1972 through December 1974. As cumulative inflation topped 24% over that period, large-cap stocks lost more than 13% per year, and small-cap stocks lost more than 22%.

Higher inflation can also make conditions challenging on the fixed-income side, but the impact is usually less direct. A surge in inflation often prompts the Federal Reserve to hike interest rates, reducing bond prices and leading to tighter comovement between stocks and bonds. As a result, core bonds have

posted nominal returns of about 2.2% per year over the inflationary periods highlighted in Exhibit 13, and long-term Treasuries have fared a bit worse. Both areas suffered their worst showings during the most recent inflationary period from June 2021 through March 2023. Not only did interest rates have nowhere to go but up, but bonds also had less of a yield cushion to offset losses as rates increased.

Across other asset classes, both developed- and emerging-markets stocks have typically fared the worst during periods of high inflation, partly because it often results in interest rate hikes that strengthen the US dollar. A stronger dollar, in turn, means lower returns on non-US assets when translated back into dollars, as well as a heavier burden for emerging markets with dollar-denominated debt. REITs have also performed poorly in most inflationary periods, despite their often-touted ability to hike up rents as inflation increases.

On the positive side, both gold and other commodities have often excelled during periods of high inflation. However, gold prices stagnated in the late 1980s partly because higher bond yields increased the opportunity cost of holding non-income-producing assets. Other commodities have been a more reliable inflation hedge partly because products such as oil and natural gas account for a significant percentage of consumer spending, so it makes sense that their prices tend to rise when inflation is increasing. More broadly, demand for commodities tends to increase during periods of robust economic growth, which can also push inflation higher.

Exhibit 13 Asset-Class Returns (%) During Inflationary Periods

	April 1941 to May 1942	March 1946 to March 1947	Aug 1950 to Feb 1951	Feb 1966 to Jan 1970	July 1972 to Dec 1974	Feb 1977 to March 1980	Feb 1987 to Nov 1990	Sept 2007 to July 2008	June 2021 to March 2023
Cumulative Inflation Rate (%)	14.79	20.99	6.64	18.87	24.46	36.92	20.32	5.79	12.13
Asset Class									
Cash	0.20	0.38	1.32	5.36	6.84	8.02	7.05	2.42	1.73
Commodities	n/a	n/a	n/a	23.58	56.49	19.57	29.91	29.62	9.15
Core Bonds	1.53	0.61	0.77	2.42	5.33	1.33	7.55	5.84	-5.46
Developed-Markets Stocks	n/a	n/a	n/a	-12.22	-10.07	15.97	5.22	-11.24	-3.00
Emerging-Markets Stocks	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-2.23	-13.88
Gold	n/a	n/a	n/a	-6.15	52.77	51.64	-1.03	40.54	2.27
High-Yield Bonds	3.38	-10.30	18.07	-1.92	-3.93	-0.21	0.74	-1.49	-3.65
Long-Term Treasuries	n/a	n/a	n/a	n/a	n/a	-4.01	6.97	8.35	-11.12
REITs	n/a	n/a	n/a	n/a	-14.13	17.29	-1.14	-9.83	-4.80
US Large-Cap Stocks	-8.88	-7.50	54.59	1.04	-13.24	5.40	7.99	-13.46	0.33
US Small-Cap Stocks	-3.82	-16.86	68.73	11.02	-22.37	21.23	-3.76	-15.73	-3.06

Source: Morningstar Direct. Data as of Dec. 31, 2025. Returns for periods greater than one year are annualized.

Portfolio Implications

There are a couple of key lessons to draw from these patterns. Stocks and bonds tend to move more in tandem during inflationary periods, but bonds can still provide significant diversification benefits, as well as play a critical role in providing ballast and reducing risk. Treasury Inflation-Protected Securities, in particular, can be a valuable tool for hedging inflation risk, especially when they offer positive real yields.

Exploring the Diversification Benefits by Asset Class

Taxable Bonds

Taxable bonds are a broad basket, encompassing high-quality bonds (US government and government-related bonds, asset-backed securities, and high-quality corporates) as well as higher-yielding credits from lower-quality issuers (high yield, bank loans, and emerging markets). These investments have provided varying degrees of effectiveness from a diversification standpoint.

High-quality bonds, especially US Treasury and agency mortgage bonds, have proved the best diversifiers for equity exposure over the past several decades. The reason is intuitive: Demand for Treasuries often spikes when investors are seeking safety. Moreover, interest rates often decline during such periods, which has provided another tailwind for government-bond prices. Cash investments, while not technically under the bond umbrella, have also helped diversify equity exposure.

In contrast, lower-quality bonds have been much less effective diversifiers, often losing less than stocks in market downdrafts but moving more in sympathy with stocks than government bonds. The economic conditions that precipitate stock market downturns (namely, weaker economic growth) often crimp the outlook for the debt-laden issuers of lower-quality credits.

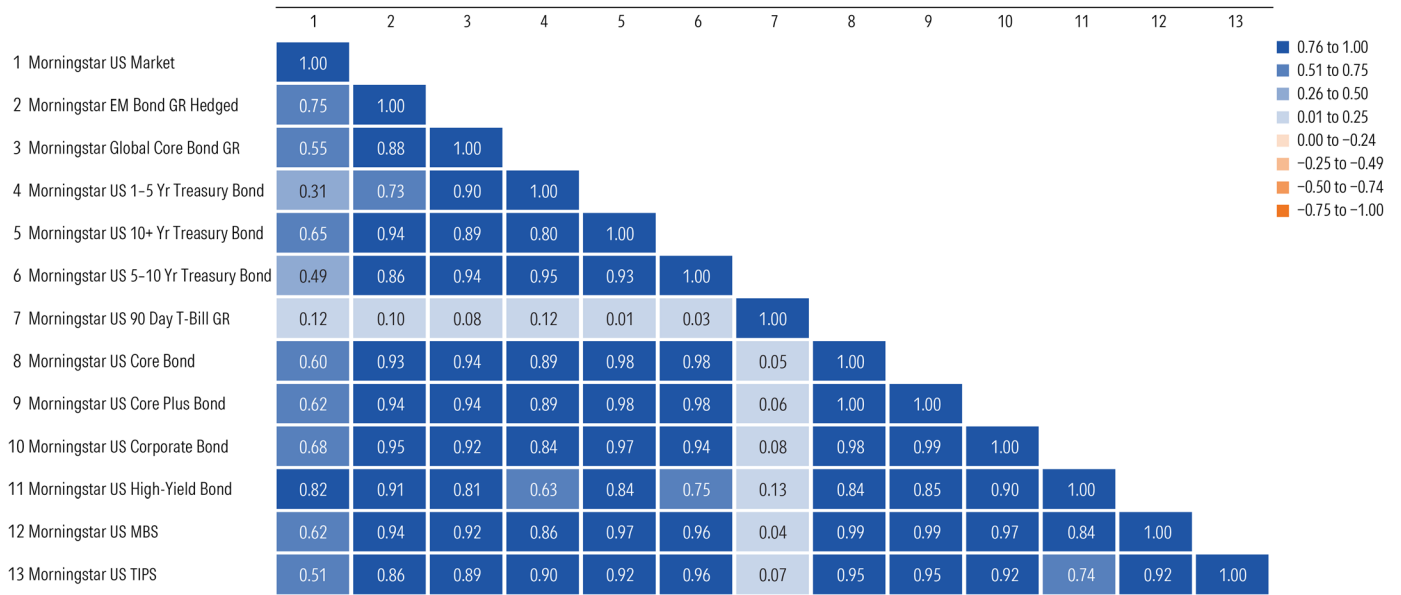
Recent Performance Trends

With yields ultralow for much of the past decade, bond returns have generally been meager. Through the end of December 2025, the Morningstar US Core Bond Index had logged an annualized return just shy of 2%. While bond prices suffered painful declines as the Federal Reserve began to increase interest rates to combat inflation in 2022, those higher yields have begun to translate into better returns for bond investors, as well as better downside protection. The Morningstar US Core Bond Index has gained nearly 4% (annualized) over the past three years.

Correlations between stocks and bonds declined and went negative in 2025, but they have remained elevated over the past three- and five-year periods. While the two asset classes had low correlations coming into 2022, a series of seven Federal Reserve interest rate hikes led to a fall in both stock and bond prices that year. That pushed up correlations and burnished the virtue of holding cash amid rising interest rates. With 2022 in the rearview mirror, correlations between stocks and high-quality bonds have been declining, but they're still not back to pre-2022 levels. For example, the three-year correlation between US stocks and long-duration Treasury bonds was negative 0.35 at the end of 2021, but it sat at

0.65 at the end of 2025. As bond correlations increased amid rising interest rates, cash stood out as a reliable diversifier. Cash has had the lowest correlation with stocks over the past three years.

Exhibit 14 Three-Year Correlation Matrix: Taxable Bonds

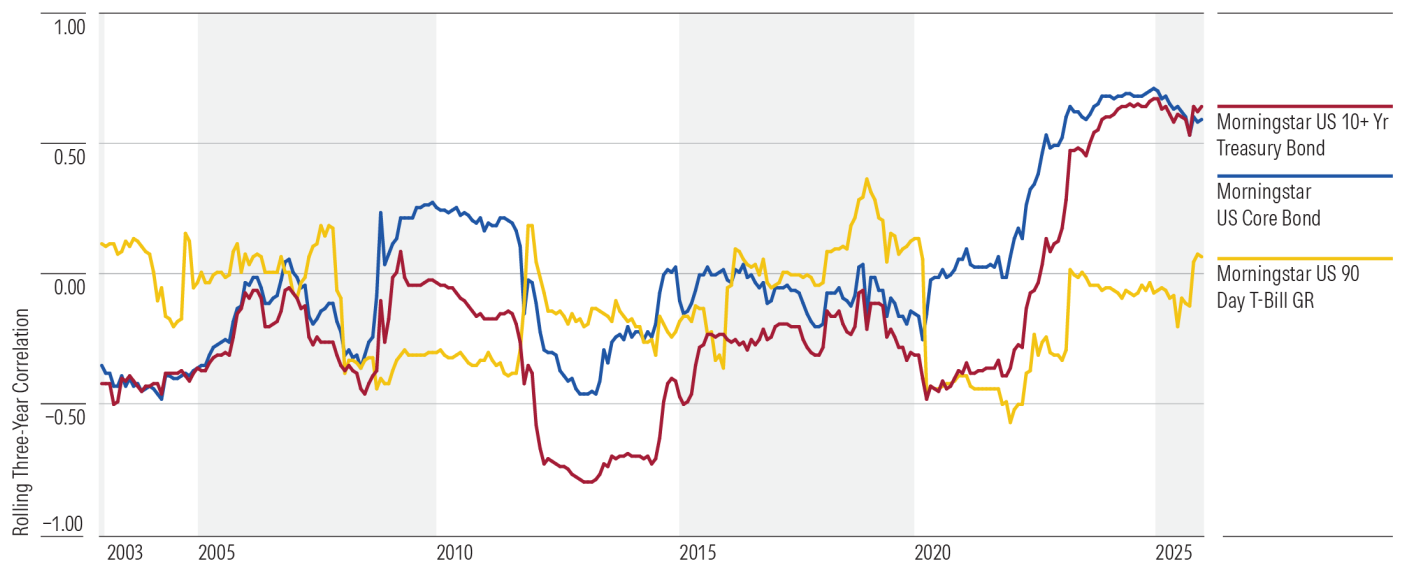


Source: Morningstar Direct. Data as of Dec. 31, 2025.

Consistent with their long-term pattern, higher-yielding, higher-risk fixed-income types, such as high-yield bonds and emerging-market debt, have also exhibited very high correlations with stocks.

Longer-Term Trends

Recency bias might cause an investor to balk at the usefulness of US Treasuries in a portfolio. But over the long term, US Treasuries and other high-quality government-backed fare, such as agency mortgages, remain some of the most compelling diversifiers for a portfolio. When interest rates are stable or falling, these offerings provide a modest but reliable return that balances the volatile swings inherent in stocks. Riskier allocations such as high-yield and emerging-market debt, on the other hand, serve as poor diversifiers relative to equity.

Exhibit 15 Rolling Three-Year Correlations vs. Morningstar US Market Index: Taxable Bonds

Source: Morningstar Direct. Data as of Dec. 31, 2025.

Portfolio Implications

A portfolio constructed for long-term resilience will be well served by a high-quality government-bond allocation—in particular, one with US Treasuries and agency mortgages. The 2022 experience also illustrates the virtue of cash in a balanced portfolio, particularly for investors who are retired and actively drawing upon their portfolios for living expenses. While cash might not earn much over inflation over long periods of time, a modest allocation can provide both safety and liquidity when stocks and bonds fall simultaneously.

As we discussed in the Learning From History section of this paper, patience often rewards a diversified approach. Although bonds served as a source of portfolio pain in 2022, over longer periods and more-typical interest rate backdrops, a high-quality US government-bond sleeve improved diversification more often than it detracted from it. And US Treasuries aren't exclusive in providing this counterbalance. Intermediate-term and short-term maturities of diversified high-quality bonds also provide some refuge when the US equity portion of a portfolio is under duress. Riskier fixed-income subsectors, such as high yield, nonagency mortgages, and emerging-market debt, are highly correlated with stocks and should be seen as equitylike complements to a portfolio.

Municipal Bonds

Municipal bonds are issued by state and local municipalities to pay for infrastructure and fund other projects such as building hospitals, schools, retirement communities, and airports. Individual taxpayers who purchase municipal bonds can typically exclude the income (though not the capital gains) from their federal taxes. If investors buy bonds issued by their home states and/or municipalities, the income

from the bonds may be tax-free at the state and local levels, as well. Those tax-saving features are most beneficial to investors in higher tax brackets.

Because the states and municipalities that issue these bonds have taxing authority (and can raise taxes to pay their bills), the creditworthiness of high-quality muni-bond issuers is typically considered second only to that of the US government. Unlike the US government, though, state and local governments cannot run deficits. As a result, there have been a handful of municipal bankruptcies—notably Detroit's in 2013 and the Commonwealth of Puerto Rico's in 2017—but they have been relatively rare.

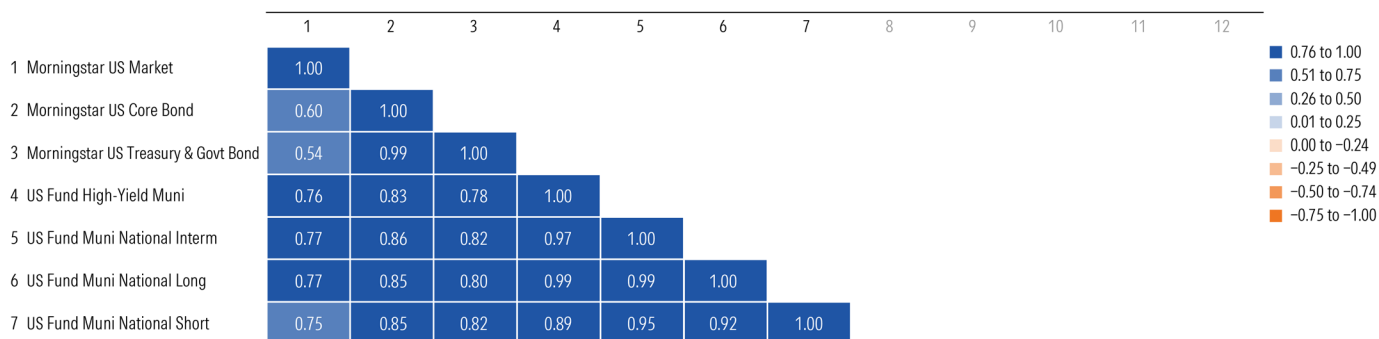
Because of their yields and general price stability, muni bonds have historically done a decent job of diversifying US equity exposure. Their long-term correlations with stocks have tended to be on par with core bond indexes but not as low as those of Treasuries or cash.

Recent Performance Trends

Owing to a prolonged period of ultralow bond yields, munis' returns over long time frames are modest: Through the end of December 2025, the typical intermediate-term muni fund had gained just 2.1% on an annualized basis over the past decade. But things began looking up for muni investors starting in 2022. While Fed rate hikes crunched the prices of all types of bond funds that year, they ushered in higher yields. Moreover, recently declining interest rates led to a bond rally in 2025. As a result, three-year muni returns are now well above the inflation rate.

Municipal bonds' rolling three-year correlations had often been negative with US equities, as they were from January 2016 through February 2020, but the pandemic introduced anxieties around how the economies of state and city municipalities would open and what their revenues would look like in a world reshaped by lockdowns. As a result, correlations relative to equities turned positive and have stayed there. The interest rate increases that began in 2022, sending both stock and bond prices tumbling at once, further boosted equity and fixed-income correlations, and munis were no exception.

Exhibit 16 Three-Year Correlation Matrix: Municipal Bonds



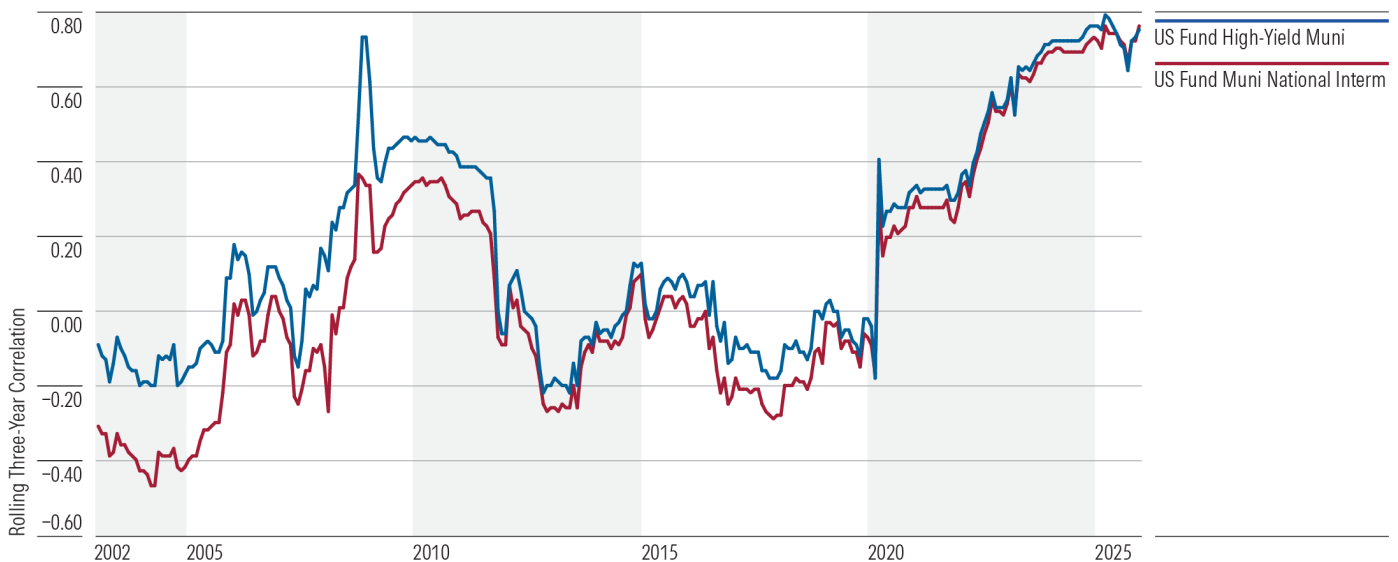
Source: Morningstar Direct. Data as of Dec. 31, 2025.

During 2022, as rising interest rates fueled losses across nearly all bond varieties, munis lost less than US Treasuries, agency mortgages, and investment-grade corporate credit. Still, muni correlations with stocks continued to increase. The rolling three-year correlations of munis with the US stock market are now well above those of taxable US core bonds. Munis' correlation with stocks is also substantially higher than the correlation between Treasuries and US equities. While taxable bonds' correlations with US stocks have declined a bit over the past year, munis' correlations with stocks remain elevated.

Longer-Term Trends

Since 2000, most muni-bond indexes have exhibited a correlation with equities that was higher than that of US Treasuries and other government-backed fare but lower than investment-grade corporate credits. But in periods of equity market volatility driven by a weakening economy, municipal bonds have decoupled from Treasuries and other US government bonds, likely on concerns that higher unemployment and weak business conditions would hurt tax receipts. For example, the spread between muni yields and US Treasury yields widened significantly in early 2020.

Exhibit 17 Rolling Three-Year Correlations vs. Morningstar US Market Index: Municipal Bonds



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Munis' correlation with stocks has risen sharply since 2020. There are a few reasons for that. One is that nearly all fixed-income assets, including municipal bonds, saw their correlations with stocks jump in 2022. Moreover, the muni market is less liquid than the US Treasury market, and it has often seized up in periods of economic and equity market stress. As a result, munis have been less-effective diversifiers for equities than US Treasuries or cash. High-yield munis had historically been the least effective diversifiers for equities of any muni-fund group, but now high-quality munis' correlations are in the same range.

Portfolio Implications

As with taxable bonds, it's valuable to keep an eye on the big picture: High-quality munis have typically held up much better than stocks during periods of economic weakness. As mentioned above, though, munis have generally exhibited a higher correlation with equities than high-quality taxable-bond indexes, especially US Treasury bonds. That suggests that even investors who value the tax-saving features of muni bonds should consider augmenting them with cash and US government bonds for diversification and ballast during equity market shocks. It also underscores the importance of not using a muni fund as a source of liquid reserves; any bout of illiquidity in the muni market would be an inopportune time to sell. (Municipal money market funds can be a better home for short-term liquidity for investors in high tax brackets.)

International Equity

Adding international exposure is one of the first steps toward a diversified portfolio. Even minimalist investors usually carve out a portion of their portfolios for non-US stocks as a supplement to domestic stocks and bonds.

International stocks are subject to many factors that can lead to divergent performance, including local market conditions, currency movements, exposure to different sectors and industries, and political and economic factors. These traits can lead to different performance patterns, both relative to the US market and other international markets.

Recent Performance Trends

Even though diversifying into non-US stocks makes intuitive sense and modestly reduced the standard deviation of a US-only portfolio over the past three-, five-, and 10-year periods, doing so has often detracted from returns for US-based investors. In seven of the 10 calendar years from 2016 through 2025, the Morningstar Global Markets ex-US Index lagged the Morningstar US Market Index, and often by wide margins.

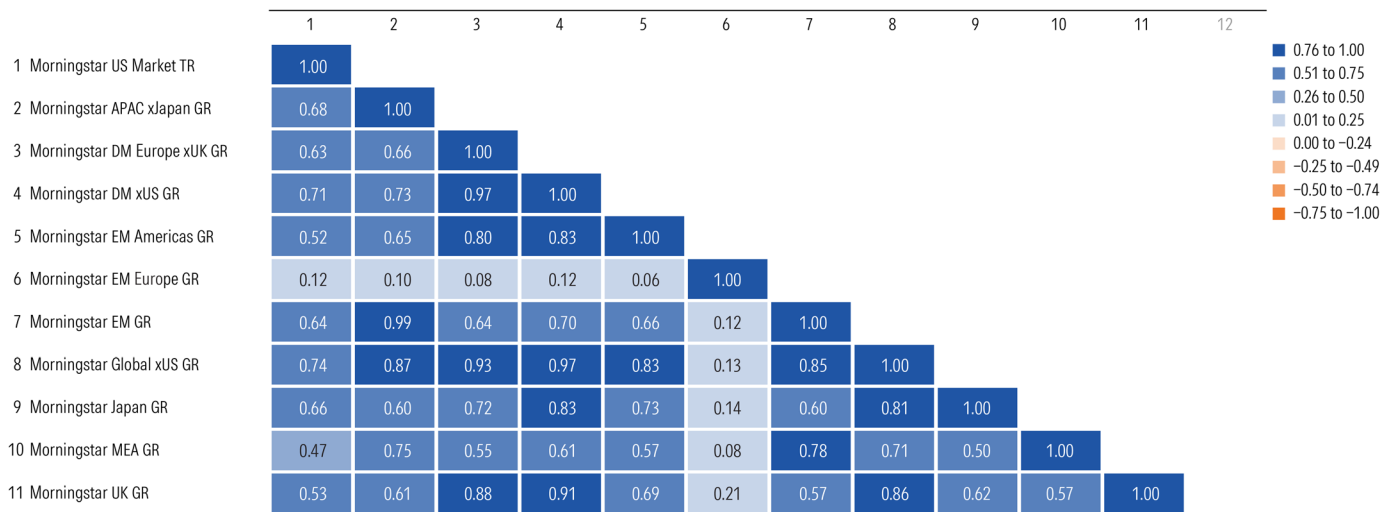
Non-US stocks held up better than US stocks during the 2022 bear market, however, and they really surged in 2025. The dollar's weakness relative to other major foreign currencies was a significant factor in foreign stocks' outperformance last year. The Morningstar Global Markets ex-US Index gained 32%, versus an 18% gain for the Morningstar US Market Index.

The Morningstar Emerging Markets Index gained 30% in 2025 versus a 33% gain for the Morningstar Developed Markets ex-US Index. Developed markets in Europe rallied strongly thanks to fiscal stimulus and low valuations relative to US stocks coming into the year; major foreign currencies' appreciation relative to the dollar was another tailwind.

From a diversification perspective, most international stock benchmarks, especially those in developed markets, have been closely tied to the US market over the past three years, as shown in Exhibit 18. However, those correlations declined in 2025, especially for developed markets. While the Morningstar Developed Markets ex-US Index had a 0.92 correlation with US stocks over the three-year period ended

in 2022, for example, it was 0.71 at the end of 2025. Meanwhile, emerging-market stocks have tended to have lower correlations with US stocks than those from developed markets, largely because of China's big presence in emerging-market indexes, emerging markets' different sector profiles, and the fact that emerging markets often respond as much to local business conditions and idiosyncratic geopolitical events as they do to global economic conditions. Those correlations have generally trended down since 2000.

Exhibit 18 Three-Year Correlation Matrix: International Equity

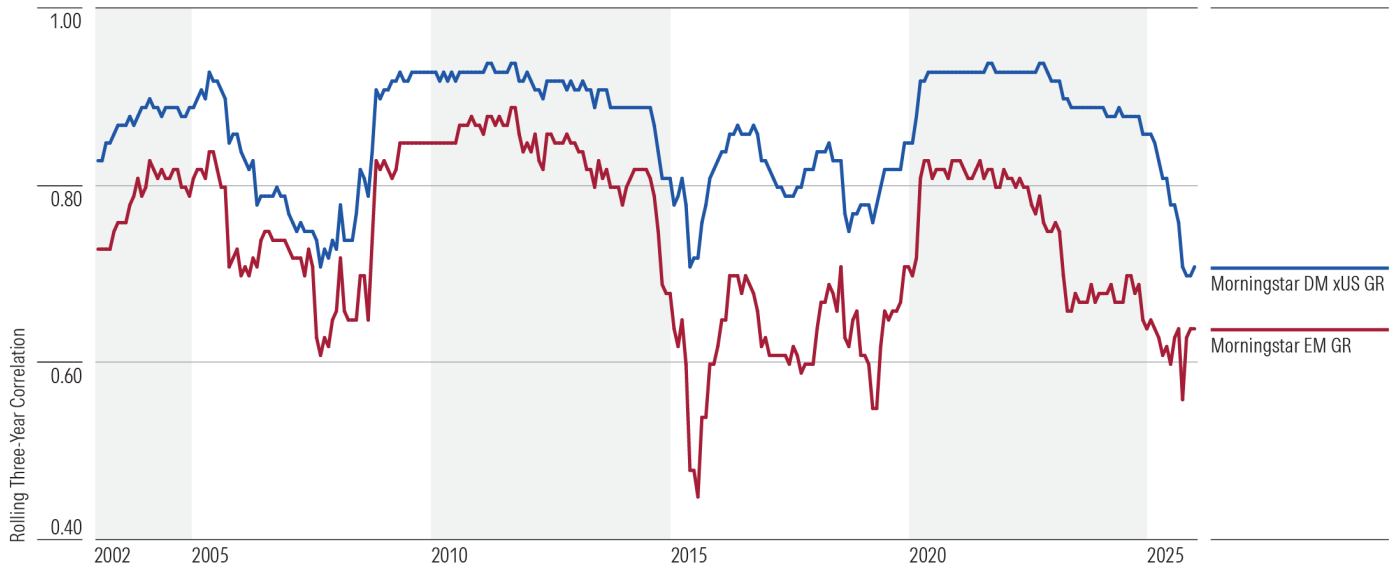


Source: Morningstar Direct. Data as of Dec. 31, 2025.

The small subset of European stocks from markets classified as emerging has had the lowest correlation with the US market over the past three years. Such stocks are just 1.2% of the broader Morningstar Emerging Markets Index, however, and are a negligible slice of the Morningstar Global Markets ex-US Index. The Morningstar Middle East & Africa Index also has one of the lowest correlations with the US market, and it's more meaningful in size, representing about 10% of the Morningstar Emerging Markets Index.

Longer-Term Trends

While non-US stocks, especially those from developed markets, have exhibited a high correlation with the US market for most of the past decade, they've headed lower over the past three years. The decline in the dollar's value has contributed to non-US stocks' lower correlations recently, and it has been responsible for previous periods of divergent performance, such as from 2004 through 2008. If the greenback goes into a longer-term slump or if the US sinks into recession but other major non-US markets manage to avoid one, it is conceivable that correlations between US and international markets could continue to drift lower.

Exhibit 19 Rolling Three-Year Correlations vs. Morningstar US Market Index: International Equity

Source: Morningstar Direct. Data as of Dec. 31, 2025.

Longer-term correlations also demonstrate that emerging markets generally have a lower correlation with US stocks than developed markets do. That's because the types of industries that are especially prominent in emerging markets, particularly energy and basic materials, have declined as a percentage of the US market. In addition, China, which represents roughly a fourth of major emerging-market indexes, follows a different economic cycle than the US does. Finally, emerging markets are more likely than developed markets to be affected by country- and region-specific geopolitical events—political instability, wars, and currency devaluations—that have little to do with the US. Taken together, those features suggest that emerging-market equities' low correlation with US stocks won't be as fleeting as some of the other correlation trends.

Non-US value stocks have also offered decent diversification benefits relative to US equities. For example, the trailing three-year correlation of the Morningstar Global ex-US Value Index is 0.63 with the Morningstar US Market Index, whereas it's 0.74 for the broad Global ex-US index. The sector composition of the Global ex-US Value Index explains the difference: It holds just 6% in healthcare and 8% in technology, whereas the US Market Index holds 10% and 33%, respectively, in those two sectors. Performance of the Global ex-US Value Index has also been better than the broad-based Global ex-US index over the past decade, though that pattern could easily reverse.

Portfolio Implications

While investors who have diversified internationally haven't benefited much over the past decade (at least until recently), their portfolios have been slightly less volatile relative to a US-only portfolio. The 10-year standard deviation of the Morningstar US Market Index is 15.4, whereas the standard deviation of the Morningstar Global Markets Index, which includes both US and non-US names, is 14.4. Japan, in particular, has exhibited milder volatility than the US market and other major non-US markets.

Moreover, the US market has become increasingly growth-tilted: A third of the Morningstar US Market Index landed in the technology sector at the end of 2025, for example, whereas just 16% of the Morningstar Global Markets ex-US Index does. A hefty weighting in tech stocks has been a boon for US-only investors as technology names soared for most of the past decade. But in a period in which lower-priced stocks from traditional value sectors lead the way, non-US stocks could outperform and help diversify US exposure.

Because emerging markets have generally had a lower correlation with the US equity market than do developed markets, investors seeking diversification may want to make sure their foreign-stock allocation includes at least some exposure to less-developed markets. And while some specific regions have been better portfolio diversifiers than others, most investors will probably want to shy away from investment vehicles that focus solely on a particular geographic region, as it's often duplicative with other holdings in their portfolios, and regions can be volatile on a stand-alone basis.

In a similar vein, growth-leaning core and international indexes tend to have a tighter correlation with US stocks than do non-US value indexes. Thus, for investors looking to non-US stocks for diversification from US equities, emphasizing value names overseas while downplaying growth appears to be a reasonable way to go.

US Equity Style Box

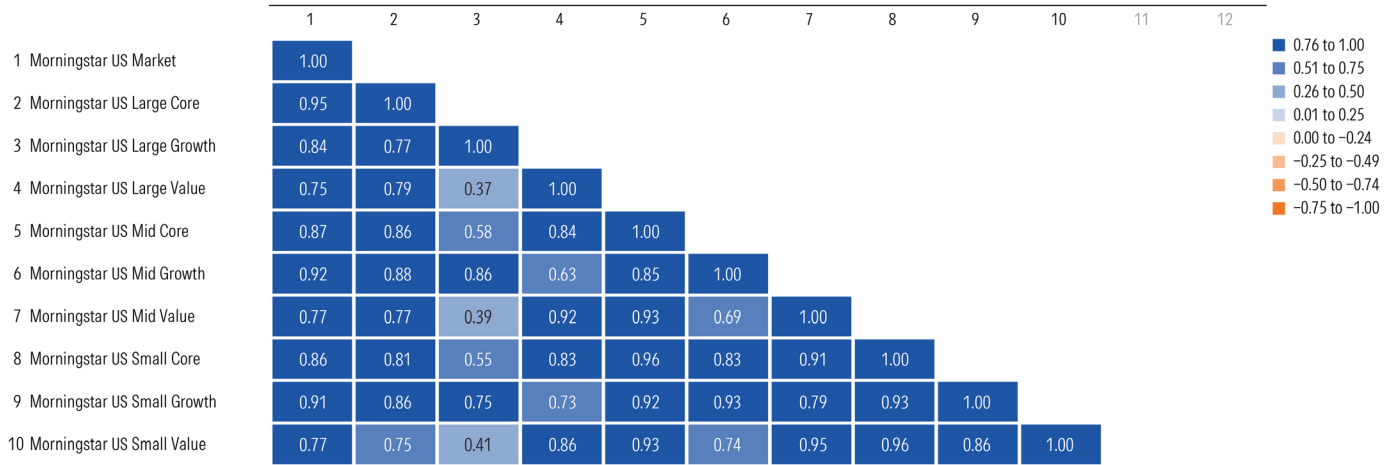
US equity exposure can be broadly segmented by market capitalization (small, mid, and large) and style (value, core, and growth), as represented by the Morningstar Style Box. Correlations among US equity groups tend to be high, although small-cap and value stocks tend to be somewhat less tightly linked with the overall market.

The resulting nine boxes go from the relative extremes of large growth to small value. The divergence between these two portions of the style box shows the long-running gap in returns between value and growth stocks on the one hand and large- and small-cap stocks on the other. For many years, the dominant storyline was simple: the larger and growthier the style, the better. That narrative held true nearly every year starting in 2009, as the market recovered in the wake of the 2008 bear market.

Recent Performance Trends

These long-running performance trends have been less consistent in recent years. Although growth stocks pulled ahead in both 2023 and 2024, the Morningstar US Value Index finished 2025 with a 17.2% return, compared with 14% for the Morningstar US Growth Index. Value stocks also held up much better during the bear market in 2022, following on the heels of a strong rebound in 2021 as the economy quickly bounced back from the previous year's recession.

Exhibit 20 Three-Year Correlation Matrix: US Style Box Indexes



Source: Morningstar Direct. Data as of Dec. 31, 2025.

The large versus small narrative has also shifted at times. The market's biggest stocks dominated during most of the period from 2023 through 2025, but they also had more room to fall as valuations dropped during 2022. As a result, the Morningstar US Large Cap Index fared slightly worse than the Morningstar US Small Cap Index that year.

Within the Morningstar Style Box, returns often diverge by a wide margin. In 2025, for example, the Morningstar US Large Growth Index gained 19.6%, compared with just 5.4% for the Morningstar US Mid Growth Index.

The take-home point is that a high correlation coefficient doesn't translate into similar returns: Correlation measures only the direction, not the magnitude, of returns. Indeed, most of the nine boxes have had relatively high correlations with the broader equity market over the past three years, as shown in Exhibit 20. The Morningstar US Large Core Index had the highest correlation coefficient (0.95) with the broader equity market, while the Morningstar US Large Value Index was the lowest, at 0.75.

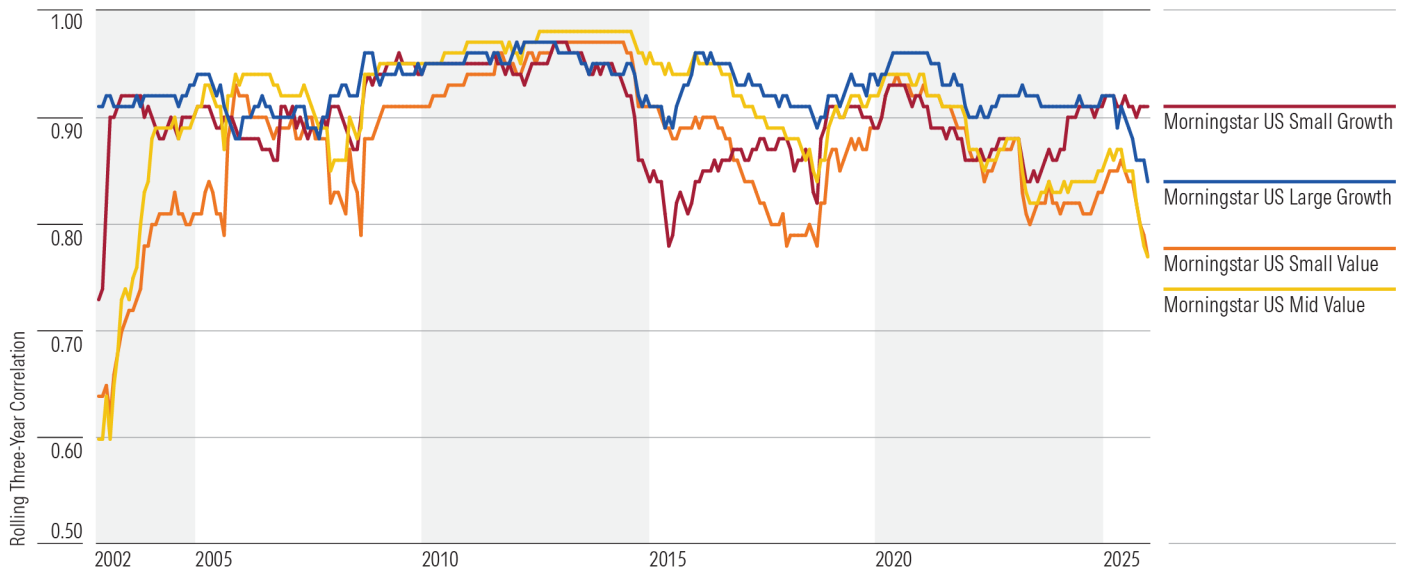
While all nine boxes showed close correlations with the Morningstar US Market Index, correlations between individual style boxes were sometimes much lower. Over the trailing three-year period ended in December 2025, the Morningstar US Large Value and US Mid Value indexes had correlation coefficients of just 0.37 and 0.39, respectively, with the Morningstar US Large Growth Index.

Longer-Term Trends

Over longer periods, correlations for some style box indexes have at times diverged from the overall market. For example, small-cap stocks decoupled from the Morningstar US Market Index to the greatest degree between 2015 and 2018. From October 2015 through September 2018, the correlation coefficient for the Morningstar US Small Value Index fell to 0.78, and the same metric decreased to 0.82 for the Morningstar US Small Growth Index. Overall, correlations for several of the nine style box indexes

(particularly on the value side) have trended lower over the past couple of years, perhaps reflecting the increasing importance of a small group of mega-cap tech stocks in driving overall market returns.

Exhibit 21 Rolling Three-Year Correlations vs. Morningstar US Market Index: US Style Box Indexes



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Portfolio Implications

These results reinforce the importance of broad diversification. While all nine style-based indexes have had relatively high correlations with the Morningstar US Market Index, they have often shown marked divergence in returns across the group. The huge performance differential between value and growth during the 2022 bear market is a testament to the value of style-based diversification. Because it's impossible to predict which style will fare best at any given time, it's prudent to maintain a diversified portfolio and avoid overweighting either value or growth.

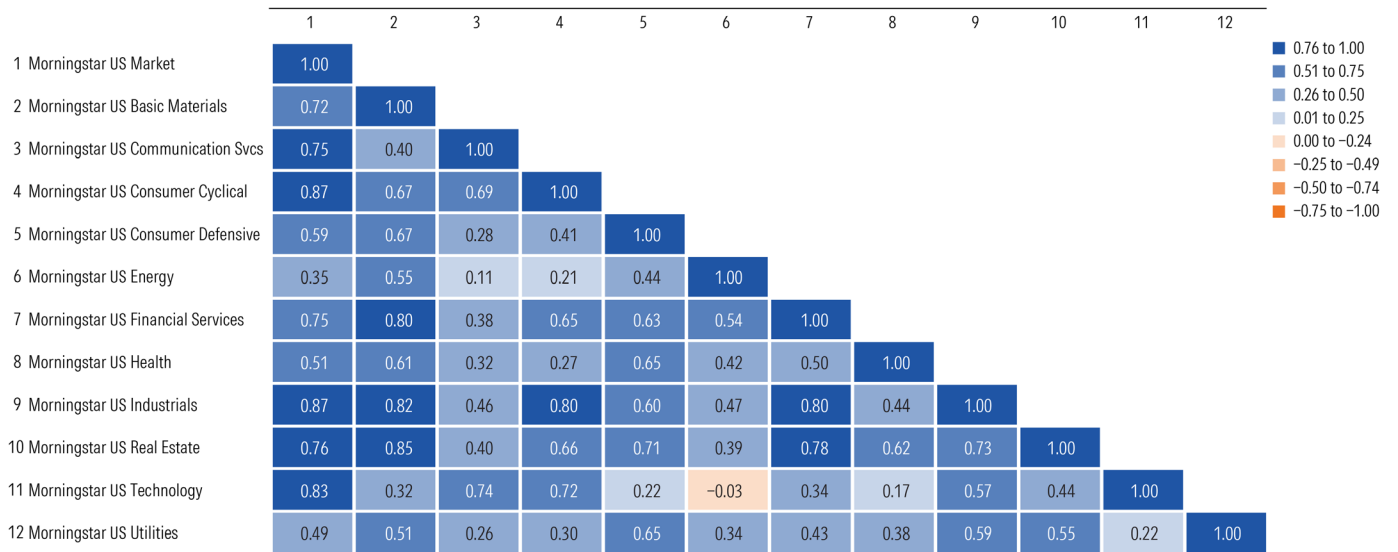
Sector Equity

Sector-specific investments focus on a single economic segment, such as technology, healthcare, or real estate. Many investors do not use sector funds at all, relying on broadly diversified equity funds instead. Some investors might employ sector funds to capitalize on industries that they believe are beaten down but due for a recovery or that they think will benefit from secular growth trends, such as healthcare. Alternatively, investors might add sector exposure to provide their portfolios with a higher stream of income (for example, utilities or real estate) or to counterbalance overweightings elsewhere in their portfolios.

Recent Performance Trends

The Morningstar US Market Index jumped by 17% in 2025, but performance was widely dispersed. The technology and communications services sectors notched gains of 21% and 35%, respectively, while the energy, real estate, consumer defensive, and consumer cyclical sectors posted much more muted gains in the single digits. Technology stocks have led the US market for the better part of the past decade.

Exhibit 22 Three-Year Correlation Matrix: Sector Equity



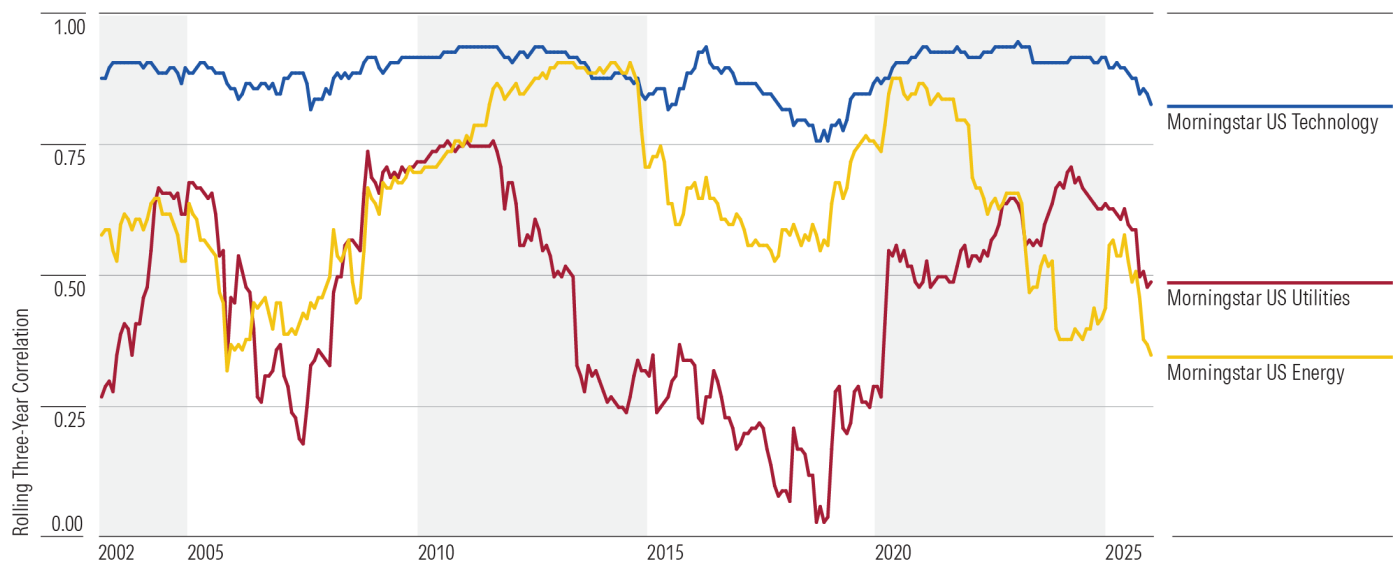
Source: Morningstar Direct. Data as of Dec. 31, 2025.

The Morningstar US Energy Index exhibited the lowest correlation with the Morningstar US Market Index over the past three years. The sector had a correlation of 0.79 with the US market at the end of 2021, but it had dropped to just 0.35 by the end of 2025. Meanwhile, the utilities sector had the second-lowest correlation of any sector. Of course, the trade-off has been notably worse performance for those two sectors: an annualized return of 11% and 8% for utilities and energy, respectively, over the past decade, versus more than 14% for the Morningstar US Market Index.

On the flip side, the technology, consumer cyclical, and industrial sectors have generally shown a tight correlation with the broad market. However, the technology sector's correlation with the US market declined a bit in 2025, from 0.92 at the end of 2024 to 0.83 by year-end 2025.

Longer-Term Trends

Over the past few decades, utilities and energy have been the sectors that have performed most differently from the broad US market. From 2022 through 2025, energy stocks decoupled from the broad US market. The healthcare and consumer defensive sectors have also seen their correlations with the US market decline sharply. Meanwhile, the technology sector's performance movements have been consistently correlated with those of the broad US market, but that correlation has dropped a bit recently.

Exhibit 23 Rolling Three-Year Correlations vs. Morningstar US Market Index: Sector Equity

Source: Morningstar Direct. Data as of Dec. 31, 2025.

Some advisors recommend that investors carve out a separate allocation to real estate stocks with an eye toward boosting yield and diversification. The anticipated yield on the Morningstar US Real Estate Index is currently nearly 3 times the yield on the Morningstar US Market Index, but the Morningstar US Real Estate Index has been an underwhelming diversifier over long-term periods, with correlations typically hovering around 0.70 and even higher at various times. REIT correlations with the broad US market declined significantly in 2025; despite declining interest rates on fixed-income investments, which usually make the sector more attractive to yield-seekers, subsectors like office buildings remain under a cloud.

Portfolio Implications

Except for utilities and energy, sector-specific indexes have generally exhibited performance that was closely aligned with the broad market, though correlations for many sectors have recently declined a bit. Thus, there doesn't appear to be a strong portfolio construction case for layering on sector-specific exposure in a diversified equity portfolio that also includes exposure to that sector. (Investors may wish to emphasize them for valuation or other factors, but that is a separate issue.)

Energy has exhibited the lowest correlation with the overall market of any of the sectors over longer time frames, though that's to be expected given that the sector has badly lagged the broad US market. (The Morningstar US Energy Index's 15-year returns are the lowest of all sectors.) Healthcare and utilities stocks have also had a low correlation with the US market over the past decade—0.53 and 0.47, respectively—but have turned in much better returns than energy stocks have.

Factor Indexes

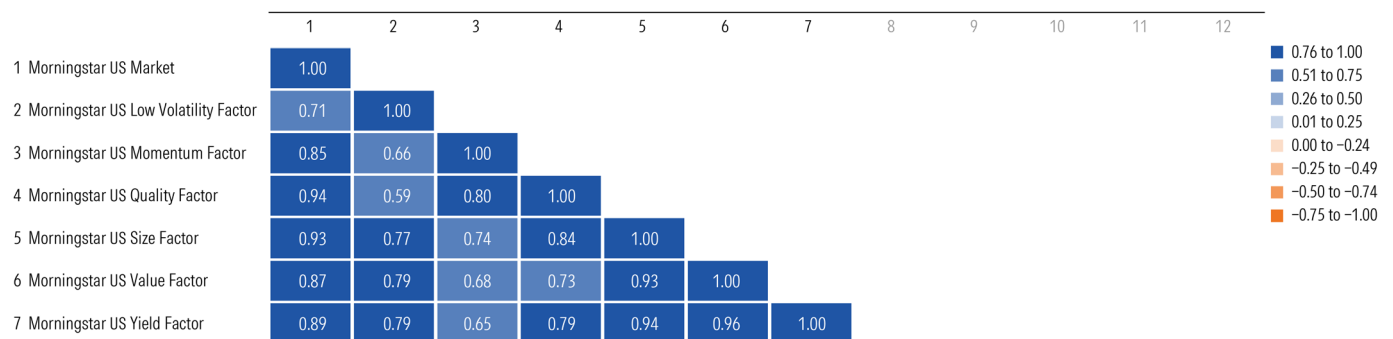
Equity factors are another way of examining the drivers of equity market returns. Since the 1990s, asset managers and other researchers have focused considerable effort on trying to identify additional characteristics (beyond traditional metrics such as sector, market cap, and value/growth) that help to explain investment management styles and resulting performance differences. Theoretically, each factor should have its own set of performance characteristics and succeed or fail in different types of market environments.

Recent Performance Trends

As supporting evidence for this hypothesis, there have been some sharp divergences in performance based on equity factors in recent years. In 2025, for example, the Morningstar US Value Factor Index gained about 23%, compared with just 7.5% for the Morningstar US Low Volatility Factor Index benchmark. During the 2022 bear market, the low-volatility, value, and yield factors held up significantly better than the overall market, losing about 6% versus a 19% decline for the Morningstar US Market Index.

Factor performance in 2024's bullish market followed a different pattern. Momentum was by far the best-performing factor, thanks to self-perpetuating gains in large tech stocks and other areas, and quality also generated above-average returns, thanks to the market's increasing interest in reliable stocks with high profitability, low leverage, and consistent earnings. On the negative side, stocks in the low-volatility, small-cap, and value factor indexes lagged the overall market.

Exhibit 24 Three-Year Correlation Matrix: Factor Indexes



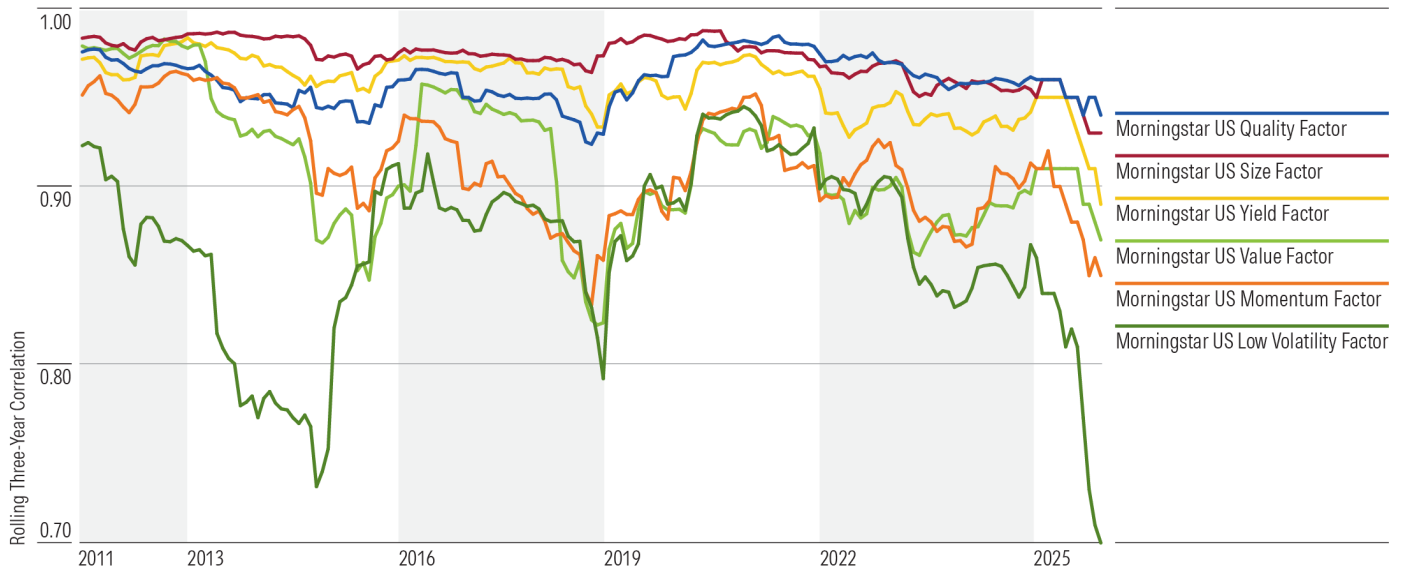
Source: Morningstar Direct. Data as of Dec. 31, 2025.

Over the past three years overall, the quality factor showed the highest correlation with the broader equity market, followed by the size and yield factors. Correlations for the momentum and value factors were a bit lower, and the low-volatility factor had the weakest link with the overall market. Across factors, the lowest correlation was between the quality and low-volatility factors.

Longer-Term Trends

Over time, the correlations for all six factor indexes have trended slightly lower, although correlations for some factors have shifted, as shown in Exhibit 25.

Exhibit 25 Rolling Three-Year Correlations vs. Morningstar US Market Index: Factor Indexes



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Factor correlations have recently landed in a wider range, with a high of 0.94 for the quality factor and a low of 0.7 for the low-volatility factor. Over the long term, though, most factors have moved in the same direction as the overall market. Now that factors are so widely studied and embraced by asset managers, it's likely that so many investors are following the same factors that their performance has become less and less discrete.

Portfolio Implications

Despite lower correlation trends for the low-volatility factor, the benefits from diversifying a portfolio by factor have been modest. While some investors might attempt to enhance returns by focusing on factors, a factor-based approach to portfolio diversification looks less compelling.

Commodities

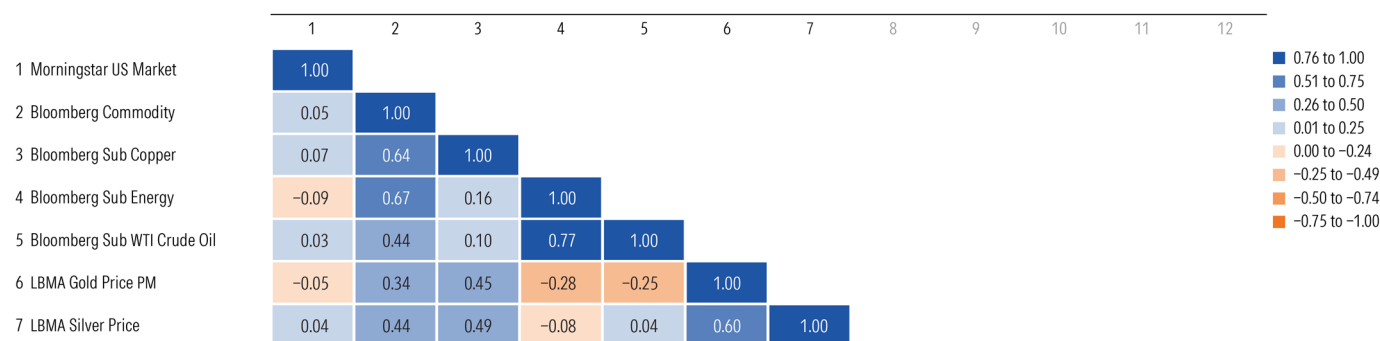
Commodities are typically defined as raw materials or basic inputs used in manufacturing and industrial processes. As standardized goods, commodities of the same type are largely interchangeable, and shifts in supply and demand rather than corporate earnings or balance-sheet fundamentals drive their prices. As a result, commodity prices have historically exhibited low correlations with traditional asset classes such as stocks and bonds, giving them potential value as portfolio diversifiers.

Commodities can also act as a hedge against inflation. Because many inflation measures directly incorporate commodity prices, periods of rising inflation have often coincided with stronger commodity returns. In addition, some commodities exhibit seasonal price patterns tied to production cycles, weather, or consumption trends, which can influence shorter-term performance and volatility.

Recent Performance Trends

Commodity markets delivered solid but uneven results in 2025, with performance varying widely across sectors. The Bloomberg Commodity Index gained 15.8%, supported by strength in precious metals and select industrial commodities amid elevated geopolitical uncertainty, accommodative monetary policy, and a weaker US dollar. By comparison, the Morningstar US Market Index rose 17.4%, reinforcing commodities' role as diversifiers rather than return leaders. Dispersion across sectors reflected differing supply-and-demand dynamics, policy sensitivities, and end-market exposures, underscoring that commodities are not a monolithic asset class.

Exhibit 26 Three-Year Correlation Matrix: Commodities



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Energy detracted from overall commodity performance. The Bloomberg Energy Subindex fell 10.4%, while the Bloomberg WTI Crude Oil Subindex declined 7.9%, with oil prices finishing the year roughly USD 12–USD 13 per barrel lower. Elevated US production and uneven global demand limited the durability of price rallies, offsetting periodic support from geopolitical tensions and OPEC+ supply discipline. While volatility remained high throughout the year, energy's struggles highlighted its tendency to amplify short-term macro and geopolitical shocks rather than provide consistent diversification over shorter horizons.

Industrial metals were a key source of strength, led by copper. The Bloomberg Copper Subindex rose 38.7%, marking its strongest annual performance since 2009. Returns reflected robust demand tied to electrification, renewable energy, and artificial-intelligence infrastructure, alongside constrained supply growth from mine disruptions and limited capacity expansion. Pronounced volatility over the year reinforced copper's cyclical nature and sensitivity to policy uncertainty and global growth expectations.

Gold delivered an unusually strong performance, reinforcing its role as one of the most effective commodity diversifiers. The LBMA Gold Price PM Index rose 67.4%, supported by geopolitical risk, accommodative monetary policy, and a weaker US dollar. Central bank purchases totaled 863.3 metric tons according to World Gold Council data, below 2024's record but still well above long-term averages. Unlike industrial commodities, gold's returns were driven primarily by monetary and political factors, and despite elevated volatility, it maintained a negative correlation with equities.

Silver also posted an exceptionally strong but more volatile year. The LBMA Silver Price Index gained 149.1%, driven by a fifth consecutive year of global supply deficits and accelerating industrial demand from solar, electric vehicles, and AI-related infrastructure. Tight physical availability amplified price movements, while growing recognition of silver as a strategic industrial input supported demand beyond traditional safe-haven channels. However, silver's closer linkage to industrial activity and investor positioning resulted in higher volatility and less consistent defensive behavior than gold, reinforcing its role as a conditional diversifier rather than a pure haven.

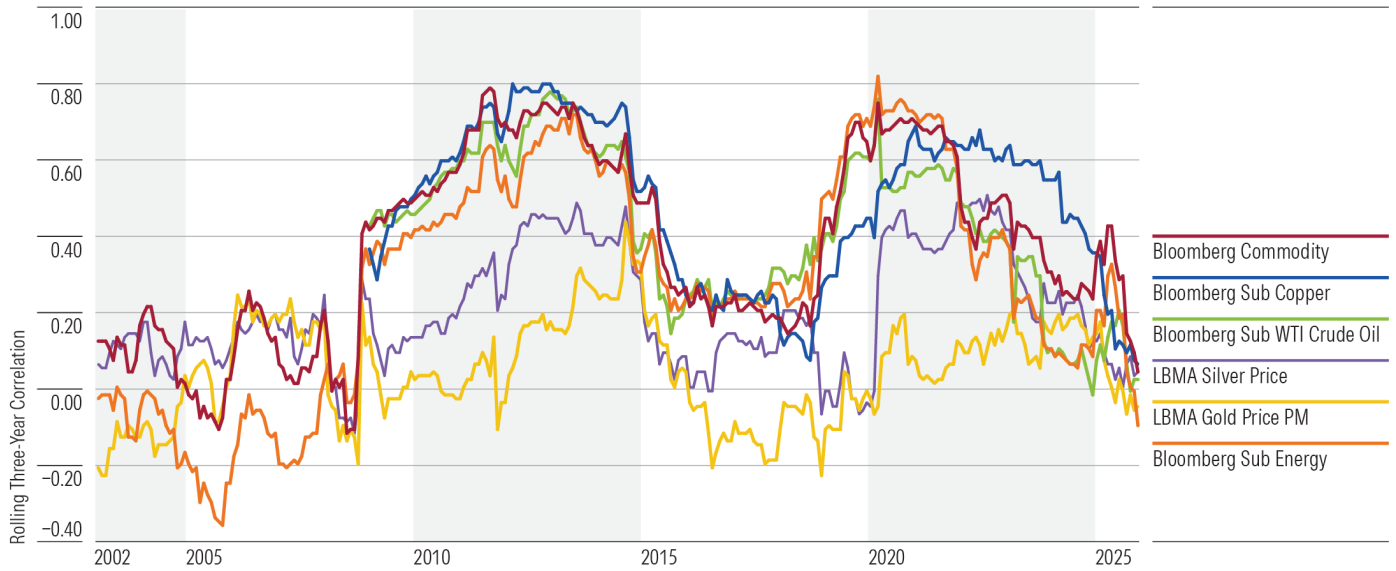
Longer-Term Trends

Over longer horizons, commodities continued to exhibit low correlations with US equities in 2025, reinforcing their role as portfolio diversifiers. As of Dec. 31, 2025, the three-year trailing correlation between the Bloomberg Commodity Index and the Morningstar US Market Index declined to 0.05, down meaningfully from 0.24 at the end of 2024. This shift reflected the fading influence of the 2020–22 inflation shock and a return toward more commodity-specific supply-and-demand drivers.

Correlations within the energy complex remained elevated but also trended lower versus the prior year. The Bloomberg Energy Subindex's correlation with US equities fell to negative 0.09 in 2025, from 0.09 in 2024, while WTI crude oil's correlation edged up modestly to 0.03 from negative 0.01. Energy and oil remained tightly linked, however, with their cross-correlation holding near 0.77, underscoring the sector's internal cohesion even as its linkage to equities weakened.

Industrial metals continued to show higher correlations within commodities than with equities. Copper's correlation with the Morningstar US Market Index declined to 0.07 in 2025 from 0.37 in 2024, while its correlation with the broader commodity index remained elevated at 0.64, reflecting its sensitivity to global growth, policy uncertainty, and industrial demand themes rather than equity-market dynamics.

Precious metals still had the weakest correlation. Gold's correlation with US equities moved slightly lower to negative 0.05 in 2025 from 0.16 in 2024, maintaining its position as one of the least equity-sensitive major asset classes. Silver's equity correlation was low at 0.04, though its higher correlation with both gold (0.60) and copper (0.49) continued to reflect its hybrid exposure to monetary and industrial forces.

Exhibit 27 Rolling Three-Year Correlations vs. Morningstar US Market Index: Commodities

Source: Morningstar Direct. Data as of Dec. 31, 2025.

Taken together, these trends highlight that while intracommodity correlations can remain elevated at times, commodities—particularly precious metals—have continued to offer meaningful diversification relative to equities as correlations normalized further in 2025.

Portfolio Implications

Given their persistently low correlations with traditional asset classes, commodities can continue to play a useful role as portfolio diversifiers, particularly during periods of macroeconomic stress, inflation uncertainty, or geopolitical disruption. The 2025 experience reinforced that commodity returns are driven by a distinct set of forces—supply constraints, policy shifts, and physical demand dynamics—that often diverge from equity and fixed-income markets. However, outcomes can vary across individual commodities, underscoring the importance of thoughtful exposure.

Gold remains the most reliable defensive allocation, exhibiting consistently low correlation with equities and demonstrating resilience during periods of heightened uncertainty. While one can't extrapolate gold's unusually strong 2025 performance, its role as a store of value and portfolio stabilizer remains intact. Silver, by contrast, behaved more like a hybrid asset, benefiting from both safe-haven demand and industrial end-use. Its experience highlights that some commodities may provide diversification only under certain economic regimes and may introduce much more volatility.

Energy and industrial metals continued to offer diversification benefits over full market cycles, but their performance was more closely tied to growth expectations, policy developments, and supply responses. As a result, these segments may be less effective as short-term hedges during equity drawdowns, despite their low longer-term correlations.

Finally, implementation remains critical. The method of gaining exposure, whether through futures-based funds, broad commodity baskets, or single-commodity strategies, can materially affect outcomes through roll yield, collateral returns, and liquidity dynamics. The heightened volatility observed when many investors crowded into the same positions serves as a reminder that commodities can experience sharp drawdowns even when longer-term fundamentals remain supportive, reinforcing the importance of sizing discipline and realistic expectations.

Alternatives

Alternative strategies, by design, differ fundamentally from traditional asset classes. Morningstar defines these strategies by their ability to modify, diversify, or reduce exposure to traditional market risks. Because approaches vary widely and suitable benchmarks are difficult to find, we use Morningstar fund categories as proxies for the most common alternative strategies rather than market indexes.

Alternatives classified as diversifiers include the equity market-neutral, event-driven, multistrategy, and relative value arbitrage categories. These strategies combine traditional equity risk factors with nontraditional return drivers, such as carry (returns driven by the shape of the futures curve, where rolling into cheaper or more expensive contracts can generate gains or losses), momentum, and trend, to broaden sources of return. Because they still have some exposure to equity risk, however, these strategies can still experience losses during market stress. Among them, equity market-neutral, event-driven, and relative value arbitrage typically exhibit lower sensitivity to equity market movements. Managers implement these strategies by trading securities long and short against one another rather than taking directional market exposure, which tends to mute equity-driven volatility.

Opportunistic strategies, including macro trading and systematic trend, target absolute returns and emphasize capital preservation across market environments. Managers dynamically adjust long and short exposures as opportunities evolve, often shifting or hedging positions in response to changing market conditions. While these strategies tend to limit drawdowns, they are inherently complex and rely heavily on sophisticated risk-management systems to manage diverse and frequently changing exposures.

Modifier strategies are more closely linked to traditional equity risk but use shorting and derivatives to help temper losses during market downturns. This group includes equity-hedged and long-short equity strategies. Equity-hedged approaches employ various techniques to reduce equity risk, while long-short equity strategies maintain both long and short positions based on bottom-up research. Although both categories can reduce the portfolio's overall equity beta, they typically do so to a lesser extent than diversifier and opportunistic strategies. As a result, while they are not formally grouped with other alternative categories, they can reasonably be considered alternatives in certain portfolio contexts.

Recent Performance Trends

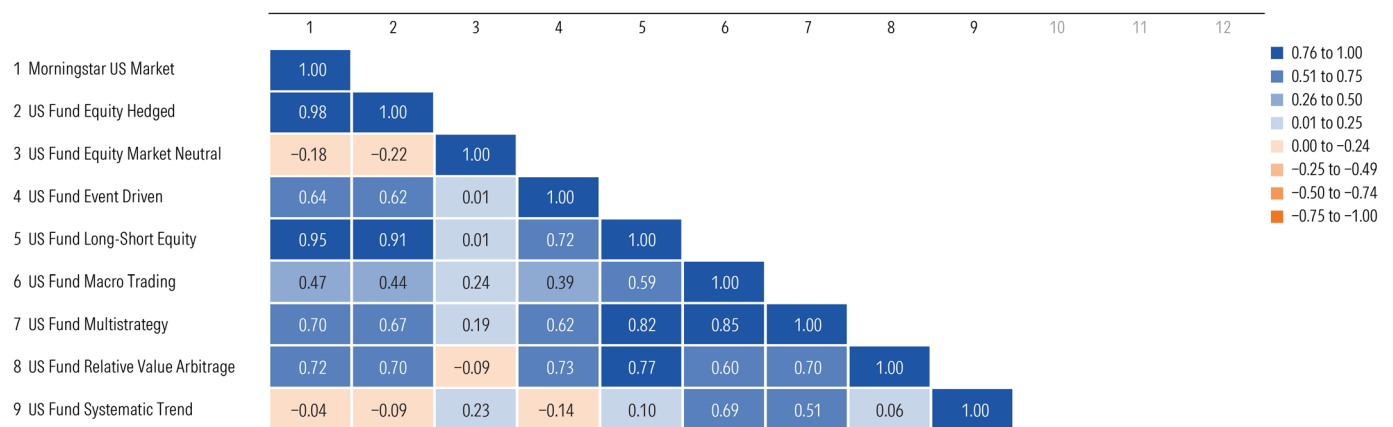
As the Morningstar US Market Index rose 17.4% in 2025, categories with stronger links to equities once again delivered the highest absolute returns among alternative strategies. By contrast, strategies designed to diversify equity risk or preserve capital lagged stocks, reflecting their lower equity sensitivity rather than a deterioration in underlying strategy design.

Equity-hedged strategies returned 11.2% for the year and maintained a trailing three-year correlation of 0.98 with the Morningstar US Market Index. Long-short equity strategies gained 10.1%, with a similarly elevated correlation of 0.95. These outcomes were consistent with the design of both categories, which retain meaningful equity exposure while using short positions and derivatives to moderate downside risk rather than eliminate it.

Despite lagging the broader equity market's 17.4% advance, both categories benefited from favorable stock selection and supportive market conditions. Their relatively high correlations underscore that, while these strategies can reduce portfolio-level equity beta, they remain closely tied to equity market direction and should be viewed as modifiers of equity risk rather than true diversifiers.

The diversifier categories delivered a wide range of outcomes in 2025, reflecting differences in underlying exposures and sensitivity to traditional market risks. Equity market-neutral strategies returned 8.0% for the year and maintained a trailing three-year correlation of negative 0.18 versus the Morningstar US Market Index, underscoring their ability to generate returns largely independent of broad equity market direction. Event-driven strategies gained 9.0%, with a correlation of 0.64, as mergers and acquisitions activity improved modestly but remained constrained by regulatory scrutiny and uneven deal flow.

Exhibit 28 Three-Year Correlation Matrix: Alternatives



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Relative value arbitrage returned 9.4% and exhibited a 0.72 correlation to equities, reflecting its continued reliance on pricing differences between related securities that can widen during periods of market stress but remain influenced by broader risk sentiment. Multistrategy funds advanced 6.7%, with a 0.70 correlation, as diversified exposures across trading styles helped smooth returns but limited participation in equity-driven gains. Overall, while the diversifier categories lagged equities in a rising market, their performance aligned with expectations given their muted equity sensitivity.

The opportunistic categories posted more modest returns in 2025, reflecting their emphasis on capital preservation and low directional exposure rather than participation in rising equity markets. Macro trading strategies returned 7.4% for the year, with a trailing three-year correlation of 0.47 with the Morningstar US Market Index. While correlations suggest some directional alignment with equities, the category's relatively low equity beta limited both upside participation and downside exposure, consistent with its absolute-return mandate.

Systematic trend strategies gained 3.7% in 2025 and maintained a low correlation of negative 0.04 to equities. Performance lagged other alternative categories during the year's equity advance, as market moves across major asset classes were less persistent and more fragmented. However, the category's low correlation highlights its continued potential to provide diversification benefits over full market cycles, even when short-term results are disappointing. Trend strategies typically excel in sustained, directional markets—like 2022, when persistent moves across commodities, interest rates, and currencies created a highly favorable environment for trend-following models. In 2025, by contrast, repeated policy-driven shocks—such as tariff-related volatility in the spring and the technology-led selloff later in the year—contributed to shorter-lived trends and frequent reversals across asset classes, pressuring returns.

Longer-Term Trends

Over longer horizons, equity sensitivity across alternative categories moderated or evolved in ways consistent with each strategy's design. Between year-end 2024 and year-end 2025, three-year trailing correlations to the Morningstar US Market Index declined for most categories, reinforcing the role of alternatives as portfolio diversifiers despite uneven short-term performance. This decline reflected a shift away from broad, equity-driven market moves toward more idiosyncratic, strategy-specific return drivers.

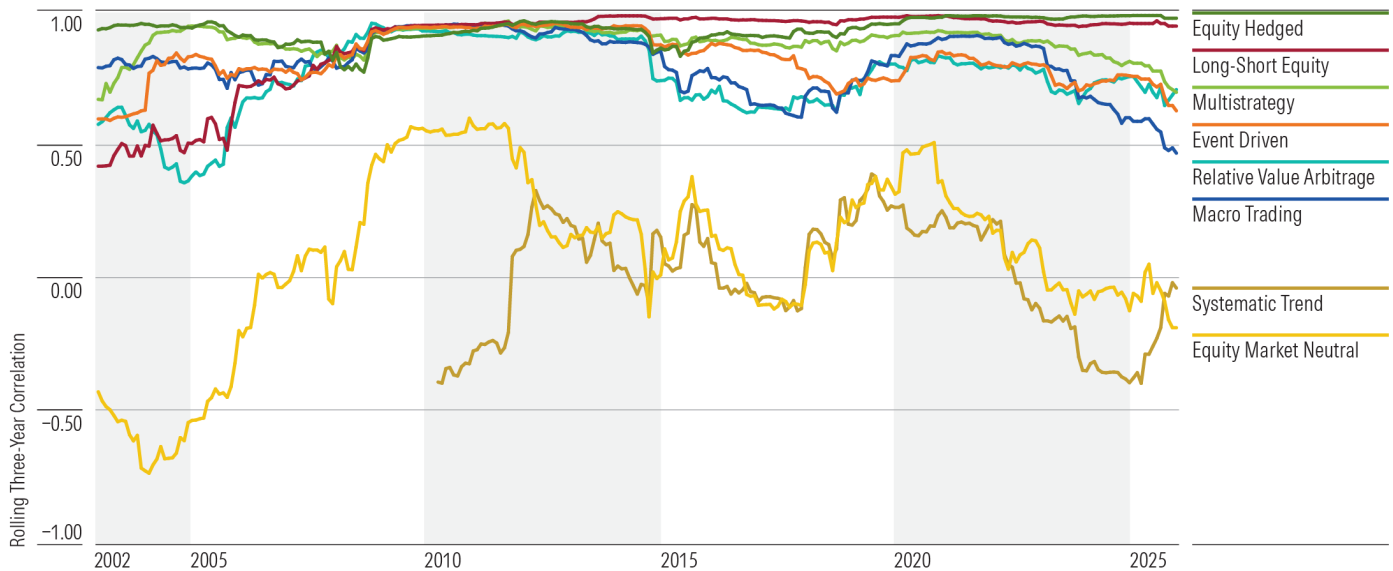
Among the modifier categories, equity-hedged and long-short equity remained highly correlated to equities, though correlations edged modestly lower. Equity-hedged's three-year correlation declined from 0.99 in 2024 to 0.98 in 2025, while long-short equity's correlation fell from 0.96 to 0.95. Their rolling equity betas were broadly stable over the same period, underscoring that, while these strategies continue to meaningfully participate in equity market moves, they modestly temper overall portfolio risk rather than eliminate it.

The diversifier categories exhibited more notable shifts. Equity market-neutral strategies moved deeper into negative correlation territory, with their three-year correlation declining from negative 0.07 in 2024

to negative 0.18 in 2025, while equity beta remained near zero (negative 0.04 over the trailing year). Event-driven strategies became less equity-sensitive, as correlations declined from 0.79 to 0.64, alongside a gradual reduction in beta from 0.12 to 0.11. Relative value arbitrage also showed improving diversification, with correlation easing from 0.76 to 0.72 and beta falling to 0.06, well below longer-term averages. Multistrategy correlations declined more modestly—from 0.83 to 0.70—while beta ticked higher, reflecting broader exposure dispersion across trading styles.

Within the opportunistic categories, macro trading saw a meaningful reduction in equity correlation, falling from 0.64 in 2024 to 0.47 in 2025, even as its equity beta remained low in absolute terms. Systematic trend experienced the most pronounced shift, with correlation rising from negative 0.39 to negative 0.04 as trends across asset classes became less persistent. Although its rolling equity beta increased relative to earlier periods, it remained low compared with traditional asset classes, preserving its long-term diversification potential.

Exhibit 29 Rolling Three-Year Correlations vs. Morningstar US Market Index: Alternatives



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Taken together, the evolution of correlations and betas over the past year suggests that most alternative categories continued to behave broadly as intended. While equity sensitivity can fluctuate across market regimes, particularly for opportunistic strategies, alternatives overall maintained lower equity dependence than traditional assets, reinforcing their value as long-term portfolio diversifiers rather than tactical return enhancers.

Portfolio Implications

Investors typically own alternative strategies not to maximize returns during strong equity markets, but to reduce drawdowns, broaden sources of risk and return, and improve portfolio stability over full

market cycles. The 2025 results reinforced this role. In a year when US equities posted solid gains, most alternative categories lagged stocks in absolute terms, reflecting their lower equity sensitivity rather than a flaw.

The diversification benefits of alternatives are most apparent during periods of market stress, when lower equity betas translate into more modest losses and, in some cases, gains. Categories such as equity market-neutral, relative value arbitrage, and systematic trend continued to exhibit the lowest equity sensitivity over longer horizons, supporting their role as core diversifiers. Macro trading and multistrategy approaches also offered meaningful diversification, though with greater variability depending on prevailing market regimes.

By contrast, equity-hedged and long-short equity strategies remained closely tied to equity markets. While these strategies can damp volatility and reduce downside relative to long-only equities, they should be viewed primarily as modifiers of equity exposure rather than substitutes for true diversifiers.

From a portfolio-construction perspective, the distinction between correlation and beta remains critical. Even categories with moderate correlations can meaningfully improve risk-adjusted returns if their equity betas are sufficiently low. For example, replacing 5% of a traditional 60/40 portfolio with diversifying and opportunistic alternative strategies modestly reduced 10-year maximum drawdown (negative 19.7% versus negative 20.7%) and volatility (9.9% versus 10.2%), while maintaining a similar Sharpe ratio (0.76) and only slightly lowering annualized returns (9.8% versus 10.0%). As a result, alternatives are best evaluated not on their returns but on how effectively they complement traditional assets and contribute to overall portfolio resilience.

Private Investments

Private investments are, as the name suggests, investments in nonpublicly traded securities. The underlying securities in these kinds of strategies do not register officially with the Securities and Exchange Commission and thus provide little or no public data about their businesses.

There are many flavors of private investing, each offering different risk and return profiles. There is private credit, which, in its simplest form, is lending money directly to small and medium-size businesses. Companies often choose to finance themselves with private credit because the lenders can offer faster closing times and more-attractive covenants, though usually at the cost of a higher interest rate. Traditional private equity is the use of debt to finance the purchase of a controlling stake in a business, often one with stable cash flows that can support the usually heavy debt load. It is akin to a leveraged small-cap equity strategy. Private equity's flashier cousin is venture capital, which is also investing in the equity of a company, but this is usually a noncontrolling stake in young, high-risk, high-reward businesses. On top of those three core asset classes, there are numerous others, including asset-backed lending, private real estate, and private infrastructure.

Because of their lack of trading markets, though, private assets require patience on both the part of the fund manager and the investor. Without the ability to monetize an asset at will, the fund managers need

to wait for securities to mature (as in credit) or, with private equity, for a so-called “exit” (that is, an IPO or an acquisition of the underlying company). When it comes to risk/return profiles, these asset classes can be hard to pin down, as the underlying securities lack observable market prices. Often, valuations of positions are updated quarterly or monthly. Thus, these securities show artificially low volatility compared with public assets. That low volatility should not be mistaken for low risk; if anything, these are higher-risk investments. With low disclosure and transparency, frequent use of leverage, and valuations changes that are both lower in scale and frequency than public markets, these should be considered one of the riskiest asset classes in an investor’s portfolio, despite often being sold as having lower risk profiles.

Traditionally, these assets are managed in private drawdown funds where a set amount of capital is deployed over time, and returns are distributed to investors (net of fees) as they are earned. Returns in those funds are typically measured as internal rates of return, which can be informative in some ways but are not directly comparable to the time-weighted returns seen in public asset classes.

More recently, asset managers have begun putting private assets in so-called *semiliquid funds*, which allow continuous subscriptions but only periodic (and often only discretionary) redemption windows. Because of the inability to sell positions on demand, these structures require much stronger cash management programs than almost any other investment vehicle, and they often hold slugs of cash in case of redemption surges, but that cash slug can drag returns. These structures are still relatively new in terms of investor attention, though they are growing fast. As they accumulate longer, time-weighted return records, though, these vehicles should provide the best apples-to-apples return comparison to public markets.

Recent Performance Trends

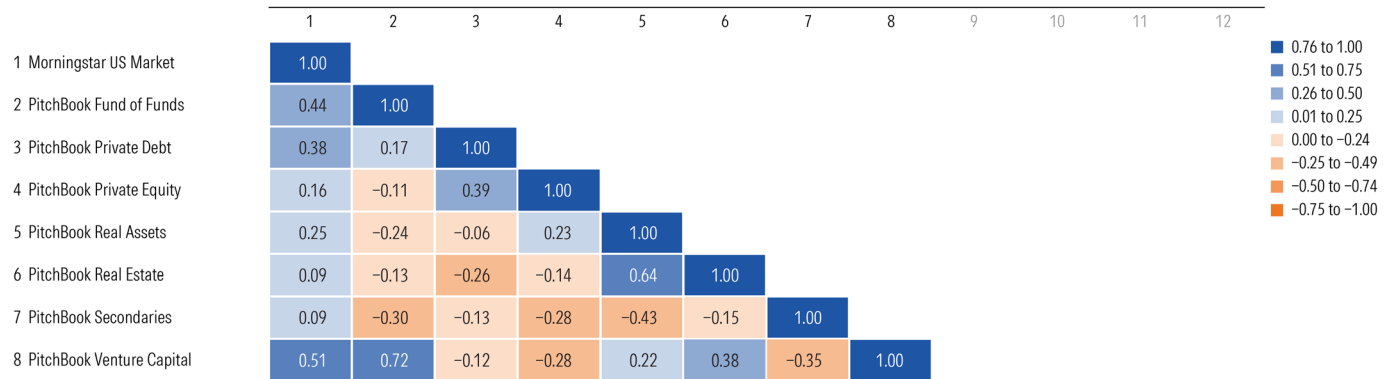
The quarterly IRRs reported by Morningstar’s PitchBook subsidiary represent the general experience of each of these private investment sectors; other indexes cited represent quarterly total returns.

In the wake of the pandemic panic (first quarter of 2020), when the Morningstar US Market Index lost 20.6%, venture capital, private equity, and secondaries (a type of investment that purchases an existing interest in a company from a private equity company) also suffered losses but at a much more modest level. Aided by their illiquid structures and delayed reporting, these results don’t as easily reflect of-the-moment market temperament in pricing. Still, as markets roared in 2021, the same investment sectors benefited from the accompanying euphoria and rock-bottom financing rates.

The next two years posed more complicated dynamics for private markets: Rising interest rates squeezed investors from both ends. First, many of these investments are highly leveraged, and rising debt costs crimped cash flows as interest expense rose. Additionally, higher interest rates lowered the intrinsic values of these businesses (since the present value of their future cash flows is lower because of the higher risk-free rates). In the end, a lot of money was raised in that euphoric, low-rate environment of 2020 and 2021 and deployed at sky-high valuations that had almost nowhere to go but down once rates rose. Many of those 2020-era investments have still not been exited. Per PitchBook

data, the 2020 cohort of private equity and venture capital funds has distributed much less back to investors after five years than has been the historic norm.

Exhibit 30 Three-Year Correlation Matrix: Private Investments



Source: PitchBook and Morningstar Direct. Correlations are based on adjusted quarterly returns of the PitchBook Private Capital Indexes and quarterly total returns of the Morningstar US Market Index. Data as of June 30, 2025.

Weaker growth and higher interest rates ate into private equity's returns in 2022 and 2023, as the cost of capital and leverage increased and the typical exit routes (M&A and IPOs) were largely closed. The environment improved in 2024, with relatively lower borrowing costs, narrower spreads between buyers' and sellers' valuations, and improved deal-making conditions. The rise of AI brought new fears to public and private markets in 2025 and early 2026, as investors looked to sell anything AI might obsolete, with software companies, the longtime darling of private asset strategies because of their recurring revenues, being the main target. Investors questioned whether the portfolio valuations of private credit and private equity managers that owned a lot of software accurately reflected the reality of how the market priced software businesses.

Semiliquid strategies began to show structural cracks in 2025 as well. In December 2025, Bluerock Total Income + Real Estate, an interval fund that owned private real estate funds, ran into liquidity issues due to persistent investor redemption requests. It ultimately converted into a listed (publicly traded) closed-end fund, but it traded at a massive 40% discount to its net asset value, wiping out all prior investor gains until that point. As of February 2026, it still traded at 30% discount. Private credit manager Blue Owl ran into similar issues with its Blue Owl Capital Corp II, an unlisted business development company, that was also facing persistent redemption requests. The firm initially tried to merge it with another BDC before deciding in February 2026 to convert it to a drawdown fund. The fund gave investors a 30% distribution by selling a slug of loans. However, it did not commit to any future distributions, and investors could still have to wait quite some time to get their money back. These episodes highlight the importance of investor patience with these strategies. A run on a semiliquid fund typically results in a bad outcome for all investors, not just the ones seeking to exit.

Still, some of these semiliquid strategies posted compelling returns in 2024 and 2025, though those also come with caveats. First, the private credit funds typically use fund-level leverage, so compared with

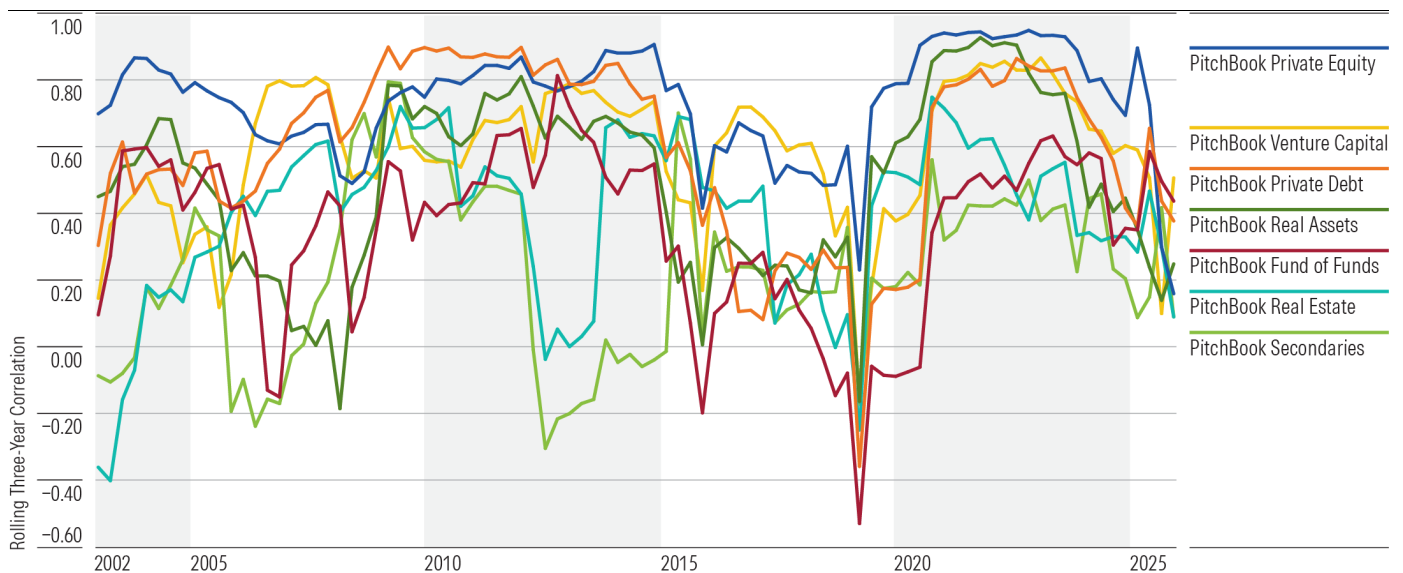
unleveraged indexes, they look good. On the equity side, secondaries funds have posted good headline results, but much of that is due to accounting quirks that allow them to immediately mark up positions bought at discounts, which, coupled with inflows, generates a flow-based return phenomenon that exists in no other asset class.

Quarterly returns for private capital indexes (reported by PitchBook) date back to early 2000. Pricing infrequency and variability result in overly smooth results, which can obscure the volatility and correlations of private investments. To account for that, PitchBook also provides adjusted quarterly returns that better capture the investments' volatility, allowing for more accurate correlation comparisons. The pandemic-driven drawdown, ensuing bull market, and then rising interest rates reflected both public and private markets in the last few years. This resulted in all seven private asset classes considered here exhibiting a higher correlation to the broad public equity market for a stretch. More recently, correlations have been flat or slightly lower for all but private equity as the effect of those shocks has settled.

Longer-Term Trends

The rolling three-year correlations between the private investment sectors and the Morningstar US Market Index vary and have also shifted dramatically over time. By definition, many of these private sectors are early-stage equities. And relative to other asset classes discussed in this paper, the range of correlations across private investments differs dramatically from quarter to quarter because of the asset class' structural characteristics.

Exhibit 31 Rolling Three-Year Correlations vs. Morningstar US Market Index: Private Investments



Source: PitchBook and Morningstar Direct. Correlations are based on adjusted quarterly returns of the PitchBook Private Capital Indexes and quarterly total returns of the Morningstar US Market Index. Data as of June 30, 2025.

Still, within private investments, venture capital and private equity are more correlated with public equities than private credit, and all three of these typically exhibit higher correlations with public stocks than real assets and real estate, which are shaped by underlying factors specific to those markets. Secondaries and funds of funds exhibit the lowest long-term average correlations, though, as mentioned, secondaries benefit from accounting quirks that can warp returns depending on the timing and magnitude of inflows. Those subasset classes are sensitive to the activity of the other private asset classes, so they have a bit more distance from the public markets. However, even with that distance, secondaries' rolling three-year correlation versus the Morningstar US Market Index has ranged from 0.80 to negative 0.31, with an average of 0.22 (measured from early 2002 to mid-2025). On the other end of the spectrum, private equity exhibited a long-term average rolling three-year correlation of 0.72, and ranged from 0.96 to 0.16, with both ends of the range occurring in the past four years.

Portfolio Implications

Over the long term, private investments' structure means their cash flows will look different from those of public securities, whose prices swiftly reflect changes in market sentiment. In theory, this may seem to enhance diversification, but with such varying correlations across the private investment landscape and over time, private investments may not provide consistent diversification value. For instance, private equity buyout strategies are close siblings to small-cap value investing, while venture capital is like small-cap growth investing. While the volatility will look different between the public and private options, they are effectively taking on much of the same risks. So, if an investor wants to allocate to private equity, they need to think about where the funding source is coming from, as adding more implicit small-cap exposure may or may not be their intention.

While private investments remain a potential source for greater breadth and differentiated (though mostly delayed and leveraged) equitylike returns, their structure merits caution. Often, these offerings are only open to accredited investors, and the high investment minimums are a barrier for many individuals. For investors who are not accredited or don't meet the minimum, there are other ways to access the private capital market, such as semiliquid funds, which are closed-end funds under the Investment Company Act of 1940. Still, as seen with Blue Owl and Bluerock, even regulated semiliquid structures can run into major liquidity challenges, creating headaches for investors looking to get their money back. Ultimately, any capital committed to private asset strategies needs to be truly long-term.

Cryptocurrency

Cryptocurrency is fundamentally different from other major asset classes because it exists purely in digital form. After spending its first decade or so of life as a fringe asset class, it gained more institutional acceptance in 2020 and 2021. In January 2024, the SEC approved 11 spot bitcoin exchange-traded funds, which made cryptocurrency investing more accessible to retail investors and strengthened its credibility as a legitimate asset class. As a result, the value of assets invested in cryptocurrency globally totaled about USD 3.3 trillion globally by the end of 2024. Bitcoin, the oldest and most established cryptocurrency, still accounts for the lion's share of investor interest and assets, but

numerous digital currencies have also attracted more attention from both retail and institutional investors in recent years.

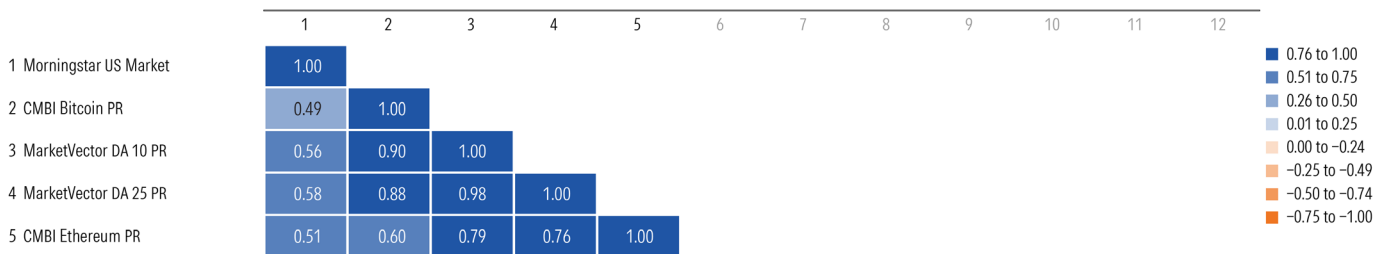
Several factors drove interest in crypto, including bitcoin's spectacular long-term returns since its first minting in early 2009. Bitcoin's more than 150% annualized gain makes it the top-performing major asset class from August 2010 (the first full month of returns for the CMBI Bitcoin Index) through December 2025. Other key drivers include distrust of national governments and traditional financial institutions, fears that resurgent inflation could be more than transitory, and excitement about the technological potential of digital payments and other innovations related to cryptocurrency, such as blockchain, decentralized finance, and nonfungible tokens.

Recent Performance Trends

However, crypto's extreme performance swings, which have been on full display in recent years, can often overshadow its potential diversification value. During 2025, for example, the CMBI Bitcoin Index ran up more than 40% between April and July but dropped about 25% below its peak toward the end of the year. Ethereum, the second-largest cryptocurrency, has been even more volatile, surging more than 150% over a four-month period in 2025 but then dropping by 46%.

The past several years have been equally extreme. As risk assets continued to rally during most of 2024, the CMBI Bitcoin Index more than doubled, and the CMBI Ethereum Index gained about 46%. Those returns followed on the heels of even better returns in 2023 as digital assets staged a strong rebound from their sharp losses in 2022. As the market sold off risky assets and the high-profile cryptocurrency exchange FTX collapsed, the CMBI Bitcoin Index dropped about 64% for the year and the broader MarketVector DA 10 Index lost more than 69% of its value. A series of other crises, including the crash of Terra, a popular stablecoin that failed to provide any stability, also shook investor confidence in cryptocurrencies in 2022.

Exhibit 32 Three-Year Correlation Matrix: Cryptocurrency



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Crypto's performance in previous years showed similar performance swings. For example, the CMBI Bitcoin Index dropped 74% in 2018, followed by cumulative gains of more than 1,000% from 2019 through 2021.

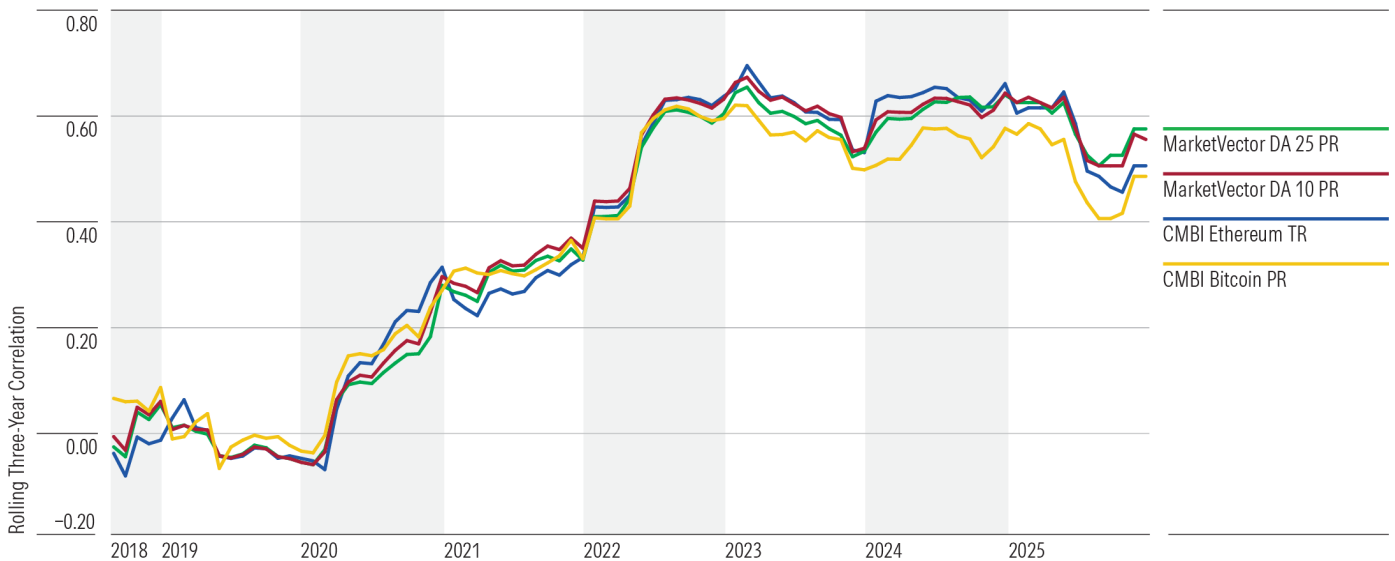
These dramatic ups and downs underscore some of the limits of correlation metrics. Correlations often spike during periods of market crisis, and low correlations don't guarantee that a given asset class will hold up better during market drawdowns.

Indeed, while cryptocurrency has continued to show a relatively low correlation with most major asset classes, correlations have been trending significantly higher. For the trailing three-year period ended in 2024, the CMBI Bitcoin Index had a correlation coefficient of just 0.49 with stocks (as measured by the Morningstar US Market Index), but that was up from correlation numbers near zero (or even below zero) in some previous periods.

Longer-Term Trends

The recent increase in cryptocurrency correlations continues a longer-term trend. As cryptocurrency has moved more into the mainstream, its correlation with other major asset classes has trended up over time, as shown in Exhibit 33. Bitcoin's correlation with the Morningstar US Market Index has been as low as negative 0.06 for some previous periods but has gradually increased over the past few years. Ether and other major cryptocurrencies have shown similar patterns. Although current correlation numbers are still quite low compared with those of other major asset classes, cryptocurrency's low correlation with traditional asset classes may be a false flag because of its tendency to spike during market corrections.

Exhibit 33 Rolling Three-Year Correlations vs. Morningstar US Market Index: Cryptocurrency



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Portfolio Implications

Diversification value is one potential reason to add cryptocurrency to a portfolio, but investors should also consider other factors, such as their ability to hold on through crypto's periodic downdrafts. The extreme losses in 2022 are a case in point. Crypto aficionados embracing the "hold on for dear life" mindset have been amply rewarded over time, but more skittish investors can easily get whipsawed by extreme short-term price movements.

It's also worth noting that cryptocurrency's volatility profile means that even small doses can have an outsize impact when added to other portfolio holdings. As a result, most investors will want to keep cryptocurrency exposure to a minimum and carve out any allocations from stocks, not bonds.

Conclusion

The virtues of building a broadly diversified portfolio took center stage in 2025, as the weakening dollar helped international stocks trounce previously dominant US equities and contributed to a spectacular showing for gold.

In addition, correlations for several major asset classes have been declining, which improves the risk-reduction benefits from combining diverse assets. In particular, correlations between the United States and other developed markets around the world have been trending down as major shifts in tariff policy have made the world more fragmented and less globalized. Correlations between stocks and investment-grade bonds remained elevated following the rapid increases in inflation and interest rates that started in 2022 but shifted back into negative territory for 2025. As a result, bonds have reclaimed some of their status as portfolio ballast.

Over longer periods, though, a more diversified approach to portfolio construction has often been more challenging. Not only are correlations constantly shifting, but they also often rise during periods of market volatility. As a result, broad portfolio diversification has often failed to add value when compared with an equity-only portfolio or a plain-vanilla mix of stocks and bonds.

Indeed, investors should be skeptical about optimistic claims about future diversification benefits from newer asset classes, such as private equity, private credit, and cryptocurrency. In the first two cases, apparently low correlation metrics can mask potential dangers such as stale pricing and lack of liquidity. For cryptocurrency, correlations have been trending higher and can be completely overwhelmed by drastic price movements, as evidenced by the "crypto winters" that seem to resurface every few years.

Investors also face higher-than-average levels of uncertainty on multiple fronts. While both interest rates and inflation have shown signs of trending lower, there's no guarantee that pattern will continue. If inflation remains above the Fed's 2% target and interest rates remain higher for longer, correlations between stocks and investment-grade bonds could revert to higher levels, which would reduce the diversification value of bonds from a portfolio perspective. Ongoing changes in US tariff policy, as well as escalating geopolitical risks, could also upend many previously established performance patterns.

Even so, the basic arguments in favor of diversification still hold. Our analysis of previous stress periods for inflation and interest rates suggests that stock/bond correlations have rarely increased above 0.60

and then only during the most acute periods of rising rates and/or inflation. That means the diversification case for adding bonds to a portfolio remains intact, even if some conditions for fixed-income holdings are less favorable than in the past.

In addition, as Exhibit A1 (on the following page) illustrates, asset classes that are winners in one year often sink to the bottom in later years. Holding a variety of asset classes helps guard against being overly exposed to an area that falls out of favor. As discussed above, asset classes with lower correlation coefficients can also reduce a portfolio's risk profile. Finally, holding a diversified portfolio helps investors expand the opportunity set and ensure they do not miss out on areas that can enhance long-term returns, such as international stocks. ○

Note: One of the authors has ownership positions in the following securities mentioned in this report: AAPL and MSFT.

Appendix

Exhibit A1 Asset-Class Winners and Losers (Annual Total Return %)

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
124.07	1622.86	1.82	86.38	293.38	67.23	16.09	156.62	122.39	67.41
20.25	35.97	0.13	31.22	24.61	41.06	1.54	26.44	24.09	33.11
17.46	25.53	-0.93	28.53	20.90	27.11	0.44	20.59	25.53	30.21
12.44	21.47	-1.94	25.96	18.77	25.78	-11.09	17.91	10.84	17.35
11.77	15.03	-2.27	23.45	17.78	16.25	-12.99	14.59	8.20	15.77
11.35	12.66	-3.61	18.56	16.41	12.71	-14.79	13.48	7.41	12.20
8.30	8.88	-5.05	18.43	8.97	5.24	-17.93	11.92	5.38	8.66
8.10	8.06	-11.25	14.97	7.50	0.04	-18.46	11.33	5.35	7.12
3.40	7.30	-12.11	14.33	7.03	-0.02	-19.43	5.31	4.93	5.26
2.55	3.40	-13.16	8.65	0.54	-1.61	-25.21	5.17	4.8	4.21
1.41	1.70	-13.93	7.69	-3.12	-4.33	-29.44	2.58	1.36	2.80
0.22	0.81	-72.31	2.22	-4.69	-4.68	-65.05	-7.91	-6.19	-6.85

- US Stock**
 - Morningstar US Market
 - Morningstar US Small Cap
 - Morningstar US REIT
- International Stock**
 - Morningstar Developed Markets xUS GR
 - Morningstar Emerging Markets GR
- Bonds**
 - Morningstar US 10+ Yr Treasury Bond
 - Morningstar US Cash T-bill
 - Morningstar US Core Bond
 - Morningstar US High-Yield Bond
- Commodities**
 - Bloomberg Commodity
 - CMBI Bitcoin Index
 - LBMA Gold Price PM

Source: Morningstar Direct. Data as of Dec. 31, 2025. All indexes shown are Morningstar benchmarks based on total returns in US dollars unless otherwise noted.

Exhibit A2 Asset-Class Winners and Losers (Annualized 5-Year Return %)

	2001-2005	2006-2010	2011-2015	2016-2020	2021-2025
	20.88	22.33	12.31	132.14	24.95
	19.21	14.44	11.81	15.52	18.27
	13.33	8.60	9.74	13.11	13.29
	10.72	6.01	8.10	12.26	10.64
	9.54	5.62	4.95	12.23	9.60
	8.64	5.49	3.66	8.55	7.29
	7.41	4.29	3.15	8.49	5.13
	6.55	2.97	0.07	7.95	4.81
	5.74	2.83	-3.81	6.68	4.54
	2.34	2.43	-5.49	4.39	3.19
	1.42	1.18	-13.47	1.20	-0.43
	n/a	n/a	n/a	1.03	-7.39

- US Stock**
 - Morningstar US Market
 - Morningstar US Small Cap
 - Morningstar US REIT
- International Stock**
 - Morningstar Developed Markets xUS GR
 - Morningstar Emerging Markets GR
- Bonds**
 - Morningstar US 10+ Yr Treasury Bond
 - Morningstar US Cash T-bill
 - Morningstar US Core Bond
 - Morningstar US High-Yield Bond
- Commodities**
 - Bloomberg Commodity
 - MarketVector Bitcoin PR
 - LBMA Gold Price PM

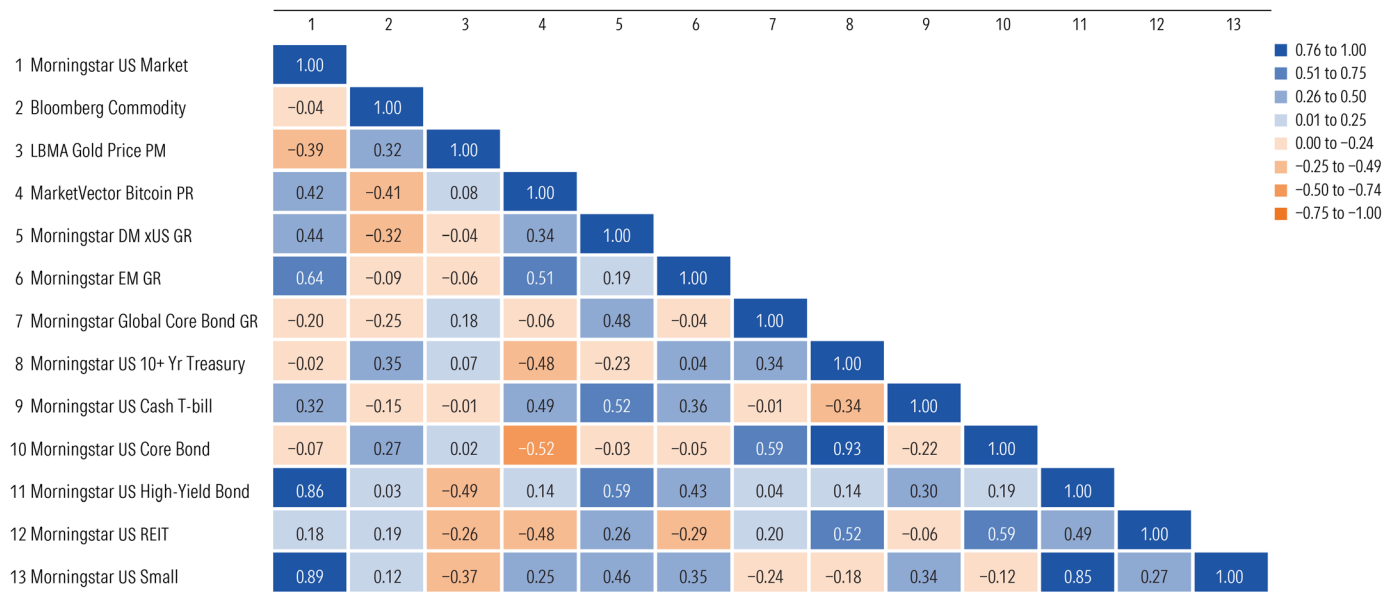
Source: Morningstar Direct. Data as of Dec. 31, 2025.

Exhibit A3 Average Correlation vs. US Stocks in Bull and Bear Markets

Asset Class	Bull	Bear
Commodities	0.19	0.31
Core Bonds	0.12	0.03
Long-Term Treasuries	-0.02	-0.09
REITs	0.36	0.56
High-Yield Bonds	0.40	0.63
US Large-Cap Stocks	0.99	0.99
US Small-Cap Stocks	0.56	0.70
Cash	0.01	0.11
Gold	0.01	0.05
Developed-Markets Stocks	0.58	0.73
Emerging-Markets Stocks	0.43	0.66

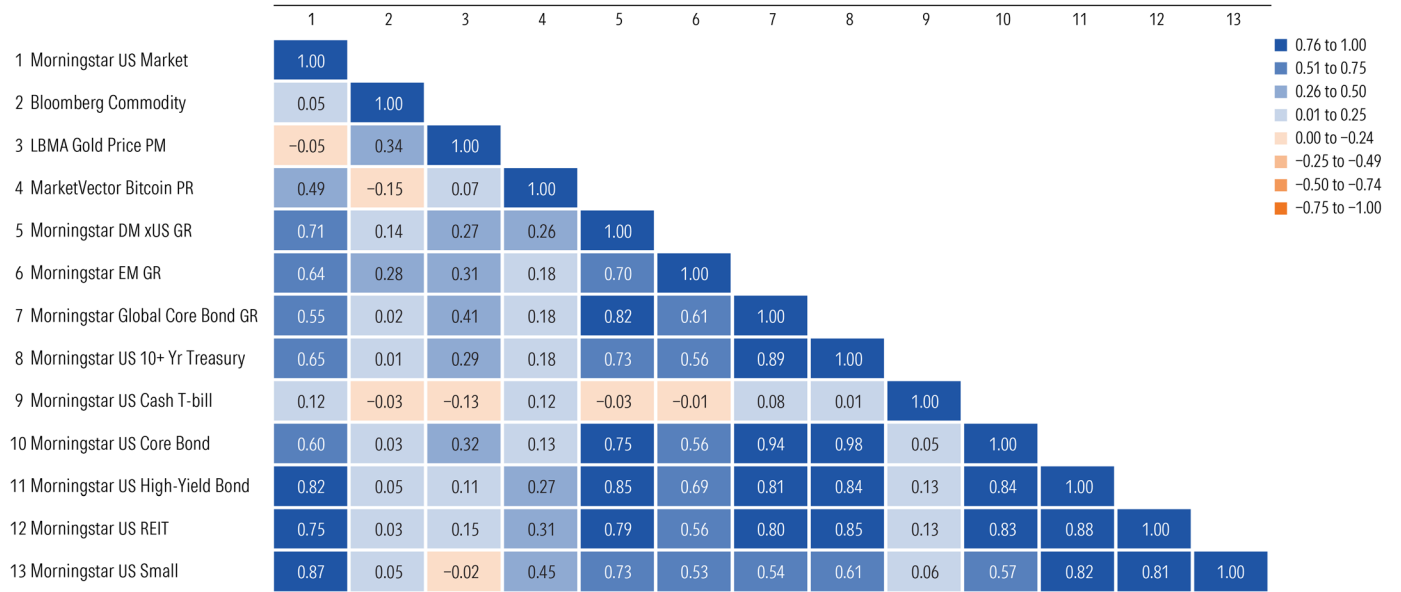
Source: Morningstar Direct. Data as of Dec. 31, 2025. Correlation figures are based on returns starting in 1999.

Exhibit A4 Correlation Matrix: One Year



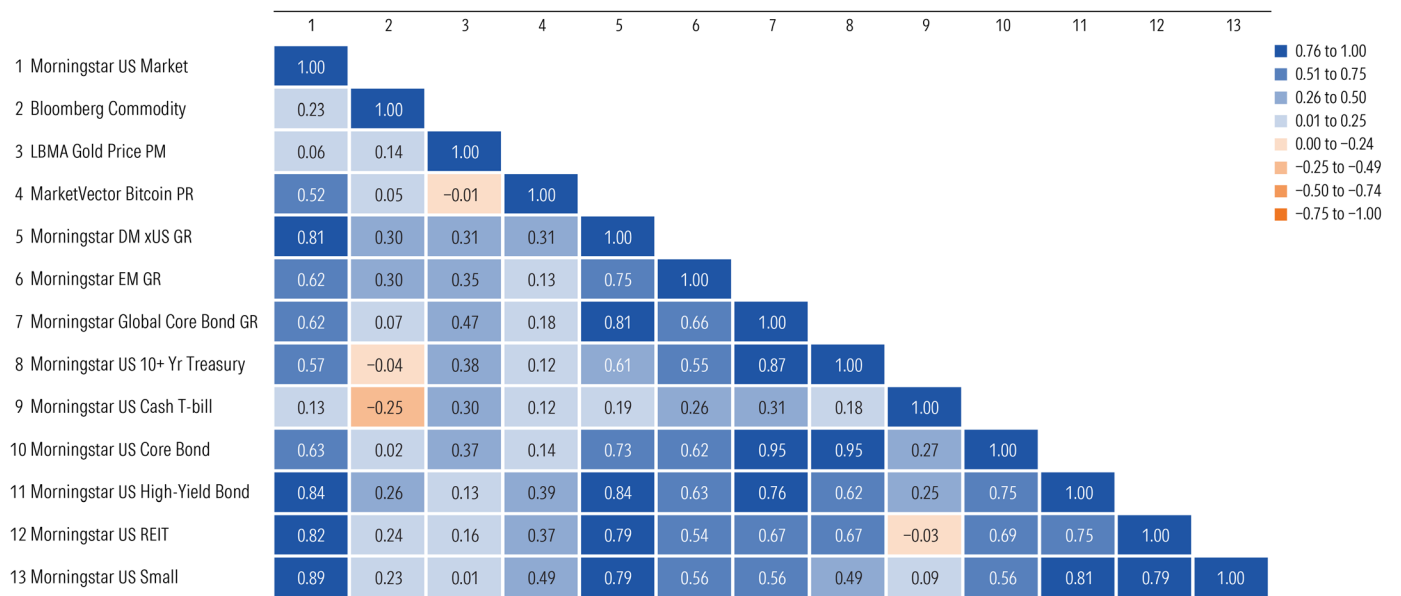
Source: Morningstar Direct. Data as of Dec. 31, 2025.

Exhibit A5 Correlation Matrix: Three Years



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Exhibit A6 Correlation Matrix: Five Years



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Exhibit A7 Correlation Matrix: 10 Years



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Exhibit A8 Correlation Matrix: 15 Years



Source: Morningstar Direct. Data as of Dec. 31, 2025.

Exhibit A9 Correlation Matrix: 20 Years

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Morningstar US Market	1.00												
2 Bloomberg Commodity	0.46	1.00											
3 LBMA Gold Price PM	0.06	0.39	1.00										
4 MarketVector Bitcoin PR	—	—	—	1.00									
5 Morningstar DM xUS GR	0.88	0.57	0.18	—	1.00								
6 Morningstar EM GR	0.74	0.59	0.29	—	0.86	1.00							
7 Morningstar Global Core Bond GR	0.35	0.26	0.49	—	0.49	0.46	1.00						
8 Morningstar US 10+ Yr Treasury	-0.08	-0.24	0.24	—	-0.09	-0.07	0.60	1.00					
9 Morningstar US Cash T-bill	-0.04	-0.01	0.16	—	-0.01	0.00	0.10	0.04	1.00				
10 Morningstar US Core Bond	0.23	-0.00	0.34	—	0.28	0.25	0.83	0.84	0.09	1.00			
11 Morningstar US High-Yield Bond	0.76	0.49	0.16	—	0.78	0.74	0.43	-0.04	-0.08	0.35	1.00		
12 Morningstar US REIT	0.76	0.33	0.09	—	0.70	0.59	0.43	0.16	-0.06	0.38	0.72	1.00	
13 Morningstar US Small	0.93	0.43	0.02	—	0.82	0.69	0.28	-0.14	-0.08	0.18	0.75	0.77	1.00

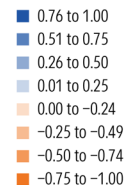
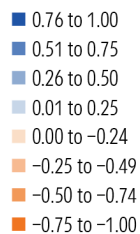


Exhibit A10 Five-Year Correlation Trends vs. Morningstar US Market Index

	2001-2005	2006-2010	2011-2015	2016-2020	2021-2025
Morningstar US Market	1.00	1.00	1.00	1.00	1.00
Bloomberg Commodity	0.16	0.54	0.49	0.61	0.23
LBMA Gold Price PM	-0.04	0.02	0.19	0.01	0.06
MarketVector Bitcoin PR	—	—	—	0.20	0.52
Morningstar DM xUS GR	0.87	0.92	0.88	0.90	0.81
Morningstar EM GR	0.77	0.84	0.74	0.78	0.62
Morningstar Global Core Bond GR	-0.16	0.29	0.22	0.20	0.62
Morningstar US 10+ Yr Treasury	-0.37	-0.20	-0.53	-0.36	0.57
Morningstar US Cash T-Bill	-0.14	-0.09	-0.23	-0.31	0.13
Morningstar US Core Bond	-0.37	0.10	-0.13	-0.01	0.63
Morningstar US High-Yield Bond	0.53	0.75	0.78	0.80	0.84
Morningstar US REIT	0.45	0.83	0.62	0.74	0.82
Morningstar US Small	0.90	0.96	0.93	0.94	0.89



Source: Morningstar Direct. Data as of Dec. 31, 2025. All indexes shown are Morningstar benchmarks based on total returns in US dollars unless otherwise noted.

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