Morgan Stanley

WEALTH MANAGEMENT

SPECIAL REPORT

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Annual Update of GIC Capital Market Assumptions

Lisa Shalett
Chief Investment Officer
Head of the Global Investment Office
Morgan Stanley Wealth Management

Steve Edwards, CFA
Senior Investment Strategist

Spencer J. Cavallo, CFA
Investment Strategist

Van G. Hoang, CFA
Investment Strategist

Matt Armstrong
Associate

Jason Traum
Associate

In these pages, we present the annual update of our capital market assumptions, forecasting global asset class returns and volatility over the strategic (seven-year) and secular (20-year) horizons. These are key inputs to the Global Investment Committee's (GIC) strategic asset allocations, as for most investors, strategic allocations serve as the "north star" anchoring intermediate- and long-term goals. In March 2024, we published reports detailing our philosophy ("Your Global Investment Committee: A User's Guide") and methods ("Understanding the GIC Allocation Models"). Here, we provide the rebalanced GIC strategic asset allocation models, which are optimized annually using our goals-based framework and targeted risk parameters. While we have traditionally marked all models to market at the end of February, given this year's fierce 10% US equity market correction, we endeavor to preserve the freshness of our numbers by calculating potential returns through March 13, which naturally increases our strategic-horizon US equity return forecasts.

The bottom line for 2025 is that, for investors in global portfolio assets, our strategic-horizon efficient frontier has steepened, moving "up and to the left." This represents improved opportunities versus 2024, when our efficient frontier was excessively flat and reflected minimal equity risk premiums. Over the next seven years, we now expect global equities to return roughly 7.1% annually, more than 100 basis points above our year-ago forecast.

Critically for many US-focused investors, our expected annualized returns for US equities have improved materially, from 5.1% to 6.5%. That said, expected returns for virtually every equity-linked asset class are higher than those for US large-cap growth stocks, which feature among the lowest forecast seven-year Sharpe ratios in our opportunity set. This is not only a function of relative value but of the expectation that longer-maturity rates will stay higher for longer. In fact, we see the Bloomberg US Aggregate Index delivering an annual return of approximately 4.8%, with a higher Sharpe ratio than US large-cap equities.

The expected annual return for a moderate-risk, balanced portfolio—benchmarked to 50% global equities, 30% US fixed income and 20% alternatives—moves up to 6.3%. Diversification versus the "US large-cap-only" theme, which has dominated since COVID-19, is the key takeaway of this update.

Preface to This Year's Edition

Capital market forecasts aren't formulated in a vacuum, and ours are deeply influenced by our team's perspectives on overarching economic and market regimes. Last year's strategic themes centered around the "Great Normalization" and our view that shifting the monetary-policy regime away from an interventionist model and toward a more data-driven one, along with the end of the secular bond bull market, would contribute to several important developments. We believed these would include higher neutral real rates, average inflation expectations, a return of term premiums and normalization of equity market volatility—factors that might finally transition markets to valuation frameworks for rates, credit and equities resembling the pre-Great Financial Crisis (GFC) period. Reflecting on 2024 data, this characterization, if directionally correct, may have been incomplete. To wit, the activist monetary policy of former Federal Reserve Chair Paul Volcker, which gave way to the disinflationary "globalization Goldilocks" of Alan Greenspan before yielding to the financial repression policies of the GFC and COVID under Bernanke, Yellen and Powell, had produced a new structural regime by 2022.

In addition to the concept of "higher for longer," this new regime was characterized by excessively accommodative financial conditions, financial asset and housing-linked inflation, federal government indebtedness and interest rate insensitivity on the part of the largest corporations and richest households. While these policies, along with vastly expanded fiscal stimulus, certainly healed private sector wounds from the GFC and COVID, they undermined the efficacy of Fed policy toward the real economy. Indeed, much of that ground was ceded to capital market pricing and the rapidly expanding shadow banking system. Just consider this: The Fed hiked short-term rates 550 basis points from the zero bound and slashed nearly $2 trillion from its balance sheet, yet between 2022 and 2024, US GDP growth averaged 2.75%, with unemployment barely budging. Yes, there were "haves" and "have-nots" among small businesses, regional banks and venture-backed enterprises, but the macro data held—an unexpected outcome given the history of Fed tightening cycles.

That said, while acknowledging the potential transformational power of the Trump administration's "America First" agenda, this year's refresh of themes concerning economic regimes pushes the idea of the Great Normalization up against possible obstacles and constraints that grew more glaring in 2024. It's too simplistic to assert that we are moving from monetary dominance to fiscal dominance and from the dominance of financialization to that of the real economy and capital investment. To the contrary, the economy may face growing risks of stagflation over the strategic horizon due to deeply entrenched structural disparities that may no longer be rebalanced by the economic cycle. The issue is not just whether the US economy and stock market are still rate sensitive in historically familiar ways; rather, it is also about extreme wealth concentration and related disparities—between large and small companies, old and young citizens, and the most affluent and those less so. These are all likely to pose major challenges to some of the economic rebalancing that mean reversion and "normalization" imply. Housing is the most obvious example.

A second structural impediment of increasing importance over the strategic horizon is US debt sustainability. With the annual deficit running at close to 6.5% of GDP and total debt estimated at 125% of GDP, the Congressional Budget Office's baseline forecast is for the US interest rate bill to grow from its current level of approximately $1.15 trillion to more than $1.7 trillion by 2034, increasingly crowding out discretionary and growth-oriented spending. With the new administration's priorities coming into view, it appears that there is almost no path for promised tax cuts to avoid adding to the debt pile over the next decade, even assuming $1.5 trillion to $2.0 trillion in savings. This reality of rising long-term US debt and front-loaded fiscal austerity raises the odds of slower growth but potentially higher borrowing rates—regimes resembling stagnation or stagflation, both of which could be headwinds to stocks and bonds over the forecast horizon.

Finally, while it is still early days for the new administration, and therefore contextualizing the precise outcome of the ambitious Republican agenda is nearly impossible, we implicitly make several high-level observations that matter to economic and market regimes and asset class returns. On the more straightforward side, priorities around tax reform, deregulation and incentives for manufacturing onshoring and energy development should support economic growth, capital deepening and productivity, as telegraphed in our Jan. 4, 2023 report, "The Next American Productivity Renaissance."

Furthermore, we still deeply believe that the era of secular stagnation (2009–2019) is over, supporting our constructive view of US corporate operating leverage and profit generation.

That said, Trump 2.0 will face two key realities regarding the president's programs for immigration and tariffs. Aging demographics and slowing birth rates among native born citizens have made US working-age-population growth mathematically dependent on immigration. While the need for immigration-program reforms may be undeniable, without working-age-population growth and with limited labor market slack, wages will remain a headwind for labor-intensive industries, serving as an upward force on inflation over the forecast period. Then there's the issue of tariff policy. While most are focusing on the potential for tariffs to generate one-time price shocks and foster pressure on inflation, given shifting expectations and unpredictable retaliation, we note the dependence of the S&P 500 Index on global markets for both imports and exports. While the US economy, as defined by domestic small businesses, may ultimately benefit from US protectionism, in the intermediate term, the companies in the S&P 500 that derive roughly 46% of profits from international markets might not. This speaks to a potentially major shift in sectoral leadership in the US, with the additional implication that the case for regional and international diversification is no longer based just on valuations but is increasingly premised on investable comparative advantages and relative policy responses to "America First" initiatives.

Ultimately, not only does recognizing these themes help us condition our models for refreshed regime scenarios, but big-picture-thinking exercises help to revalidate our long-standing commitment to valuation frameworks that acknowledge eventual mean reversion to trailing 20-year cyclically adjusted price/earnings (CAPE) ratios. Given the extraordinary valuation expansion of US equities in 2023 and 2024, these dynamics are quite meaningful. While we have endeavored to capture the most up-to-date reality of the recent 10%-plus equity market correction (marking our valuations to March 13), US stocks remain expensive in absolute and relative terms. Above-average concentration in the top 10 names at the index level exacerbates the headwinds facing the US large-cap growth asset class, or the "beta-only" returns of the S&P 500.

All that said, in the intermediate term, our models suggest a continued secular bull market in US equities, though with index returns likely registering a below-average 6.5% per year. "Bull market" is a relative term, suggesting that stocks move directionally higher while outperforming cash, gold and bonds on a nominal basis. We continue to make this distinction, as investors have grown spoiled by recency bias and the use of capital market results as a baseline for setting expectations. We have repeatedly noted that over the very long run, stocks have tended to return approximately 7% to 8% per year, while bonds have compounded at roughly 3% to 5%. The past 15 years, fueled by expanding multiples and central bank and fiscal policy largesse, have consistently generated equity performance nearly twice that. Such results are unlikely to be sustainable or replicable over the seven-year horizon.

This year's models also incorporate continued innovations and adjustments based on our broader thematic work. We feature detailed descriptions of all the changes in a separate report, Innovations in Capital Market Assumptions, published March 27, 2025. Not only do these enhancements embrace the shifting inflation regime, the related change in expectations for long-run bond returns and implications for stock-bond correlations, they acknowledge our conviction in a higher-growth/higher-productivity era fostered by a material pickup in capital investment. We expect the pickup to be driven by generative AI diffusion and comprehensive infrastructure investment across strategic supply chains, energy, power generation and the electrical grid. Furthermore, our expectations for corporate earnings growth have been enhanced by revisiting historical operating leverage dynamics, which showed a stable long-term correlation between nominal profit growth and nominal GDP growth at approximately 0.90.

Finally, it's important to keep in mind that these strategic models, developed for a seven-year horizon, do not immediately impact our tactical models. The tactical models, updates to which are published separately, target an investment horizon of 12 to 18 months and are adjusted based on the GIC's deliberations regarding immediate factors impacting marginal cash deployment and relative asset class performance.

Executive Summary

In the first quarter of every year, the Global Investment Committee convenes to update our strategic (seven-year) and secular (20-year) capital market return assumptions. That process involves marking every asset class to current market conditions while weighing valuations against our historical frameworks. We strive to balance a consistent process with dynamic enhancements. These efforts incorporate structural policy changes, such as those from the Federal Reserve and the federal government and those related to global trade and geopolitics. Exhibit 1 summarizes this year's major asset class updates.

Asset class forecasts are highly dependent on starting points. The bull market that began in October 2022 was starting to show signs of aging as 2024 came to an end, despite rising enthusiasm from the investment community about prospects for the pro-growth policies of a second Trump administration and still-high hopes for Fed easing. Notably, the central bank had already cut short-term rates by 100 basis points in the final four months of the year. Nevertheless, despite a lackluster December, the S&P 500 ended the year up more than 23%, putting together the best two-year run since 1997–1998. Such performance was noteworthy on additional dimensions, as it was disproportionately driven by higher valuations and expanding multiples, as opposed to earnings growth, and was extremely concentrated in the largest stocks, which came to account for more than a third of index capitalization (see Exhibits 2–4). Equally important, given the strength of the market run, valuations had become stretched, not only on an absolute basis and in CAPE (Shiller P/E) terms, but relative to nominal and long-term real rates. Only against gold did S&P 500 performance not seem stretched (see Exhibits 5–8).

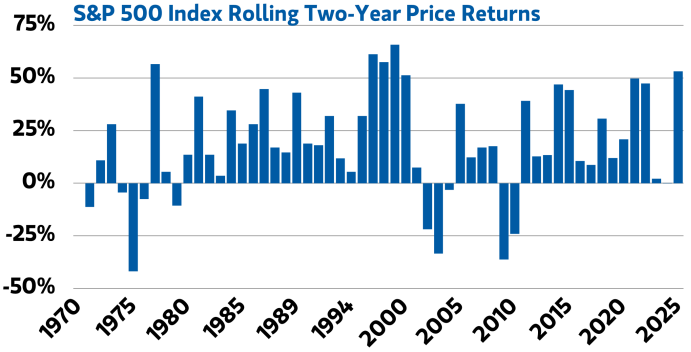
As we approach the end of the first quarter of 2025, however, the backdrop has shifted materially. In place since October 2022, the two main pillars of the bull market thesis—continued Fed easing based on inflation moderating to 2%, and sustained Magnificent Seven momentum given unchallenged dominance of anticipated spoils of the AI revolution—both recently came into question. Seven months of inflation being stuck near 3%, as the new administration prioritized aggressive tariffs, put the Fed on an extended, "data-driven pause," with fed funds futures swinging from pricing in five cuts to between one and two, and the 10-year US Treasury yield recoiling from 4.8% back to 4.3%.

Exhibit 1: Asset Class Return and Volatility Forecasts

	2025		2024	
	Annualized Return	Annualized Volatility	Annualized Return	Annualized Volatility
Global Equities	7.1	13.4	6.0	13.5
US Equities	6.5	15.4	5.1	14.9
International Equities	7.3	15.6	6.6	15.4
Emerging Market Equities	8.9	18.7	8.1	19.3
Ultrashort Fixed Income	3.7	0.8	3.9	0.7
US Taxable Fixed Income	4.8	5.9	5.0	5.3
High Yield Fixed Income	5.6	8.5	5.9	8.4
Real Assets	6.5	12.7	6.5	12.3
Absolute Return Assets	5.5	4.2	5.6	5.0
Equity Hedge Assets	6.6	9.3	6.7	9.2
Equity Return Assets	6.8	8.9	6.4	8.8

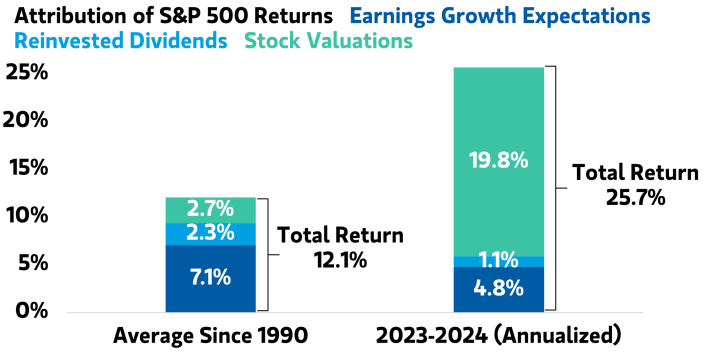
Note: Returns are represented as geometric total returns (%) for the strategic horizon. Ultrashort fixed income is represented by the FTSE Three-Month T-Bill Index; US taxable fixed income by the Bloomberg US Aggregate Index; and high yield fixed income by the Bloomberg Global High Yield Corporate Index.
Source: Bloomberg, FactSet, Moody's, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 2: The S&P 500 Increased by More Than 50% From 2023 to 2024, Driven by Valuation Expansion



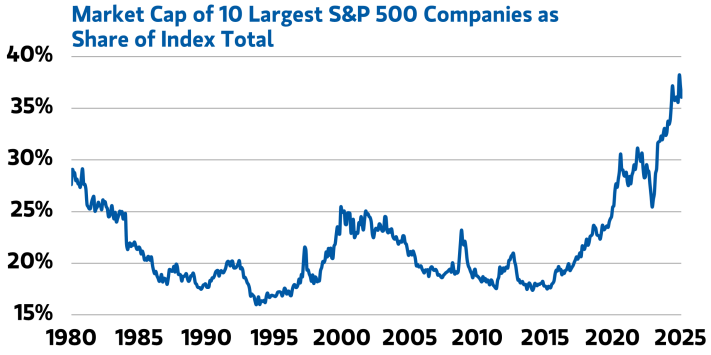
Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2024

Exhibit 3: Rising Valuations Boosted Returns in 2023 and 2024



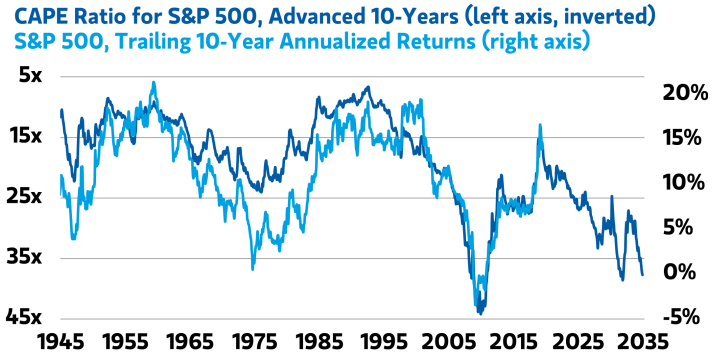
Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2024

Exhibit 4: US Equity Market Concentration Has Risen Precipitously Since 2015



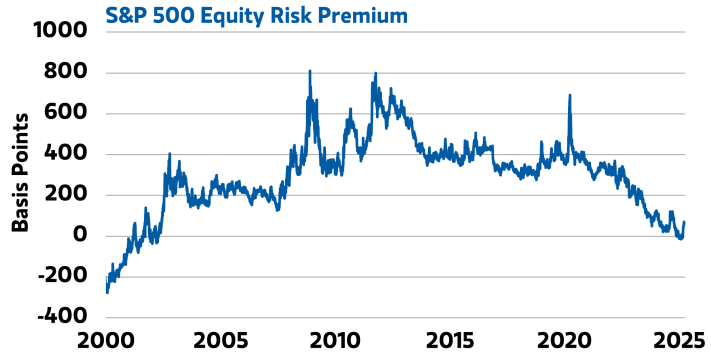
Source: FactSet, Morgan Stanley Wealth Management GIC as of Feb. 28, 2025

Exhibit 5: The S&P 500's Cyclically Adjusted P/E Ratio Points to Below-Average Returns in the Next Decade



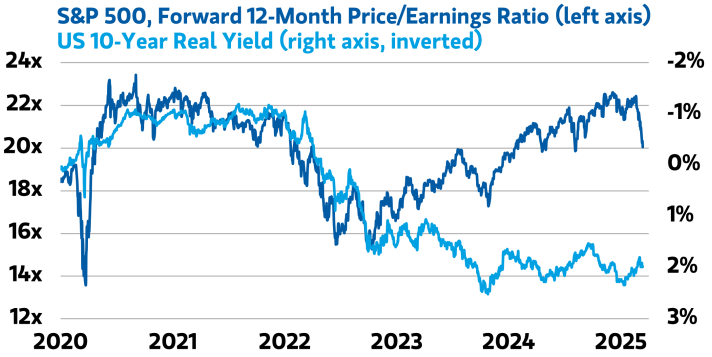
Source: FactSet, Morgan Stanley Wealth Management GIC as of Feb. 28, 2025

Exhibit 6: The S&P 500's Equity Risk Premium Remains Close to a 20-Year Low



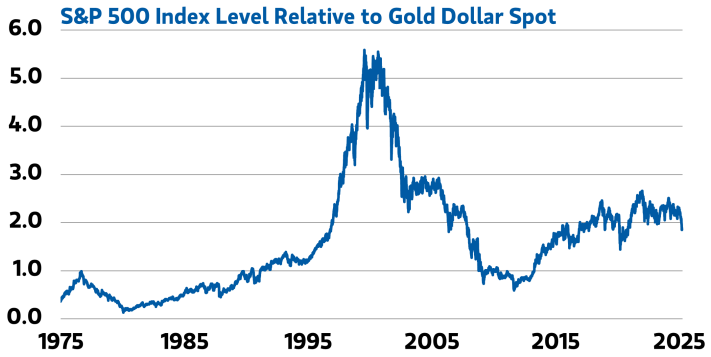
Source: Bloomberg, Morgan Stanley Wealth Management GIC as of March 13, 2025

Exhibit 7: US Equity Valuation Ratios Remain Decoupled From Real Rates Since 2023



Source: Bloomberg, Morgan Stanley Wealth Management GIC as of March 13, 2025

Exhibit 8: Except for Gold, Few Investments Have Recently Kept Pace With the S&P 500



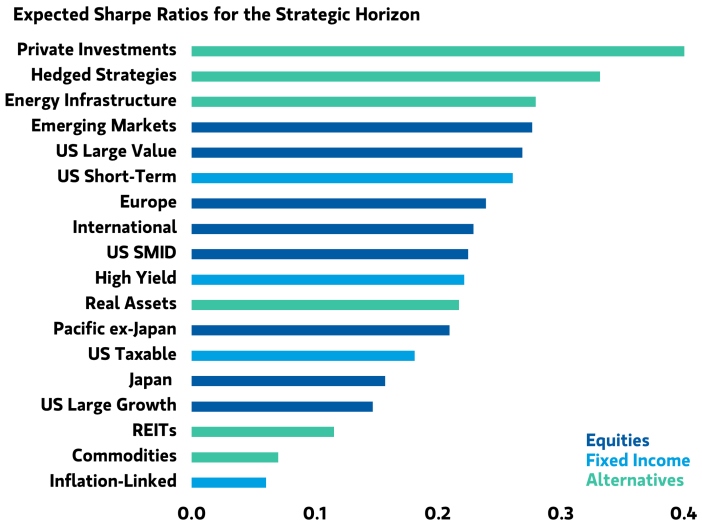
Source: Bloomberg, Morgan Stanley Wealth Management GIC as of March 13, 2025

Almost simultaneously, the announcement from Chinese software developer DeepSeek that it had delivered a cost- and energy-efficient large language model, using a new process to sequence open-source codes, sent the technology sector into a selloff, with equities exhibiting a strong defensive rotation. But it was the "uncertainty shock," catalyzed by confusion over the new administration's approach to tariffs, that fostered a full-blown technical correction in both the S&P 500 and the Nasdaq Composite Index. While drawdowns, especially in expensive markets, can be cleansing events that restore value, this correction has been associated with fears of a slowdown or even recession, accompanied by quick cuts in economists' GDP outlooks. As a consequence, it remains to be seen how much real tactical value will have been created in the short term once the dust settles on economic and corporate fundamentals, which in our base case still imply an economic soft landing, not a recession, in 2025–2026.

Nevertheless, for the purposes of the strategic time horizons, the recent selloff improves expected returns materially compared to 2024's forecasts. As we illustrate below, our 2025 efficient frontier for global stocks and bonds re-steepens from last year's notably flat opportunity set, while shifting up and to the left relative to where we were before the 10% correction (see Exhibit 11). Projected US equity returns move from 5.1% in last year's outlook to 6.5% this year. While that may seem like an improvement, 2025's efficient frontier remains anything but normal, with equity risk premiums still profoundly low and fixed income returns, as measured by the Bloomberg US Aggregate Index, likely to compete well with stocks, at 4.8%, while exhibiting a higher Sharpe ratio. The expected annual return for a moderate-risk, balanced portfolio—approximated by a blend of 50% global equities, 30% US fixed income and 20% alternatives—moves up to 6.3%.

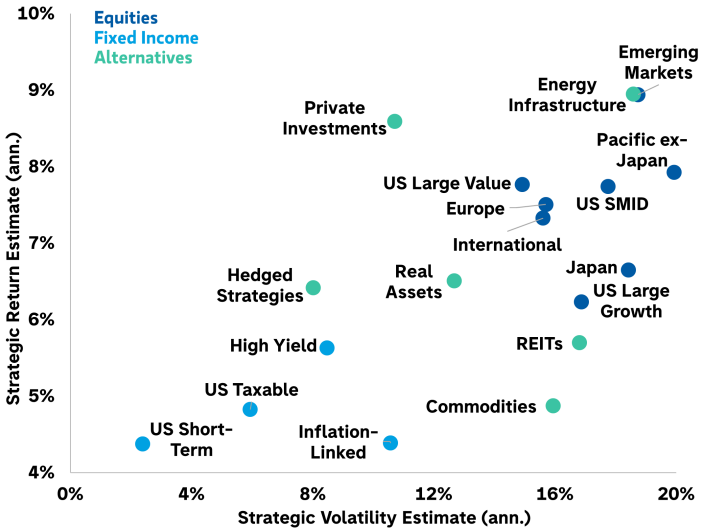
Exhibits 9 and 10 further contextualize these forecasts. For starters, US large-cap equities appear less attractive on a total return and risk-adjusted basis than non-US equities, supporting the case for global diversification. Global equities could deliver 7.1% annually, compared to our 6.0% forecast a year ago. Energy infrastructure, the highest returning category in 2024, remains among the top opportunities, projected to deliver close to 9% per year. While tight starting credit spreads suggest only a modest preference for credit over rates over the investment horizon, fixed income returns, routinely challenged by inflationary headwinds, are likely to average 4% to 6% during the period. The case for cross-asset-class diversification among US large-cap value, emerging market equity, hedge strategies, real assets and private investments is more compelling on a risk-adjusted-reward basis.

Exhibit 9: Alternative Investments, Emerging Markets and US Large-Cap Value Equities May Deliver the Highest Risk-Adjusted Strategic Returns



Source: Robert J. Shiller of Yale University, Bloomberg, FactSet, Moody's, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 10: US Large-Cap Equities' Return-to-Risk Expectations for the Strategic Horizon Are Lower Than Most Other Regions



Source: Robert J. Shiller of Yale University, Bloomberg, FactSet, Moody's, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management GIC as of March 27, 2025

Among private illiquid assets, most areas other than private credit see prospective returns improving from last year, albeit with expectations still bordering on the brink of double-digit annual average gains. Here, we reiterate our view not only that illiquidity premiums have been crushed but that the "golden age of private investing" is likely over, as the unique cocktail of negative real rates and limited competition from regulated banks is behind us. Deregulation of the major money center banks in regard to statutory capital requirements is likely to return as much as $1 trillion in trapped capital, to be leveraged and deployed in competition with the big general partners (GPs).

Amid these potential regime shifts and refreshed capital market assumptions, we have also reoptimized our strategic asset allocation models (see Exhibits 21, 22 and 23). Equities' historically elevated valuations and the potential secular weakness of government bonds point to lower risk-adjusted returns and more limited diversification in traditional assets. As such, the environment will likely require thoughtful portfolio construction, maximizing the benefits of active/passive decision-making, manager selection, risk management and tax mitigation. With equity gains in the past few years so clustered in the Magnificent Seven, we also recommend reviewing portfolios for positions that might be overly concentrated.

2025 and Beyond: The Risks

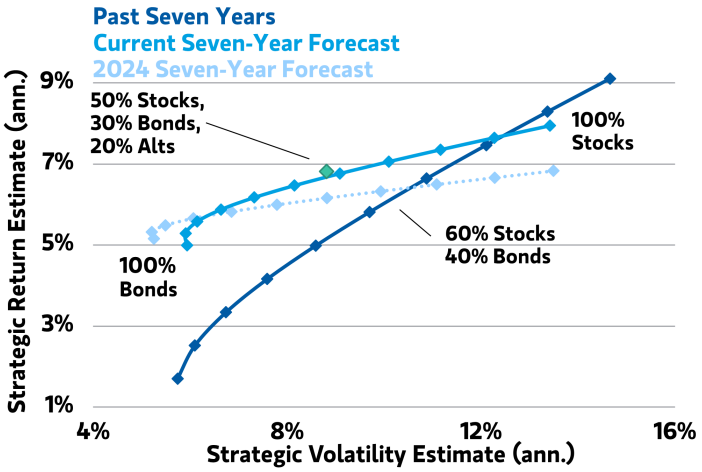
Forecasting over strategic horizons is inherently fraught. Concepts like mean reversion, which are very powerful over the intermediate term, give our approach some disciplining utility. However, this is a time of accelerating and even alienating technological change, social and political instability, and rapidly shifting geopolitical alliances, with the potential for unforeseen crises and likely greater opportunities. Beyond disappointing fundamentals and "black swan" events, what's keeping us up at night regarding the big picture? One theme that we believe could have profound implications over the next decade is what we have been calling the "great growth-stock unwind." Growth stocks, which have underpinned so-called US exceptionalism, have been able to thrive because we have been in a "not too hot, not too cold" environment. Should business cycle volatility return, courtesy of fiscal and monetary policy normalization, a cycle that favors value and rest of world (ROW) stocks could return, similar to what occurred from 2001 to 2009. This may sound profoundly ironic coming in a political era dedicated to "making America great again."

Furthermore, after 15 years of extreme relative outperformance from US stocks and bonds, US assets are meaningfully overowned by global investors relative to the US' share of GDP growth and corporate profits. In fact, US equities now account for roughly 62% of global equity market capitalization, an all-time high. Such skews have kept the US dollar relatively strong despite historically wide trade and fiscal deficits. This is occurring against a backdrop of growing geopolitical tension and increasing distance between the US and its traditional allies; incomplete peace processes in Gaza and Ukraine; and ever-more-complicated relationships with Russia and China. While the consensus remains that US dollar and securities market hegemony are unchallenged, we continue to think through and risk-manage for a world that could radically rebalance toward global assets if de-dollarization or growth and demographic advantages of other countries were to be rewarded. Managing America's debt load through forced devaluation and inflation could speed that process, especially in a world where cryptocurrencies are increasingly embraced as monetary alternatives.

Rebalancing Our Strategic Models

As we detail below, changes in underlying financial market variables have shifted our strategic capital market assumptions, summarized in Exhibits 11 and 12. These changes, in turn, impact our strategic allocation models presented in Exhibits 21, 22 and 23. Broadly, we closed our underweight to total equities relative to fixed income and reduced our underweight to US equities relative to international. Within fixed income, we modestly increased allocations to core fixed income relative to short-term but remain slightly underweight duration relative to the benchmark. For allocations that include alternatives, we increased our overweight recommendations.

Exhibit 11: Next-Seven-Year Outlook Steepens Modestly but Remains Historically Flat



Note: Stocks are represented by the MSCI All Country World Index, bonds by the Bloomberg US Aggregate Index and alternatives by the HFRI Fund-Weighted Composite. Portfolio returns are calculated using arithmetic total return estimates for the strategic horizon.
Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 12: The GIC's New Strategic Return, Volatility and Correlation Forecasts

	Annualized Return	Annualized Volatility	Correlation to Equities
Cash	3.7	0.8	0.0
Global Equities	7.1	13.4	1.0
US Fixed Income	4.8	5.9	0.3
Real Assets	6.5	12.7	0.7
Hedged Strategies	6.4	8.0	0.8
Private Investments	8.6	10.7	0.6

Note: Returns are represented as geometric total returns (%) for the strategic horizon.
Source: Robert J. Shiller of Yale University, Bloomberg, FactSet, Moody's, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management GIC as of March 27, 2025

Investors should keep in mind that our strategic allocation models are based on an investment horizon of at least seven years and are designed to maximize risk-adjusted returns and minimize turnover. Investors who are seeking to take advantage of short-term market opportunities and are comfortable with 12-to-18-month holding periods should consider the GIC's tactical allocation models, which can make opportunistic or defensive short-term adjustments as the GIC deems appropriate.

In summary, we increase our total allocation to equities, moving from underweight to equal-weight relative to the blended benchmark. We reduce our underweight to US equities, though we remain slightly underweight relative to the regional weights implied by the MSCI All Country World Index (MSCI ACWI) benchmark. We turn slightly underweight fixed income and increase our overweight to alternatives, as we seek to maximize portfolio diversification and exposure to differentiated sources of attractive risk-adjusted returns.

The GIC publishes strategic allocations across three level types: Level 0, including traditional assets only; Level 1, including traditional assets, real assets and hedged strategies; and Level 2, including both traditional assets and alternative investments including private investments. Further, in 2024, the GIC reduced the recommended asset threshold for the Level 2 models to $10 million, from $25 million previously. This significant change was motivated by the GIC's belief that the democratization of alternative investment strategies has lowered the threshold for effectively implementing the Level 2 models. All three levels of the updated 2025 GIC Strategic Allocations are presented in Exhibits 21, 22 and 23. The GIC similarly publishes tactical allocations corresponding to all three levels. Please refer to our primer, "Understanding the GIC Allocation Models," published March 6, 2024, for an overview of the conceptual design of the different allocation models.

Building Our Forecasts

While we forecast strategic equity and fixed income returns according to a disciplined methodology each year, we also continually refine certain calculation parameters to improve the methodology and adapt to ever-changing market dynamics. For equities, we build return estimates by combining the total return to shareholders, including both share repurchases and dividends; the impact of changes in valuation; and the expected economic path over the next seven years. For fixed income, we construct estimates starting with initial yields; add the return due to expected "roll down" (the price appreciation that comes as bonds near maturity, given a positively sloped yield curve); and make adjustments for potential losses from defaults and changing interest rates and credit spreads (see Exhibit 13). For other asset classes, we project returns based on our estimates for equities and fixed income, the likely economic path over the strategic horizon and analysis of each individual asset class.

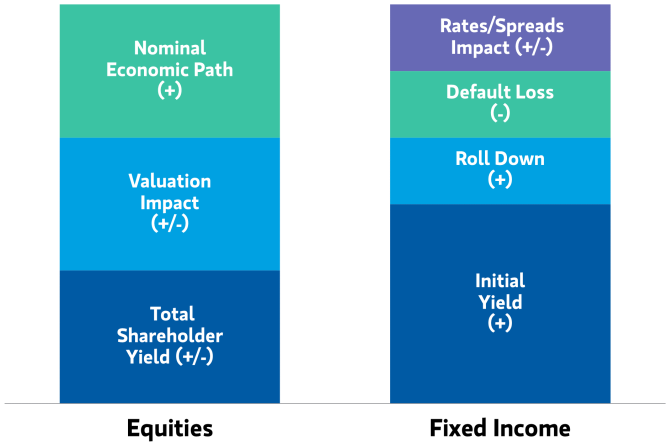
Equities: Our Strategic Methodology

Our methodology for forecasting strategic equity returns has three main components. First, we estimate the total earnings that companies are likely to pay out to investors, either through dividends or share repurchases, net of new share issuance. Second, we anticipate the effects of potential repricing by considering current valuations and assuming asset prices will, to some extent, converge to historical averages during the seven-year period. Finally, we estimate the growth in corporate earnings due to forecast economic growth over the seven-year horizon. Relative to the previous cycle, we expect a durably higher average level of inflation and average level of the natural rate of interest. As a result, we pay special attention to the expected flow-through of economic growth to corporate earnings growth in nominal terms. By decomposing our return forecasts into these three components, we can better contextualize our estimates in the current market environment.

What Yields Will Companies Deliver to Investors?

Financial asset prices are fundamentally determined by the present value of cash flows paid to investors. Accordingly, our analysis begins by assessing the extent to which equity owners receive cash distributions through dividends and share repurchases, which we term "shareholder yield."

Exhibit 13: Building Blocks of Our Strategic Return Estimates



Source: Morgan Stanley Wealth Management GIC

We measure shareholder yield by examining what companies in each region have paid out in both forms over the previous 10 years, tracking a market cycle. We compute total shareholder yields by analyzing historical index-level shareholder payout ratios and forward-looking earnings yield estimates. This calculation avoids the attempt to differentiate between dividends and share repurchases and instead groups the two sources of returns under a single metric. We consider a 10-year horizon to mitigate the observed cyclicality in payout ratios. These estimates of total shareholder yield (see Exhibit 14) form the base of our return forecasts, to which we add effects from changes in valuation and earnings growth.

Are Valuations Likely to Boost or Drag Down Returns?

Return forecasts are not simply a matter of projecting what companies are likely to earn and return to investors, but also whether the pricing, or valuation, of that cash flow is attractive or unattractive in a historical context. We focus on two measures of valuation appropriate to a multiyear horizon: cyclically adjusted price/earnings (CAPE) multiples, which compare market price levels to the average real earnings generated over the course of a business cycle, and the equity risk premium, which compares the yield generated by an equity position to the yield of a comparable fixed income substitute. We believe that, by combining these two measures of valuation rather than relying on either individually, we can evaluate equity valuations both in absolute terms compared to their own history and on a relative basis versus bonds, which could improve the reasonableness of our forecasts.

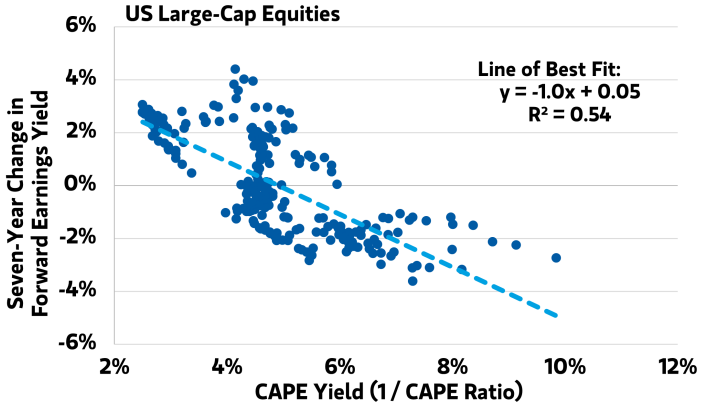
First, we estimate valuation-driven returns based on the CAPE ratio. This metric attempts to smooth volatile swings in company earnings that can occur over the course of a business cycle and adjusts for inflation in order to gain a better picture of the true earnings potential of the equity market, in aggregate, and how much investors are paying for it. Popularized by Yale University professor Robert Shiller, a version of the CAPE ratio that employs a 10-year average to smooth earnings has exhibited a negative historical correlation to average equity returns over the long term.[1] The theory behind this relationship is that more expensive CAPE ratios imply lower average future returns (see Exhibit 15).

Exhibit 14: We Expect Broadly Higher Equity Returns Led by Emerging Markets and International Regions

	Total Shareholder Yield	Valuation Impact	Nominal Economic Path	Total (%)
US Large-Cap Equities	4.1	-1.6	3.9	6.3
US SMID-Cap Equities	2.7	0.6	4.5	7.7
European Equities	4.0	0.4	3.2	7.5
Japan Equities	3.8	0.3	2.6	6.6
Asia Pacific ex Japan Equities	3.4	0.3	4.2	7.9
Canadian Equities	3.4	0.0	3.6	7.0
Developed International Equities	3.8	0.3	3.2	7.3
Emerging Market Equities	2.9	0.2	5.8	8.9
Global Equities	3.8	-0.8	4.1	7.1

Source: Robert J. Shiller of Yale University, Bloomberg, FactSet, Morgan Stanley & Co., Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 15: The CAPE Ratio Is a Statistically Significant Predictor of Seven-Year Changes in the P/E Ratio



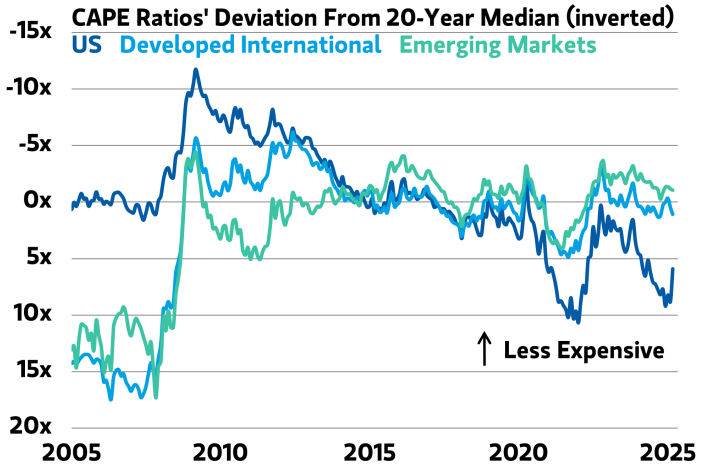
Source: Robert J. Shiller of Yale University, Bloomberg, FactSet, Morgan Stanley Wealth Management GIC as of March 13, 2025

We use this observation as a baseline for our methodology. Because the recent rate of earnings growth does not necessarily reflect our expectations for the next seven years, we believe it is more appropriate to utilize the CAPE ratio to estimate how much of the return may come from changes in valuation alone. It is both intuitive and empirically supported that equity multiples demonstrate some level of mean reversion over the seven-year strategic horizon. Historically, future expansion and contraction in multiples have been related to initial valuations: When equities are purchased at unusually cheap or expensive levels—as measured by a CAPE ratio with a trailing seven-year cyclical adjustment—they tend to experience higher or lower returns over the next seven years compared to their long-term averages. Since 2023, the CAPE ratio for the US has been elevated relative to its own history and the other major regions. In early 2025, the differential has narrowed, which has contributed to smaller divergences in strategic return expectations among different equity exposures, relative to 2024 (see Exhibit 16).

As in previous years, we adjust our methodology for Japanese equities. In the late 1980s, speculative activity in Japan drove valuations to extremes, only to be followed by decades of deflationary concerns and economic stagnation. Our analysis suggests that trailing price/earnings (P/E) ratios provide a better estimate of mean reversion than forward multiples and better correspond to our view that Japan's changes in corporate governance and shareholder-positive corporate management have ushered in a new reality, distinct from historical context.

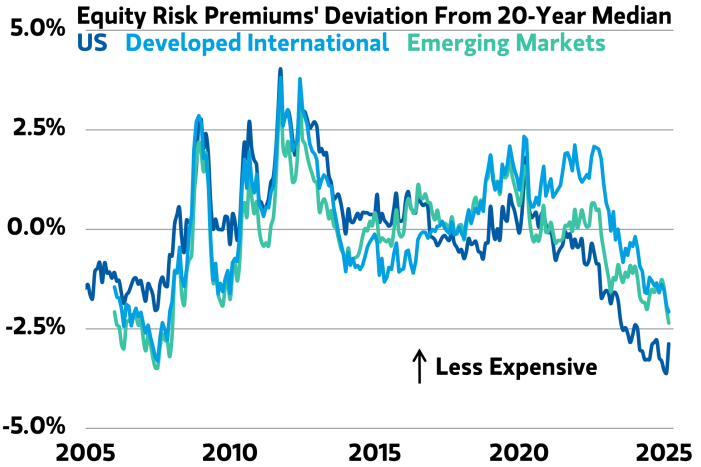
The equity risk premium component of our valuation analysis measures the incremental compensation investors require to hold stocks. We measure this premium by comparing the earnings yield generated by an equity position with the yield from holding corresponding government bonds. A higher equity risk premium suggests that equities are inexpensive relative to bonds, as they offer a relatively high degree of compensation for bearing equity risk. Equity risk premiums decreased across most regions as a result of rising yields and increasing equity valuations, led by the sharpest decrease in the US (see Exhibit 17). Global equity risk premiums have compressed since 2022, led by US equities. Similar to the CAPE ratio, the gap between the US and other regions' equity risk premiums has narrowed in early 2025, contributing to a relatively smaller valuation headwind for US equities relative to our previous expectations formed in early 2024.

Exhibit 16: The CAPE Ratios for International and Emerging Markets Are Less Elevated Than for the US



Note: CAPE is calculated using trailing seven-year average inflation-adjusted earnings.
Source: Robert J. Shiller of Yale University, Bloomberg, FactSet, Morgan Stanley Wealth Management GIC as of March 13, 2025

Exhibit 17: The Gap Between the US and Non-US Regions' Equity Risk Premiums Has Recently Narrowed



Note: ERP is calculated using forward 12-month earnings yields and government bond yields.
Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC as of March 13, 2025

The changes in valuation implied by the CAPE ratio and the equity risk premium will ordinarily align with one another, but in some cases the two methods may differ in magnitude or even direction. Therefore, this combination of two different approaches helps to effectively size the valuation component according to the relative "conviction" that the valuation reversion will occur over the strategic horizon. In other words, in markets where both methods directionally agree on the valuation changes, such as for US large-cap growth equities, our combined approach assigns the largest valuation impact. For other categories, such as emerging market equities, the approach assigns a smaller valuation adjustment commensurate with relatively lower conviction in how valuations will evolve over the strategic horizon. Further, we generally assume that equity valuations will only partially revert to the levels implied by the CAPE and equity risk premium methods. The extent of reversion to occur over the seven-year horizon is set according to the availability and quality of the historical data and its statistical goodness of fit in predicting valuation changes. We believe that a partial reversion to historically derived average valuation levels is appropriate given that the true equilibrium level of valuations is not necessarily stationary through time.

At the time of our forecast update, incorporating the available market data through mid-March, our analysis suggests that the returns of US large-cap core and growth style equities would be most impacted by compression of multiples over the seven-year horizon, dampening strategic return expectations by 1.5 percentage points annually. Meanwhile, US small-/mid-cap equities may experience the largest valuation expansion, contributing 0.4 to 0.8 percentage points to their average annual strategic return.

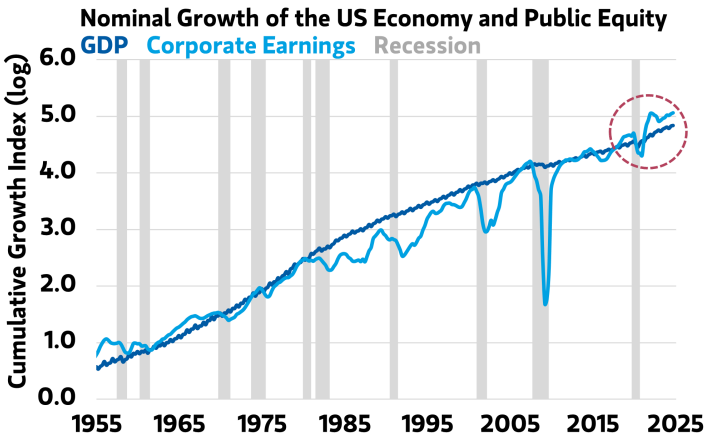
What Is the Likely Economic Path?

The final component to equity return projections is the likely path of the economy, as it has a strong impact on the ability of companies to grow their earnings. We begin with Organization for Economic Cooperation and Development (OECD) estimates of real GDP growth for the next seven years. We believe real GDP growth provides an appropriate baseline for the rate of index-level real earnings growth, as consumption and production, which constitute the lion's share of GDP growth, are closely related to index-level revenue values. While GDP growth is highly representative of the underlying trend in corporate earnings growth broadly, we adjust our earnings growth estimates for US mid- and small-cap equities relative to their large-cap counterparts according to their historical earnings growth premiums. We similarly adjust the earnings growth estimates for US growth and value equities according to the historical basis in earnings growth between each style and US core equities. We then add forward inflation expectations to derive nominal GDP growth forecasts. Finally, we scale the nominal GDP growth estimates based on the long-term empirical relationship between nominal economic growth and corporate earnings growth. We assume that 90% of nominal GDP growth may be expected to flow through to nominal earnings growth, on average, based on the long-term relationship since the 1940s, which encompasses multiple market cycles and macro regimes (see Exhibit 18). As the GIC expects that inflation and the natural rate of interest may sustain at higher average levels relative to the previous decade, we believe it is essential to capture the relationship between economic growth and corporate earnings growth in nominal terms.

How May We Account for Inflation Expectations?

The level of inflation is an important determinant of nominal equity returns. We primarily incorporate forward-looking inflation expectations from market-based inflation breakeven rates. Inflation breakevens compare yields on nominal government bonds to liquid inflation-linked government securities, which pay investors a fixed rate of interest on a par value that increases in line with headline inflation. By subtracting the real yield of the inflation-linked bond from the nominal bond yield, we find the implied inflation rate for the time period associated with the maturity of the underlying bonds. We select bonds that are closest in term to the strategic seven-year horizon depending on data availability by region. For the US, we blend this market-based measure of inflation with the seven-year expected inflation rate published by the Federal Reserve Bank of Cleveland to produce a more stable forward-looking estimate.

Exhibit 18: The Pace of Nominal Corporate Earnings Growth Has Exceeded GDP Growth Since 2020



Source: Robert J. Shiller of Yale University, Bloomberg, Morgan Stanley Wealth Management GIC as of March 13, 2025

Fixed Income: Our Strategic Methodology

To compute our forecasts for fixed income returns over the strategic horizon, we first estimate returns based on prevailing yields and overlay the effect of the anticipated yield "roll down." We then adjust these preliminary returns downward to account for the likelihood of rising rates and mean-reverting credit spreads, along with potential credit losses (see Exhibit 19). Our methodology leverages the work of Andrew Sheets, a member of the GIC and formerly Morgan Stanley & Co.'s chief cross-asset strategist.[2]

Exhibit 19: We Adjust Fixed Income Returns by Considering Their Marginal Drivers

	Starting Yield	Return From Roll Down	Default Loss	Impact of Yield or Spread Changes	Total (%)
US 10-Year Treasury	4.6	0.5	0.0	-0.4	**4.7**
US Aggregate Fixed Income	4.7	0.5	0.0	-0.3	**4.8**
Global High Yield Credit	7.3	0.5	-2.0	-0.1	**5.6**
International Aggregate Fixed Income	2.8	0.7	0.0	-0.3	**3.2**
Emerging Market Credit (USD)	8.1	0.5	-2.2	-0.1	**6.3**
Global Aggregate Fixed Income	3.7	0.7	-0.1	-0.3	**4.0**

Note: We represent these asset classes by the following indexes, in order of appearance: Bloomberg US Treasury: 10- to 20-Year Index; Bloomberg US Aggregate Index; Bloomberg Global Corporate High Yield Index; Bloomberg Global Aggregate Non-USD (USD-Hedged) Index; JPMorgan EMBI Global (USD-Unhedged); and Bloomberg Global Aggregate Index.
Source: Bloomberg, Moody's, Morgan Stanley Wealth Management GIC as of March 27, 2025

Initial Yield and Roll Down

Our approach starts with the prevailing yield of each index as of the forecast date to set a baseline for fixed income returns. Historically, the yield at which investors have purchased fixed income instruments has been a strong predictor, explaining more than 90% of variability in forward returns over a multiyear horizon.[3] Given its strong relationship to returns, we use starting yield as the first component, to which we add effects from roll down, default loss and impact of changes in yields and spreads to form our estimates of the strategic returns.

In addition to the yield, changes in a fixed income security's market value account for the rest of the return to investors. A bond's roll down is one relatively predictable component of expected changes in market value. Generally, yield curves are upward sloping—a phenomenon associated with additional compensation for the higher uncertainty associated with longer time horizons. As time passes, longer-maturity bonds roll down the curve, growing closer to their maturity date and effectively becoming shorter-maturity bonds. As dictated by the typically upward sloping yield curve, this roll down entails price appreciation as yields decline. The magnitude of appreciation differs according to different indexes' specific yield curves. We interpolate the return from roll down for each index using its average maturity and the current shape of its yield curve. Across most markets, current yield curves are notably flat relative to long-term history. To account for the GIC's view that yield curves will normalize over the seven-year horizon, we compute the roll-down return based on an average of the bond's roll down implied from the current yield curve and the average long-term roll down. We calculate the roll-down return using a yield curve that is most applicable for each fixed income category, depending on data availability.

Allowances for Rising Rates and Wider Credit Spreads

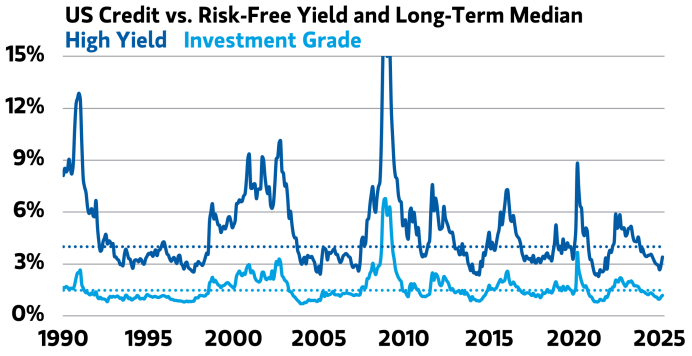
Fixed income instruments benefited from a nearly 40-year secular bull market, culminating in rates falling to historic lows during the COVID-19 lockdown in March 2020. We have since witnessed how rates can conversely be subject to significant upward pressure, given the normalization in both growth and inflation. We must account for the change in price that the expected change in rates over the strategic horizon would imply. We forecast that rates will be modestly higher than current levels at the end of the strategic horizon.

As in recent years, we utilize a broader range of interest rate forecasts to incorporate region-specific factors into our estimates. We generate seven-year forecasts based on our long-run estimates for fair-value interest rates across various regions, which incorporate forward-looking estimates of inflation, the natural real rate of interest and the term premium. We forecast that the 10-year government yield may rise toward 4.5% in the US, 3.0% in Germany, 4.9% in the UK, 3.3% in Canada and 2.1% in Japan. Given our seven-year horizon, which equates to the average length of a business cycle, we make no assumptions about changes in the shape of the yield curve when computing this component because they tend to average out over the course of a cycle. Instead, we assume a parallel upward shift in the curve for all fixed income instruments and adjust for duration, or interest rate sensitivity, to estimate the impact on returns for each fixed income asset class. As such, our analysis shows that long-duration bonds are most affected.

We also incorporate the impact of potentially changing credit spreads on credit-sensitive fixed income asset classes. We assume that corporate bond spreads will revert toward their 20-year medians in each region relative to their government benchmark (see Exhibit 20). As in prior years, we incorporate

an adjustment for anticipated spreads in emerging markets using a weighted average of median emerging market spreads and median international developed market spreads in order to account for structural improvements in these markets. Bonds of lower credit quality, especially those with longer duration, are the most affected by this adjustment. Specifically, high yield credit spreads tightened further over the previous 12 months, suggesting that moderate spread normalization will be a net headwind for high yield over the seven-year horizon.

Exhibit 20: Credit Spreads Remain Tighter Versus History, Led by High Yield



Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC as of March 13, 2025

Allowances for Default Loss

Fixed income securities may also be subject to losses associated with default. This risk is especially important for bonds with lower credit ratings, such as high yield bonds or debt issued by emerging market countries.

The relationship between default losses and the time to maturity varies depending on the credit rating of the bond. Investment grade bonds generally face higher risk of default loss as the maturity of the bond grows closer, as the issuers are likely to grow larger and take on greater risks as time passes from their bond issuance.

High yield bonds, on the other hand, generally face lower risk of default loss as time goes on. These riskier, generally newer companies face the highest default risk in the first few years, suggesting that those companies that succeed in making it past the first few years are likely able to sustain or even improve their credit quality. Accordingly, we adjust our forecasts based on the historical default losses associated with bonds of similar credit ratings and times to maturity.

Ultrashort Fixed Income

We base our strategic ultrashort fixed income return forecast on the market-implied expected return of the three-month US Treasury bill for the next seven years. We derive this figure from the prices of a set of instruments, including the on-the-run three-month T-bill and a selection of longer-term swaps (three-month T-bill yields versus three-month interbank rates), up to a maturity of seven years. As Fed policy has incrementally eased, short-term rates have declined to 3.7%, down from 3.9% in 2024.

Inflation-Linked Securities

We forecast strategic returns for inflation-linked securities by adding the real yield associated with global inflation-linked securities to the same inflation breakeven measures used in our equity forecasts, weighting each country's breakeven according to the country's respective weight in the Bloomberg Global Inflation-Linked Index. We expect the return may average 4.3% per year, up from 3.9% in 2024, as global inflation expectations have risen alongside higher real rates in the major developed regions.

Alternatives: Our Strategic Methodology

Global REITs

We estimate the return on global real estate investment trusts (REITs) using a similar methodology as that for other equities. For the earnings payout contribution to return, we examine what these securities have paid out via dividends and share repurchases in the past 10 years. We take into account their current valuations by using the CAPE ratio to project forward multiples expansion and acknowledge the impact of our forecast for higher interest rates and mean-reverting credit spreads via the equity risk premium. We use the same earnings growth forecast as for global equities. We estimate that global REITs will deliver an annualized 5.7% return over the seven-year horizon.

Energy Infrastructure/Master Limited Partnerships (MLPs)

Our strategic forecast for energy infrastructure/MLPs also uses a methodology similar to that for equities. For the earnings payout contribution to return, we balance the high yield associated with these securities against their historical reliance on equity issuance as a form of funding, computing the implied nominal shareholder yield over a 10-year window. Their valuations remain low relative to history both on a CAPE ratio and equity risk premium basis. This leads to our projection for modest expansion of valuation multiples over the strategic horizon.

Our earnings growth forecast, however, differs from our equity methodology. For energy infrastructure/MLPs, volume growth acts as the fundamental driver of earnings growth; therefore, we base our estimates on the projected seven-year production growth for crude and natural gas from the US Energy Information Administration. Overall, this approach leads to a forecast return of 8.9% annualized over the strategic horizon.

Commodities

We estimate the return to commodities based on the three sources of returns of commodities futures: changes in the spot price of commodities, the yield from collateral set aside by investors and the appreciation or depreciation from rolling along the futures curve. We assume that the spot price will appreciate with expected inflation and expect collateral set aside for commodities futures trading to deliver a return in line with our ultrashort fixed income estimate. Finally, we estimate the roll yield from the historical return from the Bloomberg Roll Select Commodities Index.

We believe this framework is appropriate for a seven-year horizon. Over this period, it leads to an estimated annualized return of 4.9%.

Hedged Strategies and Managed Futures

In some important ways, hedged strategies themselves do not represent distinct asset classes. More precisely, they are investment strategies that have historically shown an ability to deliver returns in a manner that provides diversification relative to stock and bond holdings within portfolios by leveraging exposure to traditional asset classes.

To develop return assumptions, we deconstruct historical returns into their fundamental sources. We use betas to stock and bond markets to determine return forecasts consistent with our estimates of these traditional asset classes and then add the alpha component to reflect these strategies' securities-selection skill, in proportions consistent with recent history. Overall, this approach leads to forecast returns similar to last year, ranging from 5.5% to 7.0% annualized over the strategic horizon.

When we consider the performance of alternative investment strategies broadly, we face difficulties that are not present with traditional asset classes. Private indexes designed to track the performance of funds following these strategies rely on independent investment managers to report their own performance, which can impart selection and survivorship bias from selective disclosures of existing and now-extinct funds. Furthermore, managers of hedged strategies and private investment funds often hold less-liquid securities; as such, reported returns appear excessively smoothed due to lagging price discovery. We use well-established statistical methods to mitigate these effects and establish return characteristics that are as closely aligned with the underlying economics as possible.

Private Equity, Private Credit and Private Real Assets

Private equity, private credit and private real assets have also earned a reputation for delivering strong returns in a manner uncorrelated with traditional asset classes. Due to their illiquidity and the lack of published high-frequency return data, however, their performance can also be difficult to measure at an index level.

Increasingly, private infrastructure strategies have become a potential investment for clients, leading to the GIC's decision to broaden its categorization of private real estate to include infrastructure, renaming the category private real assets. While both real estate and infrastructure are tangible assets, they differ in function: Real estate provides space for living or conducting business, while infrastructure delivers essential services to society. Both asset classes can provide lower correlation with traditional asset classes and function as hedges against unexpected bouts of inflation. We benchmark the private real assets category as an equal-weighted average of private real estate and private infrastructure. For more detail on how the GIC approaches private investing, please refer to the primer, "Portfolio Implementation Guide for Private Investments," published Jan. 22, 2025.

To forecast returns for these illiquid asset classes, we add an expected illiquidity premium to our forecast returns for a corresponding liquid asset class: for private equity, US small- and mid-cap equities; for private credit, US high yield bonds; and for private real assets, REITs and public infrastructure. We determined the expected illiquidity premiums by studying the historical spreads between the illiquid asset classes and their corresponding liquid asset classes. We source long-term private investment returns data from Cambridge Associates and the National Council of Real Estate Investment Fiduciaries (NCREIF). Additionally, we match these to public market equivalent (PME) returns specific to each private investment category. Selecting appropriate PME returns is required to perform consistent comparisons between private and public investment performance when estimating illiquidity premiums. Based on this historical data, we calculate the long-term historical illiquidity premium for each private investment category. We then scale the historical long-run illiquidity premium for private equity and private debt to be 50% or 75%, respectively, of the long-term average. This adjustment reflects our analysis which found that illiquidity premiums, while having high variance over time, do exhibit some correlation to market and macroeconomic variables such as public equity valuations and credit spreads. Moreover, in the GIC's view, the maturation of private markets and their increasingly competitive supply-demand landscape render it unrealistic that private investments will match or exceed the high average illiquidity premiums delivered over the past two decades. Overall, we expect an annualized return of 7.4% for private real assets, 10.0% for private equity and 8.3% for private credit.

Secular Returns

In addition to our strategic return estimates, we also project returns over the secular horizon, which we consider to be 20 years or longer. As a primary guide for potential long-term returns, we use the real geometric average returns over a

long history of market data for both global equities and bonds. We then add back a forward-looking forecast of inflation to estimate sustainable long-term returns. As in previous years, we base our inflation forecast on an average of the market-implied US 20-year breakeven inflation rate (derived from yield differentials between nominal Treasuries and TIPS) and the Federal Reserve Bank of Cleveland's 20-year inflation expectations. This leads to an expected annualized inflation rate of 2.4% over the secular horizon.

In order to resolve limitations of data history for certain assets, we extend their return time series to the early 1970s with monthly index data by using appropriate proxies. These proxies facilitate calculation of secular returns by extending the existing return series, providing a richer history of multiple interest rate and inflation regimes.

For equities, energy infrastructure/MLPs and REITs, we compute each asset class's returns by adding a long-term average real return for global equities, the asset class's historical return differential versus global equities over a common period and the 20-year expected inflation estimate.

For US, international and emerging market equities, we found that relative historical returns may not represent a reasonable picture of forward-looking returns. We therefore reduce the historical spread by 50% and 75% for US and international equities, respectively, to account for each region's significant outperformance or underperformance indicated by the common-period return history. US equities have outpaced all other developed markets since the 1970s, the start of our common-period sample for size-style combinations. Due to a stretch of deflation from the late 1990s through the 2010s, the Japanese economy and equity markets languished, leaving the common-period sample potentially unrepresentative of the secular horizon. Finally, emerging market equities demonstrated sizable outperformance at the outset of their common-period history, but their return profile has since converged somewhat toward developed markets as the underlying economies have matured.

For energy infrastructure/MLPs, the earliest return history showed remarkably positive spreads versus global equities, boosting the overall relative return value. Given changing dynamics with energy infrastructure/MLPs—particularly the propensity of management to finance growth from retained earnings—we believe that this asset class will perform in line with global equities over the secular horizon.

For fixed income asset classes, we follow a similar pattern as with US equities, substituting US government bonds for global equities.

Among commodities, hedged strategies and private investments, we employ similar methodologies to those used in our strategic estimates over the longest available horizon to provide secular return estimates for alternatives. For private equity, we anticipate that the illiquidity premium will rise to 75% of the long-term average, a higher proportion than we assume for the strategic horizon, reasoning that current environmental factors will generally exercise less influence over the 20-year horizon than the seven-year horizon.

Volatility

Volatility measures the variability of returns around their average value and serves as one indicator of the risk associated with an investment. Historically, we computed average annualized volatility using historical monthly returns. A primary consideration when deriving our risk assumptions is to estimate volatility and correlation on sufficiently long-term return series that capture a rich history of multiple interest rate and inflation regimes. Using long-term data mitigates the impact of specific regimes and business cycle stages that could skew our results. To achieve this, it is necessary to apply reasonable proxies for certain asset classes with limited data availability.

A cornerstone of our modern approach for estimating volatility prospectively is to consider the nuanced relationships between asset classes' covariance and the prevailing macroeconomic regime. Our "regime-weighted" approach to forecasting volatility incorporates the GIC's forward-looking expectations for various macro regimes. We were motivated by the observation that the prevailing macro regime has exerted significant impact on the volatility and correlations of asset class returns, which may meaningfully impact asset allocation decisions. For instance, during periods of rising economic growth and inflation, fixed income's volatility and correlation to US equities have historically been significantly higher than in low-growth, low-inflation environments, as in the post-GFC period.

We first classified historical periods into one of four mutually exclusive regimes, based on long-term trends in GDP and inflation. We then calculate a covariance matrix under each regime and compute a weighted average of these estimates based on probabilistic expectations of each regime occurring over the forecast horizon. From this weighted covariance matrix, we can derive each asset class's volatility as well as its pairwise correlations to other investments. Critically, to ensure sufficient representation of each regime state in our historical returns, we construct return time series for every asset class back to January 1946. For some asset classes where data is not available to January 1946, we applied a machine-learning-driven statistical technique to impute the missing returns, based on relationships with available return series and other relevant macroeconomic data, such as bond yields, commodity prices, corporate earnings and inflation rates. For Japanese equities, we uniquely chose to exclude some older available data points since we believe the

exceptional return variability experienced during the 1940s to 1950s is not representative of the market's prospective volatility.

For the 2025 update, we integrate the GIC's conviction that the strategic horizon is more likely to experience inflationary macro environments than the secular horizon, where the four macro regimes' weights are anchored to their long-term incidence. As such, we assign higher weights to the "inflationary boom" (accelerating growth and inflation) and "stagflationary" (decelerating growth and accelerating inflation) scenarios, resulting in moderately higher volatility and correlations for major equity and fixed income asset classes over the strategic horizon. For a more detailed description of the GIC's macroeconomic regime-based approach to estimating covariance, please refer to the March 27, 2025 primer, "Innovations in Capital Market Assumptions."

Correlation

A critical factor in asset allocation is correlation, or the degree to which asset class returns move together. Correlations can vary considerably over different historical periods due to changes in macro regimes, market structure, stages of the business cycle and multiple other factors. Consistent with our approach described above for estimating volatilities, we estimate correlations using a regime-weighted approach based on the GIC's expectations for future macro regimes and historical return series from January 1946 (see Exhibits 25 and 26).

Exhibit 21: GIC Strategic Asset Allocation Models, Level 0: Traditional Assets Only

	WEALTH CONSERVATION	INCOME	BALANCED GROWTH	MARKET GROWTH	OPPORTUNISTIC GROWTH
ULTRASHORT FIXED INCOME	**15**	**10**	**3**	**1**	
EQUITIES					
US Equities	13	22	31	40	49
US Large-Cap Growth	6	9	12	15	19
US Large-Cap Value	6	10	14	18	22
US Mid-Cap Growth		1	1	2	3
US Mid-Cap Value	1	1	2	3	3
US Small-Cap Growth			1	1	1
US Small-Cap Value		1	1	1	1
International Equities	6	9	13	16	20
International Equities	6	9	13	16	20
Emerging Market Equities	3	5	6	8	10
TOTAL EQUITIES	**22**	**36**	**50**	**64**	**79**
Total US Equities	13	22	31	40	49
Total International Equities	6	9	13	16	20
Total Emerging Market Equities	3	5	6	8	10
FIXED INCOME AND PREFERREDS					
Short-Term Fixed Income	18	15	12	8	4
US Taxable Fixed Income	40	34	30	22	12
International Fixed Income					
Inflation-Linked Securities	1	1	1	1	1
High Yield Fixed Income	2	2	2	2	2
Emerging Market Fixed Income	2	2	2	2	2
TOTAL FIXED INCOME AND PREFERREDS	**63**	**54**	**47**	**35**	**21**

Note: In contrast to Level 1 and Level 2, the GIC has chosen, for practical reasons, to implement the Level 0 asset allocation models through a broad allocation to International Equities, supplemented by a region-specific allocation to Japan Equities in cases where the GIC currently recommends a strategic overweight relative to the benchmark.
Source: Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 22: GIC Strategic Asset Allocation Models, Level 1: Traditional Assets, Real Assets and Hedged Strategies

	WEALTH CONSERVATION	INCOME	BALANCED GROWTH	MARKET GROWTH	OPPORTUNISTIC GROWTH
ULTRASHORT FIXED INCOME	**9**	**6**	**2**		
EQUITIES					
US Equities	10	19	24	33	41
US Large-Cap Growth	4	6	9	13	16
US Large-Cap Value	5	8	10	15	18
US Mid-Cap Growth		1	1	1	2
US Mid-Cap Value	1	2	2	2	3
US Small-Cap Growth		1	1	1	1
US Small-Cap Value		1	1	1	1
International Equities	5	8	10	14	18
European Equities	2	4	6	8	11
Japan Equities	2	2	2	4	4
Asia Pacific ex Japan Equities	1	2	2	2	3
Emerging Market Equities	3	4	5	7	8
TOTAL EQUITIES	**18**	**31**	**39**	**54**	**67**
Total US Equities	10	19	24	33	41
Total International Equities	5	8	10	14	18
Total Emerging Market Equities	3	4	5	7	8
FIXED INCOME AND PREFERREDS					
Short-Term Fixed Income	17	14	10	5	1
US Taxable Fixed Income	38	30	24	13	4
International Fixed Income					
Inflation-Linked Securities	1	1	1	1	1
High Yield Fixed Income	2	2	2	2	1
Emerging Market Fixed Income	1	1	1	1	1
TOTAL FIXED INCOME AND PREFERREDS	**59**	**48**	**38**	**22**	**8**
ALTERNATIVES					
Real Assets	4	4	6	7	7
Real Estate/REITs	1	1	1	1	1
Commodities	1	1	2	2	2
Energy Infrastructure/MLPs	2	2	3	4	4
Absolute Return Assets	3	3	4	4	5
Equity Hedge Assets	6	7	9	10	10
Equity Return Assets	1	1	2	3	3
TOTAL ALTERNATIVES	**14**	**15**	**21**	**24**	**25**

Source: Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 23: GIC Strategic Asset Allocation Models, Level 2: Traditional Assets and Alternatives, Including Private Investments

	WEALTH CONSERVATION	INCOME	BALANCED GROWTH	MARKET GROWTH	OPPORTUNISTIC GROWTH
ULTRASHORT FIXED INCOME	8	3	2		
EQUITIES					
US Equities	9	16	22	30	39
US Large-Cap Growth	4	7	8	11	15
US Large-Cap Value	4	8	10	13	18
US Mid-Cap Growth			1	2	2
US Mid-Cap Value	1	1	2	2	2
US Small-Cap Growth				1	1
US Small-Cap Value			1	1	1
International Equities	4	6	9	12	16
European Equities	2	3	5	8	11
Japan Equities	2	2	3	3	3
Asia Pacific ex Japan Equities		1	1	1	2
Emerging Market Equities	2	4	5	7	8
TOTAL EQUITIES	15	26	36	49	63
Total US Equities	9	16	22	30	39
Total International Equities	4	6	9	12	16
Total Emerging Market Equities	2	4	5	7	8
FIXED INCOME AND PREFERREDS					
Short-Term Fixed Income	17	14	10	6	1
US Taxable Fixed Income	34	28	21	13	4
International Fixed Income					
Inflation-Linked Securities	2	1	1		
High Yield Fixed Income	2	2	2	2	1
Emerging Market Fixed Income	1	1	1	1	1
TOTAL FIXED INCOME AND PREFERREDS	56	46	35	22	7
ALTERNATIVES					
Real Assets	4	5	5	5	5
Real Estate/REITs	1	1	1	1	1
Commodities	2	2	2	2	2
Energy Infrastructure/MLPs	1	2	2	2	2
Absolute Return Assets	2	2	2	2	2
Equity Hedge Assets	5	6	6	7	7
Equity Return Assets	1	1	2	2	2
Private Investments	9	11	12	13	14
Private Real Assets	4	4	4	4	4
Private Equity	3	4	5	6	7
Private Credit	2	3	3	3	3
TOTAL ALTERNATIVES	21	25	27	29	30

Note: Intended for investors with more than $10 million in investable assets.
Source: Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 24: Strategic and Secular Return and Volatility Estimates

	STRATEGIC (SEVEN-YEAR) ESTIMATES FOR 2025			SECULAR (20-YEAR) ESTIMATES FOR 2025		
	Geometric Return (%)	Arithmetic Return (%)	Volatility (%)	Geometric Return (%)	Arithmetic Return (%)	Volatility (%)
ULTRASHORT FIXED INCOME	**3.7**	**3.8**	**0.8**	**3.2**	**3.2**	**0.7**
EQUITIES	**7.1**	**7.9**	**13.4**	**8.1**	**8.9**	**13.4**
US Equities	6.5	7.6	15.4	8.5	9.5	14.8
US Large-Cap Growth	6.2	7.5	16.9	8.6	9.8	16.1
US Large-Cap Value	7.8	8.8	14.9	8.3	9.3	14.4
US Mid-Cap Growth	7.1	8.7	18.6	8.5	10.0	17.9
US Mid-Cap Value	8.3	9.5	16.4	8.6	9.7	15.7
US Small-Cap Growth	6.8	9.2	23.3	7.1	9.2	21.8
US Small-Cap Value	7.5	9.4	20.8	8.4	10.0	19.1
International Equities	7.3	8.4	15.6	7.4	8.4	15.3
European Equities	7.5	8.6	15.7	7.1	8.3	15.7
Japan Equities	6.6	8.2	18.4	7.0	8.5	18.5
Asia Pacific ex Japan Equities	7.9	9.7	19.9	7.1	8.9	19.7
Emerging Market Equities	8.9	10.5	18.7	8.4	10.0	19.2
FIXED INCOME AND PREFERREDS	**4.8**	**5.0**	**5.9**	**3.8**	**3.9**	**5.2**
Short-Term Fixed Income	4.4	4.4	2.4	3.5	3.5	2.2
US Taxable Fixed Income	4.8	5.0	5.9	3.8	3.9	5.2
International Fixed Income	3.2	3.4	5.7	3.7	3.8	5.0
Inflation-Linked Securities	4.3	4.8	10.5	4.5	4.9	9.5
High Yield Fixed Income	5.6	6.0	8.5	5.5	5.8	8.3
Emerging Market Fixed Income	6.3	6.7	9.0	6.8	7.2	9.2
ALTERNATIVES	**6.4**	**6.7**	**8.0**	**6.2**	**6.5**	**7.8**
Real Assets	6.5	7.2	12.7	6.0	6.7	12.2
Real Estate/REITs	5.7	7.0	16.8	6.0	7.2	16.1
Commodities	4.9	6.0	15.9	4.3	5.4	15.2
Energy Infrastructure/MLPs	8.9	10.5	18.6	7.7	9.1	17.4
Absolute Return Assets	5.5	5.6	4.2	5.3	5.3	4.3
Equity Hedge Assets	6.6	7.0	9.3	6.0	6.3	9.0
Equity Return Assets	6.8	7.2	8.9	7.2	7.6	8.7
Private Investments	8.6	9.1	10.7	8.9	9.4	10.3
Private Real Assets	7.4	8.0	10.9	6.7	7.2	10.0
Private Equity	10.0	11.2	16.5	11.9	13.0	15.9
Private Credit	8.3	8.7	9.5	8.0	8.5	10.2

Note: We represented ultrashort fixed income represented by FTSE Three-Month T-Bill Index; fixed income and preferreds by Bloomberg US Aggregate Index; short-term fixed income by Bloomberg US Aggregate: One- to Three-Year Index; US taxable fixed income by Bloomberg US Aggregate Index; international fixed income by Barclays Global Aggregate Non-USD (USD-Hedged) Index; inflation-linked securities by Bloomberg Global Inflation-Linked Index; high yield fixed income by Barclays Global High Yield Corporate Index; and emerging market fixed income by JP Morgan EMBI Global (USD-Unhedged) Index. All others are based on proprietary models. Strategic annualized return and volatility estimates are based on a seven-year time horizon. Secular annualized return and volatility estimates are based on a 20-year time horizon. Annualized volatility estimates are based on data with longest available history through Feb. 28, 2025. Estimates are for illustrative purposes only, are based on proprietary models and are not indicative of the future performance of any specific investment, index or asset class. Actual performance may be more or less than the estimates shown in this table. Estimates of future performance are based on assumptions that may not be realized. Investor appropriateness: Morgan Stanley Wealth Management recommends that investors independently evaluate each asset class, investment style, issuer, security, instrument or strategy discussed. Legal, accounting and tax restrictions, transaction costs and changes to any assumptions may significantly affect the economics and results of any investment. Investors should consult their own tax, legal or other advisors to determine appropriateness for their specific circumstances. Investments in private funds (including hedge funds, managed futures funds and private equity funds) are speculative and include a high degree of risk.
Source: Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 25: Correlation Matrix for the Strategic Horizon

CORRELATION MATRIX		1	2	3	4	5	6	7	8	9	10	11
1	Ultrashort Fixed Income	1.00	0.00	0.01	0.02	0.01	0.01	-0.01	0.00	0.00	0.00	-0.01
2	Equities	0.00	1.00	0.89	0.87	0.87	0.84	0.85	0.77	0.76	0.84	0.80
3	US Equities	0.01	0.89	1.00	0.97	0.97	0.94	0.94	0.86	0.84	0.55	0.55
4	US Large-Cap Growth	0.02	0.87	0.97	1.00	0.89	0.94	0.87	0.84	0.77	0.52	0.52
5	US Large-Cap Value	0.01	0.87	0.97	0.89	1.00	0.88	0.96	0.82	0.86	0.55	0.55
6	US Mid-Cap Growth	0.01	0.84	0.94	0.94	0.88	1.00	0.91	0.92	0.84	0.52	0.52
7	US Mid-Cap Value	-0.01	0.85	0.94	0.87	0.96	0.91	1.00	0.87	0.91	0.54	0.54
8	US Small-Cap Growth	0.00	0.77	0.86	0.84	0.82	0.92	0.87	1.00	0.94	0.50	0.48
9	US Small-Cap Value	0.00	0.76	0.84	0.77	0.86	0.84	0.91	0.94	1.00	0.49	0.48
10	International Equities	0.00	0.84	0.55	0.52	0.55	0.52	0.54	0.50	0.49	1.00	0.91
11	European Equities	-0.01	0.80	0.55	0.52	0.55	0.52	0.54	0.48	0.48	0.91	1.00
12	Japan Equities	0.00	0.65	0.37	0.36	0.36	0.36	0.35	0.33	0.31	0.83	0.60
13	Asia Pacific ex Japan Equities	-0.04	0.74	0.61	0.57	0.60	0.59	0.61	0.56	0.55	0.74	0.68
14	Emerging Market Equities	-0.05	0.66	0.50	0.48	0.49	0.51	0.49	0.49	0.48	0.67	0.63
15	Fixed Income and Preferreds	0.14	0.32	0.31	0.29	0.31	0.29	0.32	0.25	0.27	0.23	0.23
16	Short-Term Fixed Income	0.37	0.21	0.21	0.19	0.22	0.18	0.22	0.15	0.18	0.16	0.16
17	US Taxable Fixed Income	0.14	0.32	0.31	0.29	0.31	0.29	0.32	0.25	0.27	0.23	0.23
18	International Fixed Income	0.13	0.19	0.23	0.22	0.24	0.23	0.25	0.23	0.27	0.06	0.05
19	Inflation-Linked Securities	-0.03	0.15	0.18	0.17	0.17	0.16	0.18	0.14	0.14	0.09	0.08
20	High Yield Fixed Income	0.05	0.64	0.64	0.59	0.64	0.63	0.67	0.59	0.63	0.46	0.47
21	Emerging Market Fixed Income	0.07	0.50	0.50	0.47	0.50	0.50	0.51	0.46	0.47	0.33	0.32
22	Alternatives	0.06	0.82	0.90	0.87	0.88	0.89	0.88	0.86	0.83	0.52	0.51
23	Real Assets	-0.03	0.67	0.69	0.62	0.72	0.68	0.77	0.69	0.75	0.50	0.48
24	REITs	-0.01	0.74	0.77	0.70	0.80	0.75	0.85	0.77	0.84	0.51	0.50
25	Commodities	-0.03	0.15	0.11	0.08	0.12	0.12	0.17	0.14	0.14	0.19	0.16
26	Energy Infrastructure/MLPs	-0.02	0.66	0.73	0.66	0.76	0.71	0.79	0.72	0.79	0.42	0.40
27	Absolute Return Assets	0.10	0.72	0.71	0.66	0.73	0.69	0.74	0.67	0.70	0.53	0.52
28	Equity Hedge Assets	0.00	0.44	0.53	0.49	0.56	0.50	0.55	0.50	0.53	0.22	0.20
29	Equity Return Assets	0.05	0.84	0.91	0.87	0.89	0.89	0.89	0.86	0.84	0.56	0.55
30	Private Investments	-0.09	0.55	0.64	0.60	0.65	0.63	0.67	0.68	0.70	0.31	0.29
31	Private Real Assets	-0.07	0.39	0.44	0.42	0.46	0.45	0.48	0.50	0.53	0.19	0.17
32	Private Equity	-0.05	0.64	0.74	0.70	0.74	0.73	0.76	0.75	0.75	0.37	0.37
33	Private Credit	-0.02	0.43	0.48	0.44	0.51	0.46	0.52	0.47	0.51	0.25	0.26

Note: The above is based on data with longest available history through Feb. 28, 2025. Correlation is a statistical method of measuring the strength of a linear relationship between two variables. The correlation between two variables can assume any value from -1.00 to +1.00, inclusive. Past performance is not indicative of future results. We apply statistical adjustments to correct for distortions typically associated with index returns for hedge funds, private equity and private real estate.
Source: Bloomberg, FactSet, Refinitiv, Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 25: Correlation Matrix for the Strategic Horizon (continued)

CORRELATION MATRIX		12	13	14	15	16	17	18	19	20	21	22
1	Ultrashort Fixed Income	0.00	-0.04	-0.05	0.14	0.37	0.14	0.13	-0.03	0.05	0.07	0.06
2	Equities	0.65	0.74	0.66	0.32	0.21	0.32	0.19	0.15	0.64	0.50	0.82
3	US Equities	0.37	0.61	0.50	0.31	0.21	0.31	0.23	0.18	0.64	0.50	0.90
4	US Large-Cap Growth	0.36	0.57	0.48	0.29	0.19	0.29	0.22	0.17	0.59	0.47	0.87
5	US Large-Cap Value	0.36	0.60	0.49	0.31	0.22	0.31	0.24	0.17	0.64	0.50	0.88
6	US Mid-Cap Growth	0.36	0.59	0.51	0.29	0.18	0.29	0.23	0.16	0.63	0.50	0.89
7	US Mid-Cap Value	0.35	0.61	0.49	0.32	0.22	0.32	0.25	0.18	0.67	0.51	0.88
8	US Small-Cap Growth	0.33	0.56	0.49	0.25	0.15	0.25	0.23	0.14	0.59	0.46	0.86
9	US Small-Cap Value	0.31	0.55	0.48	0.27	0.18	0.27	0.27	0.14	0.63	0.47	0.83
10	International Equities	0.83	0.74	0.67	0.23	0.16	0.23	0.06	0.09	0.46	0.33	0.52
11	European Equities	0.60	0.68	0.63	0.23	0.16	0.23	0.05	0.08	0.47	0.32	0.51
12	Japan Equities	1.00	0.53	0.51	0.17	0.12	0.17	0.03	0.06	0.29	0.23	0.35
13	Asia Pacific ex Japan Equities	0.53	1.00	0.69	0.17	0.09	0.17	0.06	0.06	0.46	0.38	0.60
14	Emerging Market Equities	0.51	0.69	1.00	0.11	0.03	0.11	0.06	0.01	0.41	0.43	0.53
15	Fixed Income and Preferreds	0.17	0.17	0.11	1.00	0.83	1.00	0.63	0.55	0.50	0.50	0.31
16	Short-Term Fixed Income	0.12	0.09	0.03	0.83	1.00	0.83	0.42	0.51	0.46	0.32	0.22
17	US Taxable Fixed Income	0.17	0.17	0.11	1.00	0.83	1.00	0.63	0.55	0.50	0.50	0.31
18	International Fixed Income	0.03	0.06	0.06	0.63	0.42	0.63	1.00	0.25	0.34	0.69	0.28
19	Inflation-Linked Securities	0.06	0.06	0.01	0.55	0.51	0.55	0.25	1.00	0.34	0.23	0.15
20	High Yield Fixed Income	0.29	0.46	0.41	0.50	0.46	0.50	0.34	0.34	1.00	0.57	0.63
21	Emerging Market Fixed Income	0.23	0.38	0.43	0.50	0.32	0.50	0.69	0.23	0.57	1.00	0.55
22	Alternatives	0.35	0.60	0.53	0.31	0.22	0.31	0.28	0.15	0.63	0.55	1.00
23	Real Assets	0.31	0.57	0.48	0.25	0.20	0.25	0.20	0.14	0.59	0.46	0.69
24	REITs	0.33	0.57	0.48	0.39	0.29	0.39	0.34	0.19	0.70	0.56	0.75
25	Commodities	0.11	0.23	0.20	-0.08	-0.06	-0.08	-0.11	0.01	0.08	0.06	0.15
26	Energy Infrastructure/MLPs	0.26	0.49	0.42	0.28	0.22	0.28	0.28	0.13	0.65	0.47	0.72
27	Absolute Return Assets	0.36	0.56	0.50	0.32	0.28	0.32	0.22	0.18	0.74	0.51	0.84
28	Equity Hedge Assets	0.12	0.34	0.25	0.22	0.19	0.22	0.23	0.13	0.44	0.32	0.62
29	Equity Return Assets	0.38	0.63	0.58	0.28	0.20	0.28	0.20	0.15	0.65	0.50	0.98
30	Private Investments	0.21	0.38	0.30	0.18	0.10	0.18	0.19	0.05	0.46	0.27	0.67
31	Private Real Assets	0.13	0.27	0.21	0.12	0.07	0.12	0.17	-0.04	0.29	0.21	0.47
32	Private Equity	0.24	0.47	0.35	0.20	0.13	0.20	0.18	0.09	0.48	0.31	0.75
33	Private Credit	0.15	0.30	0.24	0.28	0.28	0.28	0.21	0.22	0.68	0.33	0.54

Note: The above is based on data with longest available history through Feb. 28, 2025. Correlation is a statistical method of measuring the strength of a linear relationship between two variables. The correlation between two variables can assume any value from -1.00 to +1.00, inclusive. Past performance is not indicative of future results. We apply statistical adjustments to correct for distortions typically associated with index returns for hedge funds, private equity and private real estate.
Source: Bloomberg, FactSet, Refinitiv, Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 25: Correlation Matrix for the Strategic Horizon (continued)

CORRELATION MATRIX		23	24	25	26	27	28	29	30	31	32	33
1	Ultrashort Fixed Income	-0.03	-0.01	-0.03	-0.02	0.10	0.00	0.05	-0.09	-0.07	-0.05	-0.02
2	Equities	0.67	0.74	0.15	0.66	0.72	0.44	0.84	0.55	0.39	0.64	0.43
3	US Equities	0.69	0.77	0.11	0.73	0.71	0.53	0.91	0.64	0.44	0.74	0.48
4	US Large-Cap Growth	0.62	0.70	0.08	0.66	0.66	0.49	0.87	0.60	0.42	0.70	0.44
5	US Large-Cap Value	0.72	0.80	0.12	0.76	0.73	0.56	0.89	0.65	0.46	0.74	0.51
6	US Mid-Cap Growth	0.68	0.75	0.12	0.71	0.69	0.50	0.89	0.63	0.45	0.73	0.46
7	US Mid-Cap Value	0.77	0.85	0.17	0.79	0.74	0.55	0.89	0.67	0.48	0.76	0.52
8	US Small-Cap Growth	0.69	0.77	0.14	0.72	0.67	0.50	0.86	0.68	0.50	0.75	0.47
9	US Small-Cap Value	0.75	0.84	0.14	0.79	0.70	0.53	0.84	0.70	0.53	0.75	0.51
10	International Equities	0.50	0.51	0.19	0.42	0.53	0.22	0.56	0.31	0.19	0.37	0.25
11	European Equities	0.48	0.50	0.16	0.40	0.52	0.20	0.55	0.29	0.17	0.37	0.26
12	Japan Equities	0.31	0.33	0.11	0.26	0.36	0.12	0.38	0.21	0.13	0.24	0.15
13	Asia Pacific ex Japan Equities	0.57	0.57	0.23	0.49	0.56	0.34	0.63	0.38	0.27	0.47	0.30
14	Emerging Market Equities	0.48	0.48	0.20	0.42	0.50	0.25	0.58	0.30	0.21	0.35	0.24
15	Fixed Income and Preferreds	0.25	0.39	-0.08	0.28	0.32	0.22	0.28	0.18	0.12	0.20	0.28
16	Short-Term Fixed Income	0.20	0.29	-0.06	0.22	0.28	0.19	0.20	0.10	0.07	0.13	0.28
17	US Taxable Fixed Income	0.25	0.39	-0.08	0.28	0.32	0.22	0.28	0.18	0.12	0.20	0.28
18	International Fixed Income	0.20	0.34	-0.11	0.28	0.22	0.23	0.20	0.19	0.17	0.18	0.21
19	Inflation-Linked Securities	0.14	0.19	0.01	0.13	0.18	0.13	0.15	0.05	-0.04	0.09	0.22
20	High Yield Fixed Income	0.59	0.70	0.08	0.65	0.74	0.44	0.65	0.46	0.29	0.48	0.68
21	Emerging Market Fixed Income	0.46	0.56	0.06	0.47	0.51	0.32	0.50	0.27	0.21	0.31	0.33
22	Alternatives	0.69	0.75	0.15	0.72	0.84	0.62	0.98	0.67	0.47	0.75	0.54
23	Real Assets	1.00	0.84	0.58	0.87	0.68	0.48	0.71	0.56	0.47	0.60	0.46
24	REITs	0.84	1.00	0.16	0.82	0.71	0.51	0.76	0.66	0.60	0.67	0.53
25	Commodities	0.58	0.16	1.00	0.21	0.17	0.10	0.16	0.05	-0.03	0.09	0.07
26	Energy Infrastructure/MLPs	0.87	0.82	0.21	1.00	0.70	0.53	0.73	0.65	0.55	0.65	0.55
27	Absolute Return Assets	0.68	0.71	0.17	0.70	1.00	0.53	0.85	0.62	0.41	0.66	0.66
28	Equity Hedge Assets	0.48	0.51	0.10	0.53	0.53	1.00	0.57	0.57	0.48	0.54	0.47
29	Equity Return Assets	0.71	0.76	0.16	0.73	0.85	0.57	1.00	0.66	0.45	0.75	0.53
30	Private Investments	0.56	0.66	0.05	0.65	0.62	0.57	0.66	1.00	0.82	0.89	0.71
31	Private Real Assets	0.47	0.60	-0.03	0.55	0.41	0.48	0.45	0.82	1.00	0.63	0.42
32	Private Equity	0.60	0.67	0.09	0.65	0.66	0.54	0.75	0.89	0.63	1.00	0.65
33	Private Credit	0.46	0.53	0.07	0.55	0.66	0.47	0.53	0.71	0.42	0.65	1.00

Note: The above is based on data with longest available history through Feb. 28, 2025. Correlation is a statistical method of measuring the strength of a linear relationship between two variables. The correlation between two variables can assume any value from -1.00 to +1.00, inclusive. Past performance is not indicative of future results. We apply statistical adjustments to correct for distortions typically associated with index returns for hedge funds, private equity and private real estate.
Source: Bloomberg, FactSet, Refinitiv, Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 26: Correlation Matrix for the Secular Horizon

CORRELATION MATRIX		1	2	3	4	5	6	7	8	9	10	11
1	Ultrashort Fixed Income	1.00	-0.01	-0.01	-0.01	0.00	-0.01	-0.02	-0.02	-0.02	-0.01	-0.01
2	Equities	-0.01	1.00	0.88	0.86	0.86	0.83	0.84	0.76	0.75	0.88	0.84
3	US Equities	-0.01	0.88	1.00	0.97	0.97	0.94	0.94	0.86	0.84	0.59	0.61
4	US Large-Cap Growth	-0.01	0.86	0.97	1.00	0.89	0.94	0.86	0.84	0.76	0.55	0.58
5	US Large-Cap Value	0.00	0.86	0.97	0.89	1.00	0.87	0.96	0.80	0.85	0.58	0.61
6	US Mid-Cap Growth	-0.01	0.83	0.94	0.94	0.87	1.00	0.90	0.92	0.84	0.56	0.58
7	US Mid-Cap Value	-0.02	0.84	0.94	0.86	0.96	0.90	1.00	0.86	0.91	0.58	0.60
8	US Small-Cap Growth	-0.02	0.76	0.86	0.84	0.80	0.92	0.86	1.00	0.93	0.52	0.53
9	US Small-Cap Value	-0.02	0.75	0.84	0.76	0.85	0.84	0.91	0.93	1.00	0.52	0.52
10	International Equities	-0.01	0.88	0.59	0.55	0.58	0.56	0.58	0.52	0.52	1.00	0.91
11	European Equities	-0.01	0.84	0.61	0.58	0.61	0.58	0.60	0.53	0.52	0.91	1.00
12	Japan Equities	-0.02	0.64	0.35	0.34	0.34	0.34	0.33	0.32	0.30	0.81	0.55
13	Asia Pacific ex Japan Equities	-0.04	0.75	0.63	0.59	0.62	0.61	0.62	0.58	0.57	0.73	0.70
14	Emerging Market Equities	-0.05	0.69	0.54	0.52	0.53	0.55	0.53	0.53	0.51	0.67	0.64
15	Fixed Income and Preferreds	0.14	0.23	0.24	0.22	0.24	0.21	0.25	0.16	0.19	0.18	0.18
16	Short-Term Fixed Income	0.37	0.15	0.15	0.13	0.16	0.12	0.16	0.08	0.11	0.11	0.13
17	US Taxable Fixed Income	0.14	0.23	0.24	0.22	0.24	0.21	0.25	0.16	0.19	0.18	0.18
18	International Fixed Income	0.13	0.13	0.16	0.14	0.17	0.15	0.18	0.15	0.19	0.03	0.03
19	Inflation-Linked Securities	-0.01	0.13	0.15	0.15	0.15	0.13	0.16	0.10	0.10	0.08	0.09
20	High Yield Fixed Income	0.02	0.63	0.62	0.58	0.63	0.62	0.66	0.58	0.62	0.50	0.52
21	Emerging Market Fixed Income	0.04	0.48	0.47	0.44	0.47	0.47	0.47	0.42	0.43	0.35	0.35
22	Alternatives	0.07	0.80	0.88	0.85	0.85	0.88	0.85	0.84	0.80	0.55	0.57
23	Real Assets	-0.02	0.67	0.67	0.60	0.70	0.66	0.76	0.66	0.72	0.53	0.53
24	REITs	-0.02	0.72	0.74	0.67	0.77	0.71	0.82	0.72	0.81	0.54	0.55
25	Commodities	0.00	0.21	0.14	0.12	0.16	0.16	0.20	0.16	0.16	0.24	0.21
26	Energy Infrastructure/MLPs	-0.03	0.62	0.68	0.62	0.71	0.66	0.75	0.67	0.74	0.42	0.43
27	Absolute Return Assets	0.09	0.68	0.67	0.62	0.68	0.65	0.70	0.63	0.65	0.54	0.55
28	Equity Hedge Assets	0.03	0.40	0.47	0.44	0.48	0.44	0.48	0.41	0.44	0.23	0.22
29	Equity Return Assets	0.05	0.82	0.88	0.85	0.86	0.87	0.86	0.85	0.82	0.58	0.59
30	Private Investments	-0.06	0.44	0.52	0.49	0.53	0.51	0.55	0.56	0.58	0.26	0.25
31	Private Real Assets	-0.04	0.30	0.35	0.33	0.36	0.35	0.38	0.40	0.44	0.17	0.15
32	Private Equity	-0.04	0.53	0.64	0.61	0.63	0.63	0.65	0.65	0.65	0.33	0.33
33	Private Credit	-0.02	0.35	0.39	0.35	0.41	0.37	0.42	0.37	0.41	0.23	0.24

Note: The above is based on data with longest available history through Feb. 28, 2025. Correlation is a statistical method of measuring the strength of a linear relationship between two variables. The correlation between two variables can assume any value from -1.00 to +1.00, inclusive. Past performance is not indicative of future results. We apply statistical adjustments to correct for distortions typically associated with index returns for hedge funds, private equity and private real estate.
Source: Bloomberg, FactSet, Refinitiv, Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 26: Correlation Matrix for the Secular Horizon (continued)

	CORRELATION MATRIX	12	13	14	15	16	17	18	19	20	21	22
1	Ultrashort Fixed Income	-0.02	-0.04	-0.05	0.14	0.37	0.14	0.13	-0.01	0.02	0.04	0.07
2	Equities	0.64	0.75	0.69	0.23	0.15	0.23	0.13	0.13	0.63	0.48	0.80
3	US Equities	0.35	0.63	0.54	0.24	0.15	0.24	0.16	0.15	0.62	0.47	0.88
4	US Large-Cap Growth	0.34	0.59	0.52	0.22	0.13	0.22	0.14	0.15	0.58	0.44	0.85
5	US Large-Cap Value	0.34	0.62	0.53	0.24	0.16	0.24	0.17	0.15	0.63	0.47	0.85
6	US Mid-Cap Growth	0.34	0.61	0.55	0.21	0.12	0.21	0.15	0.13	0.62	0.47	0.88
7	US Mid-Cap Value	0.33	0.62	0.53	0.25	0.16	0.25	0.18	0.16	0.66	0.47	0.85
8	US Small-Cap Growth	0.32	0.58	0.53	0.16	0.08	0.16	0.15	0.10	0.58	0.42	0.84
9	US Small-Cap Value	0.30	0.57	0.51	0.19	0.11	0.19	0.19	0.10	0.62	0.43	0.80
10	International Equities	0.81	0.73	0.67	0.18	0.11	0.18	0.03	0.08	0.50	0.35	0.55
11	European Equities	0.55	0.70	0.64	0.18	0.13	0.18	0.03	0.09	0.52	0.35	0.57
12	Japan Equities	1.00	0.48	0.46	0.12	0.08	0.12	0.01	0.06	0.28	0.22	0.34
13	Asia Pacific ex Japan Equities	0.48	1.00	0.72	0.13	0.06	0.13	0.03	0.05	0.50	0.40	0.62
14	Emerging Market Equities	0.46	0.72	1.00	0.05	-0.02	0.05	0.03	0.00	0.46	0.46	0.58
15	Fixed Income and Preferreds	0.12	0.13	0.05	1.00	0.85	1.00	0.59	0.59	0.44	0.43	0.23
16	Short-Term Fixed Income	0.08	0.06	-0.02	0.85	1.00	0.85	0.41	0.53	0.39	0.27	0.16
17	US Taxable Fixed Income	0.12	0.13	0.05	1.00	0.85	1.00	0.59	0.59	0.44	0.43	0.23
18	International Fixed Income	0.01	0.03	0.03	0.59	0.41	0.59	1.00	0.26	0.27	0.60	0.21
19	Inflation-Linked Securities	0.06	0.05	0.00	0.59	0.53	0.59	0.26	1.00	0.31	0.23	0.13
20	High Yield Fixed Income	0.28	0.50	0.46	0.44	0.39	0.44	0.27	0.31	1.00	0.55	0.62
21	Emerging Market Fixed Income	0.22	0.40	0.46	0.43	0.27	0.43	0.60	0.23	0.55	1.00	0.52
22	Alternatives	0.34	0.62	0.58	0.23	0.16	0.23	0.21	0.13	0.62	0.52	1.00
23	Real Assets	0.31	0.59	0.52	0.21	0.16	0.21	0.16	0.13	0.62	0.46	0.68
24	REITs	0.32	0.59	0.51	0.32	0.23	0.32	0.27	0.17	0.69	0.52	0.70
25	Commodities	0.15	0.26	0.24	-0.07	-0.04	-0.07	-0.11	0.02	0.15	0.12	0.21
26	Energy Infrastructure/MLPs	0.24	0.50	0.44	0.23	0.18	0.23	0.22	0.12	0.63	0.45	0.68
27	Absolute Return Assets	0.35	0.55	0.51	0.25	0.22	0.25	0.15	0.16	0.73	0.47	0.81
28	Equity Hedge Assets	0.13	0.31	0.24	0.23	0.21	0.23	0.25	0.16	0.36	0.31	0.56
29	Equity Return Assets	0.36	0.64	0.60	0.20	0.14	0.20	0.13	0.12	0.64	0.47	0.97
30	Private Investments	0.16	0.32	0.24	0.10	0.05	0.10	0.12	0.01	0.35	0.19	0.56
31	Private Real Assets	0.10	0.21	0.15	0.09	0.05	0.09	0.13	-0.05	0.20	0.14	0.38
32	Private Equity	0.19	0.40	0.31	0.12	0.07	0.12	0.12	0.05	0.38	0.23	0.66
33	Private Credit	0.13	0.25	0.21	0.18	0.18	0.18	0.13	0.15	0.51	0.23	0.45

Note: The above is based on data with longest available history through Feb. 28, 2025. Correlation is a statistical method of measuring the strength of a linear relationship between two variables. The correlation between two variables can assume any value from -1.00 to +1.00, inclusive. Past performance is not indicative of future results. We apply statistical adjustments to correct for distortions typically associated with index returns for hedge funds, private equity and private real estate.
Source: Bloomberg, FactSet, Refinitiv, Morgan Stanley Wealth Management GIC as of March 27, 2025

Exhibit 26: Correlation Matrix for the Secular Horizon (continued)

CORRELATION MATRIX		23	24	25	26	27	28	29	30	31	32	33
1	Ultrashort Fixed Income	-0.02	-0.02	0.00	-0.03	0.09	0.03	0.05	-0.06	-0.04	-0.04	-0.02
2	Equities	0.67	0.72	0.21	0.62	0.68	0.40	0.82	0.44	0.30	0.53	0.35
3	US Equities	0.67	0.74	0.14	0.68	0.67	0.47	0.88	0.52	0.35	0.64	0.39
4	US Large-Cap Growth	0.60	0.67	0.12	0.62	0.62	0.44	0.85	0.49	0.33	0.61	0.35
5	US Large-Cap Value	0.70	0.77	0.16	0.71	0.68	0.48	0.86	0.53	0.36	0.63	0.41
6	US Mid-Cap Growth	0.66	0.71	0.16	0.66	0.65	0.44	0.87	0.51	0.35	0.63	0.37
7	US Mid-Cap Value	0.76	0.82	0.20	0.75	0.70	0.48	0.86	0.55	0.38	0.65	0.42
8	US Small-Cap Growth	0.66	0.72	0.16	0.67	0.63	0.41	0.85	0.56	0.40	0.65	0.37
9	US Small-Cap Value	0.72	0.81	0.16	0.74	0.65	0.44	0.82	0.58	0.44	0.65	0.41
10	International Equities	0.53	0.54	0.24	0.42	0.54	0.23	0.58	0.26	0.17	0.33	0.23
11	European Equities	0.53	0.55	0.21	0.43	0.55	0.22	0.59	0.25	0.15	0.33	0.24
12	Japan Equities	0.31	0.32	0.15	0.24	0.35	0.13	0.36	0.16	0.10	0.19	0.13
13	Asia Pacific ex Japan Equities	0.59	0.59	0.26	0.50	0.55	0.31	0.64	0.32	0.21	0.40	0.25
14	Emerging Market Equities	0.52	0.51	0.24	0.44	0.51	0.24	0.60	0.24	0.15	0.31	0.21
15	Fixed Income and Preferreds	0.21	0.32	-0.07	0.23	0.25	0.23	0.20	0.10	0.09	0.12	0.18
16	Short-Term Fixed Income	0.16	0.23	-0.04	0.18	0.22	0.21	0.14	0.05	0.05	0.07	0.18
17	US Taxable Fixed Income	0.21	0.32	-0.07	0.23	0.25	0.23	0.20	0.10	0.09	0.12	0.18
18	International Fixed Income	0.16	0.27	-0.11	0.22	0.15	0.25	0.13	0.12	0.13	0.12	0.13
19	Inflation-Linked Securities	0.13	0.17	0.02	0.12	0.16	0.16	0.12	0.01	-0.05	0.05	0.15
20	High Yield Fixed Income	0.62	0.69	0.15	0.63	0.73	0.36	0.64	0.35	0.20	0.38	0.51
21	Emerging Market Fixed Income	0.46	0.52	0.12	0.45	0.47	0.31	0.47	0.19	0.14	0.23	0.23
22	Alternatives	0.68	0.70	0.21	0.68	0.81	0.56	0.97	0.56	0.38	0.66	0.45
23	Real Assets	1.00	0.83	0.61	0.85	0.67	0.40	0.69	0.45	0.38	0.50	0.38
24	REITs	0.83	1.00	0.20	0.76	0.66	0.42	0.71	0.51	0.49	0.54	0.39
25	Commodities	0.61	0.20	1.00	0.23	0.24	0.12	0.21	0.05	-0.03	0.08	0.08
26	Energy Infrastructure/MLPs	0.85	0.76	0.23	1.00	0.66	0.43	0.69	0.53	0.44	0.56	0.45
27	Absolute Return Assets	0.67	0.66	0.24	0.66	1.00	0.44	0.83	0.53	0.33	0.56	0.58
28	Equity Hedge Assets	0.40	0.42	0.12	0.43	0.44	1.00	0.50	0.42	0.35	0.43	0.34
29	Equity Return Assets	0.69	0.71	0.21	0.69	0.83	0.50	1.00	0.55	0.37	0.65	0.45
30	Private Investments	0.45	0.51	0.05	0.53	0.53	0.42	0.55	1.00	0.79	0.88	0.74
31	Private Real Assets	0.38	0.49	-0.03	0.44	0.33	0.35	0.37	0.79	1.00	0.59	0.39
32	Private Equity	0.50	0.54	0.08	0.56	0.56	0.43	0.65	0.88	0.59	1.00	0.65
33	Private Credit	0.38	0.39	0.08	0.45	0.58	0.34	0.45	0.74	0.39	0.65	1.00

Note: The above is based on data with longest available history through Feb. 28, 2025. Correlation is a statistical method of measuring the strength of a linear relationship between two variables. The correlation between two variables can assume any value from -1.00 to +1.00, inclusive. Past performance is not indicative of future results. We apply statistical adjustments to correct for distortions typically associated with index returns for hedge funds, private equity and private real estate.
Source: Source: Bloomberg, FactSet, Refinitiv, Morgan Stanley Wealth Management GIC as of March 27, 2025

Appendix

Hedge Fund Index Performance Biases

It should be noted that the majority of hedge fund indexes are composed of hedge fund manager returns. This is in contrast to traditional indexes, which comprise individual securities in the various market segments they represent and offer complete transparency as to membership and construction methodology. As such, some believe that hedge fund index returns have certain biases that are not present in traditional indexes. Some of these biases inflate index performance, while others may skew performance negatively. However, many studies indicate that overall hedge fund index performance has been biased to the upside. Some studies suggest performance has been inflated by up to 2.6% or more annually, depending on the types of biases included and the time period studied. Although there are numerous potential biases that could affect hedge fund returns, we identify some of the more common ones throughout this paper.

Self-selection bias results when certain manager returns are not included in the index returns and may result in performance being skewed up or down. Because hedge funds are private placements, hedge fund managers are able to decide which fund returns they want to report and are able to opt out of reporting to the various databases. Certain hedge fund managers may choose only to report returns for funds with strong returns and opt out of reporting returns for weak performers. Other hedge funds that close may decide to stop reporting in order to retain secrecy, which may cause a downward bias in returns.

Survivorship bias results when certain constituents are removed from an index. This often results from the closure of funds due to poor performance, "blow-ups" or other such events. As such, this bias typically results in performance being skewed higher. As noted, hedge fund index performance biases can result in positive or negative skew. Nonetheless, it would appear that the skew is more often positive. While it is difficult to quantify the effects precisely, investors should be aware that idiosyncratic factors may be giving hedge fund index returns an artificial "lift" or upward bias.

Endnotes

[1] Campbell, John and Robert Shiller, "Valuation Ratios and the Long-Run Stock Market Outlook," *The Journal of Portfolio Management,* July 1997. https://www.nber.org/system/files/working_papers/w8221/w8221.pdf.

[2] Tang, Serena W., Andrew Sheets, Phanikiran L. Naraparaju, Wanting Low, and Elizabeth Volynsky, "What Will Markets Return?" *Cross-Asset Dispatch,* Oct. 23, 2016, Morgan Stanley & Co. Research.

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For index, indicator and survey definitions referenced in this report please visit the following: https://www.morganstanley.com/wealth-investmentsolutions/wmir-definitions

Glossary

Alpha: The excess return of an investment relative to the return of a benchmark index.

Beta: A measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole.

Correlation: This is a statistical measure of how two securities move in relation to each other. This measure is often converted into what is known as correlation coefficient, which ranges between -1 and +1. Perfect positive correlation (a correlation coefficient of +1) implies that as one security moves, either up or down, the other security will move in lockstep, in the same direction. Alternatively, perfect negative correlation means that if one security moves in either direction the security that is perfectly negatively correlated will move in the opposite direction. If the correlation is 0, the movements of the securities are said to have no correlation; they are completely random. A correlation greater than 0.8 is generally described as strong, whereas a correlation less than 0.5 is generally described as weak.

Drawdown: Refers to the largest cumulative percentage decline in net asset value or the percentage decline from the highest value or net asset value (peak) to the lowest net asset value (trough) after the peak.

Efficient frontier: The efficient frontier is the set of optimal portfolios that offers the highest expected return for a defined level of risk or the lowest risk for a given level of expected return.

Equity risk premium: The excess return that an individual stock or the overall stock market provides over a risk-free rate.

Excess return: Represents the average quarterly total return of the portfolio relative to its benchmark. A portfolio with a positive excess return has on average outperformed its benchmark on a quarterly basis. This statistic is obtained by subtracting the benchmark return from the portfolio's return.

Illiquidity premium: The extra yield investors expect to earn for giving up control to liquidate their capital for a certain period of time.

Mean reversion: This theory suggests that prices and returns eventually move back toward the mean or average. This mean or average can be the historical average of the price or return or another relevant average, such as the growth in the economy or the average return of an industry.

R^2: The coefficient of determination, is a statistic used in the context of statistical models whose main purpose is either the prediction of future outcomes or the testing of hypotheses, on the basis of other related information. It provides a measure of how well observed outcomes are replicated by the model, based on the proportion of total variation of outcomes explained by the model.

Roll down: The amount that interest rates can rise over a specified time period before the current yield exceeds an investor's year-to-maturity.

Sharpe Ratio: This statistic measures a portfolio's rate of return based on the risk it assumed and is often referred to as its risk-adjusted performance. Using standard deviation and returns in excess of the returns of T-bills, it determines reward per unit of risk. This measurement can help determine if the portfolio is reaching its goal of increasing returns while managing risk.

Shiller P/E Ratio: A measurement of stock market valuation that uses a 10-year average of inflation-adjusted earnings. It is also known as the cyclically adjusted P/E ratio (CAPE).

Standard deviation: This statistic quantifies the volatility associated with a portfolio's returns by measuring the variation in returns around the mean return. Unlike beta, which measures volatility relative to the aggregate market, standard deviation measures the absolute volatility of a portfolio's return.

Term premium: The excess yield that investors require to commit to holding a long-term bond instead of a series of shorter-term bonds.

Volatility: This is a statistical measure of the dispersion of returns for a given security or market index. Volatility can either be measured by

using the standard deviation or variance between returns from that same security or market index. Commonly, the higher the volatility, the riskier the security.

Hedged Strategy Definitions

Absolute return: This type of investing describes a category of investment strategies and mutual funds that seek to earn a positive return over time—regardless of whether markets are going up, down, or sideways—and to do so with less volatility than stocks.

Equity Long/Short: This strategy consists of a core holding of long equities hedged at all times with varying degrees of short sales of stock and/or index options. Some managers maintain a substantial portion of assets within a hedge structure and commonly employ leverage.

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

Asset Class Risk Considerations

Master Limited Partnerships (MLPs)

Individual MLPs are publicly traded partnerships that have unique risks related to their structure. These include, but are not limited to, their reliance on the capital markets to fund growth, adverse ruling on the current tax treatment of distributions (typically mostly tax deferred), and commodity volume risk.

For tax purposes, MLP ETFs are taxed as C corporations and will be obligated to pay federal and state corporate income taxes on their taxable income, unlike traditional ETFs, which are structured as registered investment companies. These ETFs are likely to exhibit tracking error relative to their index as a result of accounting for deferred tax assets or liabilities (see funds' prospectuses).

The potential tax benefits from investing in MLPs depend on their being treated as partnerships for federal income tax purposes and, if the MLP is deemed to be a corporation, then its income would be subject to federal taxation at the entity level, reducing the amount of cash available for distribution to the fund which could result in a reduction of the fund's value.

MLPs carry interest rate risk and may underperform in a rising interest rate environment. MLP funds accrue deferred income taxes for future tax liabilities associated with the portion of MLP distributions considered to be a tax-deferred return of capital and for any net operating gains as well as capital appreciation of its investments; this deferred tax liability is reflected in the daily NAV; and, as a result, the MLP fund's after-tax performance could differ significantly from the underlying assets even if the pre-tax performance is closely tracked.

Alternative investments often are speculative and include a high degree of risk. Investors could lose all or a substantial amount of their investment. Alternative investments are appropriate only for eligible, long-term investors who are willing to forgo liquidity and put capital at risk for an indefinite period of time. They may be highly illiquid and can engage in leverage and other speculative practices that may increase the volatility and risk of loss. Alternative Investments typically have higher fees than traditional investments. Investors should carefully review and consider potential risks before investing. Certain of these risks may include but are not limited to: Loss of all or a substantial portion of the investment due to leveraging, short-selling, or other speculative practices; Lack of liquidity in that there may be no secondary market for a fund; Volatility of returns; Restrictions on transferring interests in a fund; Potential lack of diversification and resulting higher risk due to concentration of trading authority when a single advisor is utilized; Absence of information regarding valuations and pricing; Complex tax structures and delays in tax reporting; Less regulation and higher fees than mutual funds; and Risks associated with the operations, personnel, and processes of the manager. Further, opinions regarding Alternative Investments expressed herein may differ from the opinions expressed by Morgan Stanley Wealth Management and/or other businesses/affiliates of Morgan Stanley Wealth Management.

Certain information contained herein may constitute forward-looking statements. Due to various risks and uncertainties, actual events, results or the performance of a fund may differ materially from those reflected or contemplated in such forward-looking statements. Clients should carefully consider the investment objectives, risks, charges, and expenses of a fund before investing.

Alternative investments involve complex tax structures, tax inefficient investing, and delays in distributing important tax information. Individual funds have specific risks related to their investment programs that will vary from fund to fund. Clients should consult their own tax and legal advisors as Morgan Stanley Wealth Management does not provide tax or legal advice.

Interests in alternative investment products are offered pursuant to the terms of the applicable offering memorandum, are distributed by Morgan Stanley Smith Barney LLC and certain of its affiliates, and (1) are not FDIC-insured, (2) are not deposits or other obligations of Morgan Stanley or any of its affiliates, (3) are not guaranteed by Morgan Stanley and its affiliates, and (4) involve investment risks, including possible loss of principal. Morgan Stanley Smith Barney LLC is a registered broker-dealer, not a bank.

Managed futures investments are speculative, involve a high degree of risk, use significant leverage, have limited liquidity and/or may be generally illiquid, may incur substantial charges, may subject investors to conflicts of interest, and are usually appropriate only for the risk capital portion of an investor's portfolio. Before investing in any partnership and in order to make an informed decision, investors should read the applicable prospectus and/or offering documents carefully for additional information, including charges, expenses, and risks. Managed futures investments are not intended to replace equities or fixed income securities but rather may act as a complement to these asset

categories in a diversified portfolio.

Risks of **private real estate** include: illiquidity; a long-term investment horizon with a limited or nonexistent secondary market; lack of transparency; volatility (risk of loss); and leverage.

Hedge funds may involve a high degree of risk, often engage in leveraging and other speculative investment practices that may increase the risk of investment loss, can be highly illiquid, are not required to provide periodic pricing or valuation information to investors, may involve complex tax structures and delays in distributing important tax information, are not subject to the same regulatory requirements as mutual funds, often charge high fees which may offset any trading profits, and in many cases the underlying investments are not transparent and are known only to the investment manager.

Investing in commodities entails significant risks. Commodity prices may be affected by a variety of factors at any time, including but not limited to, (i) changes in supply and demand relationships, (ii) governmental programs and policies, (iii) national and international political and economic events, war and terrorist events, (iv) changes in interest and exchange rates, (v) trading activities in commodities and related contracts, (vi) pestilence, technological change and weather, and (vii) the price volatility of a commodity. In addition, the commodities markets are subject to temporary distortions or other disruptions due to various factors, including lack of liquidity, participation of speculators and government intervention.

Physical precious metals are non-regulated products. Precious metals are speculative investments, which may experience short-term and long term price volatility. The value of precious metals investments may fluctuate and may appreciate or decline, depending on market conditions. If sold in a declining market, the price you receive may be less than your original investment. Unlike bonds and stocks, precious metals do not make interest or dividend payments. Therefore, precious metals may not be appropriate for investors who require current income. Precious metals are commodities that should be safely stored, which may impose additional costs on the investor. The Securities Investor Protection Corporation ("SIPC") provides certain protection for customers' cash and securities in the event of a brokerage firm's bankruptcy, other financial difficulties, or if customers' assets are missing. SIPC insurance does not apply to precious metals or other commodities.

REITs investing risks are similar to those associated with direct investments in real estate: property value fluctuations, lack of liquidity, limited diversification and sensitivity to economic factors such as interest rate changes and market recessions.

Bonds are subject to interest rate risk. When interest rates rise, bond prices fall; generally the longer a bond's maturity, the more sensitive it is to this risk. Bonds may also be subject to call risk, which is the risk that the issuer will redeem the debt at its option, fully or partially, before the scheduled maturity date. The market value of debt instruments may fluctuate, and proceeds from sales prior to maturity may be more or less than the amount originally invested or the maturity value due to changes in market conditions or changes in the credit quality of the issuer. Bonds are subject to the credit risk of the issuer. This is the risk that the issuer might be unable to make interest and/or principal payments on a timely basis. Bonds are also subject to reinvestment risk, which is the risk that principal and/or interest payments from a given investment may be reinvested at a lower interest rate.

Bonds rated below investment grade may have speculative characteristics and present significant risks beyond those of other securities, including greater credit risk and price volatility in the secondary market. Investors should be careful to consider these risks alongside their individual circumstances, objectives and risk tolerance before investing in high-yield bonds. High yield bonds should comprise only a limited portion of a balanced portfolio.

Interest on municipal bonds is generally exempt from federal income tax; however, some bonds may be subject to the alternative minimum tax (AMT). Typically, state tax-exemption applies if securities are issued within one's state of residence and, if applicable, local tax-exemption applies if securities are issued within one's city of residence.

Treasury Inflation Protection Securities' (TIPS) coupon payments and underlying principal are automatically increased to compensate for inflation by tracking the consumer price index (CPI). While the real rate of return is guaranteed, TIPS tend to offer a low return. Because the return of TIPS is linked to inflation, TIPS may significantly underperform versus conventional U.S. Treasuries in times of low inflation.

Ultrashort-term fixed income asset class is comprised of fixed income securities with high quality, very short maturities. They are therefore subject to the risks associated with debt securities such as credit and interest rate risk.

Duration, the most commonly used measure of bond risk, quantifies the effect of changes in interest rates on the price of a bond or bond portfolio. The longer the duration, the more sensitive the bond or portfolio would be to changes in interest rates. Generally, if interest rates rise, bond prices fall and vice versa. Longer-term bonds carry a longer or higher duration than shorter-term bonds; as such, they would be affected by changing interest rates for a greater period of time if interest rates were to increase. Consequently, the price of a long-term bond would drop significantly as compared to the price of a short-term bond.

The majority of $25 and $1000 par **preferred securities** are "callable" meaning that the issuer may retire the securities at specific prices and dates prior to maturity. Interest/dividend payments on certain preferred issues may be deferred by the issuer for periods of up to 5 to 10 years, depending on the particular issue. The investor would still have income tax liability even though payments would not have been received. Price quoted is per $25 or $1,000 share, unless otherwise specified. Current yield is calculated by multiplying the coupon by par value divided by the market price.

Some $25 or $1000 par **preferred securities** are QDI (Qualified Dividend Income) eligible. Information on QDI eligibility is obtained from third party sources. The dividend income on QDI eligible preferreds qualifies for a reduced tax rate. Many traditional 'dividend paying' perpetual preferred securities (traditional preferreds with no maturity date) are QDI eligible. In order to qualify for the preferential tax treatment all qualifying preferred securities must be held by investors for a minimum period – 91 days during a 180 day window period, beginning 90 days before the ex-dividend date.

The market value of **convertible bonds** and the underlying common stock(s) will fluctuate and after purchase may be worth more or less than original cost. If sold prior to maturity, investors may receive more or less than their original purchase price or maturity value, depending on

market conditions. Callable bonds may be redeemed by the issuer prior to maturity. Additional call features may exist that could affect yield.

The initial interest rate on a floating-rate security may be lower than that of a fixed-rate security of the same maturity because investors expect to receive additional income due to future increases in the floating security's underlying reference rate. The reference rate could be an index or an interest rate. However, there can be no assurance that the reference rate will increase. Some floating-rate securities may be subject to call risk.

Any type of continuous or periodic investment plan does not assure a profit and does not protect against loss in declining markets. Since such a plan involves continuous investment in securities regardless of fluctuating price levels of such securities, the investor should consider his financial ability to continue his purchases through periods of low price levels.

Active or frequent trading to effectuate a dynamic allocation strategy entails greater risk and is more speculative, but also entails the possibility for above-average returns, compared with a long-term investment strategy. It may also entail more costs and fees, as well as a larger and more immediate tax liability.

Principal is returned on a monthly basis over the life of a mortgage-backed security. Principal prepayment can significantly affect the monthly income stream and the maturity of any type of MBS, including standard MBS, CMOs and Lottery Bonds. Yields and average lives are estimated based on prepayment assumptions and are subject to change based on actual prepayment of the mortgages in the underlying pools. The level of predictability of an MBS/CMO's average life, and its market price, depends on the type of MBS/CMO class purchased and interest rate movements. In general, as interest rates fall, prepayment speeds are likely to increase, thus shortening the MBS/CMO's average life and likely causing its market price to rise. Conversely, as interest rates rise, prepayment speeds are likely to decrease, thus lengthening average life and likely causing the MBS/CMO's market price to fall. Some MBS/CMOs may have "original issue discount" (OID). OID occurs if the MBS/CMO's original issue price is below its stated redemption price at maturity, and results in "imputed interest" that must be reported annually for tax purposes, resulting in a tax liability even though interest was not received. Investors are urged to consult their tax advisors for more information.

Equity securities may fluctuate in response to news on companies, industries, market conditions and general economic environment.

Companies paying dividends can reduce or cut payouts at any time.

Investing in smaller companies involves greater risks not associated with investing in more established companies, such as business risk, significant stock price fluctuations and illiquidity.

Stocks of medium-sized companies entail special risks, such as limited product lines, markets, and financial resources, and greater market volatility than securities of larger, more-established companies.

Asset allocation and diversification do not assure a profit or protect against loss in declining financial markets.

Because of their narrow focus, sector investments tend to be more volatile than investments that diversify across many sectors and companies. Technology stocks may be especially volatile. Risks applicable to companies in the energy and natural resources sectors include commodity pricing risk, supply and demand risk, depletion risk and exploration risk. Health care sector stocks are subject to government regulation, as well as government approval of products and services, which can significantly impact price and availability, and which can also be significantly affected by rapid obsolescence and patent expirations.

Investing in foreign markets entails greater risks than those normally associated with domestic markets, such as political, currency, economic and market risks. These risks are magnified in emerging and frontier markets. Investing in currency involves additional special risks such as credit, interest rate fluctuations, derivative investment risk, and domestic and foreign inflation rates, which can be volatile and may be less liquid than other securities and more sensitive to the effect of varied economic conditions. In addition, international investing entails greater risk, as well as greater potential rewards compared to U.S. investing. These risks include political and economic uncertainties of foreign countries as well as the risk of currency fluctuations. These risks are magnified in countries with emerging markets, since these countries may have relatively unstable governments and less established markets and economies.

Value investing does not guarantee a profit or eliminate risk. Not all companies whose stocks are considered to be value stocks are able to turn their business around or successfully employ corrective strategies which would result in stock prices that do not rise as initially expected.

Growth investing does not guarantee a profit or eliminate risk. The stocks of these companies can have relatively high valuations. Because of these high valuations, an investment in a growth stock can be more risky than an investment in a company with more modest growth expectations.

Yields are subject to change with economic conditions. Yield is only one factor that should be considered when making an investment decision.

Credit ratings are subject to change.

Rebalancing does not protect against a loss in declining financial markets. There may be a potential tax implication with a rebalancing strategy. Investors should consult with their tax advisor before implementing such a strategy.

Environmental, Social and Governance ("ESG") investments in a portfolio may experience performance that is lower or higher than a portfolio not employing such practices. Portfolios with ESG restrictions and strategies as well as ESG investments may not be able to take advantage of the same opportunities or market trends as portfolios where ESG criteria is not applied. There are inconsistent ESG definitions and criteria within the industry, as well as multiple ESG ratings providers that provide ESG ratings of the same subject companies and/or securities that vary among the providers. Certain issuers of investments may have differing and inconsistent views concerning ESG criteria where the ESG claims made in offering documents or other literature may overstate ESG impact. ESG designations are as of the date of this material, and no assurance is provided that the underlying assets have maintained or will maintain and such designation or any stated ESG compliance. As a

result, it is difficult to compare ESG investment products or to evaluate an ESG investment product in comparison to one that does not focus on ESG. Investors should also independently consider whether the ESG investment product meets their own ESG objectives or criteria. There is no assurance that an ESG investing strategy or techniques employed will be successful. Past performance is not a guarantee or a dependable measure of future results.

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