Morgan Stanley

WEALTH MANAGEMENT

INVESTMENT STRATEGY

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Topics in Portfolio Construction

Reading the Defense: Cross-Asset Implications for Curve Inversion, Persistent Inflation and Decelerating Growth

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In this report, we evaluate near-term positioning after a volatile, challenging first quarter; study the quantitative signals motivating the GIC's recent changes to its Tactical models; and review key takeaways from the Strategic, seven-year capital markets assumptions.

Since January 3's all-time highs in US equity indices, investors have faced a challenging backdrop. Across the US Treasury curve, yields have jumped to reflect an increasingly hawkish Federal Reserve, leading to modest curve inversion. As conflict in Ukraine disrupted commodity markets, even as supply chains slowly healed, inflationary pressures accelerated. With global monetary and fiscal stimulus waning, global growth has downshifted from 2021's torrid pace.

Remarkably, US equity analysts have still adjusted year-ahead earnings upward in 2022. As a result, US equity indices' softness has come through valuation pressures, in reaction to higher prevailing yields and forward uncertainty. Recent market action has pointed to an appetite for more defensive positioning, through sectors like Consumer Staples and factors like Low Volatility. Despite the early warning signs from an inverted yield curve, recession risks remain low. Technical factors, including quantitative easing and pension fund demand, may have exerted more influence over the curve than economic considerations, reflected in a negative term premium.

On March 15, the GIC de-risked its Tactical allocation models, reducing US large-cap value and European equities; eliminating high yield fixed income; and increasing Asia-Pacific ex-Japan equities and long-term Treasuries. While these moves maintained a slight equity overweight, the GIC neutralized its fixed income duration exposures, in view of greater value in long-term US Treasuries in absolute terms and as a potential diversifier amid slackening macroeconomic and earnings growth.

Traditional asset classes saw modest increases in expected nominal returns within the GIC's Strategic, seven-year capital markets assumptions, hinging on higher starting yields and less anticipated drag from valuation adjustments. While the efficient frontier of equity-fixed income portfolios shifted upward, the returns environment remains underwhelming, particularly compared to recent history, suggesting that effective diversification and tactical positioning will be paramount.

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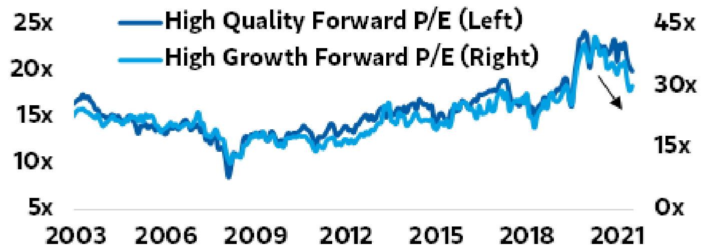
Key Takeaways

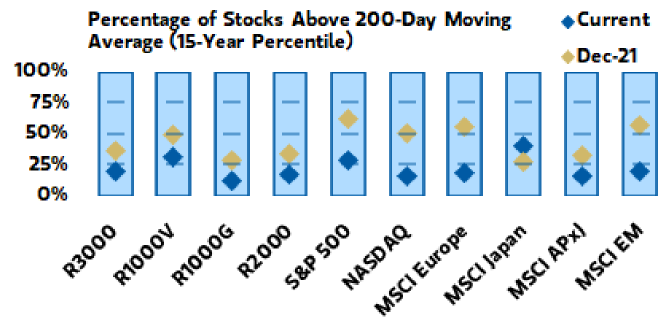
- **Assessing the inversion of the yield curve and the probability of a recession.** The 2s10s curve has inverted for the first time since 2019, mainly due to technical factors (3). At the same time, investors' concerns over stagflation have increased, reflected in the recent divergence between the relative performance of US cyclical versus defensive equity exposures and the US 10-year breakeven inflation rate (4).
- **Checking on conditions for defensive factor exposures.** Market turbulence has caused the high Quality factor's valuation to fall, along with high-Growth. Given that the high-Quality factor has historically offered support in risk-off environments, we believe its fundamental attractiveness has improved (5).
- **Fund Flows: Revealing a Recent Retreat from European Equities and US Financials**. Market volatility has prompted significant outflows from European equities and a rotation from cyclical to defensive equity sectors (6). Equity volatility has caused market breadth in major equity indexes to retreat toward the low end of a 15-year range, providing a tailwind for skilled active stock pickers (7).
- **Analyzing the recent GIC tactical changes and changes to the annual capital markets assumptions.** In its recent portfolio de-risking, the GIC neutralized its US equity style preferences and reduced its positioning in European equities (8). Further, the GIC eliminated its position in US HY credit and added to long-term Treasuries (9). In its annual update of strategic capital markets assumptions, the GIC's strategic return forecasts rose modestly from 2021 (10), driven by higher starting yields and a dampened impact from yield or valuation adjustments (11).
- **Favoring higher quality and lower volatility equity exposures.** We conclude with a screen using our Tactical Equity Framework. We rank stocks according to Near-Term Value, Earnings Revisions, high Quality and low Volatility (12).

High Quality factor's relative valuations have fallen from stretched levels.



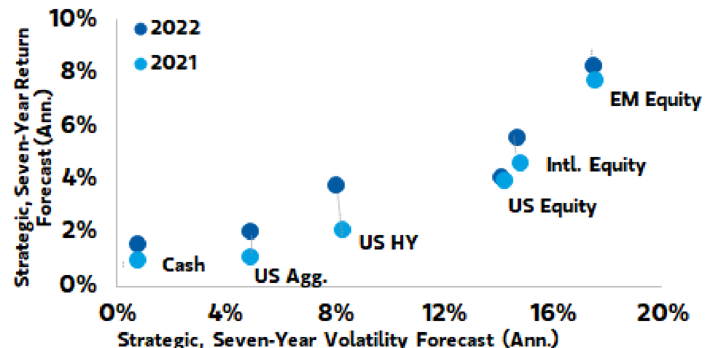
Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

Breadth has retreated toward the low end of a 15-year range.



Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

The GIC's strategic return estimates increased across each major traditional asset class.



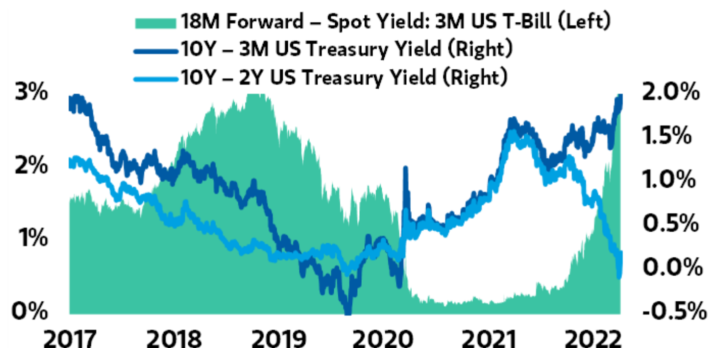
Source: Bloomberg, FactSet, Moody's, Haver Analytics, Morgan Stanley & Co., Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

FIXED INCOME

Assessing Signals: Yield Curve Inversion and Recession Probabilities

Although the 2s10s curve has inverted for the first time since 2019, curves including three-month yields have widened.

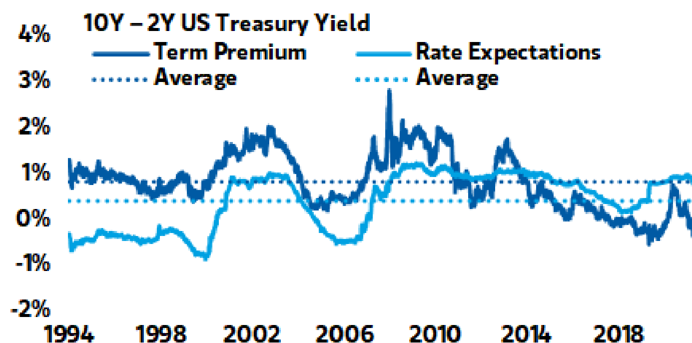
On April 1, the spread between the US 10-year and two-year US Treasury Yield ("the 2s10s curve") inverted to -8 bp, the first instance since 2019 and its lowest level since 2007. An inversion of the 2s10s curve has historically preceded recessions, but the overhang of Fed asset holdings may cloud today's picture. Another historically accurate recession indicator, the yield spread between the US 10-year and three-month, has widened to its steepest level since 2008. According to a 2018 paper from the San Francisco Fed, this spread between 10-year and the three-month yield has demonstrated the greatest predictive power of any term spread in flagging the likelihood of a recession in the next 12 months. The Fed's paper also highlights the predictability of another spread: the current three-month T-bill yield and the implied yield in 18-months, which currently sits at its highest level since 2002.



Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of April 8, 2022.

Technical factors, focusing on term premiums, have contributed materially to the 2s10s curve's flattening.

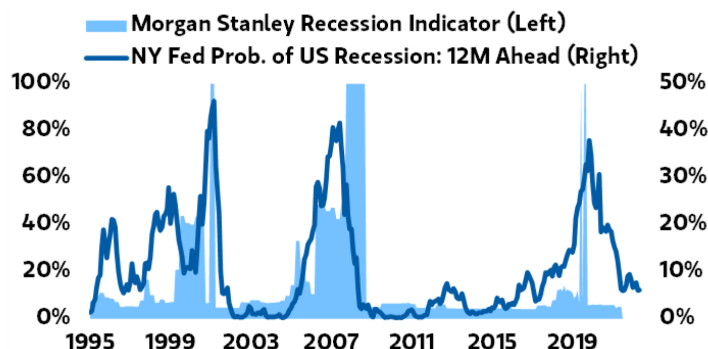
Two-year yields incorporate term premium and inflation expectations, while the three-month T-bill reflects the Fed's current policy rate. This differentiation helps to explain the divergence between the 2s10s curve and those involving three-month yields. Ultimately, demand-driven distortions may have diminished the 2s10s curve's reliability as a monetary policy or macro signal. To evaluate the situation, our MS & Co. colleagues decomposed the 2s10s curve into its two components: term premium and rate expectations. The term premium component accounted for most of the recent curve flattening (see chart). According to MS & Co., the term premium curve has flattened significantly due to quantitative easing; strong demand from pension funds and overseas investors; and a flight to quality over the last two years.



Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of April 8, 2022.

While the likelihood of a recession in the US remains low, macroeconomic growth appears to be decelerating.

The likelihood of a recession in the next 12 months in the US remains low, as highlighted by both the Morgan Stanley and New York Fed recession indicators (see chart). MS & Co. forecasts that the US economy will maintain its expansion in 2022, albeit at a slowing pace. Financial markets tend to react more significantly to rates of change than to levels. According to the Atlanta Fed GDP Now forecast—a real-time estimate of real GDP for the next quarter—the first quarter's excepted real GDP growth stands at 0.9%, a notable downshift from the fourth quarter's 6.9% pace. Moreover, according to an analysis from Piper Sandler Macro, during five of the last six yield curve inversions, the ISM New Orders Index fell by -19 points over the proceeding 12 months, as recessionary pressures have built up. This backdrop supports our defensive equity allocation positioning.



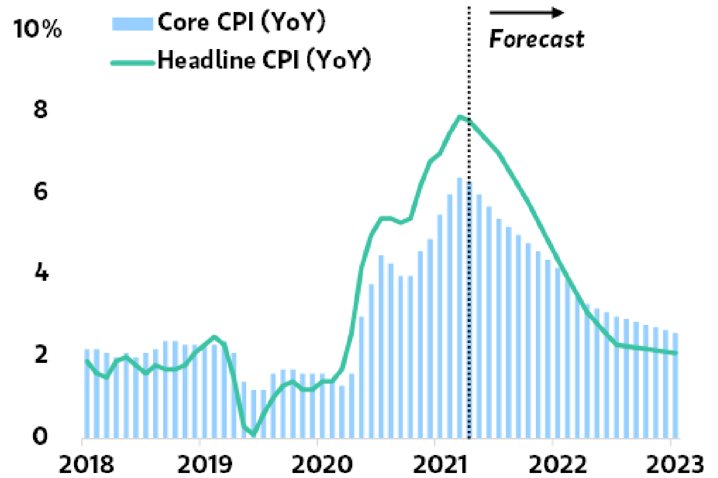
Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

CROSS-ASSET

The Pace of Inflation May Moderately Soften in Coming Months

Year-over-year US inflation prints may have reached their peak in February, given improving supply chains and slower wage gains.

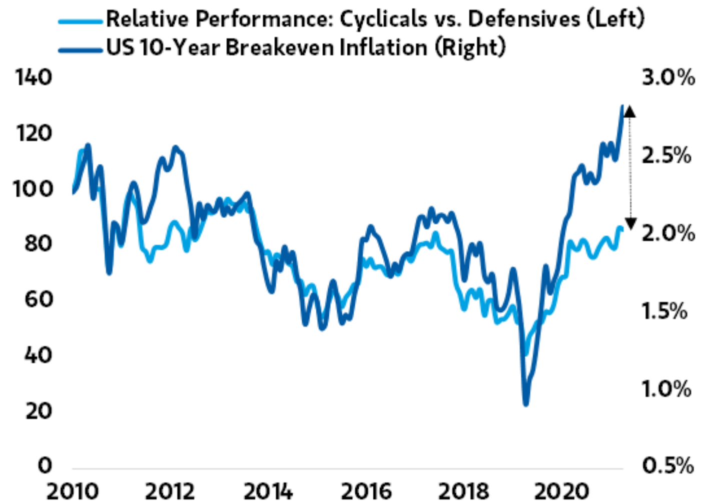
The headline Consumer Price Index (CPI), which measures the prices for a wide-ranging basket of consumer goods and services, rose by 7.9% on a year-over-year basis in February, the highest level since 1982. The Core CPI, which removes the volatile food and energy components, also reached its highest level since 1982, at 6.4% year-over-year. Volatile oil prices, given the Russia-Ukraine conflict, and accelerating shelter costs, given tighter supply/demand dynamics in housing, have contributed to inflationary pressures. MS & Co. highlights that year-over-year inflation increases may have peaked in February. Supply chains have started to gradually normalize. Meanwhile, increasing labor force participation and slowing wage gains may reduce the likelihood of a wage-price spiral.



Source: Bloomberg, Morgan Stanley Wealth Management GIC, MS & Co. Research. Data as of March 31, 2022.

Investors' concerns over potential stagflation have increased, reflected in the recent divergence between (1) the relative performance of US cyclical versus defensive equity exposures and (2) US 10-year breakeven inflation.

The chart to the right visualizes the long-term relationship between US 10-year breakeven inflation and the relative performance of US cyclical versus defensive equity exposures. Despite their long-term relationship, the relative performance of cyclicals versus defensives has recently failed to keep pace with surging inflationary expectations. This gap suggests that rising inflationary pressures may point to economic headwinds, whereas rising breakeven inflation levels in the early cycle often accompany a healthy recovery. At the same time, the Fed has adopted a hawkish policy stance, intent on quelling more than "transitory" inflationary pressures. Today's mix of elevated inflationary pressures and still-negative real yields correspond to a complicated stagflationary picture for investors.



Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

EQUITIES

Checking on Conditions for Defensive Factor Exposures

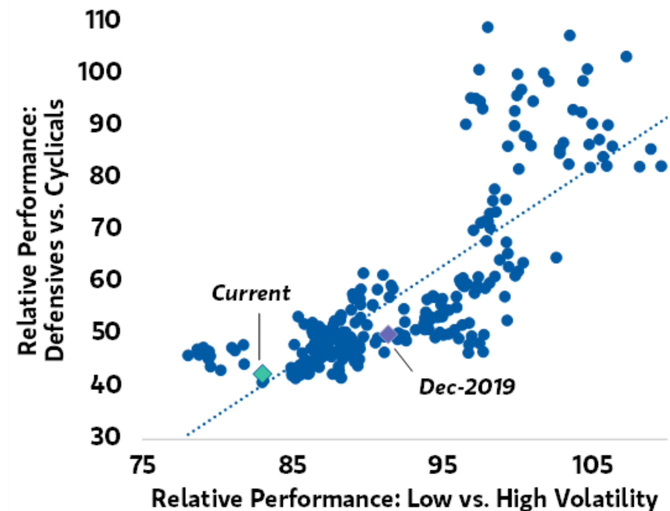
Amid recent market turbulence, the high Quality factor's relative valuations have fallen from stretched levels, along with high Growth.

To the right, we display the high Growth and high Quality factors' P/E ratios since 2003. After several years of outperformance, the high Quality factor's valuations reached secularly stretched levels in absolute terms by 2021, along with the high Growth factor. Their common valuation paths suggest material overlap in these two factors. Thus far in 2022, both factors have experienced sharp corrections in those elevated valuations. As we have shown in previous publications, the high Quality factor has historically offered support in risk-off environments. Given the valuation retracement, high Quality's fundamental attractiveness has improved.

Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

The Low versus High Volatility factors' relative performance have historically correlated with the relative performance of defensives versus cyclicals.

As anticipated, the Low Volatility factor has historically exhibited defensive characteristics, as shown in its relative performance versus the High Volatility factor and compared to the relative performance of defensives versus cyclicals. Given that 2022 may support a risk-off stance, the Low Volatility factor may remain a preferable exposure. As of late 2019, the Low Volatility factor's relative strength versus the High Volatility factor had surpassed the relative strength of the defensives-versus-cyclical ratio, suggesting premium valuations for Low Volatility. Its subsequent underperformance has brought valuations towards more reasonable levels, making it relatively more attractive as a potential beneficiary in a risk-off environment.



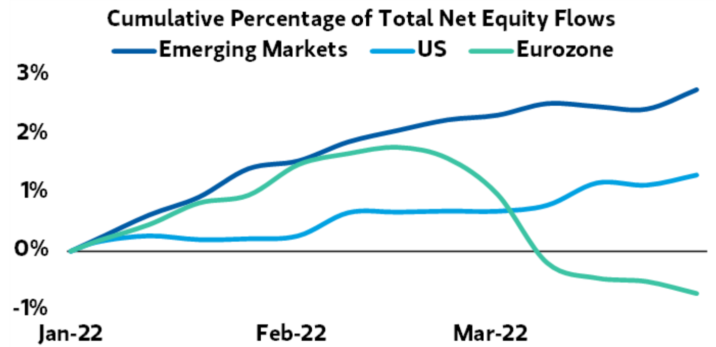
Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

FUND FLOWS

Fund Flows Reveal a Recent Retreat from European Equities and US Financials

The Russia-Ukraine conflict prompted significant outflows from European equities since January.

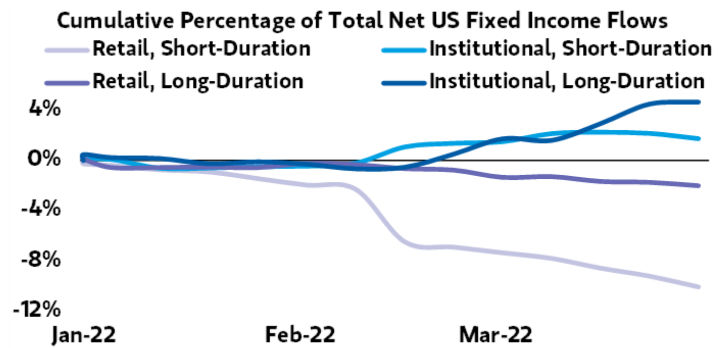
On February 15, a week before the Russian invasion of Ukraine, we published a chart that analyzed equity fund flows into the US, Europe and EM. At that time, we noted that, despite a global equity sell-off in January, fund flows suggested a rotation from the US into European and EM equities. Since mid-February, however, this trend has reversed sharply. The conflict in Ukraine has triggered concerns about stagflation and recession in Europe, leading to the largest-ever outflow in 20 years of data.



Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

Fixed income volatility has resulted in retail outflows, while institutions have boosted longer-duration exposures amid higher Treasury yields.

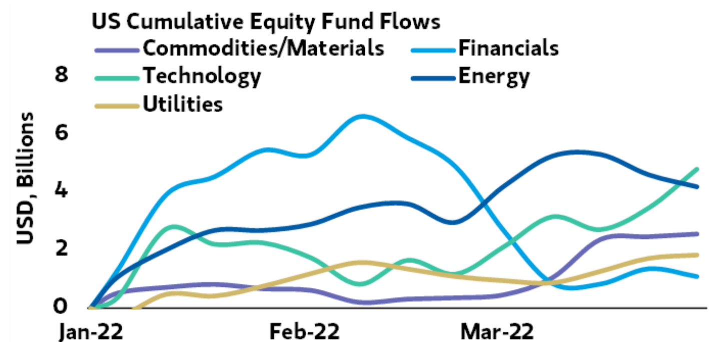
Consistently higher levels of inflation and expectations for multiple Fed rate hikes have caused bond yields to rise precipitously across the curve. As a result, fixed income volatility, as measured by the ICE BofA MOVE Index, reached its highest level since March 2020. Retail investors have reacted to this volatility by reducing exposures both to long- and short-duration fixed income strategies (see chart). On the other hand, institutions have responded to higher US yields by adding to their fixed income exposures, particularly in long-duration strategies.



Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

Net US equity flows point to a rotation from cyclical to defensive equity sectors in the first quarter.

To conclude, we reviewed year-to-date fund flows among US equity sector-focused strategies. Since February, flows have diverged significantly, with inflows for Technology and Utilities and outflows for Financials. Financials received healthy inflows through mid-February, given the prospect for higher interest rates and healthy economic growth. Since that time, the Russia-Ukraine conflict, higher inflationary and the 2s10s yield curve's inversion have suggested growing concerns of a recession or stagflation. As a result, Growth and defensive exposures, including the Technology and Utilities sectors, respectively, have received notable positive flows, while Financials have experienced significant outflows.



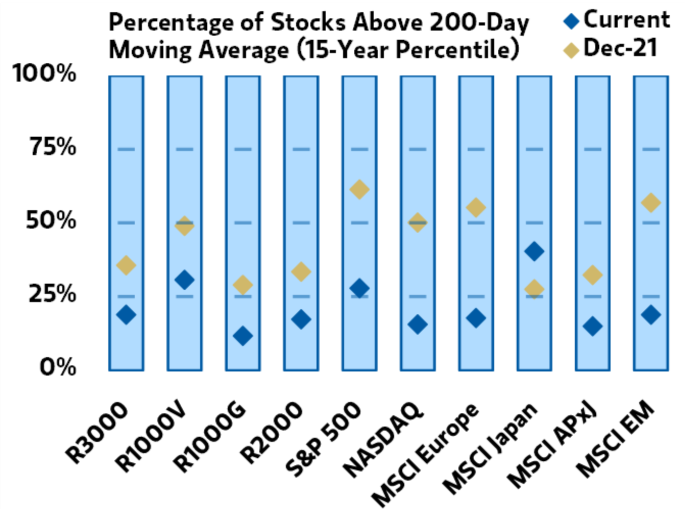
Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

EQUITIES

Equity Market Sentiment Points to Opportunity for Active Stock Pickers

Across most major equity indexes, breadth in their underlying constituents has retreated toward the low end of a 15-year range.

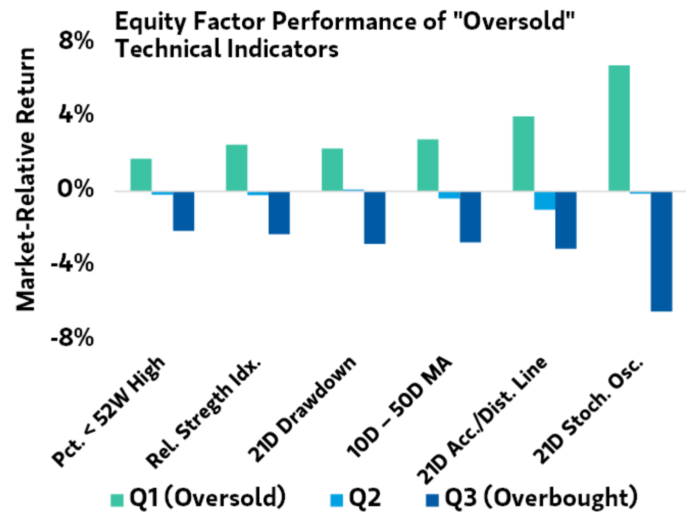
We examined the percentage of stocks that lie above their 200-day moving averages across major US and international benchmark indices. Year-to-date, major global indices, except Japan, have declined in 2022. Currently, around 50% of stocks in the S&P 500 or Russell 1000 Value index trade above their 200-day moving averages, the highest level among the indices we reviewed. In contrast, only one-third of stocks in the MSCI Europe, Emerging Markets, or Asia-Pacific ex-Japan indices trade above their 200-day averages. In percentile terms, most indices sit at or below their bottom quartile relative to the last 15 years. This setup could provide a tailwind for skilled active stock pickers, who can potentially capitalize on relative opportunities beneath the index level.



Source: Bloomberg, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

We found that technical indicators have historically shown mean-reverting characteristics, which could be a valuable factor to consider.

Considering the prospect that 2022 could evolve into a "stock-picker's" market, we reviewed the historical effectiveness of several technical indicators, which study price and volume data to assess whether assets appear in an up- or downtrend. Looking closely, we found compelling evidence of a short-term "mean reversion" factor for equities. In other words, stocks that appear significantly oversold have historically outperformed those that appear overbought over the following one month, on average. While this finding tracks our intuition, even this effective approach still faces risks. Since technicals solely consider price and volume data, they inherently neglect the fundamental reasons why a given stock may have reached overbought or oversold conditions. For this reason, we reiterate our tactical recommendation for leaning into active managers in 2022. Skilled active managers have historically taken advantage of higher-volatility environments through their fundamental research and risk management.



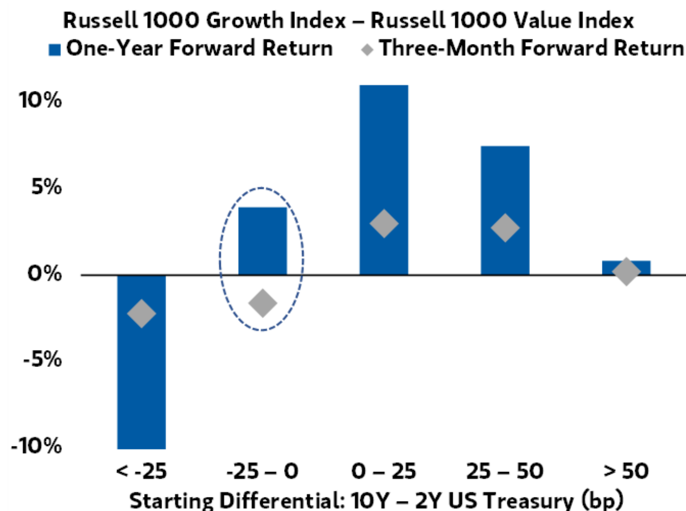
Source: FactSet, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

GIC TACTICAL CHANGES

GIC Tactical Changes: Neutralizing US Style and Reducing European Equities

In its recent portfolio de-risking, the GIC neutralized its US equity style preferences by reducing large-cap value.

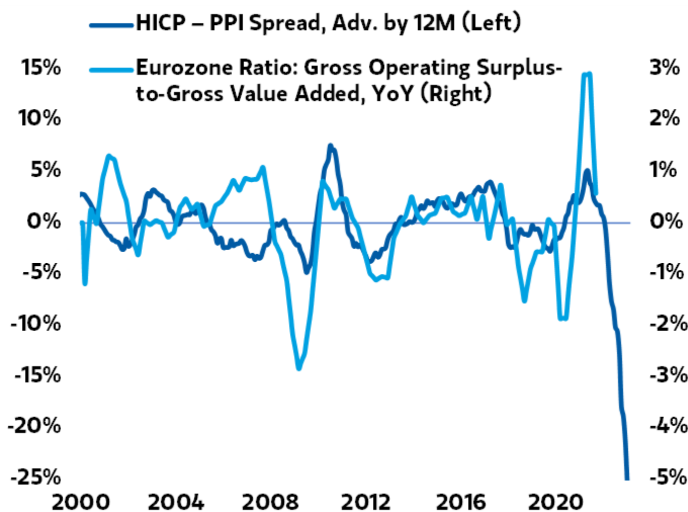
On March 15, the Global Investment Committee (GIC) de-risked the positioning in its Tactical asset allocation models, responding to potentially slower growth and higher yields in investment grade fixed income. Within US equities, the GIC focused on neutralizing its style preferences, reducing US large-cap value by 2% within its Balanced Growth (Model 3) portfolio. As a result, the Model 3 portfolio now reflects an underweight position in US large-cap equities but a slight US equity overweight when including SMID-cap exposures. Given the GIC's changes, we analyzed the 40-year market-relative performance of large-cap growth versus large-cap value at varying levels for the 2s10s yield curve. With a slightly inverted curve, the historical record suggests favorable conditions for large-cap growth versus value on a 12-month horizon. In the three months following a slightly inverted yield after a slightly yield curve, value outperformed growth by about 1.6%, but the relationship reversed with a longer timeframe. Should the curve re-steepen slightly, historical evidence suggests favorable conditions for growth over value. We note that past performance is no guarantee of future results.



Source: Bloomberg. Morgan Stanley Wealth Management GIC. Data as of March 31, 2022

The GIC also reduced its positioning in European equities and initiated a position in Asia-Pacific ex-Japan equities.

The GIC also shifted its regional exposures in developed market equities, lowering its weight to European equities by 4% and initiating a 2% position in Asia-Pacific ex-Japan equities within its Balanced Growth (Model 3) portfolio. As a result, the portfolio approached neutral positioning in both international developed and European positioning, moving to overweight in Asia-Pacific ex-Japan. Although European equities maintain a valuation discount and could benefit from greater fiscal spending in defense and energy industries, near-term concerns motivated the GIC to de-risk tactically. Both Eurozone consumer (HICP) and producer (PPI) inflation have reached all-time highs, given the near-term challenges of sourcing energy, food and other commodities. Historically, when the spread between HICP and PPI inflation has turned negative, European companies' profitability—measured by gross operating surplus relative to gross value added—has deteriorated over the following 12 months. Given this dynamic, European equities may face near-term earnings headwinds.



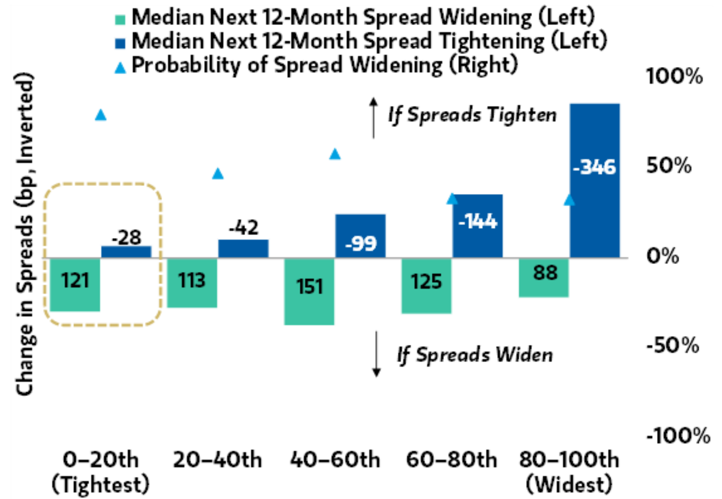
Source: Gavekal Research, Macrobond, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.
Note: Eurozone gross operating surplus and gross value added excludes Ireland and Financials.

GIC TACTICAL CHANGES

Eliminating High Yield and Allocating to Long-Term Treasuries

Although spreads for US high yield corporate credit have widened, its risk-reward picture remains unattractive.

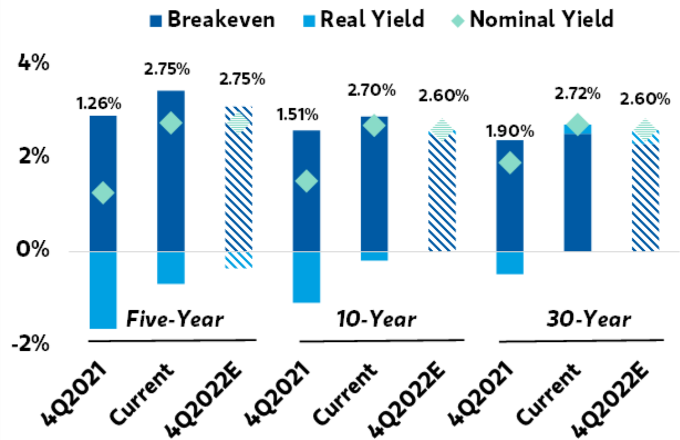
Following last month's stress in global fixed income markets, index-level high yield spreads have widened by 0.51% since December 31. We analyzed the historical path of high yield spreads, given varying starting levels. In previous episodes, when high yield spreads began in the tightest quintile, the average spread widening has overwhelmed the average spread tightening, with spreads widening in approximately 80% of cases. Therefore, given the higher likelihood and scale of credit spread widening over the next 12 months, high yield fixed income faces an unfavorable risk-reward picture, especially considering the later-cycle environment and prospects for rising interest rates over the intermediate term.



Source: FactSet, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

With the 30-year Treasury reaching MS & Co.'s year-end forecast level, longer-duration Treasuries may provide decent hedging value in an environment of decelerating macro and earnings growth.

Thus far in 2022, US 10-year real yields have surged, from -1.04% as of December 31 to -0.15% as of April 8, accounting for more than two-thirds of the nominal 10-year yield's 1.19% advance. As the GIC explained in its recent Tactical change, investors have largely discounted the Fed's hawkish pivot, with the Fed funds futures indicating an additional 2.25% of rate hikes through December. Consequently, long-term Treasury yields have exceeded MS & Co.'s year-end forecasts. As such, longer-term Treasuries have become an appropriate exposure for managing portfolio-level downside risk.



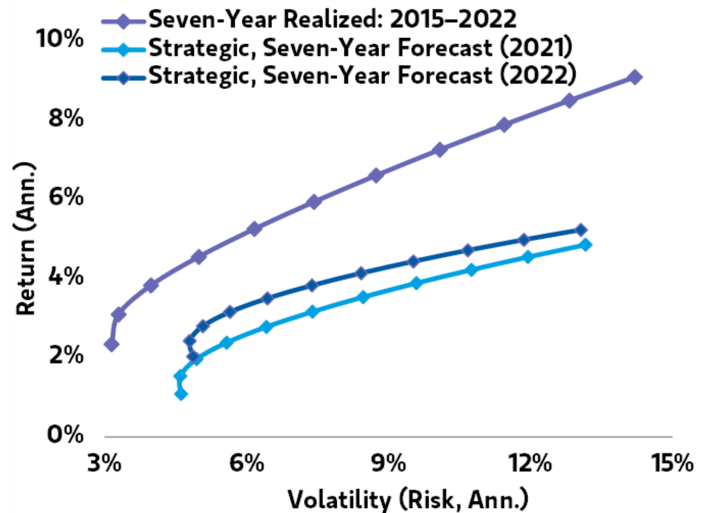
Source: Bloomberg, Morgan Stanley Wealth Management GIC, MS & Co. Research. Data as of April 8, 2022.

GIC STRATEGIC FORECASTS

GIC Strategic Forecasts Show Muted Returns for Traditional Portfolios

Based on the GIC's strategic capital markets assumptions, investors may expect lower returns from traditional equity-fixed income blended portfolios compared to the trailing seven years.

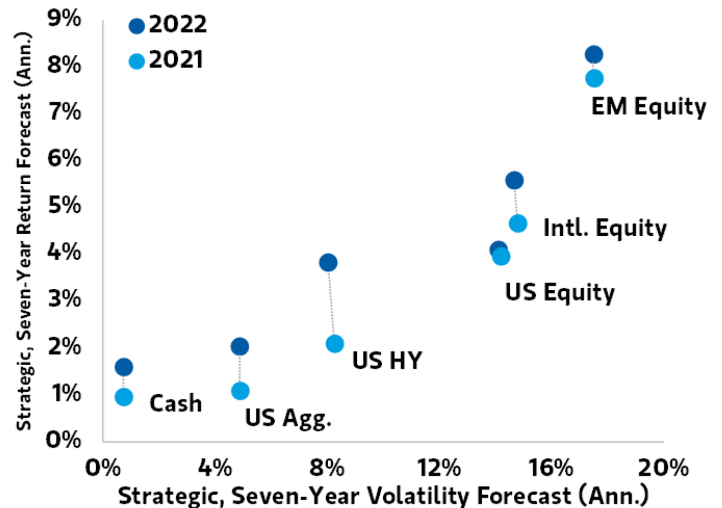
On March 31, the GIC published its annual update of its capital market assumptions, in which we "mark-to-market" our return and volatility forecasts for each asset class over the seven-year (strategic) and 20-year (secular) horizons. This chart displays the efficient frontier constructed from combinations of US equities and fixed income, comparing the latest seven-year (strategic) forecasts, the 2021 forecasts and realized returns for the trailing seven years. The efficient frontier has seen a modest upward shift relative to last year, yet the forward estimates lie well below the trailing seven-year observation. The GIC believes that the past decade's strong returns are unlikely to repeat over the next seven years. Our latest forecasts suggest that increasing exposures to nontraditional asset classes, such as Real Assets and Hedged Strategies, may be particularly valuable for enhancing portfolio-level risk-adjusted returns.



Source: FactSet, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.
Note: We have represented Stocks with the MSCI All-Country World Index and Bonds with the Bloomberg US Aggregate Index.

The GIC's strategic return estimates increased across each major traditional asset class.

Here, we illustrate the year-on-year changes in strategic return and risk estimates for major asset class categories. Compared to 2021, strategic return forecasts increased modestly for most asset classes. Higher interest rates boosted the strategic return forecasts for fixed income, given the significant correlation between starting yield and long-term total returns. Meanwhile, higher yields and inflation expectations also boosted equity returns, in the form of an expected higher total shareholder yield. Moreover, the moderate decline in equity valuations in early 2022 also benefitted strategic returns, which factor in the expected change in valuations over the seven-year horizon. Despite these year-on-year changes, valuations remain relatively full versus history for most asset classes, while interest rates look poised to rise from relatively low levels. Strategic volatility estimates remain largely unchanged, as the GIC maintained similar expectations for prospective macro regimes.



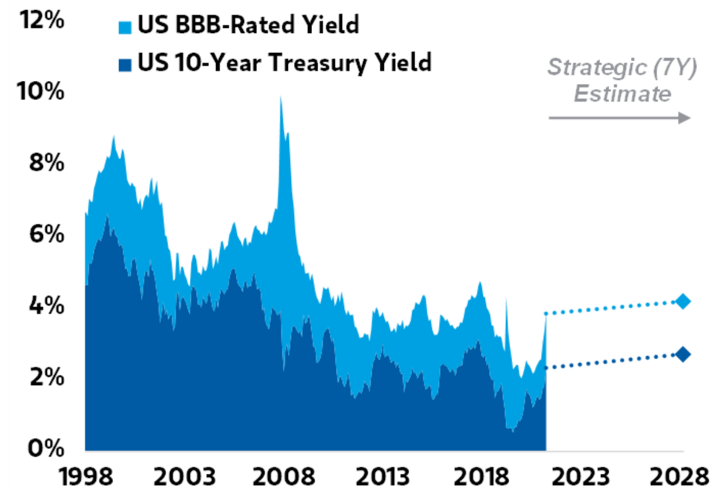
Source: Bloomberg, FactSet, Moody's, Haver Analytics, Morgan Stanley & Co., Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.
Note: We represent US Equity by the Russell 3000 Index; Intl. Equity by the MSCI World ex-US Index (Net); EM Equity by the MSCI Emerging Markets Index (Net); Cash by the FTSE Three-Month T-Bill Index; US Agg. by the Bloomberg US Aggregate Index; and US HY by the Bloomberg US High Yield Corporate Index.

GIC STRATEGIC FORECASTS

The GIC Forecasts Higher Yields and Moderating Equity Risk Premiums Over the Strategic, Seven-Year Horizon

Our return forecasts reflect higher risk-free and risky US rates over the strategic, seven-year horizon.

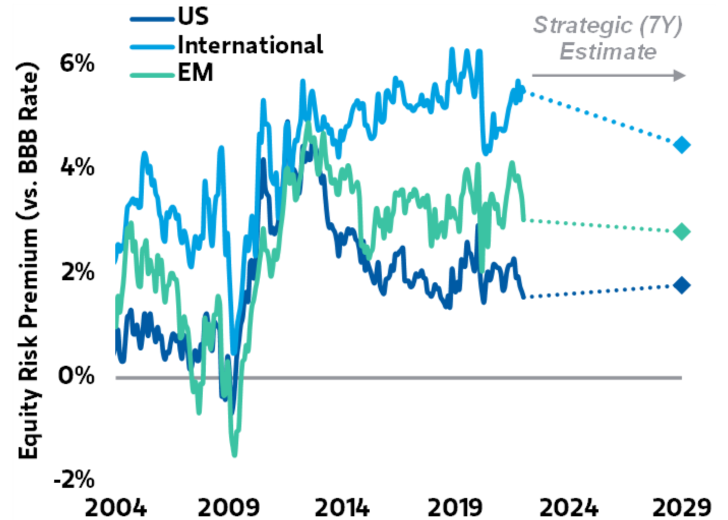
The expected path of interest rates over the seven-year horizon strongly influences our strategic fixed income estimates. Further, these interest rate estimates also impact the expected changes in equity risk premiums, an element in our strategic equity methodology. Our model predicts the US 10-year Treasury yield will likely sit at 2.7% in 2029, while US BBB-rated credit spreads should remain around 150 bp. The expectation for rising rates negatively impacts the strategic returns forecast. Higher starting yields helped to boost overall returns forecasts, both from the yield component and a less negative impact from expected changes in yields. Credit spreads have also risen moderately over the past 12 months, reaching the 20-year median spread levels, which slightly benefits the returns for credit-sensitive asset classes relative to 2021.



Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

We estimate that equity risk premiums will rise slightly for the US and compress for the international developed and emerging markets.

Our strategic equity methodology considers three components: expected nominal shareholder yields, expected real earnings growth, and the impact of expected changes in valuations. The valuation component blends two approaches: one based on the cyclically-adjusted price-to-earnings (CAPE) ratio and another using the equity risk premium (ERP). The methodology assumes that equity valuations will revert, at least partially, to long-run valuation levels, which, for the ERP component, we estimate using the historical 20-year median. For most asset classes, we assume a 50% reversion to long-term valuation levels, given evidence that the rise in equity valuations following the Global Financial Crisis may be partially structural due to a lower natural rate of interest. We anticipate that a rising ERP may pose a small headwind for US equities' strategic returns, while international and emerging markets equities may benefit from a declining risk premiums.



Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

EQUITIES

Equity Allocation Recommendations from Our Tactical Equity Framework

Using our Tactical Equity Framework, we sorted US sectors by Near-Term Value, positive Earnings Revisions, high Quality and low Volatility.

This month, we ranked US equity sectors based on the Near-Term Value, positive Earnings Revisions, high Quality and low Volatility factors from our quantitative factor-based Tactical Equity Framework. The rankings here consider the combined scores across each factor to determine the overall preferred exposures to the GICS sectors. Further, we break out the Hardware and Software components of the Information Technology sector, given these subsectors' differentiated exposures. We believe this combination of metrics can help to identify attractive equity exposures for the tactical, 12-month horizon, as we anticipate persistent inflationary pressures and geopolitical uncertainty to contribute to continued market volatility, raising the probability of a corporate earnings slowdown.

US Sector	Near-Term Value	Earnings Revisions	Quality	Low Volatility	Overall Rank
Financials	1	4	2	5	1
Health Care	3	3	3	3	1
Tech Hardware	8	1	1	6	3
Consumer Staples	6	6	5	1	4
Tech Software	10	2	1	8	5
Industrials	5	8	4	4	6
Energy	1	1	10	10	7
Real Estate	9	5	7	2	8
Materials	2	7	9	9	9
Communication Services	4	9	8	7	10
Utilities	7	10	10	1	11
Consumer Discretionary	10	10	6	10	12

Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.

Using the same factors, we sought out relatively attractive country-level exposures across developed and emerging markets equities.

In addition to our US sector recommendations above, we also ranked investible countries by the same selection of factors. We believe that this combination of indicators may also be appropriate for assessing the attractiveness of global equity markets over the tactical, 12-month horizon, given our expectations for higher inflation, geopolitical uncertainty and slowing earnings. The chart here presents the top-ranking countries, separated into developed and emerging market cohorts, based on the combined scores from these selected indicators.

Country	Near-Term Value	Earnings Revisions	Quality	Low Volatility	Overall Rank
Developed Markets					
Canada	5	3	3	1	1
United States	10	1	1	2	2
France	3	1	4	6	3
Netherlands	5	3	1	7	4
Australia	6	1	5	4	5
Emerging Markets					
Mexico	2	1	1	4	1
Taiwan	4	1	1	2	2
Turkey	1	1	1	8	3
Colombia	1	2	1	7	4
Brazil	1	3	1	7	5

Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC. Data as of March 31, 2022.
Note: The scores above represent decile rankings (1 = Best; 10 = Worst). For definitions of factors and universes, please refer to our special report, "Tactical Equity Allocation: Introducing a Systematic Framework for Short-Term Investment Views", December 2015.

Disclosure Section

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Steve Edwards, Lisha Ge, Spencer Cavallo and Jonah Silverman are not members of the Global Investment Committee and any implementation strategies suggested have not been reviewed or approved by the Global Investment Committee.

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

Glossary

Beta is 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.

Earnings revisions breadth is defined as the number of positive analyst revisions minus the number of negative analyst revisions divided by the total number of revisions.

Equity risk premium is the excess return that an individual stock or the overall stock market provides over a risk-free rate. The risk-free rate represents the interest an investor would expect from an absolutely risk-free investment over a specified period of time.

Shiller PE ratio, also known as the cyclically adjusted P/E ratio (CAPE), uses a 10-year average of inflation-adjusted earnings to value the stock market.

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.

Risk Considerations

Hypothetical Performance

General: Hypothetical performance should not be considered a guarantee of future performance or a guarantee of achieving overall financial objectives. Asset allocation and diversification do not assure a profit or protect against loss in declining financial markets.

Hypothetical performance results have inherent limitations. The performance shown here is simulated performance based on benchmark indices, not investment results from an actual portfolio or actual trading. There can be large differences between hypothetical and actual performance results achieved by a particular asset allocation.

Despite the limitations of hypothetical performance, these hypothetical performance results may allow clients and Financial Advisors to obtain a sense of the risk / return trade-off of different asset allocation constructs.

Investing in the market entails the risk of market volatility. The value of all types of securities may increase or decrease over varying time periods.

This material has been prepared for informational purposes only, based on publicly available factual information. It does not provide individually tailored or general investment advice whatsoever. It has been prepared without regard to the individual financial circumstances and objectives of persons who receive it. Investors seeking to evaluate particular investments and strategies in Digital assets must seek the advice of their independent advisors. The appropriateness of a particular investment or strategy will depend on an investor's individual circumstances and objectives.

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.

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 and frontier markets**, since these countries may have relatively unstable governments and less established markets and economies.

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.

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

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.

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.

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.

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

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.

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.

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.

Alternative investments may be either traditional alternative investment vehicles, such as hedge funds, fund of hedge funds, private equity, private real estate and managed futures or, non-traditional products such as mutual funds and exchange-traded funds that also seek alternative-like exposure but have significant differences from traditional alternative investments. The risks of traditional alternative investments may include: can be highly illiquid, speculative and not appropriate for all investors, loss of all or a substantial portion of the investment due to leveraging, short-selling, or other speculative practices, 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 open-end mutual funds, and risks associated with the operations, personnel and processes of the manager. Non-traditional alternative strategy products may employ various investment strategies and techniques for both hedging and more speculative purposes such as short-selling, leverage, derivatives and options, which can increase volatility and the risk of investment loss. These investments are subject to the risks normally associated with debt instruments and also carry substantial additional risks. Investors could lose all or a substantial amount of their investment. These investments typically have higher fees or expenses than traditional investments.

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.

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.

Nondiversification: For a portfolio that holds a concentrated or limited number of securities, a decline in the value of these investments would cause the portfolio's overall value to decline to a greater degree than a less concentrated portfolio. Portfolios that invest a large percentage of assets in only one industry sector (or in only a few sectors) are more vulnerable to price fluctuation than those that diversify among a broad range of sectors.

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.

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

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.

The returns on a portfolio consisting primarily of **environmental, social, and governance-aware investments (ESG)** may be lower or higher than a portfolio that is more diversified or where decisions are based solely on investment considerations. Because ESG criteria exclude some investments, investors may not be able to take advantage of the same opportunities or market trends as investors that do not use such criteria. The companies identified and investment examples are for illustrative purposes only and should not be deemed a recommendation to purchase, hold or sell any securities or investment products. They are intended to demonstrate the approaches taken by managers who focus on ESG criteria in their investment strategy. There can be no guarantee that a client's account will be managed as described herein.

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