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# City of Stamford, Connecticut
# Board of Finance Budget Presentation Meeting
# Tuesday, April 12th, 2022


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# Agenda: OPEB and CERF Pension Discussion

# Russian/Ukraine Conflict Underscores Our Longstanding 'Fire and Ice' Theme

- **Russian Invasion of Ukraine amplifies the Fire and Ice:** The de-rating of asset prices has been ongoing for almost a year, but it remains incomplete, in our view. Peak rate of change in policy and economic/earnings growth has typically coincided with more conservative investment and has ended with a broader equity market correction. This is the classic mid-cycle transition that has accompanied recoveries from recession. Think 1994, 2004, 2011. Over the past 12 months we have experienced a rolling correction—i.e. bear market—across many asset categories as the breadth of the equity market remains exceptionally weak. We have been expecting the next and final stage of this rolling correction to end with a 10%-20% correction in the S&P 500 and Nasdaq. That process has begun.
- **Risk Is Rising of Fire *and* Ice.** With the Fed indicating it will taper asset purchases on a more aggressive timeline, both real and nominal rates began to move higher along with the US dollar. This is a distinct tightening of financial conditions and has weighed on equity markets since November. We think there is still more downside to valuations from this "fire" and we expect growth to disappoint expectations—i.e., "ice." Earnings revisions will be the key to how long and deep this correction lasts. Russia/Ukraine makes both worse.
- **The Year of the Stock Picker.** With tightening financial conditions and slowing growth making this a much more difficult year for stocks, investors are going to have to be better stocks pickers to generate strong returns. The high dispersion of between stocks suggests that opportunity is available, if not difficult to find in the current environment. We are focused on companies with high operational efficiency and earnings stability in a world of higher inflation and cost of capital. This means low capex, low inventory/sales growth and low labor costs.
- **Upgrade to Quality and Value but with a More Defensive Skew.** The mid-cycle transition comes with a shift in equity market leadership. Higher-quality stocks tend to outperform. We downgraded small caps and early-cycle sectors in March while upgrading quality to reflect this view. We now favor a more defensive skew in what could be a greater slowdown than markets expect. Barbell it with small-cap value stocks.
- **Inflation Is the Key to the Secular Bull Market for Stocks and Secular Bear Market for Bonds**. The shift in policy from monetary to fiscal dominance is a significant change that has implications for our asset allocation recommendations. A US recession was always a necessary condition for this outcome and the health-crisis nature of this event further supported this regime shift. Finally, other inflationary trends were well established before the latest recession began—populism, nationalism, de-globalization, and now a major conflict that removes the 2nd largest exporter of oil from the market. One party control of the US government tends to accelerate and implement these policy changes.
- **We Lowered Our Equity Allocations and Raised Our Bond Allocations in May and Again in September.** As both monetary and fiscal policy normalizes, we expect a broader equity market correction due to either tighter financial conditions, i.e., "fire," or due to a more significant growth disappointment, i.e., "ice." Despite this risk for near-term pullback in equities, we are still overweight on a 12-month basis. We also recommend owning some commodities and real estate as an inflation hedge. Avoid profitless growth stocks as valuations remain at risk from tightening financial conditions—i.e., the "fire." Be patient with new capital commitments and use pullbacks around peaking rates of change as buying opportunities for cyclicals, growth at a reasonable price, and international stocks.

*Important note regarding economic sanctions. This event may involve the discussion of country/ies which are generally the subject of selective sanctions programs administered or enforced by the U.S. Department of the Treasury's Office of Foreign Assets Control ("OFAC"), the European Union and/or by other countries or multi-national bodies. You are solely responsible for ensuring that your investment activities in relation to any sanctioned country/ies are carried out in compliance with applicable sanctions.*

Source: Morgan Stanley & Co. Research. M2 is a measure of the money supply that includes all elements of M1 as well as "near money." M1 includes cash and checking deposits, while near money refers to savings deposits, money market securities, mutual funds and other time deposits.

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# Annual Update of GIC Capital Market Assumptions

In these pages, we present the annual update of our capital market assumptions. These forecasts estimate the returns and volatility of global asset classes over the strategic, or seven-year, horizon and the secular, or 20-year, horizon. The strategic estimates serve as the key inputs for the Global Investment Committee's (GIC) strategic asset allocations. Compared with 2021, modestly less elevated equity valuations have translated into moderately higher expected returns. For certain fixed income segments, expected returns remain historically low, driven by still-low yields and tight credit spreads. The potential for persistent inflation and below-average expected returns for traditional asset classes highlight the importance of portfolio diversifiers and inflation hedges in asset allocation over the seven-year investment horizon.

Alongside the annual update of our strategic assumptions, we provide a rebalancing of our GIC strategic asset allocation models. These models are optimized annually using our goals-based framework and targeted risk parameters. It's important to keep in mind that these strategic models, which are developed for a seven-year investment 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 collective deliberations.

# Annual Update of GIC Capital Market Assumptions

Exhibit 22: Strategic and Secular Return and Volatility Estimates

| | STRATEGIC (SEVEN-YEAR) ESTIMATES FOR 2022 | | SECULAR (20-YEAR) ESTIMATES FOR 2022 | |
|---|---|---|---|---|
| | Annualized Return | Annualized Volatility | Annualized Return | Annualized Volatility |
| ULTRASHORT FIXED INCOME | 1.6 | 0.7 | 3.0 | 0.7 |
| EQUITIES | 5.2 | 13.1 | 8.0 | 13.1 |
| US Equities | 4.1 | 14.1 | 8.4 | 14.1 |
| US Large-Cap Growth | 3.6 | 14.8 | 8.4 | 14.8 |
| US Large-Cap Value | 5.5 | 13.7 | 8.3 | 13.7 |
| US Mid-Cap Growth | 3.6 | 16.0 | 8.5 | 16.0 |
| US Mid-Cap Value | 6.2 | 14.5 | 8.7 | 14.5 |
| US Small-Cap Growth | 5.1 | 19.9 | 7.1 | 19.9 |
| US Small-Cap Value | 8.1 | 17.3 | 8.5 | 17.3 |
| International Equities | 5.6 | 14.7 | 7.2 | 14.7 |
| European Equities | 5.4 | 15.5 | 7.0 | 15.5 |
| Japan Equities | 5.7 | 20.1 | 6.9 | 20.1 |
| Asia Pacific ex Japan Equities | 7.0 | 18.4 | 7.1 | 18.4 |
| Emerging & Frontier Market Equities | 8.3 | 17.5 | 8.6 | 17.5 |
| FIXED INCOME & PREFERREDS | 2.0 | 4.9 | 3.8 | 4.9 |
| Short-Term Fixed Income | 1.7 | 1.9 | 3.4 | 1.9 |
| US Taxable Fixed Income | 2.0 | 4.9 | 3.8 | 4.9 |
| International Fixed Income | 0.8 | 4.1 | 3.6 | 4.1 |
| Inflation-Linked Securities | 1.7 | 7.6 | 4.9 | 7.6 |
| High Yield Fixed Income | 3.6 | 7.5 | 5.4 | 7.5 |
| Emerging Market Fixed Income | 6.8 | 8.0 | 6.8 | 8.0 |
| ALTERNATIVES | 4.7 | 7.5 | 6.3 | 7.5 |
| Real Assets | 4.6 | 10.3 | 6.0 | 10.3 |
| Real Estate/REITS | 4.4 | 13.7 | 6.6 | 13.7 |
| Commodities | 3.0 | 15.0 | 3.9 | 15.0 |
| Energy Infrastructure/MLPs | 6.4 | 14.3 | 7.6 | 14.3 |
| Absolute Return Assets | 3.5 | 4.7 | 5.2 | 4.7 |
| Equity Hedge Assets | 5.2 | 6.8 | 6.6 | 6.8 |
| Equity Return Assets | 4.8 | 8.3 | 7.2 | 8.3 |
| Private Investments | 6.8 | 7.2 | 10.1 | 7.2 |
| Private Real Estate | 5.4 | 7.4 | 7.6 | 7.4 |
| Private Equity | 8.2 | 8.1 | 12.7 | 8.1 |
| Private Credit | 6.3 | 6.1 | 8.8 | 6.1 |

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# Key Points from The GIC Weekly

### Discussion Points from The GIC Weekly

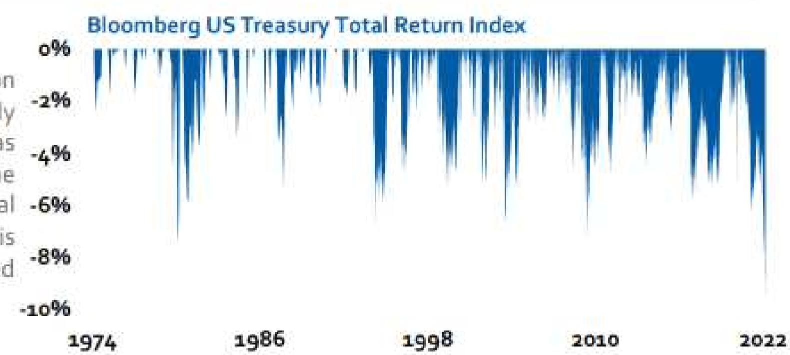
Lisa Shalett's commentary will return in the Monday, April 11 issue of The GIC Weekly.

### Chart of the Week: Which Yield Curve Matters?

More than a decade of unconventional monetary policy and aggressive expansion of the Federal Reserve's balance sheet have rendered many traditional market indicators unreliable. With the Fed anticipating aggressive tightening this year and next, a debate about yield curve messaging has emerged. Traditionalists say the near-flattening of the two-year/10-year or the five-year/30-year curve leads recessions by 15 to 18 months. The "it's different this time" argument says the three-month/10-year curve is a more reliable indicator because it captures the near-term fed funds rate and the initial pacing of rate hikes (see chart). It's not inverted yet, but some research suggests that when it does, we are within seven to 10 months of a recession. Either way, stocks tend to peak three to six months before a recession begins.


### Fixed Income Insight: A Bond Rout of Historic Proportions

The just-concluded first quarter was a shock for fixed income investors, especially coming on the heels of a 40-year bull market in interest rates. While most investors undoubtedly recognize that the Federal Reserve's policy pivot in response to a 40-year high in inflation has unleashed bond market volatility, many may not realize the scope of damage. Using the Bloomberg US Treasury Total Return Index, we see that the drawdown in Treasury total returns is a staggering 9.5%, the worst in nearly 50 years (see chart). Given that backdrop, it is truly amazing that stocks have staged a tremendous retracement rally. Does something need to give? We think so!



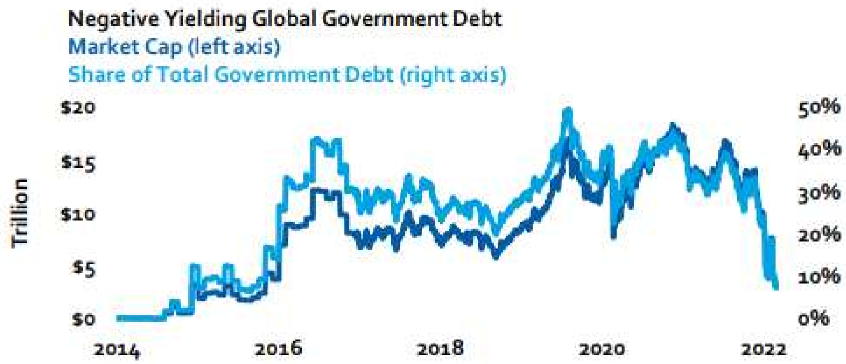

Source: Chart of the Week: Bloomberg as of March 31, 2022. Source: Alpine Macro as of March 22, 2022.

Past performance is no guarantee of future results. Estimates of future performance are based on assumptions that may not be realized. This material is not a solicitation of any offer to buy or sell any security or other financial instrument or to participate in any trading strategy. Please refer to important information, disclosures and qualifications at the end of this material.

# Charts in Focus (April 4, 2022): Treasury Sell-off

## Negative Yield Debt Is Rapidly Declining

As of March 25, 2021




## Bond Volatility Rises as Stock Volatility Falls

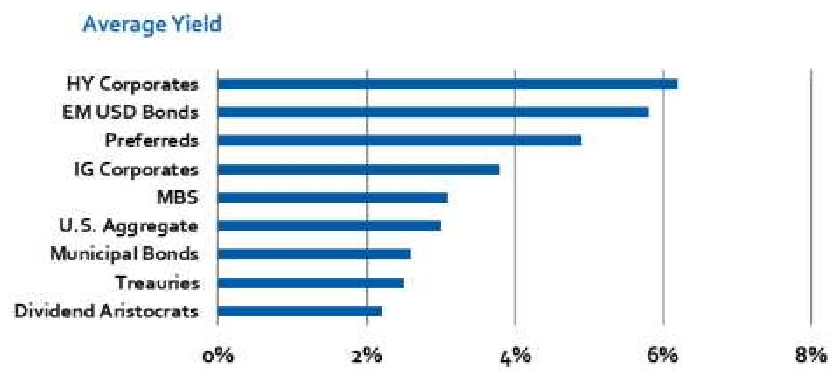
As of March 23, 2022


## Long-Term Treasuries and Gold Have Decoupled

As of March 30, 2022


## Bond Yields Start to Look Attractive

As of March 25, 2022




Source: Morgan Stanley & Co. Research, Morgan Stanley Wealth Management GIC, Bloomberg, Alpine Marco

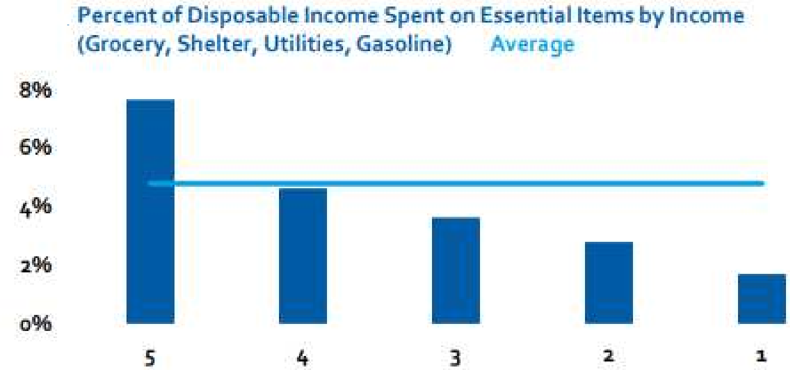
# Charts in Focus (April 4, 2022): Commodities and USD

## Commodity Exporters & Importers (Versus USD) Have Decoupled

As of March 24, 2022

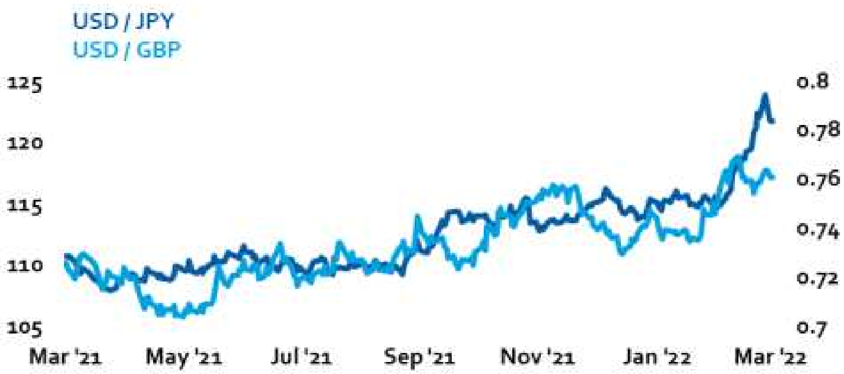

## Currently High Oil Prices Will Impact Disposable Income

As of December 31, 2020



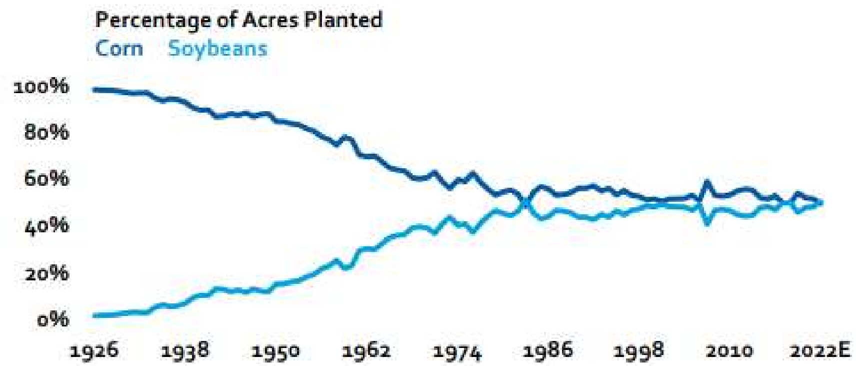

## The US Dollar Continues to Strengthen Against Sterling and Yen

As of March 31, 2022




## Fertilizer Costs Have Increased, Leading Farmers to Plant Less Corn

As of December 31, 2021




Source: Morgan Stanley & Co. Research, Morgan Stanley Wealth Management GIC, Bloomberg

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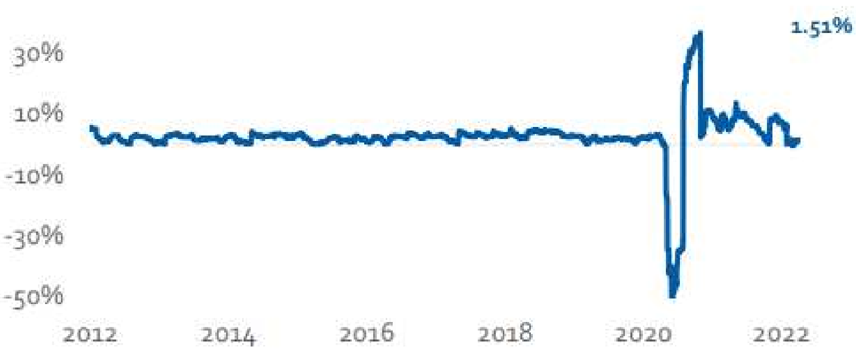
# Current Indicators: Growth

## Atlanta Fed GDPNow Forecast

As of April 1, 2022




## Global Purchasing Manager Indices

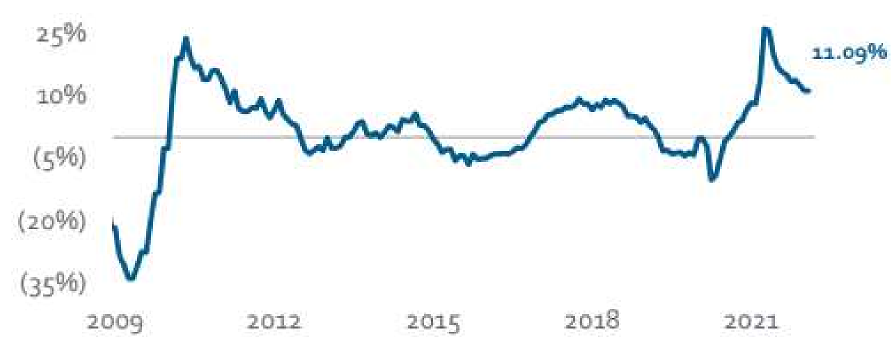
As of March 31, 2022


## US Real Imports and Exports (Y/Y, 3M Average)

As of January 31, 2022


## US Durable Goods Orders Ex-Transportation (Y/Y)

As of February 28, 2022




Source: Bloomberg, Haver Analytics, EvercoreISI Investor Surveys, Commitments of Traders (COT) Report, Morgan Stanley Wealth Management GIC

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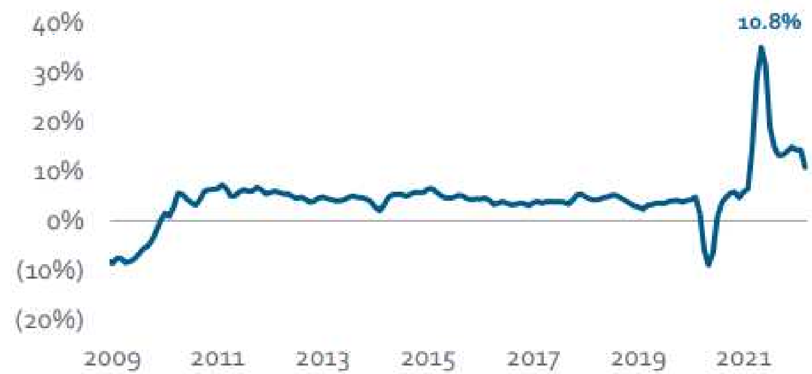
# Current Indicators: Growth

## Nonfarm Payrolls & US Unemployment

As of March 31, 2022


## Retail Sales Ex Gas (Y/Y, 3-month average)

As of March 31, 2022




## US Personal Savings & Personal Income (Y/Y)

As of February 28, 2022


## US Housing (3-month average)

As of February 28, 2022


Source: Bloomberg, Haver Analytics, EvercoreISI Investor Surveys, Commitments of Traders (COT) Report, Morgan Stanley Wealth Management GIC

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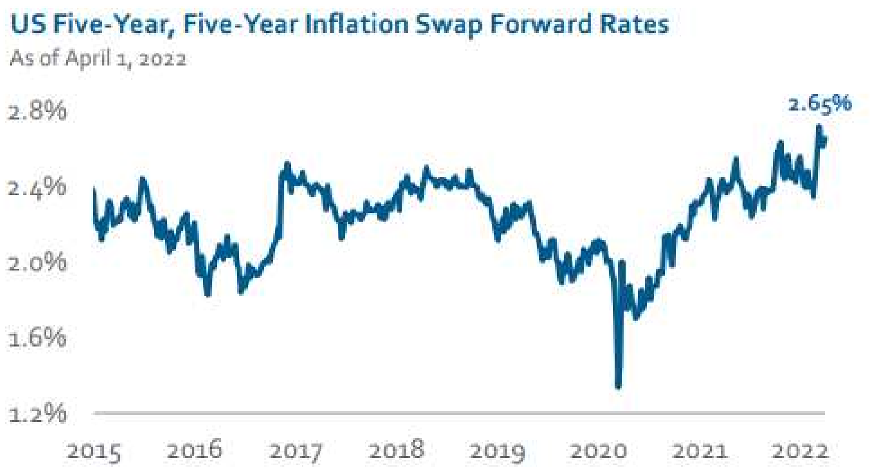
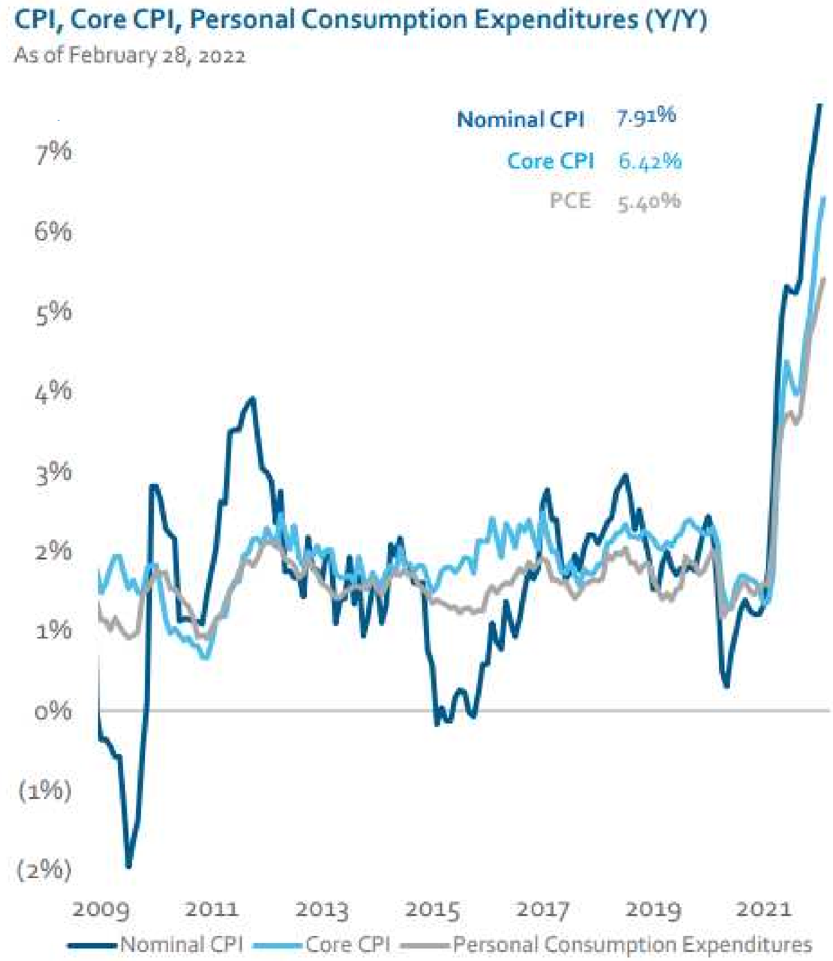
# Current Indicators: Inflation

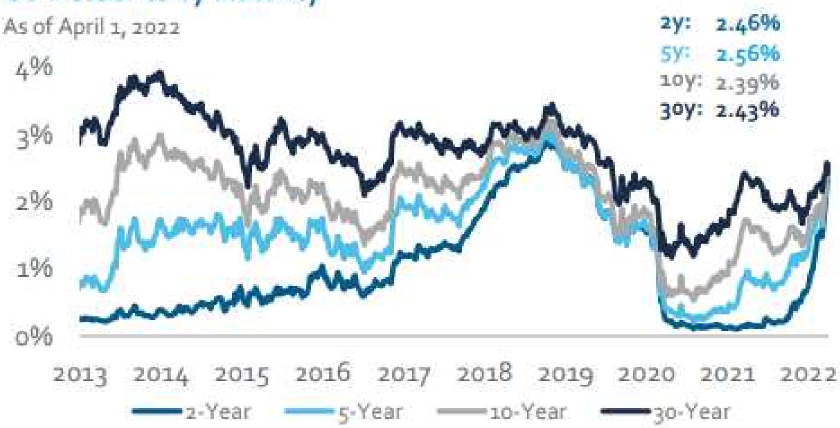




Source: Bloomberg, Haver Analytics, EvercoreISI Investor Surveys, Commitments of Traders (COT) Report, Morgan Stanley Wealth Management GIC

# Current Indicators: Rates

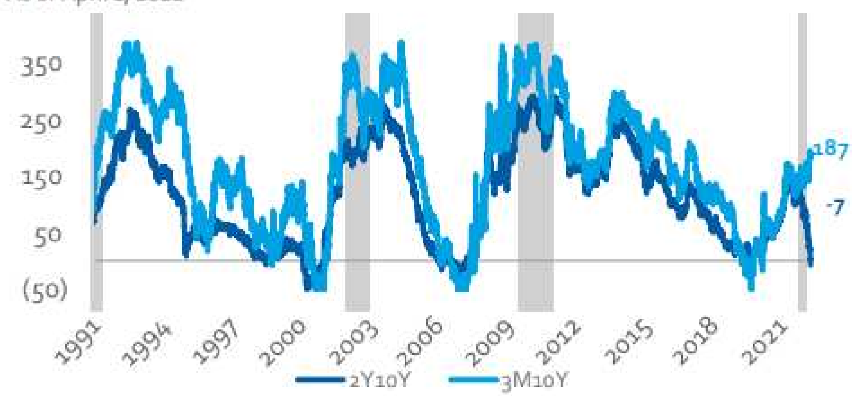
## US Treasuries by Maturity

As of April 1, 2022



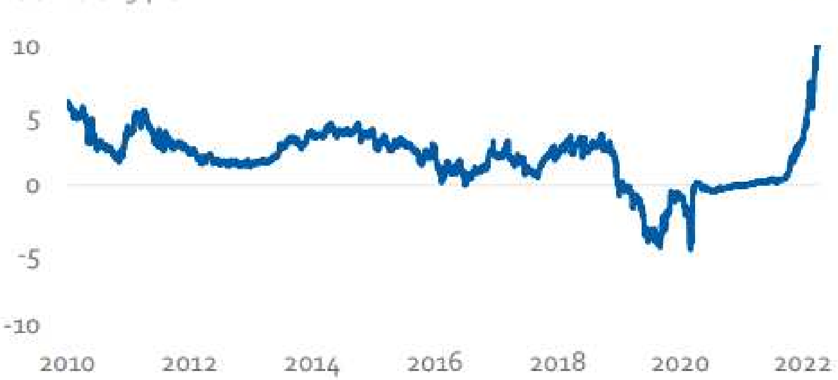

## US Treasury Spreads: 3m10y & 2y10y (Bps)

As of April 1, 2022



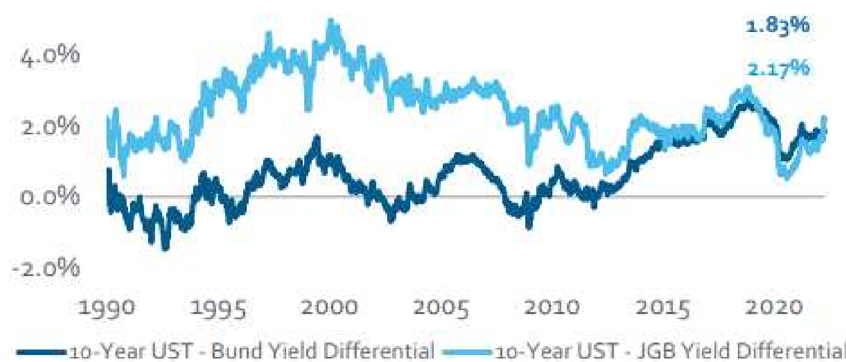

## Market-Implied Pace of Rate Hikes Over Next 12 Months

As of March 31, 2022




## 10-Year Government Bond Yield Differentials

As of April 1, 2022

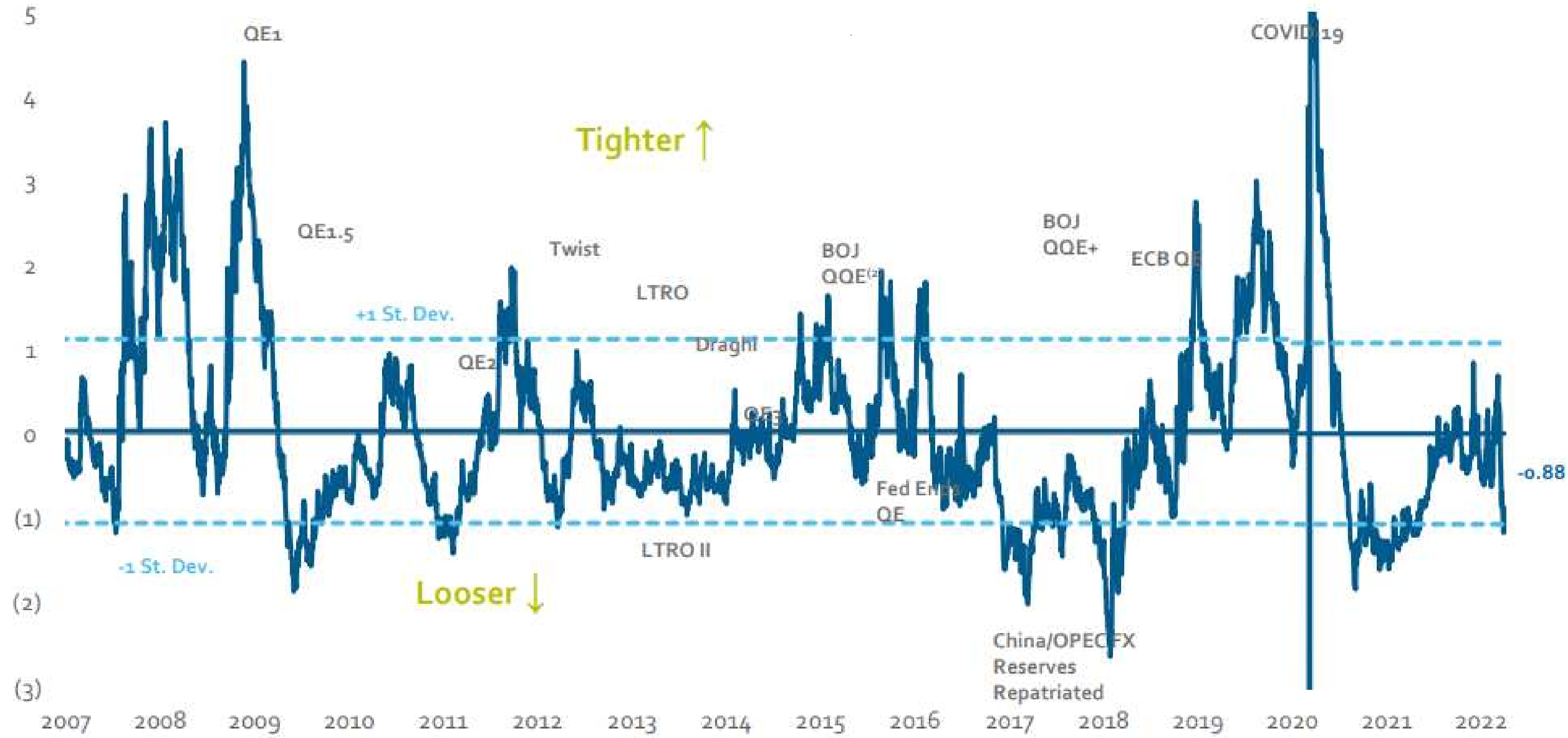



Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC

# Current Indicators: Liquidity

**Morgan Stanley Financial Conditions Index**

As of March 31, 2022




Source: Bloomberg, Morgan Stanley Wealth Management GIC. (1) The y-axis measures the Morgan Stanley Financial Conditions Index, a weighted index comprised of changes in equities (S&P 500), short-term interest rates (3-month Treasury), long-term interest rates (10-year Treasury) and USD currency (Morgan Stanley Dollar Index). (2) Bank of Japan Quantitative and Qualitative Easing (QQE). Standard deviation (volatility) is a measure of the dispersion of a set of data from its mean.

# Current Indicators: Equity Valuation

## Morgan Stanley & Co. 12M Forward S&P 500 Target

As of April 1, 2022

| EPS Landscape | MS & Co Target 2023 EPS Est. | Multiple | Price Target | Upside / (Downside) |
|---|---|---|---|---|
| Bull Case | $265 | 18.80 | 5,000 | 10.0% |
| Base Case | $245 | 18.00 | 4,400 | (3.2%) |
| Bear Case | $225 | 17.20 | 3,900 | (14.2%) |
| Current S&P 500 Price | | | 4,546 | |

## Morgan Stanley & Co. and Consensus S&P 500 Earnings Estimates

As of April 1, 2022


## S&P 500 Current and Historical Valuation

As of April 1, 2022

| | Apr 1, 2022 | Tech Bubble | Financial Crisis | 20-Year Average | Current Relative to Average |
|---|---|---|---|---|---|
| S&P 500 Trailing P/E | 23.4 | 28.9 | 12.1 | 18.8 | 1.24 |
| S&P 500 Forward P/E | 20.1 | 26.6 | 11.2 | 15.3 | 1.31 |
| Technology | 25.6 | 53.6 | 13.1 | 22.3 | 1.15 |
| Consumer Discretionary | 28.0 | 22.7 | 33.0 | 19.9 | 1.41 |
| Communication Services | 18.2 | 31.5 | 11.3 | 17.1 | 1.06 |
| Industrials | 20.8 | 20.5 | 8.5 | 17.4 | 1.19 |
| Real Estate | 46.6 | - | - | - | - |
| Financials | 14.6 | 12.5 | 9.6 | 14.5 | 1.01 |
| Consumer Staples | 22.2 | 16.0 | 11.7 | 17.4 | 1.27 |
| Energy | - | 20.3 | 11.6 | 20.6 | - |
| Utilities | 22.1 | 13.3 | 9.8 | 14.9 | 1.48 |
| Materials | 15.9 | 12.3 | 14.2 | 17.8 | 0.89 |
| Health Care | 16.6 | 24.2 | 9.3 | 17.8 | 0.93 |

Source: FactSet, Bloomberg, Morgan Stanley Wealth Management GIC

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## Morgan Stanley & Co. Forecasts (as of April 1, 2022)

| | REAL GDP GROWTH (%) | | | 10-YR. GOVT. BOND YIELD (%) | | HEADLINE INFLATION (%) | | |
|---|---|---|---|---|---|---|---|---|
| | 2021E | 2022E | 2023E | Q2 '22E | Q4 '22E | 2021E | 2022E | 2023E |
| **Global** | 6.2 | 4.3 | 3.8 | | | 3.4 | 6.6 | 3.8 |
| **US** | 5.7 | 4.5 | 3.7 | 2.45 | 2.60 | 4.7 | 6.2 | 2.4 |
| **Euro Zone** | 5.2 | 3.0 | 2.3 | | | 2.6 | 5.3 | 2.3 |
| **UK** | 7.5 | 3.5 | 1.1 | 1.65 | 1.75 | 2.6 | 6.3 | 3.4 |
| **Japan** | 1.7 | 2.3 | 1.4 | 0.15 | 0.25 | -0.2 | 1.9 | 1.1 |
| **Emerging Markets** | 7.1 | 4.7 | 4.5 | | | 3.8 | 7.7 | 4.9 |
| **China** | 7.8 | 5.1 | 4.8 | | | 0.9 | 1.9 | 2.0 |

Source: Morgan Stanley & Co. Research

## Tactical Asset Allocation Reasoning

| Global Equities | Relative Weight Within Equities | |
|---|---|---|
| US | Market Weight | With the Fed launching aggressive tightening, supply chains improving and global growth slowing on the back of Russia/Ukraine war and China's COVID outbreaks, we see greater chances of stagflation and thus have reduced our overweight. While recession risks for the broad economy remain low, prospects for negative earnings revisions are rising as are and headwinds to valuation multiples. We expect volatile but rangebound trading plus/minus another 5% to 10%. |
| International Equities (Developed Markets) | Market Weight | The mix of all-time high inflation, existential risks associated with Russia/Ukraine and the European Central Bank's position that it has limited tools to help suggests that the odds of recession are over 50%. Developed market exposure should skew toward commodity and materials exporters, especially those in the Asia/Pacific region. |
| Emerging Markets | Overweight | China's regulatory crackdown and zero-tolerance for COVID cases have exacerbated the economic slowing that began last year. Odds are rising for China stimulus and growth linked to supply chains is rebounding in South Asia. We are opportunistically adding to positions there and in Latin America, which benefits from already tight central bank policy and commodity exporter windfalls. |

| Global Fixed Income | Relative Weight Within Fixed Income | |
|---|---|---|
| US Investment Grade | Overweight | Markets have aggressively priced the Fed's hawkish rate path and with yield curves apt to face ongoing flattening pressure as risks of a policy mistake rise. We are taking a more balanced risk-reward approach and have added to large underweight positions. With Quantitative Tightening ahead, execution risk remains large as do the risks from even higher inflation. However, with spreads widening and long-term rates reflecting a more reasonable terminal value, bonds are a decent relative portfolio hedge. |
| International Investment Grade | Underweight | Central banks' hawkish pivots have prompted a material move in global nominal rates. Risk premiums are moving up, too, creating opportunity. While timing and catalysts are still hazy, the amount of negative yielding debt is down by more than two-thirds since last summer. Prospects are brightening for fixed income investors, with opportunities to invest in local currencies that are expected to strengthen against the US dollar. |
| Inflation-Protection Securities | Underweight | TIPS yields have moved up as realized inflation remains near 40-year highs and geopolitical uncertainties add pricing pressures. However, real yields remain deeply negative, which suggests valuation is not compelling. |
| High Yield | Underweight | We recently halved our exposure to the equity-like asset class to reduce equity beta of portfolios. High yield bonds have rallied aggressively with the unprecedented provision of liquidity from the Fed and fiscal stimulus from Washington. Surging commodity prices have also repaired balance sheets of energy-levered companies. With spreads near all-time tights, the upside is limited. |
| **Alternative Investments** | **Relative Weight Within Alternative Investments** | |
| REITs | Overweight | With the debate between growth and rising rates moving to center stage, we recently added modestly to the asset class, believing it is a diversifying source of income that is also leveraged to reflation. With real interest rates still negative and inflation expectations rising, we expect to be selective opportunistic investors in the sector this year, with a focus on residential. |
| Commodities | Market Weight | Sooner-than-expected economic and COVID-19 recoveries in both China and the US have shocked supply chains drained from 2020's closures. Now most major commodities are rallying in a chase to keep up with improving demand. The impact is broad-based, affecting areas as diverse as industrial metals, soft agricultural, lumber and semiconductors. Longer term, increased global capital spending, a strong US housing market, a weaker US dollar and rising overall inflation suggest the asset class will likely remain opportunistically bid. |
| Hedged Strategies (Hedge Funds and Managed Futures) | Overweight | With broad market valuations rich, a majority of returns will be based on company earnings and managements' ability to navigate rising costs, surging demand and disruptive competition. These factors are constructive for hedge fund managers who are good stock-pickers and can use leverage and risk management to amplify returns. We prefer very active and fundamental strategies, especially low beta, low volatility and absolute return hedge funds. |

*For more about the risks to Duration, please see the Risk Considerations section beginning on page 10 of this report.
Source: Morgan Stanley Wealth Management GIC as of April 1, 2022

# Current Indicators: Equity Valuation

## S&P 500 Equity Risk Premium(1)

As of March 31, 2022


## P/E Relative to Rest of World

As of March 25, 2022


Source: FactSet, Morgan Stanley Wealth Management GIC. Note: (1) Equity risk premium = S&P 500 forward earnings yield – 10-year Treasury yield. 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. Standard deviation (volatility) is a measure of the dispersion of a set of data from its mean.

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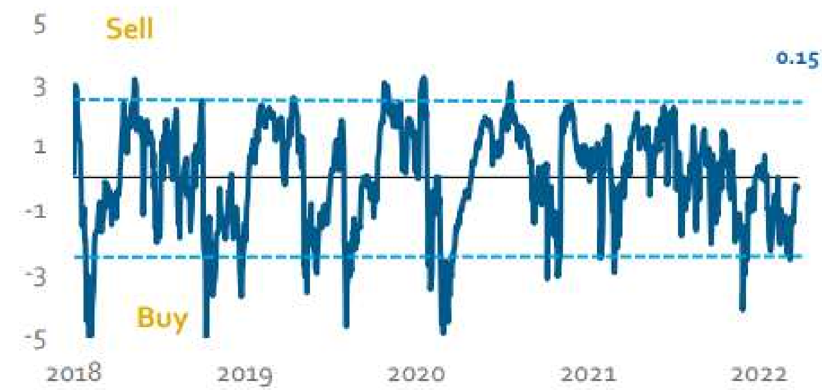
# Current Indicators: Risk

### Morgan Stanley Standardized Global Risk Demand Index

As of March 31, 2022

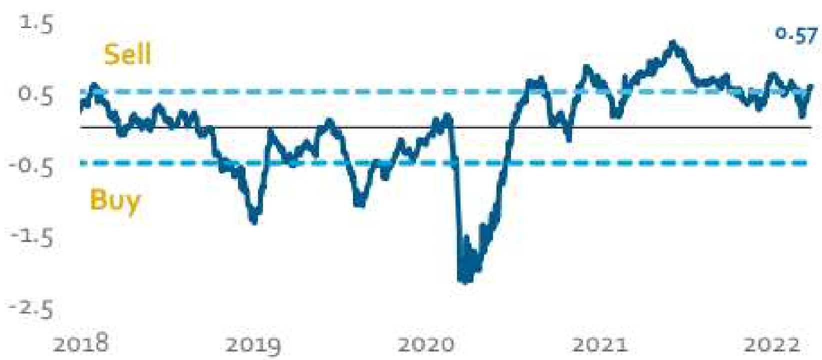



### VIX Index (Equity Volatility)

As of April 1, 2022


### Morgan Stanley Europe Combined Market Timing Indicator

As of March 24, 2022




### MOVE Index (Fixed Income Volatility)

As of April 1, 2022


Source: Bloomberg, FactSet, EvercoreISI Investor Surveys, Morgan Stanley Wealth Management GIC

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# Fiduciary Schedule for the City of Stamford

Annual reviews and analysis provided to the City of Stamford CERF and OPEB Plans

| Fiscal Quarter End | Morgan Stanley Consulting Group Services |
|---|---|
| Q3 2022 (April) | Cash Flow Analysis<br>(using actuarial valuation reports) |
| Q4 2022 (July) | Total Fee Analysis |
| Q1 2022 (October) | Portfolio Risk and Asset Allocation Study |
| Q2 2023 (January) | Investment Policy Statement (IPS) Review |

# Cash Flow Analysis City of Stamford CERF

## Analysis provided to the City of Stamford CERF and OPEB Plans

**City of Stamford CERF Pension**

**Cash Flow Analysis**

**to be presented at the April 14th, 2022 CERF meeting**

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| CERF Meeting 4/8/2021 | Fiscal Years Ending June 30th | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cash Flow Report*** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Benefit Payments (Retiree Pension Payroll) | $ (21,859,000) | $ (22,758,000) | $ (23,147,000) | $ (23,507,000) | $ (24,032,000) | $ (24,539,000) | $ (25,040,000) | $ (25,255,000) | $ (25,401,000) | $ (25,347,000) |
| Employee Contributions | $ 1,784,000 | $ 1,745,000 | $ 1,747,000 | $ 1,710,000 | $ 1,689,000 | $ 1,698,000 | $ 1,676,000 | $ 1,678,000 | $ 1,660,000 | $ 1,683,000 |
| Actuarial Determined Employer Contribution (ADEC) | $ 7,942,000 | $ 7,914,000 | $ 7,682,000 | $ 7,568,000 | $ 7,299,000 | $ 7,044,000 | $ 6,818,000 | $ 6,564,000 | $ 6,333,000 | $ 6,128,000 |
| Estimated City + BOE Contributions | $ 7,942,000 | $ 7,914,000 | $ 7,682,000 | $ 7,568,000 | $ 7,299,000 | $ 7,044,000 | $ 6,818,000 | $ 6,564,000 | $ 6,333,000 | $ 6,128,000 |
| Administrative Expenses | $ (145,000) | $ (145,000) | $ (145,000) | $ (145,000) | $ (145,000) | $ (145,000) | $ (145,000) | $ (145,000) | $ (145,000) | $ (145,000) |
| Dividend & Interest Earned on Pension Portfolio | $ 6,711,098 | $ 7,177,519 | $ 7,676,357 | $ 8,209,863 | $ 8,780,449 | $ 9,390,690 | $ 10,043,343 | $ 10,741,355 | $ 11,487,880 | $ 12,286,287 |
| **Net Cash Flow** | **$ (5,421,902)** | **$ (5,921,481)** | **$ (6,041,643)** | **$ (6,019,137)** | **$ (6,263,551)** | **$ (6,406,310)** | **$ (6,502,657)** | **$ (6,271,645)** | **$ (5,920,120)** | **$ (5,249,713)** |
| | | | | | | | | | | |
| Actuarial Accrued Liability | $ 291,000,000 | $ 294,055,000 | $ 296,737,000 | $ 298,508,000 | $ 299,988,000 | $ 301,031,000 | $ 301,489,000 | $ 301,344,000 | $ 300,580,000 | $ 299,492,000 |
| Market Value of Assets | $ 288,029,947 | $ 308,048,028 | $ 329,457,366 | $ 352,354,653 | $ 376,843,302 | $ 403,033,911 | $ 431,044,768 | $ 461,002,379 | $ 493,042,045 | $ 527,308,467 |
| Employee Payroll | $ 43,245,151 | $ 44,326,280 | $ 45,434,437 | $ 46,570,297 | $ 47,734,555 | $ 48,927,919 | $ 50,151,117 | $ 51,404,895 | $ 52,690,017 | $ 54,007,267 |

*Suggested ADEC presented for informational purposes only. Cash Flow determined by the estimated City and Board of Education contributions*

| | |
|---|---|
| ASSUMED RATE OF RETURN | **6.95%** |
| ASSUMED CITY CONTRIBUTION RATE (% OF PAYROLL) | **19.25%** |
| ASSUMED PORTFOLIO YIELD** | **2.33%** |

*FY 2022 Numbers are from the City's Annual Financial Statements, actuarial valuation and Morgan Stanley records

**CERF Portfolio Current Yield as of 3.31.22 maintained over analysis

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# Fee Analysis City of Stamford CERF

## Analysis provided to the City of Stamford CERF and OPEB Plans

| Old Allocation | | Expense | Assets | | New Allocation | | Expense | Est. Assets | |
|---|---|---|---|---|---|---|---|---|---|
| Description | Symbol | Ratio | 9/1/2020 | $ Cost | Description | Symbol | Ratio | 9/1/2021 | $ Cost |
| WF Treasury Plus | GVIXX | 0.00% | $ 5,174,904.96 | $ - | Harding Loevner International Equity | HLM-1 | 0.30% | $ 24,000,000.00 | $ 72,000.00 |
| Fidelity Extended Market Index | FSMAX | 0.05% | $ 11,852,477.43 | $ 5,926.24 | SLC Short Duration Fixed Income | | 0.15% | $ 29,389,671.00 | $ 44,084.51 |
| Fidelity Large Cap Value Index | FLCOX | 0.04% | $ 18,478,007.82 | $ 7,391.20 | Eaton Vance Intermediate Term Corp Bond | EAT-B | 0.10% | $ 28,000,000.00 | $ 28,000.00 |
| Fidelity Total Market Index | FSKAX | 0.02% | $ 36,965,460.01 | $ 7,393.09 | Causeway International ADR | CAO-1 | 0.30% | $ 22,994,165.00 | $ 68,982.50 |
| Fidelity Total International Index | FTIHX | 0.06% | $ 6,487,274.91 | $ 3,892.36 | First Trust Dow Jones Global Select Dividend Index | FGD | 0.59% | $ 10,000,000.00 | $ 59,000.00 |
| Trowe Price Large Cap Growth Fund | TRLGX | 0.56% | $ 28,617,621.84 | $ 160,258.68 | Lazard Developing Markets Select ADR | LZD-D | 0.40% | $ 19,000,000.00 | $ 76,000.00 |
| Vanguard Extended Mkt Index | VIEIX | 0.06% | | $ - | Boston Partners Large Cap Value | RBE-2 | 0.28% | $ 15,500,000.00 | $ 43,400.00 |
| Vanguard Institutional Index Fund | VINIX | 0.04% | | $ - | BlackRock Equity Dividend | BLK-1 | 0.28% | $ 15,500,000.00 | $ 43,400.00 |
| Vangaurd International Value | VTRIX | 0.35% | $ 33,928,718.83 | $ 118,750.52 | Segall Bryant & Hamill SMID | SEG-1 | 0.34% | $ 12,000,000.00 | $ 40,800.00 |
| Vanguard International Growth | VWILX | 0.33% | $ 46,973,920.66 | $ 155,013.94 | Bahl & Gaynor Income Growth | BAH-1 | 0.28% | $ 12,000,000.00 | $ 33,600.00 |
| Vangaurd Total International Stock Index | VTIAX | 0.11% | | $ - | Congress Mid Cap Growth Equity | CSA-S | 0.30% | $ 13,381,051.00 | $ 40,143.15 |
| BlackRock Strategic Income Opportunities | BSIKX | 0.67% | $ 19,237,039.85 | $ 128,888.17 | Nuance Mid Cap Value | NUA-1 | 0.35% | $ 11,000,000.00 | $ 38,500.00 |
| Met West Total Return Bond Fund | MWTSX | 0.38% | $ 34,909,826.16 | $ 132,657.34 | Principal Real Estate Securities | PGI-1 | 0.28% | $ 10,000,000.00 | $ 28,000.00 |
| PIMCO High Yield Fund | PHIYX | 0.57% | $ 8,980,308.81 | $ 51,187.76 | Jennison Large Growth | JNA-A | 0.25% | $ 12,000,000.00 | $ 30,000.00 |
| GMO Global Asset Allocation Fund III | GMWAX | 0.59% | $ 4,267,107.13 | $ 25,175.93 | Cash - Money Market | | 0.00% | $ 5,500,000.00 | $ - |
| | | | | | iShares S&P Small Cap ETF | IJR | 0.06% | $ 4,000,000.00 | $ 2,400.00 |
| | | | $ 255,872,668.41 | | SPDR Portfolio Developed World ex-US ETF | SPDW | 0.04% | $ 17,500,000.00 | $ 7,000.00 |
| Investment Cost with 9/1/2020 assets | | | 0.311% | $ 796,535.23 | SPDR Portfolio S&P Value ETF | SPYV | 0.04% | $ 15,895,080.00 | $ 6,358.03 |
| Prior Consultant Annual Cost | | | 0.018% | $ 46,371.00 | iShares S&P Mid-Cap ETF | IJH | 0.05% | $ 5,500,000.00 | $ 2,750.00 |
| Prior Custodian Annual Cost | | | 0.012% | $ 31,704.00 | Vanguard FTSE Emerging Markets | VWO | 0.10% | $ 6,500,000.00 | $ 6,500.00 |
| TOTAL PORTFOLIO COST | | | 0.342% | $ 874,610.23 | Vanguard Short Term Corp Bond Index ETF | VCSH | 0.05% | $ 12,000,000.00 | $ 6,000.00 |
| | | | | | | | | | |
| | | | $ 301,659,967.00 | | | | | $ 301,659,967.00 | |
| Investment Cost with 9/1/2021 est. assets | | | 0.311% | $ 939,071.74 | Investment Cost with 9/1/2021 est. assets | | | 0.224% | $676,918.19 |
| Prior Consultant Annual Cost | | | 0.016% | $ 47,762.13 | Morgan Stanley Consulting Services Annual Cost | | | 0.017% | $ 51,800.00 |
| Prior Custodian Annual Cost | | | 0.011% | $ 31,704.00 | Northern Trust Custodian Services | | | 0.013% | $ 39,469.00 |
| TOTAL PORTFOLIO COST | | | 0.338% | $ 1,018,537.87 | TOTAL PORTFOLIO COST | | | 0.255% | $768,187.19 |
| | | | | | | | | | |
| | | | | | | | | **ESTIMATED ANNUAL SAVINGS FOR CERF** | **$250,350.69** |

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# Current Allocation and Ranges for CERF IPS

Investment Policy Statement Review

| City of Stamford CERF | | | | |
|---|---|---|---|---|
| Asset Class | Current | Min | Target | Max |
| Cash | 0.32% | 0.00% | 2.50% | 10.00% |
| Investment Grade Fixed Income | 23.86% | 20.00% | 25.00% | 50.00% |
| High Yield Fixed Income | 0.00% | 0.00% | 5.00% | 10.00% |
| US Large Cap Equities | 26.63% | 15.00% | 25.00% | 50.00% |
| US Mid Cap Equities | 6.75% | 5.00% | 10.00% | 25.00% |
| US Small Cap Equities | 5.34% | 0.00% | 5.00% | 25.00% |
| Developed International Equities | 26.77% | 10.00% | 17.50% | 30.00% |
| Emerging Market Equities | 10.33% | 2.50% | 10.00% | 20.00% |
| | | | | |
| ** = as of March 31st, 2022* | | | | |

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# Current Allocation and Ranges for OPEB IPS

## Investment Policy Statement Review

| City of Stamford OPEB | | | | |
|---|---|---|---|---|
| Asset Class | Current* | Min | Target | Max |
| Cash | 7.11% | 0.00% | 0.00% | 7.50% |
| Investment Grade Fixed Income | 19.17% | 12.50% | 20.00% | 40.00% |
| High Yield Fixed Income | 0.73% | 0.00% | 2.50% | 10.00% |
| US Large Cap Equities | 24.41% | 15.00% | 25.00% | 55.00% |
| US Mid Cap Equities | 7.56% | 5.00% | 12.50% | 20.00% |
| US Small Cap Equities | 8.33% | 0.00% | 7.50% | 20.00% |
| Developed International Equities | 23.04% | 10.00% | 20.00% | 35.00% |
| Emerging Market Equities | 9.68% | 5.00% | 12.50% | 20.00% |
| | | | | |
| ** = as of March 31st, 2022* | | | | |

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# Benchmarks for CERF and OPEB IPS

Investment Policy Statement

| City of Stamford CERF & OPEB | |
|---|---|
| Asset Class | Benchmark |
| Cash | 90 Day T-Bill |
| Investment Grade Fixed Income | US Barclays Aggregate Bond Index |
| High Yield Fixed Income | US Barclays Corporate High Yield Index |
| US Large Cap Equities | S&P 500 Index |
| US Mid Cap Equities | Russell Mid Cap Index |
| US Small Cap Equities | Russell 2000 Index |
| Developed International Equities | MSCI EAFE |
| Emerging Market Equities | MSCI EM Index |

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# CERF Historical Funded Ratio

For Fiscal Years ending June 30th

| City of Stamford CERF | | | | |
|---|---|---|---|---|
| Fiscal Years Ending June 30th | | | | |
| FYE | Assets | Liabilities | Funded Ratio | DWRR |
| 2014 | $ 209,313,155 | $ 244,509,417.00 | 85.61% | 16.65% |
| 2015 | $ 206,622,350 | $ 250,062,776.00 | 82.63% | 1.44% |
| 2016 | $ 190,594,323 | $ 256,606,003.00 | 74.28% | -4.38% |
| 2017 | $ 210,354,348 | $ 260,932,076.00 | 80.62% | 14.62% |
| 2018 | $ 223,064,471 | $ 280,600,216.00 | 79.50% | 9.77% |
| 2019 | $ 226,353,660 | $ 277,700,136.00 | 81.51% | 4.50% |
| 2020 | $ 232,577,627 | $ 295,622,794.00 | 78.67% | 6.39% |
| 2021 | $ 301,659,968 | $ 291,000,000.00 | 99.00% | 32.89%# |
| 2022* | $ 288,029,847 | $ 294,055,000.00 | 97.95% | -3.58% |
| | | | | |
| * = asset value and performance as of March 31st, 2022. Liability estimate taken from actuarial valuation dated July 1, 2020. | | | | |
| # = 6th percentile for Public Funds Nationwide | | | | |

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# OPEB Historical Funded Ratio

For Fiscal Years ending June 30th

| City of Stamford OPEB | | | | |
|---|---|---|---|---|
| Fiscal Years Ending June 30th | | | | |
| FYE | Assets | Liabilities | Funded Ratio | DWRR |
| 2017 | $ 92,167,012 | $ 354,679,524.00 | 25.99% | 13.43% |
| 2018 | $ 116,316,787 | $ 364,157,076.00 | 31.94% | 8.51% |
| 2019 | $ 139,486,805 | $ 425,579,474.00 | 32.79% | 4.84% |
| 2020 | $ 167,672,853 | $ 454,092,998.00 | 36.92% | 6.55% |
| 2021 | $ 249,366,919 | $ 456,758,000.00 | 55.70% | 31.52%# |
| 2022* | $ 272,925,853 | $ 479,738,000.00 | 56.89% | -2.37% |
| | | | | |
| * = asset value and performance as of March 31st, 2022. Liability estimate taken from actuarial valuation dated July 1, 2020. | | | | |
| # = 12th percentile for Public Funds Nationwide | | | | |

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# Important Disclosures

**Global Investment Manager Analysis (GIMA) defines Adverse Active Alpha (AAA) as follows:**

**Adverse** refers to the demonstrated ability to outperform in a variety of market environments and when conditions were difficult for active manager relative performance. "Difficult" periods were times when active management did not perform well relative to the index, as opposed to down market periods. At various times, active management has experienced difficult relative performance periods in up, down, and flat markets. We developed a set of factors to help discern which periods were more difficult for active managers that we utilize to identify managers that were able to overcome these headwinds and outperformed in the face of adversity.

**Active** refers to managers with high active share – i.e., managers whose portfolios looked different from the index – and had moderate to low tracking error. In this way, the ranking seeks to find managers that were active, but not taking outsized factor bets, such as large sector or industry bets and that had some degree of style consistency. The combination of high active share and low tracking error is fairly uncommon among active managers, but we believe these traits may point toward managers with strong stock picking skills.

**Alpha** refers to the demonstrated ability to add value relative to an index and/or peers. Back tests indicate that highly ranked managers as a group outperformed the index and style peer group over subsequent periods and relative to active share alone. By combining the "adverse" component with the "active" component, we believe we increase the odds of finding some of the most proficient stock pickers.

**Important Considerations Regarding the Adverse Active Alpha Ranking Process:**

Global Investment Manager Analysis, formerly Consulting Group Investment Advisor Research (CG IAR), provides comprehensive manager analysis for Morgan Stanley's investment advisory platforms on a wide range of investment products, including separately managed accounts, mutual funds and exchange-traded funds in the equity, fixed income and alternative investment categories In our view, the Adverse Active Alpha manager ranking model is an important part of evaluating managers for consideration.

However, we do recognize that AAA cannot, in and of itself, tell us which managers' strategies to invest in or when to buy or sell the strategies. While highly ranked managers historically performed well as a group in our analysis, past performance is not a guarantee of future results for any manager or strategy. Index returns assume reinvestment of dividends and, unlike fund or strategy returns, do not reflect any fees or expenses. Indices are unmanaged and not available for direct investment.

It is also important to keep in mind that just because a manager has high active share, a portfolio that looks different than the index (benchmark) doesn't necessarily mean the portfolio had or will have better performance than the index. Being different than the index does not consider factors such as: the timeliness of data provided by the manager, the appropriateness of the benchmark used for comparison to the portfolio, the relevancy of the period(s) being analyzed between the portfolio and the benchmark, knowing the difference between the securities and their concentration in a manager's portfolio vs. the benchmark and the potential that the data provided by the manager looked significantly different in periods before and after the performance snapshot(s) used for analysis. While the preceding considerations are not part of the AAA ranking model, GIMA's strives to evaluate other material and forward looking factors as part of the overall manager evaluation process. Factors such as but not limited to manager turnover and changes to investment process can partially or fully negate a positive Adverse Active Alpha ranking. Additionally, highly ranked managers can have differing risk profiles that might not be suitable for all investors. For more information on AAA, please see the Adverse Active Alpha Ranking Model and Selecting Managers with Adverse Active Alpha whitepapers. The whitepaper are available from your Financial Advisor or Private Wealth Advisor.

ADVERSE ACTIVE ALPHA is a registered service mark of Morgan Stanley and/or its affiliates. U.S. Pat. No. 8,756,098 applies to the Adverse Active Alpha system and/or methodology.

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**The Global Investment Manager Analysis (GIMA) Services Only Apply to Certain Investment Advisory Programs**

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**Focus List, Approved List and Tactical Opportunities List; Watch Policy**

GIMA uses two methods to evaluate investment products in applicable advisory programs: Focus (and investment products meeting this standard are described as being on the Focus List) and Approved (and investment products meeting this standard are described as being on the Approved List). In general, Focus entails a more thorough evaluation of an investment product than Approved. Sometimes an investment product may be evaluated using the Focus List process but then placed on the Approved List instead of the Focus List.

Investment products may move from the Focus List to the Approved List, or vice versa. GIMA may also determine that an investment product no longer meets the criteria under either process and will no longer be recommended in investment advisory programs (in which case the investment product is given a "Not Approved" status).

GIMA has a "Watch" policy and may describe a Focus List or Approved List investment product as being on "Watch" if GIMA identifies specific areas that (a) merit further evaluation by GIMA and (b) may, but are not certain to, result in the investment product becoming "Not Approved." The Watch period depends on the length of time needed for GIMA to conduct its evaluation and for the investment manager or fund to address any concerns. GIMA may, but is not obligated to, note the Watch status in this report with a "W" or "Watch" next to the "Status" on the cover page.

Certain investment products on either the Focus List or Approved List may also be recommended for the Tactical Opportunities List based in part on tactical opportunities existing at a given time. The investment products on the Tactical Opportunities List change over time.

For more information on the Focus List, Approved List, Tactical Opportunities List and Watch processes, please see the applicable Form ADV Disclosure Document for Morgan Stanley Wealth Management. Your Financial Advisor or Private Wealth Advisor can also provide upon request a copy of a publication entitled "Manager Selection Process."

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For mutual funds, the investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Investors should carefully consider the investment objectives and risks as well as charges and expenses of a mutual fund before investing. The prospectus contains this and other important information about the mutual fund. To obtain a prospectus, contact your Financial Advisor or visit the mutual fund company's website. Please read the prospectus carefully before investing.

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# Asset Class Risk Considerations

***For index definitions to the indices referenced in this report please visit the following: http://www.morganstanleyfa.com/public/projectfiles/id.pdf***

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

**Investing in foreign markets** entails risks not typically associated with domestic markets, such as currency fluctuations and controls, restrictions on foreign investments, less governmental supervision and regulation, and the potential for political instability. These risks may be 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 small- to medium-sized companies** entails special risks, such as limited product lines, markets and financial resources, and greater volatility than securities of larger, more established companies.

The value of **fixed income securities** will fluctuate and, upon a sale, may be worth more or less than their original cost or maturity value. Bonds are subject to interest rate risk, call risk, reinvestment risk, liquidity risk, and credit risk of the issuer.

**High yield bonds (bonds rated below investment grade)** may have speculative characteristics and present significant risks beyond those of other securities, including greater credit risk, price volatility, and limited liquidity in the secondary market. 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.

**Alternative Investments Risks**

Alternative investments, including hedge funds, private equity funds and managed futures, can be highly illiquid, are speculative and not suitable for all investors. Investing in alternative investments is only intended for experienced and sophisticated investors who are willing to bear the high economic risks associated with such an investment. Investors should carefully review and consider potential risks before investing. Certain of these risks may include:

- 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 the fund and none is expected to develop; 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;
- fund of funds often have a higher fee structure than single manager funds as a result of an additional layer of fees; and risks associated with the operations, personnel and processes of the manager.

# Asset Class Risk Considerations (cont'd)

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

The **indices** are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment.

The **indices selected by Morgan Stanley Wealth Management** to measure performance are representative of broad asset classes. Morgan Stanley Wealth Management retains the right to change representative indices at any time.

**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.

**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.

**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.

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Barron's "Ranking the Institutional Consultants," April 17, 2017. The teams in the ranking were evaluated on a range of criteria, including institutional investment assets overseen by the team, the revenue generated by those assets, the number of clients served by the team, and the number of team members and their regulatory records. Also considered were the advanced professional designations and accomplishments represented on the team. The rating is not indicative of the Institutional Consulting Director's past or future performance. Neither Morgan Stanley Smith Barney LLC nor its Institutional Consulting Directors pay a fee to Barron's in exchange for the rating. Barron's is a registered trademark of Dow Jones & Company, L.P. All rights reserved.



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