

NAVIGATING INFLATION – AN ANALYSIS OF EQUITY FACTOR PERFORMANCE OVER 150 YEARS

- We leveraged a dataset spanning 150 years to unveil investment returns across inflationary scenarios.
- Periods of high inflation and hard landing prove challenging for equity investors.
- Factors help mitigate the effects of inflation.

Anticipating investment returns during inflationary periods is a paramount concern for investors, particularly amid the recent global resurgence in inflation following the COVID-19 pandemic. The era of accustomed low and stable inflation, where real returns closely mirrored nominal returns, has been disrupted by a pronounced spike in consumer price inflation worldwide. This has triggered significant queries about the impact of inflation on risk premiums and investment strategies. In this analysis, we delve into investment returns across various inflationary regimes, assessing the behavior of factor premiums in different environments, and emphasize the most recent inflationary episode. To ensure a robust analysis, we draw upon the deepest possible sample spanning over 150 years, focusing specifically on equity markets and factor premiums to account for the multitude of inflation regimes.

STUDYING INFLATION REQUIRES A LONG AND DEEP SAMPLE

Examining the sensitivity of investment returns to inflation reveals two prominent challenges. Firstly, the past 50 years have seen limited periods of elevated inflation rates, with stability around 2%, never exceeding 4% from 1990 to 2020. Notably, from October 2021 to October 2023, inflation surpassed 4%, deviating from the accustomed stability. In order to get sufficient representation of inflationary regimes we must extend our datasets back well before most factor time series begin. Secondly, confining assets to broad asset classes and disregarding factor premiums fails to capture the full potential of asset allocation in navigating significant economic shocks.

To address these challenges, we construct an extensive historical database, encompassing a diverse range of inflationary regimes while maintaining high-quality data on factor returns. Building upon recent work by Baltussen, Swinkels, van Vliet & van Vliet (2023), and updated until the end of 2023, our focus extends to the equity market and key equity factors (value, momentum, quality, low-vol, and size).¹

GUIDO BALTUSSEN, PROF. DR.
Head of Quantitative Strategies, International

MILAN VIDOJEVIC, PHD
Director, Quantitative Solutions

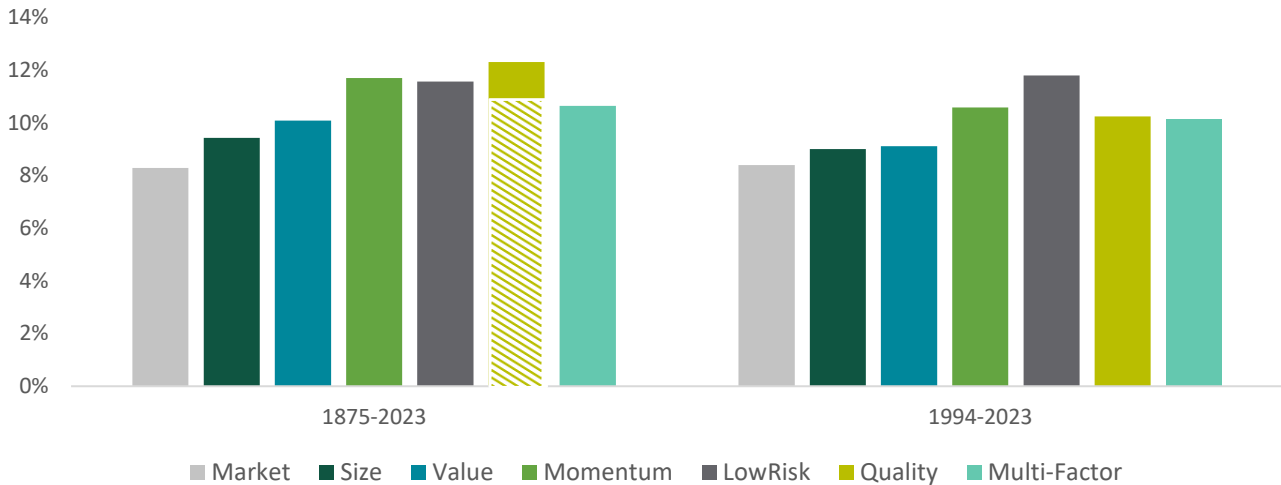
BART VAN VLIET, CFA
Senior Quantitative Strategist

¹ More specifically, we use the dataset on U.S. equity factors compiled by Baltussen, van Vliet & van Vliet (2023), and combine this with data from Wahal (2019). We extend this data until November 2023 with data from the [Kenneth French data library](#) to include the most recently made available data.

LONG-TERM AND RECENT PERFORMANCE OF EQUITIES AND FACTORS

Before we dive into inflation and its impact on investment returns, we first consider the long-run evidence on equities and factor returns. Figure 1 presents average returns on equities and factors across the long-run sample from 1875 to 2023, as well as a more recent subsample encompassing the last 30 years (1994-2023).

Figure 1: Evidence on equity and factor returns



Source: Baltussen et al. (2022) and Northern Trust Asset Management – Quantitative Strategies. Factors are simulated. Data from January 1875 until November 2023, except for Quality which starts in 1940, given earlier data is not available for this factor. The Multi-Factor series includes all factors available at each point in time. The shaded part for quality represents the market return over the same period. Factors are constructed by overlaying long-short portfolios on the market portfolio. Returns are in annual terms, in USD.

Over the long-sample period, equity investors were rewarded with a nominal return of 8.3% per annum on average. Global inflation averaged 3.3% over the same period, implying high real returns as well. The five equity factors demonstrate strong performance over the long-run sample, with average returns ranging from 9.4% (Size) to 11.7% (Momentum), all outperforming the broad equity market. The overall multi-factor strategy, constructed as an equally-weighted combination of individual factors, yields a robust return of 10.6% over the full period.

In the last 30 years, average nominal equity returns remain positive at 8.4% with an inflation rate at 1.9%. Factor performance is in line with what we observed in the long-sample.

LONG-TERM INFLATION TRENDS

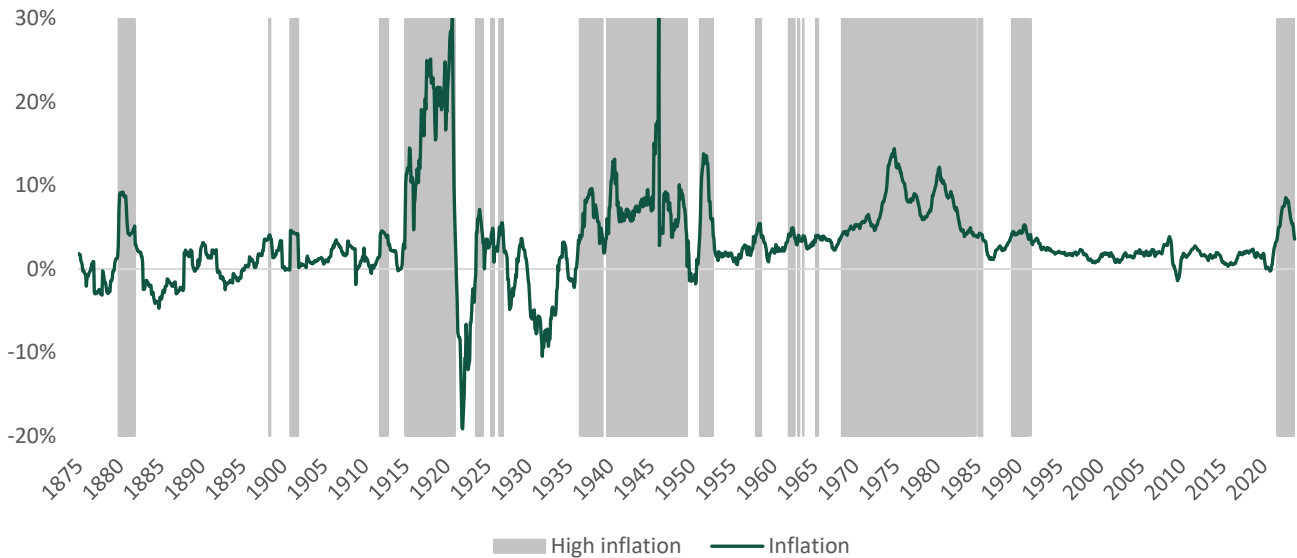
In Figure 2, we illustrate the long-term trends of inflation, revealing a few noteworthy observations. First, inflation varies substantially over time with several periods of high inflation – such as during the 1880s, after World War I, around World War II, during the 1970s, and more recently since the end of 2021. We also observe periods of deflation – typically after periods of high inflation (and especially before World War II). Second, inflation is more volatile in the period before the 1970s, which for a large part was dominated by currencies that were tied to gold or silver. Interestingly, recently we have also seen inflation volatility increasing, reflecting the importance of studying the pre-1970 periods.

We classify global inflation into four inflation regimes: (1) below 0%, or deflation, (2) between 0% and the current central bank target of 2%, (3) a mild inflation overshoot, between 2% and 4%, and (4) high inflation, above 4%.²³

² The results we present are robust across definitions of inflationary regimes.

³ Definitions for the inflation data can be found in Baltussen et al. (2023).

Figure 2: 149 years of inflation regimes



Source: Baltussen et al. (2023) and Northern Trust Asset Management – Quantitative Strategies. The figure shows the historical timeseries behavior of Global YoY inflation (based on Consumer Price Inflation(CPI)), the bars highlighted in high inflation (above 4%). The sample period is 1875-2023.

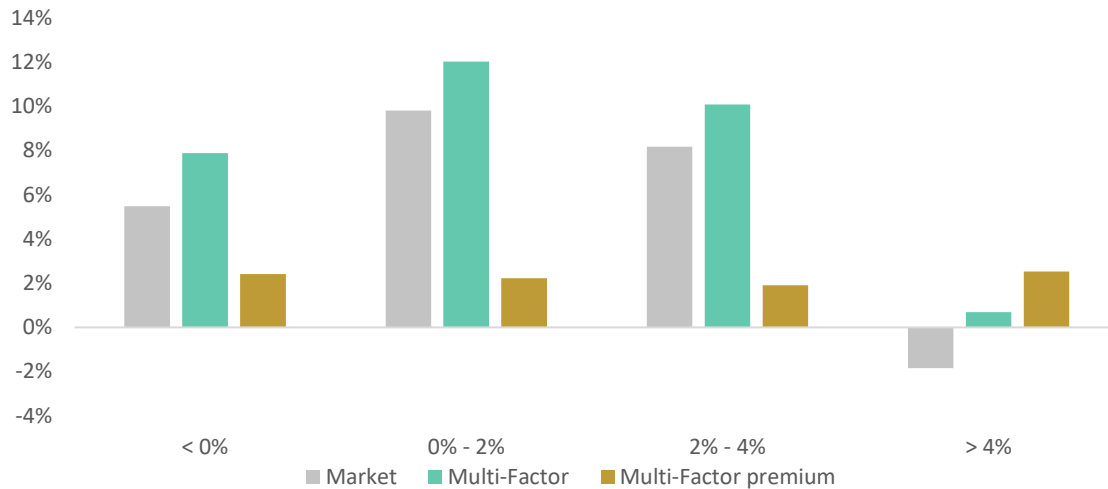
Examining the most recent 30 years does not yield much information about deflationary or high inflation periods, as inflation has almost always been in the range of 0% to 4%, except for the recent years. Including the 1970s gives a period of high inflation, but one needs to include the 1930s to also have a substantial number of deflationary periods. Extending the sample to 1875 increases both the number of years with high inflation during and after World War II, and with deflation at the end of the 19th century. Over the entire sample period, there have been around 46 years with inflation above 4%. Hence, extending the period to 1875 gives a more reliable assessment of what investors can expect during periods of deflation or high inflation.

THE IMPACT OF INFLATION ON EQUITY RETURNS AND FACTOR PREMIUMS

Examining the variation in equity returns across inflationary regimes, Figure 3 illustrates the average real (inflation-adjusted) equity returns within the four inflationary categories. Notably, equities exhibit positive returns in regimes marked by low to moderate inflation but turn negative in times of high inflation. In essence, periods characterized by elevated inflation emerge as a significant concern for investors.

In contrast, equity factor premiums demonstrate consistent performance across inflationary regimes. As many investors strategically allocate to factor premiums, it is of high importance to understand their performance across different inflationary scenarios. Figure 3 illustrates that a multi-factor approach delivers positive real annualized returns across all inflationary scenarios, contributing an average of 2.3% over the market. The Multi-Factor portfolio provided real returns of 7.9% in deflation, 12.0% in the moderate inflation periods, and 10.1% and 0.7% in the mild overshoot and high inflation scenarios, respectively.

Figure 3: Real returns across inflationary regimes



Source: Baltussen et al. (2023) and Northern Trust Asset Management – Quantitative Strategies. Factors are simulated. Data from January 1875 until November 2023, except for Quality which starts in 1940. The Multi-Factor series includes all factors available at each point in time. Returns are inflation-adjusted, in annual terms, in USD and averaged across inflationary scenarios.

Although variations across inflation buckets are more substantial at the individual factor level, the differences across inflation scenarios are generally not statistically significant. This is shown in Table 1. Notably, at the individual factor level, Quality does exceptionally well when inflation exceeds 4%.

Table 1: Real factor returns across inflationary regimes

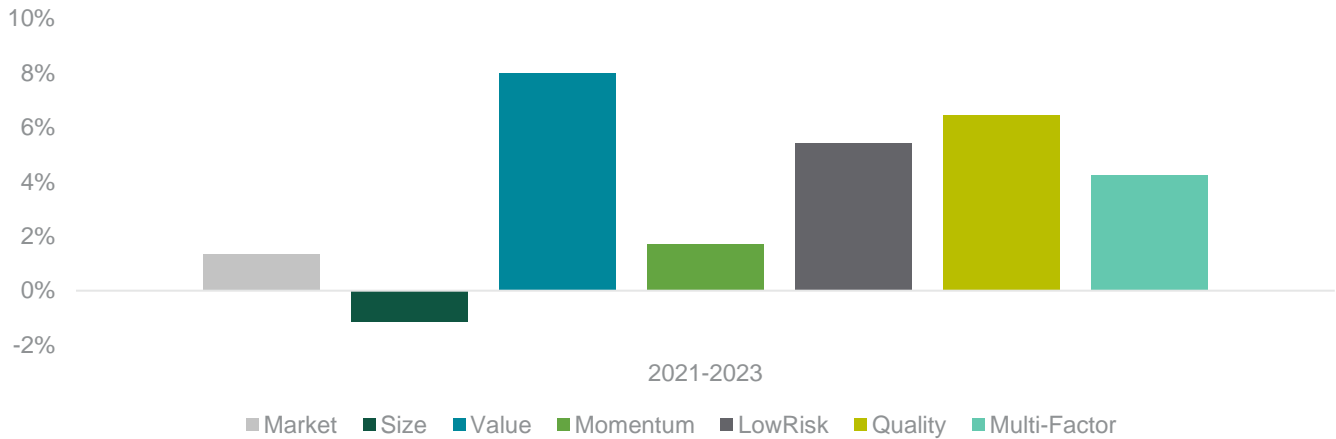
Deflation (< 0%)	Moderate (0 - 2%)	Mild overshoot (2 - 4%)	High (> 4%)
LowRisk 8.9%	LowRisk 13.5%	Momentum 11.9%	Quality 3.3%
Momentum 8.4%	Quality 13.2%	LowRisk 10.8%	Momentum 1.9%
Multi-Factor 7.9%	Momentum 12.8%	Quality 10.3%	LowRisk 1.4%
Value 7.6%	Multi-Factor 12.0%	Multi-Factor 10.1%	Multi-Factor 0.7%
Size 6.3%	Value 11.3%	Value 9.4%	Value 0.5%
	Size 10.8%	Size 9.1%	Size -0.2%
Market 5.5%	Market 9.8%	Market 8.2%	Market -1.8%

Source: Baltussen et al. (2023) and Northern Trust Asset Management – Quantitative Strategies. Factors are simulated. Data from January 1875 until November 2023, except for Quality which starts in 1940. Due to a lack of deflationary periods, we only have limited observations for Quality, as such it is left out. The Multi-Factor series includes all factors available at each point in time. Returns are inflation-adjusted, in annual terms, in USD, and averaged across inflationary scenarios.

ZOOMING INTO THE RECENT INFLATIONARY EPISODE AND THE ROAD AHEAD

Over the past three years, the yearly inflation rates for 2021, 2022, and 2023 were 5.0%, 8.0%, and 3.6%, respectively. During this period, investments in most factors have provided value add to the market. An investment in the size portfolio lagged the market, while Value, momentum, Low Volatility, Quality, and the equally-weighted Multi-Factor combination have shown higher annualized real returns than the market. The performances of Value and Quality stand out the most, with realized annual real returns higher than 6%, with the market lagging these factors by over 5%.

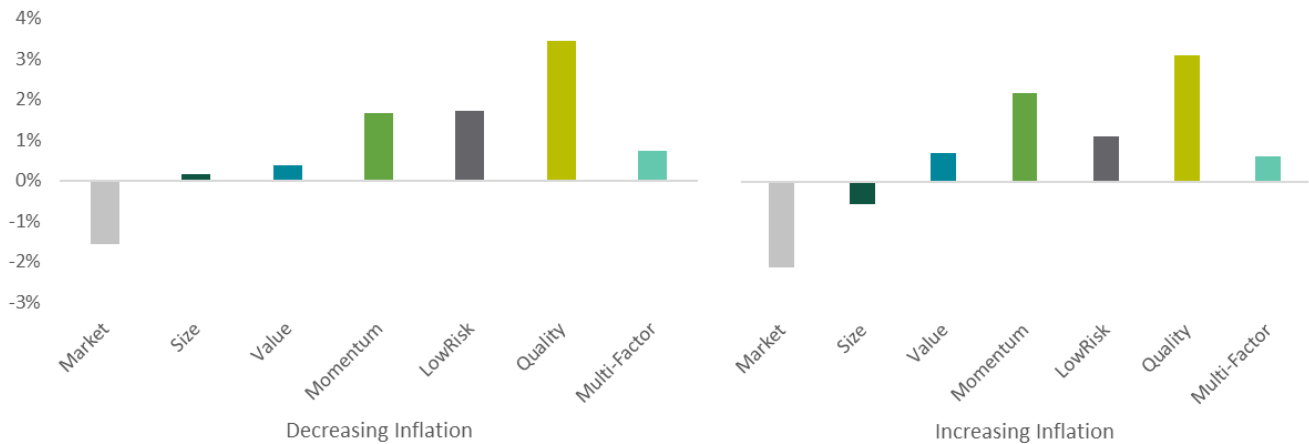
Figure 4: Annualized real returns 2021- 2023



Source: Baltussen et al. (2023) and Northern Trust Asset Management – Quantitative Strategies. Factors are simulated. Data from January 1875 until November 2023, except for Quality which starts in 1940. The Multi-Factor series includes all factors available at each point in time. Returns are inflation-adjusted, in USD, in annual terms.

With inflation ranging from 3.6% to 8.6% over the last three years, and coupled with persistent uncertainty regarding the future inflation trajectory, it is of interest to delve deeper into periods of high inflation. Splitting the sample into two scenarios – when inflation is high but decreasing, and when inflation is high and increasing – Figure 5 reveals that factors offer relief from negative real market returns in both scenarios. In both scenarios, all factor portfolios show positive real returns with the exception of size in the increasing inflation case. A multi-factor approach adds around 3% to the market return in both cases. Particularly noteworthy is that, at the level of individual factors, Quality demonstrates the most promising real returns in times of high inflation, highlighting the resilience of high quality companies during inflationary periods.

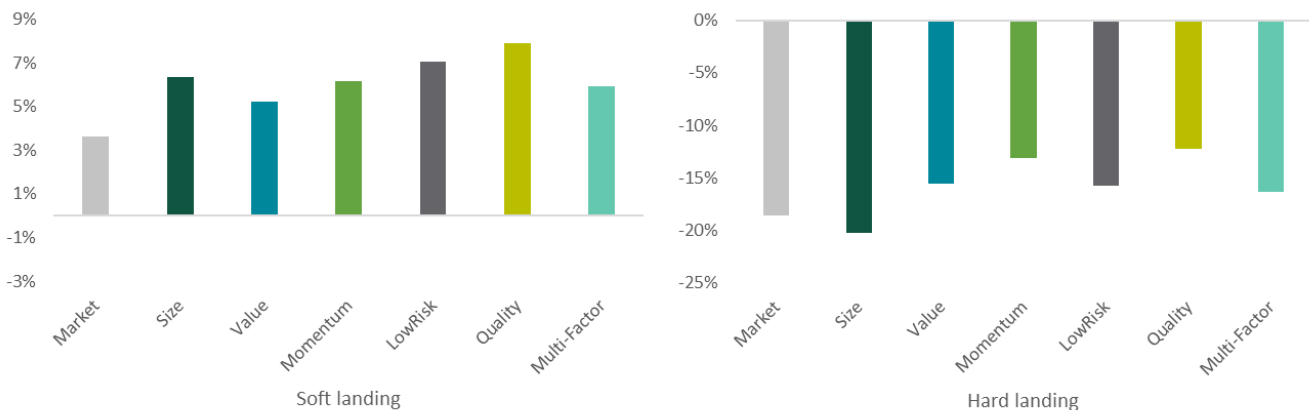
Figure 5: Factor performance across various high inflationary scenarios



Source: Baltussen et al. (2023) and Northern Trust Asset Management – Quantitative Strategies. The figure shows factor performances during times of high inflation, split based on the past year trend of inflation. Factors are simulated. Data from January 1875 until November 2023, except for Quality which starts in 1940. The Multi-Factor series includes all factors available at each point in time. Returns are inflation-adjusted, in USD, in annual terms, and averaged across inflationary scenarios.

In Figure 6 we further split the high but decreasing inflation scenario – akin to what we are experiencing currently – into a scenario in which there was a recession (‘hard landing’) or there was not one (‘soft-landing’). Here we see that soft landing scenario is favorable for equities overall, as well as for factors. All factors improve real returns for equity investors, with Quality offering on average most benefits from a return perspective. Further, hard landing scenarios are difficult for equity investors, with double digit negative real returns per annum. These are true bad times for investors. At the same time, factors help alleviate the pain by significantly enhancing returns. Again, Quality demonstrates the most promising real returns.

Figure 6: Factor performance across high but decreasing inflation scenarios – soft vs. hard landing



Source: Baltussen et al. (2023) and Northern Trust Asset Management – Quantitative Strategies. The figure shows factor performances during times of high inflation, split based on the past year trend of inflation and a recession (‘hard landing’) or non-recession (‘soft-landing’). Factors are simulated. Data from January 1875 until November 2023, except for Quality which starts in 1940. The Multi-Factor series includes all factors available at each point in time. Returns are inflation-adjusted, in USD, in annual terms. Recession scenarios are based on the NBER recession indicator.

CONCLUSION

Leveraging a dataset spanning over 150 years, our analysis offers insights into the impact of inflation on investment returns. The variability of equity returns across inflationary regimes is pronounced, with positive nominal and real equity returns prevalent in deflationary and moderate inflation scenarios. However, real returns experience a notable decline during periods of high inflation, presenting a substantial challenge for investors during these times.

In contrast, factor premiums exhibit a noteworthy consistency across all inflation regimes, with minimal variation in average returns. While this might sound unexciting, it underscores that factor investors, on average, experience less vulnerability to inflation. This resilience implies that factors play a crucial role in mitigating the challenges posed by high inflation, providing a buffer against some of the negative impacts associated with such economic conditions.

REFERENCES

- Baltussen, G., Swinkels, L., van Vliet, B., & van Vliet, P. (2023). Investing in Deflation, Inflation, and Stagflation Regimes. *Financial Analysts Journal*, 1-28.
- Baltussen, G., van Vliet, B., & Van Vliet, P. (2023). The cross-section of stock returns before CRSP (No. 3969743). SSRN working paper.
- Wahal, S. (2019). The profitability and investment premium: Pre-1963 evidence. *Journal of Financial Economics*, 131(2), 362-377.

Important Information

For use with Institutional Investors and Financial Professionals Only. Not for Retail Use. The information contained herein is intended for use with current or prospective clients of Northern Trust Investments, Inc (NTI) or its affiliates. The information is not intended for distribution or use by any person in any jurisdiction where such distribution would be contrary to local law or regulation. (NTI) or its affiliates may have positions in and may effect transactions in the markets, contracts and related investments different than described in this information. This information is obtained from sources believed to be reliable, its accuracy and completeness are not guaranteed, and is subject to change. Information does not constitute a recommendation of any investment strategy, is not intended as investment advice and does not take into account all the circumstances of each investor.

This report is provided for informational purposes only and is not intended to be, and should not be construed as, an offer, solicitation or recommendation with respect to any transaction and should not be treated as legal advice, investment advice or tax advice. Recipients should not rely upon this information as a substitute for obtaining specific legal or tax advice from their own professional legal or tax advisors. References to specific securities and their issuers are for illustrative purposes only and are not intended and should not be interpreted as recommendations to purchase or sell such securities. Indices and trademarks are the property of their respective owners. Information is subject to change based on market or other conditions.

All securities investing and trading activities risk the loss of capital. Each portfolio is subject to substantial risks including market risks, strategy risks, advisor risk, and risks with respect to its investment in other structures. There can be no assurance that any portfolio investment objectives will be achieved, or that any investment will achieve profits or avoid incurring substantial losses. No investment strategy or risk management technique can guarantee returns or eliminate risk in any market environment. Risk controls and models do not promise any level of performance or guarantee against loss of principal. Any discussion of risk management is intended to describe (NTI) or its affiliates' efforts to monitor and manage risk but does not imply low risk.

Past performance is not a guarantee of future results. Performance returns and the principal value of an investment will fluctuate. Performance returns contained herein are subject to revision by (NTI) or its affiliates. Comparative indices shown are provided as an indication of the performance of a particular segment of the capital markets and/or alternative strategies in general. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index. Net performance returns are reduced by investment management fees and other expenses relating to the management of the account. Gross performance returns contained herein include reinvestment of dividends and other earnings, transaction costs, and all fees and expenses other than investment management fees, unless indicated otherwise. For NTI prospects or clients, please refer to Part 2a of the Form ADV or consult an NTI representative for additional information on fees.

Forward-looking statements and assumptions are (NTI) or its affiliates' current estimates or expectations of future events or future results based upon proprietary research and should not be construed as an estimate or promise of results that a portfolio may achieve. Actual results could differ materially from the results indicated by this information.

Northern Trust Asset Management is composed of Northern Trust Investments, Inc. Northern Trust Global Investments Limited, Northern Trust Fund Managers (Ireland) Limited, Northern Trust Global Investments Japan, K.K, NT Global Advisors, Inc., 50 South Capital Advisors, LLC, Northern Trust Asset Management Australia Pty Ltd, and investment personnel of The Northern Trust Company of Hong Kong Limited and The Northern Trust Company. I-021624-3381200-021525

NOT FDIC INSURED | MAY LOSE VALUE | NO BANK GUARANTEE

© 2024 Northern Trust Corporation. Head Office: 50 South La Salle Street, Chicago, Illinois 60603 U.S.A.