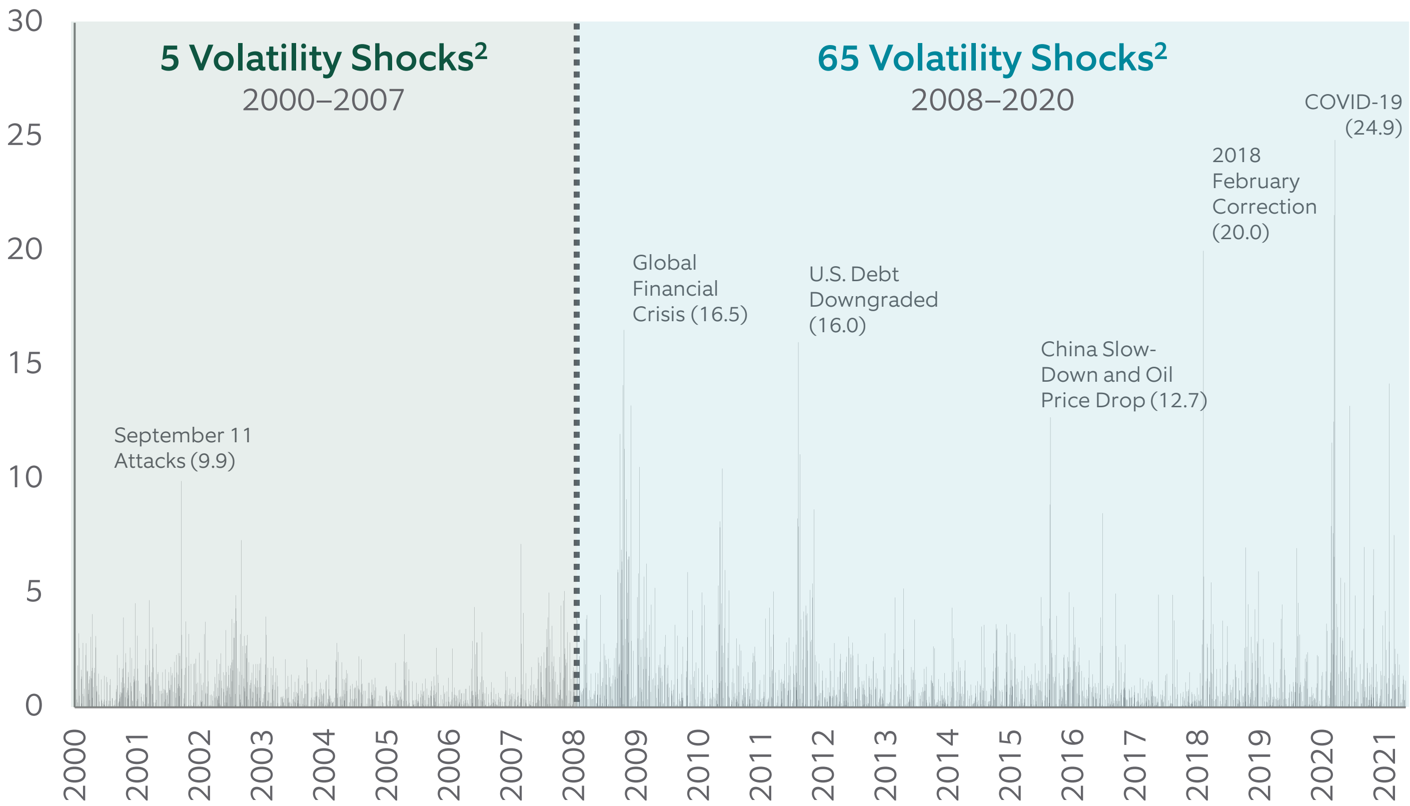
NORTHERN TRUST
ASSET MANAGEMENT

RISK INSIGHTS SERIES

NAVIGATING EXTENDED PERIODS OF MARKET VOLATILITY

The New Normal:
More Frequent and Extreme Volatility

DAILY POINT INCREASE[1] IN THE VIX



[1]Volatility increases are represented by any increase in the VIX daily, as of 12/31/2021.

[2]Volatility shocks are any increase in the VIX daily greater than five points.

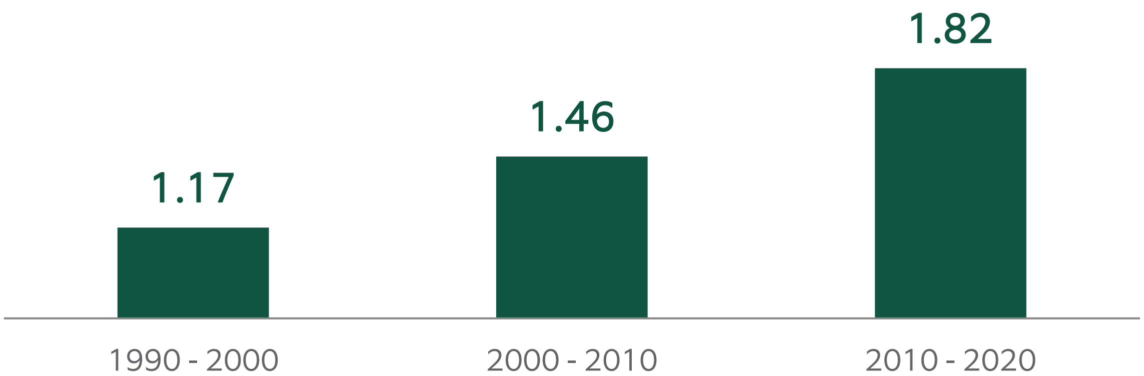
Source: Northern Trust Asset Management, Bloomberg. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

We are in a new era of extreme volatility that is leaving investors searching for new ways to achieve the same portfolio objectives.

In an environment marked by rapid market swings, investors looking to consistently outperform will have to increase their emphasis on downside protection while maintaining their upside participation.

The Volatility Gap in Down and Up Markets is Growing — Causing More Extreme Market Swings

VOLATILITY (STANDARD DEVIATION) DURING DOWN AND UP MARKETS



	1990 - 2000	2000 - 2010	2010 - 2020
Volatility in Up Markets	11.9%	16.1%	11.6%
Volatility in Up Markets	14.0%	23.5%	21.2%
Down/Up Volatility Ratio	**1.17**	**1.46**	**1.82**

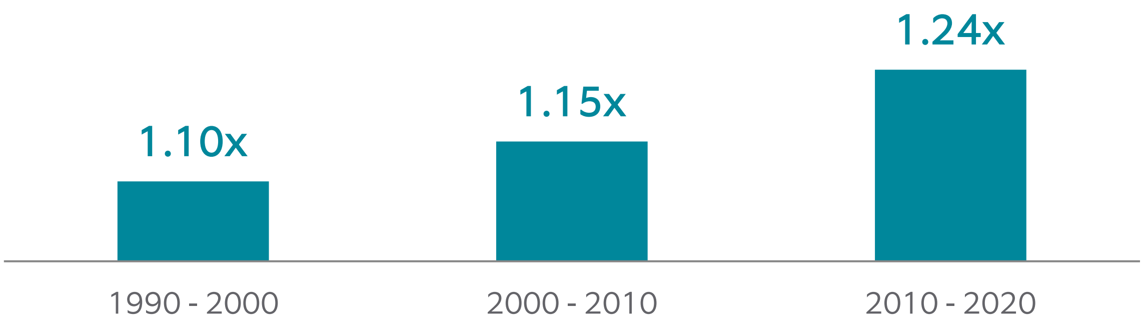
Source: Northern Trust Quantitative Research, FactSet. Russell 1000 Index. Data from 12/31/1989 to 12/31/2021. Chart shows the realized monthly volatility in up and down markets, as well as the ratio. Monthly volatilities calculated using daily return data in each month. Values annualized and averaged across selected time horizons. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

The ratio of volatility in down markets vs. up markets has been trending upward over the past 30 years. Simply put, markets are declining more rapidly than when they move up.

This fundamental shift in market behavior is leading investors to reassess their portfolios' readiness for this new volatility paradigm.

Generating Alpha Will Require Investment Strategies With a Similar Asymmetric Risk Profile

UP/DOWN CAPTURE RATIO OF LOW VOLATILITY EQUITIES[1]



	1990 - 2000	2000 - 2010	2010 - 2020
Up Market Capture Ratio	83%	58%	85%
Down Market Capture Ratio	75%	50%	69%
Up/Down Capture Ratio	**1.10**	**1.15**	**1.24**

[1]Low Volatility research portfolios are formed by selecting the bottom 20% of securities ranked by MSCI Barra Volatility. Research portfolios are capitalization weighted and rebalanced quarterly.

Source: Northern Trust Asset Management, FactSet. Russell 1000 Universe, 12/31/1989 through 12/31/2021. For illustrative purposes only. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

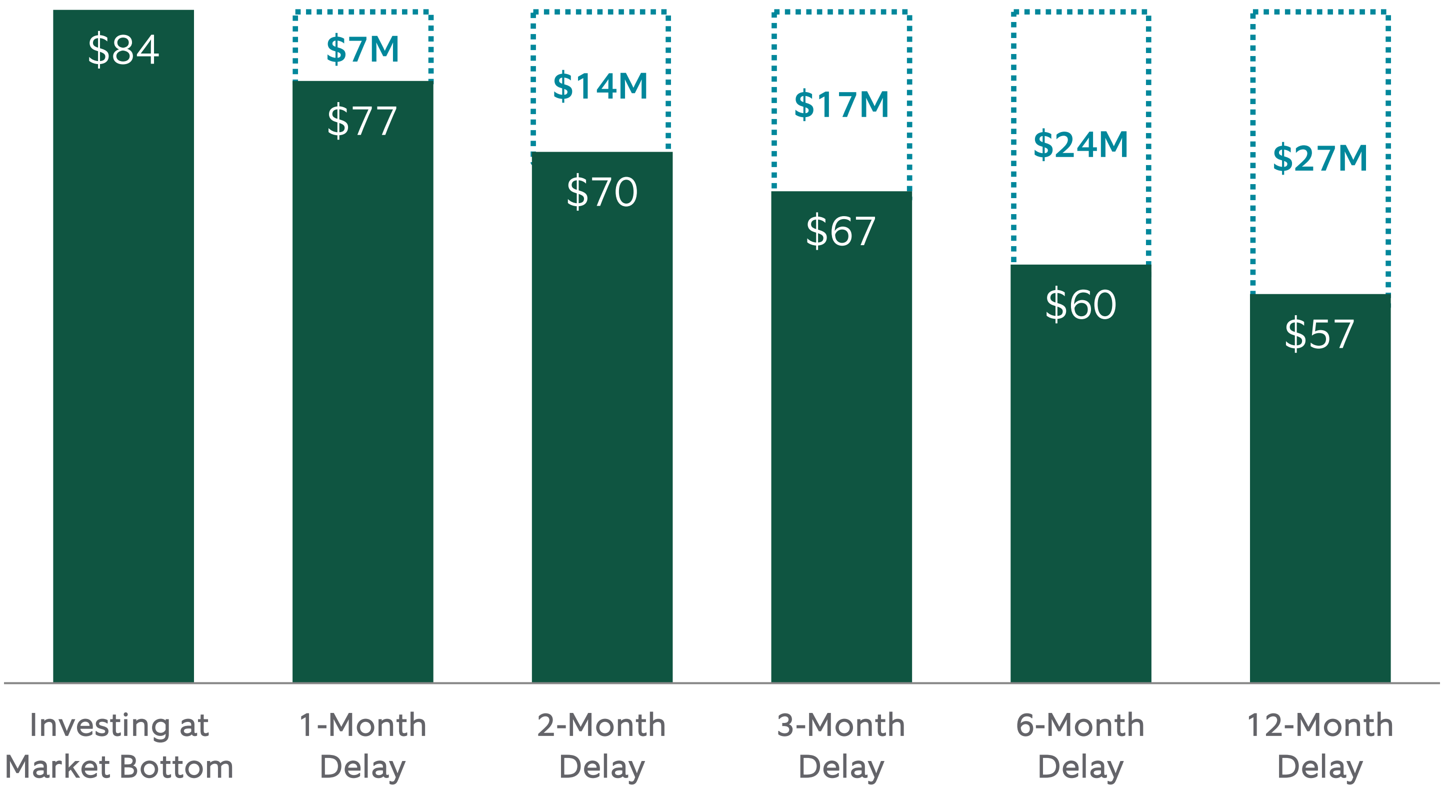
This pattern of asymmetric volatility is likely to continue.

While increased volatility is never welcomed, here's an essential truth: lower volatility equities have historically performed very well in turbulent markets.

Continuing to achieve portfolio objectives in this environment will require a greater use of investment strategies with a similar risk and return profile.

The Potential Cost of Delaying Your Re-Balance

HYPOTHETICAL GROWTH OF $10 MILLION AT GLOBAL FINANCIAL CRISIS MARKET BOTTOM[1]



As the speed of market corrections increases and general volatility becomes more pervasive, timing becomes everything.

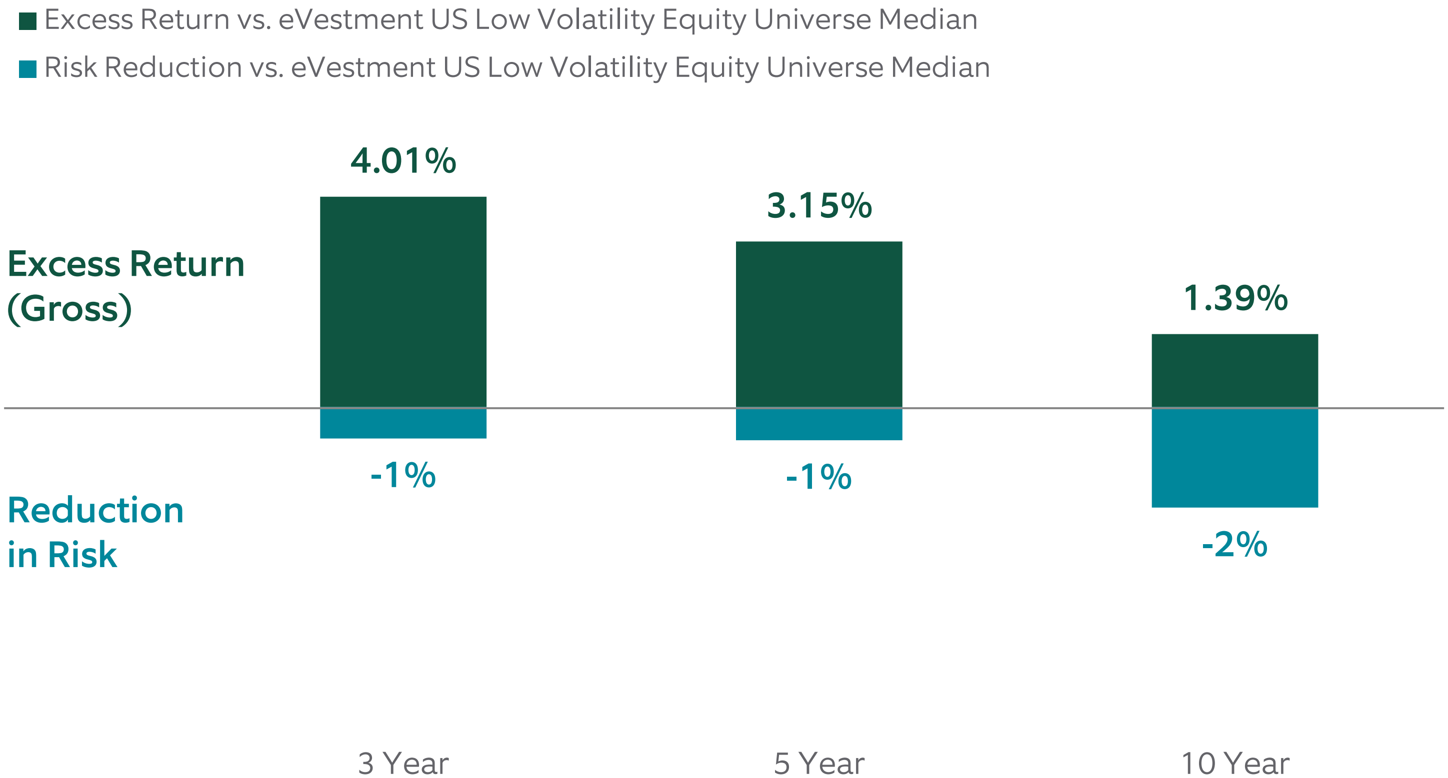
While it's nearly impossible to time the bottom of any correction perfectly, the cost of delaying the decision to re-balance equity allocations for several months can have material long-term effects.

[1]Market bottom was March 2009 for the S&P 500 Index.

Source: Northern Trust Asset Management, eVestment. Data from 3/1/2009 to 12/31/2021. Graph represents the hypothetical growth of $10M using the S&P 500 Index. "Investing at Market Bottom" time period is from 3/1/2009 – 12/31/2021 and each subsequent beginning period is moved up by the "delay" amount. Past performance is no guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

Northern Trust Quality Low Volatility:
A Core Equity Allocation With Strong Market Upside Potential While Reducing Downside Risk

NORTHERN TRUST QUALITY LOW VOLATILITY TOTAL RETURN INDEX



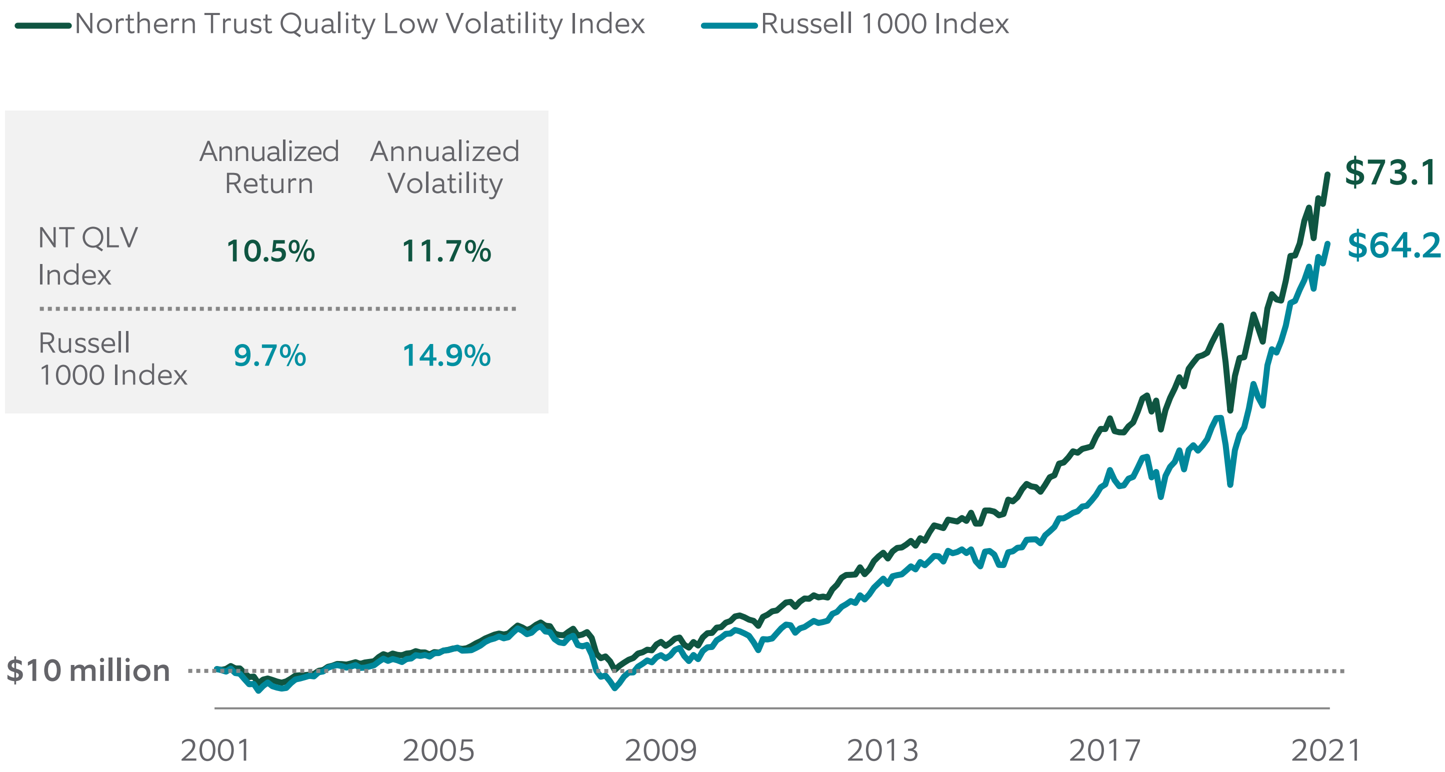
Source: Northern Trust Asset Management, eVestment. Data as of 12/31/2021. Time periods of more than one year are annualized. Past performance is no guarantee of future results. Performance returns and the principal value of an investment will fluctuate. Performance returns contained herein are subject to revision by Northern Trust. Index performance returns are gross of fees unless stated otherwise. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

As you look to re-balance equity holdings amidst the market correction, it is an opportune time to take a fresh look at large-cap equity allocations to ensure they are built to withstand a volatile and slow growth environment.

A Purposeful Focus on Navigating Both Up and Down Markets Has Resulted in More Value With Less Risk

HYPOTHETICAL GROWTH OF $10 MILLION – LAST 20 YEARS

	Annualized Return	Annualized Volatility
NT QLV Index	10.5%	11.7%
Russell 1000 Index	9.7%	14.9%



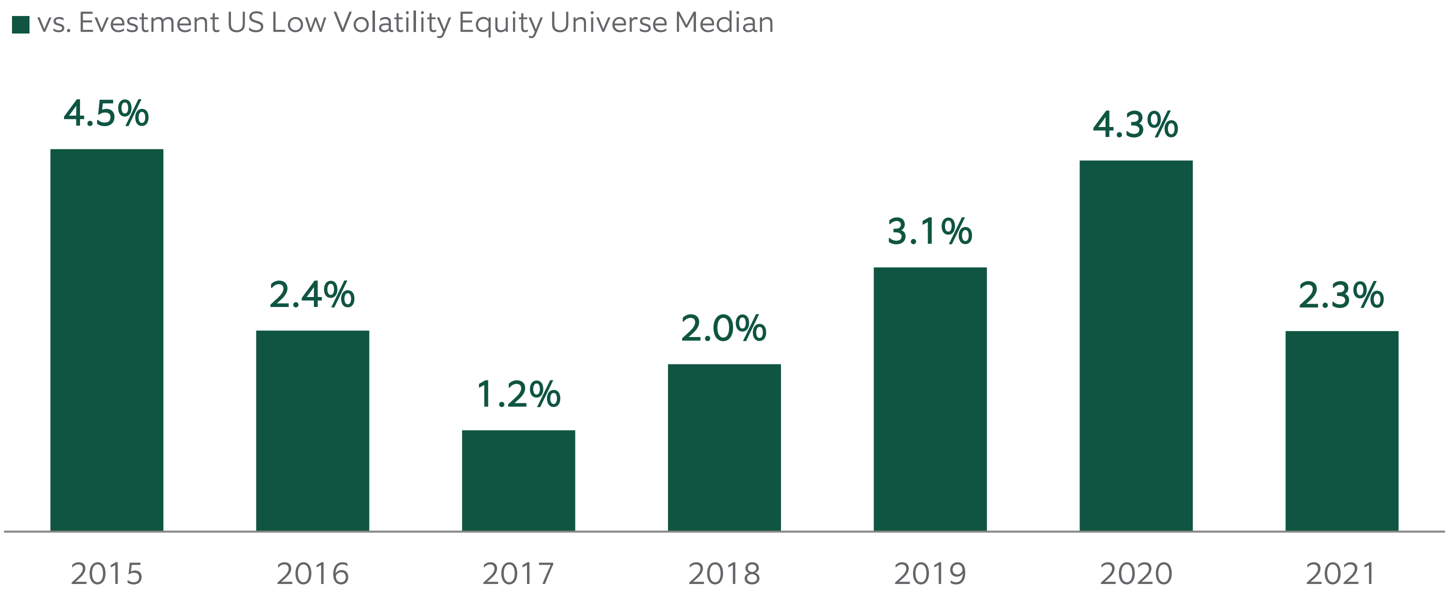
During periods of extended volatility, solely focusing on reducing risk to mitigate the effects of large drawdowns will chip away at portfolio returns over time.

Our proprietary approach to portfolio construction is designed to find securities with beneficial attributes — in up and down markets — to consistently add value over time.

Source: Northern Trust Asset Management, eVestment. Data is from 12/31/2001 to 12/31/2021. Past performance is no guarantee of future results. Performance returns and the principal value of an investment will fluctuate. Performance returns contained herein are subject to revision by Northern Trust. Index performance returns are gross of fees unless stated otherwise. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

When Bad Years Hit You Need Your Core Equity Portfolio to Provide a Tailwind, Not a Headwind

NORTHERN TRUST QUALITY LOW VOLATILITY TOTAL RETURN INDEX EXCESS RETURNS



NUMBER OF TRADING DAYS WITH RETURNS < -1% (RUSSELL 1000 INDEX)						
31	21	4	33	15	45	20

[1]"U.S. equity market" is represented by the Russell 1000 index. 26 trading days per year is calculated as the average number of trading days where the Russell 1000 return was less than -1% per year from 2010–2021.

Source: Northern Trust Asset Management, eVestment, Russell. Past performance is no guarantee of future results. Performance returns and the principal value of an investment will fluctuate. Performance returns contained herein are subject to revision by Northern Trust. Index performance returns are gross of fees unless stated otherwise. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

The U.S. equity market experiences 26 trading days per year when the market returns -1% or worse, on average.[1] While 2017 was an exception, with only four large down days, we anticipate a far more volatile future.

And, if your core equity holdings are not equipped to deliver alpha during such volatility, it may be challenging to meet investment objectives.

LEARN MORE

About Northern Trust Asset Management's portfolio construction expertise. Please visit our website (click here) or contact one of our experts:

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