Build Resilient Portfolios to Counter Volatility

January 2019

Being prepared is critical for enduring market uncertainty

The resurgence of volatility in late 2018 took many investors by surprise, given all the prevailing signs of a healthy U.S. economy (e.g., strong gross domestic product (GDP) growth, low unemployment, robust corporate earnings). This volatility was driven by growing investor uncertainty—from interest rates and inflation to trade disputes and geopolitical tensions. 2018 was a year of divergence between economies and markets. While most countries saw their economies expand last year, the performance of their respective financial markets was poor.

"The key to maintaining a resilient portfolio during bouts of volatility comes down to the investment decisions made before volatility hits. This emphasizes the need to remain disciplined in your investment approach, particularly when it comes to asset selection."

Arthur Torrey, Portfolio Manager, New York Life Investors

Corporate earnings historically have been the primary driver of stock market returns, and the strong earnings growth for U.S. companies that prevailed for most of 2018 helped prolong the bull market. But volatility spiked in the fourth quarter of 2018 and in early 2019; the major U.S. equity indices briefly touched bear market territory during this turbulent spell. A bear market occurs after stocks drop 20% from their recent peaks.

Company fundamentals and current valuations provide a good backdrop for risk assets in 2019. Nevertheless, the late-cycle environment raises the stakes for investors, who should remain vigilant for signs of economic exhaustion and prepare for potential volatility by diversifying their risk exposure in different asset classes and ensuring their investment choices are resilient.

A closer look at risk

EQUITY VOLATILITY

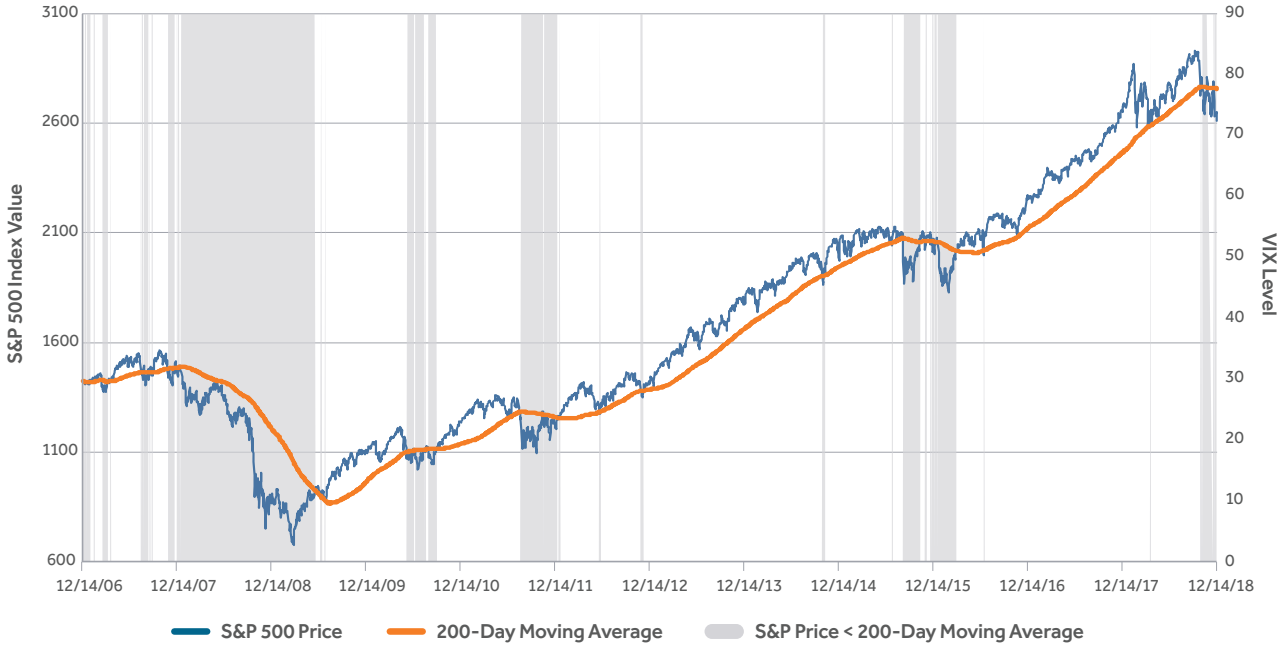
There are different approaches investors can use to identify and gauge stock market volatility. Technical analysis is one approach that seeks to identify price patterns and trends by using investors' behavioral biases. For instance, moving averages are leading technical indicators that track price trends over different lengths of time. Moving averages are easy to calculate because they are just the simple average of closing prices for an index or an individual stock over a period, from short term (e.g., 50-day moving average) to long term (e.g., 200-day moving average).

Moving averages become meaningful in technical analysis when current price movements break above or below these indicators for sustained periods. As an example, let's consider the 200-day moving average of the S&P 500 Index, as shown in **Chart 1** below. Historical precedent tells us that when the current price of the S&P 500 falls below its 200-day moving average and stays there for an extended period, future price trends for the index are likely to be negative.

While there were several "false signals" where the S&P 500 temporarily crossed under the 200-day moving average, when the index remains below the 200-day moving average (identifiable in the gray-shaded periods in **Chart 1**) the moving average acts like a "ceiling" of resistance. This can make exposure to price volatility painful and extensive. Technical analysis can be more of an art than a quantifiable observation when analyzing these periods of resistance.

Chart 1: Periods When the S&P 500 Breaks Below the 200-Day Moving Average[1]

The 200-day moving average becomes a bear volatility concern when it acts as a ceiling to price

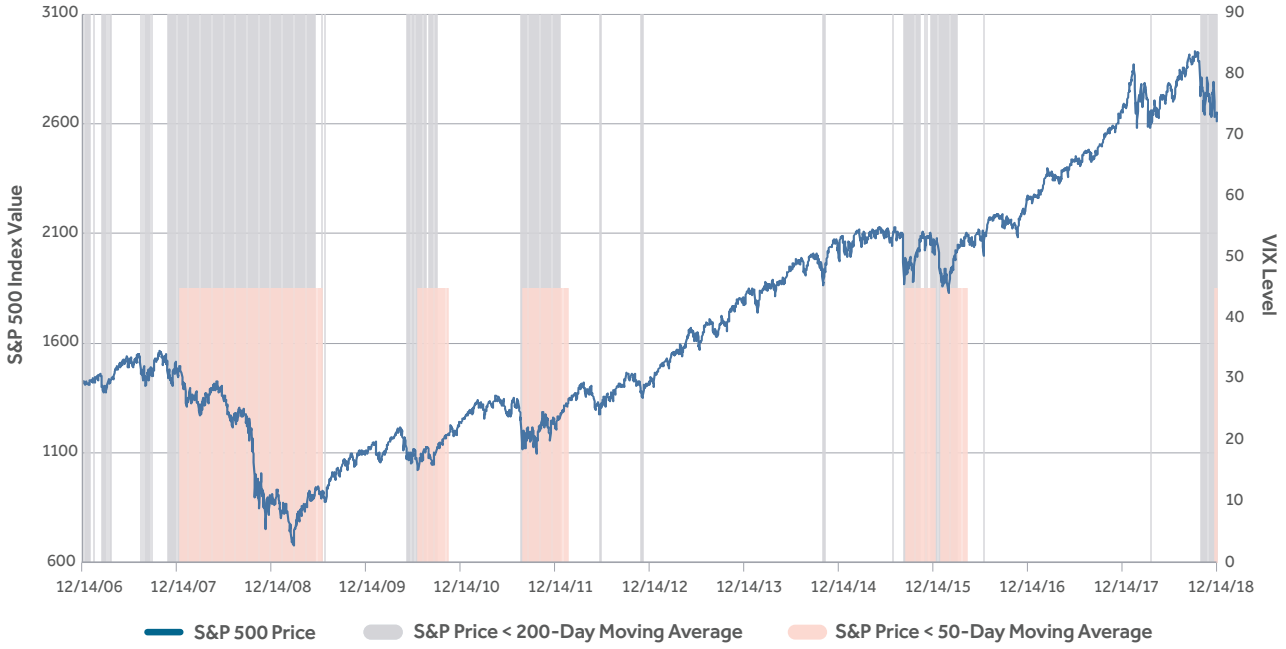


1. Source: Morningstar, 12/14/18. Past performance is no guarantee of future results. An investment cannot be made directly into an index.

Moving averages also can act as coincident indicators, signaling the potential for near-term price trends. For example, the "death cross" indicator appears when the S&P 500 50-day moving average crosses below the 200-day moving average (as identified by the pink shaded areas in **Chart 2** below). Previous signals of the "death cross" have appeared in advance of major downturns over the past 10+ years. The "death cross" indicator also has been less likely to produce false signals.

Chart 2: Periods When the S&P 500 50-Day Moving Average Crosses Below the 200-Day Moving Average[2]

The "death cross" indicator historically has been a strong signal of major equity market downturns



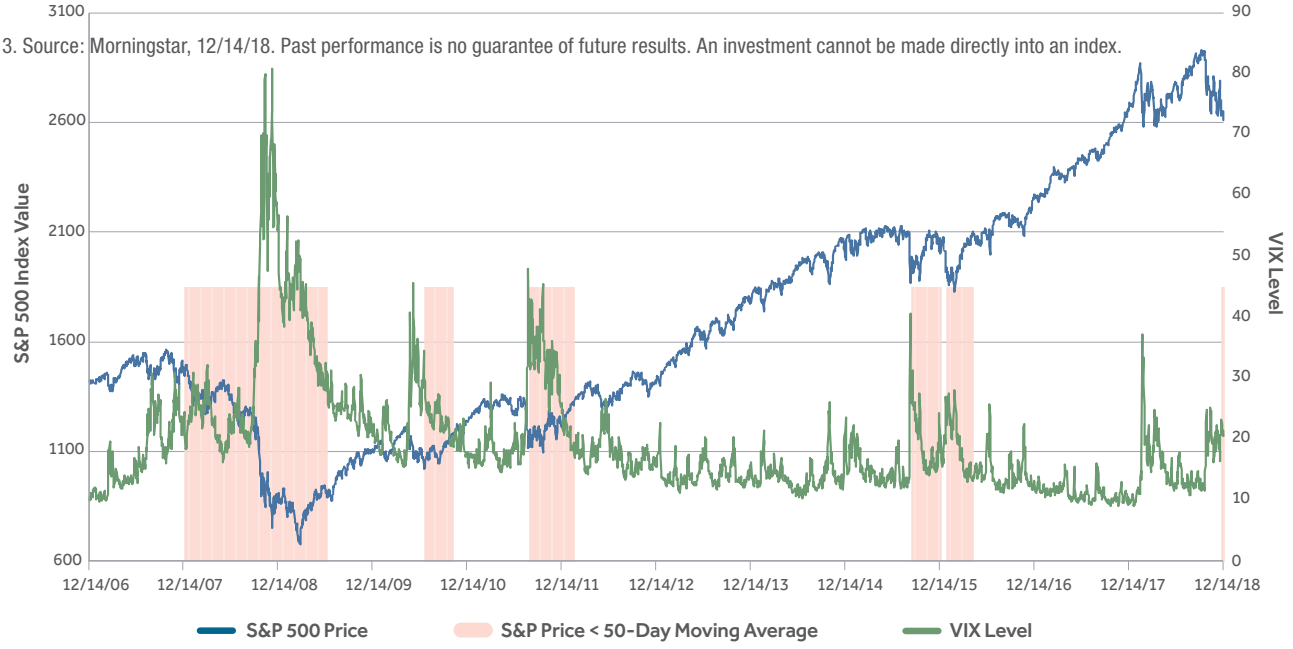
2. Source: Morningstar, 12/14/18. Past performance is no guarantee of future results. An investment cannot be made directly into an index.

The "death cross" indicator also has been a reliable signal for periods of increased volatility. The Volatility Index (VIX) is an often-cited indicator of market volatility as it reflects the price for options on the S&P 500 Index. The VIX rises when investors bid the price of options on the S&P 500 higher. The financial media often refers to the VIX as a "fear gauge." As seen in **Chart 3**, the "death cross" has appeared consistently over the last 10+ years during periods when the VIX has spiked above 20.

Technical indicators like moving averages can have limitations, and are often used in accompaniment with other indicators, such as measures of economic performance, for a more comprehensive view of equity market volatility.

Chart 3: Periods When Market Volatility Spikes in Sync With the "Death Cross"[3]

The "death cross" indicator has signaled previous jumps in the VIX



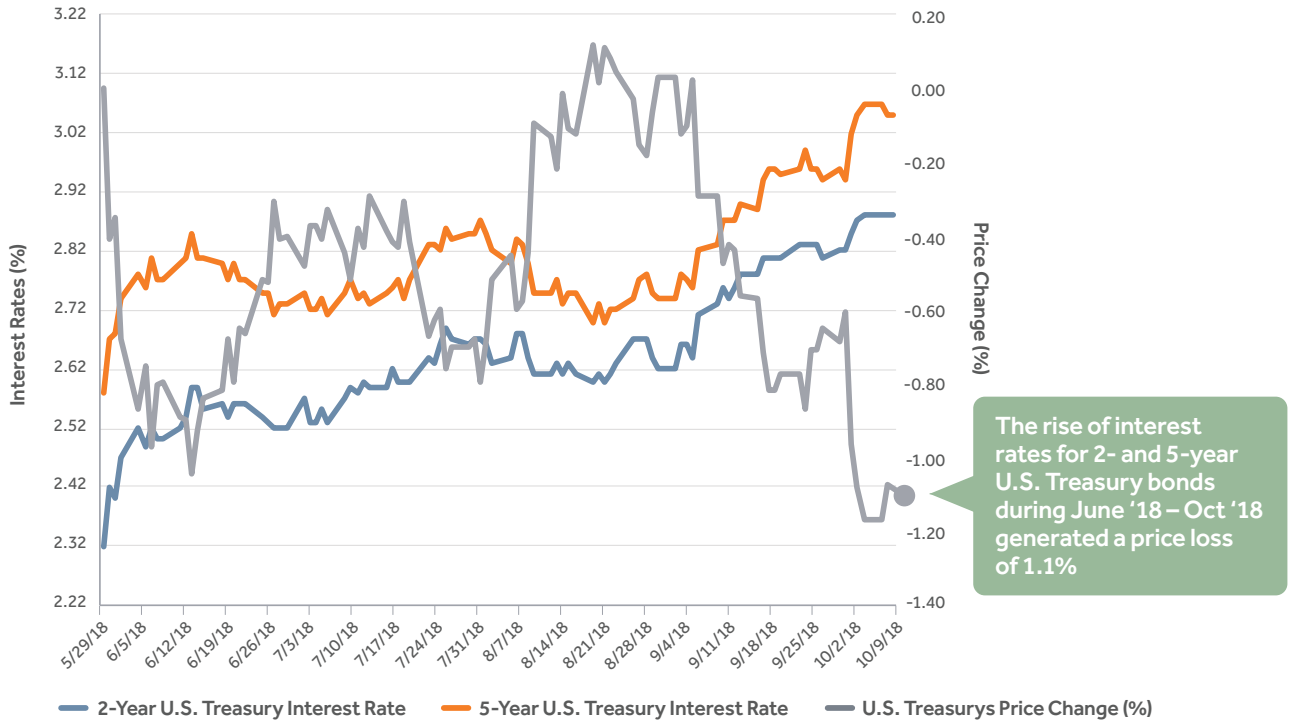
3. Source: Morningstar, 12/14/18. Past performance is no guarantee of future results. An investment cannot be made directly into an index.

FIXED-INCOME VOLATILITY

Volatility in bond markets is primarily driven by two types of fundamental risk—interest rate and credit risk. Interest rate risk is defined by the relationship between interest rate trends and bond prices. When interest rates increase, the price of existing bonds that were issued when rates were lower decline because at higher interest rates, lower-yielding bonds are less attractive than the newer higher-yielding bonds. The converse is also true. When interest rates decrease, the price of existing bonds rises because bonds with higher yields are more attractive to investors than newer lower-yielding bonds.

This dynamic was clear in 2018 as interest rates increased across the range of maturities. For example, consider **Chart 4**, which tracks the rise in interest rates for 2- and 5-year U.S. Treasury bonds over the past year, both of which are considered "risk-free" bonds due to their implicit U.S. government guarantee. During the four-month period from June to October 2018, the 10-year U.S. Treasury rate increased by 46 basis points, while the value of these bonds declined, resulting in a total loss of 1.1% for this brief period.

Chart 4: Risk-Free Bonds are Still Subject to Interest Rate Volatility[4]



4. Sources: Board of Governors of the Federal Reserve System, Morningstar, 5/29/18–10/09/18. Past performance is no guarantee of future results. An investment cannot be made directly into an index.

As **Chart 4** illustrates, there is plenty of interest rate risk with these "risk-free" bonds. So why are U.S. Treasury securities considered "risk-free?" In this case, "risk-free" refers to the other type of fixed-income risk: credit risk. Credit risk is defined as the risk that a bond issuer may default, unable to make good on payments of interest and principal to bond investors.

Credit risk is not binary but instead should be viewed on a continuum, reflecting the likelihood of bond issuers to make future payments. U.S. Treasury securities are considered "risk-free" bonds because of the low risk of the U.S. government defaulting on this debt. Bonds issued by other entities such as companies are not risk-free, because they are backed by the ability of issuers to continue principal and interest payments. When companies are doing well, they are in a good position to service their existing debt and avoid default. Therefore, credit risk is seen as low. But when operating conditions turn difficult, the risk of default increases. Consequently, credit risk rises.

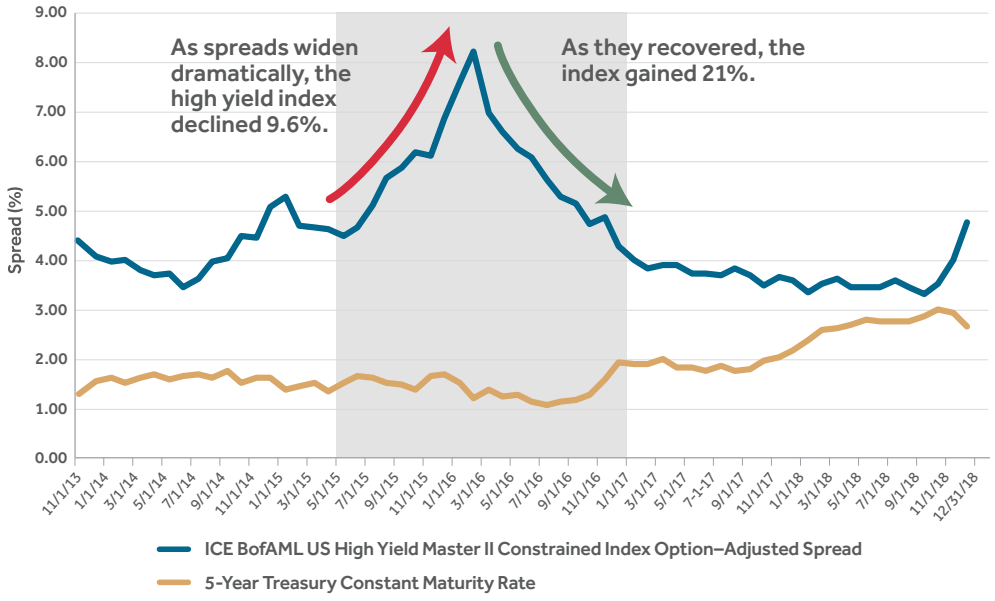
Corporate bond investors are compensated for credit risk by demanding higher interest rates over the risk-free rate currently offered on U.S. Treasurys. You can view credit risk by looking at the difference, or spread, between corporate bond rates and 10-year U.S. Treasury rates, which are considered the benchmark for the bond market in general. Spreads will increase or widen when credit risk is higher, as investors demand higher rates for assuming greater risk.

Likewise, spreads will decrease, or narrow, when credit risk recedes, as investors become more willing to accept lower rates.

With bonds of lower quality (i.e. high-yield bonds), when their credit risk is deemed to be higher, the spread is typically a greater proportion of the overall yield than the risk-free rate. Therefore, valuations for lower-quality bonds are often driven more by changes in the spread than changes in the underlying risk-free rate. Credit spreads will tighten and widen based on the underlying fundamentals of that issuer, the overall risk sentiment of the market, or the health of the economy in general.

As an example, consider the period from mid-2015 to mid-2017, as highlighted in the shaded area in **Chart 5** below. High-yield bond spreads widened significantly in the second half of 2015, then tightened over the following year. Throughout the same period, the yield on 5-year U.S. Treasury notes remained constant in the 1%-2% range. Spread volatility drove high-yield performance during this time, rather than interest rate movement.

Chart 5: High-Yield Bonds are Influenced More by Credit Risk Than Interest Rate Risk[5]



5. Source: Federal Reserve Bank of St. Louis, 12/31/18. Past performance is no guarantee of future results. It is not possible to invest directly in an index. High-yield corporate bonds are represented by the Credit Suisse High Yield Index. Treasurys are backed by the full faith and credit of the U.S. government, as to payment of principal and interest if held to maturity. Index definitions can be found at the end of this paper.

CURRENCY RISK

Currency risk is generally assumed to affect investors only when they branch out beyond their domestic borders into international markets. Fluctuations in currency exchange rates can influence the total return of a foreign investment. For example, the price of an international stock in a portfolio may rise on an absolute basis, but if an investor's home currency strengthens against the home currency of the company they invested in, they may realize a loss in this investment. To compensate for this risk, investors could either require a greater return on the stock, or they could manage or "hedge" their currency risk using various currency market instruments.

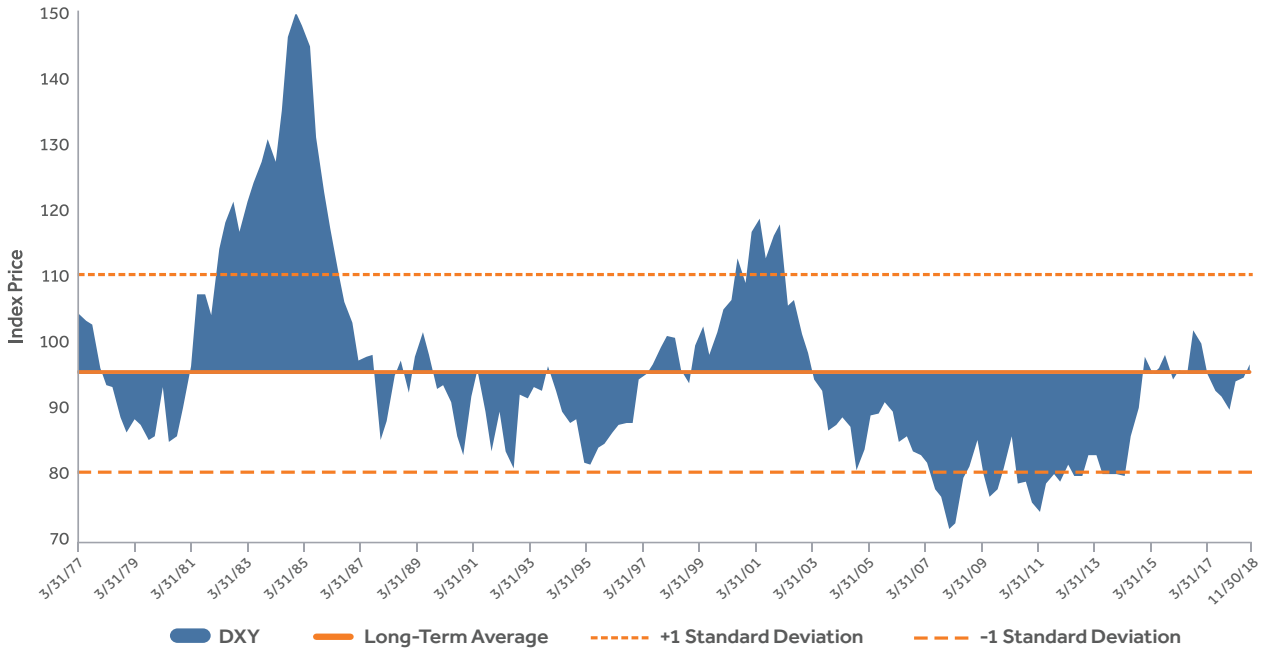
Exchange rates on currency are influenced by a wide range of factors: from interest rates, inflation, government debt, and terms of trade; to political stability and macroeconomic or geopolitical events. These factors can vary widely between countries, making the currency markets complex to understand and analyze. Moreover, understanding risk in currency markets can be more subjective and require a qualitative approach to analysis.

The concept of purchasing power parity describes how currency values revert to their means over time. The cost of an item in one country in its local currency, all else being equal, should be at about the same level of converted currency. This value can float up and down over time, much like stretching a rubber band above or below the parity price as economic and political factors push or pull the value of two currencies relative to one another.

Below is a historical price chart of the U.S. Dollar Index (DXY), a commonly used representation of the value of the U.S. dollar to a basket of developed market currencies. It shows that the strength of the U.S. dollar relative to the basket of currencies in the U.S. Dollar Index is almost sitting on the long-term 40-year average. We see that there are no apparent historical patterns, and that the U.S. dollar does not move uniformly across global currencies. Any speculation on the direction of currencies is just that—speculation.

Chart 6: U.S. Dollar Price Has Historically Tended To Revert To Its Long-Term Average[6]

The U.S. Dollar Index (DXY)



6. Source: Bloomberg, 11/30/18. Standard deviation is a statistic that measures the dispersion of a dataset relative to its mean. Past performance is no guarantee of future results. An investment cannot be made directly into an index.

In the current global environment, political stability, trade negotiations, central bank monetary policy, and the possibility of recession create a climate of heightened currency risk for international investors. That means global investors will be seeking higher returns on their international investments to be fairly compensated for these elevated risks. Additionally, strategies that investment managers use to hedge currency risk are likely to become greater contributors to, or detractors from, investment performance.

"From 1989 to the present, manufacturing profit margins have doubled reflecting the benefits of globalization derived from the law of comparative advantage. Tariff wars threaten to end these benefits by slowing global growth and shrinking profit margins, thereby negatively impacting future cash flows."

Bill Priest, Chief Executive Officer, Epoch Investment Partners

Building a resilient portfolio

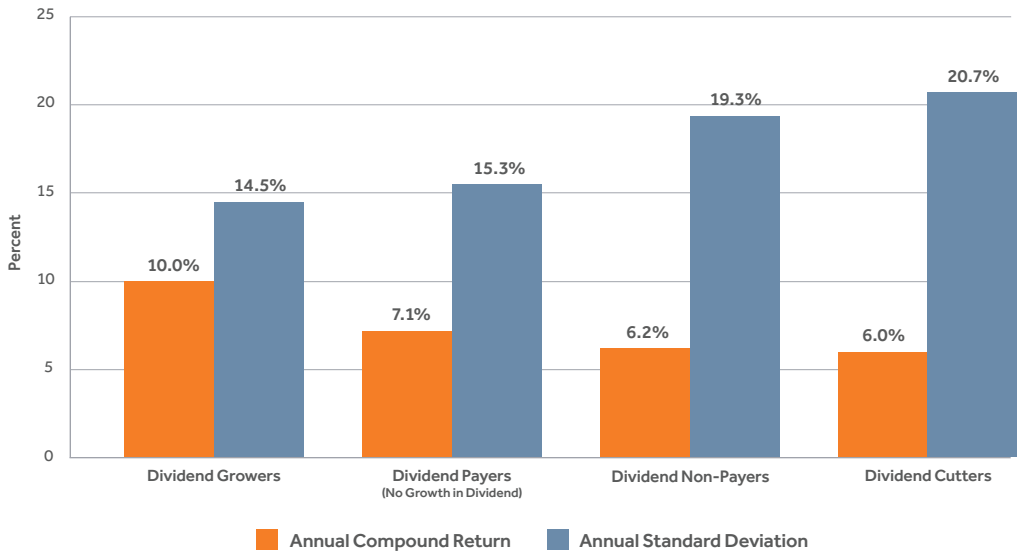
RESILIENT SOLUTIONS—MANAGING EQUITY VOLATILITY

Given the unpredictability of U.S. trade moves in 2019, and the lack of transparency around policy decisions, volatility is likely to move higher in the coming year—making this a particularly good time to consider an investment strategy that focuses on free cash flow and shareholder yield. Shareholder yield is comprised of a combination of cash dividends, share repurchases, and debt reduction. To provide for shareholder yield, a company must generate sufficient free cash flow, which is cash in excess of the amount required to fund ongoing business operations. The key to capturing shareholder yield is to invest in companies that are generating ample free cash flow and have management teams committed to using their cash intelligently.

As **Chart 7** shows, companies focused on free cash flow and shareholder yield have tended to consistently grow their dividends, thereby providing greater returns with less risk.

Chart 7: Dividend Paying Stocks Had Higher Returns with Less Risk Than Other Stocks[7]

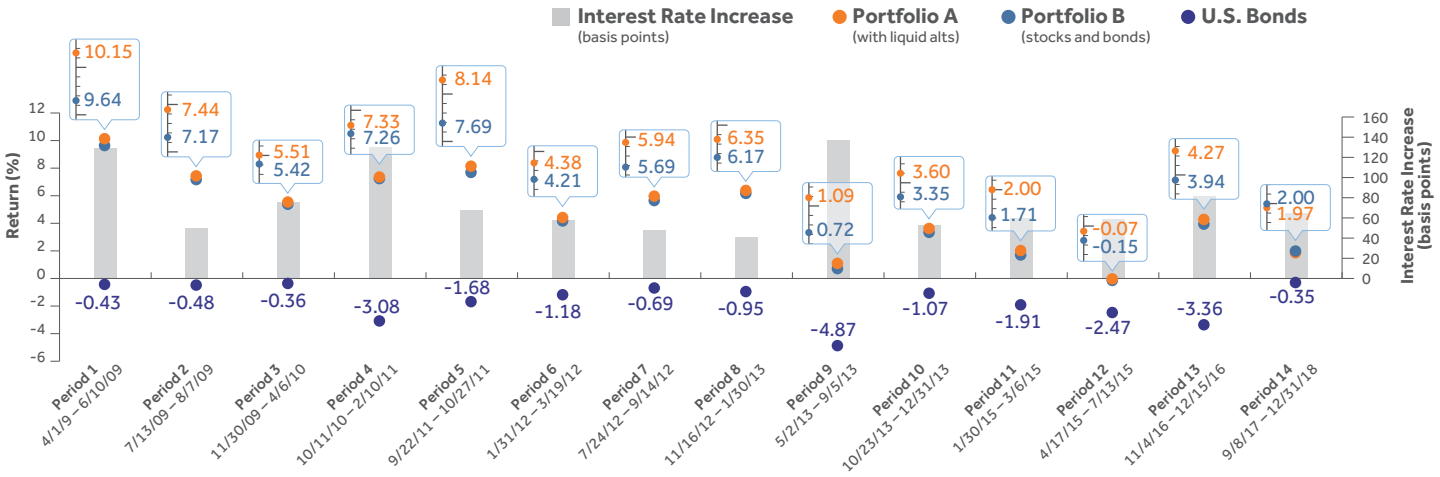
May 1994–December 2018



7. Source: Ned Davis Research, 12/31/18. Subsets of the S&P 500 Index post U.S. interest-rate hikes over the period (1994–2018). Dividend growers are companies that increased dividends. Dividend-payers are defined as companies that paid dividends but did not increase or change dividends paid. Dividend cutters are defined as companies that cut or eliminated dividends. Past performance is no guarantee of future results, which will vary. It is not possible to invest in an index. Dividends are not guaranteed.

Liquid alternatives are designed with risk mitigation in mind since they are typically uncorrelated to traditional asset classes. This aspect helps enhance overall portfolio diversification during times of market volatility. Allocating a portion of a portfolio's fixed-income position to liquid alternatives can add diversification in a traditional stock and bond portfolio, and potentially help provide competitive performance during rising rate periods.

Chart 8: Portfolio Diversifiers, Like Liquid Alternatives, Can Offer Potential Benefits[8]



8. Source: Morningstar, 12/31/18. Portfolio A is represented by 60% U.S. equities, 30% U.S. bonds, and 10% liquid alternatives. Portfolio B is represented by 60% U.S. equities and 40% U.S. bonds. U.S. equities are represented by the S&P 500 Index. U.S. bonds are represented by the Bloomberg Barclays U.S. Aggregate Bond Index. Liquid alternatives are represented by the IQ Hedge Multi-Strategy Index. Liquid alternatives are alternative strategies made available through mutual funds, ETFs, and closed-end funds that provide daily liquidity. There may have been other time periods where Portfolios A and B underperformed the Bloomberg Barclays U.S. Aggregate Bond Index. Past performance is no guarantee of future results. It is not possible to invest directly in an index. Treasurys are backed by the full faith and security of the U.S. government, as to the timely payment of principal and interest when held to maturity. Rising interest rates identified by 40+ bps moves in 10-year U.S. Treasury Yields.

"As current market volatility impacts most equity and fixed-income investments, seeking options that do not move in lockstep may make sense, making this a particularly good time to consider uncorrelated investment strategies that offer an additional layer of non-traditional diversification."

Sal Bruno, Chief Investment Officer, IndexIQ

In addition, liquid alternatives can help manage equity volatility. A strategy that has proved resilient in the face of equity volatility is merger arbitrage. This type of strategy typically exhibits low correlation to both equities and bonds, which means it doesn't move with the markets. A merger arbitrage strategy can also serve as an excellent complement to core equity exposures providing a useful tool for capital preservation and downside protection in tumultuous markets.

Chart 9: Merger Arbitrage Strategies Helped Smooth the Ride Since They are Isolated from Broad Market Events[9]

9. Source: Morningstar, 12/31/18. Stocks are represented by the S&P 500 Index. Bonds are represented by the Bloomberg Barclays U.S. Aggregate Bond Index. Merger arbitrage strategies are represented by the IQ Hedge Merger Arbitrage Index. Past performance is no guarantee of future results. An investment cannot be made directly into an index. Index definitions can be found at the end of this paper.

RESILIENT SOLUTIONS—MANAGING FIXED-INCOME VOLATILITY

When it comes to volatility in the fixed-income market, shorter duration investments are critical because they are typically of higher quality and mature much sooner than other fixed-income securities held in the broader indices. Because core fixed-income yields have declined over time, and duration has increased, the need for solutions that have the potential to provide income while managing interest rate risk, such as short duration high-yield bonds, has increased.[10]

10. Source: Bloomberg, 12/31/18. Based on the Bloomberg Barclays U.S. Aggregate Bond Index. Past performance is no guarantee of future results. An investment cannot be made directly into an index. Index definitions can be found at the end of this paper.

"Given the market environment, it may be a good time to consider shorter duration investment strategies that focus on quality, achieving an attractive return, and managing volatility."

Eric Gold, Portfolio Manager, MacKay Shields

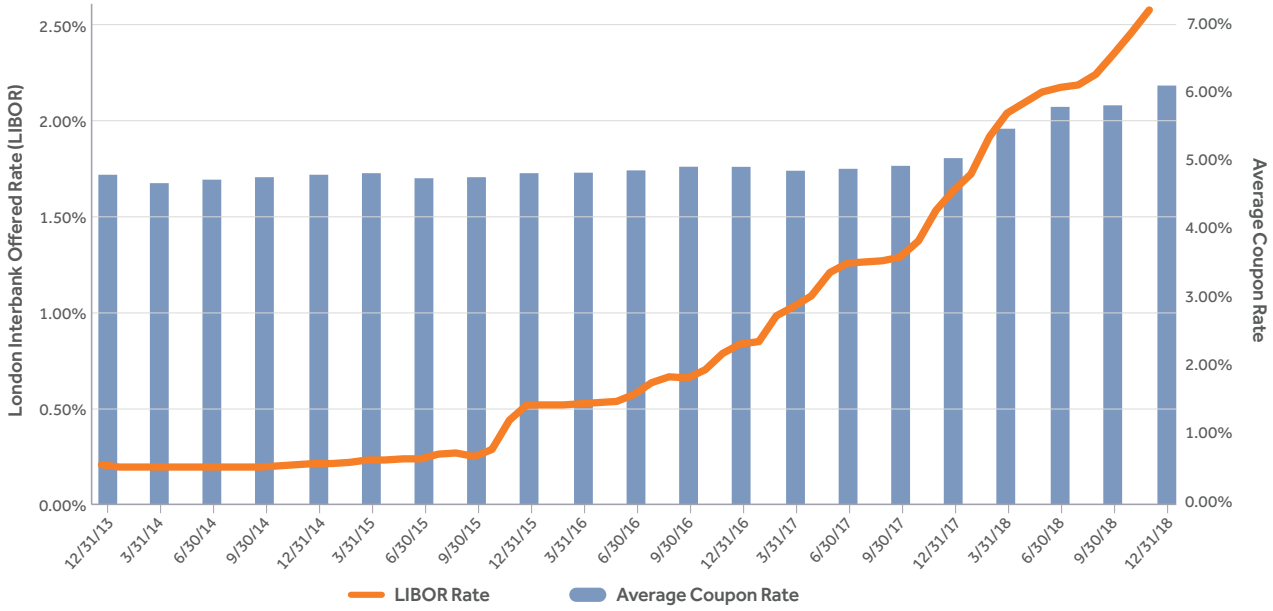
Table 1: Shorter Duration Investments Generated Attractive Yield With Less Volatility vs. Longer Duration Peers[11]

Category	Volatility	Yield (%)	Duration (Years)
Short Duration High Yield	**3.55**	**6.99**	**2.63**
High Yield	5.13	7.95	4.19
Investment-Grade Corporates	3.57	4.25	6.89
Core Bonds	2.79	3.28	5.87
U.S. Treasurys	3.23	2.61	6.10

11. Source: Morningstar, 12/31/18. Yield is defined as yield-to-worst, which is the lowest potential yield that can be received on a bond without the issuer actually defaulting. Volatility is measured as standard deviation, which measures how widely dispersed a fund's returns have been over a specified period of time. A high standard deviation indicates that the range is wide, implying greater potential for volatility. Short Duration High Yield is represented by the ICE BofAML 1-5 Year BB-B Cash Pay High Yield Index; High Yield is represented by the ICE BofAML U.S. High Yield Master II Constrained Index; Core bonds are represented by the Bloomberg Barclays U.S. Aggregate Bond Index; Investment-Grade Corporates are represented by the ICE BofAML U.S. Corporate Index; and U.S. Treasurys are represented by the Bloomberg Barclays Aggregate Bond Treasury Index. Past performance is not indicative of future results. An investment cannot be made in an index. Index definitions can be found at the end of this paper.

Interest rates remain low, making it difficult to find attractive yields and forcing investors to look beyond their traditional core bond holdings for alternative methods of enhancing income potential. Floating rate loan coupons "float" with interest rate changes, providing the potential for increased income when rates rise, with less price volatility.

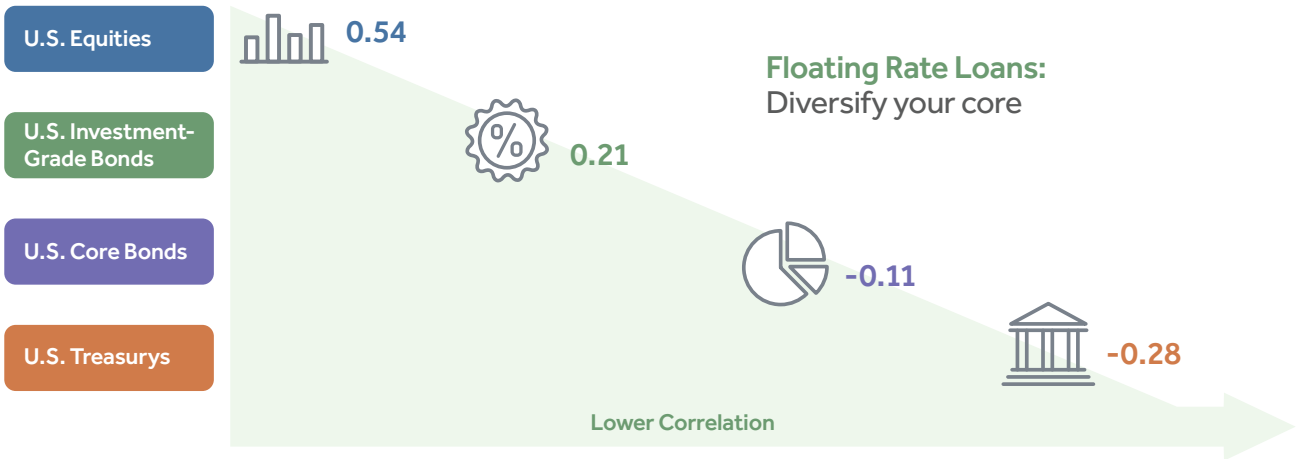
Chart 10: Floating Rate Loan Coupons Have Increased Dramatically with Rate Increases[12]



12. Source: Credit Suisse and the St. Louis Federal Reserve, 12/31/18. The London Interbank Offered Rate (LIBOR) is the average of interest rates estimated by each of the leading banks in London that it would be charged were it to borrow from other banks. Past performance is not indicative of future results.

Chart 11: Low Correlations to Traditional Asset Classes Provide Diversification Benefits[13]

Floating rate loans 15-year correlations



13. Correlation expresses the strength of relationship between distributions of returns between two data series. Correlation is always between +1 and -1, with a correlation of +1 expressing a perfect correlation, meaning that the two series being compared behave exactly the same, a correlation of -1 meaning the two series behave exactly opposite and a correlation of zero meaning movements between the two series are random. Correlation factors presented are based on monthly returns for the 22 years 12/31/96 – 12/31/18. The indices being mentioned include Bloomberg Barclays U.S. Aggregate Bond Index, S&P 500 Index, S&P/LSTA Leveraged Loan Index, ICE BofAML US Corporate Index, and Bloomberg Barclays US Treasury Index. Index definitions can be found at the end of this paper.

The primary source of volatility in today's municipal market is the secular decline in market liquidity over the last 10 years, coupled with the behavioral finance that accompanies a high retail presence. This translates into greater price velocity (and volatility), particularly when the industry is experiencing heightened redemptions. While greater levels of volatility are imbedded in the fabric of today's municipal market, we believe this creates opportunities to capture value with an active approach.

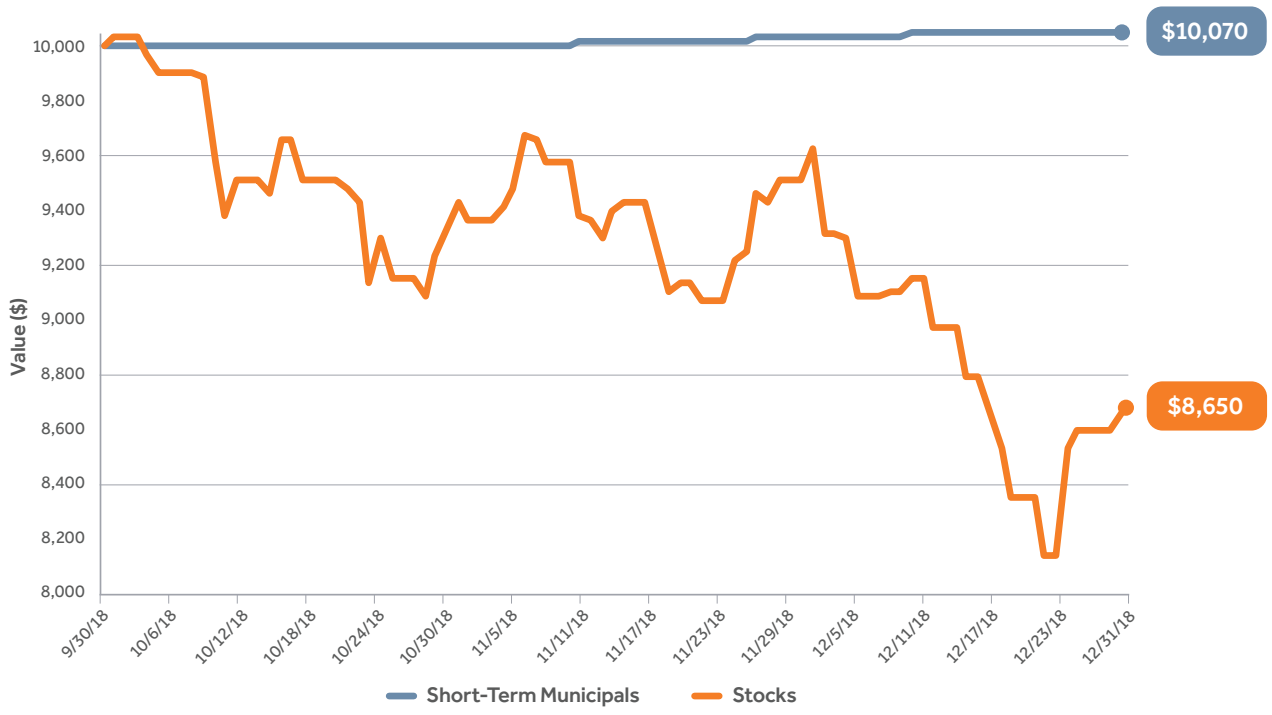
While not completely without risk, short-term municipal bonds can help manage both equity and fixed-income volatility and may be suitable as an alternative for cash for investors looking for a safe haven. Not only have short-term municipal bonds had low correlation to many other fixed-income asset classes, they have had negative correlation to equities. The most recent bout of volatility in late 2018 demonstrated the benefits of this asset class. While equity markets plunged, short-term municipal funds held steady, as displayed in **Chart 12** below.

"Risk management is at the core of our process — credit, political, liquidity, and interest rate risk. The MacKay Municipal Team does not make interest rate forecasts or duration bets and instead takes an active approach while seeking to mitigate rate sensitivity."

John Loffredo, Co-Chief Investment Officer, Portfolio Manager, MacKay Shields

Chart 12: Short-Term Municipal Bonds Outperformed Equities During Recent Period of Market Volatility[14]

Investment growth of $10,000 (9/30/18–12/31/18)



14. Source: Morningstar, 12/31/18. Stocks are represented by the S&P 500 Index. Short-term municipals are represented by the Morningstar U.S. Fund Municipal National Short Category, which represents all muni national short portfolios that invest in bonds issued by various state and local governments to fund public projects. Past performance is no guarantee of future results. An investment cannot be made directly into an index. Index definitions can be found at the end of this paper.

RESILIENT SOLUTIONS—MANAGING CURRENCY RISK

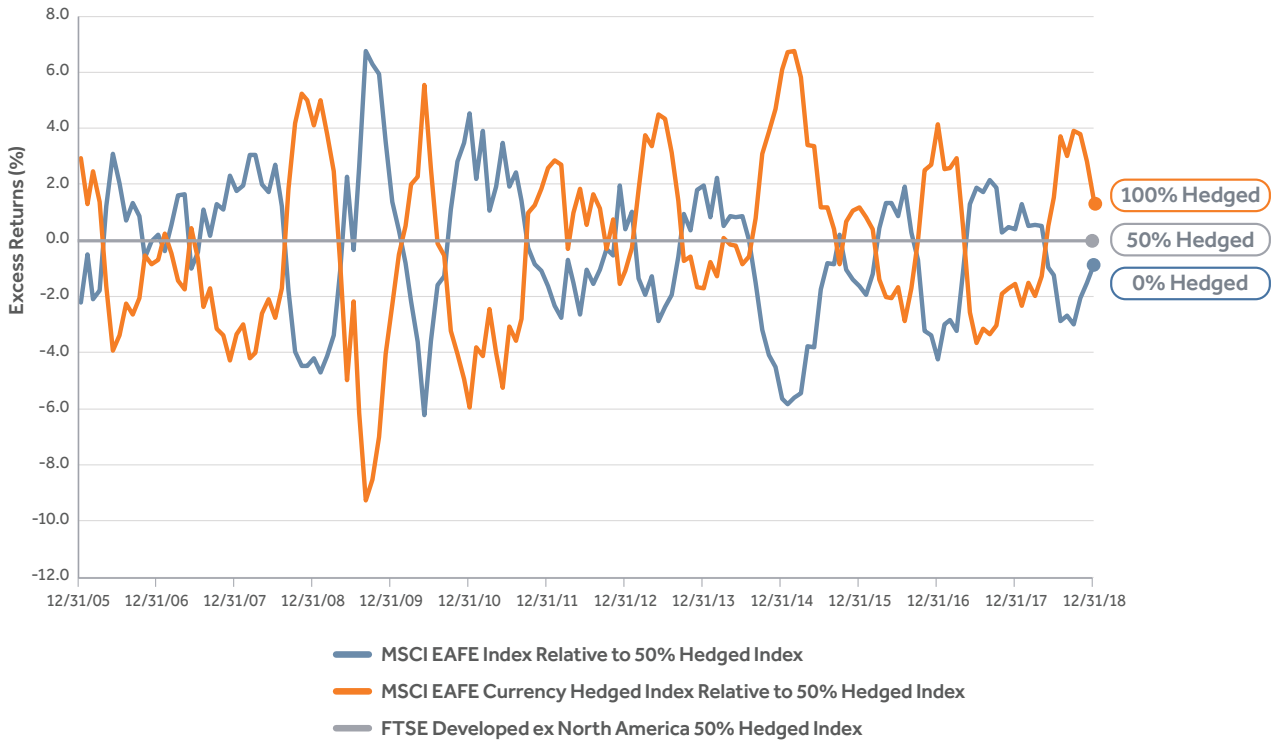
Geopolitics, changing trade policies, and slow growth have impacted the international landscape and elevated currency risk. Those looking to invest internationally should consider their currency exposure and find ways to mitigate this risk. One strategy is to look at a 50% currency hedged solution. By fully hedging or leaving a portfolio completely unhedged, investors are making a bet on currency. The 50% middle-ground exposure expresses an unbiased view on currency movements and an efficient approach to managing currency volatility.

"Traditional international strategies focus on international equities, but do not consider the inherent currency risk when investing outside the U.S. Hedging half of the currency exposure, which can provide a neutral position with respect to currencies, may help reduce this risk."

—Sal Bruno, Chief Investment Officer, IndexIQ

Chart 13: Manage Currency Volatility with 50% Currency Hedged Strategy[15]

Relative excess returns (6-month rolling periods)



15. Source: MSCI, FTSE, IndexIQ, 12/31/18. Past performance is no guarantee of future results. An investment cannot be made into an index.

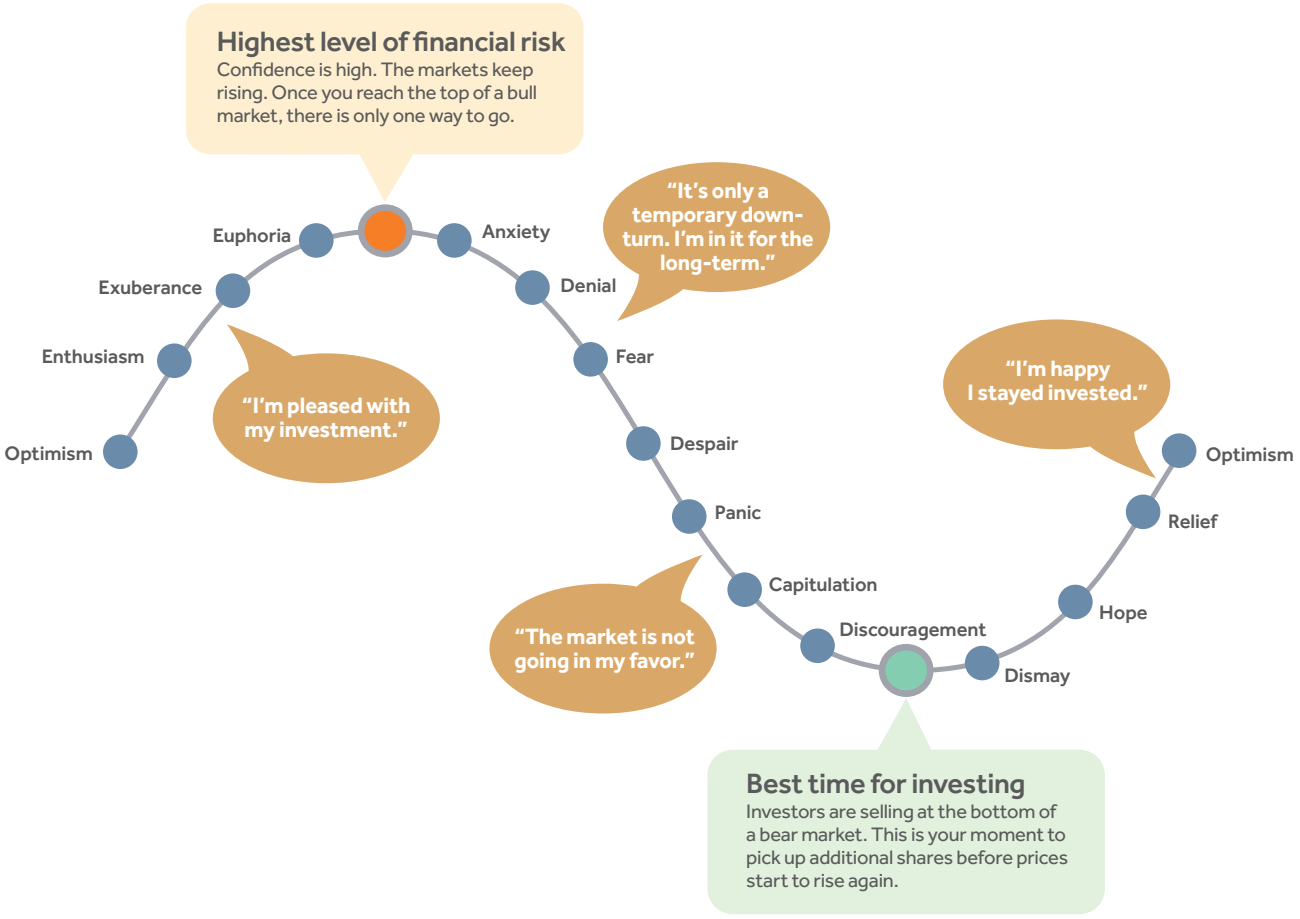
Putting it all together: The importance of staying invested

Market volatility is not typically caused by any singular event. Some events do have more significance than others, but it's important to recognize that investor sentiment also plays a role.

When markets slide, investors' first instinct is to run—that's a natural response to the fear of pain and loss. The problem is, it's difficult for investors to know when market trends will change definitively. As uncertainty rises, so does the likelihood of investors making emotional decisions with their money. They are more apt to buy when markets are at their peaks and euphoria is high. Likewise, they often don't sell until after panic has set in and markets hit bottom. This roller-coaster ride is often referred to as the emotional wave of investing.

Chart 14: The Emotional Wave of Investing[16]

Varying levels of emotion can be felt during all aspects of a market cycle



16. Source: New York Life Investments, 12/31/18. This information is for illustrative purposes only.

Investors can counter the adverse impacts of emotional investing by staying invested through periods of volatility. Remaining invested can be difficult for investors when their instincts lead them to behave otherwise. But history is on their side.[17]

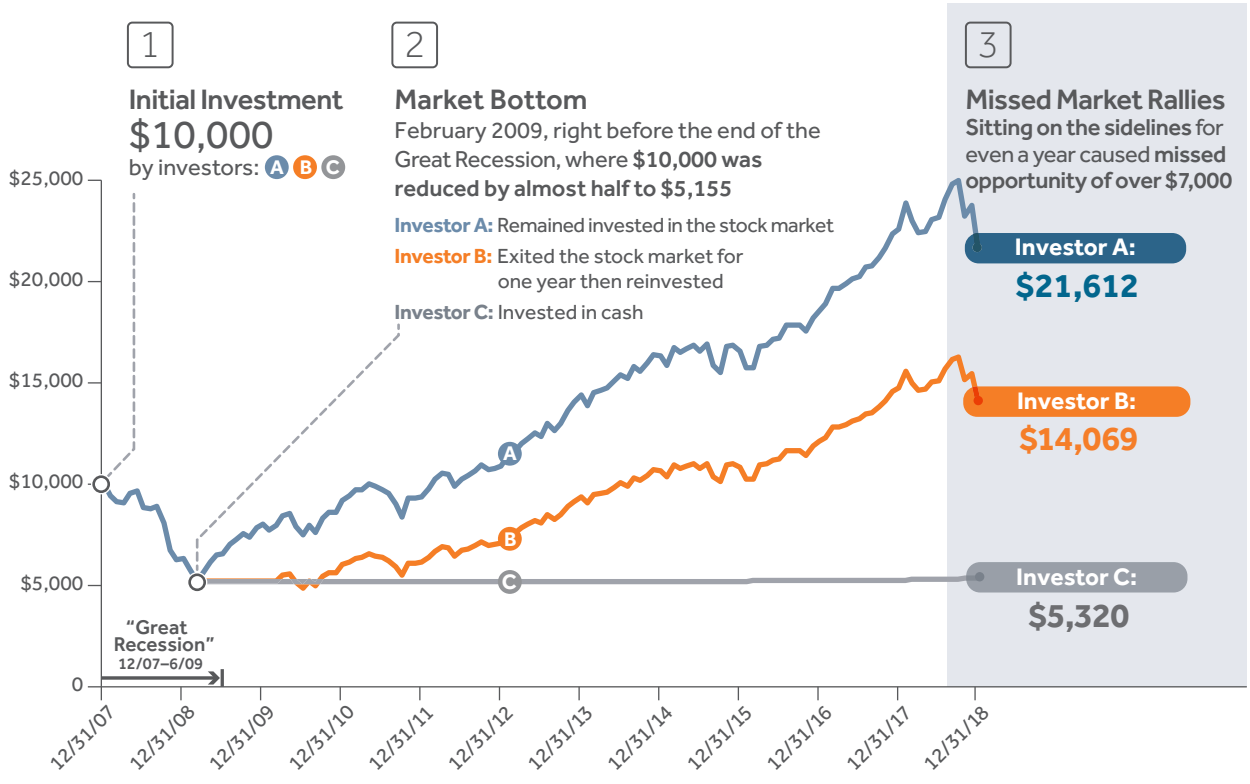
When investors decide to exit the market, they must determine where to go next. If they take their money out of one asset class (e.g. stocks), they will need to put it someplace else (usually cash). Parking savings in cash is the modern-day equivalent of stuffing money under a mattress—it comes with some amount of safety, but even cash cannot completely protect investors from volatility.

During a volatile market, it may be tempting to sit on the sidelines and wait until things get better. However, no one can predict what the market will do a day, a week, or even a year from now. In **Chart 15**, we show what happened to three investors between December 2007—December 2018, a period that included the "Great Recession" and the recovery that followed.

In this instance, the market hit bottom in February 2009, dropping the value of each investors' initial investment by almost half, to $5,155. But each investor followed their own path through the recovery. Of the three, Investor A, who remained invested through the market crash and beyond, realized greater long-term results than the others. This historical example illustrates why "timing" the market in the short term may not be as prudent as maintaining "time in" the market by staying invested.

Chart 15: Attempts to Time the Market May Lead to Missed Market Rallies[17]

December 2007 – December 2018



17. Source: Morningstar, 12/31/18. The stock market is represented by the S&P 500 Index. Cash is represented by the 30-day U.S. Treasury bill. The data assumes reinvestment of income and does not account for taxes or transaction costs. Stocks have been more volatile than bonds or cash. Holding a portfolio of securities for the long term does not ensure a profitable outcome and investing in securities always involves risk of loss. Past performance is no guarantee of future results. It is not possible to invest in an index. Index definitions can be found at the end of this paper.

Diversify, diversify, diversify

Staying invested is important, but so is preparing for volatility before it happens. This is challenging for individual investors to accomplish in practice because volatility can affect each asset class at various times, or all at once. To achieve greater long-term success, an investor needs to build a resilient portfolio—one that can weather market volatility while still capitalizing on market opportunity.

Portfolio diversification is the first step in helping to create a resilient portfolio. A well-diversified portfolio will consider all asset classes, including cash, stocks, bonds, and alternative investments. There is also additional opportunity to diversify within each asset class across different sectors and market capitalizations.

One way to compare asset classes is to look at historical risk-adjusted returns as measured by their Sharpe ratios. **Table 2** ranks 12 major asset classes by their Sharpe ratios for calendar years going back to 2008. As illustrated, risk-adjusted returns can vary significantly from year to year, showing there can be very little consistency in performance. An asset class that outperforms one year may underperform the next.

Table 2: Taking Turns at the Top — Key Asset Classes[18]

Year-over-year risk-adjusted returns (2008 – 2018)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
BEST	Government Bonds 6.22	Merger Arbitrage 21.63	Short Duration HY 10.02	Municipals 11.28	Short Duration HY 19.89	U.S. Equity 13.20	Municipals 14.53	Municipals 4.53	HY Corporates 10.41	International Equity 20.09	Merger Arbitrage 1.52
	Short Term Munis 3.72	Floating Rate Loans 18.16	Floating Rate Loans 8.66	Short Term Munis 11.16	Floating Rate Loans 16.19	Floating Rate Loans 13.01	Corporate Bonds 8.24	Short Term Munis 4.18	Floating Rate Loans 9.99	EM Equity 19.26	Short Term Munis -0.52
	Global Bonds 1.22	HY Corporates 17.38	Corporate Bonds 7.72	Government Bonds 9.27	HY Corporates 13.87	Merger Arbitrage 12.13	Government Bonds 8.18	Merger Arbitrage 4.10	Short Duration HY 9.75	U.S. Equity 18.40	Municipals -0.86
	Corporate Bonds -1.61	Short Duration HY 15.57	HY Corporates 7.72	Corporate Bonds 6.12	Corporate Bonds 9.23	Multi-alternatives 9.33	U.S. Equity 5.73	Government Bonds 0.79	Merger Arbitrage 4.71	Multi-alternatives 16.96	Floating Rate Loans -0.90
	Municipals -1.64	Multi-alternatives 11.46	Merger Arbitrage 6.42	Global Bonds 3.78	Short Term Munis 8.31	Short Duration HY 8.13	Short Term Munis 5.10	U.S. Equity 0.34	Corporate Bonds 4.02	Global High Div Equities 16.05	Government Bonds -1.03
	Short Duration HY -4.08	Corporate Bonds 9.50	Government Bonds 4.91	Short Duration HY 2.32	Municipals 6.59	Global High Div Equities 7.00	Multi-alternatives 3.94	International Equity -0.20	U.S. Equity 3.92	Short Duration HY 11.76	U.S. Equity -1.43
	Merger Arbitrage -4.63	EM Equity 9.41	Multi-alternatives 3.96	Merger Arbitrage 2.21	U.S. Equity 5.24	International Equity 6.48	Floating Rate Loans 3.90	Multi-alternatives -0.28	Global High Div Equities 3.33	Floating Rate Loans 11.46	Short Duration HY -1.75
	HY Corporates -4.76	Short Term Munis 8.91	Short Term Munis 3.88	HY Corporates 2.18	Merger Arbitrage 5.02	HY Corporates 5.46	Merger Arbitrage 2.44	Corporate Bonds -0.60	EM Equity 2.12	Corporate Bonds 10.60	Global High Div Equities -2.81
	EM Equity -5.06	Municipals 7.64	EM Equity 3.08	Floating Rate Loans 1.09	Global Bonds 4.91	Short Term Munis 4.15	Short Duration HY 2.14	Floating Rate Loans -0.61	Global Bonds 0.83	HY Corporates 9.92	Global Bonds -2.91
	International Equity -5.74	International Equity 4.28	Global Bonds 2.85	Global High Div Equities 0.95	Multi-alternatives 4.88	EM Equity -0.78	HY Corporates 1.39	Global High Div Equities -0.85	Government Bonds 0.57	Global Bonds 8.10	EM Equity -3.70
	U.S. Equity -6.32	U.S. Equity 4.09	U.S. Equity 2.68	U.S. Equity 0.45	Global High Div Equities 3.62	Corporate Bonds -1.14	Global High Div Equities 0.89	Short Duration HY -2.10	Multi-alternatives 0.18	Municipals 6.92	HY Corporates -4.10
	Global High Div Equities -6.67	Global High Div Equities 3.77	Municipals 1.78	International Equity -2.16	International Equity 3.58	Global Bonds -1.90	Global Bonds 0.48	HY Corporates -2.63	International Equity 0.18	Merger Arbitrage 6.17	Multi-alternatives -4.27
	Floating Rate Loans -6.87	Global Bonds 2.81	International Equity 1.15	EM Equity -2.61	EM Equity 3.19	Municipals -2.00	EM Equity -0.57	EM Equity -2.94	Municipals -0.05	Government Bonds 2.74	International Equity -4.38
WORST	Multi-alternatives -8.61	Government Bonds -1.75	Global High Div Equities 1.03	Multi-alternatives -4.33	Government Bonds 2.45	Government Bonds -3.42	International Equity -1.76	Global Bonds -3.61	Short Term Munis -0.47	Short Term Munis 1.30	Corporate Bonds -4.67

18. Source: Morningstar, 12/31/18. Government bonds are represented by the Bloomberg Barclays U.S. Government Bond Index. Global bonds are represented by the Citigroup Non-U.S. Dollar World Government Bond Index. Corporate bonds are represented by the Bloomberg Barclays U.S. Credit Bond Index. Municipals are represented by the Bloomberg Barclays Municipal Bond Index. Merger Arbitrage is represented by the HFRI Merger Arbitrage Index. High-yield corporate bonds are represented by the ICE BofAML U.S. High Yield Master II Constrained Index. Emerging market equity is represented by the MSCI Emerging Markets Index. International equity is represented by the MSCI EAFE Index. U.S. equity is represented by the S&P 500 Index. Floating rate loans are represented by the S&P/LSTA Leveraged Loan Index. Multi-alternatives are represented by the HFRI Fund Weighted Composite Index. Past performance is no guarantee of future results. An investment cannot be made directly into an index. Index definitions can be found at the end of this paper.

Because it's impossible to know which asset classes will outperform each year, staying invested in a diversified portfolio and regularly rebalancing can help reduce the impact of volatility, while helping investors reach their long-term goals. Even a simple blended allocation to U.S. stocks, bonds, and alternatives, with regular rebalancing over time, enhanced historical risk-adjusted returns, as shown in **Chart 16**. While a blended portfolio of stocks, bonds, and alternatives lagged a portfolio of 100% U.S. stocks, the risk-adjusted performance improved because volatility was almost cut in half.

Chart 16: A Blended Portfolio Provided Enhanced Risk-Adjusted Returns[19]

Growth of $10,000 between a 100% equity portfolio and a 50%/40%/10% blended portfolio of U.S. stocks, bonds, and alternatives (2008–2018)

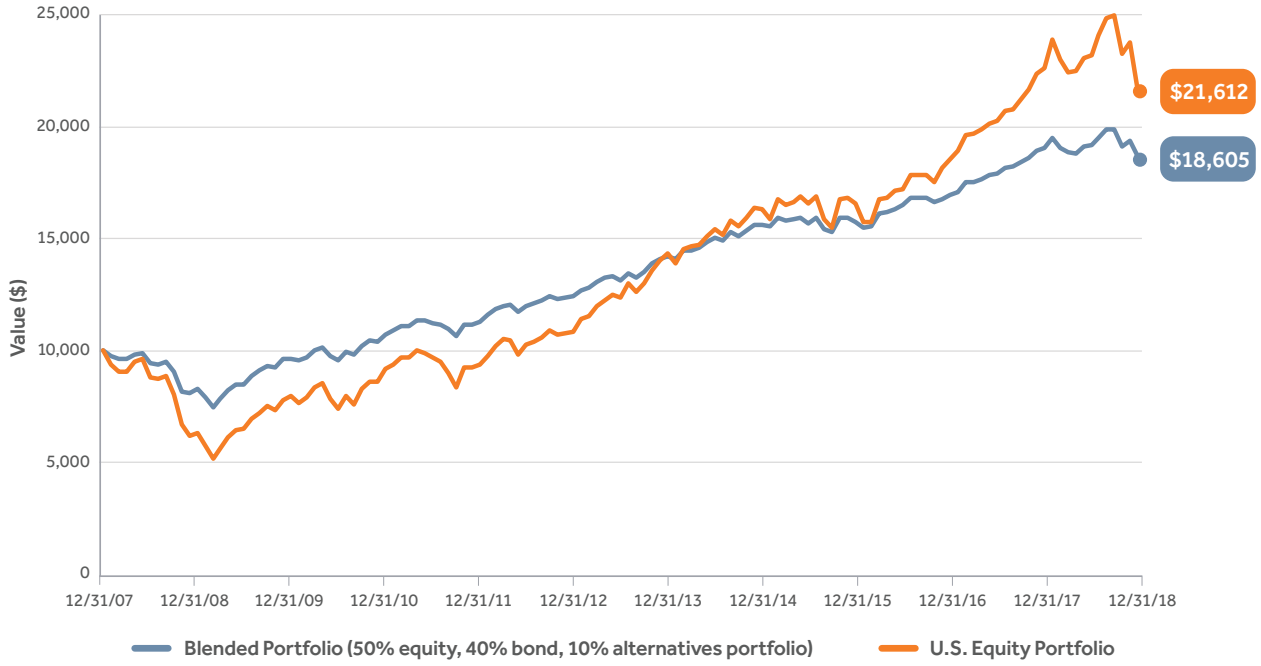


Table 3: (12/31/07 – 12/31/18) USD[19]

Name	Return	Standard Deviation	Sharpe Ratio
S&P 500 Index	7.26%	15.08	0.51
Blended Portfolio (50% Equity, 40% Bond, 10% Alternatives Portfolio)	5.81%	8.01	0.68

19. Source: Morningstar, 12/31/18. Blended indices are based on annual rebalance and earliest common date. All data points above are annualized. The U.S. Equity Portfolio is represented by the S&P 500 Index. The 50/40/10 Blended Portfolio is represented by the S&P 500 Index, the Bloomberg Barclays U.S. Aggregate Bond Index, and the HFRI Fund Weighted Composite Index, respectively. The data assumes reinvestment of income and does not account for taxes or transaction costs. Past performance is no guarantee of future results. It is not possible to invest in an index. Index definitions and definitions for Sharpe Ratio and Standard Deviation can be found at the end of this paper.

Be prepared for volatility before it happens

The long-term performance of the financial markets shows that staying invested through different cycles is key to achieving investment goals. Investors are tempted to trade in and out of their investments, hoping to avoid losses during volatile periods, and that makes staying invested difficult. But the unpredictable nature of the markets makes "time in the market" more important than "timing the market."

Building and investing in resilient portfolios can help investors tamp down the temptation of market timing and stay invested through all the ups and downs experienced over the course of their investment plans. With a wide range of solutions that enhance portfolio diversification, New York Life Investments can help investors build resilient portfolios that prepare them for market volatility.

About Risk

All investments are subject to market risk, including possible loss of principal. Diversification cannot assure a profit or protect against a loss in a declining market.

Alternative investments are speculative, not suitable for all clients, and intended for experienced and sophisticated investors who are willing to bear the high economic risks of the investment. **Foreign securities** may be subject to greater risk than domestic investing. These may include securities markets that are less efficient, less liquid, and more volatile than those in the United States, as well as foreign currency fluctuations and different governmental regulatory concerns. **Commodities** markets are subject to greater volatility than investments in traditional securities, such as stocks and bonds. **Fixed-income securities** are subject to credit risk—the possibility that the issuer of a security will be unable to make interest payments and/or repay the principal on its debt—and interest rate risk—changes in the value of a fixed-income security resulting from changes in interest rates. **Leverage**, including borrowing, will cause an investment to be more volatile than if the investment had not been leveraged. The principal risk of investing in **value stocks** is that the price of the security may not approach its anticipated value. Investing in **smaller companies** involves special risks, including higher volatility and lower liquidity. Investing in **mid-cap stocks** may carry more risk than investing in stocks of larger, more well-established companies. Investing in **below investment-grade securities** may carry a greater risk of non-payment of interest or principal than higher-rated bonds. **Floating rate loans** are generally considered to have speculative characteristics that involve default risk of principal and interest, collateral impairment, borrower industry concentration, and limited liquidity. The principal risk of **mortgage-related and asset-backed securities** is that the underlying debt may be prepaid ahead of schedule, if interest rates fall, thereby reducing the value of the investment. If interest rates rise, less of the debt may be prepaid. **Bonds** are subject to credit risk, in which the bond issuer may fail to pay interest and principal in a timely manner. **Municipal bond** risks include the ability of the issuer to repay the obligation, the relative lack of information about certain issuers, and the possibility of future tax and legislative changes, which could affect the market for and value of municipal securities.

INDEX DEFINITIONS

Government bonds are represented by the Bloomberg Barclays U.S. Government Bond Index, which is composed of the Bloomberg Barclays Treasury Bond Index (all public obligations of the U.S. Treasury, excluding flower bonds and foreign-targeted issues) and the Bloomberg Barclays Agency Index (all publicly issued debt of U.S. government agencies and quasi-federal corporations, and corporate debt guaranteed by the U.S. government). **Global bonds are represented by the Citigroup Non-U.S. Dollar World Government Bond Index**, which is a market-capitalization weighted index consisting of the government bond markets of the following countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Spain, Sweden, Switzerland, and the United Kingdom. Country eligibility is determined based upon market capitalization and investability criteria. The index includes all fixed-rate bonds with a remaining maturity of one year or longer and with amounts outstanding of at least the equivalent of US $25 million. Government securities typically exclude floating or variable rate bonds. **Cash** is represented by the 30-day U.S. Treasury bill. Treasury securities are backed by the full faith and credit of the U.S. government, as to payment of principal and interest if held to maturity. **Corporate bonds are represented by the Bloomberg Barclays U.S. Credit Bond Index**, which measures the investment grade, U.S. dollar-denominated, fixed-rate, taxable corporate and government related bond markets. It is composed of the U.S. Corporate Index and a non-corporate component that includes foreign agencies, sovereigns, supranationals and local authorities. **Municipals are represented by the Bloomberg Barclays Municipal Bond Index**, which covers the U.S. dollar-denominated long-term tax-exempt bond market. The index has four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and pre-refunded bonds. **Merger Arbitrage is represented by the HFRI Merger Arbitrage Index**, which consists of merger arbitrage strategies which employ an investment process primarily focused on opportunities in equity and equity-related instruments of companies which are currently engaged in a corporate transaction. **Emerging market equity is represented by the MSCI Emerging Markets Index**, which is a free float-adjusted market-capitalization index that is designed to measure equity market performance of emerging markets. The MSCI Emerging Markets Index consists of the following 21 emerging market country indexes: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey. **International equity is represented by the MSCI EAFE Index** (Europe, Australasia, Far East), which is a free float-adjusted market-capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. and Canada. As of June 2007, the MSCI EAFE Index consisted of the following 21 developed market country indices: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom. **U.S. equity is represented by the S&P 500 Index**, which is widely regarded as the standard for measuring large-cap U.S. stock-market performance. **Floating rate loans are represented by the S&P/LSTA Leveraged Loan Index**, which is a broad index designed to reflect the performance of U.S. dollar facilities in the leveraged loan market. **Multi-alternatives are represented by the HFRI Fund Weighted Composite Index**, which is an equal-weighted index that includes over 2,000 constituent hedge funds which have at least $50 million under management or have been actively traded for at least 12 months. There are no fund-of-funds included in this Index. **The Chicago Board Options Exchange (CBOE) Volatility Index (VIX)** is a real-time market index that represents the market's expectation of 30-day forward-looking volatility. **The U.S. Dollar Index (DXY)** is a measure of the value of the U.S. dollar relative to the value of a basket of currencies of the majority of the U.S.'s most significant trading partners. This index is like other trade-weighted indexes, which also use the exchange rates from the same major currencies. **U.S. bonds are represented by the Bloomberg Barclays U.S. Aggregate Bond Index**, an unmanaged market value-weighted performance benchmark for investment-grade or better fixed-rate debt issues, including government, corporate, asset-backed, and mortgage-backed securities, with maturities of at least one year. **Liquid alternatives are represented by the IQ Hedge Multi-Strategy Index**, which attempts to replicate the risk-adjusted return characteristics of hedge funds using multiple hedge fund investment styles, and the **IQ Hedge Merger Arbitrage Index**, which seeks to achieve capital appreciation by investing in global companies for which there has been a public announcement of a takeover by an acquirer. **Short Duration High Yield is represented by the ICE BofAML 1-5 Year BB-B Cash Pay High Yield Index**, which tracks the performance of BB rated U.S. dollar-denominated corporate bonds publicly issued in the U.S. domestic market with maturities of 1 to 5 years. **High yield bonds are represented by the ICE BofAML U.S. High Yield Master II Constrained Index**, which is a market value-weighted index of all domestic and Yankee high-yield bonds, including deferred interest bonds and payment-in-kind securities. **Investment-Grade Corporates are represented by the ICE BofAML U.S. Corporate Index**, which tracks the performance of US dollar denominated investment grade corporate debt publicly issued in the U.S. domestic market. **U.S. Treasurys are represented by the Bloomberg Barclays Aggregate Bond Treasury Index**, which includes public obligations of the U.S. Treasury. Treasury bills are excluded by the maturity constraint but are part of a separate Short Treasury Index. In addition, certain special issues, such as state and local government series bonds (SLGs), as well as U.S. Treasury TIPS, are excluded. STRIPS are excluded from the index because their inclusion would result in double-counting.

DEFINITIONS

A **Death Cross** is a chart pattern indicating the potential for a major selloff. The death cross appears on a chart when a security's short-term moving average crosses below its long-term moving average. Typically, the most common moving averages used in this pattern are the 50-day and 200-day moving averages. **Credit Risk** is the probable risk of loss resulting from a borrower's failure to repay a loan or meet contractual obligations. A **Credit Spread** involves selling or writing, a high-premium option and simultaneously buying a lower-premium option. **Currency Risk**, commonly referred to as exchange-rate risk, arises from the change in price of one currency in relation to another. **Purchasing Power Parity** is an economic theory that compares different countries' currencies through a "basket of goods" approach. According to this concept, two currencies are in equilibrium or at par when a basket of goods is priced the same in both countries. **Parity Price** is used for both securities and commodities, and the term refers to when two assets are equal in value. A **Basis Point** is the equivalent of 1/100th of 1%. **Sharpe Ratio** is the average return earned in excess of the risk-free rate per unit of volatility or total risk. **Standard Deviation** is a statistic that measures the dispersion of a dataset relative to its mean and is calculated as the square root of the variance. **Yield-to-worst**, which is the lowest potential yield that can be received on a bond without the issuer actually defaulting. **Liquid alternatives** (liquid alts) are alternative investment strategies that are available through alternative investment vehicles such as mutual funds, ETFs, and closed-end funds that provide daily liquidity.

INVESTMENTS

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