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Market Analysis, Research & Education
A unit of Fidelity Management & Research Company

Defending Your Investment Brain

Fear of loss can disrupt sound investment strategies amid high volatility

First in a new series on how human behavior biases influence investment decisions

"Individuals who cannot master their emotions are ill-suited to profit from the investment process."
– Benjamin Graham, a pioneer in security analysis

In May, a barrage of negative headlines and developments sent the U.S. stock market into a tailspin. Some investors, including both individuals and professionals alike, have been prone to altering well-thought-out investment plans during such periods of heightened financial market turmoil. Decisions to move in and out of an asset class tend to be made hastily, and out of fear and anxiety due to innate behavioral biases, as opposed to a disciplined portfolio review that considers how various assets should be allocated to suit one's investment objectives, risk tolerance and time horizon.

Why your emotions can get the best of you

Our brains and behavior patterns have evolved under different types of living environments over hundreds of thousands of years. During the past decade, the study of the influence of psychology on the behavior patterns of investors and the subsequent effect on the markets—known as behavioral finance—has gained credibility among both academics and financial market participants.

As human beings, we generally have a stronger preference for avoiding losses than for making gains when evaluating the risks of an investment—a behavioral bias known as loss aversion that was introduced by psychologists Daniel Kahneman and Amos Tversky, pioneers in behavioral finance.[i] Because of this behavioral tendency, we generally respond and react more vigorously to the onset of negative events that could trigger painful losses in our portfolios than we do when faced with a similar likelihood that could lead to performance gains.

The strong influence of loss aversion helps explain why many investors disregard predetermined investment strategies when unforeseen, negative events occur. Such events fuel our fears of incurring losses, and cause an internal battle to break out between the logical side of our brains and the emotionally-driven side, the latter of which often prevails.[ii] While rushing to sell our positions may serve to help quell our emotions, in hindsight the timing of such decisions also can turn out to be suboptimal.

KEY TAKEAWAYS

- **Historical patterns of investor behavior show that surging equity market volatility can cause some investors to make hasty, emotionally-charged investment decisions that often turn out to be regrettable.**
- **Emotional investment reactions to sudden market declines and increased volatility tend to be driven by human behavioral biases, such as loss aversion.**
- **Recognizing innate biases may help prevent investors from tampering with a well-crafted portfolio strategy during periods of severe market turmoil.**

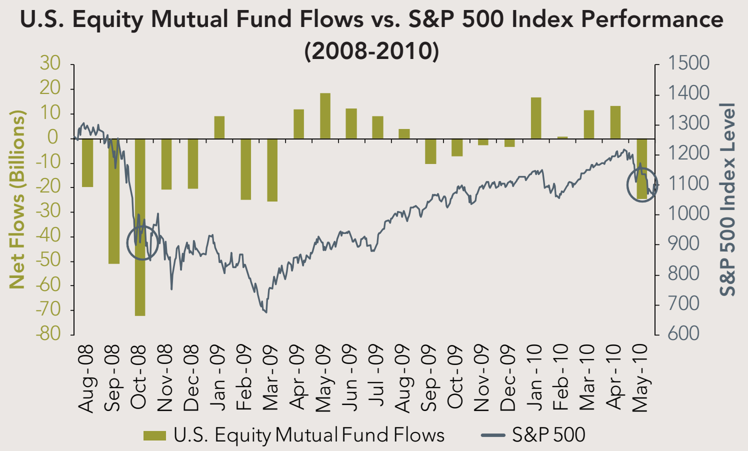
The cost of emotional decision-making

During May, a series of hair-raising events—including the escalation of Greece's sovereign debt crisis, a massive crude-oil spill in the Gulf of Mexico, and an unprecedented intra-day decline in the U.S. equity market (i.e. "flash crash")—rattled the equity markets, sending volatility measures soaring. The VIX, a volatility benchmark often referred to as the "fear index," rose above 45—more than double its historical average. The S&P 500 Index fell 8% during the month.[iii]

As a result, many market-timing investors fled equity mutual funds. Nearly $25 billion in net capital moved out of U.S. equity funds, one of the largest monthly outflows on record (equity fund flows are used as

EXHIBIT 1:

Investors who stayed invested in stocks during the peaks in equity fund liquidations (Oct. 2008 and Feb/March 2009) and held on through May 2010 would have fared better than those who exited during the peaks in fund liquidations and missed some or all of the market's recovery.



Source: Investment Company Institute, FMRCo (MARE) as of 5/31/10.
Past performance is no guarantee of future results.

a proxy for the behavior of more active investors).[iv] With the stock market's performance roughly flat since the end of May, this large number of net redemptions appears to suggest, so far, that investors trying to time the market may not have aided their performance—a pattern that mirrors behavior seen during previous periods of elevated volatility.

Exiting near the peak of the 2008-09 global financial crisis

For example, near the peak of the 2008-09 global financial crisis, a record net amount of money flowed out of equity funds after the stock market plummeted. The Lehman Brothers bankruptcy filing in September 2008—the largest in history—triggered a stock market sell-off that led to record monthly equity fund outflows in October 2008. When the market hit new lows a few months later in February/March 2009, another large wave of outflows followed. As it turned out, many loss-averse investors reduced or liquidated their exposure to stocks near a market bottom, and when it actually turned out to be a pretty good time to be owning stocks (see Exhibit 1, above). From the peak month of liquidations (October 2008) through the end of June 2010, the stock market rallied 16%, compared to near-0% returns on cash-equivalent investments.[v] Further, because only a fraction of the massive outflows seen during the fourth quarter of 2008 and in early 2009 trickled back into equity funds throughout the subsequently robust 2009 rally, market-timing investors had either missed the market's abrupt turnaround or re-entered the market at higher price levels.

In retrospect, the 2008-09 global financial crisis was arguably one of the most unnerving events facing investors since the Great Depression era. However, what these equity fund flow patterns show is that the timing of investors who get rattled by market volatility and choose to shift in and out of the stock market tends to be poor. The next time an unusual negative event creates a spike in market volatility, investors might recall that periods of turmoil are not unusual. Over the long run, the equity market has proven resilient throughout many crises (see Exhibit 2, page 3).

The influence of high volatility on retirement investors and their portfolios

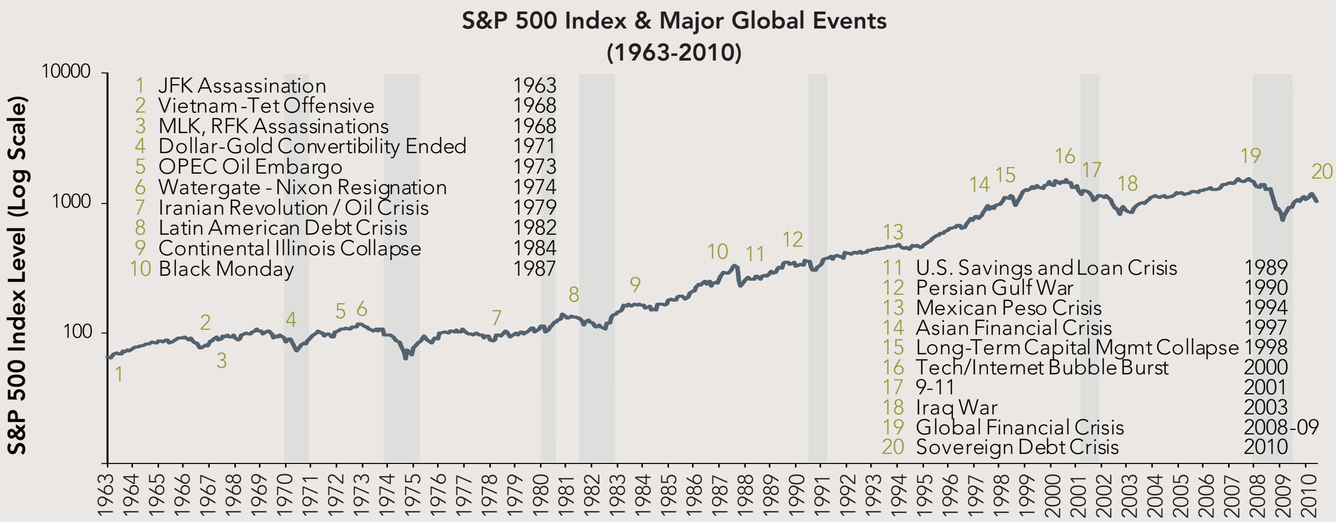
Given their longer-term horizons, retirement investors would seem to have the greatest motivation to resist short-term pressures and stick to a predetermined portfolio allocation amid event-driven market volatility. A recent Fidelity report on the investment behavior of participants in workplace retirement savings plans shows that most people did stay on track during the peak 2008-09 period of financial market instability.[vi] However, it also showed that there were costly implications for the fraction of people who did tinker with their portfolios based on the market turmoil.

Among the key findings: On average, participants who kept contributing to their retirement plans throughout the 18-month period (October 2008-March 2010) had higher account balances than those who stopped contributing;[vi] Participants who maintained a portion of their retirement plan asset in equities throughout the entire period ended up with higher account balances than those who reduced their equity exposure amid the peak period of market distress (Q4 2008-Q1 2009) - (see Exhibit 3, page 3). Thus, retirement investors who kept contributing to their plan and who maintained some exposure to equities throughout the period were better off throughout the market's 18-month bust-boom period than those who moved in and out of the market in an attempt to avoid losses.

Managing your portfolio as volatility (and fear) escalates

As the examples in this article illustrate, the influence of loss aversion can cause investors to liquidate their holdings in an asset class during periods of high volatility. Investors who let their emotions guide decision-making during these periods of market turmoil tend to reduce their assets at the worst possible time and when it is the most costly to them—near a market bottom. Acknowledging our human propensity to allow fears of loss and other emotions to drive our investment decisions is the first step toward finding a preventative method to keep you from

EXHIBIT 2: Despite many troublesome events, the stock market has been resilient over time.



Events in table are those which had, in the opinion of the author, a material impact on capital markets during the period represented. Shaded regions represent U.S. recessions as defined by the National Bureau of Economic Research. On a logarithmic scale, equal distances represent equal ratios. All returns represented by the S&P 500 Index. Source: Haver Analytics, FMRCo (MARE) as of 6/30/10. Past performance is no guarantee of future results. You cannot invest directly in an index.

tearing apart a well-constructed portfolio the next time it appears the financial markets are imploding.

Periods of heightened market volatility offer a stress test of sorts for our risk tolerance. How did you respond to your portfolio's performance during the recent spike in volatility? Were you more or less risk tolerant than you had originally thought when you conceived your portfolio mix? Psychologists have documented that our species is particularly bad at predicting how we will react under difficult circumstances. While we tend to be optimists, believing we will make the right decisions under duress, in reality many of us don't always respond as we forecast.

Due to our inherent human biases, putting predetermined measures in place may be critical to keep ourselves from being consumed by our emotions during periods of high volatility. While the stock market has demonstrated an ability to persevere through many tumultuous events, one thing you can count on is that new storms are bound to blow in and create instability. Simple steps to prepare yourself for the next threatening market storm include studying your own history of reaction during periods of high volatility, re-evaluating your portfolio strategy, and ensuring your asset allocations provide a level of diversification that suits your risk tolerance. During periods of short-term volatility, such long-term discipline can provide a healthy counter-weight against behavioral biases that may conspire to throw your investment strategy off track. ■

EXHIBIT 3: Retirement investors who kept exposure to equities amid the peak of the global financial crisis ended up with higher account balances on average than those who reduced their equity exposure to 0%.

Participant Behavior	Total Participants	Average Account Balance: September 30, 2008	Average Account Balance: March 31, 2010	Change in Account Balance
Sold All Stocks and Stayed Out: Got out of stocks during peak of market turmoil and stayed out	81,400	$76,200	$71,000	-6.8%
Sold All Stocks and Jumped Back In: Got out of stocks during peak of market turmoil and then moved back in	51,400	$103,500	$109,800	6.1%
Stayed Invested: Maintained exposure to stocks	7,332,000	$66,000	$80,400	21.8%

Sold all Stocks and Stayed Out - Got out of stocks or stock mutual funds during peak of market turmoil and stayed out: Investors who reduced to 0% equity during Q4 2008 or Q1 2009 and stayed at 0% equity. **Sold All Stocks and Jumped Back In** - Got out of stocks or stock mutual funds during peak of market turmoil and then moved back in: Reduced to 0% equity in Q4 2008 or Q1 2009, and then moved above 0% equity by March 31, 2010. **Stayed Invested** - Maintained exposure to stocks or stock mutual funds: Kept greater than 0% equity throughout entire period. Findings based on the activity of continuous participants in Fidelity-sponsored defined contribution plans. The change in account balance also reflects any employee and employer contributions, loans and withdrawals, as well as market activity. Source: Building Futures Report, Q1 2010, FMR LLC, FMRCo (MARE) as of 3/31/10. Past performance is no guarantee of future results.

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Investment decisions should be based on an individual's own goals, time horizon, and tolerance for risk.

Keep in mind that investing involves risk. The value of your investment will fluctuate over time and you may gain or lose money.

Past performance is no guarantee of future results.

[i] Loss aversion is based largely on psychological studies of decision-making that were first introduced by psychologists Daniel Kahneman and Amos Tversky in a 1979 article, "Prospect Theory: An Analysis of Decision Under Risk," that ran in Econometrica, an academic journal of economics. Kahneman was awarded the Nobel Prize in Economics in 2002, largely for his body of work in conjunction with Tversky that contributed to the field of study known as Behavioral Economics, and its related area of study, Behavioral Finance.
[ii] Source: *The Little Book of Behavioral Investing*, John Wiley & Sons, 2010.
[iii] The VIX hit a high of 45.8 in May 2010, whereas its historical average since 1990 is 20.4. Source: FMRCo (MARE) as of 7/26/10.
[iv] Equity mutual funds had a net outflow of $24.7 billion in May, 2010. Source: Investment Company Institute (ICI), Haver Analytics, FMRCo. (MARE) as of 5/31/2010.
[v] Using the monthly average index level for the S&P 500 Index, the index's total return from October, 2008 through June, 2010 was 16.4%. From the beginning of October, 2008 to the end of June, 2010, the Ibbotson Associates SBBI U.S. 30-day Treasury Bill Index returned 0.056%. Source: Ibbotson Associates, FMRCo. (MARE) as of 7/26/10.
[vi] Based on a population of nearly 11 million Fidelity defined contribution plan participants, those who stopped contributing any money to their retirement plan at the height of equity market distress (Q4 2008 to Q1 2009) and resumed contributions later on average experienced a change in their account balance that was lower (15.3%) during the 18-month period than those who contributed consistently throughout (28.7%). Those who stopped contributing during the peak period of distress and didn't contribute at all over the next 18 months saw their account balances rise even less (9%). Building Futures report, Q2 2010, Fidelity Investments.

All indices are unmanaged and performance of the indices include reinvestment of dividends and interest income, unless otherwise noted, and are not illustrative of any particular investment and an investment cannot be made in any index. Ibbotson Associates SBBI 30 Day T Bill Total Return Index – an index which reflects U.S. Treasury Bill returns. The S&P 500®, a market-capitalization-weighted index of common stocks, is a registered service mark of the McGraw-Hill Companies, Inc. and has been licensed for use by Fidelity Distributors Corporation.

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