February 2013

Is Loss Aversion Causing Investors to Shun Equities?

Dirk Hofschire, CFA
SVP, Asset Allocation Research

Lisa Emsbo-Mattingly
Director of Asset Allocation Research

Eric Gold, Ph.D.
VP, Behavioral Economics

Craig Blackwell, CFA
Analyst, Asset Allocation Research

During the past 13 years, investors have experienced some turbulent episodes, including two of the worst equity bear markets in U.S. history.[1] These downturns have been punctuated by a series of tumultuous events, including boom/bust periods in the technology sector and the U.S. housing market, a global financial crisis, the eurozone debt crisis, and a "Flash Crash" induced at least partially by high-frequency trading. Historically, chaotic events and market volatility have influenced investor behavior. For instance, mutual fund flow data show that investors have tended to reduce their investment in equities during market downturns, and reinvest more capital into equities once the market picks up (see Exhibit 1, page 2, left chart).

This pattern appears to have broken down in recent years. Since March 2009, when stocks began a new bull market, investors by and large have shunned investment in equities despite a 129% advance for the broader equity market.[2] Instead, they have continued to overwhelmingly invest in the perceived safety of investment-grade bonds. During this period of almost four years of exceptional absolute performance for equities, investors have poured more than $1.2 trillion into bond mutual funds and exchange-traded funds (ETFs), but less than one-tenth of that amount ($91 billion) has gone into similar equity vehicles (see Exhibit 1, page 2, right chart). The following article posits that individual investors' recent avoidance of equities may be driven in part by the tumultuous market environment and a human behavioral bias known as *loss aversion*.

Why might U.S. investors be allocating less capital to equities?

Before introducing the influence of behavioral biases on decision making, it is important to note that there may be perfectly rational explanations why some investors have shifted their portfolios to lighter allocations to equities in recent years. One is related to the general graying of the U.S. population, whereby more investors approaching or entering retirement may gravitate to a more conservative portfolio mix. In addition, during the past several years, market downturns may have reminded investors that equities are generally more volatile assets. It is possible that some investors recognized that their prior allocations to equities were too high relative to their long-term objectives and adjusted their portfolio mix accordingly. However, these rational explanations for the recent lack of investment in equities may not be telling the whole story.

Loss aversion defined

During the past several decades, many psychological studies have shown that humans have innate behavioral biases that cause them to make irrational choices. The behavioral biases unveiled by such studies increasingly have been applied to decision making in the financial markets.

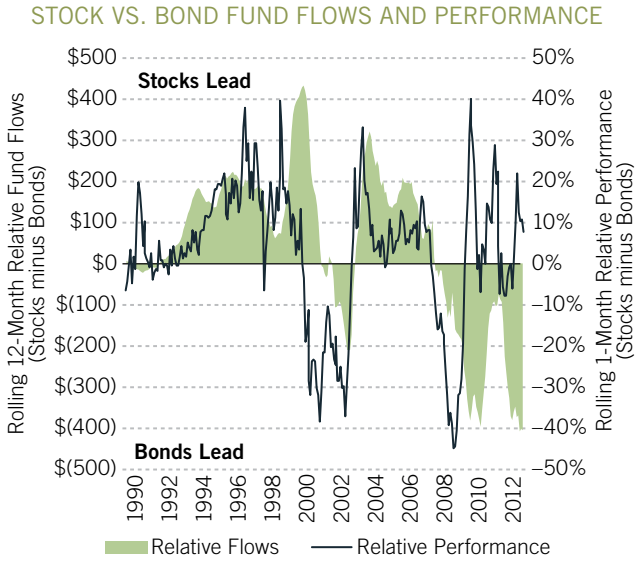
One of the key findings in behavioral economics is loss aversion, a bias revealed by psychologists Daniel Kahneman and Amos Tversky. In studies of human decision making, they discovered that the pain people feel from a loss is about as twice as strong as the pleasure felt from an equivalent experience of gain—referred to as loss aversion. This is illustrated by their diagram of the value that people place on the relative trade-off between gains and losses (see Exhibit 2, page 2). The steepness of the curve shows that if someone is confronted with equal amounts of loss and gain ($100), the pain they

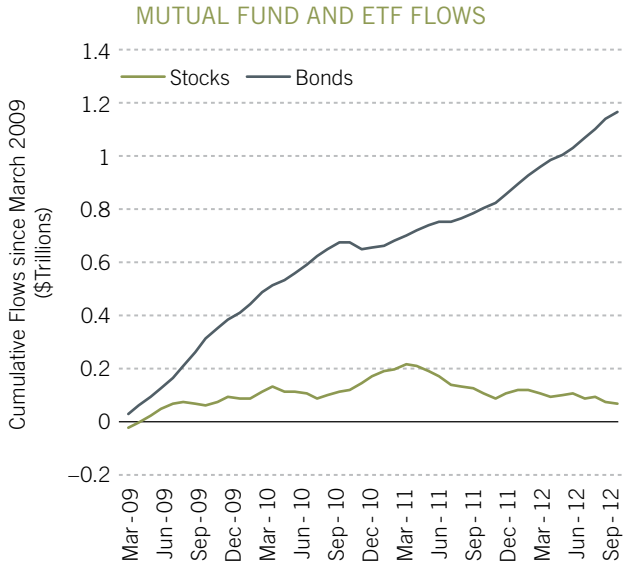
KEY TAKEAWAYS

- Investors may act less rationally due to a behavioral bias called *loss aversion*, in which the pain felt from a loss is about twice as strong as the pleasure felt from an equivalent gain.
- Myopic loss aversion prompts investors to seek less risky investments when they are more frequently aware of market volatility.
- The higher frequency and awareness of extreme market events and elevated volatility during the past 13 years may have prompted some investors to underallocate to equities, implying that an ebbing of these market conditions could create greater demand for stocks.
- Being aware of this behavioral bias may help investors to rigorously examine their decision making and to avoid the excessive short-term portfolio evaluation that heightens the impact of loss aversion on investment decisions.

Fidelity INVESTMENTS

EXHIBIT 1: Although the U.S. equity market has rallied sharply and significantly outperformed returns of bonds during the past several years, the bulk of new investment from individual investors has gone to bonds, unlike prior periods when net flows tracked relative performance.

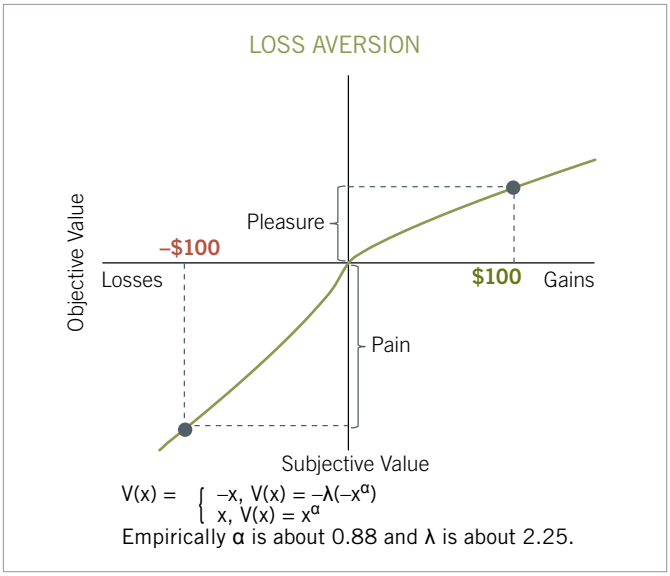




ETF: Exchange traded funds. Source: Investment Company Institute, Standard & Poor's, Barclays, Haver Analytics, Fidelity Investments (AART) through 12/31/12. Flow data represent net purchases through Nov. 30, 2012. Past performance is no guarantee of future results.

experience from the loss is nearly twice as strong as the pleasure associated with the gain (Exhibit 2). As a result of this bias, when people are faced with the prospect of making a choice, such as an investment decision, they tend to have a stronger preference

EXHIBIT 2: Based on Kahneman and Tversky's "Prospect Theory," the steepness of the line illustrates that the pain people experience from a loss is nearly twice as powerful as the pleasure they tend to experience when they achieve an equivalent type of gain.



Source: Kahneman, Tversky (1979, 1992).

for avoiding possible losses than for making gains, and are willing to give up more potential upside in order to protect themselves against downside.

Behavioral scientists have conducted many experiments in which risks and outcomes were presented to gain insight into how loss aversion can affect investors' tolerance for risk when making investment allocation decisions. In general, subjects were more likely to choose an outcome that had less risk of an experienced loss and a lower expected return than an alternative choice that had greater risk of potential loss and a higher gain.[3] For example, one Kahneman/Tversky study asked subjects how much prospective gain they would need to accept the risk of a certain amount of loss. The participants were given the opportunity to accept a gamble that had: a 50% chance of losing $100 and a 50% chance of winning $150. Based on probabilities, the expected return of the gamble was a $25 gain (see Exhibit 3, below). From a practical standpoint,

EXHIBIT 3: When people were faced with the choice of taking a gamble that had an expected return of $25 based on probability, studies showed that more chose to walk away than to accept.

Choices	Outcome	Probability		Expected Return
Gamble	($100) $150	50% 50%	50% x ($100) = ($50) 50% x $150 = $75	$25
Walk Away	$0	100%	100% x $0 = $0	$0

Example based on experiment by Kahneman, Tversky (1992). Source: Fidelity Investments (AART).

choosing not to accept this gamble is suboptimal because the gamble is worth $25 more than not participating. But in the experiments, subjects did not choose to accept the gamble, and it is only when the potential gain was more than twice as large as the expected loss (more than $200) that more participants chose to accept the gamble.

Myopic loss aversion and asset allocation

Myopic loss aversion is a specific form of loss aversion in which greater sensitivity to losses than to gains is compounded by the frequent evaluation of outcomes. A purely rational investor's response to the final outcome, or portfolio ending value, should not depend on how often the investor has observed up or down equity market fluctuations during the period. However, myopic loss aversion exists when the irrational behavior of weighting losses more heavily than gains is exacerbated by a higher frequency of seeing the fluctuations.

Frequent portfolio evaluation

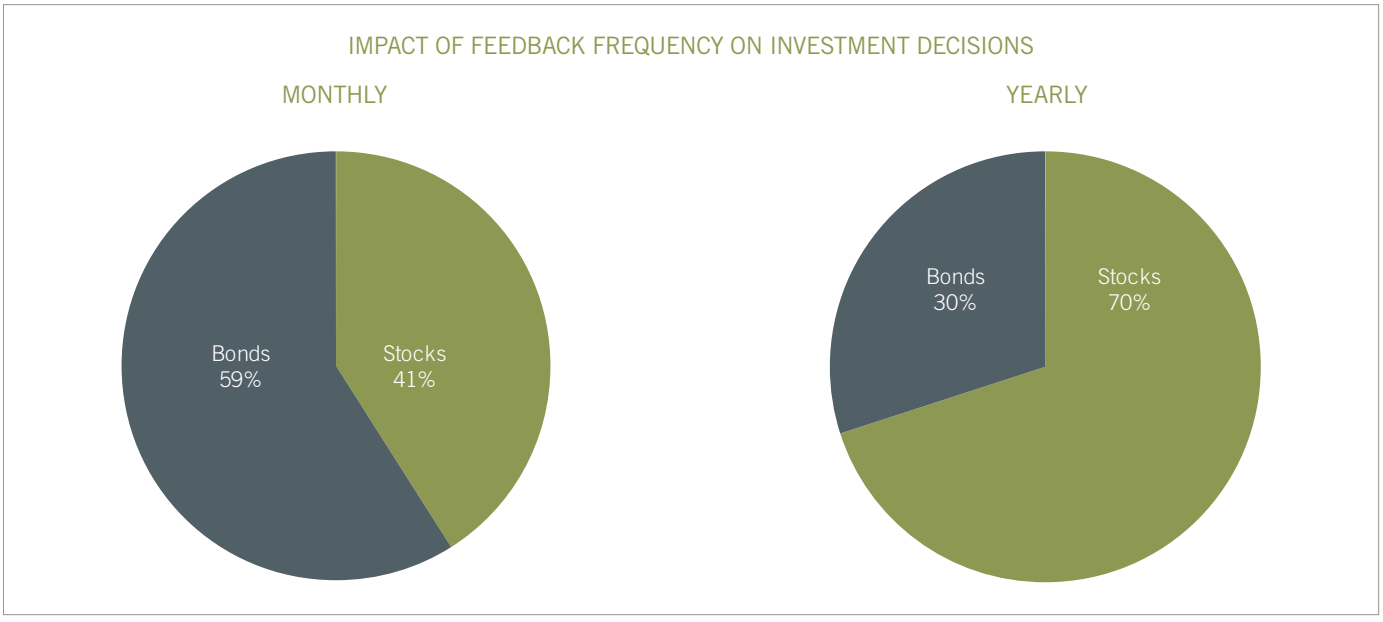
In a financial context, myopic loss aversion is represented by the frequent evaluation of a portfolio's performance, which can lead to shifts in an investor's long-term asset allocation mix. Checking a portfolio's performance more frequently increases the likelihood of seeing a loss, which produces more mental agony than comparable gains satisfy. This, in turn, can cause investors to tolerate less exposure to more volatile assets.

Researchers conducted an experiment assessing the impact of frequent portfolio evaluation on investors' long-term asset allocation decisions.[4] Subjects were told to picture themselves as portfolio managers with extended horizons, and to allocate 100 shares between a hypothetical bond mutual fund and an equity mutual fund. The participants were then placed in two groups, with one making simulated allocation decisions on a monthly basis, and the other making decisions on a yearly basis. The study found that the more frequently the participants evaluated their portfolio, the more risk averse they became over time. The long-term portfolio allocation to equities for those making monthly evaluations was 41%, while those making yearly evaluations allocated 70% to stocks (see Exhibit 4, below). The study revealed that investors are prone to making changes to their strategic portfolio allocations based on perceived levels of risk seen over shorter time periods.

Could recent equity market turbulence be exacerbating poor decision making?

The macro-driven nature of recent market volatility and increased media coverage of the financial markets have increased investor awareness of market turbulence and the potential for losses. Whether or not they wanted to be, investors were inundated with news headlines about the financial crisis, sovereign debt problems in Europe, the "Flash Crash," and the debt ceiling and fiscal debates (see Exhibit 5, page 4). Because falling stock prices were often connected to this news coverage, the greater awareness of market losses essentially forced more frequent portfolio evaluations by investors, who psychologically connect market losses with their own portfolio. This environment—of heightened and more frequent awareness of market volatility—is more likely to induce irrational investment decisions.

EXHIBIT 4: Investors who review their portfolio allocations more frequently have been more likely to shift their portfolios to more conservative exposures to equities.



In the study, subjects were assigned simulated conditions that were similar to making portfolio decisions on a monthly or yearly basis. Source: Thaler, Tversky, Kahneman, Schwartz (1997).

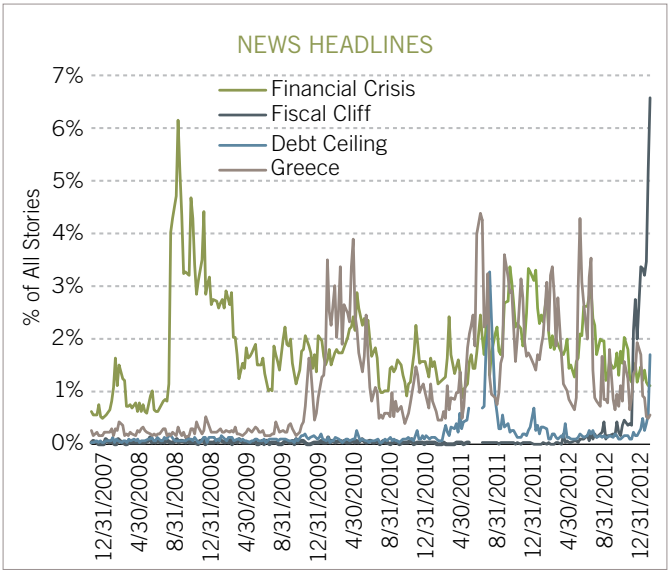
During the equity market turbulence over the past 13 years, investors who maintained exposure to equities throughout the period experienced very high levels of volatility and more frequent losses. For example, there have been 179 trading days during the past 13 years in which the S&P 500® Index fell by 2% or more—a frequency of losses that is greater than what investors experienced over the preceding 53 years (see Exhibit 6, below). An investor who checked his or her portfolio more often over this 13-year period would witness more days with losses than an investor who checked his or her portfolio less often. Of course, those investors would also see more days with gains, but because of loss aversion, they would respond more heavily to the losses than to the gains. Those who check their portfolios often feel more pain than they should and have a tendency to allocate their portfolios more conservatively.

As a result—given the presence of loss aversion in investors—the higher frequency and awareness of extreme market events and elevated volatility during the past several years may have prompted some investors to underallocate to equities.

Investment implications

Behavioral biases such as loss aversion can lead to suboptimal investment decisions for any type of investor. Deviating from a long-term portfolio strategy as a result of such biases may cause an investor to fall short of reaching his or her risk and return objectives. While loss aversion is an innate human trait, an awareness of this bias can help investors to rigorously examine their own decision making and to avoid excessive short-term portfolio evaluation that can heighten the impact of loss aversion on portfolio decisions.

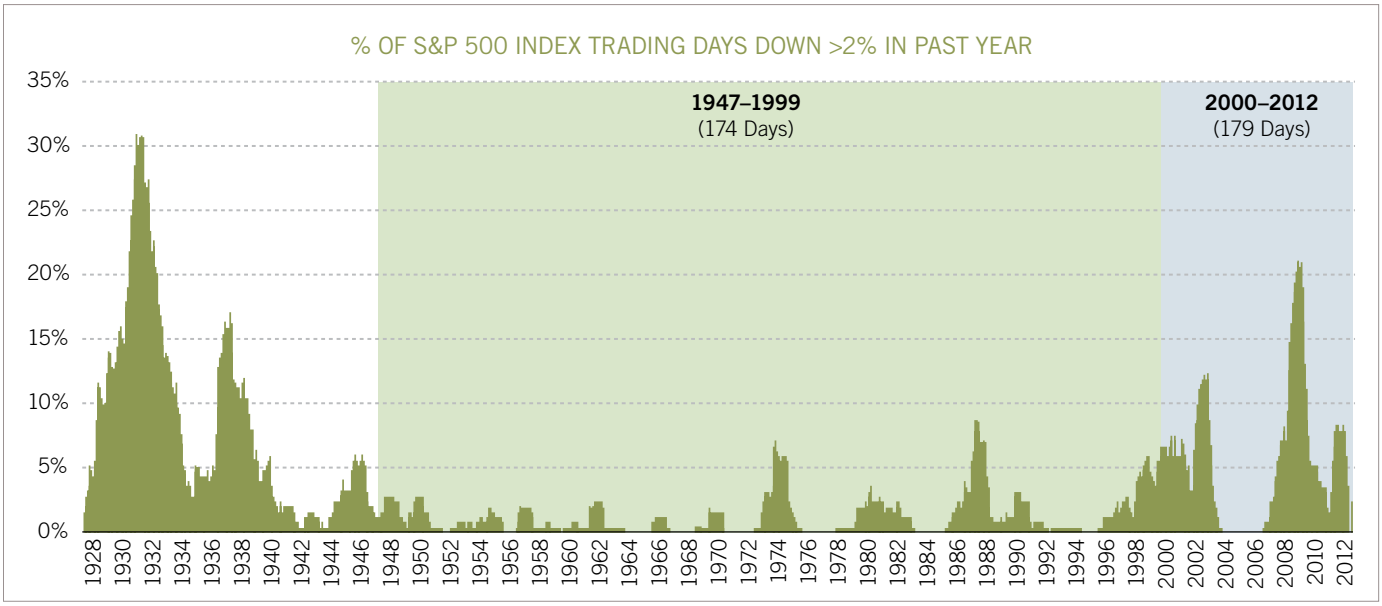
EXHIBIT 5: The frequency of news headlines citing major market-related issues has soared during the past few years.



Source: Bloomberg, Fidelity Investments (AART) through Dec. 31, 2012.

Riskier asset classes, such as equities, are expected to display higher performance volatility, but they also can be critical to long-term wealth creation within the context of an appropriately diversified portfolio. If at least part of the shift in investor preferences from equities to bonds in recent years can be explained by the combination of a volatile market environment and investor loss aversion, an ebbing of these market conditions could cause investors to reassess their allocations and potentially create greater demand for stocks.

EXHIBIT 6: The equity market has experienced more days of 2% declines during the past 13 years than the prior 53-year period.



Source: Bloomberg, Fidelity Investments (AART) through Dec. 31, 2012. See page 5 for S&P 500 Index definition.

Authors

Dirk Hofschire, CFA
SVP, Asset Allocation Research

Lisa Emsbo-Mattingly
Director of Asset Allocation Research

Craig Blackwell, CFA
Analyst, Asset Allocation Research

The Asset Allocation Research Team (AART) conducts economic, fundamental, and quantitative research to develop asset allocation recommendations for Fidelity's portfolio managers and investment teams. AART is responsible for analyzing and synthesizing investment perspectives across Fidelity's asset management unit to generate insights on macroeconomic and financial market trends and their implications for asset allocation.

Eric Gold, Ph.D.
VP, Behavioral Economics

Eric Gold is vice president in the Fidelity Center for Applied Behavioral Economics, which applies behavioral economics to help investors make successful financial decisions at a time when the burden of seeking financial security falls heavily on individuals.

Endnotes

[1] Bull and bear markets defined as a 20% or more increase or decrease in the S&P 500 Index.

[2] S&P 500 cumulative total return from March 9, 2009, through December 31, 2012.

[3] Kahneman, D., A. Tversky. "Prospect Theory: An Analysis of Decision Under Risk." *Econometrica*, 47.2 (Mar. 1979): pp. 263-292.

[4] Thaler, R. H., A. Tversky, D. Kahneman, and A. Schwartz. "The Effect of Myopia and Loss Aversion on Risk Taking: An Experimental Test." *The Quarterly Journal of Economics* 112.2 (1997): pp. 647-61.

References

Tversky, A., D. Kahneman. "Advances in Prospect Theory: Cumulative Representation of Uncertainty." *Journal of Risk and Uncertainty* 5.4 (1992): pp. 297-323.

637386.1.0