FRANKLIN TEMPLETON INVESTMENTS

2020 VISION

Time to Take STOCK™

Breaking the Cycle of Investment Regret

How Investors Can Harness Emotions for Better Investment Decisions

Highlights

- Our ability to make investment decisions is heavily influenced by emotions.[1]
- Left unchecked, these emotions could trigger systematic irrational behaviors that are repeated over and over, potentially leading to serious investing mistakes.
- Although our natural decision-making process is limited by the quality and accuracy of the tools nature has given us, we are not helpless.
- Understanding our emotional state and putting plans in place before emotions take over can help prevent poor investment decisions.

The Half-Empty Glass

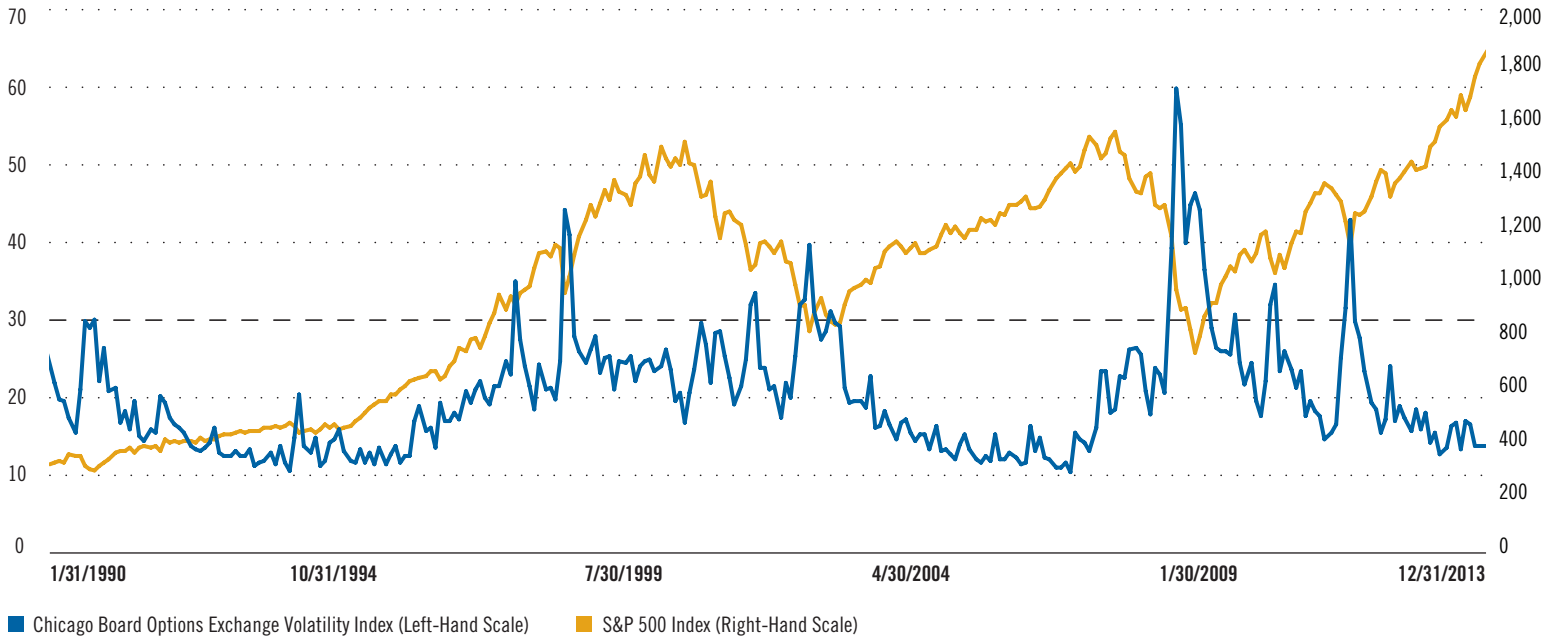
The market meltdown triggered in 2008 by the global financial and economic crisis has left a legacy of pessimism that continues to rule the minds of many investors despite subsequent periods of both economic and market recovery. While some investors remain on the sidelines frozen by indecision, others seem to shift between asset classes with every mood-changing headline. Paradoxically, investors tend to view market volatility as an isolated phenomenon, not realizing that their own fears, multiplied by those of countless other investors, may help fuel the turbulence (Chart 1).

Chart 1: Investor Fear Spurs Market Declines

Chicago Board Options Exchange Volatility Index vs. S&P 500® Index Values

January 31, 1990–December 31, 2013

The Chicago Board Options Exchange (CBOE) Volatility Index shows the market's expectation of 30-day volatility. Values greater than 30 are generally associated with volatility as a result of investor fear or uncertainty.



Sources: CBOE Volatility Index® (VIX®) data is provided by Chicago Board Options Exchange, Incorporated (CBOE) and CBOE makes no warranties of any kind with respect to this data. © 2014 S&P Dow Jones Indices LLC. All rights reserved. An index is unmanaged and one cannot invest directly in an index. **Past performance does not guarantee future results.**

1. Kahneman and Tversky, "Mental Accounting Matters," *Journal of Behavioral Decision Making*, 12: 183–206 (1999).

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Whether the proverbial glass is half full or half empty is a matter of interpretation, which is inevitably colored by emotion. It is the emotional response—so quick that people are unaware it is even occurring—that too often leads to poor decision making.

But investors need not be doomed by their emotional responses to endlessly pace a treadmill of bad investments. Behavioral finance, which applies the study of cognitive psychology to the motives behind money-related decisions, offers clues to strategies investors can pursue to proactively direct their emotions toward the decisions that could ultimately be in their best interests.

Applying Reason to the Irrational

Behavioral finance developed as a response to *standard economic theory* (also known as expected utility theory), which assumes that individuals are rational, risk-averse profit maximizers. This concept of the rational individual formed the foundation for numerous theories about the capital markets. In the well-ordered world of the efficient markets theory, for example, investors were expected to set prices rationally, allowing even the unsophisticated investor to rely on market efficiency to ensure a fair price for transactions.

The reality is that all individuals are far less rational in their decision making than economic theory assumes. Behavioral economics accounts for that irrationality.

In 1979, psychologists Daniel Kahneman and Amos Tversky challenged standard economic theory with their introduction of *prospect theory*, which argues that in situations involving financial risk, people are more concerned about the change in their wealth than its ultimate level. Consequently, they may be either more cautious or confident than statistical probability would dictate and they routinely misjudge the odds for success or failure.[2]

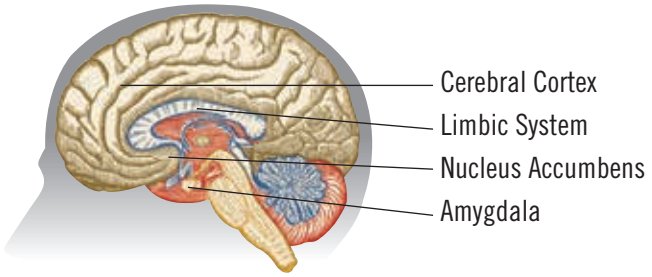
For his ground-breaking research, Dr. Kahneman was awarded a Nobel Prize in economics[3] (Dr. Tversky did not share the honor due to his death shortly before the Nobel committee made its selection). From those first experiments in the anomalies of human behavior toward money, numerous studies over the years have built substantial empirical evidence in support of their original hypothesis. It seems that not only are people far less rational in their decision making than economic theory assumes, but left to their own devices, many people also consistently repeat mistakes over and over again, *even when the error has been pointed out*.[4]

Dan Ariely, a professor of psychology at Duke University who specializes in behavioral finance, terms such behavior "predictably irrational": Even when provided with a reasonable argument and ample context, oftentimes the human brain nevertheless has a strong tendency to make decisions based on irrational emotion.

It's Just Emotions Taking Me Over

The decision-making process is highly complex, requiring the resources of two large centers of the brain. Dominating the front of the brain is the cerebral cortex, which houses the so-called higher functions of logic, reason and planning—qualities that are considered key to making good decisions. Deep inside the brain is the limbic system, an ancient brain-within-a-brain that is responsible for our instincts, emotional responses and the intuitive system. Within the network of structures that comprise the limbic system lies the amygdala, a small but active area that functions as the brain's early warning system, sending out messages of anxiety and fear to warn of trouble ahead.

Figure 1. Decision Making in the Brain



Psychologists define the intuitive system as emotional, fast and automatic. While these qualities can be advantageous in fight-or-flight situations, they can play havoc with an investor's ability to make sound decisions. The intuitive system is also slow to learn, which may be one reason why the same mistakes can be repeated so often. In contrast, the reasoning system is emotionally neutral, slow, controlled and rule-governed.

2. Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision Under Risk," *Econometrica* 1979, 47: 263–91.
3. The Royal Swedish Academy cited Kahneman "for having integrated insights from psychological research into economic science, especially concerning human judgment and decision making under uncertainty."
4. Dan Ariely, *Predictably Irrational: The Hidden Forces That Shape Our Decisions*, 2008.

Working together, emotion and reason should balance each other out, but studies show subconscious activity actually *precedes and determines* conscious choice.[5] Although on a conscious level the cerebral cortex is carefully sifting through the pros and cons of a problem to arrive at a logical solution, a much faster sub-dialogue is taking place in the subconscious, comparing the new information with past experience and immediately forming a judgment.

Blame It on the Amygdala

Assaulted by a tsunami of information on a daily basis, the human brain must distill the onslaught down to only the most important elements. Thanks to the amygdala, what is most important to the brain is potential danger. In the absence of stalking predators or other forms of imminent attack, the amygdala tends to focus on the potential for harm from more abstract causes like competitors, stress or negative headlines. Because of this bias toward deflecting danger, the amygdala regards negativity and pessimism as accurate.

Five Behaviors That Lead to Investment Mistakes

Activity in the amygdala is also highly correlated with some of the most common mistakes made by investors, five of which follow.

1 Loss Aversion: The Pain of Loss Outweighs the Pleasure from Gain

No one wants to lose money. Loss aversion refers to the deep pain investors feel upon taking a loss and the lengths to which they will go to avoid that pain. In fact, Kahneman and Tversky estimated that the pain from loss was measurably greater than the pleasure from gain.[6]

In a classic Kahneman/Tversky experiment, participants were hypothetically offered a chance of winning a cash prize by choosing one of three options:

1. A certain win of $3,000
2. An 80% chance of winning $4,000 or a 20% chance of winning $0

To no one's surprise, more than 90% chose number one: a certain win of $3,000.

When the offer was switched to losing money, however, the response was quite different. Again, participants were asked to choose one of three options:

1. A certain loss of $3,000
2. An 80% chance of losing $4,000 or a 20% chance of losing $0

In this case, almost 90% of people took the second option—that included the 20% chance of losing nothing—even though statistically, it was the riskier proposition.

Since 2008, the tendency toward loss aversion has been demonstrated by many investors' reluctance to invest in equities, instead preferring to remain in low-yielding savings vehicles that may even deliver a negative real return after inflation.

2 Anchoring: Holding Fast to the Past

Anchoring is the tendency to focus on an early decision as input for the future decision to the exclusion of other considerations.

Experiments conducted by Professor Ariely have demonstrated that once initial prices are established in people's minds, they shape not only the perception of current prices but also future prices.[7] The sensitivity shown to price changes might be largely a result of memory for prices paid in the past and the desire for coherence with past decisions—not at all a reflection of true preferences or level of demand.

Capital markets reflect the tendency of investors to anchor to a given price. For example, a stock will typically trade for a while within a certain range, then trend up or down to a new anchor level and trade within that range for a length of time as investors adjust their expectations to the altered price. Overly sharp gains or losses often provoke discomfort as prices move outside the anchor range—one reason why investors are so distressed by volatility.

5. Soon, Brass, Heinze & Haynes (2008), "Unconscious determinants of free decisions in the human brain," *Nature Neuroscience* 11, p. 543–545.
6. Kahneman and Tversky, "Mental Accounting Matters," *Journal of Behavioral Decision Making*, 12: 183–206 (1999).
7. Dan Ariely, *Predictably Irrational*, p. 48.

3 Herding: Our Tendency Is to Follow the Crowd

Herding is a normal, sometimes even advantageous, human behavior that is perfectly rational for certain situations, such as deciding whether to choose the empty restaurant or the full one for dinner; however, it can lead to serious investment mistakes.

Herding can be a precursor to market bubbles. What begins as a natural inclination to participate in the growth path of a company has been known to end in tragic losses as the euphoria of explosive price increases causes investors to lose their sense of judgment.

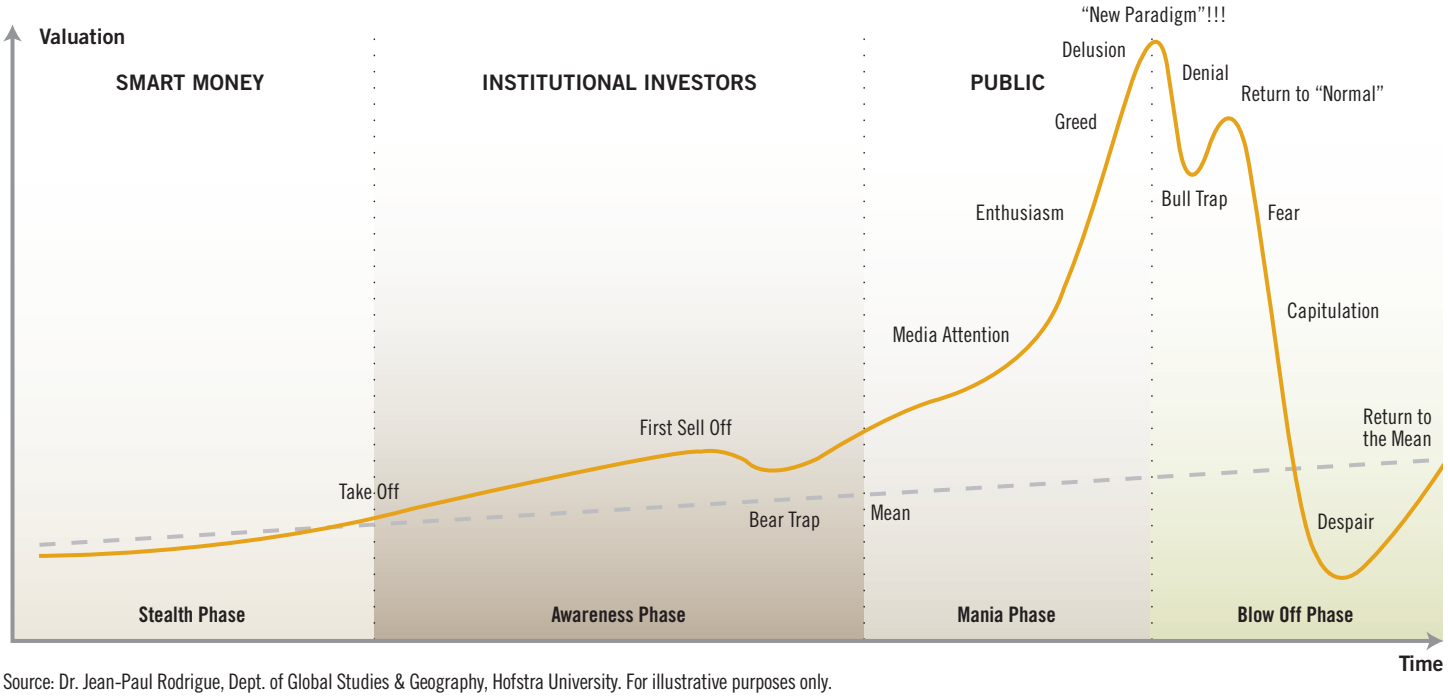
Market swings are invariably tied to investors deciding to follow the crowd. One of the most famous modern examples of herding gone wrong was the dot-com phenomenon of 2000. While the significance of the Internet was real and enduring, many of the companies into which investors poured their money were neither. As one dubious enterprise after another disappeared or defaulted, the shares of established technology giants were carried along in the decline (Figure 2). Eventually the herd moved on, providing patient investors with a long-awaited opportunity to buy the surviving high-quality companies at bargain prices.

Historical examples of herd behavior in the markets are amply and entertainingly discussed in the book *Extraordinary Popular Delusions and the Madness of Crowds*.[8] First published in 1841, author Charles Mackay traces the rise and fall of numerous bubbles and market scandals ranging from tulips to technology over more than 200 years.

Arguably the most painful bubble experience for Americans in this century has been in real estate, with subprime mortgages the pin that burst the home ownership dream for many and triggered a global debt crisis.

History has shown it is extremely difficult, if not impossible, to accurately time the market. Investors who take their cues from the herd tend to buy high and sell low, exactly the opposite of the strategy they should be following (Chart 2).

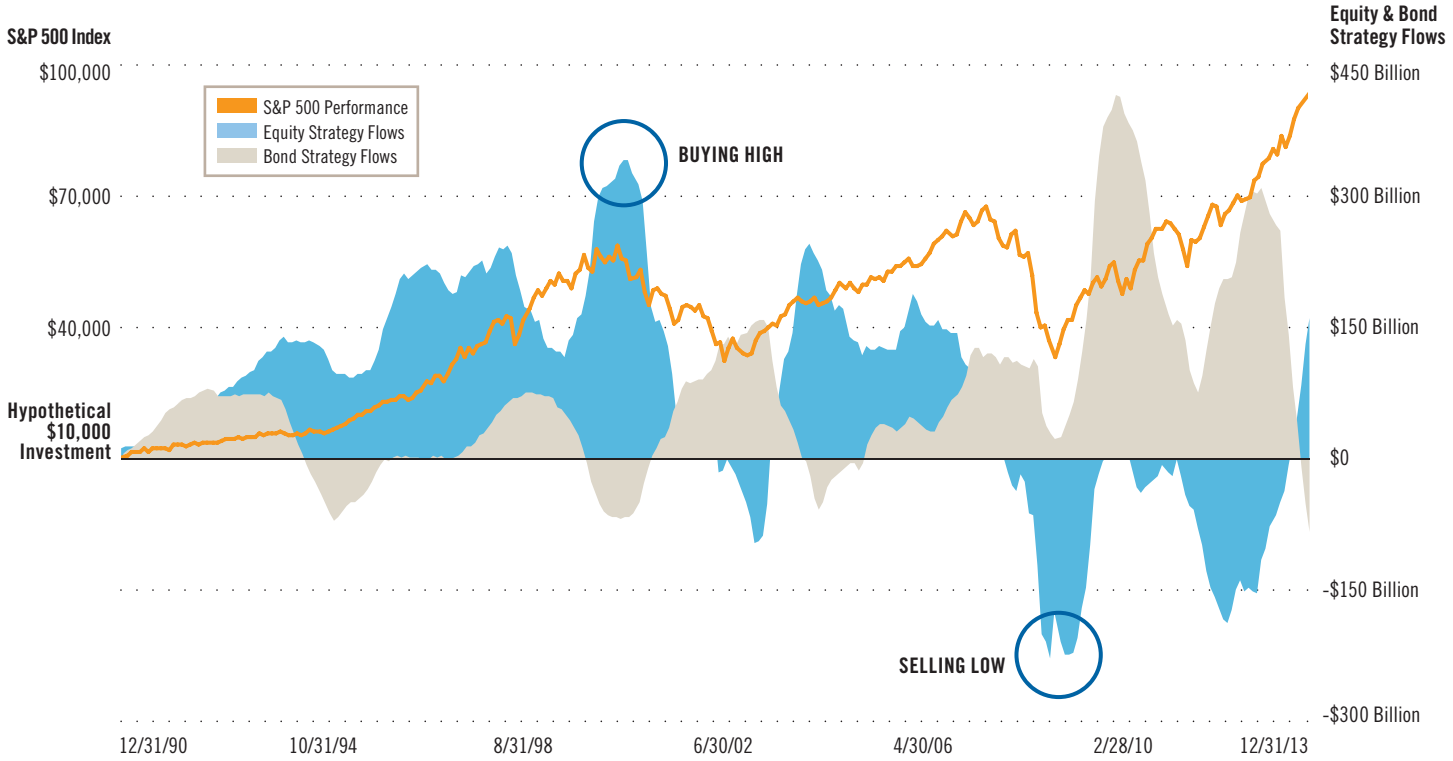
Figure 2. How Bubbles Burst



Source: Dr. Jean-Paul Rodrigue, Dept. of Global Studies & Geography, Hofstra University. For illustrative purposes only.

8. Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds*, fwd. by Andrew Tobias, originally pub. 1841, republished by Random House, Inc., July, 1995.

Chart 2: The Problem of Going with the Flow
S&P 500 Index Performance vs. Equity and Bond Net New Flows
December 31, 1990–December 31 2013



Sources: ICI (Investment Company Institute), © 2014 Morningstar. Standard & Poor's®, S&P® and S&P 500® are registered trademarks of Standard & Poor's Financial Services LLC. An index is unmanaged and one cannot invest directly in an index. This chart is for illustration purposes only and does not represent the performance of any Franklin Templeton product. **Past performance does not guarantee future results.**

4 Availability Bias: Most Recent Is Most Relevant

Availability bias is the enabler of anchoring. Rather than analyzing all relevant information prior to making a decision, people prone to availability bias rely on whatever information is most easily recalled, which tends to be either recent or emotionally charged.

Availability bias can cause investors to overreact to market conditions, whether positive or negative. They may invest in a stock simply because it has been covered heavily by the media, or concentrate too large a proportion of their investments in a sector currently in favor.

A particular danger is the incomplete nature of individual memories. In the absence of full information, the brain tends to fill in the gaps on its own. This is known as *attribute substitution:* an impression of one attribute is mapped onto the scale of another, and the judge is normally unaware of the substitution.[9]

Highly complex judgments such as investment strategy suffer when information gaps force the brain to apply its own rules of thumb. Over the past four years, for example, the remembered pain of dramatic events and past losses has continued to color many investors' perceptions of the financial markets.

A survey conducted by Franklin Templeton Investments in 2010, 2011, 2012 and 2013 asked 1,000 Americans how the stock market finished at the end of the previous year.[10] While U.S. stocks experienced a severe downturn in 2008, stocks (as represented by the S&P 500 Index) produced positive returns each year from 2009 to 2012, yet roughly half of respondents in 2010, 2011 and 2012 thought the market had been down or flat. And in 2013, five years after the downturn, one-third of respondents thought the market had been down or flat. In the absence of accurate information, their brains drew on memories that were no longer relevant.

9. Daniel Kahneman: "Maps of Bounded Rationality: A Perspective on Intuitive Judgment and Choice," Princeton University, December 2002.
10. Source: Franklin Templeton Global Investor Sentiment Surveys conducted in partnership with ORC International (2010, 2011 and 2013) and Dan Ariely and Qualtrics (2012). Each survey included over 500 U.S. adult respondents.

5 Mental Accounting: The Value of Money Varies with the Circumstances

The phrase "mental accounting" was coined by behavioral finance pioneer Richard Thaler to describe how people treat money differently depending on where it comes from, where it is kept, and how it is spent.

Many investors employ mental accounting in their portfolios by locking in certain assets for retirement, maintaining somewhat greater liquidity for controlled wealth accumulation, and allowing a relatively smaller portion of "play money" for high-risk/high-reward investments.

But this penchant for compartmentalizing can have a darker side. Investors may take unwarranted risks with their own money while being overly cautious with an inheritance. Instead of viewing tax refunds as part of income to be allotted to saving and investing, they may regard it as "found money" and use it to take a vacation.

Finding the Balance Between Emotion and Reason

The human mind is biologically incapable of complete objectivity. Because the amygdala and other areas of the limbic system work faster than the neural centers of logic and reason, every decision is a combination of emotion and reason. In that case, how can investors know the decisions they make are in their best interests?

Professor Ariely believes effective decision making is the result of individuals understanding their own biases and planning ahead. He urges everyone to seek advice from others, use technology to overcome inherent shortcomings and take time to reflect before making a decision. For investors, these principles can form the basis of a powerful, proactive investment plan.

- **Work with a Qualified Financial Advisor.** Financial advisors are trained to recognize biases—their own as well as those of their clients. Their understanding of portfolio analysis and the markets is supported by sophisticated technology that helps overcome bias and other emotional shortcomings. Many experienced advisors not only avoid panic selling; they also know how to take advantage of opportunities.
- **Know Yourself.** Investors need to know themselves—their understanding of the capital markets, panic points, risk tolerance levels and whether they are overly confident or cautious.
- **Have an Investment Plan.** Because the decision-making process is heavily influenced by past experience, the most critical first step is a carefully considered investment plan. Studies show that investors who follow a written plan are typically more successful and more satisfied with their investments.[11]
- **Take Time to Make Decisions.** Split-second investment decisions are almost always wrong. Although professional investors like portfolio managers must often move quickly on a trade or tactical strategy, each action is supported by endless hours of analysis and debate. Portfolio managers may track securities for years before all their criteria are met and the price is right.

Consciously resolving to think differently about investment decisions can lead to creative solutions. For example, behavioral finance experiments have determined that while cutting immediate consumption is painful, sacrificing future consumption is much less so.[12] Those who struggle to save money for investment purposes are more likely to adhere to a plan by creating a savings program that increases over time—say from 5% to 10% of gross income over a five-year period—rather than one that immediately requires 8% of monthly income.

The Pleasure of Sound Decisions

Humans naturally seek pleasure over pain, and the decisions we make have a common purpose—to create pleasure or reward and avoid pain, loss and regret. Interestingly, the frontal part of the brain is linked to the pleasure and reward centers in the limbic system by way of the neurotransmitter dopamine. In helping to regulate movement as well as emotional response, dopamine enables us not only to see rewards but also how to move toward them.

Professor Ariely points out in the final pages of his book "...although irrationality is commonplace, it does not necessarily mean we are helpless." Through their experiments, psychologists working in the field of behavioral finance strive to slow down human behavior and examine it frame by frame. Armed with their insights, investors have the tools to leave past mistakes behind and make decisions that could ultimately prove rewarding.

11. Ipsos Reid, *Value of Financial Advice Survey*, October 4, 2011. Based on supporting data from Ipsos Reid's *Canadian Financial Monitor* data.
12. Richard Thaler, Shlomo Benartzi, "Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving," August 2001.

WHAT ARE THE RISKS?

All investments involve risks, including possible loss of principal. Stock prices fluctuate, sometimes rapidly and dramatically, due to factors affecting individual companies, particular industries or sectors, or general market conditions.

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