Investing Strategies for an Irrational Brain

by Charles Rotblut

Charles Rotblut will speak at the 2021 AAII Investor Conference next October in Las Vegas. Go to https://www.aaii.com/conference for more details.

A key assumption underlying a number of economic and financial theories is flawed: It assumes humans always act as rational agents.

A rational agent, in terms of investing, considers all possible outcomes, weights them according to their respective probabilities and makes a decision based on the whether the odds favor a positive or a negative outcome. This means that before making every buy or sell decision, every person does all of the math and necessary analysis before taking an action.

This assumption works well for creating theories, but, as those who have studied behavioral economics have found, it doesn't reflect the real world. Though there are some people who come close to being rational agents, the majority of us are not. Rather, the typical investor lets cognitive biases, emotions and reactive thinking influence decisions. The result is subpar portfolio returns for many investors.

Evidence of humans not acting as rational agents is widespread. One example occurred on the website Kickstarter. In the summer of 2014, Zack Danger Brown started a fundraising campaign to make potato salad. He said, "Basically I'm just making potato salad. I haven't decided what kind yet." At no point was anybody promised the actual potato salad. As the money came in, he promised to get a better recipe, use better ingredients and webcast himself making the salad. At no point was anybody ever promised the actual potato salad or the recipe. Zack raised $55,492.

Another example is from the Investment Company Institute (ICI). The ICI tracks long-term inflows and outflows from mutual funds. What their data shows is a pattern of investors putting money into stock-oriented mutual funds after the market has risen and pulling the dollars out when the market drops significantly. In other words, investors buy high and sell low—hardly rational behavior.

Research firm DALBAR has looked at the mutual fund data and concluded that a behavior gap exists. Between 1995 and 2014, the average mutual fund investor has realized about 50% of the S&P 500 index's 9.85% gain. In other words, investors have gotten about half the return they would have if they simply invested in an index fund and didn't look at their portfolios again. Even if one takes exception to the DALBAR data, a behavior gap has been found to exist by other firms, including Morningstar.

If this is the case, what can an investor do? There are various steps that can help you act more like a rational agent. But before discussing strategies, it’s helpful to have an understanding of the underlying causes of the problems.

Our Brains Need a System Upgrade

One of the most obvious examples of behavioral errors are lotteries. The odds of winning money by buying a lottery ticket are terrible. The Illinois Lottery lists the odds of buying a winning Mega Millions ticket as one in 14.71 (about 7%). The odds for Powerball are even worse at one in 32 (about 3%). These are not the odds of winning the multimillion-dollar jackpots, they are the odds of winning anything—including what was spent on buying a lottery ticket.

Yet, when lottery jackpots get very large, they start making headlines. People who normally don’t play the lottery play. People who regularly play the lottery buy more tickets. This happens even though the odds of winning anything don’t change along with the size of the jackpot. The odds of losing money are overwhelming regardless of whether the jackpot is $20 million or $200 million.

So why do we play?

Ironically, part of the reason is that we are loss-averse. By not buying a lottery ticket, people feel they are missing out on a chance to win the big jackpot. Even though the odds are absolutely awful, they are still above zero. And our brains are programmed to avoid the pain of losses.

Nobel laureate Daniel Kahneman and his late colleague Amos Tversky described this as prospect theory. Prospect theory says humans feel greater pain from losses than pleasure from gains. Figure 1 demonstrates this. The slope of the line in Figure 1 steepens as it moves from the upper right-hand quadrant (gains) to the lower left-hand quadrant (losses). The psychological impact of losses is far greater than those of gains.

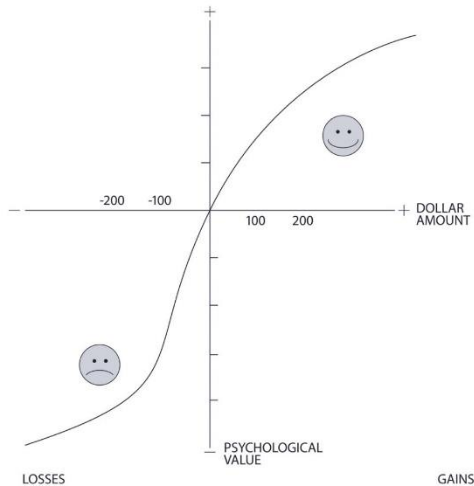

Figure 1. Losses Hurt More Than Gains Provide Pleasure

Think about the history of the financial markets. The first recorded financial bubble was in the 17th century, with the Dutch tulip bubble peaking during the winter of 1636–1637. The New Stock Exchange did not begin until 1792. Homo sapiens have been around far longer. For most of its existence, mankind has been focused on survival, not the Dow Jones industrial average, interest rates or retirement income. As such, our brains have evolved to deal with very different concepts of risk and loss than what we encounter every day with financial markets.

It's not just psychology, but also biology. One study found a link between the stress hormone cortisol and the willingness to accept financial risk. Traders who had their cortisol levels increased were less likely to accept financial risk in exchange for the possibility of a higher financial return ("Stress Hormone Alters Tolerances for Financial Risk," September 2014 *AAII Journal* Briefly Noted). Another study found a link between changes in sunlight and a willingness to accept risk ("Sunshine Impacts Tolerances for Risks and Uncertainty," July 2015 *AAII Journal* Briefly Noted).

Then there are the limits on our abilities to make good decisions. Due to constraints on cognitive abilities, time and access to information as well as the interplay of emotions, humans operate under what is known as bounded rationality. This holds that even though we may want to make the best possible decision, we lack the ability to do so.

Seeking Shortcuts and Rationalizing Decisions

Behavioral economists have found that humans often rely on mental shortcuts and heuristics. The default setting in our brain is to use the information and knowledge immediately available to make a decision. For example, a person may view a certain point move in the Dow Jones industrial average (e.g., 200 points) as significant without stopping to consider what the move in percentage terms actually was.

Kahneman and Tversky referred to this as operating on System 1. System 1 is intuitive thinking. It's reactive. When a person decides to drive to the local grocery store, he or she is operating on System 1. There is little conscious thought about the steps required to get in the car, drive the car or get to the store. Is there cognitive activity occurring? Absolutely, but our conscious thoughts are generally focused on other subjects (e.g., traffic, the radio, what needs to get done later in the day, etc.)

When a person acts emotionally to a move in a stock's price or to macro news, it is System 1 at work. Selling stocks simply because the price has dropped is System 1 at work. Buying a stock with a great story that has run up in price on concern about missing out on the next big thing is System 1 at work.

Analyzing macroeconomic factors, valuations, growth rates and fundamental ratios invokes System 2. System 2 is self-critical, reflective and deliberate thinking. It requires greater cognitive effort and slows us down. If humans were truly rational agents, they would invoke System 2 before making any financial decision. But this is not the case. Rather, as Kahneman explained, "much of what System 2 does is explain and rationalize and apologize for the choices and beliefs of System 1" ("Behavioral Errors Hurt Your Returns," July 2012 *AAII Journal*).

How the Human Brain Rationalizes

There various ways we rationalize the decisions we make. Among them is being overconfident. We like to believe our decisions are correct. Part of this comes from simply not wanting to admit we made a mistake. Part of it comes from cognitive dissonance. Cognitive dissonance is downplaying or ignoring facts contrary to our views and beliefs.

Cognitive dissonance often occurs when we are confronted with information contrary to our views about a stock, a bond, a fund or even the market or the economy. When we hear information we disagree with, we're more likely to discredit it than to objectively analyze its validity. For example, when an analyst or a portfolio manager appears in the media criticizing the valuation of a stock that has soared in price, the typical reaction of shareholders of the stock is to automatically assume the person is wrong.

This reaction is a common occurrence of the endowment effect. The endowment effect says that we value the things we own more than the things we don't. In the case of investing, our tendency is to think we've made the right decisions and to overestimate our ability to properly analyze the prevailing risks.

Worse yet, we rationalize our viewpoints by engaging in confirmation bias. Confirmation bias is looking for information that backs up our beliefs. Those who think stock prices will rise pay more attention to reports and articles explaining why the outlook is bright. Those who expect stock prices will fall or, worse yet, the economy to collapse pay more attention to reports and articles explaining why the outlook is bleak. Since such information backs up the respective viewpoints, it makes the respective groups of investors more ardent in their viewpoints and more likely to engage in cognitive dissonance.

The problem with confirmation bias is that there is always someone on the other side of a trade. When an investor sells a stock, the buyer thinks it's a bargain. When a bond is purchased on the open market, the seller thinks it's a bad investment. The buyer and seller always have different views. This is why it's useful to ask: What does the investor on the other side of the transaction see that I don't?

Compounding matters is our brain's shortsightedness. When a correction occurs (a decline of between 10% and 20%), investors fear the next bear market will occur. When a bear market occurs (a decline of more than 20%), investors fear a repeat of the next significant financial crisis. On the other hand, when there is an extended bull market, excessive optimism occurs and investors tend to ignore the possibility of downside risk.

The tendency to think recent conditions will continue into the future is known as recency bias. History is filled with of examples of recency bias occurring. During the late 1990s, investors willingly bought dot-com and technology companies with little to no regard for their current earnings or ridiculously high valuations. During the fourth quarter of 2008 and the first few months of 2009, investors pulled out of stocks even though valuations were extraordinarily low.

Preventing Behavioral Errors From Occurring

It would be great if we could wake up tomorrow with a commitment never to make a behavioral error again. Unfortunately, it won't work in practice. Our brains are programmed to act in a certain manner, and simply being aware of behavioral errors won't stop us from making them. That's the bad news. The good news is that there are strategies you can use to reduce your chances of succumbing to behavioral errors.

Use the Power of the Written Word

One of simplest and most effective strategies is to simply use the power of the written word. Write down the rules governing how to manage your portfolio, including your long-term allocation strategy, guidelines for determining if a security or fund should be bought, and the specific circumstances under which you would sell. Simply having these rules in place can make a big difference.

A study published in the New England Journal of Medicine demonstrated how powerful the written word can be. Eight hospitals around the world were asked to follow a checklist of procedures when performing surgeries. Over a three-month period, the number of patients with complications dropped by nearly 40% ("Effect of a Comprehensive Surgical Safety System on Patient Outcomes," Eefje N. de Vries et al., November 11, 2010).

Keep in mind that the simpler and more straightforward the rules are, the more likely you are to follow them. For example, the main purchase rules for AAII's Model Shadow Stock Portfolio are a price-to-book-value (P/B) ratio less than or equal to 1.0, positive earnings for the trailing 12-month period and a market capitalization below $300 million—clear, simple and straightforward.

It's not only important to have the buy and sell rules, but it's also crucial to have them written down in a format that's easily accessible. I personally like a spiral notebook. It's an incredibly effective portfolio management tool because it's cheap and needs no instruction for use. Once something is written down in it, those words and numbers will never change unless something physically happens to the notebook.

Portfolio Management Guidelines

Included in your rules should be guidelines for your long-term portfolio allocation strategy. Specify how much you want to allocate to each major asset class: stocks, bond, cash, real estate, etc. Then define under what circumstances you will adjust your portfolio when it strays away from these guidelines. You may decide to adjust your portfolio allocations whenever one of the asset classes moves more than five or 10 percentage points away from its target. Alternatively, you could segment your portfolio by time, such as keeping between one to five years of money needed to cover living expenses in cash and short-term, highly-rated debt instruments.

There are other strategies you could follow as well (see my article "Choosing the Right Portfolio Allocation Approach for You" in the October 2014 *AAII Journal.*) The big key is to identify a strategy that you can stick with no matter what the market is doing. What often harms individual investors' long-term returns isn't a failure to pick good securities or funds, but rather simply failing to maintain the proper mix of stocks, bonds and cash over the long term. Having a good long-term portfolio strategy will reduce the impact of behavioral errors and, depending on the strategy, give you a positive outlet to channel your emotional energy through.

Coping With Fear and Nerves

As humans, we are emotional beings. Therefore, if you find yourself worried about losing money because downside volatility has hit the market, admit to being scared. There is nothing wrong with being nervous about the market. The human brain is programmed to avoid losses.

Acknowledging your emotional state can be a powerful step because it allows you to take action. Whenever you feel worried about losing money in the market, tune out the financial news. Don't watch CNBC. Don't go to Yahoo Finance. Don't read The Wall Street Journal. Whatever it takes to get yourself back into a calm state of mind, do it. Even merely standing up and taking a few deep breaths can make a difference.

Once you find yourself feeling calmer, think about what is making you nervous. Is it the direction the market is going in? Is it monetary policy and interest rates? Is it politics, either domestic or global? If so, realize that these are not the biggest risks to your portfolio. Rather, the primary risks are the future loss of purchasing power—which is the ability to buy goods and services with the money you have—and longevity—the risk of outliving your savings. Both of these risks have a high level of uncertainty, and the only way to protect yourself from both is to not let headlines and forecasts shift your focus away from your long-term strategy.

If, however, there is a specific stock, bond or non-broad-market fund (e.g., a sector exchange-traded fund) that has you nervous, then the angst might be your subconscious telling you that you

have invested in too risky of a security or fund. If so, sell the investment and find a replacement. There are thousands of stocks, bonds and funds, many of which will likely help you sleep better at night.

Make Use of Sell Rules

Creating and following predefined rules for selling investments is a good strategy that transcends just behavioral finance. Sell rules reduce the guesswork of determining whether to hold onto an investment, reduce the size of the position or get completely out of it.

Going through the exercise of thinking why an investment should be sold before it's bought will reduce the emotional component of buying. It's an exercise designed to activate System 2 and to force you to think about why the security is available for purchase. The other reason for doing this is that after an investment is purchased, the endowment effect kicks in. Once we own the investment, we're more likely to downplay negative news and invent reasons to continue holding onto it (e.g., the price will bounce back). By creating a list of what could go wrong prior to purchase, you will more inclined to recognize potentially negative developments and sell the investment should one of those developments occur.

Find Ways to Slow Down

It may seem paradoxical given Wall Street's focus on speed, but slowing down can lead to higher investment returns. When decisions are made quickly, the brain relies on System 1. Since System 1 is quick and intuitive, it does not fully analyze the potential outcomes of the action about to be taken. Slowing down increases the odds of invoking the brain's System 2 and making more thoughtful decisions.

Slowing down can also reduce the emotional component of investing. When feeling stressed or excited, impose a mandatory 15-minute pause before trading. During that period, go for a walk, meditate, take deep breaths or even just watch funny videos—anything to get your mind off what is tugging at your emotions at the exact moment. Then, when you are feeling calmer, sit down and decide the best course of action. Even if you are not feeling nervous, merely taking a few deep breaths and then carefully reviewing your order can reduce errors.

If these steps are not enough, consider working with a financial planner. The true value of a good planner is not recommending good investments but keeping you from taking actions that will hurt your odds of achieving your long-term goals. Not everyone needs a financial planner, but they can be helpful.

Charles Rotblut , CFA is a vice president at AAII and editor of the *AAII Journal*. Follow him on Twitter at twitter.com/CharlesRAAII.