Simple human nature sometimes causes investors to veer from rational decisions that would best serve long-term financial goals. Understanding these behavioral quirks can help you take the emotion out of the analysis when making decisions.

Behavioral Idiosyncrasies and How They May Affect Investment Decisions

By Frank Campanale and Brett Skakun

In a perfect world investors would be as cold and calculating as a computer chip. They would buy and sell investments without emotion, passion, infatuation or antipathy. Their decisions would be based on a primary goal: Increasing their overall economic well-being.

Unfortunately, however, research has shown that investors don't always make machine-like decisions. The investment selection process is actually more human than analytical. Feelings of loss, pride, and regret clutter or even confound the process. Very often, investors choose the investment alternatives that provide them with psychological solace rather than the ones that offer them economic benefits.

In recent years, a large volume of research has begun to identify the psychological and behavioral factors that can impact an investor's decision-making process. Some people might call these factors idiosyncrasies, anomalies, or behavioral quirks. They also could aptly be described as simply human nature. Knowing more about them means knowing more about yourself and how these traits may impact your own decisions and the stock market as a whole.

Why People Are Risk-Averse

An investor who chooses a sure thing over an alternate choice that has a higher or equal expected return can be described as being risk-averse. Behavioral finance researchers have learned that people have a tendency to be risk-averse. This helps explain why many people will reject a fair bet of the flip of a coin. From a straight economic perspective, people should be indifferent to betting on a coin flip since the odds of winning and losing are equal. The avoidance of risk among people is also manifested in their propensity to diversify their investment portfolios. Few stock investors feel comfortable investing all their assets in only one stock, even though it offers them the chance to earn an extremely high return.

The reason investors tend to be risk-averse lies in the weight they attach to gains and losses. Research has shown that people tend to weigh the prospect of losing more than they weigh the prospect of gaining. That's because people feel the pain of loss more than they do the pleasure of an equivalent gain. For example, if a $100,000 investment returns 20%, the investor receives more than just a $20,000 gain: He also experiences a sense of pride. Conversely, if an investment loses 20%, the investor loses more than $20,000: He also experiences a feeling of remorse. Since remorse is felt more deeply than pride, people will tend to avoid situations in which the chances of each occurring are equal. Although the odds may be the same, the impact on the investor of each possible outcome is not.

Frames of Reference

Another factor that affects investor decision-making is the investor's particular frame of reference. Research has shown that when asked to choose among two alternatives, people will reach opposite decisions based solely upon their frame of reference. The two most common frames of reference are situations in which the investor is currently losing money or currently recording gains. Research has shown that frame of reference is so important to the decision-making process that it can lead people to ignore the alternative that is more financially beneficial to them and choose the alternative with the lower payoff. Even the decisions of professional investment management firms are affected by their current frame of reference. When managers are underperforming their peers halfway through the year, studies have found that they will take greater risks in the second half to catch up.

Frank Campanale is president of Smith Barney's Consulting Group, an investment management consulting firm based in Wilmington, Delaware. Brett Skakun is a capital markets analyst for the Consulting Group.

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Two prominent academics in the field of behavioral finance—the late Amos Tversky of Stanford University and Daniel Kahneman of Princeton University—revealed the importance of frame of reference in decision-making in a series of experiments they conducted. Their landmark research showed that people tend to become:

- More risk-averse when they are facing the prospect of a gain and
- More risk-seeking when they are facing the prospect of a loss.

These conclusions became clear in studies in which subjects were asked to choose between two alternatives. Participants were asked to choose between a certain gain of $800, or an opportunity that has an 85% chance of returning $1,000 but a 15% chance of earning nothing. In both choices the subjects faced the prospect of a gain. However, the subjects usually chose the risk-averse alternative: the certain gain of $800. However, the $800 certain gain is actually the less economically desirable choice because it has a lower mathematical expected return than the second alternative. The mathematical expected return is calculated by multiplying the payoffs of each possible outcome by their probabilities and adding them together. Thus, the first choice has an expected payoff of (100% × $800) = $800. The second choice, however, has a higher expected payoff of (85% × $1,000) + (15% × 0) = $850.

Interestingly, Tversky and Kahneman found that when the frame of reference was changed to a loss situation, people's attitudes toward risk shifted 180 degrees and they became risk-seeking. When participants were asked to choose between a certain loss of $800, or an 85% chance of losing $1,000 and a 15% chance of losing nothing, most people chose the second alternative, which is the risk-seeking option. The first choice, however, is the mathematically desirable alternative—it carries a lower expected loss of $800 (100% × –$800), compared to an expected loss for the second alternative of $850 [(85% × –$1,000) + (15% × 0)].

Besides revealing the impact of frame of reference on decision-making, experiments such as these have led researchers to conclude also that people don't generally weigh the probabilities of alternatives rationally. People tend to overweight low probabilities that offer high returns. Examples include purchasing lottery tickets and airplane accident insurance. Even though the potential payoff is high, the odds of winning a million-dollar lottery or being a victim in an airplane mishap are so slim that buying the ticket or the insurance works against an individual's total wealth.

Aversion to Regret

Another behavioral characteristic that impacts investor decision-making is the tendency of people to have a strong aversion to regret. This is typically manifested in the penchant of many stock investors to hold on to their losing investments. Their hope is that they can eventually recoup their losses. As long as these investors don't sell their stock, they need not acknowledge a loss and experience regret. They can continue to take comfort in the fact that they have only a "paper loss."

The problem with such behavior is that it reinforces inaction when action may be in the best interests of the investor. Consider the feelings of two investors with slightly different experiences. Investor A owns mutual fund A. During the year, the investor considers switching to mutual fund B but never carries out the transaction. At the end of the year the investor discovers he would have been more wealthy had he carried out the switch because mutual fund B outperformed mutual fund A.

Investor B, however, was more assertive, but he was originally in mutual fund B, and at the beginning of the year switched his holdings to mutual fund A. At the end of the year, investor B discovers that his old mutual fund B outperformed mutual fund A. Which investor feels more regret?

Although both investors earned the same return—that of mutual fund A—research has shown that investor B would experience significantly more regret than investor A. That's because people have a tendency to regret action more than inaction. The aversion to regret leads investors to maintain the status quo and avoid taking positive steps to remedy a particular situation.

Pride of Ownership

Researchers have also found that people have a tendency to place a higher value than the overall market on items that they own. This trait exists whether the person bought or was given the item. Research has shown that the value an individual assigns to an item increases substantially when the individual possesses the item. The implication of this trait is that sellers typically want more money for an item than it will actually fetch in the market. In effect, the experience of ownership heightens value in the eyes of the owner.

Researchers have tested this behavioral trait in a variety of experiments. In one such experiment—performed by researchers at the University of California, Simon Fraser University and Cornell University—half the participants were given coffee mugs and asked to write down the lowest selling price that each would accept for their mugs. The other half of the participants were designated as buyers and told to write down the highest amount that each would pay for a mug. Since buyers and sellers were chosen at random, one would expect that an exchange should be possible among approximately half the participants. Yet the experiment showed that a much smaller percentage of trades could actually be accomplished. That was because mug owners wanted prices that were more than twice the amount that buyers were willing to pay. The median selling price established by the mug sellers was $5.75 compared

to a median price of only $2.25 set by the buyers.

Researchers have labeled the tendency of owners to expect a higher price than the market is willing to pay as the "endowment effect." Researchers believe the endowment effect may be responsible, at least in part, for a general decline in the volume of stocks that have declined in price, relative to stocks that have increased in value. The drop in trading activity may be caused by an unwillingness to recognize losses as well as by the endowment effect. This idiosyncrasy presents a warning to stock investors: Be realistic about the price you'll accept to part with your stock or another investment asset. Otherwise, you may not get rid of it.

Investor Quirks and the Overall Market

The behavioral quirks identified among people on an individual basis have led some researchers to explore whether these tendencies might manifest themselves on a much larger scale in the overall stock market. These researchers have sought to discover if behavioral and psychological tendencies among investors can lead to the creation of pricing anomalies and "unexplainable" movements in the stock market.

One of the central tenets of finance states that on any given day, the current level of stock prices reflects an accurate view of the future profitability of the companies whose stocks are traded in the stock market. If this weren't true, financial theorists point out, stock prices might be viewed as meaningless, bouncing up or down from day to day without good reason.

Investors in the market establish reasonable prices for stocks based on accurate and reliable information. Recognizing the crucial importance of information to the stock market, Congress passed laws in the 1930s requiring publicly traded companies to release promptly all material information concerning their operations. Information that is necessary to the orderly functioning of the stock market includes such important pieces of data as financial and operational data on companies and industries, the economy, the political landscape, and events that have an impact on corporate profits.

Research has shown that sometimes, over short periods, stock market movements can't be linked to new information, making it difficult to explain their cause. Yet, these short-term anomalies tend to work themselves out, and over the long term, stock prices ultimately reflect the underlying profitability of companies and the healthiness of the economy.

One possible cause of "unexplained" market movements might be traced to the fact that people don't comprehend or analyze information the same way. Researchers have long known that people can and do interpret differently the same piece of information. If a large percentage of investors incorrectly interprets information, it could cause stock prices to seem temporarily "unexplainable" or irrational.

Experiments have shown that people will alter their decisions based on how the same piece of information is presented. A good example of this was a famous study performed in the early 1980s in which subjects were given the following information about two treatment alternatives:

- *Surgery Alternative*: "Of 100 people having surgery, 90 live through the post-operative period, 68 are alive at the end of the first year and 34 are alive at the end of five years."
- *Radiation Alternative*: "Of 100 people having radiation therapy, all live through the treatment, 77 are alive at the end of one year and 22 are alive at the end of five years."

The subjects were then asked to select the most attractive alternative. Recognizing the much lower five-year survival rates for the radiation option, only 18% of the subjects selected it.

As part of the same experiment, a second group of subjects was given the same information, but it was presented from a different perspective. The information focused on mortality rates, unlike the first set which focused on survival rates:

- *Surgery Alternative*: "Of 100 people having surgery, 10 die during the surgery or the post-operative period, 32 die by the end of the first year and 66 die by the end of five years."
- *Radiation Alternative:* "Of 100 people having radiation therapy, none died during treatment, 23 die by the end of one year and 78 die by the end of five years."

The second group was then asked to select the best alternative. Surprisingly, 44% chose the radiation alternative.

The results of such experiments have led researchers to believe that behavioral and psychological factors might play a much larger role in decision-making than straight objective analysis of information. If this is true, it might help explain why the market's movements can sometimes defy explanation.

Large Stock Moves With No New Information

An area that has attracted much attention from behavioral finance researchers has been the degree to which the stock market fluctuates daily. In most cases the price changes can be attributed to news and information that changes investor expectations on things such as interest rates, corporate earnings, the health of the economy, or developments that change the political balance of power.

Still, some researchers have concluded that extreme movements in stock prices sometimes can't be linked to new information. In a study published in 1996 in The Journal of Portfolio Management, researchers at George Mason University identified 20 days from 1962 through 1991 in which the market made a large price move one day

only to be followed by a large move the following day in the opposite direction. No news could account for the erratic price movements. Although 20 days over a 30-year period may seem a small number, the study's authors cautioned that their scope was limited, confined to market movements of only two-day periods. They speculated that many more occurrences would likely be found if other research examined longer time frames of 10, 100, or even more trading days.

In other studies, researchers have suggested that the stock market may sometimes overreact to significant news. Such a conclusion came out of a study performed by researchers at the University of Wisconsin and Cornell University. In the study, researchers found that stocks that experienced extreme daily movements—fell sharply or rose abruptly—"corrected" themselves in later months. In essence, the analysis of information by investors led them initially to misprice stocks. These pricing errors were then fixed over succeeding months: Prices rose for those stocks that previously fell sharply and fell for those stocks that previously rose abruptly. As these price adjustments occurred, they represented a correction of the initial trading activity, which did not reflect substantial changes in the fundamental outlook for the companies.

Behavioral finance researchers have suggested that some stock mispricings might be due to investors attaching too much weight to current information. Since stock prices are supposed to reflect future, rather than current, prospects, it means that investors need to anticipate and analyze foreseeable, as well as unfathomable, events that will occur in the future and impact stock prices. While investors may be able to forecast some things about the future with some degree of accuracy, uncertainty can't be eliminated entirely.

Despite the difficulty in assessing the future, it would remain a mistake for investors to place too much weight on the present. This would be akin to relying on today's weather to forecast next year's weather. Since people may be uncomfortable or incapable of assessing the future, they may, by default, tend to accept the notion that the future will be a continuation of the present.

Herd Mentalities

Another behavioral trait that researchers have attempted to document in the market is so-called "herd behavior," which can be defined as a tendency of people to think and act the same way. These theorists believe that stock prices may be susceptible to fashion, fads, and peer pressure in the same way as hair styles, clothing, music, and slang.

Various experiments have shown that people can dramatically change their behavior and beliefs simply to conform to those of a large group. A classic example was a series of experiments in which people were asked to answer obvious questions about the lengths of lines that were shown to them. When asked individually, the subjects nearly always got the right answers. Yet, when asked in a group that was filled with ringers who were told to provide wrong answers, about of third of the participants modified their own beliefs to match those of the planted subjects. Similar results were attained even when the subjects were separated from the ringers to avoid face-to-face contact.

The stock market abounds with numerous examples of herding by both professional and amateur investors. Last year, researchers at the University of California-Los Angeles, Boston College, and the University of Colorado published a statistical study that found evidence of mutual fund managers herding in their stock choices.

Another example is how investors flock to top-performing mutual funds, despite the often-quoted phrase: Past performance is not necessarily indicative of future performance. Researchers at the University of Illinois, Harvard University, and the University of Chicago found that for every additional percentage point that a mutual fund outperforms its peers, it can expect to receive a 2.6% increase in the number of new accounts each year.

Researchers have suggested that following the herd on investment selections has the potential to provide investors with several psychological benefits. Herding eliminates the difficult work of properly analyzing an investment. It also can help mitigate feelings of regret if the result of the investment is unfavorable. Investors can find comfort knowing that many other investors experienced the same result.

From the perspective of professional investment managers, safety in numbers can be particularly appealing. Herding can help them deflect criticism from superiors and perhaps save their jobs. Herding enables them to argue that an unsuccessful investment was sound, by virtue of the fact that numerous other investors followed the same strategy, only the outcome was unfortunate.

The Crash of '87

An excellent example of how the stock market can be fueled by herd behavior even in the absence of new material information was the so-called stock market crash of 1987. On October 19, 1987, the Dow Jones industrial average plummeted 22.6% in the largest single-day drop in history. No single news events was reported that day that could account for the plunge.

To understand the motivations of investors for the market plunge, Robert J. Shiller of Yale University conducted a survey of nearly 900 individual and institutional investors within days of the crash. The most interesting finding of his study was that 24% of the individual and institutional investors said the crash was caused by some sort of irrational behavior on the part of investors. Only excessive stock prices (33%) and computerized trading (25%) were mentioned more often. In the survey, Shiller asked participants to cite what they thought was more responsible for

the crash: economic fundamentals, such as corporate profits or interest rates, or investor psychology. A surprising two-thirds of the surveyed investors cited psychology rather than an economic justification.

The survey results led Shiller to conclude: "The suggestion we get of the causes of the crash is one of people reacting to each other with heightened attention and emotion." In effect, the piece of information most relevant to investors was declining stock prices, not a fundamental change in the expected future value of corporate earnings. As stock prices fell, investors adopted a herd mentality, causing the cascade in stock prices.

Interestingly, Shiller's findings were very similar to results of interviews conducted by the Securities and Exchange Commission 40 years earlier. After the stock market dropped 6.1% on September 3, 1946, the SEC found that 46% of the interviewed investors cited "declining stock prices on September 3" as their reason for selling. This was the most common explanation among investors.

Conclusion

All investors want to make the right decisions about their investments. Yet, research has shown that people have a proclivity for types of behavior that aren't necessarily beneficial to the management of their investments. The best course of action for a portfolio may run contrary to an individual's desire to shield himself from loss or aversion to regret or to heighten the esteem of ownership. Investors should be conscious of these tendencies when making important decisions involving their portfolio.

Adopting a long-term investment plan is an investor's best defense against many of the behavioral tendencies discussed above. After the plan has been conceived, the investor can then build an investment portfolio appropriate for achieving the objectives of that plan. A properly constructed portfolio will contain a number of different investments, each fulfilling a particular role or niche contained in the plan. While each piece may be more or less risky than the others, the investor's primary consideration should be on the much larger and more important long-term objectives of the overall portfolio. By being overly sensitive toward the piece that is recording the loss or celebrating over the piece that is posting a gain, the investor risks being distracted from the big picture.

As a group, investors make rational decisions most of the time. There are times, however, when the stock market's movements defy explanation. Sometimes, price changes can't be linked to any specific new information. In other cases, price changes seem to be caused by a crowd mentality.

Since such periods are infrequent and can't be predicted, it is important for stock investors to maintain a long-term perspective and exercise patience.

Over time, anomalies are corrected by the same market forces that created them.

A Behavioral Test

The following two sets of questions illustrate elements of several important behavioral finance concepts.

The Play: How would you answer these two questions?

- Imagine you paid $10 for a ticket to see a play. On arriving at the theater, you discover that you have lost the ticket. Would you pay $10 for another ticket?
- Imagine you are on your way to see a play for which you have not previously bought a ticket. On arriving at the theater you discover that you have lost $10. Would you still buy a ticket to the play?

Research Findings: Both situations are identical, because you are poorer by $10 and you must decide whether to purchase tickets. Yet, people respond with a different answer to each of these questions because of a tendency to assign losses to different so-called "mental accounts."

Only 46% said they would purchase another ticket if they had lost the earlier ticket. The loss of the ticket is assigned to the "play" mental account. This doubles the cost of the play, which is too difficult for many people to accept.

In the second situation, an overwhelming 88% said they would buy the ticket. The loss of the cash is assigned to an account that is different from the play and therefore has little effect on the decision to buy a ticket.

Winning vs. Losing: In the following two situations, which options do you prefer?

- A 1-in-1,000 chance to win $5,000 versus a sure thing to win $5
- A 1-in-1,000 chance of losing $5,000 versus a sure loss of $5

Research Findings: In both situations, the two alternatives have the same mathematical expected value. In the first question the expected value of both alternatives is $5, while in the second situation the expected value of both alternatives is a loss of $5. Therefore, an individual should be indifferent to the alternatives in both situations. However, most individuals view the situations differently.

The first situation is similar to one in which a person has to decide whether to buy a lottery ticket. Lotteries have a very low probability of winning but a very high payoff. When researchers asked this question, 72% of the people chose the 1-in-1,000 chance to win $5,000 over the sure thing of winning $5.

The second situation is similar to the one in which a person has to decide whether to purchase insurance, which carries a low cost but a small probability of a very large loss. Researchers discovered that 83% of the people chose the sure loss of $5 over the 1-in-1,000 chance of losing $5,000.