

Behavioral Economics and Stock Market Decision-Making: Investor Biases and Investment Strategies

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Abstract:

This study examines the application of behavioral economics to stock market decision-making, focusing on common cognitive biases of investors and their impact on investment decisions. Unlike the complete rationality assumed in traditional economics, behavioral economics reveals the irrational behaviors that investors exhibit when facing risks and uncertainties, such as overconfidence, loss aversion, and herd effect. By examining classical theories such as prospect theory, loss aversion, and the anchoring effect, as well as specific case studies such as the 2008 global financial crisis, this study aims to reveal how these psychological biases affect investors' decision-making process. Further, this study examines how behavioral economics theories can be used to improve investment strategies by recommending methods such as low volatility investment strategies to help investors make more rational and effective investment choices in a complex market environment. Through in-depth analysis of the core theories and cases of behavioral economics, investors are better able to identify biases in the decision-making process, thereby optimizing their investment decisions and improving long-term investment returns.

Keywords: Behavioral Economics; Investor Biases; Stock Market Decision-Making; Investment Strategies.

1. Introduction

Nowadays, people buy stock based on the trend of stocks, but behavioral economics can make the stock buyer more sensitive toward the stock. However, behavioral economics can make stock investors more sensitive and rational in analyzing and choosing stocks. Behavioral economics is a practical discipline combining behavioral analysis theories, laws of economic functioning, psychology, and economic science. It seeks to identify errors or omissions in current financial models and correct deficiencies in mainstream economics' fundamental assumptions about human rationality, self-interest, information completeness, utility maximization, and preference consistency [1, 2].

Traditional economics assumes that humans are perfectly rational and will always make optimal decisions based on available information [3]. However, human behavior in reality often deviates from this rationality assumption. Through an in-depth study of the human decision-making process, behavioral economics reveals people's irrational behaviors when facing risks and uncertainties. These behavioral deviations have a significant impact on individual economic decisions and a profound effect on the overall operation of financial markets.

This study will explore how behavioral economics can help investors make more rational decisions in the stock market and avoid wrong investment choices caused by emotional and cognitive biases. By understanding the core theories and case studies of behavioral economics, investors can better recognize their decision-making process and adopt more effective investment strategies.

2. Traditional Economics and Behavioral Economics

Eugene Fama and Efficient Market Hypothesis. Eugene Fama from the University of Chicago posited that humans are all rational values of stock equal to its price, and he invested in efficient market theory. This theory says that when people buy a stock, they can not acquire a super average profit that is higher than the value of the stock. In some situations, this assumption makes the research and decision-making easier and can be followed by mathematical and statistical rules. However, this assumption is only sometimes efficient, which can be proved by the economic crisis of 2008 that happened in the world. If the price equals the actual value of housing or other valuable assets. The economic crisis will not exist. This crisis is based on financial bubbles and speculation. Still, these

two situations all illustrate the inequality between the price and value of assets, finally leading to the economy's collapse. This example will be explained in more detail in the following articles [4].

Robert Schiller's perspective. In contrast to Fama, Robert Schiller argues that humans are not always rational in their economic decisions. He suggests that people cannot fully follow traditional economics to maximize utility when making investment decisions because mental states, emotions, and market mood swings often influence their judgments. This irrational behavior is particularly evident in the stock market, where investors are usually driven by short-term market fluctuations and emotions to make decisions that run counter to their long-term interests. For example, when the market is overheated or panicked, investors may unthinkingly follow the herd, causing dramatic fluctuations in stock prices. Such behavioral biases are an essential part of the study of behavioral economics and help explain why markets sometimes deviate from their fundamental values. By understanding these irrational factors, investors can better identify behavioral biases in the market and make more rational investment decisions [5].

3. Critical Behavioral Economics Theories Relevant to Stock Market Behavior

Prospect theory. Prospect theory suggests that people tend to make decisions not by choosing the best option but by selecting the option they think might be good for them [6, 7]. When deciding, people usually set a point of reference and compare all outcomes to that point of reference, ultimately choosing the outcome that is higher than expected. For example, when shopping online, people may think that the price is lower after a discount, but the price before the discount has been inflated, showing the consumer that the discount has made the price lower. In this case, the consumer's point of reference needs to be corrected because they ignore the original price change. When people make comparisons in the stock market, they compare a stock's current price to its original cost, but these two reference points are not directly related. This irrational behavior makes it easy for investors to make emotional decisions in the face of price fluctuations rather than based on the stock's actual value. Understanding this is important for investors because only by recognizing their cognitive biases can they analyze market dynamics more rationally and thus make more informed investment choices.

Loss aversion. In some stock markets where losses have already been incurred, investors often choose to continue to hold stocks that have already lost money out of fear and aversion to the feeling of loss rather than selling those

stocks to prevent possible further losses in the future. This behavior is because investors are unwilling to face the fact that the return on their investment is much lower than the cost. Even though selling the stocks could have prevented more significant losses, they still chose to continue holding them to avoid admitting the failure of their investment decisions. This psychological phenomenon, known as loss aversion in behavioral economics, explains why investors tend to make irrational decisions when faced with losses [8, 9]. This bias profoundly affects investment behavior, making investors more inclined to be conservative and even refuse to stop losses in time, leading to further financial losses. Understanding this can help investors overcome psychological barriers and make more rational and effective investment decisions. However, when their stock is profitable, people will sell it immediately instead of making more profit as they fear fluctuation and uncertainty. The fear of loss stops them from gaining higher profits.

Conformity effect. In the book *Irrational Exuberance* by Robert Shiller, this theory is usually reflected in the behavior of retail investors [10]. For example, in China, many retail investors tend to be influenced by many informal channels and buy and sell stocks frequently, leading to large fluctuations in stock prices. By analyzing historical data, Shiller points out that the creation of market bubbles often coincides with the emergence of news media. This suggests that people are easily influenced by the media, especially when information is asymmetric, and the press sometimes hides some essential information, making it difficult for investors to make correct decisions and leading to increased market instability. This herding effect is particularly evident in the stock market, especially when a large number of investors invest based on unreliable information or the behavior of others, and market volatility is further amplified. Understanding this behavioral bias helps investors to be more cautious in making investment decisions and to avoid unthinkingly following the herd, thereby reducing the risks associated with information asymmetry and market sentiment fluctuations.

Likelihood preference. People tend to overestimate the likelihood of small probability events, and this bias can have a noticeable impact on the decision-making process [11]. For example, investors may be overly concerned about implausible market risks or overly optimistic in predicting significant returns from certain small probability events. Such erroneous probability assessments can lead to irrational decision-making, affecting investment outcomes. In the stock market, this bias may manifest as excessive concern about rare but severe market crashes or excessive chasing of rare high-return opportunities. Understanding this bias helps investors to be more rational in formulating their investment strategies and to avoid com-

promising the quality of their decisions by placing undue emphasis on small probability events.

Anchoring effect. When making quantitative estimates of events, people tend to rely on a specific starting value as a benchmark, which acts as an anchor point and limits the range of their estimates. This effect can cause people to over-rely on initial information and ignore other relevant data or facts when making decisions. For example, in stock investing, if investors initially set the price of a stock as a benchmark point, their subsequent judgments may be adjusted around this benchmark rather than based on the latest market information. This tendency to rely on initial values may lead investors to underestimate or overestimate the actual value of a stock, thereby affecting their investment decisions. Recognizing the existence of the anchoring effect can help investors be more objective and comprehensive in assessing the value of stocks [12].

Keynes beauty contest analogy. Keynes thought professional investing was like a newspaper beauty contest. Contestants must choose six of the most beautiful faces from a pool of 100, and the winner will be the closest to the average preference of all participants. Instead of choosing what people think is the most beautiful face based on personal judgment or even the average opinion of the best-looking face, people have reached the third level, putting intelligence into predicting how the average opinion will choose the most beautiful face. And some of them have made it to the fourth, fifth, or higher level. Keynes thought this idea could explain the price of stocks, which are based not on the value of their assets or even on what other investors think about the value of assets but on what investors think other investors hold in general about the value of investments, and even higher estimates [13].

4. Case Analysis

4.1 Global Financial Crisis in 2008

A prime example of this theory is the 2008 global financial crisis. The U.S. housing market experienced a record rapid growth in the early 2000s. The national home price index rose 85 percent between 1997 and 2006, and the so-called Sand states, led by California, Nevada, and Florida, rose more than 150 percent, the most since World War II. Sales of new single-family homes rose more than 110% from an average of 600,000 yearly to 1.28 million at their peak in 2005. The homeownership rate among U.S. households is at an all-time high of 69.2 percent. While the housing market continues to be hot, household debt burdens are also rising. The household debt to disposable income ratio rose from 80% in the early 1990s to 127% in 2007. After years of rapid growth, house prices began to collapse in 2006, triggering the subprime crisis. The

reversal of supply and demand and the Fed's interest rate hikes caused house prices to peak and fall mid-2006. By mid-2008, accurate house prices across the country had dropped by an average of 25%. By 2011, house prices had fallen 40% from their peak back to the levels of the late 1990s. The decline in housing prices led to a significant increase in the default rate of subprime mortgages, leading to vast impairments of financial institutions, and the subprime crisis began to ferment. The subprime mortgage crisis triggered by the real estate bubble bursting turned into a financial panic, causing the most severe global financial tsunami since World War II and dragging the global economy into a deep recession. On September 15, 2008, the well-known investment bank Lehman Brothers filed for the largest corporate bankruptcy in U.S. history. The collapse of Lehman Brothers triggered a substantial financial panic, with the real economy suffering. In the fourth quarter of 2008, US real GDP was minus 2.5 percent year on year, and the unemployment rate hit 7.3 percent in December of that year, the highest level since 1994. Car sales fell 30 percent from a year earlier in December, and manufacturing capacity utilization is at its lowest since 1982.

The global economy is also in deep recession. Within a year of the financial crisis, economic activity in half the world's economies had fallen. This outcome is predominantly attributable to the herd mentality. Psychological optimism, tinged with irrationality, forms the substratum for the emergence of virtually every financial bubble. In the case of the US housing bubble, the influence of such irrational optimism was manifested primarily in two dimensions: initially, an erroneous linear extrapolation of the housing price trajectory based solely on historical data, which induced investors into misplaced confidence that home prices would invariably appreciate. Subsequently, the expansion of the subprime mortgage market exacerbated this predicament. Secondly, although people acknowledge the potential for a decline in housing prices, people frequently underestimate the likelihood of a comprehensive decrease across the housing market. This latter perspective is more widespread among professional investors. Take investors in subprime derivatives. Because the existence of a national housing finance secondary market spreads risk geographically, many investors believe that even a sharp drop in local home prices will not cause severe damage unless prices nationwide fall sharply in a short period, something that has rarely happened since the Great Depression. As a result, investors' consensus of optimism keeps pushing house prices. One of the essential reasons for the bubble is that investors underestimate the probability of housing price decline due to overconfidence.

4.2 Amos Tversky and Daniel Kahneman's Expected Value Experiment

Amos Tversky and Daniel Kahneman used a classic experiment to reveal people's preferences when faced with different risks. In this experiment, participants were presented with two options. Door A has an 80% chance of winning \$4,000 (expected value \$3,200), and Door B has a 100% chance of winning \$3,000.

The experiment results showed that although Door A was more favorable regarding mathematical expected value, most participants chose Door B. This suggests that although people seek to maximize profits, they are more likely to select conservative options and avoid risk when faced with certain returns. However, when the situation was reversed, and door A had an 80% probability of losing \$4,000 and door B had a certainty of losing \$3,000, most participants chose to take a risk to avoid determining the loss. This reveals a robust human aversion to loss and a willingness to take more risks to avoid certain losses.

This finding has important implications for stock investing. Investors often make irrational decisions when faced with potential losses, which may affect their investment returns. Loss aversion in investors' decision-making can lead them to hold a losing stock in the face of a loss rather than stop it promptly, thus affecting investment outcomes.

4.3 Overconfidence and Investment Decisions

Behavioral economics reveals another bias common to investors - overconfidence. Overconfidence refers to investors overestimating the accuracy of their judgments and predictions about the market. This bias can cause investors to take excessive or underestimated risks in decision-making. For example, some investors may be so overconfident in their stock-picking ability that they hold on to a particular stock even when the market sends a clear sell signal. This overconfidence may lead investors to ignore market changes and thus face more significant investment risks.

To overcome this bias, behavioral economists recommend low-volatility investment strategies. These strategies aim to capture a portion of the gains in rising markets while minimizing losses in falling markets. Low volatility investing reduces the risk of chasing highly valued stocks due to overconfidence by selecting stocks that are somewhat defensive in the market to balance offense and defense. This strategy can help investors remain stable during market volatility and avoid irrational investment decisions due to overconfidence.

4.4 Market Hot Spots and Stock Price Fluctuations

In some cases, market hotspots and emotional factors can lead to irrational movements in stock prices. For example,

the news of a star's infidelity led to a surge in the stock of "Redwall Shares", which is not directly related to it, or the technology stock boom drove the share price of "Quantum Biology", which is mainly a sugar business, to double. These cases show market sentiment and hot spots can override fundamentals and significantly impact stock prices. Investors must identify these irrational factors and avoid being misled by them. In investment decisions, more attention should be paid to the fundamentals and long-term value of the company rather than short-term market sentiment and hot spots.

4.5 Mental Accounts and Investment Decisions

Richard Thaler's theory of mental accounting has also profoundly impacted investment decisions. According to mental account theory, people create different accounts in their minds for other assets and incomes and make different consumption and investment decisions based on them. For example, investors may be more reluctant to sell losing stocks, i.e. "Losers", because they put these stocks in a mental account and want to wait for their money back.

The existence of such mental accounts leads to a "disposal effect" among investors - a tendency to sell winning stocks too early and hold losing ones. To overcome this bias, investors should evaluate their portfolios more rationally and make buying and selling decisions based on the overall investment strategy.

5. Conclusion

Behavioral economics provides an important perspective for understanding and improving investment decisions. Unlike traditional economics, which assumes complete rationality, behavioral economics reveals the irrational behaviors that investors often exhibit when faced with risk and uncertainty, such as overconfidence, loss aversion, and herd effect. These deviations not only affect individual investment decisions, but may also lead to abnormal market volatility. By applying the theory of behavioral economics, investors are able to identify and overcome these cognitive biases, thus making more rational and effective investment choices and improving the quality of their decisions in complex markets.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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