

A Literature Study of Behavior Finance and Investor Decision-Making

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Abstract. One of the most contentious topics in the development of modern financial economics has been the rationality of financial markets. Conventional finance postulates that investors are rational and impartial, capable of critically assessing the risks and returns associated with investments, and thus making unbiased investment decisions. Nevertheless, as time went on, there were increasing voices from a considerable academic community against the rationality assumption. Among those, behavioral finance has developed to challenge the legitimacy of the rational theory's underlying premises. It has emerged as a field that focuses on studying the actual behavior of investors in financial markets. The paper examines some consensus of traditional financial theories and anomalies in the stock market to introduce prominent cognitive biases influencing people when making investment decisions. It explores emotions behind the cognitive biases and the ways to impact investor behavior and thus gives suggestions about how to reduce errors in financial markets and capitalize on the mistakes of others by adopting an investment strategy that runs counter to common practice.

Keywords: Behavioral Finance, Market Anomalies, Cognitive Biases, Emotions.

1. Introduction

The financial market is a highly dynamic marketplace for trading securities, characterized by intricacy and indeterminacy. Investors achieved consensus on the traditional finance theory. Firstly, the entire foundation of finance rested upon the Efficient Market Hypothesis (EMH), which Fama and Samuelson separately proposed in the 1960s. The EMH asserts that the price of a security reflects all available information at any given time, making it correct and unbiased. This hypothesis further suggests that there can be no arbitrage opportunities since new information is quickly processed and reflected in the price. Additionally, the rules for determining the value of a company's stock or an asset depend entirely on the sum of all future cash flows earned by that company or asset, discounted to today's price. The assumptions of the EMH are the complete rationality of agents, mature consideration of utility maximization, knowledge, and tools necessary to weigh all available possibilities while making decisions. In other words, investors will have a clear and rational understanding of the market and the prices and values of assets and will make corresponding correct decisions. Thus, when making trading decisions, investors can rationally predict future cash flows and make efficient trading decisions. Furthermore, the investor is believed to possess unbounded cognitive and computational capabilities and is able to manage all available information and solve intricate issues. However, there are many market anomalies in the financial market that traditional financial theories such as EMH cannot explain. It is evident that most retail investors and market participants do not clearly understand value and price. As a result, behavioral finance has emerged as a derivative field of study that involves the principles of psychology and finance as well as economics to understand how people make investment decisions. Behavioral finance believes that many market participants' expectations and judgments about future prices may be incorrect, and their decisions may not be entirely rational. Investors may be influenced by psychological or emotional factors rather than making decisions based solely on rational judgments of value and price. Therefore, this paper investigates some prominent market anomalies and explores the market cognitive biases behind these phenomena as well as how emotions impact investor psychology and behavior, thus giving

suggestions to overcome these psychological and emotional factors and making better investment decisions.

2. Market Anomalies

With hundreds of investors constantly searching for even a fraction of a percent of extra performance, there are no easy ways to beat the market. Nevertheless, certain tradable anomalies persist in the stock market, and those understandably fascinate many investors.

2.1. Momentum Effects

Momentum in finance refers to the empirically captured propensity for price increases in assets or security prices to continue increasing while declining prices continue to decline. The slow diffusion creates momentum because these investors cannot access each other's private knowledge from prices. Private information is anticipated to propagate slowly across people viewing news. Momentum effects are observed in diverse markets. They argue that small businesses and those with little analyst attention would experience unusually delayed information diffusion, which should cause the momentum effect to be more pronounced. In other words, due to the fact that when the probability of an event changes, all future related events will also change a chain reaction, adjustments to the probabilities must be made. However, individuals often take shortcuts and fail to adjust their expectations promptly.

2.2. Size and Value Effects

The size anomaly is a well-documented phenomenon in finance, where the returns from small-sized firms are usually larger than those of large-sized firms. The size effect suggests market inefficiency and opportunities for excess profits. In fact, Fama and French discovered that when company size is adjusted, companies with low price-to-earnings ratios provide superior returns [1]. Moreover, it has been observed that equities with recent poor performance often outperform in the next period due to their undervaluation in the current period. This is known as the value effect and is consistent with the idea that the market is not always efficient and that investors can generate excess returns by investing in undervalued stocks.

2.3. Disposition Effects

A prominent anomaly, the disposition effect, occurs when investors cling to lost equities too long and sell profitable stocks too soon. The house money effect is the propensity for people to be more risk-averse after past losses and more risk-takers after prior successes. These two effects could coexist in the same setting where the house money effect moderates the disposition effect [2]. According to rational economic theories, trading behavior may be more influenced by investors' expectations about future prices and returns than by the impact of past results. In fact, the presence of the disposition effect is supported by a wealth of experimental data. In an empirical examination conducted by Weber and Camerer, a random mechanism of price fluctuation is set to control investor expectations regarding future prices/returns [3]. The result shows that winning assets make up a higher share of sales (60%) than losing assets (40%), proving the existence of a disposition effect. Oehler et al. conducted a series of stock market studies and discovered that most participants exhibited a strong tendency to sell their winning stocks rather than their losing ones, indicating the presence of disposition effects at the individual level [4]. In addition, there is a tendency for a disposition effect to be followed by a house money effect. Gneezy et al. examine this presence of effects and find that traders with past profits are more likely to acquire (and less likely to sell) assets than traders with prior losses [5].

Investors selling profitable stocks could show subsequent risk-taking behavior, such as buying another rising stock without much detailed consideration, suggesting that investors who sell their winners are more likely to take on additional risk to achieve further gains. This can easily turn just-

realized profits into losses. Overall, these effects, which appeared as market anomalies, challenge the efficient market hypothesis and suggests that the market is not always efficient. Therefore, when these presumptions of EMH are violated in the actual world, it leads to inconsistent asset valuations and presents chances for abnormal profit margins.

3. Cognitive Biases

Advocates of behavioral finance claim that investors are naturally irrational and display a variety of predictable cognitive biases. The following are some representative biases that influence the financial decision-making process.

3.1. Overreaction and Underreaction

Bloomfield et al., in the experiment, found that underreaction to incoming information might take the shape of momentum or drift over time, leading to a question of the view of market efficiency through the cancellation of under/overreaction [6]. A further experiment shows that short-term price momentum is intensified by the overreaction of ignorant people trading in momentum, followed by a long-term reversal when the market adjusts. Therefore, a momentum effect caused by the initial underreaction to new information amplifies after the overreaction of uninformed traders participating in momentum trading. This provides opportunities to make profits since sensible investors could engage in momentum trading as soon as they observe the sign of momentum.

3.2. Prospect Theory

Prospect theory is a behavioral economic theory that replaces the concept of utility with the concept of value. While utility is typically defined from the perspective of net wealth, value is defined from the perspective of gains and losses, which deviate from a reference point. The model uses the reference point as the origin of the coordinate axis, defining values above the reference point as gains and values below the reference point as losses.

Through research and empirical evidence, it has been discovered that the emotions of gain and loss directly impact human emotions rather than the long-term prospect of wealth. This finding contradicts the assumptions of the expected utility theory. A rational agent is either risk-neutral or risk-averse, regardless of their level of wealth. According to prospect theory, when facing gains and losses, people exhibit different levels of preference, with a greater sensitivity to losses (loss aversion). The value function in the gain domain is concave, whereas it is convex in the loss domain. This theory helps to explain the disposition effect, which is the tendency of investors to hold on to losing stocks while selling winning stocks. Prospect theory suggests that this behavior signifies risk-seeking after losses and loss aversion after gains. In other words, investors are more willing to take risks to recoup their losses but become more risk-averse when faced with gains.

3.3. Overconfidence

Overconfidence is a cognitive bias that occurs when an investor believes they have a greater capacity to invest in the stock market than their actual capabilities. However, Dittrich et al. reported lower levels of overconfidence when there is increased task uncertainty [7]. In other words, the perception of increased uncertainty could shift from overconfidence to lower confidence. This state change could significantly affect trade volume and volatility.

When investors are overconfident, they may take on excessive risk and make poor investment decisions, leading to significant losses. However, when their confidence is reduced, they may become more risk-averse and make more cautious investment decisions. This change in investor behavior could lead to decreased trade volume and increased market volatility.

3.4. Herding

The phenomenon known as herding refers to the tendency of investors to abandon their own investment decisions and blindly follow the decisions of others when they perceive that the decisions of others differ from their own. This behavior appears irrational, as rational investors would typically base their decisions on their own circumstances and make choices that are in their best interests. However, in the case of herding behavior, decision-making is based on following the crowd rather than carefully considering one's own situation, which often results in suboptimal decisions that are not in the investor's best interests.

Herding can create a positive feedback loop in the market, leading to a distortion of stock prices and exacerbating systemic risks in the stock market. For instance, investors' irrational recognition could contribute to the formation of volatility. They may aggregate information irrationally, affected by the decisions and outcomes of other investors. Feldman and Lepori provided evidence to support that investors' irrational information aggregation can have a significant effect on the overall market [8]. A witness of money loss or gain of other people could trigger a selling or a buying of their own asset to receive the same financial outcome. Thus, financial market participants are interactive, and market sentiments could be pervasive swiftly as investors feel safer while moving in herds.

4. Emotions

Human psychology is susceptible to cognitive biases that can trigger emotions, leading to irrational judgment. This is why Keynes asserted that market fluctuations could be driven by the irrational and emotional behavior of investors or their "animal spirits," causing prices to deviate from their underlying fundamentals. As such, investigating how investor emotions affect the stock market is a crucial topic in the field of behavioral finance. Recent findings by Yang and Chi suggest that investor sentiment plays a significant role in forming conditional volatility in ETFs [9]. Emotions such as joy, regret, fear, greed, anger, and hope motivate people to make decisions. These emotional states can profoundly impact investment decisions and subsequent market outcomes. Regret and joy are emotions that can significantly influence trade behavior. Empirical evidence from Summers and Duxbury suggests that emotions contribute significantly to the disposition effect, which refers to the tendency of investors to hold on to losing stocks while selling winning stocks [10]. Specifically, investors tend to hold on to losing stocks out of regret, hoping that they will eventually recover their losses. On the other hand, they tend to sell winning stocks out of joy, feeling satisfied with the gains they have already made.

Furthermore, many studies have examined social mood's influence on investment decisions, particularly fear. When faced with widespread risks threatening stable income sources, such as international terrorism or political risks, the likelihood of choosing risky alternatives declines. This is because the perception of higher risk induces fear, enhancing the degree of risk aversion. In financial markets, fear caused by external events will trigger earlier selling of stocks only when participants are certain that this event would evoke a collective fear anticipating an approaching price drop. Nguyen and Noussair found that the larger the extent of fear, the higher the degree of risk aversion [11]. On the other hand, the more positive the emotions, the more risk-taking the action. Greed, which refers to the propensity to desire more and feel unfulfilled constantly, is a key driving force behind investor behavior. It often leads to excessive risk-taking, which can result in significant losses. Therefore, it is essential to recognize and manage these emotions when making investment decisions.

5. Suggestions on Investment Decision-Making

Positive feedback trading is a strategy that investors use to increase their purchases of recently appreciated assets. This corresponds to the momentum effect. Since it takes time to adjust new information, momentum-related trading strategies could be developed to catch the profit from the

continuous returns in the recent past. In other words, a price rise over the previous period indicates that reliable private knowledge is spreading across the market. Through purchasing, momentum traders expect to benefit from the ongoing spread of information.

The Prospect theory highlights the irrational propensity to postpone taking losses by maintaining an asset while immediately realizing gains by selling it. This tendency can lead to poor investment decisions and, ultimately, financial losses. To mitigate this risk, it is important to determine whether the decision is based on rational analysis or influenced by emotions before making any investment decisions. It is also crucial to recognize the dangers of herding behavior and maintain one's own evaluation after gaining a holistic view and considering all relevant information. This requires avoiding emotional biases when analyzing investment opportunities.

Regretting past decisions is a futile exercise; as Warren Buffett famously advised, "while others are greedy, one should remain fearful." This is particularly relevant when a market trend becomes popular, as stock prices have typically already risen considerably. Even though there may seem to be room for growth, investing at this point carries a high risk. Therefore, adopting a contrarian investment strategy is advisable, being greedy when others are fearful. In fact, a downturn in a promising industry presents a prime opportunity for strategic positioning and investment.

Lastly, establishing clear investment criteria in advance and strictly adhering to investment discipline can help investors avoid emotional decision-making and increase the likelihood of making sound investment decisions. By taking a rational, informed approach to investing, investors can better manage risk and maximize returns over the long term.

6. Conclusion

This paper explored the challenges behavioral finance poses to the traditional assumptions of rationality and market efficiency in finance. Behavioral finance recognizes that investors are not always rational and that the market is not always efficient, leading to market anomalies such as the momentum, size, and disposition effects. Moreover, the present study of behavioral finance has identified some of the most prominent cognitive biases that can lead to suboptimal investment decisions, including overreaction and underreaction, prospect theory, overconfidence, and herding. These biases are often influenced by emotions such as joy, regret, fear, and greed, which can cloud rational judgment and lead to irrational behavior. To optimize investment returns, investors can consider adopting positive feedback trading and establishing systematic investment criteria based on investigating common cognitive biases and emotions. By avoiding emotional biases and relying on objective criteria, investors can make more informed and rational investment decisions, which can help them achieve their financial goals over the long term.

However, it is important to note that this study was unable to analyze all the corresponding cognitive biases behind every market uncommon phenomenon as well as the emotions. The future study of a general linkage between biases/emotions and the market phenomenon was needed because there must be a unified law to explain how every investor behaves with regard to his/her cognition and emotion. In general, by recognizing the role of cognitive biases and emotions in investment decision-making, behavioral finance offers insights into how investors can improve their financial decision-making and ultimately enhance their financial well-being. The study of behavioral finance is a crucial step toward improving the efficiency of financial markets, and future research can further advance our understanding of this important field.

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