Analysis of the Interaction Mechanism between Participant Cognition and Market Reality

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Abstract. The most fundamental and core understanding of financial markets is that investment decisions and market reality together constitute the two key components of the trading market. Investment decisions are not made out of thin air, they are made by investors or market participants based on detailed identification and in-depth processing of various signals released by the market It is not difficult to see from this logic that investment decisions made by investors or market participants based on their own cognition will have a direct and significant impact on market reality. Taking the stock market as an example, when there is a downward trend in the stock market, some investors may fall into panic due to cognitive biases and be eager to sell their stocks. This investment behavior based on erroneous cognition will further intensify the selling pressure on stocks, leading to a further decline in the stock market. From this, it can be seen that the cognition of market participants plays a decisive role in the investment process, directly shaping investment strategies, which, like the butterfly effect, directly affect market reality.

1 Introduction

In the 1960s, George Soros, the founder of Wall Street Quantum Fund, proposed the theory of reflexivity. This theory was first seen in his book "The Alchemy of Finance," published in 1987. Subsequently, his practical demonstration of the theory followed suit. For example, in the early 1990s, he made a decisive judgment on the pound, and then went on to defend the Asian financial crisis and the famous Hong Kong financial war. This practice greatly demonstrates the operability of reflexivity theory and truly enriches the theories of behavioral finance and monetary finance [1,2].

The successful application of reflexivity theory has also inspired other financial practitioners to conduct deeper research and experimentation on behavioral finance and various behavioral finance theories, such as reflexivity theory [3]. This includes the irrational collusion of fund companies, which exacerbates market bubble risks and even causes serious impacts, leading to stock price crashes and other financial events. It directly demonstrates the importance and necessity of studying behavioral finance and participant cognition. To elaborate, the irrational clustering behavior of fund companies reflects the cognitive limitations of some participants. They overly rely on short-term market trends and group

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behavior, neglecting or weakening their analysis of fundamentals. Such cognitive bias leads to the intensification of the risk of market bubbles, and the continuous expansion of market bubbles will further strengthen the irrational cognition of participants. If such cases can be handled based on behavioral finance cognition in the trading market, it may be more effective to avoid market bubbles and obtain greater returns. Behavioral finance, as an intersection of Finance and cognitive science, has prospect theory, such as explaining how individuals make decisions in the face of potential profits and losses by discussing the asymmetry of loss aversion and risk preference; And express the anchoring effect of "point Overview" and the representative deviation of "partial Overview" for scholars to study [4].

In this kind of research and learning, the author can not help but think about the first question: May there be a connection between the sub-theories of Behavioral Finance (or irrational investment behavior)? If so, what would it be? Secondly, as the two major research subjects of behavioral finance, how will participant cognition interact with market reality? Given the above problems, the author will follow (1) the basic mechanism of cognition and reality; (2) Demonstration and integration reasoning of the mainstream theory of behavioral finance; (3) supplement the three steps of the mechanism of action between cognition and market reality, and give conclusions.

Therefore, this paper aims to further present the success and necessity of the integration of cognitive science and finance, and to show its structure and rigor through the collation and demonstration of some mainstream theoretical views in behavioral finance and cognitive science. The author hopes it will be slightly helpful to follow-up readers.

2 Basic mechanism of participant cognition and psychology on market reality

2.1 Basic principles of participant cognition

As for the working principle of participant cognition, this paper discusses it through both analytical principles and enumerated examples. As an existing mechanism theory, the presentation here is mainly based on reality [5]. One of the major characteristics of the trading market includes that investment decisions and market reality are the main components of the trading market, in which investment decisions are based on the recognition and processing of market signals by investors, namely participants. Therefore, it can be analyzed that the investment decisions made by investors, that is, market participants, based on their cognition, will directly affect the market reality. For example, in the stock market, some investors are eager to sell their previously held stocks due to the personal perception of investment participants when the stock market falls. For the stock market, this perception of investors as participants will act on the market reality, manifested in the further decline of the stock market. Therefore, the cognition of participants directly determines the investment strategy, and the investment strategy directly affects the market reality. On this basis, the participants' perceptions and investment decisions of multiple investors come together enough to cause greater market volatility. Finally, about how investors deal with market signals, which will involve a deeper study of the impact of irrational factors on investment decisions, the author will focus on sorting out the second sector [6].

2.2 Basic principles of market reality

After analyzing the role of participant cognition in market reality, the author will now continue to analyze the reaction mechanism of market reality, to finally present the basic mechanism of the two. Soros concluded from his research on the trading market that the general process of investor investment can be understood as follows: the market releases signals, investors obtain information, investors make investment decisions based on their cognition, triggering the first round of investment results, which affect the market, so the market releases new signals and investors obtain the second round of information. That is, the market reality will release new market signals to react to market participants after being affected. This part of the view can list a market example for a more intuitive presentation. For example, when the stock price of an industry rises in the face of an investment boom, the market hot signal of rising stock prices will attract more investors to enter the industry and further promote the rise of stock prices; Of course, this may also lead to overinvestment and market bubbles, which will eventually trigger a market decline when the bubble bursts, and the falling new market signals will prompt investors to adjust their investment decisions, which is the specific performance and possible impact of the market reality reaction mechanism in the actual market.

Therefore, it is not difficult for us to see participant cognition and market reality restrain and interact with each other and jointly affect investment results. Therefore, for most market participants, financial market analysts, and policymakers, the theoretical system of behavioral finance under participant cognition and even discussing participant cognitive bias is worth studying in depth [7].

3 Demonstration of some mainstream theories of behavioral finance

3.1 Overconfidence

The previous section talked about Soros's reflexivity theory, which pointed out that participants' cognition is incomplete, and if the actual trend of the market is confirmed by participants' market expectations based on cognitive incompleteness, the market will form a self-reinforcing positive feedback mechanism, which often means mispricing and asset bubbles, which may eventually lead to asset bubbles or even financial crises [8].

Soros's reflexivity theory emphasizes that the incomplete cognition of participants will lead to a positive feedback mechanism in the market, resulting in mispricing and other problems, which reflects the deviation of investor cognition. In the field of behavioral finance, Overconfidence Theory is an important theory to deeply explore this cognitive bias of investors, which specifically reveals a common misunderstanding of investors in cognition. Overconfidence is essentially a participant's cognitive bias, which is not only reflected in investors' overestimation of their capabilities, but also in investors' overly optimistic performance about the investment risks of the market or target assets. Investors overestimate their ability due to overconfidence, which may lead to excessive trading, frequent trading of stocks and increased transaction costs; being too optimistic about market risks may lead them to ignore potential risks and fail to stop losses in time when the market falls. These behaviors will affect the supply and demand relationship and price trend of the market, and then affect the market reality. At present, Overconfidence Theory has been widely studied in the financial field. Scholars not only pay attention to the impact of overconfidence on individual investors' decision-making but also study its role in institutional investors and the overall operation of financial markets. In the future, with the continuous development and change of financial markets, Overconfidence Theory will continue to expand and improve to better explain and predict market phenomena. Because the cognitive bias of participants is not only reflected in the evaluation bias of their strength, but also includes the reaction bias to market information and the analysis bias to other individuals, the author will also sort out the anchoring effect and representative bias derived from this cognitive bias [9].

3.2 Anchoring effect and representative bias

As the reaction deviation of investors to market information, can understand the anchoring effect as: people make judgments according to the initial reference point and then make decisions and adjustments on this basis. However, due to cognitive bias, people's initial judgments deviate from the actual situation; that is to say, people's investment decisions will be affected by reference points. In other words, because investors cannot achieve complete rationality in the actual operation process, a specific anchor selected by investors will eventually affect the final investment decision due to its cognitive bias, and then affect the market reality [10].

As another form of investor cognitive bias, representative bias focuses more on the analysis bias of participants towards other individuals. This cognitive bias can be cited in many different ways: seeing a scruffy, oddly behaved stranger, for example, is a representative bias if conclude that he is a wanderer and ignore the possibility that he may be an artist or other identity. For example, when investors buy funds, they may pay more attention to the personal reputation of fund managers than the operating reputation of fund companies. Therefore, as mentioned above, the anchoring effect belongs to the point overview, while the representative bias tends to be generalized, both of which belong to the possible results caused by the cognitive bias of investment participants at different levels. Anchoring effect will lead investors to rely too much on initial information and ignore subsequent changes in investment decisions, to make wrong decisions and increase investment risks. Representative deviation may make investors pay too much attention to the surface characteristics and ignore the essence and internal laws of things, resulting in investment failure. To cope with these two cognitive biases, investors need to remain rational and objective, fully collect and analyze information, and avoid excessive impact from initial information and surface characteristics.

4 In-depth discussion on the mechanism of cognition and reality

From the above combination, can see that the interaction between participant cognition and market reality forms a trading cycle, and participant cognitive bias belongs to the intermediate bridge of the interaction between the two. Considering that when inside the trading market, investors' cognition can not be affected by only one external factor, this section focuses on how various cognitive biases may affect investors' investment decisions and what changes in market reality will be caused.

The results of this study show that overconfidence bias variables and representative bias have significant positive effects directly or through mediating risk tolerance variables. According to a comment on faster capital's website, "these cognitive biases can also interact with each other and can lead to wrong trading decisions. As the example of the 2008 financial crisis shows, multiple cognitive biases lead to excessive risk taking and investment in mortgage-backed securities, which eventually leads to market collapse." it is not difficult to see that multiple cognitive biases can act on investment decisions at the same time. Therefore, can infer that when investors already have a cognitive bias, it can lead to a variety of other cognitive biases, and these biases can work together to superimpose on each other, which may eventually lead to a larger personal financial and market crisis.

5 Conclusion

Through the combing and demonstration of the main part, can get the mechanism of cognition and reality. That is, investors make investment decisions under the joint action of participants' cognitive bias, and investment decisions will eventually be fed back to the trading market and form the corresponding market reality; The affected market will release new signals and promote investors to form new participant cognition and cognitive bias. Market trading cycles back and forth (and cognitive biases can cause and superimpose on each other). As an interdisciplinary subject covering finance and cognitive science, behavioral finance is self-evident for the feasibility of studying the trading market. With the germination of quantitative finance, science and technology finance and other technical means, behavioral finance can also show its strong accompaniment and front-end scientific determination. Compared with the more mature research system abroad, the domestic research on behavioral finance still has rich room for expansion. Moreover, with the deepening of the research results of modern cognitive science, behavioral finance in the cross field ofdomestice and cognitive science will also be refined to a certain extent. Moreover, with the continuous development of financial markets, new market phenomena will follow. Because of a new market phenomenon in financial markets, need to change, continue to introduce new methods, and introduce a new research tool to identify these phenomena. Therefore, need to study the new research methods of behavioral finance in depth and grasp its limitations. Therefore, behavioral finance still has the necessity to become one of the current research hotspots.

In addition, this paper also calls on financial researchers and practitioners to use reverse thinking to see the alternative research of behavioral finance and participant cognition. Scientific investment methods should be related to factors in the investment environment. Using the core points in the theme of this paper, it is not difficult to draw a conclusion that since participant cognition can affect investors to make wrong investment decisions, if correctly quoted, it can also establish a scientific investment method for investors.

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