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Applications and Possible Future Research Directions of Overconfidence

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Abstract: The emergence and wide application of behavioral finance explain the problems that cannot be explained by traditional financial concepts and provides people with a new way of thinking. This paper mainly reviews the literature on overconfidence in behavioral finance. The purpose is to quickly help people who have little contact with overconfidence and help them understand the main contents of overconfidence (progress, advantages, disadvantages, application). And then judge whether they have overconfidence. If it exists, how do use overconfidence for self-benefit instead of making mistakes? At the same time, the literature summarizes the application of overconfidence and possible future research directions. There are two important research directions. One is to integrate the two modes of rational investors and irrational investors or to develop the dual mode of coexistence of rational and irrational investors. The second is to use behavioral finance to conduct asset pricing or change the theoretical assumptions that traditional financial models are inconsistent with behavioral finance. Then, we discuss and analyze it in many aspects of behavioral finance. So that different people can make better judgments under different circumstances.

Keywords: behavioral finance, overconfidence, applications, possible future research directions

1. Introduction

In a recent study, Merkoulova and Veld distinguished three cases of stock return ignorance [1]. First, they found that 21% knew nothing about the expected return. Second, many of them who hold expectations of future earnings cannot answer questions about the distribution of expected earnings. Third, they found a group of people who had unrealistically optimistic expectations about the stock market. These people believe that the return rate of the stock market is at least 30% per year (too optimistic). They found that ignorance of stock reinvestment is an important determinant of participation in the stock market and the level of investment in the stock market. People who do not understand the expected returns and risks are unlikely to participate in the stock market. If they participate, their stock investment scale is small. Overconfident people are more likely to participate in the stock market. If they participate, they will invest in more stocks. In the face of the current social situation (most people are ignorant of stock returns and have overconfidence), research on overconfidence is particularly important. Through a better understanding of overconfidence, people can avoid investment failure or wrong behavior caused by overconfidence, and even make use of overconfidence to make profits for themselves.

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After the emergence of behavioral finance, it broke the traditional financial theory. More thinking about people's psychological changes. An important branch derived from it is overconfidence. The study of overconfidence has been going through half a century since the end of the 1950s. By the end of the 20th century, the main feature of early overconfidence research was to focus on people's subjective feelings. The focus of this period is more on theoretical research. There are two important theories——self-promotion theory and weight difference theory. In the 21st century, with the progress of science and technology, overconfidence research has entered a new stage. Its research pays more attention to the influence of objective environment and information. The research focuses on the application of overconfidence in real life, especially in enterprises and markets. However, up to now, there are no papers on overconfidence that can make people who have little contact with overconfidence quickly understand the main content of overconfidence. At the same time, the paper summarizes the possible research directions for behavioral finance in the future.

This paper reviews the literature on overconfidence in behavioral finance. Deeply understand the behaviors of people with overconfidence. Recognize the pros and cons of overconfidence. Learn the application of overconfidence in different situations. The literature review of these aspects, help people who have less contact with overconfidence to quickly understand overconfidence. At the same time, it also helps overconfident people to use it for their benefit, instead of attributing success to their abilities and making wrong decisions. Finally, this paper also points out the possible future research directions in behavioral finance. The most important is the combination of traditional finance and behavioral finance, which makes the traditional financial model close to real society.

2. Progress of Overconfidence

After the appearance of overconfidence in behavioral finance, many pieces of literature show that people tend to be overconfident in their life prospects [2], especially in the accuracy of their knowledge, which will directly affect their financial decisions. For example, retail investors have an obvious overconfidence bias [3]. Overconfidence can be observed in professional traders and investment bankers [4]. Overconfidence can be observed in corporate treasurers [5]. And in the long run, overconfidence can persist and survive [6].

In the research process of overconfidence, Kyle and Wang , Benos and Odean studied the model of static overconfident traders [6-8]. They focused on the joint distribution of traders' ability and the final return of risky securities. Daniel, Hirshleifer and Subrahmanyam , Gervais and Odean studied the overconfidence of traders in dynamic models [9-10]. This is mainly different from the former in that they focus on the overconfidence of traders caused by self-attribution bias, that is, investors who have experienced excessive returns attribute it to their high skills and become more overconfident. Investors who experience low returns attribute it to bad luck, rather than experiencing a countervailing decline in their overconfidence levels. The latter method is easier to analyze than the former method. In their model, overconfidence is endogenous and changes dynamically throughout the trader's life. This allows people to predict when a trader is most likely to be overconfident (when he is inexperienced and successful) and how overconfidence will change in the trader's life (on average, it will increase early in the trader's career and then gradually decrease).

With the advancement of overconfidence research, the indicator to better judge overconfidence has changed from frequency or turnover to position size. Experienced traders show less overconfidence when trading small positions [11].

3. Advantages and Disadvantages of Overconfidence

Under the different constraints of different environments, overconfidence may become a major drawback of investors' failure, and may also promote them to make profits in trading. Here we review the relevant literature to help readers understand it in depth.

3.1. Advantages of Overconfidence

Overconfident traders can persist in competing with rational traders. The reason is that overconfident traders do better than rational traders in making use of false pricing caused by noise traders or liquidity [12].

Combined with risk further analysis, overconfidence is beneficial to the market. Benos analyzed a trading strategy model of a bullish auction market [7]. Under risk-neutral market makers, some informed investors overestimated the accuracy of their private information and were overconfident in their estimation of unknown variables. They compete with another group of rational informed traders in the market. The participation of overconfident traders in the market leads to higher trading volume, greater depth, more instability, and more accurate prices. They are unconsciously committed to active trading, which provides them with a "first mover advantage". More importantly, the expected profits of these traders may be higher than those of rational traders, and may even earn more than when they turn to rational behavior. However, under the risk-averse market maker, there are two possible equilibria, which depend on whether the exogenous and unannounced liquidity traders are retained in the model. Not only that, overconfidence will encourage investors to participate in asset classes that they might have ignored, such as the stock market or international investment (due to fear of an unfamiliar environment) [13]. In this way, overconfidence can develop the trading volume of the market and improve the liquidity of the market.

3.2. Disadvantages of Overconfidence

One of the biggest drawbacks of overconfidence is the impact of psychological changes on trading choices. Barber and Odean investigated the sample transactions of 78000 customers of a large discount brokerage company from 1991 to 1996, and the transaction volume of some families far exceeded that of other families [14]. They found that overconfidence can explain the high trading level and the resulting poor performance of individual investors. This phenomenon is not only found in families but also in online individual investors. The overconfidence of online individual investors, coupled with self-attribution bias and the illusion of knowledge and control, will lead to an increase in trading and a decline in performance [15].

Overconfidence will not only harm oneself but also be influenced by others to strengthen this reaction. In the experimental market, some investors overestimate the accuracy of the signal, are more vulnerable to the curse of the winner, and their trading performance is also poor. The influence of this psychological variable is strong for men, but not for women [16].

4. Application of Overconfidence

The emergence of behavioral finance explains some problems that cannot be explained by traditional finance (including market anomalies) and contradicts many aspects of traditional financial concepts. Overconfidence is a major branch of behavioral finance and naturally plays a great role in this respect. This section introduces the application of overconfidence in three major aspects——the application of short selling restrictions, the application in enterprises, and the explanation of market anomalies.

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4.1. Application of Overconfidence under Short Selling Restriction

When the liquidity of the securities market is low, it is difficult to short or the short cost is high, overconfidence may be particularly important. When short selling is restricted, people who are optimistic about stock will find it easier to trade based on their views than pessimists. If some optimists do not fully understand the constraints of short selling, they will put pessimists aside. They will overvalue the stock, resulting in an equilibrium overvaluation. Therefore, when overconfidence is combined with short selling restrictions, it is expected that securities will be overvalued [17].

4.2. Application of Overconfidence in Enterprises

Malmendier and Tate, Malmendier, Tate and Yan believe that the overconfidence of the management can explain the distortion of enterprise investment [18-19]. Overconfident managers overestimate the return on investment projects and think that external funds are too expensive. Therefore, when they have sufficient internal capital, they will over-invest. And when they need external financing, they will reduce their investment. But this phenomenon can be resolved by the difference between men and women in overconfidence.

Psychological research shows that men are more confident than women in fields such as finance. Therefore, the theory predicts that men will overtrade more than women [20]. This also confirms the importance of female board representatives in an industry where male CEO overconfidence is more common. The reason is female directors are associated with less aggressive investment policies, better acquisition decisions, and improved financial performance of companies operating in industries where overconfidence is prevalent. In addition, under the market failure of the economic crisis, companies without enough female board representatives will suffer a greater performance decline than those with female board representatives [21].

4.3. Overconfidence Explains Market Anomalies

De et al. proposed a simple overlapping asset market model in which irrational noise traders with many false random beliefs [22]. They will influence prices and get higher expected returns. The model reveals many financial anomalies, including excessive volatility of asset prices, average regression of stock returns, underpricing of closed-end mutual funds, and Mehra Prescott's stock premium problem.

Overconfidence explains the high-level trading phenomenon

Grinblatt and Keloharju analyzed the effects of sensation seeking and overconfidence on the trends and behaviors of investors in the capital market [23]. They studied Finland's data and found that investors with stronger self-confidence and greater sensation seeking had the highest degree of market participation, although the average return of these investment results was negative. This high level of trading itself is an anomaly. It is these irrational investors' behavior that deviates from the traditional theory based on the efficiency of the financial market that leads to this abnormal phenomenon. Not only that, but the market also has such anomalies as excessive price fluctuations and book value effects. The evolution of asset market value cannot be clearly explained by using profitability and risk criteria. On the contrary, it is the psychology of investors that determines their investment decisions.

Overconfidence explains the abnormal book value

Fama and French analyzed the income evolution of companies listed on the US stock market from 1963 to 1990 and found no evidence of the correlation between capital income and risk [24]. On the contrary, they found that the variables "company size" and "book to the market ratio" can explain the stock return in this period. Specifically, they found that the smaller the company, the higher the book-

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to-market ratio, and the higher the expected return. They pointed out that the irrational behavior of the market and the overreaction caused by overconfidence can explain this phenomenon.

Overconfidence explains abnormal stock returns

Abnormal stock returns are usually attributed to the limited attention of investors. If investors are too confident to realize that the information they ignore is important. But limited attention has a much greater impact on prices. Therefore, overconfidence is an important part of understanding the abnormal return on investment. In real life, when investors have more differences in the prospects of a company, some overconfident investors are too insistent and fail to fully understand the impact of short selling restrictions on pessimists, resulting in the company being overvalued and the average rate of return being low [25].

5. Possible Future Research Directions

Firstly, behavioral finance has not yet formed a unified theoretical system, and the dichotomy between rational and irrational investor behavior is still widespread. There are two possible choices for future research, one is to integrate the two previous models more deeply, and the other is to develop the dual model of rational and irrational coexistence, just like most people. Under certain circumstances, people may be subject to limited rationality, or even become a state where rationality and irrationality coexist [26]. If the development is successful, people can choose the mode according to their conditions and make more correct decisions.

Secondly, behavioral finance has great potential to become the dominant method of asset pricing in the future. So far, researchers have established behavioral finance as a parallel method to traditional finance. However, it has not been established as a superior and alternative method. To achieve this, researchers need to propose a robust behavioral asset pricing model supported by sufficient empirical evidence around the world. Psychological research and empirical research need to be combined to build a robust behavioral asset pricing model [27]. Many models produced under the traditional financial concept assume rational people. For example, the CAPM model makes asset pricing on the assumption of rational people [28]. The conclusion thus drawn may not be accurate. Therefore, we can try to change the assumptions in the traditional financial model that are inconsistent with behavioral finance, such as the rational person hypothesis, before we have studied the method of asset pricing using behavioral finance. Then we will discuss and analyze many aspects so that different people can make a better judgment under different circumstances.

Thirdly, one of the key points in the research process of behavioral finance is psychology. One part of behavioral finance is psychology [29]. Therefore, if we want to make greater research progress in behavioral finance, we need to first study psychology and then introduce it into behavioral finance to explain more market anomalies and people's behaviors.

Fourthly, the overconfidence theory needs more empirical research. At present, most of the research on overconfidence is still at the theoretical stage, and the test of the theoretical results of overconfidence is relatively lacking. Therefore, more in-depth quantitative research on Overconfidence Theory and related applications is needed to test whether these theories are feasible in the real world.

6. Conclusion

From the review of the literature on overconfidence, we can see that overconfidence is common in the trading process. Overconfidence can increase market turnover and improve market liquidity. But it will also make traders attribute the success of trading to their ability, thus leading to traders' wrong behavior. At the same time, this paper also summarizes the possible future research directions of behavioral finance pointed out in previous pieces of literature, mainly in two aspects. The first is to further integrate the two modes of rational and irrational investors or develop the dual mode of coexistence of rational and irrational investors. The second is to continue to study the use of behavioral finance for asset pricing, or to change the theoretical assumptions of traditional financial models. Thinking about joining behavioral finance. Make the applicability of the traditional financial model stronger and the results more accurate. However, this paper only reviews the literature on overconfidence in behavioral finance and does not study other fields in behavioral finance. And there is no deeper level of research methods in the research direction pointed out by the predecessors, which still needs to be studied.

The above literature review helps people to understand the causes, advantages and disadvantages, application situations, and methods of overconfidence. In particular, it helps people who have overconfidence but have not found it realize that their behavior is caused by overconfidence. Then how to further use overconfidence to make profits for yourself, instead of making investments fail or making mistakes due to overconfidence. In addition, this paper suggests that people can change the theoretical assumptions of traditional financial models and add the thinking of behavioral finance, which can be applied to more scenarios and draw more accurate conclusions. People can also conduct in-depth research in the field of psychology and then apply it to behavioral finance, which may lead to better ideas.

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