

Analysis of the Impact of Individual and External Factors on Overconfidence

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Abstract. Overconfidence, as a key concept in the field of behavioral finance, plays an indispensable role in optimizing individual decision-making efficiency and elucidating market anomalies. Currently, numerous scholars both domestically and internationally have conducted extensive and in-depth research on the influencing factors of overconfidence. However, there is very little literature that summarizes the influencing factors from both individual and external dimensions. This article organizes and summarizes the influencing factors of overconfidence from both personal and external dimensions, pointing out that individual factors such as age, gender, experience, and past successful experiences will have an impact on overconfidence; external factors such as market cycles and information sources will also have an impact on overconfidence. At the same time, this article points out the direction for subsequent related research. This article aims to provide inspiration for subsequent scholars' related research and help non-financial scholars who want to conduct interdisciplinary research to quickly and comprehensively understand the knowledge of overconfidence.

Keywords: Overconfidence, age, experience, market cycle, private information

1. Introduction

As early as the 19th century, Keynes proposed that stock prices could be influenced by investor psychology. In 1951, two professors at Orreg College in the United States brought behavioral finance to the public eye. In the 1990s, behavioral finance gained widespread attention, with concepts like mental accounting and herding emerging. During this same period, Chinese scholars also began to pay attention to behavioral finance and began conducting research in the field. Behavioral finance breaks with the assumption of rational individuals and reveals the psychological biases in investors' real-world decision-making. Research in this field has significant implications for markets, individuals, and governments.

Overconfidence is a key concept in behavioral finance. For investors, overconfidence can compromise their logical thinking and risk awareness, leading to poor decisions and even family breakdown. For the market as a whole, overconfidence can undermine the efficiency of resource allocation and exacerbate market volatility. The irrational behavior of a large number of investors can drive asset prices away from their intrinsic value, creating irrational bubbles. From the tulip crisis in the Netherlands in the 17th century to the stock market bubble in China in the early 21st

century, historical events have demonstrated the importance of exploring overconfidence. Chinese scholars began research on overconfidence relatively late, but this research has steadily increased since the 21st century. Using methods such as panel regression, linear regression, logistic regression, and questionnaires, scholars have explored the impact of various factors on overconfidence. However, current research tends to focus on the influence of single factors, with few researchers comprehensively summarizing the factors influencing overconfidence.

This article attempts to comprehensively summarize the factors influencing overconfidence from the two dimensions of individual factors and external factors, and analyzes the reasons why different markets show different levels of confidence. It aims to provide inspiration for subsequent scholars' related research and help non-financial scholars who want to conduct interdisciplinary research to quickly and comprehensively understand the knowledge of overconfidence.

2. Individual factors

2.1. Age factors

Some scholars conclude that overconfidence is inversely correlated with age. Mahmoud Agha used a sample of non-financial listed companies in the United States from 1992 to 2018 and found that overconfidence decreases with age. However, the article also pointed out that this conclusion can only be applied when controlling for gender [1]. J. García focused on the elderly population and reached the same conclusion [2]. Some scholars conclude that overconfidence is positively correlated with age. Liliana Inggrit Wijaya, Tahira R. Hassa, and other scholars selected different research subjects and finally concluded that as age increases, overconfidence will gradually increase, and people will tend to overestimate their cognitive abilities and invest frequently [3,4].

Some scholars conclude that the impact of age on overconfidence cannot be simply described as a positive or negative relationship. Lukas Menkhoff and Maik Schmeling conclude that when investigating the relationship between age and overconfidence, it is necessary to classify overconfidence. The article found that older investors are more likely to have calibration bias than younger investors, but younger investors are more likely to have unrealistic self-evaluations than older investors [5]. Scholars such as Zipporah Nyaboke Onsomu and Gokul Bhandari conclude that the impact of age on overconfidence is not a linear relationship. Among them, Zipporah Nyaboke Onsomu found that among the four age groups of 18-30, 31-40, 41-50, and 50, the overconfidence phenomenon of investors in the 18-30 age group is the most significant, while the 31-40 age group is the least significant [6]. Gokul Bhandari and Richard Deaves found that people close to retirement age may be more likely to show overconfidence [7].

Therefore, this article asserts that age will inevitably have an impact on the phenomenon of overconfidence, but its specific dynamic relationship is still controversial and worthy of thought and exploration.

2.2. Gender factors

Since the 21st century, many scholars have focused their research on the relationship between gender and overconfidence. Some conclude that women are more likely to be overconfident than men. Edward R. Lawrence and Kyoung Tae Kim both define overconfidence as an overestimation of one's own financial abilities. Focusing on men and women in the United States and older men and women, respectively, they both concluded that women are more likely to be overconfident. They attribute this to factors such as women's limited financial knowledge, higher fluid intelligence, lower

crystallized intelligence, and a higher incidence of memory impairment [8,9]. Other scholars hold the opposite view, arguing that overconfidence is more common in men. Bülent Tekçe, K.C. Mishra, and Mary J. Metilda, respectively, used turnover rate and the "better than average effect" indicator to evaluate overconfidence, ultimately concluding that men are more likely to be overconfident [10,11].

Some scholars have also gone beyond traditional research directions. Xiaolan Yang and Li Zhu conclude that the relationship between gender and overconfidence needs to be considered on a case-by-case basis. This article measures overconfidence from three dimensions: market misalignment, better-than-average effect, and illusion of control. The study uses a double-auction asset market design and points out that men exhibit a stronger better-than-average effect. At the same time, in risky markets, the overconfidence of men and women is roughly the same, while in ambiguous markets, men are more confident than women [12].

2.3. Experience factors

Some scholars conclude that experienced investors are more likely to be overconfident. Bülent Tekçe, K.C. Mishra, Priya Kansal, and others have used different research data, different overconfidence evaluation indicators and different research methods to support this view [11-13]. Some scholars conclude that the level of experience is negatively correlated with overconfidence. Maximilian Koestne uses portfolio turnover as an indicator to evaluate overconfidence. This article demonstrates that inexperienced investors are more likely to be overconfident. In addition, the article attributes it to the fact that investors will learn lessons from excessive trading [14]. Some scholars have proposed that the impact of experience level on overconfidence should be studied based on different types of overconfidence. Lukas Menkhoff and Maik Schmeling found that experienced investors are less likely to have calibration bias, but more likely to have unrealistic self-evaluations [5].

This article finds that the fundamental reason for the divergent views among scholars lies in their choice of quantitative indicators for measuring experience. The correlation between experience and overconfidence is widely recognized in academia. Future research could focus on the selection of indicators of experience, striving to find more comprehensive and objective indicators for measuring experience.

2.4. Past Success experience

Scholars generally agree on the impact of past success experience on overconfidence, but have different opinions on the specific changes in overconfidence.

Some scholars conclude that overconfidence is positively and monotonically related to past success experience. Arvid O.I. Hoffmann conducted an empirical study and found that past returns have a positive impact on return expectations, and weakening risk perception and enhancing overconfidence. The article also pointed out that this conclusion has a more significant impact on inexperienced investors [15]. Merkle considers investors with portfolio returns above the market average during the survey period to be historically successful investors. Studies have shown that investors with past success have higher expected excess returns, Sharpe ratios, and alpha values, and have concluded that investors with past success have higher levels of overconfidence [16]. Some scholars have also proposed that overconfidence is non-monotonic with past success. Simon Gervais and Terrance Odean constructed a multi-cycle market model and proposed that the degree of overconfidence increases with the number of successes in the early stages, but begins to decline after

reaching a certain threshold. This article acknowledges that past success has a significant impact on overconfidence, but does not conclude that the change in overconfidence is monotonic [17].

3. External environmental factors

3.1. Market cycles

Market cycles can be divided into periods of high market sentiment, i.e., bull markets, and periods of low market sentiment, i.e., bear markets.

On the issue of the impact of bull and bear markets on overconfidence, most scholars conclude that investors are more likely to be overconfident in bull markets. Lin Yijian and Ye Jianhua collected different data and concluded through regression analysis that investors in the Chinese market are generally overconfident and that investors' overconfidence is more significant in bull markets than in bear markets [18,19]. Zhen Shi and Na Wang further verified the above conclusion and concluded that both high-frequency traders and non-high-frequency traders meet the above conclusion [20]. In addition to concluding that investors are more likely to be overconfident in a bull market, Yang Deyong also proposed that the degree of overtrading caused by investor overconfidence is higher in a bull market [21]. Shi Yongdong and other scholars have generalized the above conclusions. They proposed that the degree of confidence is essentially proportional to the difficulty of the problems faced by investors, and the bull market is just a representative of a period of high volatility and difficulty in prediction [22]. Zhang Rongwu and other scholars have expanded on the above conclusions. They proposed that market cycles not only affect the confidence level of investors but also the degree of volatility of investor confidence [23].

A few scholars conclude that there is no connection between market cycles and investor overconfidence. MUHAMMAD YASIR et al. found that individual investors in Pakistan did not show significant differences in confidence levels under different market conditions [24].

This article maintains the conclusion that overconfidence is more likely to occur during bull markets. It suggests that Muhammad Yasir's findings may be due to insufficient sample size. Before 2016, Pakistan's stock exchange was the Karachi Stock Exchange, which had a relatively small number of listed companies. Furthermore, institutional investors, who were the primary force in the stock market at the time, were highly risk-averse. Therefore, this conclusion is not universally applicable.

3.2. Information sources

Compared to public information, scholars generally state that investors are more likely to be overconfident when faced with private information.

Ramzi Boussaidi defines enterprise-specific information as private information and uses the price asynchrony index as an indicator for evaluating the level of private information [25]. Ramzi Boussaidi defines the private information period as starting one month after the last public information announcement and ending the day before the next public information announcement [26]. Chi Ming Ho concludes that private information includes technical analysis suggestions, signals from specific software, or news from the spot market [27]. Klaus Adam and Pei Kuang define private information as the antithesis of public news, referring to information that cannot be widely known [28]. Heila Goins and Michael Cipriano used four futures markets where the value of securities is directly linked to the box office performance of movies as samples, used trading volume and trading timing as overconfidence assessment indicators, and used detailed predictions of the

future performance of the movie by traders before the market opened as private information. The above articles all reached a unified conclusion: investors are more likely to be overconfident when faced with private information [29].

The current disagreement in academia is mainly reflected in the different definitions of private information among different scholars. Future research can continue to try to expand the definition of private information.

4. Conclusion

This article summarizes the factors influencing overconfidence from both individual and external perspectives, based on a review, understanding, summarization, and analysis of previous research.

This article finds that, at the individual level, the influencing factors of overconfidence can be categorized into age, gender, experience, and prior success. Regarding age, scholars generally agree that it influences overconfidence. However, there remains debate regarding the direction of this influence and whether it is linear. Regarding gender factors, scholars' views on the impact of gender on overconfidence fall into three main categories. Some scholars conclude that men are more prone to overconfidence, others conclude that women are more prone to overconfidence, and still others conclude that gender influences overconfidence only in certain specific circumstances. Regarding empirical factors, most scholars have debated the direction of the correlation between overconfidence and experiential factors, while a minority have proposed innovative perspectives: different categories of overconfidence exhibit distinct relationships with experiential factors. Regarding past success, scholars generally agree that it influences overconfidence, but whether this effect is monotonic remains controversial.

This paper finds that the external factors influencing overconfidence can be categorized into market cycles and information sources. Regarding market factors, scholars generally agree that investors are more likely to be overconfident in bull markets, while a few scholars argue that market cycles are unrelated. This paper attributes this conclusion and points out that it is not universal. Regarding information sources, scholars generally agree that investors are more likely to be overconfident when exposed to private information.

This article suggests that future research could continue to attempt to provide a more comprehensive overview of overconfidence. At the same time, it should examine the dynamic relationship between age and overconfidence, how to quantify experience, and how to define private information. Further research could also consider the impact of cultural factors on overconfidence. It's well known that Western countries like the United States and the United Kingdom embrace individualistic cultures, while Eastern countries like China and North Korea embrace collectivist cultures. Do these two distinct cultures influence the phenomenon of overconfidence? I believe the difficulty in investigating this issue may lie in how to quantify overconfidence and compare it across countries. This is an issue that future scholars need to consider.

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