Proceedings of the 3rd International Conference on Financial Technology and Business Analysis
DOI: 10.54254/2754-1169/138/2024.19205

The Impact of Fintech Innovation on Investor Behavior from the Perspective of Behavioral Finance

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Abstract: The rapid development of fintech over the past decade has dramatically changed global financial markets and profoundly influenced investor behavior. This paper examines the impact of fintech innovation, particularly robo-advisors, blockchain technology, and social trading platforms, on investor behavior through the lens of behavioral finance. By reviewing the existing literature, this paper explores how these techniques affect decision-making processes, market efficiency, and investor biases such as overconfidence, loss aversion, and herding behavior. The study found that through algorithms and automated investment management, robo-advisors can mitigate certain behavioral biases, but can also introduce new challenges, such as over-dependence. The inherently volatile and decentralized nature of blockchain technology and cryptocurrencies magnifies speculation and introduces new biases. Social trading platforms, while democratizing access to financial markets, have exacerbated herding behavior and short-term speculation. The study identifies gaps in current research, including the need for long-term impact studies and ethical considerations, and suggests directions for future research, such as exploring new behavioral biases and improving regulatory frameworks. Overall, fintech innovation offers great potential for improving market efficiency and financial inclusion, but it also presents new challenges that require ongoing investigation and adaptation strategies.

Keywords: Fintech Innovation,Behavioral Finance,Investor Behavior.

1. Introduction

Over the past decade, fintech, with its rapid innovation and wide application, is reshaping the landscape of global financial markets. Fintech covers various digital technologies such as blockchain, robo-advisors, crowdfunding, big data, peer-to-peer lending, and smart investment advice, thereby enhancing the financial industry [1]. This has also greatly improved the efficiency and accessibility of financial services, making traditional financial services gradually transformed into digitalization and automation. This represents the integration of financial services and information technology, ushering in a new era in the financial industry[2]. The introduction of fintech has brought about significant changes in the financial services landscape, improving the efficiency, accessibility and innovativeness of the industry. This evolution highlights the importance of adapting to technological advances to meet the changing needs of consumers and businesses in the digital age.

Behavioral finance is an important area of finance that focuses on understanding how psychological factors influence decision making in a financial context. This growing field explores

DOI: 10.54254/2754-1169/138/2024.19205

how psychological factors influence decision making under uncertainty, emphasizing the role of cognitive biases and risk perception[3]. The field explores how psychological and emotional biases can lead investors to make irrational decisions, highlighting the importance of understanding behavioral risk in portfolio trading and investment management strategies[4]. Behavioral finance also delves into the impact of individual biases on investment decisions, highlighting loss aversion bias as a powerful force demonstrated by the pioneers of behavioral finance[5]. In sum, behavioral finance provides a key perspective for understanding the complexity of financial decision making by combining psychological insights with economic principles.

However, with the development of fintech comes new complexities and uncertainties in investor behavior. Behavioral finance, as a powerful complement to traditional financial theory, helps us understand these changes by revealing common behavioral biases in the decision-making process of investors. Studies have shown that investors tend to exhibit behavioral biases such as overconfidence, herd behavior, and loss aversion when faced with complex financial products and uncertain market environments. These biases may be amplified or suppressed in the context of fintech. For example, loan process automation has reduced racial disparities in credit access by providing small loans, expanding banking reach, and removing human bias from decision making. Such automation can help mitigate bias in credit decisions and promote more equitable access to financial services[6].

In addition, the low transaction costs and instant access to information brought about by fintech have increased market efficiency, but they have also increased market volatility and short-term investor behavior. Although the rise of social trading platforms enables investors to share and obtain investment information more easily, it may also lead to herd effects and irrational market fluctuations[7]. Therefore, exploring the impact of fintech on investor behavior is not only of theoretical interest, but also of practical guidance to regulators and market participants.

In this context, this paper will systematically sort out and analyze the impact of fintech innovation on investor behavior from the perspective of behavioral finance. By reviewing existing research, this paper aims to shed light on how fintech influences market performance by changing investor behavior and explore potential directions for future research.

2. Literature Review

Fintech innovation has been one of the hot topics in academia and practice in recent years. Research shows that the rapid development of fintech is subverting the model of traditional financial services and promoting the improvement of market efficiency. It is characterized by the use of existing technologies in novel ways to create new business models and enhance financial services [8]. Fintech innovation relies on digital platforms to re-intermediary financial value chains, providing efficiency, transparency and accessibility while fostering economic growth and financial inclusion. Fintech innovation plays a vital role in shaping the future of business by introducing new technologies, business models, and customer-centric solutions to improve efficiency and user experience [9]. By adopting fintech innovations, financial institutions, regulators and consumers can benefit from increased efficiency, transparency and accessibility of financial services, paving the way for a digital future for the financial industry. From the perspective of behavioral finance, there is literature analyzing how fintech innovation affects investors' behavior and decision-making process[10]. Some other studies focus on the impact of technological innovation on investor sentiment and market volatility[11].

Two important innovations in the fintech space, Robo-advisors and blockchain technology. Are profoundly affecting the way financial services are delivered. Robo-advisors provide investors with automated and personalized investment management services through algorithms and artificial intelligence, simplifying the investment process, reducing costs, and making investment decisions more efficient. These automated tools enable more investors to participate in financial markets by

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generating portfolios based on users' risk preferences and financial objectives, continuously adjusting asset allocations, and providing real-time market analysis. At the same time, block chain technology is leading the transformation of decentralized finance. As a decentralized ledger technology, block chain provides a transparent and immutable record of transactions and is widely used in payment, supply chain finance, and smart contracts, among others. Cryptocurrencies are representative products of block chain technology, such as Bitcoin and Ethereum, which have not only sparked the rise of new asset classes, but also fueled the development of DeFi, which makes borrowing and trading without relying on traditional financial intermediaries. These are the products of fintech innovation, which not only change the traditional financial model, but also bring new development opportunities and challenges to the industry.

2.1. The potential impact of Robo-advisors on investor behavior

Robo-advisors are gaining popularity among investors as an automated investment advisory tool. It provides investors with automated investment services through algorithms and data analysis, aiming to improve investment efficiency and decision-making quality. Firstly, the use of Robo-advisors can reduce the behavioral bias of investors. Making investment decisions through algorithms avoids the interference of human emotional factors and may reduce investors' behavioral biases such as overconfidence and loss aversion. The simplicity and automation of robo-advisors can help investors, especially inexperienced ones, reduce the role of emotions in investment decisions and improve consistency and discipline in investment strategies. Second, Robo-advisors use AI-powered machine learning algorithms, portfolio optimization models, and other theoretical frameworks to provide intelligent online investment advice and asset allocation based on investors' risk tolerance and preferences, which may influence investment behavior [12]. Intelligent algorithms can help investors invest more accurately and reduce the loss caused by mistakes. However, investors' trust and reliance on Robo-advisors may also trigger new behavioral biases. Investor trust in Robo-advisors is an important prerequisite for their use. Studies have shown that when investors trust Robo-advisors' algorithms and recommendations, they are more likely to rely on these tools for investment. When investors develop trust in Robo-advisors, over reliance may occur, resulting in investors lacking sufficient sensitivity to market changes and being unable to judge market dynamics independently. In addition, Robo-advisors also have the potential to lower investment barriers and improve investment knowledge, but they may also lead to synchronization of market behavior and increased market volatility.

2.2. Behavioral effects of blockchain and cryptocurrency markets

Block chain, as a decentralized distributed ledger technology, has had a profound impact on the financial industry. Block chain technology, as exemplified by its widespread adoption in cryptocurrencies such as Bitcoin and Ethereum, smart contracts, supply chain finance, and digital identity verification, has emerged as a pivotal component of the financial technology landscape. The high volatility of the cryptocurrency market significantly affects the risk appetite and speculative behavior of investors. The high volatility of cryptocurrencies has led to speculative bubbles, with many investors making short-term trades based on price fluctuations rather than underlying values, which may increase risk appetite and speculative behavior. The potentially high returns from high volatility attract more investors to increase their risk appetite, prompting them to engage in more speculative short-term trades. Such volatility can also lead to overconfidence and emotion-driven decisions, which can influence investors to engage in speculative behavior [13]. In addition, the high volatility of the cryptocurrency market may lead to speculative and highly volatile trading, which may deter risk-averse investors and lead to market instability[13]. High volatility increases market

DOI: 10.54254/2754-1169/138/2024.19205

uncertainty, makes risk management more difficult, and can lead to market manipulation. Together, these factors influence the impact of technological innovation on investor behavior and decisions in the cryptocurrency market.

Blockchain innovation, and the cryptocurrency market in particular, is giving rise to a new set of behavioral biases. Investors are often affected by the sharp fluctuations in cryptocurrency prices, and tend to carry out high-risk speculative transactions, ignoring the fundamental analysis of long-term investment[14]. In addition, the herd effect is widespread in the market, especially when the price fluctuates violently, investors are more likely to follow the group behavior, aggravating the market bubble and price adjustment[15]. Mental account bias is also prominent in cryptocurrency investment, where investors tend to treat cryptocurrency as a stand-alone high-risk bet and ignore its correlation with the overall portfolio [16]. At the same time, confirmation bias makes investors tend to seek information consistent with their original views, thus exacerbating irrational optimism in the market [17]. Finally, the short-term volatility of the cryptocurrency market prompts investors to pay more attention to short-term profits, resulting in frequent trading and high transaction costs. From the above, it can be seen that the adoption of block chain technology in financial markets may introduce new behavioral biases among investors, which may affect their decision-making process and investment behavior.

2.3. The impact of social trading platforms

Social trading platform, as one of the innovations in fintech, social trading platform has dramatically changed the behavior and decision-making process of investors by combining social media with financial trading. These platforms allow users to share and copy trading strategies with each other as they trade, enabling investors to directly reference the decisions of others, especially successful traders. This transparency and interactivity significantly reduced the learning curve for novice investors, enabling them to conduct complex financial operations without experience[18]. However, this may also lead to the enhancement of the herd effect, that is, investors may blindly follow the opinion leaders or successful traders in the group without independent analysis and judgment[19]. In addition, the design of social trading platforms may also exacerbate investors' short-term speculation, because these platforms usually display real-time trading data and earnings, which induces investors to trade frequently to pursue short-term profits[20]. This behavioral bias may increase the volatility of the market and negatively affect the long-term financial health of investors. Thus, while social trading platforms have made investing more democratizing by sharing information and lowering barriers to entry, they also introduce new behavioral biases and risks that need to be managed through appropriate education and platform design.

2.4. Specific investor behavioral bias from the perspective of behavioral finance

From a behavioral finance perspective, fintech innovations have had a profound impact on investor behavior. Advances in fintech have significantly affected the way investors make decisions, manage their portfolios, and participate in financial markets. By reducing transaction costs and improving market efficiency, fintech may lead investors to trade more frequently, which is related to "overconfidence" and "overtrading" behavioral bias [21]. Moreover, the emergence of fintech has democratized access to financial markets and has played a key role in economic empowerment. By lowering the investment threshold, fintech enables dispersed investors to participate in financial activities and increases their participation in the market[22]. However, this increase in participation may also cause the "loss aversion" bias to be more significant, especially when the market is volatile. The proliferation of fintech has facilitated the participation of more people in financial services, especially in emerging markets. However, as automation becomes more widespread, investors may

DOI: 10.54254/2754-1169/138/2024.19205

become overly dependent on algorithms and technical advice and ignore their own judgment, which may exacerbate the phenomenon of "herd effect" and "technocracy[23]." further pointed out that fintech is changing the banking business model, and investors tend to rely more on technology tools in front of complex financial products, which may lead to "confirmation bias" and the neglect of market risks. Together, these studies highlight the diverse impacts of fintech on investor behavior, including risk and return dynamics, trust, security, and adoption of innovative financial services. While fintech has significant advantages in making financial markets more efficient and inclusive, it also magnifies certain behavioral biases of investors.

Under the perspective of behavioral finance, investors often exhibit a series of specific behavioral deviations that profoundly affect their investment decisions and market performance. First of all, Overconfidence Bias is one of the common behavioral biases of investors. Overconfidence makes investors overestimate their ability to understand and predict the market, thus trading excessively and ignoring transaction costs and market risks. Research shows that overconfident investors tend to buy and sell stocks frequently in the hope of high returns, but this behavior often leads to a decline in investment performance. Overconfidence can have mixed effects in interactions with Robo-advisors. On the one hand, robo-advisors are able to reduce frequent trading and irrational decisions caused by overconfidence by providing data-driven advice and automated investment decisions. On the other hand, however, overconfident investors may undervalue the robo-adviser's ability, ignore its recommendations, or only select those that match their expectations to operate, thereby undermining the robo-adviser's effectiveness. In summary, the interaction between overconfidence and robo-advisors may affect investor behavior and investment outcomes.

Secondly, fintech platforms play a vital role in influencing the decision-making process of investors through interface design and the way information is presented, thus influencing investment choices. Highlights the importance of fintech platforms to strike a balance between growth tech companies and risk-averse financial entities[24]. This balance is critical to designing interfaces that cater to both technological advances and financial prudence, and it affects how investors interact with the platform.

3. Discussion and Analysis

3.1. Limitations of the current study

Although the impact of fintech innovation on investor behavior has been the subject of extensive research, there are significant limitations in the current study. First, existing behavioral finance theories may not be sufficient to explain new behavioral deviations in the fintech environment, such as group behavior caused by social trading platforms or the decentralized decision-making influence brought by blockchain technology [25]. Second, the availability and quality of data remains a challenge. Although fintech has brought a large amount of new data, the processing and analysis of these data are not yet mature, and too much reliance on historical data may not reflect the dynamic changes of the current market[26]. In addition, many studies focus on the short-term impact, while ignoring the long-term impact of fintech innovations such as robo-advisors on investor behavior and market efficiency[27]. Studies also tend to ignore the heterogeneity of investors, and different types of investors may have very different reactions to fintech, while the existing literature mostly regards investors as a homogeneous group[28]. Finally, there is a lack of research on ethical and regulatory issues, and issues such as data privacy and algorithm bias brought about by fintech innovation have not been fully explored [29]. These limitations suggest that future research needs more in-depth exploration on theory, data, long-term impact, investor heterogeneity, and ethical and regulatory issues.

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3.2. Future research direction

Future research can deepen from several key directions when discussing the impact of fintech innovation on investor behavior from the perspective of behavioral finance. First, new types of behavioral biases, such as herd effects and algorithmic trust biases on block chains and social trading platforms, should be studied in depth, which can significantly affect market stability [30]. Secondly, with the development of big data and artificial intelligence, the use of advanced data analysis technologies, such as machine learning and natural language processing, to mining massive data on fintech platforms will help more accurately analyze investor behavior and its changing trends. In addition, research should pay more attention to the long-term impact of fintech innovation, such as the long-term role of robo-advisors on investors' wealth accumulation and risk management, and the lasting impact of blockchain technology on market efficiency [27]. Investor heterogeneity is also worth further discussion, as different types of investors have different reactions to fintech, and future research should refine the analysis of these differences [28]. At the same time, the ethical and regulatory challenges posed by fintech, such as data privacy, algorithmic bias, and the risk of market manipulation, also require in-depth research to come up with effective regulatory frameworks and policy recommendations. Finally, the convergence of interdisciplinary research, combining behavioral finance with fields such as psychology, sociology, and information technology, will contribute to a comprehensive understanding of the complex impact of fintech innovation on investor behavior.

4. Conclusion

This paper explores the multi-level impact of fintech innovations, particularly robo-advisors and block chain technology, on investor behavior from a behavioral finance perspective. Research shows that robo-advisors reduce irrational investor behavior caused by overconfidence and overtrading through data-driven investment advice and automated decision-making[31]. In addition, the decentralized characteristics of block chain technology have led to new behavioral deviations, such as excessive risk-taking and information asymmetry in decentralized transactions . These innovations not only improve market efficiency and transparency, but also promote economic growth and financial inclusion.While fintech has shown great potential to improve market efficiency, it has also brought new challenges, particularly around data privacy and algorithmic fairness. In addition, although the popularity of social trading platforms lowers the investment threshold and enhances investors' participation, it also intensifies the herd effect and short-term speculation. These behavioral biases may increase market volatility and negatively affect the long-term financial health of investors.Overall, the rapid development of fintech calls for a reassessment of the applicability of traditional behavioral finance theories and consideration of the heterogeneous impact of these innovations on the behavior of different types of investors. Future research should further explore the long-term market impact of these technologies and pay attention to the ethical and regulatory issues they may raise. Only when these emerging challenges are fully understood and addressed can fintech play a greater role in promoting market efficiency and optimizing investor behavior.

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