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Beyond Rationality: A Systematic Literature Review of Overconfidence Bias in Investment Decision-Making from a Behavioral Finance Perspective

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ABSTRACT

The development of global financial markets, the digitalization of investment services, and the increasing participation of retail investors have changed the characteristics of investment decision-making. Under these conditions, investment decisions are no longer solely influenced by rational analysis as assumed in traditional financial theory, but are also influenced by various psychological biases, particularly overconfidence. This bias encourages investors to overestimate their abilities, knowledge, and predictive accuracy, potentially resulting in suboptimal investment decisions. This study aims to systematically synthesize the development of literature on the influence of overconfidence on investment decisions from a behavioral finance perspective, identify dominant research themes, evaluate the consistency of empirical findings, and uncover research gaps that still require development. The study used a Systematic Literature Review (SLR) approach with reference to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The literature selection process was carried out on articles published between 2015 and 2024 through the Scopus, ScienceDirect, SpringerLink, Taylor & Francis, and Google Scholar databases, resulting in ten articles that met all inclusion criteria for analysis.

The synthesis results indicate that overconfidence is a significant determinant of investment decision-making. Five key themes were identified: the influence of overconfidence on investment activity intensity, increased risk appetite, the influence of demographic characteristics such as gender and generation, the role of investment digitalization in reinforcing behavioral biases, and the consistency of overconfidence across developing countries.

In addition to strengthening the relevance of behavioral finance as an approach capable of explaining the limitations of investor rationality assumptions, this study also demonstrates that digital transformation has the potential to reinforce the illusion of knowledge and the illusion of control, thereby increasing investors' tendency to make more aggressive investment decisions. This study provides theoretical contributions by mapping the development of the literature on overconfidence and provides practical implications for investors, regulators, and digital investment platform developers in designing strategies to mitigate behavioral biases and strengthen financial literacy. Furthermore, this study identifies the need for longitudinal research and the development of models that integrate financial literacy, financial technology, artificial intelligence, and risk tolerance to broaden understanding of investment behavior in the era of digital transformation.

INTRODUCTION

In recent decades, global financial markets have undergone rapid transformation along with advances in information technology, the digitalization of financial services, and the increasing participation of individual investors. The emergence of various digital investment platforms, online trading applications, robo-advisories, and even digital assets such as cryptocurrencies has expanded public access to various investment instruments that were previously relatively difficult for retail investors. This digitalization has not only transformed transaction mechanisms but also created an investment environment that is increasingly fast, accessible, and information-rich. Various studies have shown that the development of digital technology has contributed to increased access and participation by retail investors while simultaneously changing the characteristics of investment decision-making, which is increasingly influenced by the speed of information and ease of access to technology (Bouri et al., 2021; Fonseca et al., 2020; Reher & Sokolinski, 2024). However, this convenience also brings behavioral consequences, particularly when investors are faced with an overwhelming flow of information, increasingly interactive trading features, and the perception that they have greater control over investment outcomes. These conditions can reinforce the illusion of knowledge, the illusion of control, and hyperoptimism, ultimately leading to overtrading behavior, particularly among investors with limited financial experience and literacy (Bouri et al., 2021; Dubey, 2022; Fonseca et al., 2020). Thus, the digitalization of financial markets not only expands investment opportunities, but also creates a new environment that can influence investor behavior and rationality (Bai, 2024; Ballis & Verousis, 2022, 2022; Nguyen & Nguyen, 2023).

This change is becoming increasingly important because investment decisions are not always based solely on rational considerations and fundamental information. A behavioral finance perspective suggests that investor decisions can be influenced by various cognitive and psychological biases that lead to deviations from the rationality assumptions of traditional financial theory. One of the most relevant biases is overconfidence, the tendency for individuals to overestimate their own abilities, knowledge, information, or the accuracy of their predictions. Empirical findings indicate that overconfidence is associated with increased trading frequency, a tendency to choose riskier instruments, speculative behavior, and more aggressive investment decisions (Goyal et al., 2021; Hasso et al., 2019; Reher & Sokolinski, 2024). In a digital environment, this tendency has the potential to be further amplified as investors gain access to real-time market information, a variety of automated analysis tools, trading signals, notifications, and application interfaces designed to enhance user engagement. Greater information availability does not

necessarily lead to more rational decisions, as investors may interpret the abundance of information as evidence of their knowledge and ability to predict the market.

This phenomenon demonstrates a paradox in the digitalization of investment. On the one hand, technology provides broader access to information, accelerates transaction processes, lowers barriers to participation, and provides a variety of analytical tools that can assist investors. On the other hand, this convenience can strengthen investors' subjective beliefs in their own abilities, especially when the available information is not accompanied by the ability to critically evaluate its quality and relevance. Thus, increased access to information does not necessarily equate to improved decision quality. The illusion of knowledge and the illusion of control can arise when investors perceive that more information means a greater ability to understand and control investment outcomes (Bouri et al., 2021; Fonseca et al., 2020; Reher & Sokolinski, 2024, 2024). As a result, investment decisions can be based more on subjective beliefs than on objective analysis of risks and potential returns. This situation demonstrates that digital technology can have a dual function: as an instrument that increases investment efficiency and accessibility, while also acting as an environment that potentially reinforces investor behavioral biases (Ballis & Verousis, 2022; Fonseca et al., 2020; Reher & Sokolinski, 2024).

From a behavioral finance perspective, overconfidence is important to study because its influence is not only related to individual decisions but can also have consequences for market dynamics. Overconfident investors tend to overestimate their analytical and predictive abilities, leading to increased transaction frequency, more aggressive investment positions, and ignoring the possibility of prediction errors. In volatile market conditions, this behavior has the potential to increase risk exposure and reduce the quality of portfolio diversification. Various empirical studies have shown that the relationship between overconfidence and investment decisions can be influenced by demographic characteristics, such as gender, age, investment experience, and financial literacy levels, as well as by market conditions and digital technology developments (Goyal et al., 2021; Hasso et al., 2019; Howell et al., 2019; Reher & Sokolinski, 2024). This shows that the influence of overconfidence is not uniform, but can change according to investor characteristics and the environment in which investment decisions are made.

This variation is also evident in the geographic context of previous research. Most research on investor behavior and overconfidence has been conducted in developed countries with relatively developed and efficient markets. Meanwhile, research in developing countries remains relatively limited, even though market characteristics, investment culture, financial literacy levels, regulatory structures, and levels of digital technology adoption can produce different behavioral patterns. These differences are important because psychological biases do not exist in isolation but interact with the economic, social, cultural, and institutional environments in which investors make decisions. Therefore, research findings from one market context cannot be directly generalized to another without considering the underlying characteristics (Goyal et al., 2021; Hasso et al., 2019; Howell et al., 2019; Reher & Sokolinski, 2024). The misalignment of the geographical and methodological contexts indicates the need for a literature synthesis that is able to map the consistency and differences in research findings regarding the relationship between overconfidence and investment decisions (Bouri et al., 2021; Fonseca et al., 2020; Goyal et al., 2021).

In addition to demographic factors and market characteristics, the development of the digital investment ecosystem also introduces new variables that need to be considered in understanding overconfidence behavior. Digital investment platforms provide continuous information and enable investors to transact quickly. At the same time, the use of artificial intelligence (AI), robo-advisors, recommendation algorithms, and automated analytics is growing in the investment ecosystem. These technologies have the potential to help investors process information, but they can also lead to over-reliance on automated systems or create the belief that technology-driven decisions are always more accurate. In this context, the relationship between humans and technology becomes

increasingly important, as investment decisions can be the result of the interaction between investor beliefs, digital information, algorithmic recommendations, and market conditions (Ballis & Verousis, 2022; Reher & Sokolinski, 2024). Thus, technological developments need to be understood not only as factors that increase market efficiency, but also as factors that can change the mechanisms by which behavioral biases emerge and develop.

A preliminary literature review indicates that most previous studies have used an empirical approach to test the direct relationship between overconfidence and investment decisions. Despite providing substantial evidence regarding the influence of this bias, the available literature remains fragmented in terms of variables, context, methods, and sample characteristics. Some studies identify investment experience, financial literacy, risk perception, and herding behavior as factors that can strengthen, weaken, or explain the relationship between overconfidence and investment decisions. Other studies emphasize the role of digitalization, market sentiment, and technological characteristics as factors shaping investor behavior (Ballis & Verousis, 2022; Bouri et al., 2021; Reher & Sokolinski, 2024)This inconsistency suggests that the relationship between overconfidence and investment decisions needs to be understood from a more comprehensive perspective, taking into account both micro-factors at the investor level and macro-factors stemming from the market environment, technology, and regulations.

The growing interest in digital asset markets, particularly cryptocurrencies, has further expanded the scope of research on investor behavior. The cryptocurrency market is characterized by high volatility, near-round-the-clock trading, rapid information flow, and strong sentiment influences. These conditions create an environment that allows cognitive biases to play a more intense role in investment decisions. Studies of investor behavior in the cryptocurrency market indicate various phenomena such as herding, momentum, news response, investor sentiment, and uncertainty, which can interact with cognitive biases in shaping investment decisions (Ballis & Verousis, 2022; Fonseca et al., 2019; Kumar, 2020). Research on investor sentiment also shows that indicators of market opinion and sentiment can be related to volatility and the volatility connectivity between cryptocurrencies, thus, investor moods have implications for broader market dynamics (Bouri et al., 2021; Hasso et al., 2019). These findings further reinforce the importance of understanding overconfidence not only as an individual characteristic, but also as part of the complex interaction between investor psychology, information, technology, and market dynamics.

The literature also shows that overconfident investors can be more easily influenced by non-fundamental information, such as public opinion, media coverage, market sentiment, and the behavior of other investors. This condition can influence preferences for risky instruments, portfolio allocation decisions, transaction frequency, and diversification strategies. At the same time, financial literacy and investment experience can play a role in determining the extent to which investors are able to recognize and control these biases. Therefore, an analysis of overconfidence needs to consider micro factors such as demographic characteristics, experience, literacy, and risk perception, as well as macro factors such as market conditions, technological developments, digital information, and regulations (Dubey, 2022; Howell et al., 2019; Reher & Sokolinski, 2024). This multidimensional approach is necessary to avoid oversimplifying the relationship between behavioral biases and investment decisions.

Based on these developments, there is a need to synthesize previous research specifically addressing the influence of overconfidence on investment decision-making from a behavioral finance perspective. This need is increasingly important because the development of digital technology has created a different investment context compared to traditional market environments. Investors today are faced not only with fundamental and conventional market information, but also with real-time data, social media, algorithmic recommendations, trading applications, and various other forms of digital information. This complexity has the potential to change how overconfidence is formed, reinforced, and manifested in investment behavior. Therefore, mapping research developments is necessary to understand the consistency of findings,

the variety of contexts, the factors influencing these relationships, and the development of research themes emerging in the literature.

Based on these conditions, this study uses a Systematic Literature Review (SLR) approach to synthesize research findings on the influence of overconfidence on investment decision-making from a behavioral finance perspective. The SLR approach was chosen because it allows for systematic, transparent, and replicable identification, selection, evaluation, and synthesis of literature. Referring to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, this study analyzes scientific articles published during the period 2015–2024 to identify key themes, methodological developments, consistency of findings, factors influencing the relationship between overconfidence and investment decisions, and remaining research gaps (Bouri et al., 2021; Howell et al., 2019; Shrotryia & Kalra, 2021). The use of this approach is expected to produce a more comprehensive synthesis of the development of overconfidence studies in an increasingly digitalized investment environment.

Specifically, this study aims to identify how overconfidence bias influences investment decision-making, analyze the development of research themes from a behavioral finance perspective, evaluate factors that strengthen and moderate the influence of overconfidence, and map potential future research directions. This study also aims to understand how digitalization, the development of artificial intelligence, cryptocurrency market characteristics, investment experience, financial literacy, risk perception, and social factors can interact with overconfidence in shaping investment decisions. Thus, the study focuses not only on the existence of a relationship between overconfidence and investment decisions but also on the conditions that explain why, when, and in what context the bias exerts a stronger influence.

Theoretically, this research is expected to enrich the behavioral finance literature, particularly regarding the role of cognitive biases in investment decision-making and the changing characteristics of these biases in the digital investment ecosystem. Practically, the study's findings are expected to provide input for capital market regulators, financial education and literacy institutions, digital investment platform developers, and individual investors in designing more effective approaches to recognizing and mitigating behavioral biases. A better understanding of overconfidence can help encourage the development of investment education that focuses not only on technical knowledge but also on investors' ability to recognize their own psychological limitations. Ultimately, this literature synthesis is expected to provide a stronger foundation for developing educational strategies, investor protection policies, and digital investment ecosystem designs that are more adaptive to investors' psychological characteristics (Goyal et al., 2021; Hasso et al., 2019; Howell et al., 2019; Shrotryia & Kalra, 2021).

RESEARCH METHODOLOGY

A systematic literature search was conducted across five highly reputable academic databases in finance, economics, and management: Scopus, ScienceDirect, Taylor & Francis, SpringerLink, and Google Scholar. These five databases were selected because they offer a broad range of international publications, contain peer-reviewed articles, and are widely used as primary sources in behavioral finance research. The search strategy was developed using a combination of keywords directly related to the research focus, namely "Overconfidence AND Investment Decision" and "Behavioral Finance AND Investor Bias." The use of Boolean operators aims to increase the relevance of search results while ensuring that the articles retrieved directly address the relationship between overconfidence bias and investment decisions.

To ensure the quality and relevance of the analyzed literature, this study systematically applies inclusion and exclusion criteria. Inclusion criteria include scientific articles published between 2015 and 2024, peer-reviewed, using a quantitative or mixed methods approach, and explicitly discussing the influence of overconfidence on investment decisions. Articles written in both English and Indonesian were considered as long as they met the research focus. Conversely, market reports,

opinion pieces, proceedings lacking a clear scientific methodology, publications before 2015, and articles not addressing the relationship between overconfidence and investment decisions were excluded from the analysis. The application of these criteria aims to ensure that all synthesized articles have adequate academic quality and align with the research objectives.

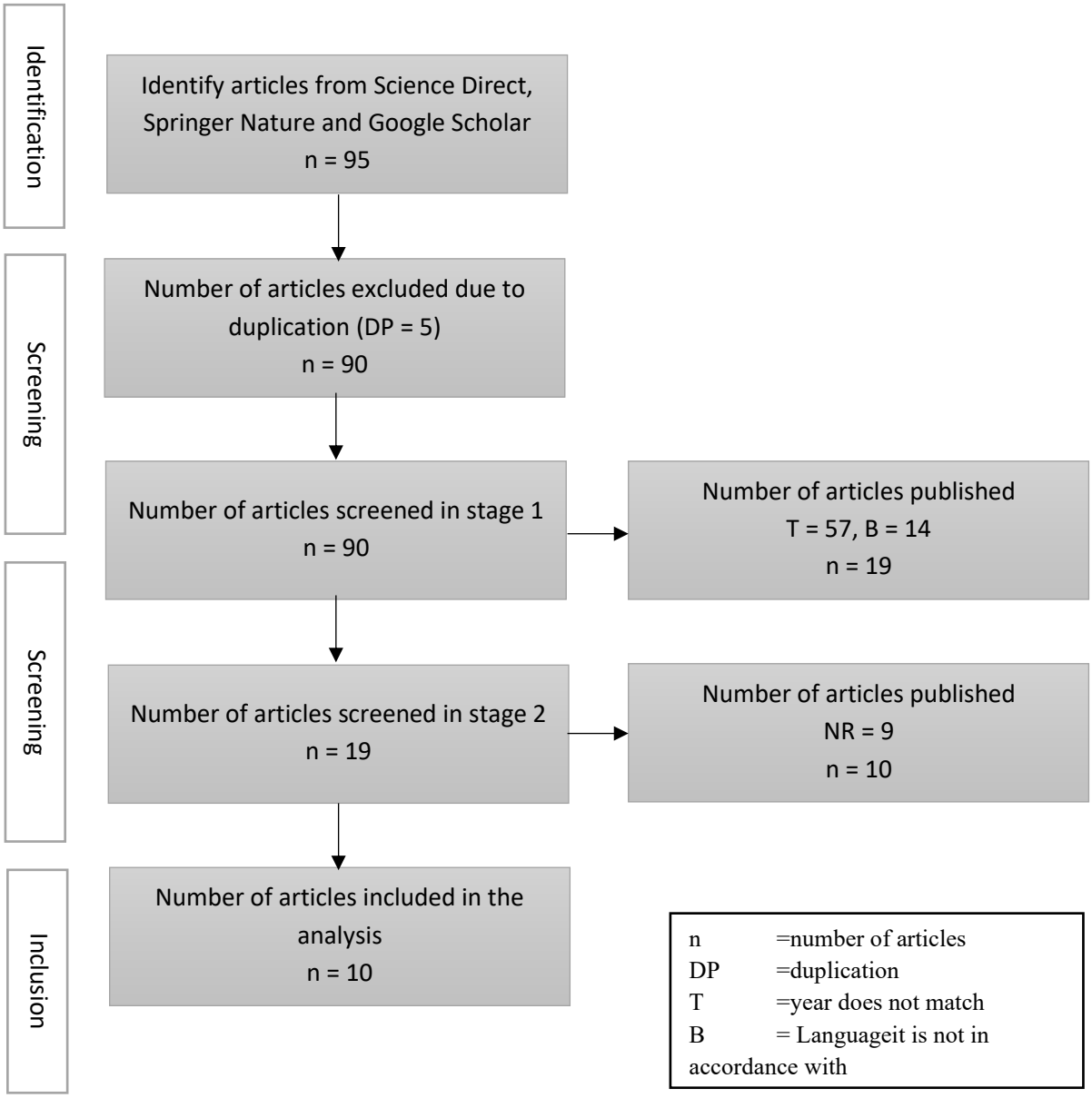

Figure 1. PRISMA Flowchart

Literature selection was conducted following the PRISMA process, which consists of identification, screening, eligibility, and inclusion. The identification phase resulted in 95 articles obtained from various databases. After removing five duplicate articles, 90 articles remained for screening based on title and abstract. At this stage, articles that did not match the publication period or research language were eliminated, leaving 19 articles that met the initial requirements. A full-text review was then conducted to assess the suitability of the research substance with the study's focus. The evaluation results showed that nine articles were excluded because they did not directly address the effect of overconfidence on investment decisions or did not meet methodological criteria. This resulted in 10 articles that met all inclusion criteria and were used as the basis for analysis in this

study. The selection process is presented in a PRISMA diagram that systematically and transparently illustrates each screening stage.

After the selection process was completed, data extraction was conducted on ten articles that met the inclusion criteria. The extracted information included article identity (author, publication year, research location, and journal), respondent characteristics, research methods, analyzed variables, data analysis techniques, and key findings related to the influence of overconfidence on investment decisions. Furthermore, the research context was identified, such as investor type, market characteristics, investment platform used, and factors that act as mediating and moderating variables. The data extraction process was conducted using a structured worksheet to facilitate classification, comparison, and synthesis between studies.

Data analysis was conducted using a combination of content analysis and thematic synthesis approaches. The content analysis approach was used to identify key concepts, relationships between variables, and methodological characteristics of each study. Next, thematic synthesis was applied to group findings with similar substance into main themes that describe the pattern of the relationship between overconfidence and investment decisions. Through this synthesis process, five main themes were obtained, namely: (1) the influence of overconfidence on the intensity of investment activity, (2) the relationship between overconfidence and investor risk preferences, (3) the influence of demographic factors such as gender and generation on overconfidence, (4) the role of overconfidence in digital platform-based investments, and (5) the consistency of the influence of overconfidence in the context of developing countries. This thematic approach allows the study not only to summarize the results of previous studies but also to identify conceptual patterns, empirical consistency, and the direction of development of the behavioral finance literature more comprehensively.

To enhance the credibility of the synthesis results, each theme is analyzed comparatively, taking into account the methodological characteristics of each study, such as the research location, investor type, analytical method, and market context used. This approach allows for identification of similarities and differences in findings between studies, allowing interpretation of the results to be both descriptive and analytical. Furthermore, the synthesis results are linked to key theories in behavioral finance, particularly the concepts of overconfidence bias, risk perception, and behavioral decision-making, to provide a more comprehensive understanding of how psychological biases influence investment behavior under various market conditions.

Through these methodological stages, this study is expected to produce a comprehensive literature synthesis regarding the influence of overconfidence on investment decision-making, identify research trends during the 2015–2024 period, evaluate the consistency of empirical findings, and uncover research gaps that still require further development. Thus, the applied methodology not only provides a strong foundation for the preparation of results and discussions but also enhances the scientific credibility of the research through systematic, transparent procedures, and in accordance with the PRISMA-based Systematic Literature Review (SLR) reporting standards.

RESULTS AND DISCUSSION

The results and discussion of this study are based on a process of identification, screening, feasibility evaluation, and selection of literature in accordance with the research criteria, resulting in ten scientific articles meeting the inclusion criteria for further analysis. These articles were published between 2019 and 2022 and cover a variety of developing country contexts and regions with evolving capital market dynamics, including Indonesia, Pakistan, Vietnam, India, China, ASEAN countries, Colombia, and Peru, as well as the global market environment that encompasses crypto assets. This geographic diversity demonstrates that the issue of overconfidence in investment decision-making has cross-market relevance and is not limited to the characteristics of investors in developed countries. The development of this study also coincides with the increasing digitalization

of financial services and the participation of retail investors, which provide broader access to investment information and instruments (Goyal et al., 2021; Nigam et al., 2018). Thus, increased access to financial markets through digital technology creates a broader scope for research into how psychological factors influence investor behavior.

From a methodological perspective, the articles analyzed demonstrate the use of a variety of quantitative approaches, including SEM/SEM-PLS, regression, AR-GARCH/GARCH, and empirical surveys. This diversity of methods demonstrates that the relationship between overconfidence and investment decisions has been studied from different perspectives, both through testing direct relationships and through testing mediating and moderating variables. Despite differences in research designs, sample characteristics, measurement instruments, and market contexts, most studies show a tendency that overconfidence is associated with increased trading activity and a higher propensity for risk-taking (Dhawan & Putniņš, 2022; Goyal et al., 2021; Hasso et al., 2019; Souza et al., 2023). This consistent pattern strengthens overconfidence's position as an important cognitive bias in explaining investor behavior. However, the variation in moderating effects suggests that the strength of this relationship is not universal and may vary depending on investor characteristics, market conditions, and the technological and institutional environment. Thus, the literature synthesis not only shows the existence of a relationship between overconfidence and investment decisions, but also shows the importance of understanding the conditions that strengthen or weaken this relationship(Nguyen & Nguyen, 2023; Shrotryia & Kalra, 2021).

A content analysis of articles meeting the inclusion criteria revealed that a dominant theme in the literature is the influence of overconfidence on investment decisions. In general, investors with overconfidence tend to trade more frequently than those with more realistic perceptions of their abilities. However, this increased activity does not necessarily reflect improved investment decision quality. Instead, overconfidence can encourage speculative behavior, excessive risk-taking, and a tendency to ignore information that contradicts investor beliefs. These findings are consistent with research showing that overconfidence is associated with increased trading frequency and risk-taking propensity, while characteristics such as gender and generation can moderate the strength of this relationship (Gavrilakis & Floros, 2021; Kiky et al., 2024; Kumar, 2020; Nguyen & Nguyen, 2023). Therefore, high trading activity cannot be directly viewed as an indicator of decision quality because it may stem from subjective beliefs that are not fully supported by analytical skills or fundamental information.

This relationship becomes even more complex when placed within the digital investment ecosystem. The integration of digital platforms, artificial intelligence, and increased financial literacy can have varying impacts on the relationship between overconfidence and investment decisions. Technology can provide information and analytical tools that help investors make more informed decisions, but at the same time, it can increase the perception that investors have greater ability to understand and control the market. In other words, technology does not always eliminate behavioral biases, but under certain conditions can actually strengthen them through the illusion of knowledge and the illusion of control (Ballis & Verousis, 2022; Dhawan & Putniņš, 2022; Goyal et al., 2021; Reher & Sokolinski, 2024). Therefore, the impact of digitalization on investment behavior needs to be understood contextually, taking into account investor characteristics, financial literacy levels, experience, platform design, and the nature of available information.

The research characteristics summarized in Table 1, including the number of articles, publication period, research location, research approach, and dominant method, demonstrate that research on overconfidence is growing in the context of emerging markets. This development coincides with the increasing digitalization of the financial system, app-based investing, and retail investor participation. Many studies use quantitative approaches such as SEM/SEM-PLS and AR-GARCH/GARCH to examine the relationship between overconfidence, risk perception, herding, trading volume, and various other behavioral variables (Ballis & Verousis, 2022; Dhawan & Putniņš, 2022; Goyal et al., 2021; Reher & Sokolinski, 2024). The use of these diverse methods demonstrates

that the overconfidence phenomenon can be analyzed at both the individual and market dynamics levels. At the individual level, attention is focused on investor perceptions and characteristics, while at the market level, research can link behavioral biases to volatility, trading volume, sentiment, and price movement patterns.

The summary in Table 2 also shows a variety of factors that moderate or influence the relationship between overconfidence and investment decisions, including gender, generation, investment experience, financial literacy, and the use of AI and digital technology. These findings align with international literature showing that individual characteristics and the investment environment can alter the intensity of overconfidence's influence on investment behavior (Gaio & Gonçalves, 2022; Howell et al., 2019; Souza et al., 2023; Trejos et al., 2019). Gender, for example, may be associated with differences in self-confidence and risk-taking propensity, while investment experience may provide investors with a better ability to evaluate prediction errors and control overly aggressive behavior. Similarly, financial literacy can serve as a cognitive capacity that helps investors understand risk and evaluate information more critically. Therefore, overconfidence should not be treated as a stand-alone characteristic, but as a bias that interacts with personal characteristics and the investment environment.

The role of digital technology is increasingly evident in shaping these behaviors. Digital investment platforms provide real-time information, analytical tools, price notifications, recommendations, and increasingly simplified transaction processes. This convenience can reduce barriers to participation and improve transaction efficiency, while also potentially increasing trading frequency and strengthening investor confidence in their abilities. Under certain conditions, investors may interpret easy access to information as increased knowledge, even though they may not have sufficient ability to assess the quality of that information. This phenomenon is related to the illusion of knowledge and the illusion of control, which can encourage overtrading, especially among investors with limited experience (Ballis & Verousis, 2022; Dhawan & Putniņš, 2022; Mushinada & Veluri, 2019). Therefore, technological design and ease of access to information need to be considered as part of the behavioral environment that can shape investment decisions.

Overall, the literature synthesis indicates that overconfidence is a phenomenon found across various developing country and financial market contexts, with a relatively consistent trend toward increased trading activity and investment aggressiveness. However, the magnitude and direction of this effect can be influenced by local factors such as financial literacy levels, investment experience, market volatility, demographic characteristics, and levels of technology access and usage (Goyal et al., 2021a; Nguyen & Nguyen, 2023; Shrotryia & Kalra, 2021). These findings imply that generalizations regarding the effects of overconfidence should be made with caution. Investors with the same level of overconfidence may not necessarily exhibit identical investment behavior because they operate in different informational, regulatory, technological, and investment cultural environments.

Analysis of the relationship between overconfidence and risk tolerance further strengthens these findings. Overconfident investors tend to assess the probability of investment success more optimistically than they actually are. This confidence can increase preferences for higher-risk instruments, including growth stocks and digital assets. In some studies, risk perception serves as a mechanism explaining how overconfidence translates into investment decisions, while others suggest that overconfidence in analytical abilities can lead to suboptimal diversification decisions (Malmendier & Tate, 2008; Sebastião et al., 2024; Souza et al., 2023). Thus, the influence of overconfidence on investment decisions is not always direct but can occur through how investors perceive and evaluate risk.

The relationship between overconfidence and risk tolerance also suggests that overconfident investors may experience a gap between perceived and actual risk. Investors may perceive themselves as having better control over investment outcomes or predicting the market than they actually do. This can lead to increased exposure to risky instruments and reduced attention to

diversification principles. Thus, one important consequence of overconfidence is not only increased transaction frequency but also changes in portfolio risk structure. This perspective broadens the understanding that overconfidence can influence investment decisions through behavioral dimensions, risk perception, and portfolio management strategies simultaneously.

Demographic dimensions also reveal important patterns in the literature synthesis. Several studies have shown that male investors tend to have higher levels of overconfidence and potentially exhibit more aggressive investment behavior, while younger generations may face greater vulnerability due to their extensive access to information and digital technology (Daragmeh et al., 2021; Pearson & Korankye, 2022). However, these findings cannot be interpreted as universally applicable patterns. Gender and generational differences can interact with investment experience, education, financial literacy, social conditions, and market characteristics. Therefore, demographic factors are more appropriately viewed as one of the conditions that can influence how overconfidence is formed and manifested in investment behavior, rather than as the sole determinant of investment decisions (Hellström et al., 2017).

The generational context becomes increasingly relevant in the digital investment environment because younger investors generally encounter a different information ecosystem than previous generations. Investment information can be obtained through apps, social media, online communities, influencers, and various other digital sources. This abundance of information can provide the advantage of broader access to knowledge, but it can also create information overload and increase investors' tendency to select information that aligns with their beliefs. Under conditions of overconfidence, investors may place excessive weight on information that supports their personal predictions and ignore conflicting signals. Therefore, the influence of technology on overconfidence needs to be analyzed alongside investors' ability to filter, evaluate, and interpret information.

Practical evidence suggests that the digitization of investment through robo-advisors, trading apps, and cryptocurrency ecosystems offers significant opportunities to expand financial inclusion and participation, but at the same time, can increase the potential for behavioral bias. This is especially important for novice investors and populations in developing countries experiencing increased participation in financial markets. Numerous studies emphasize the importance of strengthening financial education and investor protection, taking into account not only information and financial risk, but also the psychological dimensions of decision-making (Dubey, 2022; Escobar & Pedraza, 2023; Kumar, 2020; Lahtinen, 2019). Therefore, investor protection policies need to evolve from an approach focused solely on providing information to one that also considers how investors process information and how platform design characteristics can influence behavior.

From a theoretical perspective, these findings reinforce the relevance of behavioral finance as a framework for explaining the limitations of rationality assumptions in investment decisions. Investor decisions are the result of the interaction between information, perceptions, experiences, psychological characteristics, technology, and the institutional environment. Overconfidence is a key mechanism explaining why investors may undertake actions that are objectively high in risk, even though they believe the decisions are within their control. Therefore, conceptual models of investor behavior in the digital era need to integrate psychological factors with technological and institutional factors to more comprehensively explain investment behavior (Nigam et al., 2018; Shrotryia & Kalra, 2021; Trejos et al., 2019).

Nevertheless, the synthesis results should be interpreted with consideration of conceptual and methodological variations in the measurement of overconfidence. The literature shows that overconfidence is not a single construct. It can take the form of overplacement, miscalibration, or beliefs about perceived information advantage. These differences in definition and measurement can result in different patterns of relationships with trading volume, risk preferences, and investment decisions (Feldman & Lepori, 2016; Goyal et al., 2021; Liu et al., 2022). Therefore, the consistency of findings regarding the relationship between overconfidence and investment

decisions still needs to be understood by considering how the bias is defined and measured in each study. Differences in instruments, sample sizes, respondent characteristics, and research designs can also contribute to variation in results.

Similarly, findings on gender and generation show relatively consistent patterns across studies, but these are insufficient to conclude a universal relationship across market contexts. Cross-country and cultural variations can influence levels of overconfidence, risk perception, and investment preferences. Therefore, previous research findings need to be understood within the social and institutional context of each market. Longitudinal and cross-cultural research is crucial to identify whether overconfidence is a relatively stable characteristic or whether it changes with developments in investment experience, technology, regulation, and financial literacy (Baker et al., 2022; Lahtinen, 2019; Wang, 2023). This perspective is also crucial for understanding how digital transformation alters investor behavior patterns over the long term.

Overall, the synthesis of research findings shows that overconfidence is strongly associated with more active, aggressive, and risk-oriented investment behavior, but this relationship is influenced by various individual, technological, market, and institutional factors. Overconfidence can increase trading frequency and the tendency to choose risky instruments, while risk perception, experience, financial literacy, gender, generation, and the digital environment can strengthen or weaken this influence. Thus, investment decisions cannot be explained solely by a single psychological factor but must be understood as the result of an interaction between cognitive biases and the environment in which they are made.

These findings have important implications for the development of financial education and investor protection. Investment education is not enough to simply improve technical skills in reading financial statements, understanding investment instruments, or calculating risks and returns; it also needs to raise investor awareness of psychological biases that can influence decisions. Investors need to be encouraged to recognize overconfidence tendencies, reevaluate their confidence in their predictive abilities, consider conflicting information, and apply diversification principles and disciplined risk management. For digital investment platform developers, these findings also highlight the importance of feature design that not only encourages transaction frequency but also helps investors understand risks, consider the consequences of decisions, and avoid excessive trading behavior.

At the policy level, the study's findings demonstrate the need for an investor protection approach that is more responsive to psychological and technological characteristics. Regulators and relevant institutions can consider strengthening behavioral financial literacy, transparency of risk information, and communication design that can reduce investor misconceptions about their ability to predict the market. This becomes increasingly important in the digital investment environment and cryptocurrency markets, which are characterized by relatively high levels of volatility and information velocity {Citation}(Dubey, 2022; Escobar & Pedraza, 2023; Kumar, 2020; Lahtinen, 2019). With this approach, investor protection is not only preventive from a regulatory perspective but also educational by enhancing investors' ability to recognize and manage behavioral biases.

Academically, the study's findings also suggest several opportunities for further research. Future research should expand the study through longitudinal and cross-cultural designs to understand changes in overconfidence across the investment experience cycle and technological developments. It should also consider different forms of overconfidence, use more consistent measures, and more comprehensively examine mediating and moderating factors. Furthermore, the development of AI, robo-advisors, social media, and digital investment platforms opens up new avenues for research into the interaction between human bias and algorithmic recommendations. Therefore, a future research agenda should focus not only on whether overconfidence influences investment decisions, but also on how such biases develop, through what mechanisms they occur, and under what technological and institutional conditions their influence becomes stronger or weaker.

Thus, the study's findings reinforce overconfidence as a key psychological factor in explaining investor behavior in the era of digital transformation. While there is consistency regarding the tendency for overconfidence to increase trading activity and risk-taking, variations in context suggest that this influence is not deterministic. The interaction between individual characteristics, risk perception, financial literacy, experience, digital technology, and market conditions needs to be an integral part of understanding investment decisions. Therefore, a behavioral finance approach that integrates psychological, technological, and institutional dimensions is becoming increasingly relevant in explaining the complexity of investor behavior in modern financial markets..

CONCLUSION

The results of the Systematic Literature Review indicate that overconfidence is one of the most dominant cognitive biases influencing investment decision-making. A synthesis of ten articles that met the inclusion criteria showed that investors with overconfidence tend to engage in more intensive trading activities, have a higher risk tolerance, and demonstrate a tendency to make more aggressive investment decisions than investors with more realistic levels of confidence. These findings further strengthen the behavioral finance view that investment decisions are not solely determined by economic information and fundamental analysis but are also influenced by psychological factors that shape an individual's perception of investment opportunities and risks.

This study also shows that the influence of overconfidence is becoming increasingly complex with the increasing digitalization of financial and investment services. Ease of access to information, the use of digital investment platforms, and the development of financial technology have the potential to strengthen the illusion of knowledge and the illusion of control, thereby increasing the tendency for investors to make less objective investment decisions. Furthermore, demographic characteristics, investment experience, financial literacy, and market conditions also moderate the relationship between overconfidence and investment decisions. Therefore, strengthening financial literacy, education on behavioral biases, and developing investment platforms that can help investors objectively evaluate risks are strategic steps in improving the quality of investment decisions.

While successfully providing a comprehensive synthesis of the development of overconfidence research from a behavioral finance perspective, this study still has limitations because it only covers articles from the 2015–2024 period and mostly uses a cross-sectional research design. Future research is recommended to expand the scope of the literature, conduct longitudinal studies, and integrate variables such as financial literacy, financial technology adoption, artificial intelligence, risk tolerance, herding behavior, and fear of missing out (FOMO) into the research model. This development is expected to produce a more comprehensive understanding of the dynamics of investor behavior and support the development of investment policies and strategies that are more adaptive to changes in the digital financial environment.

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