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Investment Knowledge and Behavioral Biases on Stock Market Performance: The Mediating Role of Decision-Making Behavior - A Conceptual Paper

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ABSTRACT

This study aims to develop and explain an integrated conceptual framework that links investment knowledge, behavioral biases, and investment decision-making behavior to elucidate the mechanisms influencing investment performance of individual investors in the stock market. The research adopts a conceptual research design, drawing on a systematic review of the literature and theoretical synthesis grounded in the Resource-Based View (RBV), Behavioral Finance Theory, and Dual-Process Theory. Data analysis is conducted through content analysis and thematic synthesis to classify key concepts, identify relationships among variables, and develop a structural conceptual model accompanied by Hypotheses H1–H7. The findings indicate that investment knowledge exerts a positive influence on both investment decision-making behavior and investment performance, while behavioral biases such as overconfidence, herding behavior, and loss aversion affect investment outcomes both directly and indirectly through the decision-making process. Notably, investment decision-making behavior plays a critical mediating role in transmitting the effects of both knowledge and behavioral biases to investment performance. The proposed conceptual framework therefore provides a strong foundation for future empirical testing and offers valuable implications for policy formulation and practical interventions aimed at enhancing decision-making quality and promoting the long-term stability and sustainability of capital markets.

Keywords: Investing Knowledge; Behavioral Factors; Decision-Making Behavior

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INTRODUCTION

The capital market serves as a fundamental mechanism in driving national economic development by efficiently allocating financial resources, facilitating capital formation, generating investor wealth, and maintaining macroeconomic stability. However, over the past decade, global stock markets have experienced severe and persistent volatility driven by multiple factors, including geopolitical uncertainty, rapid technological advancement, and investor behavior that deviates from the assumptions of rationality embedded in classical economic theories (Phan & Narayan, 2020). Such volatility not only affects investment returns at the microeconomic level but also reflects the structural fragility of the capital market system as a whole.

According to the Efficient Market Hypothesis (EMH), investors are assumed to behave rationally, and security prices are expected to fully and instantaneously reflect all available information. Nevertheless, a substantial body of empirical evidence indicates that investors frequently make decisions influenced by emotions and psychological factors, resulting in behavior that deviates from rational decision-making. This perspective is consistent with Prospect Theory proposed by Kahneman and Tversky (1979), which explains that individuals exhibit loss aversion being more sensitive to losses than to gains of equivalent value. Consequently, investors tend to avoid risk when facing potential gains but become more risk-seeking when confronted with potential losses. Such behavior contradicts the predictions of traditional Expected Utility Theory and highlights cognitive inconsistencies in decision-making under uncertainty.

The study by Loebiantoro et al. (2021) revealed that although investors rely on both fundamental and technical analysis in their investment decisions, behavioral biases such as availability bias and the disposition effect continue to play a significant role in shaping investment outcomes. These biases reflect investors' cognitive patterns and personality traits, leading to deviations from the rational behavior assumed under the EMH framework. Furthermore, research by Xia and Madni (2024), along with Arya and Singh (2025), demonstrates that even in an era of widespread access to financial information and analytical tools, individual investors remain strongly influenced by behavioral biases, including overconfidence, loss aversion, and herding behavior, which cannot be fully explained by traditional financial theories.

Empirical evidence from China's stock market presented by Xia and Madni (2024) indicates that behavioral biases exert a significant influence on investment decision-making, particularly among retail investors who tend to follow market trends, exhibit excessive confidence, or rely heavily on readily available information. Such behaviors contribute to market inefficiencies and abnormal volatility. Similarly, Arya and Singh (2025) reported that more than 95 percent of capital market volatility is not attributable to economic fundamentals but rather arises from investors' biased behaviors, such as fear, greed, and irrational reactions to news or economic events. In addition, Ong'eta and Nasution (2021) found that insufficient investment knowledge leads many investors to depend on emotions and cognitive biases rather than rational analysis, thereby undermining overall market stability. Khan et al. (2020) further identified a significant positive relationship between financial literacy and investment behavior in financial markets.

Although prior studies have clearly established the importance of financial knowledge and behavioral biases in influencing investment decision-making, there remains a lack of integrated

research that systematically examines the relationships among investment knowledge, behavioral biases, and investment decision-making behavior within a comprehensive structural framework, particularly in the context of increasingly interconnected global stock markets. Moreover, limited attention has been given to the role of investment decision-making behavior as a mediating variable linking cognitive factors and behavioral biases to investment outcomes. To address these gaps, this study integrates three complementary theoretical perspectives: the Resource-Based View (RBV), Behavioral Finance Theory, and Dual-Process Theory. RBV conceptualizes investment knowledge as a strategic cognitive resource that strengthens investors' analytical capabilities and potential to achieve superior investment performance. Behavioral Finance Theory explains how psychological and behavioral biases may influence investors' judgments and investment outcomes, while Dual-Process Theory provides a cognitive mechanism for explaining how intuitive and automatic processing (System 1) interacts with deliberate and analytical processing (System 2) in investment decision-making. The integration of these three perspectives provides a comprehensive theoretical foundation for explaining how investment knowledge and behavioral biases may influence investment performance through investment decision-making behavior. Therefore, this study aims to develop an integrated conceptual framework that explains these relationships and enhances understanding of the mechanisms underlying individual investors' performance in global capital markets.

LITERATURE REVIEW

Cognitive Capital and Investment Performance: Resource-Based View (RBV)

The Resource-Based View (RBV), developed by Barney (1991), has gained widespread recognition as a conceptual framework for explaining an organization's competitive advantage. It emphasizes that resources which are valuable, rare, inimitable, and non-substitutable serve as the core drivers of superior performance. Numerous studies have extended this concept by highlighting the role of intangible resources such as knowledge, skills, and strategic capabilities which are collectively viewed as forms of cognitive capital. These elements play a critical role in enhancing organizational competitiveness and can be analogously applied to the context of individual investors (Rehman et al., 2017).

This extension from the firm level to the individual investor level can be further justified through Human Capital Theory, which views knowledge, skills, abilities, and expertise developed by individuals as forms of capital that can enhance their productive capabilities and performance. In the investment context, investment knowledge and analytical skills represent individual-level human capital that enables investors to interpret financial information, evaluate investment alternatives, assess risks, and formulate appropriate investment strategies. Therefore, while RBV originally explains how valuable resources contribute to firm-level competitive advantage, Human Capital Theory provides a complementary individual-level explanation for how knowledge and skills constitute resources embedded within investors themselves. This theoretical linkage supports the application of the RBV perspective to individual investors by conceptualizing investment knowledge as an individual resource that can be developed and utilized to improve investment decision-making and investment performance.

Possessing high levels of cognitive capital equips investors with the capacity to develop more effective investment strategies, thereby yielding superior long-term performance in terms of

risk management, return generation, and adaptive responses to dynamic market conditions. Parsai and Chandok (2025) further assert that financial knowledge not only enables investors to better comprehend market mechanisms, but also promotes strategic decision-making in complex situations particularly in relation to portfolio diversification, asset valuation, and efficient investment allocation.

From a human capital perspective, cognitive ability and domain-specific knowledge are key components of intellectual capital that are positively associated with investment outcomes. The more complex the investment context, the greater the role of cognitive skills and in-depth knowledge in formulating effective investment strategies (Ployhart, 2021). Borman et al. (2003) also emphasize that specific types of knowledge such as financial statement analysis, industry-specific insights, and security evaluation techniques are crucial predictors of superior returns. Supporting this notion, Zhou et al. (2023) found that individuals with higher financial literacy are more likely to manage risk effectively, maintain investment discipline, and avoid emotion-driven behaviors such as herding or reacting to low-quality information. These abilities enable investors to achieve more stable and sustainable performance over time. Thus, the capacity to critically interpret fundamental data and make systematic decisions serves as a vital mechanism linking intellectual capital to enhanced investment performance.

Overall perspective, RBV theory clearly underscores that intellectual capital in the form of knowledge, skills, and decision-making abilities constitutes a strategic resource that can significantly enhance the investment outcomes of individual investors. This is especially true in volatile and uncertain market environments, where investors with high levels of intellectual capital are better equipped to formulate effective strategies, accurately evaluate asset values, and avoid decisions driven by behavioral biases. These insights align with the core premise of RBV, which posits that individual-specific resources serve as critical determinants of long-term sustainable success.

Dual-Process Bias-Driven Investment Decision Theory

The investment decision-making process is a critical factor influencing an investor's financial outcomes. Notably, such decisions are not solely driven by rational logic but are often intertwined with psychological elements and deeply embedded cognitive biases (Manikandan & Harini, 2024). The Dual-Process Theory explains that human decision-making operates through two cognitive systems: System 1, which is fast, automatic, and low-effort often relying on intuition and heuristics when processing limited information and System 2, which is slower, deliberate, and analytical, engaging in systematic reasoning and careful risk assessment (Kannengiesser & Gero, 2019; Da Silva, 2023). In the investment context, many individuals tend to rely on System 1 in making initial decisions for example, trading based on emotion or imitating others leading to common behavioral biases such as overconfidence, loss aversion, and herding bias (Hayes, 2024).

However, investment knowledge, when combined with the ability to recognize and manage cognitive biases, plays a crucial role in enhancing the quality of investment decision-making behavior. These capabilities serve as a mediating variable that transmits the influence of both knowledge and behavioral tendencies, thereby significantly contributing to investment performance. When investors are able to mitigate biases, apply reasoning, and analyze information systematically and effectively, their investment outcomes tend to improve sustainably over the long term.

Integrating Fundamental and Technical Approaches in Investment Decision-Making

In the context of investment decision-making in securities, investors need to rely on a variety of tools and concepts to assess the value and trends of financial assets. Two widely adopted approaches are Fundamental Analysis and Technical Analysis. Although these methods differ in principles and techniques, they share a common objective supporting investors in making more effective buy-sell decisions. Understanding the advantages and limitations of each approach, as well as how to integrate them appropriately, is therefore essential to formulating robust investment strategies in today's complex and rapidly changing market environment.

Fundamental Analysis

Fundamental analysis plays a crucial role in assessing the "intrinsic value" of a company or security by utilizing macroeconomic data, industry conditions, and firm-specific financial information. This concept traces back to the seminal work of Graham and Dodd (1934), who laid the foundation for security analysis by emphasizing the importance of evaluating a company's financial health and performance. In modern investment Isidore and Christie practice, this approach typically follows a top-down methodology, beginning with an assessment of macroeconomic indicators such as overall economic conditions, interest rates, and industry outlooks, before narrowing down to company-level analysis. This includes examining financial statements, product and service offerings, competitive positioning, and managerial quality to derive a valuation that reflects the security's true worth. Research by Isidore and Christie (2018) highlights the widespread popularity of fundamental analysis among investors, noting its reliance on publicly available corporate data such as financial statements and annual reports to facilitate comprehensive stock valuation. As such, fundamental analysis is also regarded as a "strategic resource" that enhances investors' capacity for rational decision-making and systematic profitability, aligning closely with decision-making theories that emphasize the careful evaluation of alternatives before action. Supporting this view, Komarudin and Affandi (2020) found that investors with strong expertise in Isidore fundamental analysis tend to possess superior abilities in stock selection and investment strategy formulation, resulting in consistently higher returns. Furthermore, numerous studies affirm that fundamental analysis is a vital tool that empowers investors to make informed and well-reasoned decisions, thereby contributing to improved investment performance.

Technical Analysis

Technical analysis is an investment approach that focuses on using historical price and trading volume data to forecast future price behavior of financial assets. The core principle behind this method is that all available information is already reflected in the market price. Therefore, identifying patterns and trends in price movements can assist investors in accurately timing their buy and sell decisions. Technical analysts often employ statistical tools such as moving averages, the Moving Average Convergence Divergence (MACD), the Relative Strength Index (RSI), as well as candlestick chart patterns to detect market trends and generate trading signals (Menkhoff, 2010; Isidore & Christie, 2018). Research suggests that this method is particularly popular among short-term traders and fund managers due to its responsiveness to changing market conditions. However, relying solely on technical analysis may present limitations especially during periods of high market volatility, where it is prone to generating false signals (Aguirre et al., 2020). Empirical evidence from prior studies indicates that both fundamental

and technical analyses serve significant yet complementary roles in the investment decision-making process. An integrated approach combining the two methods allows investors to assess both the "intrinsic value" of a security and the optimal "timing" for executing trades (Jakpar et al., 2018). Specifically, using fundamental analysis to identify high-potential stocks and technical analysis to determine the ideal entry and exit points enhances investment accuracy, reduces risk, and balances opportunities for both short-term gains and long-term returns.

Behavioral Finance Theory

Behavioral finance theory aims to explain that human investment decisions are not driven purely by rationality as proposed by traditional financial theories. Instead, they are influenced by psychological factors, beliefs, and various forms of biases, which lead to anomalies in investment behavior and distortions in market mechanisms. The work of Kahneman and Tversky (1979) marks a significant starting point for this concept, as it highlights the set of biases that affect decision-making under uncertainty. These insights later evolved into the foundational framework of behavioral finance theory. The deviations in behavior can be categorized into four major types: Heuristic, Prospect, Market, and Herding.

Heuristic

Heuristics refer to mental shortcuts used by individuals to facilitate rapid decision-making under constraints of time and incomplete information. In the context of investing, investors often rely on these mental rules of thumb when buying or selling securities without engaging in in-depth analysis. However, heuristics can lead to systematic biases and significant errors that impact investment outcomes (Mercer Advisors, 2023). Studies have found that heuristic biases are among the most common behavioral distortions observed among investors. For instance, representativeness bias occurs when investors make decisions based on past patterns or experiences without considering changing fundamentals; overconfidence bias leads investors to overestimate their own abilities, resulting in excessive trading behavior; and anchoring bias, where outdated reference points are used as anchors for valuation, despite being inconsistent with current market conditions (Chowdhury et al., 2024). These biases can distort the true value assessment of securities and significantly affect the quality of strategic investment decisions.

Prospect

Prospect Theory, developed by Kahneman and Tversky (1979), challenges the assumptions of rational decision-making theories by proposing that individuals do not evaluate outcomes based on net value alone but rather assess gains and losses relative to a specific reference point. A key component of this theory is loss aversion, which posits that the psychological pain of losing a given amount is stronger than the satisfaction gained from an equivalent gain (Ladrón de Guevara Cortés et al., 2023). As a result, investors often exhibit behaviors aimed at avoiding losses, even at the cost of taking on higher risks. One example is the refusal to sell depreciated securities in hopes that prices will rebound an effect known as the disposition effect, which stems from an unwillingness to accept realized losses. Additionally, biases within the same category include regret aversion, which leads investors to avoid decisions that might later cause regret, such as being hesitant to cut losses from underperforming assets or reinvesting in securities that have previously led to negative experiences (Anum & Ameer, 2017). Similarly, Wangzhou et al. (2021) highlight that investors often anticipate the emotional regret associated with each alternative and tend to choose the option that is expected to cause the least regret

even if it does not yield the highest expected return. Another behavior reflecting Prospect Theory is mental accounting, whereby investors mentally divide their portfolios into separate accounts and make decisions for each sub-account independently. For example, funds might be allocated distinctly between conservative investments and high-risk speculative trades, even though both should be considered under a unified risk management framework for the overall portfolio (Anum & Ameer, 2017). Collectively, these biases under Prospect Theory significantly influence decision-making under uncertainty. Rather than consistently aiming for maximum expected returns, investors often opt for choices that reduce negative emotions such as regret or the pain of loss. Consequently, these decisions deviate from rational models like Expected Utility Theory, impacting long-term investment behavior and outcomes in meaningful ways.

Market

Market factors refer to external environmental influences that affect investors' decision-making behavior, which may not necessarily stem from internal psychological biases but can nonetheless trigger behavioral responses that deviate from rational principles. This category includes variables such as market information, historical price trends, stock price fluctuations, investor sentiment, and consumer preferences. The study by Anum and Ameer (2017) indicated that investors' reactions to news and earnings reports whether overreaction or underreaction can lead to deviations of stock prices from their intrinsic values. In addition, market factors are related to trading behaviors driven by attention-grabbing news or highly visible events. For instance, the study by Waweru et al. (2008) found that many investors tend to trade stocks based on public interest trends rather than fundamental evaluation. This finding is consistent with the concept of "attention-grabbing trading" proposed by Odean (1999), which suggests that investors are likely to be attracted to stocks with high price volatility or prominent media exposure even when there is no supporting evidence that such stocks have genuine long-term potential. Recent research also shows that herding behavior significantly influences investment decisions, particularly during periods of market volatility or emotionally charged news cycles. Wang and Zou (2024) found that heightened consumer confidence can trigger herding behavior and increase market volatility. Meanwhile, Ricciardi (2024) pointed out that investments following the popularity of stocks on social media such as GameStop and AMC often conflict with their fundamental values. These cases demonstrate that market-related pressures and social influences can clearly undermine rational investment decisions.

Herding

Herding behavior refers to the tendency of investors to make buy or sell decisions based on the behavior of the majority, often with the belief that following the crowd can help reduce risks or increase the likelihood of gaining good returns. This behavior becomes particularly apparent during periods of high market volatility or when emotionally charged news is present. The study by ALHarbi and Abdul Hamid (2024) found that herding behavior exists in both developed and developing countries, especially in emerging markets where there is a lack of complete information and high uncertainty. This behavior can lead to deviations of asset prices from their fundamental values and may become a factor accelerating the formation of financial bubbles. Additionally, Waweru et al. (2008) noted that in stock markets, herding behavior is often manifested through unidirectional trading such as mass buying in response to good news or mass selling due to bad news even when the company's fundamentals remain unchanged. This can undermine market efficiency in the short term and lead to overvaluation due to speculation. However, in the long run, markets may adjust back to equilibrium, consistent with

the Efficient Market Hypothesis (EMH). Therefore, herding behavior is a critical issue that investors, analysts, and regulatory authorities should pay attention to. Even fundamentally strong assets may be irrationally sold off during market panic, while, conversely, assets without intrinsic value may be subject to herd-driven overbuying that inflates prices beyond their actual worth.

In summary, Behavioral Finance Theory highlights that financial markets do not move solely according to economic data and rational reasoning, but also reflect the influence of emotions, cognitive biases, and irrational decision-making processes of human beings. Biases in the heuristic group, such as overconfidence and representativeness, biases in the prospect group, such as loss aversion and regret aversion, as well as market factors and herding behavior, all affect the quality of investors' decisions even in environments with complete information. Understanding these factors is therefore essential for developing effective investment strategies and promoting the long-term stability of financial markets, especially in an era where investor behavior has become a key mechanism driving asset prices on par with fundamental factors.

METHODOLOGY

Research Design

This study adopts a conceptual research design, aiming to develop and articulate an integrated theoretical framework that explains the relationships among investment knowledge, behavioral biases, decision-making behavior, and stock market performance. Rather than employing primary or secondary quantitative data, the study relies on systematic theory synthesis and critical analysis of prior empirical findings. A conceptual approach is particularly appropriate for addressing complex behavioral phenomena in financial markets, where decision-making processes are shaped by the interaction of cognitive, psychological, and contextual factors. To provide a systematic basis for the conceptual synthesis, the literature selection process was structured around the core constructs of the proposed framework, namely investment knowledge, behavioral biases, investment decision-making behavior, and investment performance. Relevant literature was considered from established academic databases and scholarly search platforms, with emphasis on peer-reviewed empirical studies, theoretical contributions, and review articles that directly addressed these constructs and their interrelationships. Recent studies were prioritized to reflect contemporary investment behavior and market conditions, while seminal theoretical works were retained where necessary to establish the foundations of the Resource-Based View (RBV), Behavioral Finance Theory, Dual-Process Theory, and related human capital perspectives. Studies were considered for inclusion when they provided theoretical or empirical evidence relevant to the proposed relationships and hypotheses, whereas literature with limited relevance to individual investors or the focal constructs was excluded. The selected studies were subsequently compared and synthesized to identify recurring themes, theoretical linkages, consistent findings, and contradictions across different investor groups and market contexts. This synthesis provided the basis for the development of the conceptual framework and Hypotheses H1–H7.

Theoretical Framework

The proposed framework is grounded in three complementary theoretical perspectives: the Resource-Based View (RBV), Behavioral Finance Theory, and Dual-Process Theory. RBV provides the foundation for conceptualizing investment knowledge as a form of cognitive

capital and a strategic resource that enhances investors' capabilities in risk assessment, strategic analysis, and performance optimization. Behavioral Finance Theory explains how systematic behavioral biases such as overconfidence, herding behavior, loss aversion, and heuristic-driven judgment distort rational decision-making and influence investment outcomes. Dual-Process Theory further clarifies the cognitive mechanisms underlying investment decisions by distinguishing between intuitive, automatic processing (System 1) and deliberate, analytical reasoning (System 2). The integration of these theories enables a comprehensive explanation of how knowledge and behavioral tendencies interact through decision-making behavior to shape investment performance.

Empirical Foundation for Hypotheses Development

Investment Knowledge and Decision-Making Behavior (H1)

In the context of modern investment behavior, investment knowledge is widely recognized as a critical intellectual resource that enables investors to understand financial market mechanisms, investment instruments, and strategic approaches more effectively. In environments characterized by complex and rapidly changing information, financial knowledge enhances investors' ability to assess risk accurately and reduces the likelihood of irrational decision-making (Bai, 2023; Parsai & Chandok, 2025). Investment decision-making behavior refers to the process of evaluating alternatives and selecting appropriate actions based on data, logical reasoning, and prior experience (Suresh, 2024). Empirical evidence consistently supports a positive relationship between investment knowledge and decision-making behavior. Ahmed et al. (2021) demonstrated that financially knowledgeable investors are more likely to analyze information systematically and make rational investment decisions. Similarly, Suresh (2024) found that financial literacy enables investors to avoid cognitive biases and rely on logical analysis. Bai (2023) further emphasized that financial knowledge and proper planning improve risk evaluation and strategic investment choices. These findings provide strong empirical support for Hypothesis H1.

H1: Investment knowledge has a positive effect on investment decision-making behavior.

Behavioral Bias and Decision-Making Behavior (H2)

Beyond cognitive resources, investors' decision-making processes are also shaped by behavioral factors such as overconfidence, herding behavior, availability bias, and loss aversion. These factors are particularly influential among retail investors, who often rely on emotions, intuition, or mental shortcuts (heuristics) when facing market pressure and information overload. While heuristics can facilitate rapid decision-making, they may also generate systematic judgment errors (Ahmed et al., 2021; Shahzad et al., 2024). Empirical studies indicate that behavioral biases significantly influence investment decision-making behavior. Shahzad et al. (2024) showed that overconfidence, anchoring, and herding behavior substantially affect trading decisions, often encouraging proactive but less analytically grounded actions. Abideen et al. (2023) similarly reported that investors influenced by behavioral biases tend to follow market trends or emotions rather than careful analysis. Conversely, Cao et al. (2021) and Mahmood et al. (2020) suggested that certain biases, such as heuristics and attention to market trends, may play a constructive role by enabling faster and more confident decisions in information-constrained situations. These findings collectively support Hypothesis H2.

H2: Behavioral factors have a positive effect on investment decision-making behavior.

Investment Knowledge and Investment Performance (H3)

Investment knowledge also plays a crucial role in improving investment performance by enhancing investors' capacity to analyze information, evaluate securities, and manage risk effectively. Traditional financial theory suggests that rational investors rely on fundamental and technical analysis as primary decision-making tools. Fundamental analysis focuses on macroeconomic conditions, industry trends, and firm-specific information, whereas technical analysis uses historical price patterns to forecast future movements (Loebiantoro et al., 2021).

Empirical studies provide strong evidence that financial knowledge is positively associated with investment performance. Zhang et al. (2023) found that Chinese investors with higher financial literacy exhibited superior investment behavior and achieved significantly higher returns. Loebiantoro et al. (2021) confirmed that both fundamental and technical analysis positively influence investment outcomes, especially when combined with behavioral awareness. Moreover, Adil et al. (2021) showed that financial knowledge mitigates the impact of biases such as overconfidence and herding, thereby improving long-term portfolio performance. These findings support Hypothesis H3.

H3: Investment knowledge has a positive relationship with investment performance.

Behavioral Bias and Investment Performance (H4)

Behavioral finance research further indicates that investors' psychological biases can influence investment outcomes directly. Narendra Ajay Raju and Roopa (2024) argued that unrecognized cognitive biases may cause deviations from rational decision-making, leading to suboptimal returns. However, when investors are aware of these biases, certain behavioral tendencies may yield positive outcomes. Mahmood et al. (2020) reported that prospect and herding biases were positively related to investment performance among Pakistani investors. Similarly, Cao et al. (2021) found that heuristic, prospect, market, and herding biases all positively affected both decision-making behavior and investment performance in the Vietnamese stock market, with prospect bias exerting the strongest influence. Rehan et al. (2021) and Ong'eta (2021) provided further evidence that behavioral biases such as herding, loss aversion, and overconfidence are significantly associated with investment performance in different market contexts. These findings collectively support Hypothesis H4.

H4: Behavioral factors have a positive relationship with investment performance.

Decision-Making Behavior and Investment Performance (H5)

Investment decision-making behavior represents a critical mechanism through which cognitive and behavioral factors translate into financial outcomes. This process involves information analysis, risk evaluation, and judgment in buying or selling securities and is often shaped by psychological characteristics (Musfidah et al., 2022). Investor performance reflects the financial results of these decisions, including portfolio returns and progress toward investment goals (Cao et al., 2021). Empirical research consistently shows a positive association between decision-making behavior and investment performance. Cao et al. (2021) found that behavioral biases positively influenced both decision-making behavior and financial performance, with

prospect bias exerting the strongest effect. Abdin et al. (2022) observed that overconfidence increased risk-taking and indirectly enhanced performance through aggressive investment behavior. Kumar et al. (2024) further demonstrated that psychological biases such as heuristics and prospect bias act as key mechanisms transforming risk perception into actual financial outcomes. These findings provide strong support for Hypothesis H5.

H5: Investment decision-making behavior has a significantly positive effect on investment performance.

Mediating Role of Decision-Making Behavior between Investment Knowledge and Performance (H6)

A growing body of literature highlights investment decision-making behavior as a crucial mediating mechanism linking investment knowledge to investment performance. Investors with higher financial literacy tend to develop more systematic, rational, and cautious decision-making patterns, which indirectly enhance investment outcomes. Bokhari et al. (2023), using SEM, demonstrated that financial knowledge significantly influences investment decision-making behavior, which in turn mediates its effect on investment returns. Bai (2023) identified decision-making behavior as a partial mediator between financial knowledge and financial well-being among Chinese university students. Although Wang et al. (2024) did not directly test mediation, their longitudinal evidence showed that higher financial literacy leads to superior investment returns, implying improved decision quality as an underlying mechanism. These findings collectively support Hypothesis H6.

H6: Decision-making behavior mediates the relationship between investing knowledge and performance of individual investors.

Mediating Role of Decision-Making Behavior between Behavioral Bias and Performance (H7)

Recent quantitative studies suggest that behavioral biases namely heuristic, prospect, market, and herding biases affect investment performance primarily through investment decision-making behavior. Rajeshwaran (2020) found that heuristic bias positively influenced investment performance in the Sri Lankan stock market, while prospect, market, and herding biases were negatively associated with returns. Kunwar (2021) reported similar patterns among Nepalese investors. Further evidence from Almansour et al. (2023), using SEM in the Saudi Arabian stock market, showed that all four behavioral biases indirectly influenced investment performance through decision-making behavior. Biases such as herding and disposition effect heightened risk perception and significantly altered investment decisions, ultimately affecting performance. These findings align with Rajeshwaran (2020), who emphasized that unmanaged overconfidence and loss aversion can undermine decision quality and investment efficiency. Thus, Hypothesis H7 is proposed.

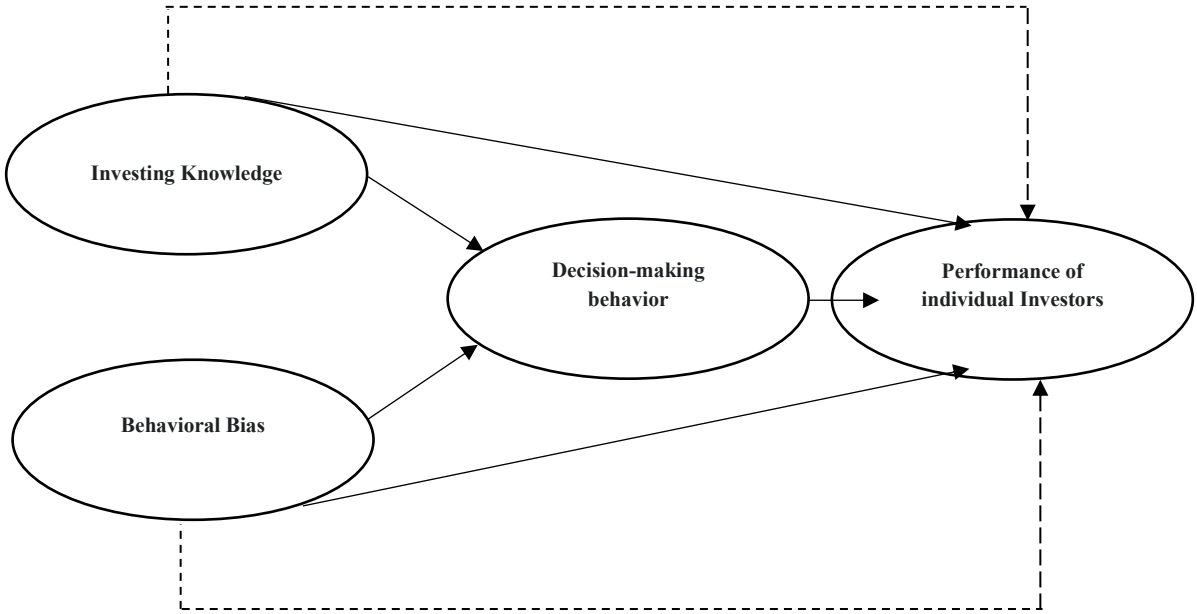
H7: Decision-making behavior mediates the relationship between behavioral factors and investment performance of individual investors.

Conceptual Model Development

Based on an extensive review of the literature, this study develops a conceptual framework that specifies both direct and indirect relationships among the key constructs. Investment knowledge is proposed to influence investment performance directly and indirectly through

investment decision-making behavior. Behavioral biases are posited to affect investment outcomes both independently and through their impact on decision-making processes. Investment decision-making behavior is conceptualized as a mediating variable, representing the mechanism through which cognitive resources and behavioral biases are translated into observable investment performance. This structure reflects the dynamic and interconnected nature of investor behavior in contemporary capital markets.

Figure 1
The conceptual framework



FINDINGS AND DISCUSSION

The proposed hypotheses (H1–H7) delineate a systematic and interrelated structure among investment knowledge, behavioral biases, investment decision-making behavior, and investor performance, with decision-making behavior functioning as a mechanistic mediating pathway through which cognitive and affective factors are transmitted into investment outcomes. These hypotheses are theoretically anchored in the Resource-Based View (RBV), Behavioral Finance Theory, and Dual-Process Theory, which jointly provide a robust explanatory foundation for understanding investment behavior in contemporary capital markets, particularly among retail investors. Collectively, the framework addresses critical theoretical gaps by explicitly articulating the behavioral mechanisms linking psychological determinants to investment performance.

The synthesized literature provides support for Hypothesis H1, which posits that investment knowledge positively influences investment decision-making behavior. Suresh (2024) demonstrates that investors with higher levels of financial literacy tend to engage in more structured and systematic decision-making processes and exhibit reduced susceptibility to behavioral biases. Similarly, Ahmed et al. (2021) found that financial knowledge significantly enhances the quality of investment decisions. Bai (2023) further emphasized the role of financial knowledge and planning in improving risk evaluation and strategic investment choices. Although these studies consistently indicate a positive influence of investment

knowledge, they differ in the aspects of decision-making emphasized, including systematic analysis, bias reduction, and risk evaluation. This cross-study comparison suggests that investment knowledge may influence decision-making through multiple cognitive mechanisms rather than through a single pathway. These findings are consistent with the RBV, which conceptualizes knowledge as a strategic intellectual resource, and with Dual-Process Theory, which suggests that deliberative cognitive processing through System 2 can regulate intuitive and heuristic-driven responses associated with System 1 (Bai, 2023).

With respect to Hypothesis H2, which proposes that behavioral factors influence investment decision-making behavior, empirical evidence from Shahzad et al. (2024) and Abideen et al. (2023) indicates that behavioral biases including overconfidence, representativeness, anchoring, and herding exert a significant influence on investors' decision-making processes. These biases frequently result in decisions driven by emotional reactions or social pressures rather than analytical reasoning. However, the findings are not entirely consistent across studies. In contrast to the evidence reported by Shahzad et al. (2024) and Abideen et al. (2023), Cao et al. (2021) and Mahmood et al. (2020) suggested that certain behavioral factors, such as heuristic and prospect-related biases, may facilitate faster or more confident investment decisions under conditions of limited information. This contrast suggests that behavioral biases do not necessarily produce uniformly negative effects on investment decision-making. Their effects may vary according to the type of bias, the availability of information, and the decision-making context. Taken together, these findings indicate that investment decision-making is not solely a function of cognitive capability but emerges from the interaction between rational evaluation and behavioral tendencies. While investment knowledge strengthens analytical capacity, unmanaged behavioral biases may still distort strategic judgment.

The empirical evidence provides support for Hypothesis H3, which asserts that investment knowledge positively affects investor performance, although the findings vary somewhat in terms of the mechanisms and investment approaches examined. Loebiantoro et al. (2021) found that both fundamental and technical analysis contributed positively to investment outcomes, particularly when accompanied by awareness of behavioral biases such as availability bias and the disposition effect. Similarly, Zhang et al. (2023) reported that financially knowledgeable Chinese investors demonstrated better investment behavior and higher stock investment returns. Adil et al. (2021), however, focused on the interaction between financial literacy and behavioral biases and found that financial knowledge could mitigate the effects of biases on investment decisions. These studies collectively indicate that investment knowledge may contribute to performance through different pathways, including analytical capability, improved investment behavior, and the ability to regulate behavioral biases. Therefore, although the direction of the evidence is generally consistent, the cross-study comparison suggests that the mechanism through which knowledge contributes to investment performance may differ across investor and market contexts.

Regarding Hypothesis H4, which proposes that behavioral factors are associated with investor performance, the empirical evidence is mixed across studies and market contexts. Mahmood et al. (2020) and Cao et al. (2021) reported that certain behavioral factors, particularly prospect-related and herding biases, were positively associated with investment performance. In contrast, Rehan et al. (2021) and Ong'eta (2021) indicated that behavioral biases such as overconfidence and anchoring may generate systematic decision errors and adversely affect investment outcomes. This divergence suggests that behavioral biases should not be interpreted as uniformly beneficial or detrimental to investment performance. Instead, their effects may vary depending on the type of behavioral bias, investors' ability to recognize and regulate such

biases, and the characteristics of the market environment. Therefore, the contradictory findings across studies highlight the importance of examining the decision-making process through which behavioral factors may influence investment performance.

Substantial empirical evidence supports Hypothesis H5, which posits that investment decision-making behavior positively influences investor performance, although the strength and nature of this effect vary across studies. Cao et al. (2021) found that behavioral factors significantly affected both investment decision-making and financial performance in the Vietnamese stock market, with prospect-related biases exerting a particularly strong influence. Similarly, Abdin et al. (2022) reported that overconfidence increased risk-taking and was associated with investment performance through aggressive investment behavior. However, Kumar et al. (2024) found that the effects of psychological biases such as heuristics and prospect bias varied according to investors' risk perceptions and other contextual factors. These differences suggest that investment decision-making behavior does not operate as a uniform mechanism across all investors or market settings. Instead, its influence on investment performance may depend on how investors process information, perceive risk, and respond to behavioral factors. Overall, the cross-study evidence supports the importance of investment decision-making behavior while also indicating that its effect may vary according to the psychological and contextual conditions surrounding investment decisions.

Hypothesis H6, which proposes that investment decision-making behavior mediates the relationship between investment knowledge and investor performance, is supported by evidence from studies using different research designs. Bokhari et al. (2023), using structural equation modeling (SEM), demonstrated that financial knowledge significantly influences investment decision-making behavior, which in turn mediates its effect on investment returns. Similarly, Bai (2023) identified investment decision-making behavior as a partial mediator between financial knowledge and financial well-being among Chinese university students. However, Wang et al. (2024) did not directly test the mediation effect; instead, their longitudinal evidence showed that higher financial literacy was associated with superior investment returns, suggesting but not directly establishing decision quality as an underlying mechanism. Thus, although the studies generally point toward a mediating role of decision-making behavior, the strength of the evidence differs according to the research design and population examined. These differences highlight the need for future empirical studies to directly test the proposed mediation mechanism across different investor and market contexts.

Finally, Hypothesis H7 posits that investment decision-making behavior mediates the relationship between behavioral biases and investor performance. However, cross-study evidence indicates that the effects of individual behavioral biases are not consistent across markets. Rajeshwaran (2020) found that heuristic bias positively influenced investment performance in the Sri Lankan stock market, whereas prospect, market, and herding biases were negatively associated with returns. Kunwar (2021) reported similar patterns among Nepalese investors. In contrast, Almansour et al. (2023), using SEM in the Saudi Arabian stock market, found that all four behavioral biases indirectly influenced investment performance through investment decision-making behavior. These differences suggest that the influence of behavioral biases on investment performance may vary according to the specific type of bias and market context. Nevertheless, the evidence concerning mediation indicates that investment decision-making behavior provides an important mechanism through which behavioral biases may be translated into investment outcomes. Therefore, the contradictory findings across markets further support the need to examine the mediating decision-making process rather than assuming a uniform direct effect of behavioral biases on investment performance.

Overall, the cross-study comparison demonstrates that the relationships proposed in the conceptual framework are generally supported, but the magnitude and direction of some effects vary across behavioral factors, investor characteristics, and market contexts. In particular, the evidence concerning behavioral biases is mixed, with some studies reporting positive effects under specific conditions and others identifying adverse consequences when biases are unmanaged. Differences are also evident in the evidence for mediation, as some studies directly establish decision-making behavior as a mediating mechanism, whereas others provide indirect evidence of such a mechanism. These variations indicate that investment behavior should be understood within its specific cognitive and market context rather than through a universally uniform effect. Accordingly, the proposed framework integrates these contrasting findings by positioning investment decision-making behavior as a mechanism through which investment knowledge and behavioral biases may influence investment performance.

CONCLUSION

This study provides robust evidence that investment knowledge and behavioral biases constitute structural determinants of investor performance, with investment decision-making behavior serving as a critical transmission mechanism that systematically links cognitive resources and behavioral tendencies to investment outcomes. The integrated conceptual framework developed from the Resource-Based View, Behavioral Finance Theory, and Dual-Process Theory advances behavioral finance literature by offering a comprehensive explanation of investment decision dynamics through the interaction of intellectual capital, psychological mechanisms, and cognitive processing systems. Although the study is limited by its conceptual nature, it establishes a theoretically rigorous foundation for future empirical validation and model testing. Moreover, the findings yield important policy and practical implications by informing the design of financial literacy initiatives and behaviorally informed interventions aimed at mitigating decision biases, enhancing market efficiency, and promoting the long-term stability and sustainability of capital markets.

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CONFLICT OF INTEREST STATEMENT

The author declares that there are no conflicts of interest regarding the publication of this study.

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