

From Digital Tools to Decision Outcomes: Understanding Investment Quality in FinTech Environments

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Received: 08-10-2025

Revised: 16-11-2025

Accepted: 24-12-2025

Published: 11-01-2026

ABSTRACT

The rapid expansion of financial technology (FinTech) has transformed individual investment practices by enabling real-time access to market information, digital trading platforms, and technology-driven decision-support tools. While FinTech adoption is widely assumed to improve investment outcomes, behavioral finance research suggests that digital environments may also introduce cognitive challenges, particularly through information overload. Drawing on Behavioral Finance Theory, Cognitive Load Theory, and the Technology Acceptance Model, this study examines how FinTech usage and information overload influence online investment decision quality, with decision confidence as a mediating variable and digital financial literacy as a moderating variable. Using a quantitative, cross-sectional research design, data were collected from individual online investors through a structured questionnaire and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results reveal that FinTech usage has a positive and significant effect on online investment decision quality, whereas information overload exerts a negative effect. FinTech usage was found to enhance investors' decision confidence, while information overload significantly reduced confidence. Decision confidence, in turn, positively influenced online investment decision quality and partially mediated the relationships between both FinTech usage and information overload with decision quality. Furthermore, digital financial literacy was found to significantly moderate the relationship between decision confidence and online investment decision quality, indicating that confidence leads to better investment decisions when supported by adequate digital financial knowledge. The findings contribute to behavioral finance and FinTech literature by shifting the focus from technology adoption and trading behavior to online investment decision quality as a process-oriented outcome. The study highlights the importance of managing information overload and strengthening digital financial literacy to ensure that FinTech-enabled confidence translates into high-quality investment decisions. The results offer valuable implications for investors, FinTech platform designers, educators, and policymakers seeking to promote informed and responsible participation in digital financial markets, particularly in emerging economies.

Keywords: FinTech usage; Information overload; Decision confidence; Digital financial literacy; Online investment decision quality; Behavioral finance; PLS-SEM

INTRODUCTION

The rapid advancement of financial technology (FinTech) has fundamentally transformed the landscape of individual investing. Digital trading platforms, mobile investment applications, robo-advisors, and online brokerage services have significantly reduced transaction costs, increased market accessibility, and enabled investors to make real-time investment decisions using technology-driven tools. These developments have reshaped how retail investors interact with financial markets, shifting investment decision-making from traditional, advisor-driven settings to fast-paced, self-directed digital environments (Venkatesh et al., 2012). As a result, understanding investor behavior in FinTech-enabled contexts has become a central concern in contemporary finance research.

Despite the perceived benefits of FinTech adoption, behavioral finance research consistently demonstrates that increased access to information and technology does not automatically lead to rational or high-quality financial decisions. Investors remain susceptible to cognitive limitations, emotional biases, and information-processing constraints, particularly in complex and uncertain environments (Barber & Odean, 2001). Digital investment platforms expose users to continuous streams of market data, analyst opinions, algorithmic recommendations, and social media signals, which may overwhelm investors rather than support effective decision-making. This phenomenon, commonly referred to as information overload, occurs when the volume or complexity of information exceeds an individual's cognitive capacity, leading to reduced decision effectiveness (Hwang & Lin, 1999; Epler & Mengis, 2004).

Prior research has shown that information overload negatively affects decision accuracy, confidence, and satisfaction in online and technology-mediated environments (Chen et al., 2009). In investment contexts, information overload may cause investors to rely on heuristics, delay decisions, or engage in impulsive trading behavior. However, much of the existing literature focuses on observable behavioral outcomes such as trading frequency, market participation, or portfolio turnover, rather than examining online investment decision quality as a distinct and process-oriented outcome. Decision quality captures how well investment decisions align with financial goals, risk preferences, and available information, making it a more comprehensive indicator of effective investing.

A critical yet underexplored psychological factor in digital investment decision-making is decision confidence. Decision confidence reflects an investor's subjective certainty regarding the correctness of their choices and plays a central role in determining whether individuals act on available information and tools. FinTech usage may enhance decision confidence by simplifying transactions and providing analytical support, while information overload may undermine confidence by increasing uncertainty and confusion. Prior studies in decision science suggest that confidence strongly influences decision effectiveness, but its mediating role between digital financial behavior and investment decision quality remains insufficiently examined in FinTech-based investment settings (Hwang & Lin, 1999; Chen et al., 2009).

Moreover, existing research provides mixed evidence on whether higher confidence consistently leads to better financial decisions, indicating the presence of important boundary conditions. One such condition is digital financial literacy, which refers to an individual's ability to understand digital financial products, evaluate online information, and assess technology-related risks. While financial literacy has been widely recognized as a determinant of sound financial behavior, most studies do not distinguish between traditional financial literacy and the digital competencies required for modern investing (Lusardi & Mitchell, 2014; OECD, 2018). Consequently, it remains unclear whether confident investors always make high-quality decisions, or whether insufficient digital financial literacy leads to overconfidence and suboptimal outcomes in online investment environments.

These issues are particularly relevant in emerging markets, where FinTech adoption is expanding rapidly but investor capabilities and regulatory protections may vary significantly. In countries such as Pakistan, increased smartphone penetration, digital banking initiatives, and regulatory support for financial inclusion have accelerated the growth of online investment platforms. At the same time, national policy reports highlight persistent gaps in financial and digital literacy among the population (State Bank of Pakistan, 2023). Despite this context, empirical research examining how FinTech usage and information overload jointly influence online investment decision quality through psychological mechanisms and capability-based moderators remains limited.

In response to these gaps, the present study develops and tests an integrated model that examines the effects of FinTech usage and information overload on online investment decision quality, with decision confidence as a mediating variable and digital financial literacy as a moderating variable. By shifting the focus from technology adoption and behavioral outcomes to decision quality, this study contributes to behavioral finance and FinTech literature and offers practical insights for investors, platform designers, educators, and policymakers seeking to improve digital investment outcomes.

Background of the Study

The increasing digitalization of financial services has significantly reshaped individual investment behavior across global financial markets. Advances in financial technology (FinTech), including mobile trading applications, robo-advisory services, and online brokerage platforms, have made investing more accessible, faster, and data-driven than ever before. These technologies provide investors with real-time market information, analytical tools, and automated decision support, which are expected to improve investment outcomes by reducing transaction costs and informational barriers (Venkatesh et al., 2012). As a result, digital investment platforms have experienced rapid adoption among retail investors, particularly in emerging economies where traditional financial access was previously limited.

However, the growing reliance on FinTech has also introduced new behavioral and cognitive challenges for investors. Behavioral finance literature suggests that individuals do not always behave rationally when making financial decisions, especially under conditions of uncertainty and complexity (Barber & Odean, 2001). Digital investment environments expose investors to continuous streams of financial data, expert opinions, algorithmic signals, and social media content, which may exceed their cognitive processing capacity. This phenomenon, commonly referred to as information overload, has been shown to impair judgment, reduce decision accuracy, and increase decision stress in online contexts (Eppler & Mengis, 2004; Hwang & Lin, 1999).

In online investment settings, information overload is particularly problematic because decisions are often time-sensitive and involve significant financial risk. Prior studies indicate that excessive information can lead investors to rely on heuristics, delay decisions, or make suboptimal choices that deviate from their financial goals (Chen et al., 2009). Despite these findings, much of the existing research emphasizes behavioral outcomes such as trading frequency or market participation, rather than examining online investment decision quality, which captures the effectiveness, consistency, and goal alignment of investment decisions.

A critical psychological factor influencing investment behavior in digital environments is decision confidence. Decision confidence reflects the degree of certainty investors feel regarding their choices and plays a central role in determining whether individuals act on available information and tools. While FinTech platforms may enhance confidence by providing analytical support and ease of use, information overload may simultaneously erode confidence by creating confusion and uncertainty. Prior research in decision-making contexts suggests that confidence strongly affects decision effectiveness, yet its

mediating role between digital financial behavior and investment decision quality remains underexplored (Hwang & Lin, 1999; Chen et al., 2009).

Moreover, the ability of investors to convert confidence into high-quality decisions may depend on their level of digital financial literacy. Digital financial literacy extends beyond traditional financial knowledge to include understanding of online financial products, digital interfaces, data interpretation, and technology-related risks. Although financial literacy has been widely recognized as a determinant of sound financial behavior, existing studies rarely examine digital financial literacy as a moderating factor in online investment decision-making (Lusardi & Mitchell, 2014; OECD, 2018). This gap is particularly relevant in digital investing environments, where confident but digitally illiterate investors may be more vulnerable to overconfidence and poor decision outcomes.

These issues are especially salient in emerging markets such as Pakistan, where FinTech adoption has accelerated rapidly due to increased smartphone penetration, digital banking initiatives, and regulatory support for financial inclusion. National policy initiatives emphasize the importance of improving financial and digital literacy to ensure responsible participation in digital financial markets (State Bank of Pakistan, 2023). Despite this growth, empirical research examining how FinTech usage, information overload, decision confidence, and digital financial literacy jointly influence online investment decision quality remains limited. Addressing this gap is essential for developing a comprehensive understanding of investor behavior in digital financial environments and for informing policy, education, and platform design aimed at improving investment decision quality.

Problem Statement

The rapid expansion of FinTech platforms has fundamentally transformed how individual investors participate in financial markets by enabling faster transactions, real-time data access, and algorithm-supported investment tools. Digital trading applications, robo-advisors, and online brokerage platforms have lowered entry barriers and increased market participation. However, empirical evidence suggests that increased access to financial technology does not automatically result in better investment outcomes or improved decision quality (Barber & Odean, 2001; Venkatesh et al., 2012). Many investors struggle to evaluate complex digital information, interpret automated recommendations, and make decisions that are consistently aligned with their financial objectives.

A major challenge associated with digital investing is information overload, where investors are exposed to excessive volumes of financial data, news updates, analyst opinions, and social media signals simultaneously. Prior research shows that when individuals face information beyond their cognitive processing capacity, decision effectiveness declines, leading to confusion, delayed decisions, or suboptimal choices (Hwang & Lin, 1999; Eppler & Mengis, 2004). Although the negative consequences of information overload are well documented in general decision-making and e-commerce contexts, empirical findings remain fragmented in online investment settings, where the speed and complexity of information are substantially higher (Chen et al., 2009). Moreover, much of the existing literature focuses on behavioral outcomes such as trading frequency or participation rather than explicitly examining online investment decision quality.

Another unresolved issue concerns the psychological mechanism through which FinTech usage and information overload influence investment outcomes. While studies have examined constructs such as perceived usefulness, trust, and perceived risk, limited attention has been given to decision confidence as a mediating variable in digital investment contexts. Decision confidence plays a critical role in judgment and choice, as it influences investors' willingness to act, their consistency in decision-making, and their evaluation of outcomes. Prior evidence indicates that information overload can reduce confidence, which

in turn affects decision effectiveness, yet this pathway has not been sufficiently examined within FinTech-based investing environments (Hwang & Lin, 1999; Chen et al., 2009).

Furthermore, existing research presents mixed evidence regarding whether confidence consistently leads to higher-quality financial decisions, suggesting the presence of important boundary conditions. One such condition is digital financial literacy, which reflects investors' ability to understand digital financial products, interpret online information, and assess technology-related risks. While financial literacy has been shown to improve financial behavior and outcomes, most studies do not distinguish between traditional and digital financial literacy, nor do they test literacy as a moderator between decision confidence and investment decision quality (Lusardi & Mitchell, 2014; OECD, 2018). Consequently, it remains unclear whether confident investors always make better decisions or whether confidence may lead to overconfidence and poor outcomes in the absence of adequate digital financial knowledge.

These issues are particularly salient in emerging markets, where FinTech adoption is expanding rapidly but levels of digital financial literacy and investor protection vary widely. In countries such as Pakistan, digital banking and online investment platforms are growing, yet empirical research examining integrated models of FinTech usage, information overload, decision confidence, and digital financial literacy remains limited. National policy reports emphasize the need to enhance financial and digital literacy to support informed financial decision-making (State Bank of Pakistan, 2023). Therefore, there is a clear need for empirical research that explains how digital financial behavior influences online investment decision quality through psychological mechanisms and capability-based boundary conditions.

Purpose of the Study

The purpose of this study is to examine how digital financial behavior influences the quality of online investment decisions in a FinTech-driven investment environment. Specifically, the study aims to investigate the effects of FinTech usage and information overload on online investment decision quality, while explaining the underlying psychological mechanism through investors' decision confidence. As digital investment platforms continue to expand, investors are increasingly required to process large volumes of real-time financial information using technology-based tools. However, it remains unclear whether such digital engagement improves decision quality or introduces cognitive challenges that undermine effective investment outcomes.

This study further seeks to explain *how* and *under what conditions* digital financial behavior translates into high-quality investment decisions. By positioning decision confidence as a mediating variable, the research examines whether FinTech usage enhances confidence and whether information overload diminishes it, thereby influencing the quality of online investment decisions. In addition, the study incorporates digital financial literacy as a moderating variable to assess whether investors' ability to understand and evaluate digital financial information strengthens or weakens the relationship between decision confidence and decision quality. This approach recognizes that confidence alone may not guarantee effective decisions unless supported by adequate digital financial knowledge.

Finally, the study aims to contribute empirical evidence from an emerging market context, where FinTech adoption is rapidly increasing but levels of digital financial literacy vary widely. By testing an integrated moderated-mediation model, the research seeks to extend behavioral finance and FinTech literature by shifting the focus from adoption and usage outcomes toward decision quality, offering practical insights for investors, financial educators, platform designers, and policymakers concerned with improving digital investment outcomes.

Research Gap

Despite the rapid growth of FinTech platforms and digital investment tools, existing research has largely focused on technology adoption, usage intention, or trading frequency, rather than on the quality of investment decisions made in digital environments. Prior studies mainly assess outcomes such as trading volume, market participation, or portfolio turnover, leaving a conceptual and empirical gap regarding how FinTech usage influences the *quality* of online investment decisions, including accuracy, goal alignment, and post-decision satisfaction. Decision quality is a more process-oriented and cognitively grounded outcome, yet it remains underexplored in FinTech-driven investment contexts (Barber & Odean, 2001; Venkatesh et al., 2012). This gap limits understanding of whether increased FinTech usage genuinely improves investor outcomes or merely accelerates decision-making behavior.

In parallel, a substantial body of literature acknowledges that information overload negatively affects decision-making, particularly in digital and online settings. Classical and contemporary studies demonstrate that excessive, complex, or conflicting information can impair cognitive processing and reduce decision effectiveness (Hwang & Lin, 1999; Eppler & Mengis, 2004). However, empirical findings remain inconsistent because prior studies operationalize outcomes differently, focusing variously on decision accuracy, satisfaction, confusion, or avoidance. In the context of online investing, this inconsistency is more pronounced, as investors are exposed to real-time data, social media signals, algorithmic recommendations, and financial news simultaneously. As a result, the specific effect of information overload on online investment decision quality remains insufficiently clarified (Chen et al., 2009).

Moreover, while both FinTech usage and information overload have been studied independently, very few studies integrate these two forces within a single explanatory framework. FinTech tools can simultaneously reduce effort and increase information exposure, creating a paradoxical environment where technology both enables and constrains rational decision-making. Existing research tends to examine FinTech as a facilitating mechanism or information overload as a cognitive burden, but rarely tests their combined effects on investor decision processes. This fragmented approach overlooks the reality of digital investing, where investors experience both effects concurrently (Eppler & Mengis, 2004; Venkatesh et al., 2012).

A further critical gap concerns the psychological mechanism through which digital financial behavior influences investment outcomes. While prior research has explored constructs such as perceived usefulness, trust, or perceived risk, decision confidence has received limited attention as a mediating variable in online investment contexts. Decision confidence plays a central role in behavioral finance, as it affects judgment, timing, and consistency of investment choices. Studies outside finance show that information overload reduces confidence, which in turn affects decision effectiveness, yet this mediating pathway has not been sufficiently tested in digital investment settings (Hwang & Lin, 1999; Chen et al., 2009). Consequently, the internal cognitive process linking FinTech usage and information overload to decision quality remains theoretically underdeveloped.

Additionally, the literature provides mixed evidence on whether confidence reliably translates into better decisions, suggesting the presence of important boundary conditions. One such boundary condition is digital financial literacy, which reflects an individual's ability to understand digital financial products, interpret online information, and assess risks associated with technology-based investing. Prior studies confirm that financial literacy improves financial behavior and outcomes, but most do not distinguish between traditional and digital literacy, nor do they examine literacy as a moderator between confidence and decision quality (Lusardi & Mitchell, 2014; OECD, 2018). As a result, it remains unclear whether confident investors consistently make high-quality decisions, or whether confidence becomes detrimental in the absence of adequate digital financial literacy.

Finally, there is a notable contextual gap in emerging economies, particularly Pakistan. While studies from developed markets dominate FinTech and behavioral finance research, developing countries differ significantly in terms of digital infrastructure, regulatory maturity, investor sophistication, and financial literacy levels. Existing Pakistani studies primarily focus on investment intention or basic financial literacy, rather than on online investment decision quality within a FinTech ecosystem. Given the rapid expansion of mobile banking, digital wallets, and online trading platforms in Pakistan, this context offers a unique and underexplored setting to test a moderated mediation model involving FinTech usage, information overload, decision confidence, and digital financial literacy (State Bank of Pakistan, 2023).

Taken together, these gaps justify the present study's integrated framework, which simultaneously examines technological factors (FinTech usage), cognitive constraints (information overload), psychological mechanisms (decision confidence), and capability-based boundary conditions (digital financial literacy) to explain online investment decision quality.

Research Questions

RQ1: How does FinTech usage influence online investment decision quality?

RQ2: What effect does information overload have on online investment decision quality?

RQ3: How does FinTech usage affect investors' decision confidence in online investment contexts?

RQ4: What is the impact of information overload on investors' decision confidence?

RQ5: How does decision confidence influence online investment decision quality?

RQ6a: Does decision confidence mediate the relationship between FinTech usage and online investment decision quality?

RQ6b: Does decision confidence mediate the relationship between information overload and online investment decision quality?

RQ7: Does digital financial literacy moderate the relationship between decision confidence and online investment decision quality?

Research Objectives

1. To examine the influence of FinTech usage on online investment decision quality.
2. To assess the effect of information overload on online investment decision quality.
3. To analyze how FinTech usage affects investors' decision confidence in online investment contexts.
4. To evaluate the impact of information overload on investors' decision confidence.
5. To examine the effect of decision confidence on online investment decision quality.
6. To investigate whether decision confidence mediates the relationship between FinTech usage and online investment decision quality.
7. To investigate whether decision confidence mediates the relationship between information overload and online investment decision quality.
8. To examine whether digital financial literacy moderates the relationship between decision confidence and online investment decision quality.

Hypotheses

H1: FinTech usage has a positive and significant effect on online investment decision quality.

H2: Information overload has a negative and significant effect on online investment decision quality.

H3: FinTech usage has a positive and significant effect on investors' decision confidence.

H4: Information overload has a negative and significant effect on investors' decision confidence.

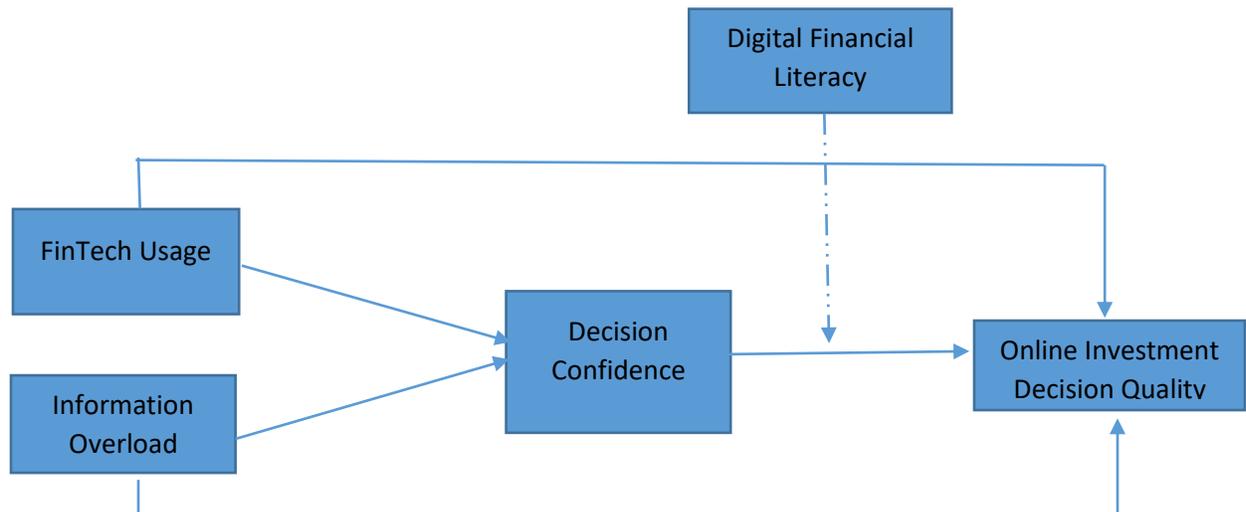
H5: Decision confidence has a positive and significant effect on online investment decision quality.

H6a: Decision confidence mediates the relationship between FinTech usage and online investment decision quality.

H6b: Decision confidence mediates the relationship between information overload and online investment decision quality.

H7: Digital financial literacy moderates the relationship between decision confidence and online investment decision quality such that the relationship is stronger when digital financial literacy is high.

Conceptual Framework



LITERATURE REVIEW

FinTech Usage and Online Investment Decision Quality

FinTech usage has become a defining feature of modern investment behavior, enabling investors to access real-time market data, analytical tools, and automated decision-support systems. Prior research grounded in technology acceptance and behavioral finance suggests that technology-enhanced decision environments can improve decision effectiveness by reducing information asymmetry and transaction costs (Venkatesh et al., 2012). Digital investment platforms provide structured information, visualization tools, and alerts that may help investors evaluate alternatives more systematically, thereby improving online investment decision quality. Empirical evidence indicates that investors using advanced trading platforms tend to make more timely and informed decisions compared to those relying on traditional channels (Barber & Odean, 2001). However, improved access alone does not guarantee rationality, making it essential to empirically test the direct effect of FinTech usage on decision quality. Based on this reasoning, this study proposes that greater FinTech usage positively influences online investment decision quality.

H1: FinTech usage has a positive and significant effect on online investment decision quality.

Information Overload and Online Investment Decision Quality

Information overload occurs when the volume, complexity, or ambiguity of information exceeds an individual's cognitive processing capacity. Decision-making research consistently shows that excessive information can impair judgment, reduce decision accuracy, and increase confusion (Hwang & Lin, 1999; Eppler & Mengis, 2004). In online investment environments, investors are exposed to continuous streams of financial news, analyst opinions, algorithmic signals, and social media content, which may lead to difficulty in distinguishing relevant from irrelevant information. Studies in e-commerce and online decision-making contexts demonstrate that information overload negatively affects decision satisfaction and effectiveness (Chen et al., 2009). In financial markets, such cognitive strain can result in poor portfolio choices or reliance on heuristics rather than systematic analysis. Therefore, information overload is expected to reduce the quality of online investment decisions.

H2: Information overload has a negative and significant effect on online investment decision quality.

FinTech Usage and Decision Confidence

Decision confidence reflects the extent to which individuals feel certain about the correctness of their decisions. Technology acceptance research suggests that digital tools enhance perceived control and self-efficacy by simplifying complex tasks and providing decision support (Venkatesh et al., 2012). In investment contexts, FinTech platforms offer performance dashboards, predictive analytics, and automated recommendations that may increase investors' confidence in their choices. Behavioral finance studies show that access to advanced tools can enhance perceived competence, even among non-expert investors (Barber & Odean, 2001). As a result, frequent and effective use of FinTech platforms is likely to strengthen investors' decision confidence in online investment settings.

H3: FinTech usage has a positive and significant effect on investors' decision confidence.

Information Overload and Decision Confidence

While access to information is essential for informed decision-making, excessive information can undermine confidence by increasing uncertainty and cognitive strain. Decision science research demonstrates that information overload reduces individuals' ability to evaluate alternatives and increases doubt regarding chosen options (Hwang & Lin, 1999). In online environments, conflicting signals and rapidly changing data can lead investors to question their judgments, thereby reducing decision confidence. Empirical studies show that individuals experiencing information overload report lower confidence and higher decision anxiety (Chen et al., 2009). In the context of digital investing, where timely decisions are critical, information overload is therefore expected to negatively influence investors' decision confidence.

H4: Information overload has a negative and significant effect on investors' decision confidence.

Decision Confidence and Online Investment Decision Quality

Decision confidence plays a crucial role in translating information and analysis into action. Confident decision-makers are more likely to act decisively, evaluate outcomes positively, and maintain consistency with their goals. Behavioral finance literature suggests that appropriate levels of confidence improve judgment and reduce decision paralysis (Barber & Odean, 2001). However, confidence must be distinguished from overconfidence; when grounded in adequate information and understanding, confidence enhances decision quality. Prior decision-making studies indicate that higher confidence is associated with improved decision satisfaction and effectiveness (Hwang & Lin, 1999). Therefore, decision confidence is expected to positively influence online investment decision quality.

H5: Decision confidence has a positive and significant effect on online investment decision quality.

Mediating Role of Decision Confidence

Mediation theory suggests that external factors influence outcomes through internal psychological mechanisms. In digital investment environments, FinTech usage and information overload are unlikely to affect decision quality directly without influencing investors' cognitive states. FinTech usage may enhance decision confidence by providing analytical support and ease of use, which in turn improves decision quality. Conversely, information overload may reduce confidence, leading to poorer decision outcomes. Prior studies in decision science confirm that confidence acts as a key intermediary between information conditions and decision effectiveness (Hwang & Lin, 1999; Chen et al., 2009). Despite this theoretical relevance, limited research has empirically tested decision confidence as a mediator in FinTech-based investing. This study addresses this gap by proposing a dual mediation mechanism.

H6a: Decision confidence mediates the relationship between FinTech usage and online investment decision quality.

H6b: Decision confidence mediates the relationship between information overload and online investment decision quality.

Moderating Role of Digital Financial Literacy

Digital financial literacy refers to an individual's ability to understand digital financial products, interpret online information, and evaluate technology-related risks. While confidence influences decision-making, its effectiveness depends on the decision-maker's underlying knowledge and skills. Financial literacy research shows that knowledgeable individuals are better able to process information and make sound financial decisions (Lusardi & Mitchell, 2014). In digital environments, literacy becomes even more critical due to platform complexity and information abundance. OECD (2018) emphasizes that digital competencies are essential for responsible participation in modern financial markets. Accordingly, investors with higher digital financial literacy are more likely to translate confidence into high-quality decisions, whereas low literacy may lead to overconfidence and suboptimal outcomes. Thus, digital financial literacy is expected to moderate the relationship between decision confidence and online investment decision quality.

H7: Digital financial literacy moderates the relationship between decision confidence and online investment decision quality such that the relationship is stronger when digital financial literacy is high.

RESEARCH METHODOLOGY

Research Design

This study employs a quantitative research design to empirically examine the relationships among FinTech usage, information overload, decision confidence, digital financial literacy, and online investment decision quality. A quantitative design is appropriate because the study seeks to test theoretically grounded hypotheses and examine causal relationships among latent constructs using statistical modeling techniques (Creswell & Creswell, 2018). The research adopts a cross-sectional design, where data are collected at a single point in time, which is widely used in behavioral finance and FinTech research due to its efficiency and suitability for perception-based constructs (Hair et al., 2019).

Research Philosophy and Approach

The study is grounded in a positivist research philosophy, which assumes that reality is objective, measurable, and independent of the researcher. Positivism emphasizes hypothesis testing, empirical

observation, and statistical analysis, making it suitable for examining structured relationships among variables (Saunders et al., 2019).

Consistent with this philosophy, the study follows a deductive research approach, where hypotheses are derived from established theories such as Behavioral Finance Theory, Cognitive Load Theory, and technology acceptance frameworks. The deductive approach allows for systematic theory testing and generalization of findings based on empirical evidence (Bryman, 2016).

Theoretical Framework

The theoretical framework of this study integrates three major theoretical perspectives. Behavioral Finance Theory explains how psychological factors such as confidence influence financial decision-making under uncertainty and bounded rationality (Barber & Odean, 2001). Cognitive Load Theory provides the foundation for understanding how information overload impairs cognitive processing and decision effectiveness when information exceeds individuals' mental capacity (Sweller, 1988; Epler & Mengis, 2004).

In addition, the Technology Acceptance Model (TAM) explains how technology usage influences users' perceptions and behavioral outcomes through perceived usefulness and ease of use (Venkatesh et al., 2012). By integrating these perspectives, the framework conceptualizes FinTech usage and information overload as key antecedents, decision confidence as a mediating psychological mechanism, digital financial literacy as a moderating capability-based factor, and online investment decision quality as the outcome variable.

Population and Sampling

The target population of this study consists of individual investors who actively use online investment platforms, including mobile trading applications, online brokerage accounts, and digital investment portals. These investors are assumed to have prior exposure to FinTech-enabled decision-making processes.

Due to the absence of a comprehensive sampling frame of online investors, the study employs a non-probability convenience sampling technique. Convenience sampling is commonly used in behavioral finance and FinTech research, particularly when respondents are geographically dispersed and accessible through digital channels (Hair et al., 2019). Respondents are selected based on the criterion that they have engaged in online investment activities within the recent past.

Data Collection Method

Primary data are collected using a structured, self-administered questionnaire. Survey-based data collection is appropriate for capturing perceptions, attitudes, and self-reported behaviors related to investment decision-making (Bryman, 2016).

The questionnaire consists of closed-ended items measured on a five-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Data are collected through online survey platforms, including email distribution and investor-focused social media groups. Online data collection is suitable given the digital nature of the study context and the technological familiarity of the target population.

Measurement of Variables

All constructs in this study are operationalized using multi-item reflective measurement scales adapted from established literature to ensure content validity.

- FinTech Usage is measured using items that assess the frequency and extent of using digital investment platforms and tools (Venkatesh et al., 2012).
- Information Overload is measured using items capturing perceived excessiveness, complexity, and difficulty in processing investment-related information (Hwang & Lin, 1999; Chen et al., 2009).
- Decision Confidence is measured through items reflecting certainty and self-assurance in online investment decisions (Hwang & Lin, 1999).
- Digital Financial Literacy is measured using items assessing understanding of digital financial products, ability to evaluate online information, and awareness of technology-related risks (Lusardi & Mitchell, 2014; OECD, 2018).
- Online Investment Decision Quality is measured using items related to decision effectiveness, goal alignment, and satisfaction with investment outcomes (Hwang & Lin, 1999).

All items are slightly adapted to fit the online investment context while preserving their original meaning.

Data Analysis Technique

Data analysis is conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. PLS-SEM is suitable for this study because it effectively handles complex models involving mediation and moderation, does not require multivariate normality, and performs well with medium sample sizes (Hair et al., 2019).

The analysis follows a two-stage approach. First, the measurement model is assessed to evaluate reliability and validity of the constructs. Second, the structural model is examined to test hypothesized relationships, including direct effects, mediation effects using bootstrapping procedures, and moderation effects using interaction terms.

Validity and Reliability

Reliability is assessed using Cronbach's alpha and composite reliability (CR), with values above 0.70 indicating acceptable internal consistency (Hair et al., 2019).

Convergent validity is evaluated through factor loadings and Average Variance Extracted (AVE), ensuring AVE values exceed the threshold of 0.50 (Fornell & Larcker, 1981).

Discriminant validity is assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio, ensuring that constructs are empirically distinct (Henseler et al., 2015).

To reduce common method bias, procedural remedies are applied, including anonymity of respondents, clear item wording, and separation of construct measurement within the questionnaire (Podsakoff et al., 2003).

FINDINGS

Measurement Model:

The measurement model was evaluated to ensure the reliability, convergent validity, discriminant validity, model fit, and explanatory power of the constructs used in the study, following established guidelines for Partial Least Squares Structural Equation Modeling (PLS-SEM). Internal consistency reliability was first assessed using Cronbach's alpha, ρ_A , and composite reliability. As reported in Table 1, Cronbach's alpha values ranged from 0.728 to 0.873, exceeding the recommended threshold of

0.70, which indicates satisfactory internal consistency among the measurement items (Nunnally & Bernstein, 1994). Similarly, rho_A values were all above 0.70, further confirming construct reliability. Composite reliability values ranged between 0.829 and 0.905, demonstrating strong internal consistency across all constructs and supporting the appropriateness of the reflective measurement model (Hair et al., 2019).

Convergent validity was examined through the Average Variance Extracted (AVE). The AVE values for all constructs exceeded the minimum recommended value of 0.50, ranging from 0.549 to 0.613, indicating that each construct explains more than half of the variance of its indicators (Fornell & Larcker, 1981). These results confirm that the indicators adequately represent their underlying latent variables and that convergent validity is established for the measurement model.

Discriminant validity was first assessed using the Fornell–Larcker criterion, as presented in Table 2. The square roots of the AVE values for each construct were greater than the corresponding inter-construct correlations, demonstrating that each construct is empirically distinct from the others (Fornell & Larcker, 1981). The measurement model illustrated in Figure 1 further supports this finding, as each construct shows stronger relationships with its own indicators compared to other constructs, indicating minimal overlap among the latent variables.

To further strengthen the assessment of discriminant validity, the Heterotrait–Monotrait (HTMT) ratio was examined, as shown in Table 3. All HTMT values ranged from 0.460 to 0.785, which are below the conservative threshold of 0.85 recommended for establishing discriminant validity (Henseler et al., 2015). These results provide robust evidence that multicollinearity is not a concern and that the constructs measure conceptually distinct phenomena.

Model fit was assessed using several goodness-of-fit indices, including the Standardized Root Mean Square Residual (SRMR), d_ULS, d_G, chi-square, and Normed Fit Index (NFI), as reported in Table 4. The SRMR values for both the saturated model (0.072) and the estimated model (0.080) fall within acceptable limits, indicating a satisfactory fit between the proposed model and the observed data (Hu & Bentler, 1999). Although PLS-SEM does not emphasize global model fit to the same extent as covariance-based SEM, these indices provide additional support for the adequacy of the measurement model (Hair et al., 2019).

The explanatory power of the model was evaluated using the coefficient of determination (R^2), as shown in Table 5. The R^2 value for decision confidence is 0.262, suggesting that FinTech usage and information overload jointly explain 26.2% of the variance in decision confidence, which is considered moderate for psychological constructs in behavioral finance research (Hair et al., 2019). Furthermore, the R^2 value for online investment decision quality is 0.534, indicating that more than half of the variance in investment decision quality is explained by decision confidence, FinTech usage, information overload, and digital financial literacy. This level of explanatory power is considered substantial and demonstrates the strong predictive capability of the proposed model (Chin, 1998).

Overall, the results of the measurement model assessment confirm that the constructs used in the study exhibit strong reliability, adequate convergent validity, robust discriminant validity, acceptable model fit, and substantial explanatory power. These findings provide a solid empirical foundation for proceeding with the structural model analysis and hypothesis testing.

Table 1: Reliability

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Decision Confidence	0.781	0.782	0.859	0.603
Digital Financial Literacy	0.728	0.743	0.829	0.549
FinTech Usage	0.873	0.878	0.905	0.613
Information Overload	0.752	0.753	0.843	0.573
Online Investment Decision Quality	0.825	0.825	0.877	0.589

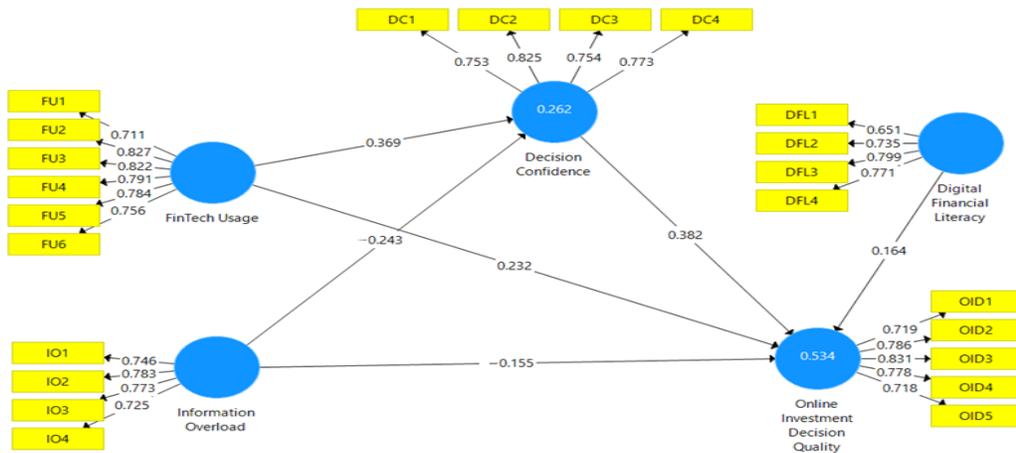


Figure 1 Measurement Model

Table 2: Fornell and larcker

	DC	DFL	FU	IO	OIQ
Decision Confidence	0.777				
Digital Financial Literacy	0.544	0.741			
FinTech Usage	0.459	0.503	0.783		
Information Overload	0.380	0.458	0.371	0.757	
Online Investment Decision Quality	0.637	0.560	0.548	0.462	0.768

Table 3: HTMT Table

	Decision Confidence	Digital Financial Literacy	FinTech Usage	Information Overload	Online Investment Decision Quality
Decision Confidence					
Digital Financial Literacy	0.708				
FinTech Usage	0.548	0.625			

Information Overload	0.494	0.634	0.460		
Online Investment Decision Quality	0.785	0.701	0.636	0.580	

Table 4: Model Fit Criterion

	Saturated Model	Estimated Model
SRMR	0.072	0.080
d_ULS	1.449	1.774
d_G	0.441	0.470
Chi-Square	787.290	812.533
NFI	0.754	0.746

Table 5: R2

	R Square	R Square Adjusted
Decision Confidence	0.262	0.257
Online Investment Decision Quality	0.534	0.528

Structural Model

The structural model was evaluated to test the hypothesized relationships among FinTech usage, information overload, decision confidence, digital financial literacy, and online investment decision quality. The assessment was conducted using bootstrapping procedures in PLS-SEM to examine the significance of path coefficients, t-statistics, and p-values, as recommended in prior methodological literature (Hair et al., 2019). The results of the hypothesis testing are summarized in Table 7 and discussed below.

The direct effect of FinTech usage on online investment decision quality was found to be positive and statistically significant ($\beta = 0.232$, $t = 3.729$, $p < 0.001$), supporting H1. This result indicates that greater use of FinTech platforms enhances the quality of online investment decisions, likely due to improved access to real-time information, analytical tools, and ease of transaction execution. This finding is consistent with technology acceptance and behavioral finance research, which suggests that digital tools can improve decision effectiveness when used appropriately (Venkatesh et al., 2012; Barber & Odean, 2001).

In contrast, information overload exhibited a negative and significant effect on online investment decision quality ($\beta = -0.155$, $t = 2.335$, $p = 0.020$), thus supporting H2. This finding confirms that excessive and complex information negatively affects investors' ability to make effective online investment decisions. The result aligns with cognitive load theory, which argues that decision quality deteriorates when cognitive processing capacity is exceeded (Sweller, 1988; Eppler & Mengis, 2004).

Regarding the antecedents of decision confidence, FinTech usage showed a strong positive effect on decision confidence ($\beta = 0.369$, $t = 6.207$, $p < 0.001$), providing support for H3. This suggests that frequent engagement with digital investment platforms enhances investors' perceived certainty and confidence in their decisions. Conversely, information overload negatively affected decision confidence ($\beta = -0.243$, $t = 3.808$, $p < 0.001$), supporting H4. This result implies that exposure to excessive information increases confusion and uncertainty, thereby reducing confidence in online investment

decision-making. These findings are consistent with prior decision-making studies emphasizing the psychological consequences of information overload (Hwang & Lin, 1999; Chen et al., 2009).

The direct relationship between decision confidence and online investment decision quality was also found to be positive and highly significant ($\beta = 0.382, t = 5.698, p < 0.001$), supporting H5. This indicates that investors who feel more confident in their decisions are more likely to make effective and goal-aligned investment choices. The result reinforces behavioral finance arguments that appropriate levels of confidence facilitate decisive and consistent investment behavior (Barber & Odean, 2001).

The mediating role of decision confidence was examined through indirect effects. The indirect effect of FinTech usage on online investment decision quality via decision confidence was positive and significant ($\beta = 0.133, t = 4.438, p < 0.001$), supporting H6a. Similarly, the indirect effect of information overload on online investment decision quality through decision confidence was also significant ($\beta = 0.088, t = 3.032, p = 0.003$), supporting H6b. These findings confirm that decision confidence serves as a key psychological mechanism through which both enabling (FinTech usage) and constraining (information overload) factors influence investment decision quality. This mediating effect is theoretically consistent with decision science literature, which highlights confidence as an intermediary between information conditions and decision outcomes (Hwang & Lin, 1999).

The moderating effect of digital financial literacy on the relationship between decision confidence and online investment decision quality was also supported ($\beta = 0.164, t = 2.038, p = 0.042$), confirming H7. This result suggests that the positive impact of decision confidence on investment decision quality is stronger for investors with higher levels of digital financial literacy. In other words, confidence translates into better decision outcomes when investors possess the necessary digital and financial knowledge to effectively interpret and apply online information. This finding aligns with prior financial literacy research, which emphasizes that knowledge enhances the effectiveness of financial decision-making (Lusardi & Mitchell, 2014; OECD, 2018).

The predictive relevance of the model was assessed using the Stone–Geisser Q^2 statistic, as shown in Table 8. The Q^2 value for decision confidence was 0.153, indicating moderate predictive relevance, while the Q^2 value for online investment decision quality was 0.300, suggesting strong predictive relevance of the structural model (Hair et al., 2019). Q^2 values greater than zero confirm that the model has meaningful predictive capability and is not merely explanatory in nature (Chin, 1998).

Overall, the structural model results demonstrate strong empirical support for all hypothesized relationships. The findings confirm that FinTech usage and information overload jointly shape online investment decision quality through decision confidence, while digital financial literacy acts as an important boundary condition that strengthens the confidence–decision quality relationship. These results validate the robustness of the proposed moderated mediation framework and provide a solid foundation for theoretical and practical implications.

Table 6: Direct and Indirect Effects

HY P	PATHWAYS	Beta β	T Statistics	P Values	Result
H1	FinTech Usage -> Online Investment Decision Quality	0.232	3.729	0.000	ACCEPTED
H2	Information Overload -> Online Investment Decision Quality	-0.155	2.335	0.020	ACCEPTED
H3	FinTech Usage -> Decision Confidence	0.369	6.207	0.000	ACCEPTED
H4	Information Overload -> Decision	-0.243	3.808	0.000	ACCEPTED

	Confidence				
H5	Decision Confidence -> Online Investment Decision Quality	0.382	5.698	0.000	ACCEPTED
H6a	FinTech Usage -> Decision Confidence -> Online Investment Decision Quality	0.133	4.438	0.000	ACCEPTED
H6b	Information Overload -> Decision Confidence -> Online Investment Decision Quality	0.088	3.032	0.003	ACCEPTED
H7	DFL*DC -> Online Investment Decision Quality	0.164	2.038	0.042	ACCEPTED

Table 7: q2

	SSO	SSE	Q ² (=1-SSE/SSO)
Decision Confidence	1224.000	1036.229	0.153
Digital Financial Literacy	1224.000	1224	
FinTech Usage	1836.000	1836	
Information Overload	1224.000	1224	
Moderating Effect 1	306.000	306	
Online Investment Decision Quality	1530.000	1070.472	0.3

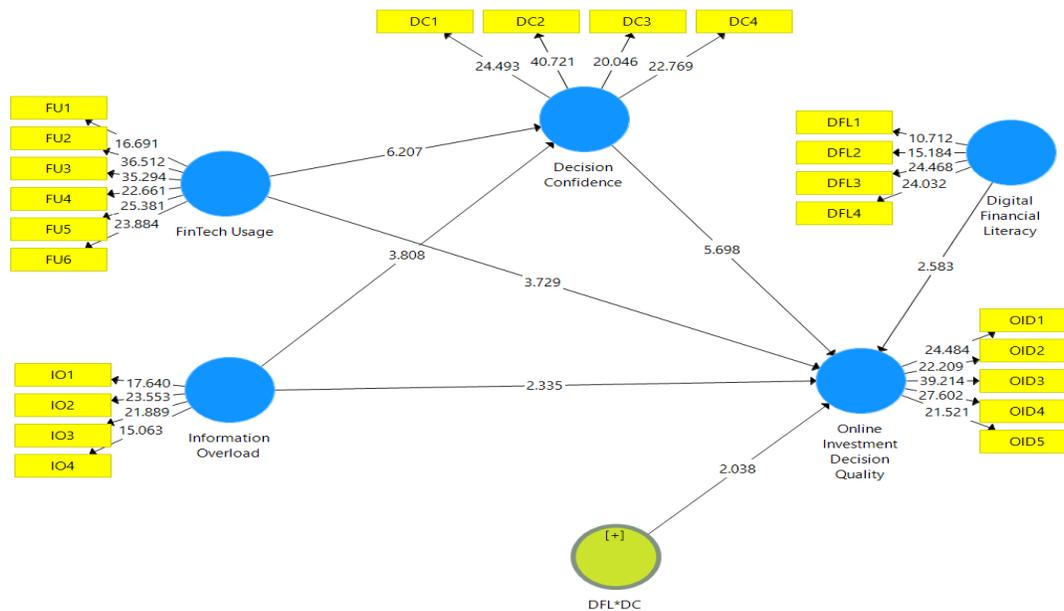


Figure 2 Moderation

RESULTS

This section presents the empirical results of the study based on Partial Least Squares Structural Equation Modeling (PLS-SEM). The results include an assessment of the measurement model, evaluation of the structural model, hypothesis testing, mediation and moderation analysis, and the predictive relevance of

the proposed model. All analyses were conducted using SmartPLS with bootstrapping procedures to ensure robust statistical inference.

The measurement model results indicate that all constructs demonstrate satisfactory reliability and validity. Internal consistency reliability was confirmed through Cronbach's alpha, rho_A, and composite reliability values, all of which exceeded the recommended threshold of 0.70. Convergent validity was established as the Average Variance Extracted (AVE) values for all constructs were above 0.50, indicating that the indicators adequately capture their respective latent variables. Discriminant validity was confirmed using both the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio, as the square roots of AVE were greater than inter-construct correlations and all HTMT values remained below the conservative threshold of 0.85. Collectively, these results confirm that the measurement model is reliable and valid, allowing for meaningful interpretation of the structural relationships.

The structural model was then evaluated to test the hypothesized relationships among the study variables. The results show that FinTech usage has a positive and statistically significant effect on online investment decision quality ($\beta = 0.232$, $t = 3.729$, $p < 0.001$), supporting Hypothesis H1. This finding indicates that increased use of digital investment platforms enhances the effectiveness and quality of online investment decisions. In contrast, information overload exhibits a negative and significant effect on online investment decision quality ($\beta = -0.155$, $t = 2.335$, $p = 0.020$), supporting Hypothesis H2. This result suggests that excessive or complex information impairs investors' ability to make effective online investment decisions.

Regarding the determinants of decision confidence, the results demonstrate that FinTech usage positively influences decision confidence ($\beta = 0.369$, $t = 6.207$, $p < 0.001$), providing strong support for Hypothesis H3. This implies that greater engagement with FinTech tools increases investors' certainty and confidence in their decision-making. Conversely, information overload negatively affects decision confidence ($\beta = -0.243$, $t = 3.808$, $p < 0.001$), supporting Hypothesis H4. This finding highlights that exposure to excessive information increases confusion and uncertainty, thereby reducing confidence in online investment decisions.

The relationship between decision confidence and online investment decision quality was also found to be positive and highly significant ($\beta = 0.382$, $t = 5.698$, $p < 0.001$), supporting Hypothesis H5. This result indicates that investors who feel more confident in their decisions are more likely to make higher-quality investment choices that are aligned with their financial objectives.

Mediation analysis was conducted to examine whether decision confidence explains the relationship between the independent variables and online investment decision quality. The indirect effect of FinTech usage on online investment decision quality through decision confidence was positive and statistically significant ($\beta = 0.133$, $t = 4.438$, $p < 0.001$), supporting Hypothesis H6a. Similarly, the indirect effect of information overload on online investment decision quality via decision confidence was also significant ($\beta = 0.088$, $t = 3.032$, $p = 0.003$), supporting Hypothesis H6b. These findings confirm that decision confidence partially mediates the effects of both FinTech usage and information overload on investment decision quality, indicating that these variables influence decision outcomes both directly and indirectly through investors' psychological confidence.

The moderating effect of digital financial literacy was examined by testing the interaction between decision confidence and digital financial literacy on online investment decision quality. The results reveal a positive and significant interaction effect ($\beta = 0.164$, $t = 2.038$, $p = 0.042$), supporting Hypothesis H7. This indicates that the positive relationship between decision confidence and investment decision quality becomes stronger at higher levels of digital financial literacy. In other words, confident investors with

stronger digital financial knowledge are better able to translate confidence into high-quality investment decisions compared to those with lower levels of digital financial literacy.

The explanatory power of the model was assessed using the coefficient of determination (R^2). The results show that FinTech usage and information overload explain 26.2% of the variance in decision confidence, indicating a moderate level of explanatory power. Furthermore, 53.4% of the variance in online investment decision quality is explained by FinTech usage, information overload, decision confidence, and digital financial literacy, which represents a substantial level of explanatory power in behavioral finance research.

Predictive relevance was evaluated using the Stone–Geisser Q^2 statistic. The Q^2 value for decision confidence ($Q^2 = 0.153$) indicates moderate predictive relevance, while the Q^2 value for online investment decision quality ($Q^2 = 0.300$) demonstrates strong predictive relevance. These values confirm that the proposed model has meaningful predictive capability and can effectively predict endogenous constructs beyond mere explanatory power.

Overall, the results provide strong empirical support for the proposed research model. All hypothesized direct, mediating, and moderating relationships were statistically significant and in the expected directions. The findings confirm that FinTech usage and information overload play critical roles in shaping online investment decision quality, with decision confidence acting as a key psychological mechanism and digital financial literacy serving as an important boundary condition. These results validate the robustness of the proposed moderated mediation framework and provide a strong foundation for subsequent discussion and implications.

DISCUSSION

The primary objective of this study was to examine how digital financial behavior influences online investment decision quality by integrating technological, cognitive, and capability-based perspectives. The results provide strong empirical support for the proposed model, demonstrating that FinTech usage and information overload exert both direct and indirect effects on online investment decision quality through decision confidence, while digital financial literacy acts as a critical boundary condition. Overall, the findings reinforce the argument that digital investing outcomes are shaped not only by access to technology but also by investors' psychological and cognitive capacities.

The positive and significant relationship between FinTech usage and online investment decision quality supports the view that digital investment platforms can enhance decision effectiveness when used appropriately. This finding aligns with technology acceptance research, which emphasizes that technology improves performance by increasing perceived control, efficiency, and access to structured information (Venkatesh et al., 2012). From a behavioral finance perspective, FinTech tools may help investors overcome informational barriers and reduce transaction frictions, enabling more timely and goal-aligned decisions (Barber & Odean, 2001). However, this positive effect does not imply that technology alone guarantees rational decisions, highlighting the importance of examining underlying psychological mechanisms.

In contrast, the negative effect of information overload on online investment decision quality confirms the central role of cognitive constraints in digital investment environments. Consistent with Cognitive Load Theory, excessive and complex information was found to impair investors' ability to evaluate alternatives effectively, leading to lower-quality decisions (Sweller, 1988; Eppler & Mengis, 2004). This finding supports prior research demonstrating that more information does not necessarily result in better decisions and may instead increase confusion and reliance on heuristics (Hwang & Lin, 1999; Chen et al., 2009). In

fast-paced digital markets, where information arrives continuously, investors may struggle to filter relevant signals, thereby compromising decision quality.

The results further show that FinTech usage positively influences decision confidence, whereas information overload negatively affects decision confidence. These findings highlight decision confidence as a key psychological response to digital investment environments. FinTech platforms appear to enhance confidence by simplifying complex investment tasks, providing analytics, and offering automated recommendations, which increase perceived competence and self-efficacy (Venkatesh et al., 2012). Conversely, information overload reduces confidence by increasing uncertainty and cognitive strain, consistent with decision-making literature suggesting that excessive information undermines judgment certainty (Hwang & Lin, 1999). These opposing effects illustrate the dual nature of digital investing, where technology can simultaneously empower and overwhelm investors.

The strong positive relationship between decision confidence and online investment decision quality underscores the importance of psychological certainty in effective investment decision-making. Investors who are confident in their judgments are more likely to act decisively, maintain consistency with their financial goals, and evaluate outcomes positively. This finding aligns with behavioral finance research indicating that appropriate levels of confidence enhance decision effectiveness, while insufficient confidence may lead to indecision or avoidance (Barber & Odean, 2001). Importantly, the results suggest that confidence in this study reflects constructive certainty rather than harmful overconfidence, as it is positively associated with decision quality.

The mediation analysis provides deeper insight into the decision-making process by confirming that decision confidence partially mediates the effects of FinTech usage and information overload on online investment decision quality. This indicates that digital financial behavior influences decision outcomes not only directly but also indirectly through investors' psychological states. FinTech usage enhances decision quality partly because it increases confidence, while information overload reduces decision quality partly because it erodes confidence. These findings extend prior decision science research by empirically validating decision confidence as a central mechanism linking digital environments to investment outcomes (Hwang & Lin, 1999; Chen et al., 2009).

The moderating role of digital financial literacy further refines this understanding by demonstrating that confidence does not operate uniformly across all investors. The positive moderation effect indicates that decision confidence leads to higher-quality investment decisions when investors possess stronger digital financial literacy. This finding supports financial literacy literature, which emphasizes that knowledge and skills enable individuals to effectively interpret information and make sound financial decisions (Lusardi & Mitchell, 2014). In digital investment contexts, literacy appears to prevent confidence from turning into overconfidence, ensuring that confident investors apply their certainty in informed and rational ways. This result is particularly important given concerns that digital platforms may encourage uninformed trading among less literate users.

Taken together, the findings contribute to behavioral finance and FinTech literature by demonstrating that digital investment decision quality emerges from the interaction of technology use, cognitive constraints, psychological confidence, and investor capabilities. The results challenge simplistic assumptions that FinTech adoption automatically improves investment outcomes and instead highlight the conditions under which digital tools are most effective. By integrating decision confidence as a mediator and digital financial literacy as a moderator, this study offers a more nuanced and realistic explanation of investor behavior in digital financial markets.

This study set out to examine how digital financial behavior influences online investment decision quality by integrating technological, cognitive, and capability-based perspectives. Specifically, the research

investigated the effects of FinTech usage and information overload on online investment decision quality, the mediating role of decision confidence, and the moderating role of digital financial literacy. Using a PLS-SEM approach, the study provides robust empirical evidence that digital investment outcomes are shaped by both enabling and constraining forces within FinTech-driven environments.

The findings demonstrate that FinTech usage positively contributes to online investment decision quality, indicating that digital investment platforms can enhance decision effectiveness by improving access to information, analytical support, and transaction efficiency. However, the results also reveal that information overload negatively affects investment decision quality, highlighting the cognitive challenges faced by investors in data-intensive digital markets. These opposing effects underscore that while technology offers substantial benefits, excessive information can undermine the quality of investment decisions.

The study further establishes decision confidence as a key psychological mechanism linking digital financial behavior to investment outcomes. FinTech usage was found to enhance decision confidence, whereas information overload reduced confidence, thereby influencing online investment decision quality both directly and indirectly. These findings confirm that confidence plays a central role in digital investment decision-making and that investors' psychological responses to digital environments are critical in determining decision outcomes.

Moreover, the moderating role of digital financial literacy highlights that confidence alone is not sufficient to ensure high-quality investment decisions. The results show that decision confidence translates into better investment outcomes when investors possess higher levels of digital financial literacy. This finding emphasizes the importance of financial and digital knowledge in enabling investors to effectively interpret information, manage risks, and apply technological tools responsibly.

Overall, this study contributes to behavioral finance and FinTech literature by shifting the focus from technology adoption and trading behavior to online investment decision quality. By integrating FinTech usage, information overload, decision confidence, and digital financial literacy into a single moderated mediation framework, the research provides a more comprehensive understanding of investor behavior in digital financial markets. The findings offer valuable insights for investors, platform designers, educators, and policymakers seeking to promote informed, confident, and high-quality investment decision-making in an increasingly digital financial ecosystem.

RECOMMENDATIONS

Based on the findings of this study, several practical and policy-oriented recommendations are proposed to enhance online investment decision quality in FinTech-driven environments. First, investors are encouraged to make purposeful and informed use of FinTech platforms rather than relying on technology passively. While FinTech usage was found to improve decision quality and confidence, investors should actively engage with platform features such as portfolio analysis tools, risk indicators, and educational dashboards to support rational decision-making. Regular reflection on investment goals and risk tolerance can help investors use digital tools more strategically and avoid impulsive decisions driven by short-term market signals.

Second, FinTech platform providers should focus on reducing information overload by improving the design and structure of digital investment interfaces. Given the negative impact of information overload on both decision confidence and decision quality, platforms should prioritize information clarity, relevance, and personalization. This may include simplifying dashboards, filtering redundant information, offering customizable alerts, and using visual summaries instead of dense numerical data. Algorithmic

recommendations should be transparent and accompanied by clear explanations to help investors understand the basis of suggested actions and reduce confusion.

Third, financial education providers and policymakers should place stronger emphasis on digital financial literacy as a core component of investor development. The study demonstrates that digital financial literacy strengthens the positive effect of decision confidence on investment decision quality. As such, training programs should go beyond traditional financial concepts and include digital competencies such as interpreting online financial data, understanding algorithm-based tools, managing cybersecurity risks, and evaluating information from social media and online sources. Universities, financial institutions, and regulatory bodies can collaborate to develop targeted digital literacy initiatives for retail investors.

Fourth, regulators and policymakers should encourage responsible FinTech innovation by promoting standards that balance technological advancement with investor protection. Regulatory guidelines can support platform designs that minimize cognitive overload and discourage excessive or misleading information disclosure. In emerging markets, where FinTech adoption is expanding rapidly, regulatory frameworks should also support investor education campaigns and require platforms to provide clear risk disclosures and user-friendly information structures to protect less experienced investors.

Finally, financial advisors and investment professionals should recognize the psychological role of decision confidence in digital investing. Advisors can help investors calibrate their confidence by providing feedback, reinforcing disciplined decision-making, and discouraging overconfidence. Hybrid advisory models that combine human judgment with digital tools may be particularly effective in supporting high-quality investment decisions, especially for investors with lower levels of digital financial literacy.

In summary, improving online investment decision quality requires a coordinated effort among investors, FinTech providers, educators, and policymakers. By promoting informed FinTech usage, reducing information overload, strengthening digital financial literacy, and supporting confidence-driven yet knowledge-based decision-making, stakeholders can enhance the overall effectiveness and sustainability of digital investment environments.

LIMITATIONS OF THE STUDY

Despite its contributions, this study has several limitations that should be acknowledged when interpreting the findings. First, the study adopts a cross-sectional research design, which captures respondents' perceptions and behaviors at a single point in time. Although this design is appropriate for testing relationships among variables, it limits the ability to make strong causal inferences. Investor behavior, decision confidence, and responses to information overload may change over time as market conditions evolve or as individuals gain experience with FinTech platforms. Future studies employing longitudinal designs could provide deeper insights into how these relationships develop and change over time.

Second, the study relies on self-reported data, which may be subject to common method bias, social desirability bias, or response inaccuracies. Although procedural remedies such as anonymity and clear questionnaire design were applied, respondents' perceptions of their confidence, literacy, and decision quality may not perfectly reflect their actual investment behavior or outcomes. Incorporating objective measures, such as transaction data or performance indicators, could enhance the robustness of future research.

Third, the use of a non-probability convenience sampling technique may limit the generalizability of the findings. While this approach is commonly used in FinTech and behavioral finance research due to accessibility constraints, the sample may not fully represent all categories of investors, particularly those

with limited access to digital platforms or lower levels of financial engagement. Future studies could employ probability-based sampling methods or compare different investor segments to improve external validity.

Another limitation relates to the scope of variables included in the model. Although the study integrates key technological, cognitive, and capability-based factors, other relevant variables such as risk tolerance, emotional biases, market volatility, or trust in digital platforms were not explicitly examined. These factors may also influence online investment decision quality and could be incorporated into future research to provide a more comprehensive understanding of digital investment behavior.

Finally, the study is conducted within a specific contextual setting, which may influence the applicability of the results to other markets. Differences in regulatory environments, digital infrastructure, and investor sophistication across countries may affect how FinTech usage, information overload, and digital financial literacy interact. Therefore, caution should be exercised when generalizing the findings to different cultural or economic contexts, and cross-country comparative studies are recommended.

FUTURE RESEARCH RECOMMENDATIONS

Future research can build on the findings of this study in several meaningful ways. First, scholars are encouraged to adopt longitudinal research designs to examine how FinTech usage, information overload, decision confidence, and investment decision quality evolve over time. Longitudinal data would allow researchers to capture changes in investor behavior across different market cycles and better assess causal relationships among the variables, particularly as investors gain experience with digital platforms or as market conditions fluctuate.

Second, future studies may incorporate objective behavioral and performance data to complement self-reported measures. While perceptual data provide valuable insights into psychological mechanisms, combining survey responses with actual trading records, portfolio performance, or transaction frequency could enhance the validity of research findings and offer a more comprehensive understanding of online investment decision quality.

Third, researchers are encouraged to expand the theoretical model by including additional psychological and contextual variables. Factors such as risk tolerance, emotional biases, trust in FinTech platforms, perceived risk, and market volatility may interact with decision confidence and digital financial literacy to influence investment outcomes. Examining these variables could provide deeper insights into the complexity of investor decision-making in digital environments.

Fourth, future research should explore alternative moderating and mediating mechanisms. While this study focuses on digital financial literacy as a moderator, other capability-based factors such as financial experience, numeracy skills, or technological self-efficacy may also shape how confidence translates into decision quality. Similarly, mediators such as perceived control, decision satisfaction, or cognitive effort could further explain the pathways between digital financial behavior and investment outcomes.

Fifth, comparative and cross-country studies are recommended to assess the generalizability of the findings across different economic and regulatory contexts. Digital financial ecosystems vary significantly across countries, and cultural, institutional, and regulatory differences may influence how investors use FinTech platforms and process information. Comparative studies between developed and emerging markets could provide valuable insights into context-specific and universal patterns of digital investment behavior.

Finally, future research may examine different investor segments and financial products. For instance, studies could compare novice versus experienced investors, retail versus institutional investors, or

examine decision-making in specific investment domains such as cryptocurrencies, mutual funds, or sustainable investments. Such segmentation would help refine understanding of how digital financial behavior affects investment decision quality across diverse investor profiles and financial instruments.

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