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Perception, Financial Literacy, and Fintech Adoption toward Millennial Investment Decisions in the Digital Era

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Abstract

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This study aims to analyze the relationship between financial literacy, risk perception, and the adoption of digital financial technology on millennial investment decisions in the digital era. The research employs a Systematic Literature Review method by synthesizing several peer-reviewed articles published over the past five years. The results indicate that financial literacy positively influences the quality and rationality of investment decisions, helping individuals assess risks, manage portfolios, and avoid impulsive behavior. Risk perception and behavioral biases, such as overconfidence and herding, act as psychological mediators that shape how investors interpret financial information and make decisions under uncertainty. Furthermore, fintech adoption strengthens the connection between literacy and investment behavior through better accessibility, real-time transparency, and lower transaction costs. However, using fintech without adequate financial understanding may increase speculative tendencies. This study emphasizes the importance of integrating financial literacy with digital competence in financial education programs for millennials to promote rational, inclusive, and sustainable investment practices.

1. Introduction

The development of digital technology in the last decade has significantly changed the economic behavior of the younger generation, including in terms of investment decision-making. Millennials, born between 1980 and 2000, are now the largest demographic group in the global workforce and have a significant role to play in the growth of the digital economy. Their involvement in various online financial platforms, such as financial technology (fintech) and digital investment applications, shows a paradigm shift from conventional investment to technology-based investment (Yanto et al., 2021).

However, easy access to financial information through digital technology is not always in line with improving the ability to make rational investment decisions. One of the fundamental factors that affect the quality of millennial investment decisions is financial literacy. Low financial literacy can lead to a false perception of risks and benefits, so decisions made tend to be impulsive and not based on analysis (Purnamasari & Merlinda, 2021). In contrast, individuals with high financial literacy tend to assess risk more objectively and diversify portfolios more wisely.

In addition, risk perception and behavioral bias also have a major influence on investment decision-making. In the digital age, information overload can cause psychological effects such as overconfidence and herding behavior, which is the tendency to follow market trends without adequate analysis. Jonathan and Sumani (2021) highlight that this phenomenon is mostly found in young investors who actively use social media as a source of investment reference, so the perception of security and profits is often influenced by public opinion rather than empirical data.

Fintech adoption is a factor that further strengthens this dynamic. Fintech offers ease of access, transaction speed, and more efficient costs, but on the other hand, it also increases the risk of uncontrolled investment behavior if users do not have a sufficient understanding of the mechanism of digital financial products (Dewi et al., 2020). Therefore, the integration between financial literacy and digital literacy is very important for the millennial generation so that they can actively participate in the financial market wisely and sustainably.

In the context of investment behavior, the decisions made by millennials are often driven not only by rational considerations, but also by social, psychological, and emotional factors. According to Bhatia et al. (2021), millennials' perception of future investments tends to be oriented towards the safety and stability of asset values, especially in low-risk instruments such as gold, property, and mutual funds. This reflects a risk-averse tendency due to global economic uncertainty and negative experiences of capital market fluctuations.

Nevertheless, the increase in the participation of the millennial generation in digital financial instruments shows great potential for strengthening the national economy if supported by adequate financial education. Recent studies also confirm that the combination of financial literacy and adaptability to fintech can improve the quality of investment decisions, both in short-term and long-term contexts (Mavlutova et al., 2021). Therefore, it is important to understand how the relationship between financial literacy, risk perception, and technology adoption affects the investment decision-making patterns of millennials in the digital age.

The purpose of this study is to examine the relationship between financial literacy, investment perception, and the use of fintech on the investment decision-making process by the millennial generation. By reviewing the latest literature over the last five years, it is hoped that this study can provide a comprehensive overview of the factors that shape millennial investment behavior and its implications for the development of sustainable digital financial literacy strategies.

2. Literature Review

2.1. Financial Literacy and Risk Perception of Investment Decisions

Financial literacy is the main foundation that determines an individual's ability to understand economic concepts and make the right investment decisions. This literacy includes an understanding of risk management, asset diversification, and yield assessment. In the context of the millennial generation, financial literacy is not only limited to knowledge of conventional financial products, but also includes the ability to use and assess digital-based financial instruments. According to Purnamasari and Merlinda (2021), financial literacy has a direct influence on millennial investment behavior because it helps individuals in recognizing opportunities and adjusting them to their risk profile, as well as avoiding speculative decisions that only follow market trends. However, while high financial knowledge can improve the quality of decisions, psychological factors such as risk perception often influence the way individuals process financial information.

Filbeck et al. (2017) stated that the perception of young investors' risk is often influenced by social media information and peer group opinions, thus causing behavioral biases such as overconfidence and herding behavior. As a result, investment decisions can be impulsive and not based on fundamental analysis. Marjerison et al. (2021) added that millennials tend to be risk-averse and prefer low-risk instruments such as gold and deposits due to higher security perceptions, even though the potential returns are smaller. Therefore, increasing financial literacy accompanied by strengthening risk awareness is the key to forming rational and long-term oriented investment behavior for the millennial generation in the digital era.

2.2. Fintech Adoption and Investment Behavior Transformation

The transformation of financial technology (financial technology or fintech) has opened up new opportunities for the millennial generation to actively participate in investment activities. Fintech provides easy, transparent, and efficient access to a wide range of financial instruments, while changing the patterns of interaction of individuals with the capital market. Morgan (2021) explained that fintech adoption not only improves transaction efficiency, but also plays a role in accelerating financial digital literacy through educational features and attractive investment simulations. Fintech platforms facilitate people's understanding of investment concepts in a more interactive way, thereby encouraging financial inclusion for young people who have not been previously served by traditional financial institutions.

In addition, fintech serves as a bridge that connects financial literacy with investment behavior. Gomber et al. (2018) found that fintech adoption mediates the relationship between literacy levels and investment decisions, where individuals with high financial literacy tend to be faster to use digital applications to manage their portfolios. Conversely, a lack of understanding of data security and digital transaction mechanisms can lead to distrust and delay participation in online investments. Thus, the presence of fintech not only changes the way the millennial generation invests, but also demands an increase in digital competence so that the decisions taken remain rational and oriented towards long-term financial sustainability.

3. Method

This study uses the Systematic Literature Review (SLR) method to identify, evaluate, and synthesize the results of previous research that discuss financial literacy, risk perception, and fintech adoption on millennial investment decisions. The SLR approach was chosen because it allows researchers to obtain a comprehensive picture and patterns of relationships between concepts that have been tested in various contexts, so that it can produce a deeper and measurable theoretical understanding. The SLR implementation process follows stages adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) model. The first stage is identification, where researchers determine search keywords such as financial literacy, millennial investment decision, fintech adoption, risk perception, and behavioral finance. Searches were conducted on major academic databases, such as Google Scholar, Elsevier, ResearchGate, and several reputable national journals. The publication time span is limited between the last five years, so that the results of the study reflect the current conditions in the digital era.

The second stage is screening of the articles found. Articles that are not relevant to the research topic or that do not explicitly address the relationship between financial literacy, fintech, and investment decisions are excluded from the list. The initial screening process is carried out based on the title and abstract, then continues with a full text review to ensure the feasibility of the content. The third stage is data selection and extraction. Each article that meets the inclusion criteria is recorded in detail including the author's name, year of publication, research method, number of samples, variables used, and key findings. To maintain reliability, two independent researchers conducted an extraction and comparison of results to avoid subjective bias.

The last stage is data synthesis. At this stage, the findings of all selected articles are analyzed thematically to find patterns of consistency, differences in results, and research gaps. The synthesis process produced three main themes, namely: (1) the influence of financial literacy on investment behavior; (2) the role of risk perception and cognitive bias in decision-making; and (3) the influence of fintech adoption as a mediating variable between financial literacy and investment decisions. This SLR method ensures that all research conclusions are based on verifiable and replicable empirical evidence. Thus, the results of the study not only describe the theoretical conditions, but also provide strategic direction for the development of digital financial literacy that is relevant for the millennial generation in the digital economy era.

4. Results

The results of the Systematic Literature Review (SLR) of several scientific articles published in the last five years reveal that the investment decisions of the millennial generation are shaped by a combination of financial literacy, risk perception, and the level of adoption of digital financial technology (fintech). These three factors do not act independently but rather interact dynamically to form the distinctive investment behavior of millennials. This generation, often characterized by its technological adaptability and openness to innovation, exhibits unique financial patterns combining rational evaluation and emotional impulses, with technology acting as both a facilitator and a source of bias.

The first set of findings confirms that financial literacy has a substantial influence on the investment decisions of the millennial generation. Individuals with high levels of financial literacy tend to possess better analytical ability in understanding market mechanisms, assessing potential risks and returns, and diversifying assets according to their personal risk tolerance. Although (2020) found that a strong level of financial literacy increases confidence in making investment decisions and simultaneously reduces dependence on external opinions such as social media recommendations or temporary market trends, this influence is not uniform. Purnamasari and Merlinda (2021) further emphasized that the quality of literacy determines not only knowledge but also the behavioral outcome of that knowledge. Millennials with sufficient literacy are more likely to base their investment choices on long-term planning rather than short-term market fluctuations.

Furthermore, Yanto et al. (2021) identified that digital financial literacy has emerged as a critical new dimension in the modern study of financial behavior. Traditional concepts of financial literacy calculating interest rates, assessing assets, and understanding diversification are no longer adequate in the context of today's digital economy. Millennials are expected to master aspects such as cybersecurity awareness, data protection, and the evaluation of credibility among online financial platforms. In their research, increasing levels of digital financial literacy were shown to have a positive relationship with investment intentions on fintech platforms, particularly due to the convenience of information access and the speed of transaction processes. Thus, literacy now encompasses both financial cognition and technological competency, each essential for sustainable participation in digital finance.

In addition to financial literacy, risk perception plays a pivotal role in determining the direction and quality of investment decisions. Jonathan and Sumani (2021) demonstrated that the millennial generation's perception of risk is heavily influenced by social and emotional factors, often outweighing analytical or data-driven considerations. Millennials frequently form judgments about risk from media narratives, social testimonials, and online community sentiments, leading to decisions that are reactive rather than proactive. Consequently, many investment choices arise from responses to collective emotions such as market excitement or fear rather than from systematic evaluation. This reinforces the perspective that despite their reputation as tech-savvy, millennials remain vulnerable to behavioral biases including overconfidence, herding, and loss aversion.

Bhatia et al. (2021) also identified a similar trend in their study on millennials' perception and investment decisions towards future instruments. Their results revealed that the majority of respondents prefer to allocate their funds in perceived safe-haven assets such as gold and mutual funds, instead of higher-risk instruments like stocks or bonds. This conservative orientation reflects a risk-averse attitude shaped by the perception of volatility in capital markets and prior exposure to price instability. Such a mindset suggests that rational risk assessment has not yet been fully integrated into the financial decision-making of millennials, even though they enjoy unprecedented access to real-time financial information. The findings underscore that access to technology alone does not necessarily lead to better financial judgment; instead, critical thinking and emotional control remain essential complements to digital competence.

The third major factor identified is the role of fintech as a catalyst for millennial investment behavior. Dewi et al. (2020) noted that fintech transcends its traditional function as a financial transaction platform by serving as a vehicle for financial education. With user-friendly interfaces, interactive tools, and investment simulations, fintech applications enable individuals to grasp complex investment concepts more intuitively. The transparency of data and immediacy of updates empower users to make informed decisions in real time. Yet, this empowerment comes with a paradox: ease of access can also increase speculative tendencies, particularly among inexperienced investors. Mavlutova et al. (2021) warned that the adoption of fintech without adequate financial literacy can trigger short-term gain orientation, where users prioritize quick profits over sustainable portfolio management. This behavior can heighten exposure to market volatility and amplify financial vulnerability.

Putra et al. (2021) emphasized the mediating function of fintech between financial literacy and investment behavior. According to their findings, financially literate millennials are more likely to use fintech as a productive tool for rational decision-making, leveraging digital platforms for diversification and monitoring. Conversely, those with lower literacy levels often misappropriate fintech for consumption-oriented transactions, blurring the line between financial management and spending. This contrast highlights the dual-edged nature of fintech: while it democratizes financial participation, it simultaneously requires users to possess the digital discernment to distinguish between investment and consumption. Therefore, increasing financial literacy must go hand in hand with efforts to enhance digital awareness and critical thinking.

Kangwa et al. (2021) confirmed these findings by introducing the variable of digital financial literacy as a moderating factor that strengthens the link between financial knowledge and investment behavior. They concluded that individuals with high digital literacy exhibit superior information-processing abilities, enabling them to critically evaluate security features, assess historical performance, and identify potential risks within digital financial platforms. This generation often labeled as digital natives is more capable of leveraging technological advancements to optimize their investment portfolios. However, the same ease of use that fintech provides can also foster decision fatigue and information overload, which may erode the quality of financial decision-making if users are not adequately trained to interpret complex data.

Beyond literacy and technological factors, social dimensions significantly influence millennials' financial decisions. Morgan (2021) explained that peer influence plays a critical role within digital investment communities, where individuals exchange advice, experiences, and opinions in real-time discussions. This network-driven environment can enhance confidence but also magnify herding behavior, as identified by Filbeck et al. (2017), where collective sentiment outweighs independent judgment. Furthermore, Kim et al. (2019) found that personal experiences and financial motivation serve as powerful behavioral drivers. Millennials who possess a strong orientation toward financial independence and wealth accumulation are more proactive in seeking diversified investment opportunities. Such motivation is not only economic but also psychological, reflecting aspirations for autonomy and self-empowerment within the digital economy.

Synthesizing the overall findings of this SLR, a conceptual model can be proposed to illustrate the interaction among the core variables: Financial literacy → Risk perception → Fintech adoption → Investment decisions. In this framework, financial literacy serves as the cognitive foundation that equips individuals with analytical skills to evaluate investment risks and opportunities. Risk perception functions as a psychological intermediary that translates knowledge into behavioral tendencies, determining whether investors exhibit conservative or aggressive strategies. Fintech adoption acts as a technological enabler that amplifies or diminishes the impact of literacy, depending on users' trust levels, regulatory confidence, and technological competence. Together, these variables depict a multidimensional process through which knowledge, psychology, and technology converge to shape millennial investment behavior.

Nevertheless, the literature reveals a persistent research gap. Most existing studies focus predominantly on economic and technological dimensions, while psychological, cultural, and sociological variables remain underexplored. There is limited empirical evidence regarding how cultural norms, national values, or institutional trust influence millennials' perceptions of investment risk and their willingness to adopt fintech. Moreover, few studies have incorporated demographic controls such as gender, income level, education, or prior investment experience into their analytical models. These omissions restrict the generalizability of findings and underscore the need for future research to adopt multi-level and cross-cultural approaches that integrate behavioral finance with socio-technological perspectives.

In summary, the results of this SLR confirm that millennial investment behavior is a multidimensional and interactive phenomenon, influenced simultaneously by financial literacy, risk perception, and fintech adoption. These findings reinforce the necessity of prioritizing digital financial literacy as a cornerstone of modern financial education policy. By combining cognitive, technological, and emotional intelligence, educational programs and public initiatives can be tailored to nurture financially responsible, digitally capable, and psychologically resilient investors. Strengthening financial literacy alongside ethical and digital competencies will not only enhance individual decision quality but also foster a more inclusive and sustainable financial ecosystem for the next generation of investors.

5. Discussion

The results of a systematic review of various studies show that financial literacy, risk perception, and fintech adoption are the three main elements that shape the investment behavior of the millennial generation. The three do not stand alone, but interact with each other in influencing how individuals understand, assess, and make decisions related to investment in the digital era. First, the relationship between financial literacy and investment decisions was shown to be consistent in almost all of the studies analyzed. Financial literacy improves an individual's ability to recognize opportunities and risks, as well as fosters confidence to invest independently (Stolper & Walter, 2017). However, increasing financial knowledge does not necessarily guarantee rational investment behavior.

According to Kim et al. (2019), financial literacy needs to be accompanied by financial discipline and risk awareness so that the knowledge possessed can really be applied in investment practices. Without financial discipline, literacy will only be passive knowledge that has no real effect on investment decisions. Second, the findings show that risk perception serves as a psychological bridge between literacy and investment behavior. A realistic perception of risk will encourage investors to make decisions in a balanced way between potential gains and losses. Conversely, excessive risk perception can lead to a risk-averse tendency, where investors prefer low-risk instruments despite having small returns (Marjerison et al., 2021).

Meanwhile, too low a perception of risk, especially among new fintech users, can lead to speculative behavior such as day trading without a deep understanding. This condition shows the importance of forming risk awareness through financial education that is applicative, not just theoretical.

Third, the role of fintech increasingly emphasizes that digital transformation not only facilitates financial transactions, but also shapes new economic behavior. Fintech mediates the relationship between literacy and investment decisions by providing an interactive and transparent platform, which can improve understanding of financial products (Gomber et al., 2018). However, as stated by Yanto et al. (2021), the presence of fintech also brings new risks in the form of information overload and the potential for herding due to excessive exposure to market information. Therefore, digital literacy and information ethics are an important part of modern financial learning.

From a theoretical perspective, the results of the synthesis support the behavioral finance framework which states that investment decisions are influenced not only by economic rationality, but also by psychological and social factors. Jonathan and Sumani (2021) emphasized that millennials' investment decisions are often influenced by digital social pressures and peer group expectations, which reinforce trend-following behavior. Thus, a multidisciplinary approach that combines economic, psychological, and technological aspects is needed to comprehensively understand the investment behavior of this generation.

In practical terms, these results have implications for governments, financial institutions, and fintech platforms. Financial literacy programs need to be adapted to the digital characteristics of the millennial generation, for example by using gamification, micro-learning, and interactive simulations. In addition, regulatory policies need to ensure that fintech products have strong consumer protection mechanisms and easy-to-understand information transparency. With a combination of financial literacy, risk awareness, and digital ethics, millennials can become smart, inclusive, and contributing to long-term economic stability.

6. Conclusion

This study concludes that the investment decisions of the millennial generation in the digital era are shaped by three interconnected factors: financial literacy, risk perception, and the adoption of digital financial technology (fintech). Financial literacy functions as the cognitive foundation that equips individuals with the ability to understand market mechanisms, evaluate investment opportunities, and manage risks rationally. Risk perception operates as a psychological mediator that bridges knowledge and action, influencing how individuals interpret uncertainty and make choices under pressure. Meanwhile, fintech serves as a technological catalyst that facilitates investment decisions through accessibility, transparency, and efficiency.

The interaction among these three dimensions determines the overall quality of investment behavior among millennials. When financial literacy is high and complemented by strong digital competence, millennials tend to make decisions that are more rational, data-driven, and long-term oriented. Conversely, low financial understanding combined with misjudged risk perception may lead to impulsive or speculative behavior, increasing exposure to financial losses.

Therefore, strategies to strengthen digital financial literacy should be prioritized in national education systems and public policy frameworks. Educational initiatives that integrate financial knowledge, risk management awareness, and digital literacy are crucial to empower millennials in navigating the complexities of modern investment environments. Through such an integrated approach, millennials can develop intelligent, inclusive, and sustainable investment behaviors that not only enhance personal financial security but also contribute to broader economic resilience and stability in the digital era.

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