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Factors Influencing Investment Decisions: A Case Study of Investors in Indonesia

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Research article

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Abstract

This research aims to examine the influence of demographic factors, including age, gender, educational attainment level, and investment experience, on overconfidence behavior, herding behavior, investment decisions, and the impact of overconfidence behavior and herding behavior on investment decisions. This type of research employs a quantitative approach, using Structural Equation Modeling. In this study, data were collected by distributing questionnaires to Indonesian investors who engage in stock investment activities registered with the Indonesia Stock Exchange and are aged 18 or older. The results showed that investment decisions were significantly influenced by gender, education level, investment experience, overconfidence, and trend-following behavior, but not by age. Furthermore, overconfidence was not significantly influenced by any of the demographic factors in the study. Finally, herding behavior was significantly influenced by age and education level, but not by gender or investment experience.

Keywords: overconfidence; herding behavior; demographic factors; investment decisions.

JEL Classification: G11; G41; G50; G53; J16; D81, C30

Factores que influyen en las decisiones de inversión: estudio de caso de inversionistas en Indonesia

Resumen

Esta investigación tiene como objetivo examinar la influencia de factores demográficos, como la edad, el género, el nivel educativo y la experiencia en inversión, en el comportamiento de exceso de confianza, el comportamiento gregario y las decisiones de inversión, así como el impacto del exceso de confianza y del comportamiento gregario en dichas decisiones. Este tipo de investigación emplea un enfoque cuantitativo mediante el modelado de ecuaciones estructurales. En este estudio, se recopilaron datos mediante la distribución de cuestionarios a inversionistas indonesios mayores de 18 años que participan en actividades de inversión en acciones registradas en la Bolsa de Valores de Indonesia. Los resultados indican que las decisiones de inversión tienen una influencia significativa en el género, el nivel educativo, la experiencia en inversión, el exceso de confianza y el comportamiento gregario, pero no en la edad. Además, el factor conductual del exceso de confianza no influye de manera significativa en ninguno de los factores demográficos estudiados. Por último, el comportamiento gregario influye significativamente en la edad y el nivel educativo, pero no en el género ni en la experiencia de inversión.

Palabras clave: exceso de confianza; comportamiento gregario; factores demográficos; decisiones de inversión.

INTRODUCTION

The Indonesian capital market is undergoing a profound transformation, marked by a dramatic surge in investor participation. This growth, significantly accelerated during the COVID-19 pandemic, is largely attributed to technological advancements that have democratized access through digital platforms. The Indonesia Stock Exchange (IDX) has capitalized on this, fostering an environment where a new generation of investors can easily participate. This shift is most evident in the market's demographics: data from the Central Securities Depository of Indonesia (KSEI, 2025) reveal that a staggering 58.18 % of investors are under 30, and 63.46 % are high school graduates, holding assets totaling 52.07 trillion and 217.81 trillion rupiah, respectively. This influx of young, relatively new investors presents a critical question: are these market participants making decisions based on traditional, rational financial analysis, or are they more susceptible to psychological biases?

Traditional financial literature has long assumed investor rationality, in which decisions are made to maximize utility based on all available information. However, the prevalence of young and potentially inexperienced investors in Indonesia's market suggests that this assumption may not hold. Anomalies in market behavior have given rise to the field of behavioral finance, which posits that investment decisions are frequently influenced by cognitive and emotional biases rather than pure logic (Rahman & Gan, 2020). When investors lack the experience or knowledge to accurately determine an asset's fair value, they often rely on heuristics, which can lead to specific biases.

While the influence of behavioral biases on investment decisions is well documented, the existing literature presents a fragmented, often contradictory picture, particularly regarding the role of demographic factors. For instance, studies on overconfidence have found it can have both a positive influence on investment propensity (Metawa *et al.*, 2019) and a negative one, leading to poor accuracy (Hossain & Siddiqua, 2022). Similarly, the impact of herding behavior is debated; some research suggests it stems from information asymmetry (Metawa *et al.*, 2019), while others find its influence diminishing in the age of easily accessible information (Rahman & Gan, 2020). More importantly, the relationship between demographic characteristics—such as age, gender, education, and experience—and these biases remains inconclusive. Some studies find a significant link between gender and overconfidence, while others find none between age and herding behavior (Elizabeth *et al.*, 2020; Metawa *et al.*, 2019). These inconsistencies highlight a critical gap:

a lack of integrated research examining how demographic factors shape behavioral biases and, in turn, how these biases collectively influence investment decisions within a specific, modern market context, such as Indonesia's.

This study aims to address this gap by proposing and testing an integrated model that explores the interplay between demographics, behavioral biases, and investment decisions. The central research questions are: (1) Do demographic factors (age, gender, educational level, and investment experience) significantly influence an investor's propensity for overconfidence and herding behavior? (2) Do these same demographic factors have a direct impact on investment decisions? and (3) Do the behavioral biases of overconfidence and herding behavior significantly influence the investment decisions of individual investors in the Indonesian capital market?

This research offers several significant contributions. From a theoretical perspective, it seeks to synthesize and clarify the conflicting findings in the behavioral finance literature by examining the mediating role of biases in shaping the relationship between demographics and investment choices. Focusing on the unique demographic profile of Indonesia's new investor base provides a critical test of established behavioral theories in a developing market context. From a practical standpoint, the findings will be invaluable for policymakers, such as the IDX and the Financial Services Authority (OJK), in designing more effective, targeted educational programs and investor protection frameworks. For instance, understanding which demographics are most prone to herding or overconfidence can lead to tailored financial literacy initiatives that mitigate these biases. Furthermore, financial advisors can leverage these insights to better understand their clients' decision-making processes and provide more objective guidance, ultimately fostering a more resilient, rational investment culture in Indonesia.

LITERATURE REVIEW

This study's theoretical framework draws on behavioral finance, which asserts that psychological biases and demographic factors systematically influence investment decisions, rather than these decisions stemming solely from logical reasoning. To assess the intricate associations among behavioral biases (overconfidence and herding), investment decisions, and demographic characteristics (age, gender, education, and experience), this section puts forth several hypotheses (Murhadi *et al.*, 2024). The purpose of the proposed model is to clarify how the unique characteristics of

contemporary Indonesian investors shape their specific market behaviors by integrating traditional finance principles with behavioral finance theory.

Demographics' Direct Impact on Investment Choices

While behavioral finance recognizes that an investor's demographic profile significantly influences their risk tolerance and decision-making, Traditional finance contends that investment decisions are based solely on risk and return.

Age (H1a): According to the Life-Cycle Theory of Investing, a person's investment objectives and risk tolerance change as they get older. Theoretically, younger investors are more likely to make bold, high-risk investments because they have a longer time horizon to recoup losses (Kannadhasan, 2015). On the other hand, older investors often prioritize capital preservation. However, as investors age, they also accumulate financial resources and market expertise. This increased knowledge and confidence can sometimes lead older investors to take measured risks, despite their general preference for security (Barber & Odean, 2001). As a result, age is a dynamic factor that favorably influences the inclination to make a variety of investment choices, balancing the desire for security with the ability to take risks.

H1a: Age positively influences investment decisions.

Gender (H1b): Notable disparities in financial behavior across genders have been widely documented in behavioral finance studies, attributed to a combination of biological, psychological, and social factors. Metawa *et al.* (2019) indicate that men exhibit higher risk tolerance and overconfidence, leading to riskier, more frequent investment decisions. In contrast, Almenberg and Dreber (2015) report that women are more risk-averse and tend to prefer stable, secure investments, a tendency potentially related to lower income levels and different methods of acquiring financial literacy. These findings suggest that assertive, risk-taking investment behaviors are more common among males.

H1b: Investment decisions are positively impacted by the male gender.

Educational Level (H1c): According to Human Capital Theory, education improves a person's knowledge base and cognitive capacities. Higher education provides people with a better grasp of market mechanics, risk-return trade-offs, and financial concepts in investing (Wahyuni & Astuti, 2021). Investors can make better-informed, more logical judgments thanks to this knowledge, which encourages

a more careful, analytical approach (Utami & Kartini, 2017). Education enables investors to transcend speculative or emotional impulses, which improves the caliber and thoughtfulness of their investing decisions.

H1c: Investment decisions are positively impacted by educational level.

Investment Experience (H1d): Experience is a potent teacher, according to learning theory. More seasoned investors have experienced a variety of market cycles and have learned from both achievements and setbacks. This accumulated knowledge improves their capacity to digest information, make precise predictions, and handle uncertainty (Joseph & Ibrahim, 2015). An investor's confidence in their strategy and capacity to generate future returns can be strengthened by past investment accomplishments, in particular (Wahyuni & Astuti, 2021). Therefore, in contrast to some studies that suggest experience does not always lead to better investment decisions, we contend that investment experience offers a useful heuristic that positively informs and enhances the quality of future investment decisions.

H1d: Investment decisions are positively impacted by investment experience.

Demographics' Effect on Behavioral Biases

According to behavioral finance theory, biases are systematically linked to a person's demographic background rather than being randomly distributed. The following theories examine how two major biases can be exacerbated or lessened by demographics.

Overconfidence (H2a-d): A fundamental component of behavioral finance is overconfidence, which is the propensity to overestimate one's knowledge and skills.

- **Age (H2a):** We rely on the Wisdom and Experience Argument, despite some research indicating that age has no bearing on overconfidence (Metawa *et al.*, 2019). As they get older, investors gain greater practical experience and market understanding. Their confidence in their ability to make investments may rise as a result of this accumulation of "expertise" (Beatrice *et al.*, 2021; Kannadhasan, 2015). Therefore, we postulate that age positively influences overconfidence through accumulated knowledge.
- **Gender (H2b):** Psychological studies regularly show that men are more overconfident than women in financial domains, supporting this hypothesis (Barber & Odean, 2001; Kumar & Goyal, 2016). This discrepancy is frequently attributed to men's stronger inclination to take risks and to

credit their own abilities for achievements. As a result, male investors are more prone to make overconfident investment decisions.

- **Educational Level (H2c):** An investor's objective knowledge is enhanced by education. However, this increased knowledge can contribute to the "knowledge illusion," a key element of overconfidence (Bhandari & Deaves, 2006). As investors learn more about market intricacies, they may incorrectly believe their ability to forecast market movements and make decisions has improved (Beatrice *et al.*, 2021). This perceived improvement, rather than actual skill, is why educational attainment is thought to positively influence overconfidence.

- **Investment Experience (H2d):** This theory is based on the self-attribution bias, a psychological phenomenon in which people credit their own abilities for successful outcomes and external factors for unsuccessful ones. This bias is especially common among seasoned investors who have made profits in the past. They absorb these achievements, strengthening their self-esteem and boosting their confidence when making future judgments (Baker *et al.*, 2019; Wahyuni & Astuti, 2021). Consequently, we propose that overconfidence and investment experience are positively correlated.

Herding Behavior (H3a-d): Information asymmetry and a desire for social conformity are the driving forces behind herding behavior, or imitating the acts of others.

- **Age (H3a):** According to the Knowledge Cascades Theory, herding is most common when people do not have enough knowledge. Younger, less seasoned investors are more likely to be unaware of this information and to base their decisions on others' behavior (Baker *et al.*, 2019). There is a negative correlation between age and herding because, as investors get older and more experienced, they build their own analytical frameworks and become less dependent on social cues.

- **Gender (H3b):** Studies based on social psychology indicate that women may be more vulnerable to social influence and show less financial confidence (Eagly & Carli, 1981; Hon-Snir *et al.*, 2012), despite some research finding no gender difference in herding (Shalom-Gilo, 2013). They may be more inclined to follow the herd due to their lack of confidence.

Thus, our hypothesis is that herding behavior is inversely correlated with being male, rather than with being female.

- **Educational Level (H3c):** This theory explicitly addresses the knowledge disparity that propels herding. Higher education gives investors the skills and information they need to independently obtain, evaluate, and interpret data (Goo *et al.*, 2010). This financial literacy reduces their dependence on others' actions. Because educated investors are more confident in their own information-processing abilities, it is predicted that higher levels of education will reduce herding behavior.

- **Investment Experience (H3d):** Investment experience gives people a personal knowledge foundation, much like age and education. Skilled investors have acquired the ability to decipher market signals and assess investment prospects using their own gathered knowledge. They are less inclined to mindlessly follow other people's financial choices because of their independence (Beatrice *et al.*, 2021). Herding conduct is therefore thought to be adversely affected by investment experience.

Behavioral Biases' Impact on Investment Choices

By positing that behavioral biases are significant determinants of investment decisions, behavioral finance directly challenges the assumptions of traditional finance.

Overconfidence (H4): Overconfidence alters investors' perceptions of risk and return, thereby influencing investment decisions. Investors exhibiting overconfidence may overestimate the accuracy of their information and their ability to affect outcomes. This tendency increases the likelihood of engaging in speculative investments, promotes trading frequency, and contributes to the underestimation of risk (Hossain & Siddiqua, 2022; Pikulina *et al.*, 2017). As such, overconfidence serves as a psychological factor that positively correlates with the frequency and riskiness of investment behavior.

H4: Investment decisions are positively impacted by overconfidence.

Herding Behavior (H5): Herding has a complex impact on investment decisions. Investors abandon their own analysis and follow the herd when they lack reliable information or sufficient expertise, which causes them to make choices they might not have otherwise made (Metawa *et al.*, 2019). Because investors are torn

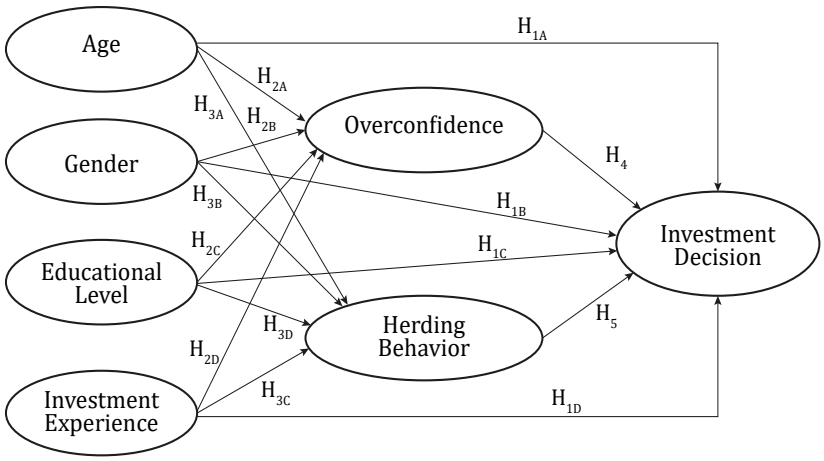
between their own judgment and what they see in others, this may lead to uncertainty and doubt (Santoso & Liu, 2023). Herding leads to reactive investment decisions that may not align with a person's risk tolerance and objectives, as it replaces independent analysis with social proof. We predict a detrimental effect on the independence and quality of investment decisions due to this poor decision-making process, driven by a lack of conviction.

H5: Investment decisions are adversely affected by the herding tendency.

Based on the explanation of the hypothesis development, the research model is presented in Figure 1.

Figure 1.

Research Model



Source: Own elaboration

METHODS

Investment decisions are operationalized as investors' decisions to purchase investment products in order to maximize expected future returns, potentially at the expense of current funds. The indicators used to measure an investor's investment decision-making level are divided into two parts, namely fundamental and technical analysis. The indicators listed will have answer options on a scale of 1, meaning "strongly agree," to 5, meaning "strongly disagree." The indicators were obtained through research by Metawa *et al.* (2019).

The following indicators are used in the fundamental analysis: (1) I make investment decisions based on economic data (GDP, interest rates, inflation rates, and exchange rates); (2) I make investment decisions based on industry data (industry type, level of competition, level of technology, and regulations); and (3) I make investment decisions based on financial data (profit and loss statement, balance sheet, and cash flow statement). The following indicators are used in technical analysis: (1) I make investment decisions based on the Composite Stock Price Index (IHSG); (2) I make investment decisions based on industry indices; (3) trading volume influences my investment decisions; and (4) trading returns influence my investment decisions.

The exogenous variables used in this study are five: age, gender, educational level, and investment experience. In this study, all independent variables were measured using the options described by Metawa *et al.* (2019). Age is the length of life lived and is measured in years from the moment a person is born. The indicator used to measure investor age uses a nominal scale with the following options: "1 = 18–24 years; 2 = 25–40 years; 3 = 41–55 years; 4 = Over 55 years." Gender refers to the biological and psychological differences between men and women that can inform an investor's investment decisions. The indicator used to measure an investor's gender uses a nominal scale with the following options: "0 = Female; 1 = Male." Investors with higher education tend to have better decision-making abilities, which can support informed investment decisions. The indicator used to measure an investor's educational level uses a nominal scale with the following options: "1 = High school equivalent/Diploma; 2 = Bachelor's degree; 3 = Graduate degree (Master's/Doctorate)." Investment experience refers to past investment activities that can influence an investor's decision-making. The indicator used to measure investor investment experience uses a nominal scale with the following options: "1 = Less than 1 year; 2 = 2–10 years; 3 = 10–25 years; 4 = More than 25 years."

To ensure the quality and consistency of the collected data, the questionnaire instrument underwent validity and reliability testing. As the demographic variables (age, gender, educational level, investment experience) are measured using single, factual questions on a nominal scale, they are not typically subjected to statistical validity tests such as factor analysis. Instead, their validity is derived from their clear and direct relevance to the research objectives (content validity). However, for the multi-item constructs in this study—namely, **overconfidence, herding behavior, and investment decisions**—rigorous statistical tests were conducted. The validity of the instrument for the latent constructs was assessed using Pearson's product-moment correlation by calculating the correlation between each item's score and the

total construct score. The internal consistency and reliability of the questionnaire were measured using Cronbach's alpha. The instrument was deemed reliable if the alpha coefficient for each construct exceeded the commonly accepted threshold of 0.60, indicating that the items consistently measured the same underlying concept. The results of these tests confirmed that all items were both valid and reliable for the main data collection.

The overconfidence variable refers to the confidence investors have in their perceptions of market conditions, which influences their investment decisions. The questionnaire indicators will provide answer options on a scale of 1 (strongly agree) to 5 (strongly disagree). The following are questionnaire indicators to measure an investor's confidence: (1) I am aware of everything that happens in the stock market; (2) I have the expertise and skills needed to invest in the stock market; (3) I trust my data sources; (4) I can analyze new information in the market; (5) I trade on my own; (6) I am sufficiently aware of electronic trading; (7) I keep the best stocks in my portfolio; and (8) I prioritize my own opinion when making decisions.

Herding behavior refers to the tendency for investors to follow the decisions of the majority. The indicators listed will have answer options on a scale from 1 (strongly agree) to 5 (strongly disagree). The following are the questionnaire indicators to measure an investor's herding behavior: (1) I make decisions based on the majority of other investors' decisions; (2) I make my decisions primarily based on commercial paper movements; (3) I confidently make decisions that differ from the majority of investors in the market; and (4) rapid market movements do not influence my decisions.

The target population for this study comprises investors participating in the Indonesian capital market. A purposive sampling technique was employed to select respondents who met specific criteria relevant to the research objectives. To be included in the sample, individuals were required to: (1) be at least 18 years old; (2) have been investing in the IDX for a minimum of one year; and (3) possess at least a high school education to ensure they could adequately comprehend the questionnaire.

While this purposive approach ensures the selection of informed and experienced participants, it is important to acknowledge its limitations in terms of representativeness. Because the sample is not drawn randomly from the entire investor population, the findings may not be generalizable to all Indonesian capital market investors. Instead, the results will provide in-depth insights specifically into the segment of investors who meet these predefined criteria.

To determine the appropriate sample size, this study followed the guidelines established by Hair *et al.* (2010) and applied in prior research (e.g., Metawa *et al.*, 2019). Given that the study's model comprises seven construct variables—demographic factors (age, gender, educational level, investment experience), overconfidence, herding behavior, and investment decisions—a minimum sample of 150 respondents is required. Accordingly, this study aimed to collect data from at least 150 qualified respondents to ensure robust analysis.

RESULTS AND DISCUSSION

In Table 1, the dominant sample consists of young, female individuals under 41 years old with a bachelor's degree and 1–10 years of investment experience.

Table 1.

Descriptive Statistics

Criteria	Range	Frequency	Percentage
Age	18–25 years	78	37.68
	25–41 years	98	47.34
	41–55 years	29	14.01
	≥ 55 years	2	0.97
	Total	207	100
Gender (M/F)	Male	84	40.58
	Female	123	59.42
	Total	207	100
Educational Level (EL)	High school equivalent/Diploma	75	36.23
	Bachelor's degree	111	53.62
	Graduate degree	21	10.15
	Total	207	100
Investment Experience (IE)	<1 year	59	28.50
	1–10 years	123	59.42
	10–20 years	23	11.11
	≥20 years	2	0.97
	Total	207	100

Source: Own elaboration

Table 2 shows the results of data processing. We also present the SEM results in Figure 2.

Table 2.

Hypothesis Testing Results

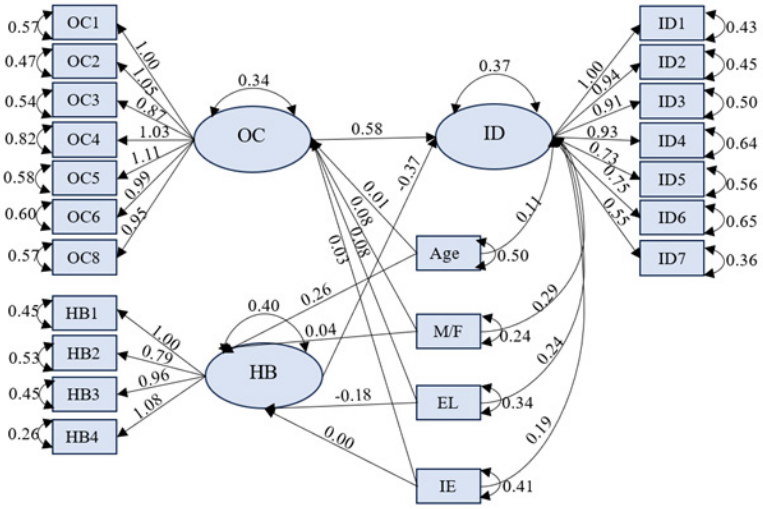
	Hypothesis	CR	Estimate	Pr.
H_{1a}	Age → Investment Decision	1.22	0.113	0.222
H_{1b}	Gender → Investment Decision	2.83	0.298	**0.005**
H_{1b}	Educational Level → Investment Decision	2.80	0.243	**0.005**
H_{1d}	Investment Experience → Investment Decision	2.06	0.199	**0.039**
H_{2a}	Age → Overconfidence	0.12	0.01	0.905
H_{2b}	Gender → Overconfidence	0.84	0.08	0.398
H_{2c}	Educational Level → Overconfidence	1.07	0.083	0.284
H_{2d}	Investment Experience → Overconfidence	0.36	0.028	0.752
H_{3a}	Age → Herding Behavior	2.81	0.256	**0.005**
H_{3b}	Gender → Herding Behavior	0.39	0.041	0.692
H_{3c}	Educational Level → Herding Behavior	-2.16	-0.183	**0.030**
H_{3d}	Investment Experience → Herding Behavior	0.04	0.004	0.967
H_{4}	Overconfidence → Investment Decision	5.11	0.585	**<0.001**
H_{5}	Herding Behavior → Investment Decision	-3.98	-0.374	<0.001

Source: Own elaboration

Based on hypothesis 1a, which tests the effect of the age variable on investment decisions, there is no significant effect. Based on Table 2, the *p*-value is 0.222, indicating that age does not significantly influence investment decisions. The results of this study are supported by Alquraan *et al.* (2016), who found no significant effect of age on investment decisions. According to research by Istianti and Lestari (2023), age does not significantly influence investment decisions, as younger and older investors do not differ in their investment decisions, as both groups share the same long-term goal: to gain profits from investing in the future. Based on current conditions, it appears that investors aged 18 to 55 tend to share similar considerations when conducting fundamental and technical analysis as a basis for investment decisions, with both younger and older investors seeking to generate future profits. This is because age is a factor that affects an individual's physical condition, not a barrier to accessing information and knowledge that investors use to support and inform their investment decisions, which are based on calculations made by the investors themselves. Therefore, there is no difference between younger and older investors in how they make investment decisions. Thus, it can be concluded that age does not influence investment decisions.

Figure 2.

SEM Result



Source: Own elaboration

Based on the analysis presented, this discussion provides an in-depth interpretation of each hypothesis test result by connecting findings with underlying theories, critically comparing them with previous studies, and drawing practical implications for investors and financial practitioners in the Indonesian capital market context.

The finding that gender significantly influences investment decisions aligns with Chavali and Rosario (2019) and Metawa *et al.* (2019), but this study extends understanding by offering a behavioral explanation grounded in risk-preference theory. Male investors aged 18–55 are more willing to take investment risks, prioritizing profit maximization through fundamental and technical analysis, whereas female investors are more concerned with corporate reputation and risk minimization. This gender-based divergence in decision-making frameworks suggests that investment advisors should develop gender-sensitive communication strategies for male investors, emphasizing return optimization and analytical approaches, and for female investors, highlighting the corporate governance and risk management aspects of investment opportunities.

The significant positive relationship between educational level and investment decisions corroborates the findings of Alquraan *et al.* (2016) and Wahyuni and Astuti (2021), but this study provides deeper insight into the mechanism underlying this relationship. Higher education equips investors with analytical capabilities to

conduct fundamental and technical analysis, enabling more comprehensive risk-return assessments before making decisions. Conversely, investors with lower levels of educational attainment face knowledge constraints that may lead to suboptimal decision-making. This finding implies that financial literacy programs should target less-educated investors with simplified educational materials, while policymakers should consider integrating investment education into formal curricula to enhance long-term investor sophistication.

Investment experience demonstrating a significant positive influence on investment decisions supports Kalsum *et al.* (2018), Metawa *et al.* (2019), and Subagio *et al.* (2020), but this study reveals that experience functions as a learning mechanism, enabling investors to develop intuitive decision-making capabilities through repeated market exposure. Experienced investors leverage accumulated knowledge to navigate volatile situations, applying analytical frameworks more effectively than novice investors. The practical implication is that novice investors should consider simulated trading or mentoring programs to accelerate experience accumulation without exposing significant capital to unnecessary risks during the learning curve.

The non-significant relationship between age and overconfidence contradicts theoretical expectations that maturity moderates overconfidence, yet aligns with Baker *et al.* (2019), Beatrice *et al.* (2021), Elizabeth *et al.* (2020), and Rasool and Ullah (2020). This study's interpretation suggests that technological democratization of information has neutralized age-based confidence differentials—young investors (18–40 years), representing 85 % of respondents, access real-time market information through digital platforms, compensating for their limited experience with information abundance. Theoretically, this challenges traditional assumptions that overconfidence develops primarily through experience accumulation, suggesting instead that information accessibility may be equally important in shaping confidence levels. Practically, this implies that overconfidence mitigation strategies should target all age groups uniformly, as confidence stems from information access rather than age-related wisdom.

Similarly, the absence of gender influence on overconfidence, supported by Beatrice *et al.* (2021) and Rasool and Ullah (2020), reflects fundamental shifts in educational and informational equality between genders in Indonesia. Women now possess the same investment knowledge and access to information as men, eliminating traditional confidence gaps. This finding challenges gender-stereotype theories

that posit inherent male overconfidence in financial domains, demonstrating that structural factors, such as educational access and information technology, drive convergence in psychological traits. The practical implication is that financial product marketing and investor education should avoid gender-stereotyped approaches, as both genders demonstrate similar levels of confidence when equipped with equivalent knowledge.

The non-significant relationship between educational level and overconfidence, consistent with Baker *et al.* (2019), Beatrice *et al.* (2021), and Rasool and Ullah (2020), reveals that technological advancement has democratized investment learning beyond formal educational boundaries. Online classes, discussion forums, and social media platforms enable investors from any educational background—high school (36.23 %), bachelor's (53.62 %), or graduate (10.15 %)—to acquire investment knowledge independently. This finding carries significant theoretical implications, suggesting that in digital environments, informal learning may substitute for formal education in building confidence. Practically, this indicates that securities companies and investment platforms should provide accessible learning resources across multiple formats to accommodate diverse learning preferences, regardless of educational background.

Investment experience, which shows no significant influence on overconfidence, as reported by Utami and Kartini (2017), presents an intriguing contradiction to experiential learning theory. This study interprets this finding through the lens of community dynamics: investors with varying levels of experience participate in investment communities where expert members provide guidance, fostering vicarious confidence that transcends individual experience. Additionally, technology enables less-experienced investors to access expert opinions and analytical tools, compensating for experience deficits. The theoretical implication is that overconfidence may develop through social learning and information access pathways independent of direct experience. Practically, this suggests that investment communities should be designed to facilitate knowledge sharing while maintaining appropriate skepticism toward expert opinions to prevent collective overconfidence.

The significant positive relationship between age and herding behavior reported by Nair *et al.* (2017) reveals an interesting age-based pattern that runs counter to the expectation that maturity reduces social influence. Older investors (41+ years) exhibit stronger herding tendencies because they have developed trusted networks of investment experts through years of relationship building, leading them to follow recommendations from these connections. Younger investors (18–40 years), lacking

established expert networks, approach recommendations with greater caution due to uncertainty about information accuracy. This finding extends social influence theory by suggesting that network quality, rather than network size alone, influences herding behavior. In practice, financial advisors should recognize that older clients may be particularly susceptible to recommendations from their social networks and should proactively provide independent analysis to balance these influences.

The non-significant gender-herding relationship, consistent with Baker *et al.* (2019), Beatrice *et al.* (2021), and Rasool and Ullah (2020), indicates that both male and female investors exhibit herding behavior when lacking confidence in their analytical capabilities. Both genders defer to perceived experts when seeking to minimize potential losses, suggesting that herding is a universal response to uncertainty rather than a gender-specific trait. This challenges theories of differential social conformity between genders and implies that herding mitigation strategies should address the underlying confidence deficit common to both male and female investors by enhancing analytical skill development.

Educational level, which has a significant negative influence on herding behavior, as reported by Baker *et al.* (2019), provides evidence that the development of analytical capability reduces reliance on social information. Higher-educated investors, particularly those with graduate qualifications, possess stronger analytical skills enabling independent decision-making based on personal judgment rather than following others. Lower-educated investors, lacking these analytical frameworks, default to following recommendations as a heuristic substitute for direct analysis. This finding has important practical implications for investor protection—regulators should ensure that investment products marketed to less-educated investors include clear, simplified analytical guidance to reduce potentially harmful herding behavior.

Investment experience, which shows no significant influence on herding behavior, is consistent with Baker *et al.* (2019) and Beatrice *et al.* (2021) and suggests that herding persists across experience levels when investors lack confidence in their analytical assessments. Both novice and experienced investors may follow expert recommendations when they perceive their own analysis as inadequate, or when they have developed trust in specific experts through community participation. This finding challenges the assumption that experience automatically produces analytical independence, suggesting that confidence in one's analytical ability, rather than experience itself, determines resistance to herding. Practically, this indicates that investment education should emphasize developing confidence in one's analytical capabilities alongside technical skill development.

Overconfidence, demonstrating a significant positive influence on investment decisions, as supported by Alquraan *et al.* (2016), Armansyah (2021), and Qasim *et al.* (2019), confirms that confidence shapes decision-making through multiple channels. Confident investors, believing they possess superior knowledge, information, and analytical capabilities, are more willing to commit capital based on their analyses. This confidence may enhance decision implementation, but it risks leading to overestimation of returns and underestimation of risks. The theoretical implication is that optimal investment requires balanced confidence—sufficient to act decisively but moderated by recognition of analytical limitations. Practically, investors should regularly compare their investment outcomes with market benchmarks to calibrate their confidence levels against actual performance.

Finally, herding behavior, which significantly influences investment decisions, supports Rajeshwaran (2020) and extends Koputra and Mahadwartha (2022), revealing that investors who rely on others' decisions rather than personal analysis make suboptimal decisions. When investors lack knowledge or analytical capability, they avoid fundamental and technical analysis and instead imitate others, potentially entering positions at unfavorable prices or missing appropriate exit timing. However, educated investors capable of independent analysis make more rational decisions, suggesting that the negative herding effect can be mitigated through enhanced analytical capability. This finding carries significant practical implications: investors seeking higher returns must develop independent analytical skills rather than rely on social information, while financial advisors should focus on building clients' analytical capabilities rather than simply providing recommendations.

CONCLUSION

Based on the results of the hypothesis testing, this study concludes that the demographic factors of gender and type and investment experience, as well as the behavioral factors of overconfidence and herding, significantly affect investment decisions among investors aged 18 to 55. As a result, these hypotheses are accepted. On the other hand, the hypothesis concerning the impact of age on investment choices was disproved, suggesting that within this age range, age has no discernible impact on investment choices. Additionally, the results show that, while overconfidence shows no significant association with any of the demographic factors tested, herding behavior is considerably influenced by age and educational level. These findings eliminate the uncertainty about which demographic traits genuinely influence behavioral

biases, demonstrating that overconfidence functions independently of age, gender, education, or investment experience, whereas herding has certain demographic underpinnings.

These findings advance behavioral finance literature by demonstrating that demographic factors affect investment behavior in specific ways. Age and education influence herding behavior, while overconfidence appears independent of demographics, suggesting psychological rather than demographic roots. Methodologically, the study highlights the importance of analyzing demographic factors separately, as this approach reveals unique patterns, such as education's role in herding but not overconfidence. The findings offer practical insights for financial advisors and investors: since age and educational level have a significant impact on herding behavior, targeted educational interventions can be created for particular demographic groups, and the fact that overconfidence is present in all demographics serves as a reminder that all investors should use structured analytical techniques to reduce this bias and steer clear of poor investment choices.

To improve the robustness and generalizability of findings, future research should address several limitations acknowledged in this work. The results' applicability to older investor populations is limited by the underrepresentation of respondents aged 40 and older, and response bias may have been introduced by the online distribution method's lack of researcher guidance when participants encountered unclear questionnaire statements. Future research should use stratified sampling to ensure proportionate representation across all age groups, especially among investors aged 40 and older, to overcome these limitations. Additionally, in-person or supervised online questionnaire administration should be considered in order to minimize misunderstandings and provide real-time clarification. To create a more complete model of the behavioral and demographic factors influencing investment decisions, future researchers are also urged to broaden their scope by including additional potentially significant variables, such as occupation, marital status, and monthly expenses.

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DECLARATION OF CONFLICTS OF INTEREST

There is no conflict of interest related to the article.

AUTHORS' CONTRIBUTIONS

The first author contributed to developing the research problem, hypothesis, theoretical framework, research method, data collection, statistical analysis, and initial data interpretation. The second author contributed to developing the research problem, hypothesis, theoretical framework, research method, statistical analysis, data interpretation, writing the manuscript, revising the manuscript, and serving as the corresponding author. The third author contributed to developing the research problem, hypothesis, theoretical framework, research method, statistical analysis, and data interpretation.

DECLARATION OF ETHICAL USE OF AI

The authors declare that no AI was used in the conceptualization or writing of this article.

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