

Investor Behavioral Biases in Investment Decision-Making: A Study on The Novice Stock Investors

Andi Wijayanto^{1*)}; Saryadi²⁾

¹⁾ andibilt@gmail.com, Universitas Diponegoro, Indonesia

²⁾ saryadi@lecturer.undip.ac.id, Universitas Diponegoro, Indonesia

*) Corresponding Author

ABSTRACT

Objectives: The aim of this study was to investigate the influence of overconfidence, disposition effect, herding effect and home bias on the process of making investment decisions in stocks, and to account for the moderating effect of financial literacy.

Methodology: The study was carried out on 100 investors in the Investor Saham Pemula (ISP) community who are beginner investors in stocks. Questionnaire, interview and documentation were used to gather data. Moderated Regression Analysis (MRA) was used for data analysis.

Findings: Overconfidence and home bias had significant effects on investment decision making; there was no significant effect on Disposition Effect and herding effect. Financial literacy significantly moderated the influence of Disposition Effect on investment decisions at 10%, whereas it did not significantly moderate the influence of other factors namely overconfidence, herd effect, and home bias.

Conclusion: psychological factors and financial literacy are key determinants in investor behavior and decision-making. The study underscores the importance of continuous investor education and guidance to assist in addressing behavioral biases on the part of the novice investors and making rational and more data-driven investment decisions for long-term returns.

Keywords: Behavioral Biases; Investment Decision-making; Financial Literacy; Novice Stock Investors.

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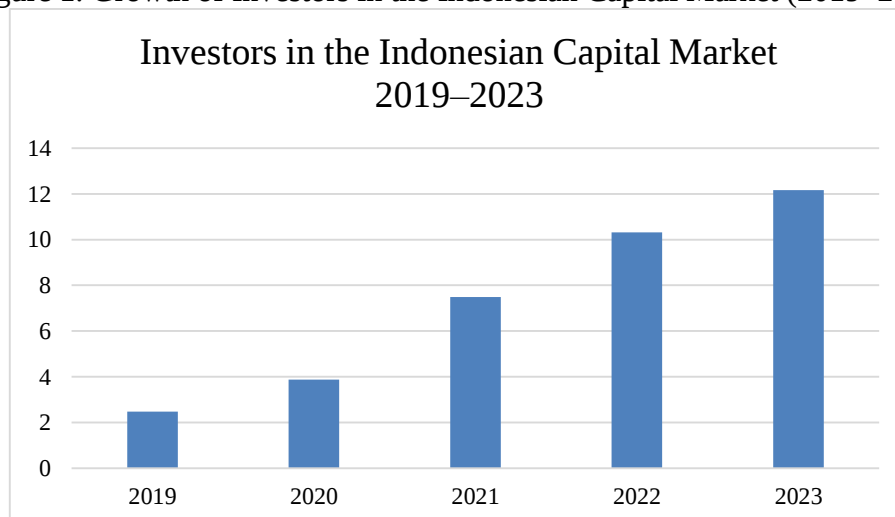
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INTRODUCTION

Investment is an important factor in the economy of a country. It is a factor for economic growth, employment growth, and infrastructure development (Cahyono, 2015). As a crucial element of economic activity, investment can have a significant and sustainable impact on a country's development and well-being. Investment in Indonesia has a positive effect on economic growth in terms of an increase in the production and productivity of a macroeconomic scale (BKPM, 2020). This, in turn, brings about economic efficiency which results in higher national output. More capacity – both from the private sector and the government – is the basis for sustainable economic development. Labor demand and company growth as a result of investment can be seen as an indicator of the importance of investment in job creation (Hellen, Mintarti, & Fitriadi, 2018). This will not only benefit their health, but also the buying power of the community. There can be fewer people without jobs if they can find suitable jobs, which in turn will improve social and economic stability. Given the crucial role of investment, policies that encourage a conducive investment climate and innovation are crucial for a country to achieve inclusive and sustainable economic development.

In the past few years, investing has become a popular method for people to handle their money. The number of investors involved in the capital market is growing which confirms this trend. The data from PT Kustodian Sentral Efek Indonesia (KSEI) released in January 2021 shows that the number of capital market investors has experienced a significant rise. Specifically, from the end of 2018 to the end of 2019, the investor count rose from 1,619,372 to 2,484,354, representing a 53.41% increase. By the end of 2020, the number of investors grew even more to 3,880,753, despite the pandemic. This suggests that the capital market has become a more appealing option for the public compared to real sector businesses, which faced challenges during the pandemic. This upward trajectory in investor numbers has persisted into 2023, as illustrated in Figure 1.

Figure 1. Growth of Investors in the Indonesian Capital Market (2019–2023)



Source: Santika (2023)

Investing in the capital market requires adequate knowledge to be able to manage risk and generate returns as expected. But often novice investors make mistakes in making stock investment decisions. There are behavioral biases that affect novice investors in making

investment decisions. Among these behavioral biases is the disposition effect (Kumar & Goyal, 2015; Madaan & Singh, 2019); overconfidence (Altaf & Jan, 2023; Kumar & Goyal, 2015; Madaan & Singh, 2019); herding bias (Altaf & Jan, 2023; Kumar & Goyal, 2015); home bias/familiarity bias (Kumar & Goyal, 2015).

To be able to make good investment decisions, financial literacy is needed. Financial literacy plays a very important role in investment decision-making (IDM). Investment decisions involve an understanding of a wide range of financial instruments, knowledge of risks and returns, and the ability to plan and manage finances wisely. Several studies prove that financial literacy can influence investment decision-making (Fitriyani & Anwar, 2022; Suresh G, 2024).

Malang is one of the big cities in East Java that has experienced a phenomenon of increasing the number of investors in the capital market in recent years. Based on data from the Malang OJK, in 2023, capital market investors from Malang showed an increase of 23.14 percent compared to the previous year. This number is dominated by individual investors who reach 99.33 percent. However, this increase is still dominated by investors in Government Securities (SBN) and Mutual Funds, while the growth in the number of stock investors shows the opposite condition. The average share transactions in Malang decreased by 50.34 percent, while share ownership decreased by 5.55 percent compared to the previous year (Anam, 2023). This condition indicates that there are problems faced by investors in responding to investments in risky instruments. Behavioral bias and financial literacy that have an impact on errors in IDM can be the cause of investors in Malang switching to invest in safer investment instruments.

Malang provides a relevant setting for examining novice investors because capital-market participation in the city continues to expand alongside the growing involvement of young and digitally engaged investors. In 2025, OJK Malang recorded an 11.98% increase in investors in Malang City. This local development is consistent with national KSEI data showing that 54.47% of capital-market investors were under 30 years old and another 24.71% were aged 31–40. Digital platforms also play an important role in this growth, with Bibit, Bareksa, and Ajaib identified among the preferred investment applications in Malang. More specifically, the report describes a student who is a member of the Malang Novice Stock Investor community and uses Stockbit for investing and TradingView for market analysis. This evidence suggests that the community represents an important context for studying investors who are relatively young, participate through digital platforms, and may still have limited experience in evaluating volatile assets. Although digital applications increase accessibility to stocks and investment information, they may also expose novice investors to rapid market signals, social influence, and an illusion of analytical competence. These conditions can strengthen overconfidence, the disposition effect, herding, and home bias, particularly when financial literacy is insufficient to support independent information evaluation and systematic risk assessment. Examining members of the Malang Novice Stock Investor community can therefore clarify how behavioral biases influence investment decisions and whether financial literacy mitigates these effects (iKoneksi, 2025).

Previous studies provide inconsistent evidence regarding the effects of behavioral biases on stock investment decisions. Overconfidence and herding positively influenced investment decisions in Madaan & Singh (2019), whereas Adil et al. (2022) found that overconfidence was significant only among male investors and that herding had a negative effect. Prasetyo et al. (2023) similarly reported significant effects of overconfidence and the disposition effect but found no significant effect of herding. Evidence on the disposition effect also varies between transaction-based studies documenting investors' reluctance to realize losses and survey or experimental studies reporting insignificant or even reversed effects. Although home bias is

consistently reflected in investors' preference for geographically and culturally familiar securities, the literature remains divided over whether this preference represents an irrational familiarity bias or a rational response to information advantages. These differences may result from variations in investor experience, gender, market conditions, measurement methods, and the use of self-reported decisions rather than actual trading behavior. Moreover, financial literacy does not consistently weaken behavioral biases and its moderating role in home bias remains largely untested. Therefore, examining these relationships among novice stock investors can clarify whether financial literacy constrains or reinforces the translation of behavioral biases into investment decisions.

In light of the research problems, this study aims to: (a) demonstrate the impact of investor behavioral biases (overconfidence, disposition, herding effect, and home bias) on stock investment decision-making; and (b) establish the moderating role of Financial Literacy in the relationship between these investor behavioral biases and stock investment decision-making.

LITERATURE REVIEW

Behavioral Finance Theory

Behavioral finance is a new discipline that combines psychology and sociology with financial analysis to gain a deeper understanding of investor behavior and market results beyond what rational-market theory can explain, which is the sole branch of finance concerned with changes in investor behavior and the consequences that result from them (Shiller, 2003). Behavioral finance focuses on whether systematic psychological biases result in mispricing, undue volatility, and other deviations from fundamental values, instead of considering them as random deviations that are consistent with the Efficient Market Hypothesis (EMH) (Fama, 1998). Shiller (2003) suggests that stock prices could have significant noise and that they could move up and down more than is warranted by dividend growth or other economic factors. This evidence contradicts the notion that market prices are always best forecasts of all available information.

The contribution of the EMH is not invalidated by behavioral finance. Rather, it loosens its constraining behavioural assumptions by adding more realistic elements of individual decision-making (Mittal, 2022). Traditional financial theory often makes the following assumptions: (1) investors act in an objective fashion, (2) they seek to maximize expected utility, and (3) they arbitrage away market mispricing. But in reality, investors' brains are not very capable and often make decisions based on certain emotions, social cues, previous experiences and mental shortcuts. Furthermore, rational investors or "smart money" can not necessarily completely drive out mispricing due to arbitrage costs, risks, short-selling and psychological pressures (Shiller, 2003). As such, investors can keep behaving irrationally and cause prices to stay irrational for a long time.

Behavioral biases are systematic patterns of judgment that can lead to distorted perceptions, inaccurate evaluations or decisions that fall short of economic rationality (Mittal, 2022). Shiller (2003) provides examples of how investor expectations can be reinforced through representativeness, biased self-attribution, and social feedback. Higher prices can bring about more demand, more optimism, more public attention, more price increases, and a more self-reinforcing price trend and speculative bubble. Likewise, it can function in the downtrend, driving even more negative sentiment and selling pressure.

The significance of the study of these mechanisms of behavior is in the understanding that these factors influence investment decisions not only in terms of information received in

the monetary markets, but also investors' interpretation of uncertainty, gains, losses, and others. Recognizing behavioral mistakes can then benefit investors regarding their information processing, risk evaluation, and portfolio decisions. Prompt identification of these biases can also help avoid unnecessary speculation, trading and other costly financial decisions, especially for novice investors who lack the experience in the market and are more susceptible to the wrong assumption.

Investment Decision-making (IDM)

Investment decision-making can be defined as “investing funds in a chosen investment product after conducting a risk-return analysis against the various alternatives available” (Rahman & Gan, 2020). The reason behind investment decision-making is “to seek better returns in the future time period at the expense of current consumption” (Rajasekar, Pillai, Elangovan, & Parayitam, 2023).

Mittal (2022) states that there are various factors influencing individual investment decisions, namely demographics, psychological factors, personal values, personal financial needs, risk bearing capacity, stock fundamentals, expert advice, and other factors such as press releases, accounting information, and the impact of government policies. Psychological influences are one of the dimensions that can affect individual investor decisions. These factors are studied in the field of behavioral finance.

Behavioral Biases

Investors often have biases when making investment choices. A behavioral bias is a change in judgment that happens in certain situations. This can lead to wrong perceptions, bad assessments, or illogical thinking, often called irrationality (Mittal, 2022). By understanding these biases, investors might improve their financial results and reach their financial goals. Spotting these biases early can help clients avoid financial problems. Investor behavior biases include “herding bias, overconfidence, disposition effect, and home bias” (Kumar & Goyal, 2015). In addition to these biases, Mittal (2022) added “Hind sight biases, Availability biases, and Self-Attribution biases”.

Overconfidence Bias

Overconfidence bias refers to investors' tendency to overestimate their knowledge, analytical ability, and capacity to predict market outcomes. It occurs when subjective confidence exceeds objective competence, causing investors to underestimate uncertainty and investment risk (Altaf & Jan, 2023; Kumar & Goyal, 2015). Overconfident investors may perceive themselves as better informed than other market participants, even when this belief lacks sufficient knowledge or experience (Mittal, 2022).

This bias affects investment decisions by distorting information processing and risk perception. Investors tend to give excessive weight to personal judgments and information that supports their existing beliefs while inadequately responding to contradictory market signals (Madaan & Singh, 2019; Mittal, 2022). Their perceived forecasting ability may also encourage speculative asset selection, insufficient portfolio diversification, and risk exposure beyond their actual tolerance (Altaf & Jan, 2023).

Overconfidence also promotes excessive trading. Investors who believe they possess superior information trade more frequently, although the resulting gains may not compensate for transaction costs, potentially reducing portfolio performance (Kumar & Goyal, 2015; Mittal, 2022). Self-attribution further reinforces this behavior: investors credit successful outcomes to

personal skill but attribute losses to external market conditions, limiting their ability to learn from mistakes (Rauf, Khurshid, & Afzal, 2018).

Empirical studies show that overconfidence positively affects investment decisions, perceived performance, and investment intentions (Altaf & Jan, 2023; Madaan & Singh, 2019; Rauf et al., 2018). However, greater willingness to invest does not necessarily indicate better decision quality. This distinction is particularly relevant for novice investors, whose limited experience makes it difficult to separate skill from chance. Consequently, overconfidence may encourage aggressive investment decisions unsupported by adequate knowledge, experience, or systematic risk assessment.

Herding Bias

Herding bias is when investors do not use fundamental analysis and analysis themselves instead they follow the crowd. It is typically found in uncertainty situations where observing the crowd seems to give them a shortcut to information (Kaur et al., 2026; Skwarek, 2025). Investors may therefore buy their favorite stocks, follow the crowd's lead or sell when the market is down just because their peers are doing the same.

The extent of herding is a function of investors' and markets' features. In a systematic review by Douhabi & Drissi (2026), herding gets the name of one of the most common behavioral biases, especially among less experienced, younger, and less financially knowledgeable investors. Improved investor's ability to independently evaluate information could lead to a decrease in dependence on collective judgment (Mandić et al., 2026). Personality is also a factor: Neuroticism and agreeableness may make for more susceptible to herding, as emotionally sensitive investors are more sensitive to uncertainty, while agreeable investors may be hesitant to contradict group decisions (Alam et al., 2026).

It is more evident when markets are volatile, when they are declining, when information is scarce, or when information is poor or dubious (Singh et al., 2023; Skwarek, 2025). Social media can contribute to this process, by speeding up the spread of sentiment, rumours and market investment narratives. Collective action can focus the trading in one direction, amplify price trends, create price bubbles, and lead to greater volatility. But the strength is different from one asset to another, one market cycle to another and from one investor group to another.

New investors are often swayed by the actions of others, groups, and influencers online because they don't have the expertise to make an informed decision on their own. When it comes to investing in stocks, new investors rely on others, groups, and influencers on the internet because they don't know how to do it on their own. Indeed, herding could lead to social validation-based and group frenzy-based investment decisions that are not the result of a rigorous risk-return analysis.

Disposition Effect

The disposition effect is a term given to investors who sell their appreciated stocks prematurely and holding on to their depreciated stocks for too long (Altaf & Jan, 2023). This can be described using Prospect Theory, specifically with reference to reference-dependent preferences, which are preferences that are formed based on gains or losses relative to a reference point. (Kahneman and Tversky, 1979) This means that an investor may be tempted to sell at a profit in order to feel good about themselves and not be sorry, while they wait for a loss-making stock to rebound. This asymmetry can be further reinforced by other factors such as mental accounting, regret aversion and self-control issues (Kumar & Goyal, 2015). This can skew stock investment decisions as it may cause investors to value stocks based on what they

paid for them, not what they can earn on them, which can make it harder to rebalance portfolios, add opportunity costs to investments and lower returns. However, there is little empirical evidence. Educated and richer investors have been found to be less susceptible to the disposition effect, as found in previous transaction-based studies, which mainly document it for non-professional and lower-income investors (Kumar & Goyal, 2015). Madaan and Singh (2019) revealed that there was a significant positive bivariate relationship between disposition bias and investment decision-making, however the same was insignificant in their regression model. Likewise, Altaf and Jan (2023) found that the disposition was not significantly predictive of the investment intentions of the millennials. The differences point to a different impact depending on investor characteristics, market environment, measurement techniques, and the type of study (stated or actual trading).

Home Bias

The preference of the investors to keep a significant portion of their portfolio in their domestic or geographically close stocks, and investing less in the foreign stocks, even though the international diversification can be beneficial is termed as home bias or equity home bias (Kumar & Goyal, 2015). This bias is often called the 'local familiarity bias' because investors feel they can better interpret the information they can access about local companies and markets and those not in their country are less predictable. This preference could be further entrenched by information asymmetry, transaction costs, investment barriers, inflation-hedging motives, and overconfidence. There is empirical evidence that indicates that institutional investors prefer to invest in firms located in their vicinity, whereas individual investors favor investing in close-to-home or domestic firms due to their informational advantage (Coval & Moskowitz, 1999; Strong & Xu, 2003; Seasholes & Zhu, 2010). This focus can affect the investment decisions of stocks, leading investors to miss out on good investment prospects in the foreign market, build ill-diversified portfolios, and be highly sensitive to domestic economic and market disturbances. This is further supported by recent studies showing that investors' home bias reduces their investment in foreign stock markets (Kalappa & Upadhyay, 2025). However, the domestic preference is not always completely irrational as transaction costs, investor protection differentials, or even true information advantages may warrant some preference for domestic holdings (Kumar & Goyal, 2015). Hence, the tendency for home bias to become problematic when familiarity replaces systematic risk–return analysis, especially among “newcomers” who might think that “nearness” is synonymous with “low investment risk.”

Financial Literacy

OECD defined Financial literacy as "The combination of awareness, knowledge, skills, attitudes and behaviors necessary to make informed financial decisions and ultimately achieve individual financial well-being" (OECD, 2022). According to van Rooij, Lusardi, & Alessie (2011), the components of financial literacy include Basic financial literacy which refers to an individual's understanding of basic financial concepts that are commonly found in daily life and Advanced financial literacy which reflects advanced financial knowledge which is more complex and directly related to financial markets and investment decisions.

Moderating Effect of Financial Literacy

Financial education means knowledge and application of financial concepts such as risk – return balance, diversification, and evaluation of information. In the current system, it helps to balance the impact of behavioral biases by giving investors a chance to review subjective judgements before making investment judgments. Financial literacy will contribute to investors

being more aware of the difference between genuine analytical ability and overconfidence, and should reduce, therefore, their tendency to overestimate risk, over-trade and invest in speculative stocks. This buffer effect of overconfidence is supported by empirical findings, but the buffer effect might differ among investor groups (Adil et al., 2022; Ahmad & Shah, 2022).

Financial literacy can also help mitigate the disposition effect by increasing investors' awareness of opportunity costs, and motivating them to assess their portfolios using future returns rather than their transaction costs. Similarly, knowledgeable investors can evaluate information in the market without relying on others to do so, which will make the herding impact on stock investment decisions less significant. But, the results are not consistent. According to Prasetyo et al. (2023), financial education reduced the impact of herding and overconfidence but boosted the disposition effect, whereas Adil et al. (2022) noted that there was a moderation effect based on gender.

The findings regarding home bias are also of interest as they suggest that “learning about international diversification” can help to decrease the bias toward familiar domestic securities. Barone et al. (2026) conclude that financially knowledgeable household units are more inclined to invest overseas and are more inclined to devote more of their portfolios to foreign investment. Across the board, financial literacy is likely to diminish the impact of overconfidence, disposition, herding, and home bias on investor investment decisions, though the moderating power of financial literacy may vary by type of bias, investor, and between objective knowledge and perceived competence.

Hypothesis Development

Kumar & Goyal (2015) found four common mistakes investors make when deciding where to invest: Herding bias, overconfidence, disposition effect, and home bias. Herding bias happens when people copy others' decisions instead of thinking for themselves. This is common among different investors. Retail investors often follow the crowd or less experienced traders. Analysts might copy others to protect their reputation or pay. Individual investors are more likely to follow the crowd than big institutions. *Rational Choice Theory* assumes that individuals make decisions by evaluating available alternatives and selecting the option expected to maximize personal utility, based on their preferences, information, and perceived costs and benefits (Krstić, 2022). In stock investment decisions, however, investors often face uncertainty, information asymmetry, and limited analytical capacity, making fully independent evaluation difficult. Under these conditions, following other investors may appear rational because collective behavior is interpreted as a signal of superior information or profitable opportunities. This reliance can produce herding behavior, in which investors buy or sell stocks based on prevailing market actions rather than their own fundamental analysis. Consequently, herding may influence stock investment decisions by encouraging investors to choose popular securities, follow price trends, or exit the market during widespread selling. While this can help to diminish uncertainty, it can also negatively impact independent judgment and cause speculation in the market, heightened asset values, or panic selling, especially among new investors. Research on this are conducted by Addinpujoartanto & Darmawan (2020); Afriani & Halmawati (2019); Wibowo et al. (2023); Fitriyani & Anwar (2022); Setiawan et al. (2018).

Overconfidence is when people are more knowledgeable than they are and turn a blind eye to risks. Prospect Theory is an explanation of investment decisions that proposes that investors consider investments as a gain or loss in relation to a reference point instead of in relation to their final wealth. It is concave for gains, convex for losses and steeper for losses, meaning that investors are risk averse in the face of gains and risk seeking in the face of losses

(Kahneman & Tversky, 1979). At the same time, the investors have a tendency to overestimate their knowledge and analysis skills, and the accuracy of information they have, according to Overconfidence Bias Theory, which means that investors tend to have an exaggerated sense of their ability to predict stock-market movements (Rauf et al., 2018). These viewpoints supplement the analysis of stock investment decisions. While the role of perceived gains, losses and probabilities in influencing risk preferences is described by Prospect Theory, the reason for the miscalibration of such perceptions is explained by overconfidence. Stock investors often invest with too much faith in their predictions, with a lower valuation of the likelihood of losses, and expecting that less likely gains will actually materialize, in their view, more than they actually will. They are more likely, therefore, to buy speculative stocks, to trade often, to have poorly-diversified portfolios, and to hold on to losing stocks while hoping to get them back. In line with this, Rauf et al. (2018) argued that equity investors' decision-making processes were positively and significantly related to their overconfidence. Therefore, when investors are overconfident, it can lead them to make aggressive stock investment decisions on the basis of their subjective assessment of the prospects rather than a systematic analysis of risk–return patterns of the stocks. Many studies have looked at how this affects smart decision-making (Bouteska, Harasheh, & Abedin, 2023; Fitriyani & Anwar, 2022; Mita & Almilialia, 2019; Nur Aini & Lutfi, 2019).

The disposition effect: when investors sell on winning positions and hold on to losing positions. There have been multiple researchers conducted on this topic (Adil et al., 2022; Gunathilaka, 2021). Home bias is when people or companies prefer local stocks over foreign ones. This is baffling as there may be greater benefits to investing elsewhere. Some factors behind home bias are investing barriers, investing costs, information shortage, protection from inflation, and assets that are not traded. Many studies say there is no clear reason for home bias (Bonaparte, Fabozzi, & Koslowsky, 2021; Garg, Karmakar, & Paul, 2023; Neumayer, 2018; Sarkissian & Schill, 2004; Wu & Gau, 2017).

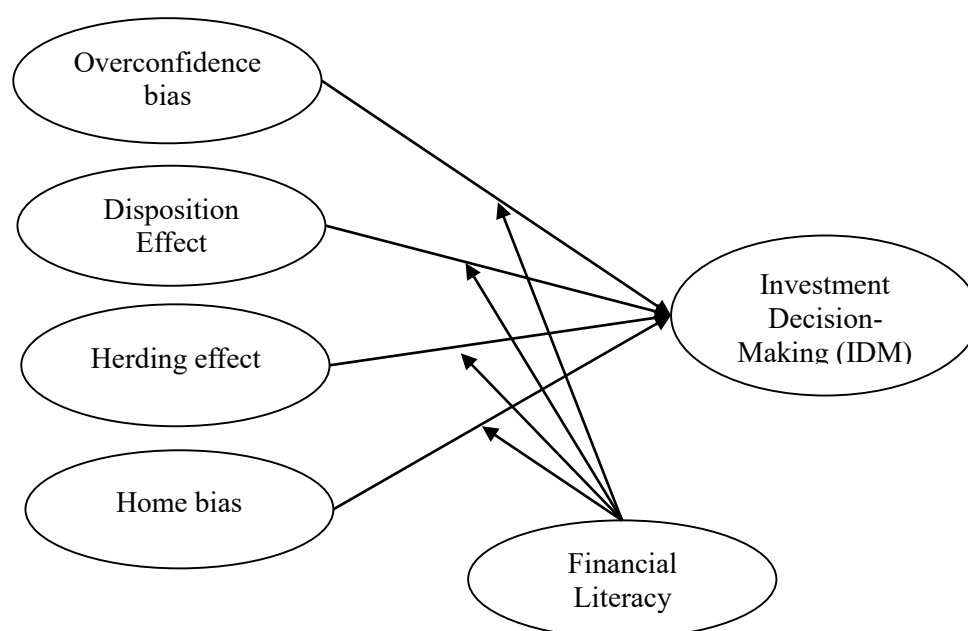
The research hypotheses are stated as follows using the theoretical frameworks and literature:

- H1: Overconfidence bias significantly influences IDM;
- H2: The Disposition Effect significantly influences IDM;
- H3: The Herding effect significantly influences IDM; and
- H4: Home bias significantly influences IDM.

Wangzhou, Khan, Hussain, Ishfaq, & Farooqi (2021) have examined the financial literacy as a moderating variable in the field of behavioral finance. Their research results revealed that financial literacy can reduce the impact of behavioral bias on investment choices. When someone has a high level of financial literacy, the negative effects of behavioral bias on their investment decisions are reduced. Conversely, those with lower financial literacy are more susceptible to these biases. Based on these observations, the following research hypotheses are formulated:

- H5: Financial Literacy weakens the effect of Overconfidence Bias on IDM
- H6: Financial Literacy weakens the effect of Disposition Effect on IDM
- H7: Financial Literacy weakens the effect of Herding Effect on IDM
- H8: Financial Literacy weakens the effect of Home Bias on IDM.

Figure 2. Research Model



METHOD

This research was conducted on beginner stock investors in Malang. The research population is all beginner stock investors in Malang who are members of the Investor Saham Pemula (ISP) community. In 2023, this community has around 2,886 beginner stock investors (Instagram @ispmalang). The number of samples was determined using the Slovin formula. A 10% margin of error was applied because the study focused on a specific and relatively restricted population of novice stock investors registered in the Investor Saham Pemula community in Malang. As members of the same novice-investor community, they were considered relatively homogeneous in terms of investment experience, market understanding, and learning processes. Access to eligible respondents was also limited by the predefined purposive-sampling criteria. The calculation produced a minimum sample of 100 respondents, all of whom met the eligibility requirements.

Purposive sampling was employed to select respondents who matched the study's context. Eligible respondents were required to: (1) be registered members of the Investor Saham Pemula (ISP) community in Malang City; (2) currently own stocks, or crypto, or bonds, or mutual funds, or money market instruments and have conducted at least one transaction within the previous six months, confirming their active participation in stock investing; and (3) voluntarily complete the questionnaire.

Data were collected primarily through questionnaires, which provided the quantitative data used for hypothesis testing. Interviews and documentation served only as supporting sources to clarify the research context, verify information concerning the characteristics of novice investors, and assist in interpreting the questionnaire findings. Therefore, the interview and documentary data were not analyzed as independent qualitative datasets or reported as separate empirical results.

Data analysis techniques include descriptive and inferential analysis. Descriptive analysis is carried out to describe investor profiles, research variables, and research findings. Inferential

analysis was carried out using *Moderated Regression Analysis* where the regression equation contains variable interaction elements (Liana, 2009). The data analysis process is carried out with the help of SPSS software.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 displays the attributes of the participants.

Table 1. Respondent's Descriptive Statistics

Demographic Variables	Category	Frequency	Percentage (%)
Age	<20	24	24
	20 – 24	69	69
	25 – 29	4	4
	30 – 34	2	2
	>34	1	1
Gender	Male	26	26
	Female	74	74
Education	SMA	78	78
	Diploma	1	1
	S1	20	20
	S2	1	1
Occupation	Student	92	92
	Entrepreneurial	2	2
	Private Employees	5	5
	Freelance	1	1
Marital Status	Married	2	2
	Unmarried	98	98
Income (IDR)	≤ 0 – 2.000.000	76	76
	>2.000.000 – 4.000.000	20	20
	>4.000.000 – 6.000.000	2	2
	>6.000.000 – 8.000.000	0	0
	>8.000.000	2	2
Investment Duration	0 – 1	77	77
	>1 – 2	10	10
	>2 – 3	8	8
	>3 – 4	2	2
	>4 – 5	1	1
	>5	2	2
Investment Instruments	Crypto	9	9
	Stock	36	36
	Mutual Fund	75	75
	Bond	20	20
	Money Markets	1	1
Investment Applications	Bibit	67	58,77
	Stockbit	1	0,88
	IPOT	3	2,63
	Ajaib	10	8,77
	Tokopedia	6	5,26
	Bareksa	9	7,89
	Livin by Mandiri	2	1,75
	Binance	2	1,75
	RHB Tradesmart	2	1,75
	Other	12	10,53

Demographic Variables	Category	Frequency	Percentage (%)
Motivation to Invest	Overcoming Inflation	22	13,49
	Increase Income/Wealth	77	47,2
	Achieving Financial Goals	33	20,2
	Achieving Financial Freedom	31	19

The respondents in this study are novice investors who live in Malang, whose characteristics are in the younger age group, mainly aged 21-30 years. This means that the interest in investment shows a significant increase in productive generation. As far as gender is concerned, male respondents exceeded the female respondents in the investment activities, indicating that the participation of the male in investment activities is still more than the female, but female involvement has also started to increase. As far as education is concerned, the majority of respondents have a bachelor's degree (S1), suggesting that novice investors generally have high levels of educational attainment and thus may have a better understanding of information and risks associated with investing. Occupational analysis shows that most individuals interested in investment are private employees and university students; it means that even those who are not yet earning a steady income are interested in investment. Moreover, most of the respondents have a low level of investment experience as the novice investors in this study are classified as having less than 2 years of investment experience.

Investors in Malang, particularly those who are new to investing, are more inclined to choose investment vehicles that are easier to access and have lower risk levels, like mutual funds and stocks available through digital platforms. This option is in line with a preference for low-cost investments and a moderate risk/return perspective, while a smaller segment expressed interest in other assets like bonds, or cryptocurrencies, indicating exploratory inclinations. In terms of investment applications, the majority of respondents heavily depend on mobile user friendly and cost efficient platforms with often financial education capabilities. This is underlined by the fact that such applications are widely used, which shows how important digitalisation is for present-day investment practices, especially among younger generations who are more at ease with financial technology. When it comes to desires to invest, the respondents' primary motives are long-term financial objectives like creating wealth, financial independence, and future security. Meanwhile, external factors such as peer groups and social media have an impact on investment behaviour as well, in line with behavioural finance theories which focus on psychological and social aspects. The relevance of this profile is to get a glimpse of the importance of studying behavioral and psychological aspects that affect investment decision making among new investors in Malang.

To ensure the quality of the data, validity and reliability tests were conducted on the research instrument, as presented in Table 2.

Table 2. Validity and Reliability Test

No.	Items	r	Validity	Cronb. Alpha	Reliability
Overconfident bias	Ability to make investment decisions	0,754	Valid	0,804	Reliable
	Ability to perform better than others	0,819	Valid		
	Ability to control outcomes	0,813	Valid		
	Possession of specific skills	0,780	Valid		
	Comprehensive knowledge of the financial market	0,797	Valid		
Disposition effect	Avoiding the sale of declining stocks while selling stocks whose market prices increase	0,320	Valid	0,694	Reliabel

No.	Items	r	Validity	Cronb. Alpha	Reliability
Herding Effect	Not holding stocks whose market value continues to decline	0,594	Valid	0,814	Reliabel
	Holding stocks with high intrinsic value	0,497	Valid		
	Promptly selling stocks with declining prices	0,699	Valid		
	Holding stocks with increasing prices	0,578	Valid		
	Other investors' decisions regarding stock trading volume	0,817	Valid		
	Other investors' decisions to buy and sell stocks	0,826	Valid		
	Other investors' decisions in selecting types of stocks	0,805	Valid		
	Quick reaction to changes in other investors' decisions	0,741	Valid		
Home Bias	Preference for domestic stocks	0,804	Valid	0,789	Reliabel
	Returns on domestic stocks	0,643	Valid		
	Risks of domestic stocks	0,729	Valid		
Financial Literacy	Numeracy	0,771	Valid	0,801	Reliabel
	Interest compounding	0,798	Valid		
	Inflation	0,785	Valid		
	Time value of money	0,848	Valid		
	Money Illusion	0,699	Valid		
Investment Decision	Investment decisions are aligned with investment objectives	0,437	Valid	0,707	Reliabel
	Normal reaction to losses	0,723	Valid		
	Achieving the expected outcomes from investment decision	0,571	Valid		
	Risk tolerance in investment decisions	0,541	Valid		
	Investment holding period	0,486	Valid		

The value of r-test for all items are greater than the r-table (0.196), indicating that all items are valid. The Cronbach's Alpha for all variables exceed 0.6, thereby meeting the reliability requirement.

Direct Effect of Investor Behavioral Biases

Hypothesis testing is used to verify the research hypotheses. The results of the direct effect test of investor behavioral biases on Investment DM are presented in Table 3.

Table 3. Direct Effect of Investor Behavioral Biases on Investment DM

Variables	B	t	Sig.	R	R ²	Sig.
Over Confident Bias	,334	5,731	,000	,501	,251	Significant
Disposition Effect	,024	,298	,766	,030	,001	Not Significant
Herding Effect	-0,061	-0,823	0,412	,083	,007	Not Significant
Home Bias	0,257	2,212	0,029	0,218	0,048	Significant

Source: Data Analysis, processed (2024)

The hypothesis testing results on the direct effect of investor behavioral biases on IDM reveal that not all behavioral factors exert the same influence. The effect of overconfidence bias on investment decision is positive and significant, meaning that the novice investors are more likely to make decision when they are overconfident on making investment decisions due to their overestimation of their knowledge and judgment. Likewise, the existence of home bias is seen to have an effect, indicating that novice investors' decision making in Malang is indeed affected by the type of investment option that is preferred for domestic investments. In contrast,

no significant effects of disposition bias and herding effect were found for IDM. In this case, behavioural factors like selling profitable stocks prematurely (disposition bias) or following the herd (herding effect) do not significantly affect investments. In general, the results point to the fact that the two dominant behavioral biases that affect novice investors' DM processes are overconfidence and home bias.

This study indicates that overconfidence bias has a significant effect on stock investment decision making. Investors that are overconfident are less aware of the risks, trade too much, look for confirming information, and, together, are responsible for the volatility in the market (Barber & Odean, 2005). These results support Prospect Theory (Kahneman & Tversky, 1979) and Overconfidence Bias Theory (Rauf et al., 2018), and are consistent with prior studies Madaan & Singh (2019), Kartini & Nahda (2021); Kulal (2022); Natasya et al. (2022); Parveen et al. (2023); Ranaweera & Kawshala (2022); Ullah et al. (2020).

The disposition effect, on the other hand, has not been shown to be important in the process of making investment decisions. This can be attributed to the investors becoming more aware of cognitive biases, increased importance of fundamental and technical analyses, and the influence of improved external factors. The results support the Rational Choice Theory (Krstić, 2022), as well as studies by Adil et al. (2022) and Feng Feng & Seasholes (2005) showing that education and experience reduce the impact of the disposition effect.

Likewise, the herding effect has a negligible impact on investment decisions. The technology provides more opportunities to get information to the public, particularly to younger investors, giving them the ability to make their own decisions and act rationally. This supports Rational Choice Theory (Krstić, 2022), and is consistent with findings by Natasya et al. (2022), Bikhchandani & Sharma (2000), Chen et al. (2007), and Choi & Sias (2009), which highlight that educated and experienced investors are less prone to herding behavior.

Home bias directly affects investment decisions because even if domestic stocks may be less risky than foreign stocks, investors tend to favor domestic stocks. This inclination is driven by familiarity bias (Huberman, 2001), investors are more at ease with familiar instruments, and from information asymmetry, less information and understanding of foreign markets. The results also corroborate with behavioural finance theory (Shiller, 2003) which asserts that investment decisions are not solely based on rational calculations, but also through cognitive and emotional biases that induce investors to consider the local markets more than the international.

Moderating Effect of Financial Literacy

The purpose of the testing of the moderating role of financial literacy on the influence of overconfidence bias on stock investment DM is to verify whether the financial literacy of novice investors can strengthen or weaken the influence of the overconfidence bias on the stock investment decision. All the variables, such as investor behavioral biases, financial literacy and interaction terms between the independent variables and financial literacy were tested for linear regression. Table 4 contains the results of this analysis.

Table 4. Financial Literacy Moderation Test

Model	B	SE	Beta	t	Sig.
Overconfidence bias	-,092	,402	-,137	-,228	,820
Disposition Effect	-1,326	,746	-1,648	-1,777	,079
Herding Bias	,104	,597	,141	,174	,862
Home bias	-,100	,743	-,085	-,135	,893
Financial Literacy	-1,370	,723	-1,773	-1,894	,061

Model	B	SE	Beta	t	Sig.
OverConf*FinLit	,019	,021	,792	,868	,388
Dispo*FinLit	,069	,038	2,345	1,816	,073*
Herd*FinLit	-,010	,030	-,317	-,335	,738
Home*FinLit	,012	,038	,276	,317	,752
R = 0,617 R ² = 0,381 F test = 6,157 Sig. = ,000					
a. Dependent Variable: Investment Decisions					
*sig. at 0.10 level					

Source: Data Analysis, processed (2024)

The hypothesis test results on the moderating role of financial literacy between investor behavioral biases and IDM results are mixed and mixed. The interaction variable OverConf*FinLit is not significant, which means financial literacy does not change the effect of the overconfidence bias on IDM. Similarly, the interaction variable Herd*FinLit and Home*FinLit are not significant, indicating that financial literacy does not affect the herding behavior and home bias IDM process.

However, when the significance level is lowered to $\alpha = 0.10$, the interaction variable Dispo*FinLit is found to have a statistically significant moderating effect (sig. = 0.073). Adopting this finding suggests that the relationship between disposition effect and IDM is enhanced when there is an increased level of financial literacy. Put another way, those novices who possess greater financial literacy are more likely to translate their tendency to sell off their winning investments too early or to hang onto their losing investments for too long into actual investment choices.

Overall, these results suggest that financial literacy has a conditional role, because the results of this study showed that financial literacy did not moderate the effects of overconfidence and herding, but it did moderate the relationship of disposition effect and IDM in novice investors in Malang.

Discussion

The study shows that there is no significant difference between the effects of financial literacy and overconfidence on stock investment decisions. Such a discovery indicates that even people who are very knowledgeable about the financial world can be overconfident in investing. Often investment choices are irrational and even a well-informed investor can fall prey to biases and emotional factors. Regardless of their financial knowledge, investors may fall victim to their instinctive overconfidence in the face of the information and investment advice that abounds. Conventional financial literacy courses tend to focus on analytical and diversification skills and fail to adequately cover the management of psychological biases. In addition, the herding effect in investment choices does not seem to be significantly reduced by financial literacy, suggesting that financially sophisticated investors might still be influenced by other investors. This phenomenon is attributed to the following: (1) Social influences: investors can follow the market trend because of social pressure; (2) Lack of trust on personal analysis: investors may rely on the opinion of the group instead of their own; and (3) The psychological impact of the market sentiment: market movements are more influential than individual logic. Financial literacy also does not make a significant difference in reducing home bias in investment choice, as a result, investors prefer to invest in domestic assets even after learning about finance. This preference is attributed to comfort of investing in familiar environments, which are enabled by language, regulations and information. This lack of information about foreign markets adds to this investor bias, since domestic markets are viewed as more

predictable. Further, currency risk and different regulations in other countries strengthen the attraction of investments in domestic countries. Home bias is not eliminated by financial education; even financially literate investors feel more comfortable when investing in their home country. Furthermore, platforms for accessibility and investment tend to prioritize domestic investments, which may make it more likely that investors will opt for the platforms that are easier to access. The study result showed that financial literacy (significance level 0.10) is a moderating variable that influences stock IDM, which is the case with the Disposition Effect. The result suggests that financial literacy may buffer the impact of the Disposition Effect on investment decisions, but not other behavioral biases such as overconfidence, herding or home bias. The findings suggest financial literacy acts as a rational mechanism which can help to minimize the likelihood of premature selling of winning stocks and keeping losing stocks for too long. On the other hand, the influences of over-confidence, herding and home bias are more psychological and social and cannot be easily corrected by simply gaining financial knowledge.

These results are significant to investors. Investors need to find out more. They should be familiar with overconfidence bias, in making decisions. Each investor should find objective information. It is also important for them to manage their emotions when making investment decisions. Investors must develop a strategy that is data-driven, rather than based on intuition or experience. Diversification is the best way to minimize risk for investors. If you aren't trading too much, costs will be reduced and you'll make more money in the long run. Investors must be aware of the impact of overconfidence, so as to be more careful and not make mistakes. The Disposition Effect has little impact on the decision of stocks to buy. Fundamental analysis and technical analysis should be used by the investor. They should draw conclusions based on facts, not on cognitive biases. However, there are other considerations for investors. External factors such as economic policies and market trends may be more important than psychological factors. Investors must have consistent investment strategies. They should hold on to their investment strategies and not be fooled by the emotions attached to the short term. Investors can navigate their way around cognitive biases to make sounder investment decisions.

By recognizing that the Disposition Effect does not always have a significant impact on IDM, investors can focus more on data-driven strategies and avoid decisions that are overly influenced by emotional factors. Investors should make their own analysis. Investors should not just blindly follow the market trend but should perform a detailed study and take investment decisions. Investors must be able to avoid the effects of mass psychology. Personal knowledge and objective information can help the investor not make decisions based on collective emotions. Financial literacy should be continually enhanced. Investors can make confident decisions with a better understanding of the market and align them with their investment objectives. Investors can place greater emphasis on data-driven investment strategies and make decisions based on sound, rational analysis instead of blindly following the herd, when they have a good understanding of that the herding effect does not always have a significant influence on investment decisions. This study found that financial literacy at a significance level of 0.10 moderates the influence of the Disposition Effect on stock IDM. The findings of this research bring several implications for investors. First, the importance of awareness of cognitive biases. Investors must realize that good financial knowledge is needed to avoid the disposition effect; therefore, it is necessary to develop financial literacy and training in emotional control. Second, the need for more structured investment strategies. It is recommended that investors employ rule based investing strategies, as to avoid having their decisions making process being driven by emotions (Oderda, 2015). Thirdly, the introduction of objective assessments of investment performance. When it comes to stock sales, investors must have clear criteria to

follow, such as target prices or some technical indicators. Professional advice will also be of great help to investors in mitigating the influence of psychological factors on investment decisions.

CONCLUSION

The results of this study provide a detailed description of the characteristics of novice investors in Malang, Indonesia. Observed high levels of self-confidence, disposition bias, herding effect and local bias point to a tendency towards suboptimal investment decision making. The financial literacy level of the respondents was relatively high but financial literacy did not significantly moderate. Financial literacy only moderated the disposition effect and investment decision, but not the overconfidence, herding or home bias. Therefore, the results offer partial evidence to support those who argue that financial literacy could affect the impact of behavioural biases on investment decisions. Financial literacy alone, therefore, should not be seen as enough in mitigating such biases. Investor education must include financial education, practical guidance on making investment decisions, risk assessment and structuring of the risk, and interventions to raise awareness of the presence of bias to make more rational investment decisions among the novice investor.

The results of the research can provide a few recommendations and directions for future research. First, the development of investor education programs should be further explored with emphasis on dealing with overconfidence bias and encourage data-driven decision making. Secondly, research on the impact of various investment strategies, including portfolio diversification and rule-based investing, on risk reduction due to psychological biases can be useful. Third, it is necessary to deeply analyze the impact from outside, including macro and microeconomic environment and economic policies, on the investors' behavior. Fourth, research that examines the effect of global investment and financial literacy on investors' portfolio performance could enhance the understanding. Fifth, the inclusion of more sophisticated research techniques like longitudinal studies and experimental studies will enable to identify more accurately the dynamics of investor decision making. Last but not least, studies on how technology (mobile applications, artificial intelligence, etc.) affect modern investment behaviour should be carried out in order to predict future trends.

REFERENCES

- Addinpujoartanto, N. A., & Darmawan, S. (2020). Pengaruh Overconfidence, Regret Aversion, Loss Aversion, dan Herding Bias Terhadap Keputusan Investasi Di Indonesia. *Jurnal Riset Ekonomi Dan Bisnis*, 13(3). <https://doi.org/10.26623/jreb.v13i3.2863>
- Adil, M., Singh, Y., & Ansari, M. S. (2022). How financial literacy moderate the association between behaviour biases and investment decision? *Asian Journal of Accounting Research*, 7(1), 17–30. <https://doi.org/10.1108/AJAR-09-2020-0086>
- Afriani, D., & Halmawati, H. (2019). Pengaruh Cognitive Dissonance Bias, Overconfidence Bias Dan Herding Bias Terhadap Pengambilan Keputusan Investasi. *JURNAL EKSPLORASI AKUNTANSI*, 1(4). <https://doi.org/10.24036/jea.v1i4.168>
- Altaf, H., & Jan, A. (2023). Generational theory of behavioral biases in investment behavior. *Borsa Istanbul Review*, 23(4). <https://doi.org/10.1016/j.bir.2023.02.002>
- Anam, C. (2023). Jumlah Investor di Malang Terus Tumbuh, Minat Beli SBN Tinggi. Retrieved January 20, 2023, from Bisnis.com website:

- <https://market.bisnis.com/read/20230915/7/1695127/jumlah-investor-di-malang-terus-tumbuh-minat-beli-sbn-tinggi>
- Barber, B. M., & Odean, T. (2005). Trading is Hazardous to Your Wealth: The Common Stock Investment Performance of Individual Investors. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.219228>
- Bikhchandani, S., & Sharma, S. (2000). Herd behavior in financial markets. *IMF Staff Papers*, 47(3). <https://doi.org/10.2307/3867650>
- BKPM, K. I. (2020). Pentingnya Peran Investasi dalam Pertumbuhan Ekonomi Indonesia di Kala Pandemi.
- Bonaparte, Y., Fabozzi, F. J., & Koslowsky, D. (2021). Information search methods and financial decisions. *Review of Financial Economics*, 39(4). <https://doi.org/10.1002/rfe.1125>
- Bouteska, A., Harasheh, M., & Abedin, M. Z. (2023). Revisiting overconfidence in investment decision-making: Further evidence from the U.S. market. *Research in International Business and Finance*, 66. <https://doi.org/10.1016/j.ribaf.2023.102028>
- Cahyono, E. (2015). Investasi Dan Pembangunan Ekonomi. Retrieved January 19, 2024, from <https://setkab.go.id/investasi-dan-pembangunan-ekonomi/>
- Chen, G., Kim, K. A., Nofsinger, J. R., & Rui, O. M. (2007). Trading performance, disposition effect, overconfidence, representativeness bias, and experience of emerging market investors. *Journal of Behavioral Decision Making*, 20(4). <https://doi.org/10.1002/bdm.561>
- Choi, N., & Sias, R. W. (2009). Institutional industry herding. *Journal of Financial Economics*, 94(3). <https://doi.org/10.1016/j.jfineco.2008.12.009>
- Feng, L., & Seasholes, M. S. (2005). Do investor sophistication and trading experience eliminate behavioral biases in financial markets? *Review of Finance*, Vol. 9. <https://doi.org/10.1007/s10679-005-2262-0>
- Fitriyani, S., & Anwar, S. (2022). Pengaruh Herding, Experience Regret Dan Religiosity Terhadap Keputusan Investasi Saham Syariah Pada Investor Muslim Millennial Dengan Financial Literacy Sebagai Variabel Moderasi. *Jurnal Ekonomi Syariah Teori Dan Terapan*, 9(1). <https://doi.org/10.20473/vol9iss20221pp68-77>
- Garg, J., Karmakar, M., & Paul, S. (2023). A study on equity home bias using vine copula approach. *North American Journal of Economics and Finance*, 64. <https://doi.org/10.1016/j.najef.2022.101860>
- Gunathilaka, R. C. (2021). Effect of Socio-demographic Factors (Age, Occupation and Education) on Behavioral Biases of Individual Investors' Decision-making Evidence from The Colombo Stock Exchange. *International Journal of Accountancy*, 1(2). <https://doi.org/10.4038/ija.v1i2.29>
- Hellen, H., Mintarti, S., & Fitriadi, F. (2018). Pengaruh investasi dan tenaga kerja serta pengeluaran pemerintah terhadap pertumbuhan ekonomi serta kesempatan kerja. *INOVASI*, 13(1). <https://doi.org/10.29264/jinv.v13i1.2490>
- Huberman, G. (2001). Familiarity breeds investment. *Review of Financial Studies*, 14(3). <https://doi.org/10.1093/rfs/14.3.659>
- IKoneksi. (2025). OJK Malang Mencatat Investor Pasar Modal di Kota Malang Terus Bertumbuh. Retrieved August 5, 2026, from iKoneksi website: <https://ikoneksi.com/ojk-malang-mencatat-investor-pasar-modal-di-kota-malang-terus-bertumbuh/>
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263–292.

- Kartini, K., & Nahda, K. (2021). Behavioral Biases on Investment Decision: A Case Study in Indonesia. *Journal of Asian Finance, Economics and Business*, 8(3). <https://doi.org/10.13106/jafeb.2021.vol8.no3.1231>
- Krstić, M. (2022). Rational Choice Theory – Alternatives and Criticisms. *Socijalna Ekologija*, 31(1). <https://doi.org/10.17234/SocEkol.31.1.1>
- Kulal, A. (2022). Impact of Influenced Behavioral Biases on Investment Decision. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4233737>
- Kumar, S., & Goyal, N. (2015). Behavioural biases in investment decision making – a systematic literature review. *Qualitative Research in Financial Markets*, 7(1). <https://doi.org/10.1108/QRFM-07-2014-0022>
- Liana, L. (2009). Penggunaan MRA dengan SPSS untuk menguji pengaruh variabel moderating terhadap hubungan antara variabel independen dan variabel dependen. *Dinamik*, 14(2).
- Madaan, G., & Singh, S. (2019). An analysis of behavioral biases in investment decision-making. *International Journal of Financial Research*, 10(4). <https://doi.org/10.5430/ijfr.v10n4p55>
- Mita, D. E., & Almilia, L. S. (2019). Examining belief-adjustment model and investors overconfidence on investment decision making. *Jurnal Keuangan Dan Perbankan*, 23(4). <https://doi.org/10.26905/jkdp.v23i4.3203>
- Mittal, S. K. (2022). Behavior biases and investment decision: theoretical and research framework. *Qualitative Research in Financial Markets*, Vol. 14. <https://doi.org/10.1108/QRFM-09-2017-0085>
- Natasya, N., Kusumastuti, D. H., Alifia, W., & Leon, F. M. (2022). The Effect Between Behavioral Biases and Investment Decisions Moderated by Financial Literacy on the Millennial Generation in Jakarta. *The Accounting Journal of BINANIAGA*, 07(01), 113–126. Retrieved from <https://www.neliti.com/publications/543806/the-effect-between-behavioral-biases-and-investment-decisions-moderated-by-finan>
- Neumayer, A. (2018). There's no place like home: Investors' home bias in Germany, 1898-1934. *Jahrbuch Fur Wirtschaftsgeschichte*, Vol. 59. <https://doi.org/10.1515/jbwg-2018-0015>
- Nur Aini, N. S., & Lutfi, L. (2019). The influence of risk perception, risk tolerance, overconfidence, and loss aversion towards investment decision making. *Journal of Economics, Business & Accountancy Ventura*, 21(3). <https://doi.org/10.14414/jebav.v21i3.1663>
- Oderda, G. (2015). Stochastic portfolio theory optimization and the origin of rule-based investing. *Quantitative Finance*, 15(8). <https://doi.org/10.1080/14697688.2015.1012840>
- OECD. (2022). Measuring Financial Literacy: Questionnaire and Guidance Notes for Conducting an Internationally Comparable Survey of Financial Literacy. *Oecd*.
- Parveen, S., Satti, Z. W., Subhan, Q. A., Riaz, N., Baber, S. F., & Bashir, T. (2023). Examining investors' sentiments, behavioral biases and investment decisions during COVID-19 in the emerging stock market: a case of Pakistan stock market. *Journal of Economic and Administrative Sciences*, 39(3). <https://doi.org/10.1108/jeas-08-2020-0153>
- Prasetyo, P., Sumiati, & Ratnawati, K. (2023). The impact of disposition effect, herding and overconfidence on investment decision making moderated by financial literacy. *International Journal of Research in Business and Social Science (2147- 4478)*, 12(9), 241–251. <https://doi.org/10.20525/ijrbs.v12i9.3026>
- Rahman, M., & Gan, S. S. (2020). Generation Y investment decision: an analysis using behavioural factors. *Managerial Finance*, 46(8). <https://doi.org/10.1108/MF-10-2018->

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- Rajasekar, A., Pillai, A. R., Elangovan, R., & Parayitam, S. (2023). Risk capacity and investment priority as moderators in the relationship between big-five personality factors and investment behavior: a conditional moderated-moderated-mediation model. *Quality and Quantity*, 57(3). <https://doi.org/10.1007/s11135-022-01429-2>
- Ranaweera, S. S., & Kawshala, B. A. H. (2022). Influence of Behavioral Biases on Investment Decision Making with Moderating Role of Financial Literacy and Risk Attitude: A Study Based on Colombo Stock Exchange. *South Asian Journal of Finance*, 2(1). <https://doi.org/10.4038/sajf.v2i1.32>
- Rauf, A., Khurshid, M. K., & Afzal, M. (2018). Impact of Overconfidence and Loss Aversion Biases on Equity Investor's Decision-Making Process and Performance. *NICE Research Journal*. <https://doi.org/10.51239/nrjss.v0i0.76>
- Santika, E. F. (2023). Investor Pasar Modal Indonesia Tembus 12,16 Juta Orang pada 2023. Retrieved January 19, 2023, from <https://databoks.katadata.co.id/datapublish/2023/12/29/investor-pasar-modal-indonesia-tembus-1216-juta-orang-pada-2023>
- Sarkissian, S., & Schill, M. J. (2004). The overseas listing decision: New evidence of proximity preference. *Review of Financial Studies*, Vol. 17. <https://doi.org/10.1093/rfs/hhg048>
- Setiawan, Y. C., Atahau, A. D. R., & Robiyanto, R. (2018). Cognitive Dissonance Bias, Overconfidence Bias dan Herding Bias dalam Pengambilan Keputusan Investasi Saham. *AFRE (Accounting and Financial Review)*, 1(1). <https://doi.org/10.26905/afr.v1i1.1745>
- Shiller, R. J. (2003). From efficient markets theory to behavioral finance. *Journal of Economic Perspectives*, 17(1). <https://doi.org/10.1257/089533003321164967>
- Suresh G. (2024). Impact of Financial Literacy and Behavioural Biases on Investment Decision-making. *FIIB Business Review*, 13(1). <https://doi.org/10.1177/23197145211035481>
- Ullah, S., Elahi, M. A., Ullah, A., Pinglu, C., & Subhani, B. H. (2020). Behavioral biases in investment decision making and moderating role of investor's type. *Intellectual Economics*, 14(2). <https://doi.org/10.13165/IE-20-14-2-06>
- van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, 101(2), 449–472. <https://doi.org/10.1016/j.jfineco.2011.03.006>
- Wangzhou, K., Khan, M., Hussain, S., Ishfaq, M., & Farooqi, R. (2021). Effect of Regret Aversion and Information Cascade on Investment Decisions in the Real Estate Sector: The Mediating Role of Risk Perception and the Moderating Effect of Financial Literacy. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.736753>
- Wibowo, M. A., Indrawati, N. K., & Aisjah, S. (2023). The impact of overconfidence and herding bias on stock investment decisions mediated by risk perception. *International Journal of Research in Business and Social Science*, 12(5). <https://doi.org/10.20525/ijrbs.v12i5.2663>
- Wu, W. L., & Gau, Y. F. (2017). Home bias in portfolio choices: social learning among partially informed agents. *Review of Quantitative Finance and Accounting*, 48(2). <https://doi.org/10.1007/s11156-016-0560-6>