

Effect of Psychological Factors on Investment Decisions of Millennial Investors in an Emerging Country

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Received: September 20, 2023

Accepted: October 11, 2023

Online Published: October 30, 2023

doi:10.5539/ijef.v15n11p83

URL: <https://doi.org/10.5539/ijef.v15n11p83>

Abstract

Behavioral finance research has examined the relationship between overconfidence bias and investment decisions. However, it rarely considers the effect of overconfidence bias on the formation of risk perception and risk tolerance, which eventually direct investment decisions. This research aims to examine the simultaneous effect of overconfidence bias, financial literacy, risk perception, and risk tolerance on investment decisions. Quantitative research by collecting data through an online survey was performed to answer the research questions. Data from 245 Indonesian millennial investors were analyzed using PLS-SEM. The findings supported the direct effect of overconfidence bias and financial literacy on investment decisions. The effects of overconfidence bias and financial literacy on investment decisions via risk tolerance and risk perception were also verified, except for the effect of overconfidence bias on risk perception which did not show a significant effect.

Keywords: financial literacy, investment decision, overconfidence bias, risk perception, risk tolerance

1. Introduction

Investment is a strategic factor in the economic system considering its significant impact on the country's gross domestic product (Apuv & Uzma, 2020; Nguyen & Nguyen, 2021). Making the right decisions is important for investors (Wu & Wu, 2020) due to the availability of various investment products with different characteristics (Zahera & Bansal, 2018). Thus, investors should thoroughly analyze to ensure the selected investment decision fits their risk profile and objectives.

Financial literacy has been frequently studied as an antecedent of investment decisions (Adil et al., 2022; Ansari et al., 2023; Kasoga & Tegambwage, 2022) as it reflects the investor's ability to manage money positively (Seraj et al., 2022). Since investment involves a certain level of financial risk, risk perception (Ainia & Lutfi, 2019; Bairagi & Chakraborty, 2018) and risk tolerance (Ainia & Lutfi, 2019; Kasoga, 2021) are also believed to affect investment decisions. With the development of research trends towards behavioral finance, recent research on investment decisions often associates overconfidence bias with investment decisions (Ahmad & Shah, 2020; Ainia & Lutfi, 2019; Jain et al., 2020; Khan et al., 2019).

Previous research generally examines the direct effect of overconfidence bias, financial literacy, risk tolerance, and risk perception on investment decisions. This relationship can be seen as an indirect effect, but there is still limited research discussing these indirect effects, especially those focusing on millennial generation. Generational phenomena, especially among millennials, are always interesting to study because this generation tends to have different behavior compared to the older generation, including in terms of investment. Millennials are also known to have high curiosity (Rahulan et al., 2013), the pursuit of novelty, and a risky attitude (Batat, 2019), and are worried lost opportunities from their peers which drives them to take any investment opportunities (Altaf & Jan, 2023). Therefore, this study aims to fill the gap by examining the simultaneous effect of overconfidence bias, financial literacy, risk perception, and risk tolerance on the investment decisions of

millennial investors.

Indonesia is selected as this study context due to its low penetration of financial investment instruments even though the country is the largest economy in Southeast Asia (Indonesia Investment, 2023). Compared to other emerging countries, including those in ASEAN, Indonesia's securities and equity markets are relatively less developed, but it shows a significant growth in recent years where the number of investors in 2022 grew ninefold from 2017 (Antara News, 2023). According to reports by Populix (2022), millennial investors tend to invest in mutual fund investment (47%), followed by gold (46%), stock (32%), precious metal (30%), and time deposit (29%). The selection of research subjects with a focus on millennial generation investors who invest in mutual fund instruments can be one of the uniqueness of this study. By choosing a more specific research subject, it will be able to produce a more in-depth explanation of the problem under study and provide a different perspective compared to another studies.

2. Literature Review and Hypothesis Development

2.1 Investment Decision

Investment decisions are one of the main topics in the study of behavioral finance, which highlights the importance of considering psychological factors in making financial decisions. Behavioral finance explains various things about how investors behave and how their decisions are influenced by their behavior and explains how investors process information, cultivate beliefs, and make decisions with positive and negative consequences (Metwally, 2023). Investment decisions are important due to their large impact on investors' decision-making behavior (Hunjra et al., 2016). The objectives of investment decisions is to seek profits in the future (Kishori & Kumar, 2016), so there must be specific objectives for each investment, that is maintain growth, liquidity, and inflation (Rahman & Gan, 2018).

Conceptually, investment decisions are defined as assets where funds will be invested by investor (Rahman & Gan, 2018). Investment decisions are not only based on cognitive factors represented by intellectual intelligence, but also based on non-cognitive considerations (Kasoga & Tegambwage, 2022). While classical economy theory believes that human is rational (de Jonge, 2012), in terms of investment, investor is more likely to be irrational where the investment decisions are made based on subjective factors such as estimated costs and risk perceptions (Virlics, 2013). Several influential psychological factors in investment decisions include overconfidence bias (Ahmad & Shah, 2020; Chang, 2010), risk tolerance (Kasoga & Tegambwage, 2022), and risk perceptions (Ahmad & Shah, 2020; Bairagi & Chakraborty, 2018).

2.2 Overconfidence Bias, Investment Decision, and Risk Perception

In the decision-making process, psychological factors play an important role. One of these psychological factors is cognitive bias, where a person tends to behave irrationally in an effort to maximize wealth (Forbes, 2009). According to Shefrin (2007), bias is a predisposition to error, namely a tendency to make temporary decisions that have been determined by individual beliefs. One type of cognitive bias is overconfidence bias that refers to a form of excess self-confidence. It is shown by investors' systematic tendency to exaggerate their ability to make judgments (Grezo, 2020) so that they become very optimistic (Zahera & Bansal, 2018). Overconfident investors tend to believe their own information more than actual facts (Mushinada & Veluri, 2018).

According to Ahmed et al. (2022), investors who experience psychological bias in their decisions will not make fair judgments which ultimately affect the quality of their investment decisions. Overconfident investors have a higher tendency to take risks by allocating funds in high-risk assets (Ainia & Lutfi, 2019) and trade more frequently which leads to worse investment performance and higher transaction costs (Metwally, 2023). This condition will have an unfavorable impact on investment decisions because the decision is not based on accurate information and facts but on a subjective assessment of one's own abilities. The study by Jain et al. (2020) also found that a higher overconfidence bias affects investors when making investment decisions. Studies by Ahmad and Shah (2020) and Metwally (2023) also indicated a negative impact of overconfidence bias on investment decisions. Therefore, the following hypothesis can be formulated:

H1: Overconfidence bias has a negative effect on investment decisions.

Investors' overconfidence bias can cause unwanted effects on the stock market, such as inaccuracy in determining prices and over-trading (Kunjal & Peerbhai, 2021). Overconfident investors exaggerate the quality and accuracy of personal information compared to available data and tend to underestimate risk which leads them to hold too many risky assets (Aljifri, 2022). They tend to transact excessively and have a larger trading volume than rational investors, which indicates their tendency to ignore risk (Metwally, 2023).

Overconfidence bias drives investors to make decisions solely based on their assumptions due to their inability to

recognize uncertainty (Ahmad & Shah, 2020). They tend to underestimate investment risks and invest in high-risk assets (Ainia & Lutfi, 2019). Overconfidence investors are likely to have poor returns, because they underestimate risk and disregard historical investment performance (Barber & Odean, 2001), and don't stop trading in situations where the costs are not worth the benefits (Trinugroho & Sembel, 2011). Biais et al. (2005) argue that overconfidence bias contributes to the investors' failure in calculating investment risk that results in investment loss. Ahmad and Shah (2020) found that overconfidence bias significantly impacts risk perception. This study will examine the following hypothesis:

H2: Overconfidence bias has a negative effect on risk perception.

2.3 Financial Literacy, Investment Decision, Risk Perception, and Risk Tolerance

Conceptually, financial literacy refers to an individual's knowledge, skills, attitudes, and ability to make economic decisions that affect his/her overall financial well-being (Ajayi et al., 2022). Financial literacy is related to the ability to make financial decisions accurately and effectively utilize financial resources (Hastings et al., 2013). It includes the understanding of publicly available information regarding financial services, and financial investment administration including interest, risk level, and inflation (Clark et al., 2017).

Investors must have sufficient financial skills and knowledge to make effective investment decisions (Alshebami & Aldhyani, 2022). Financial literacy may facilitate healthy financial decision-making (Ansari et al., 2023) and allow individuals to make good financial choices (Susan, 2020). Raut (2020) explains that financial literacy makes investors confident to make rational judgments and better calculations. Twumasi et al. (2022) also explained that individual investments in financial markets require a good understanding of financial literacy. It may facilitate effective financial decision-making (Ansari et al., 2023) and allow individuals to make good decisions about what financial choices to make (Susan, 2020).

Kasoga and Tegambwage (2022) found that most investors who had low financial literacy tended to make irrational and poor investment decisions. Ansari et al. (2023) explained that investors with sufficient financial knowledge will be more able to make better financial decisions. Adil et al. (2022) reported that financial literacy significantly influenced investment decisions. Similarly, Kumari (2020) found that financial literacy in the form of financial skills and financial management had a significant effect on investment decisions. Therefore, the following hypothesis can be formulated:

H3: Financial literacy has a positive effect on investment decisions.

Poor financial literacy tends to cause investors to act irrationally by neglecting investment risks. In contrast, investors with high financial knowledge will act rationally by carefully assessing investment risks before making investment decisions (Yolanda & Tasman, 2020). Lack of financial literacy and the inclination to be highly dependent on past investment experience causes investors to be less careful by imitating other people or herding (Mutawally & Asandimitra, 2019), which will put their investment decisions at risk. The financial literacy problems that lead to ineffective planning and the inability to identify market uncertainties and risks associated with them eventually cause financial losses in highly developed financial markets and developing countries (Zucchi, 2022). This relationship between financial literacy and risk perception is evident in the study by Mudzingiri (2021) that triggers the formulation of the following hypothesis:

H4: Financial literacy has a negative effect on risk perception.

Muthia et al. (2022) argue that investors with adequate financial literacy tend to be more risk-tolerant than individuals with a lack of financial literacy. Similarly, Sharif and Naghavi (2020) explain that financial literacy causes investors to be more willing to take risks. Studies by Bayar et al. (2020) and Hermansson and Jonsson (2021) found that high financial literacy resulted in greater risk tolerance. Based on this explanation, the following hypothesis can be formulated

H5: Financial literacy has a positive effect on risk tolerance.

2.4 Risk Tolerance, Investment Decision, and Risk Perception

Investors always face uncertainty when making decisions that might cause their investment returns to be below the expected returns or they suffer losses (Leon & Aprilia, 2018). Investors must be able to accept negative consequences in any financial decision-making process (Beer & Wellman, 2021; Lawrenson, 2020), and their fund allocation on capital market assets will be determined by their willingness to take risks, known as risk tolerance. Linnér et al. (2019) explain risk tolerance as an individual's willingness to accept risk in the hope of obtaining a reward. It is also defined as the maximum limit of yield variations that investors are willing to accept when making investment decisions (Hermansson & Jonsson, 2021).

By knowing their degree of risk tolerance, investors able to design appropriate investment strategies and obtain optimal returns on their investments (Carr, 2014). They may determine their expected investment return and acceptable investment risks, which at the end help them to tolerate and harmonize existing risks to match investment objectives (Ainia & Lutfi, 2019). Studies by Samsuri et al. (2019), Ainia and Lutfi (2019), as well as and Kasoga (2021) revealed a significant effect of risk tolerance on investment decisions. The relationship is tested through the following hypothesis:

H6: Risk tolerance has a positive effect on investment decisions.

Risk tolerance is also a determinant of risk perception. Risk-averse investors tend to exaggerate negative outcomes, thereby making investors to be more careful when assessing risk. On the other hand, risk-seeking investors tend to exaggerate positive outcomes that contribute to a lower perception of risk (Nguyen et al., 2017). Gibson et al. (2013) showed that investors who perceive the market as more risky tend to have a lower risk tolerance score, which means that there is a negative effect of risk tolerance on risk perception. Nguyen et al. (2017) reported that risk tolerance significantly influenced risk perception which leads to the following hypothesis:

H7: Risk tolerance has a negative effect on risk perception.

2.5 Risk Perception and Investment Decision

Risk perception is understood as a negative view of the unexpected and irreversible results of the product purchased, then the greater the expectation of loss or the occurrence of negative things, the higher the level of risk. (Ariffin et al., 2018). Risk perception also refers to the potential losses anticipated by individuals in relation to purchasing a product or service (Cabeza-Ramírez et al., 2022).

Investment decisions have a potential for financial loss (Ahmed et al., 2022), in which Awais et al. (2016) state that investors tend not to invest if they perceive the investments are too risky. When investors perceive the investment has a high risk, they will be more careful in choosing a product to invest (Agusta & Yanti, 2022). Ahmad et al. (2020) indicated that risk perception had a negative impact on investment decisions. The higher the perceived risk, the smaller the allocation investment in high-risk assets (Ainia & Lutfi, 2019), which is supported by Bairagi and Chakraborty (2018) who found risk perception as a predictor of investment decisions. These arguments lead to the last hypothesis as follows:

H8: Risk perception has a negative effect on investment decisions.

Based on the literature review and hypothesis development, the following research framework can be formulated.

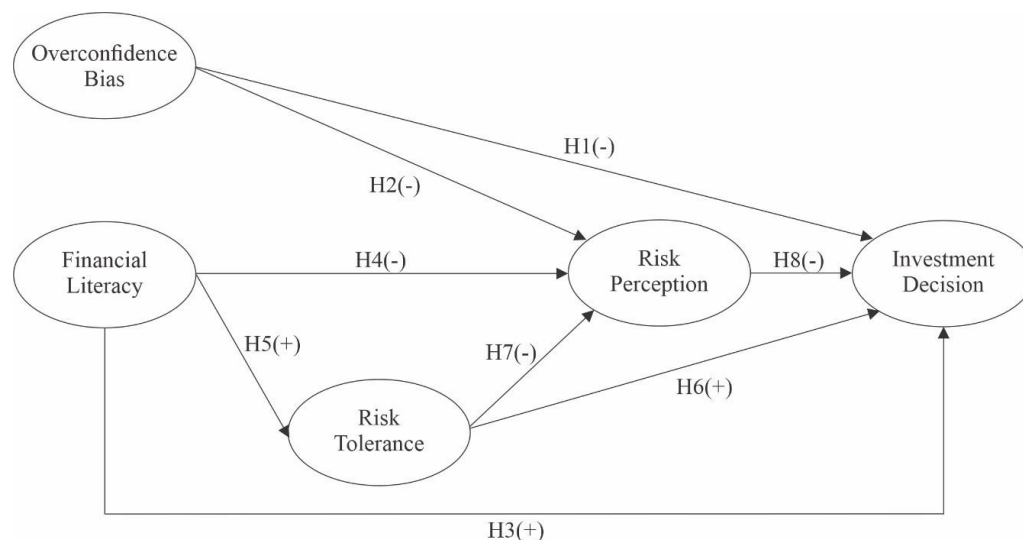


Figure 1. Research framework

3. Method

Quantitative research was utilized to test the hypotheses about the impact of financial literacy, overconfidence bias, risk perception, and risk tolerance on investment decisions. Samples of millennial investors in Indonesia's

major islands were selected using purposive sampling. This study focused on relatively new investors who just started purchasing investment products in the last 6 months and allocated their funds in mutual fund instruments. The minimum sample size was 245 based on the sample-to-variable ratio (Hair et al., 2021; Memon et al., 2020).

Data was collected by distributing a questionnaire online through social media and email with the help of wealth management communities. The questionnaire consisted of three parts: filtering questions, respondent's profile, and measurement of research variables of interest. Overconfidence bias was measured by six items, financial literacy by seven items, risk perception by six items, and investment decisions by six items adopted from Ahmad and Shah (2020). While risk tolerance was measured using four indicators adapted from Nguyen et al. (2017). All variables are measured using a 5-point Likert scale. The collected data was analyzed with PLS-SEM.

4. Results

Out of 300 questionnaires distributed, 274 questionnaires were returned (91.3% response rate). After checking the eligibility of respondents and cleaning the data, 245 responses were used for analysis. As presented in Table 1, most respondents were female, late millennials aged between 29 and 39 years old, and highly educated with a minimum bachelor's degree. Almost half of them were living on Java Island. They were mainly from the middle class with monthly incomes ranging between IDR 10,000,000 and IDR 50,000,000. The majority invested not more than 5 times per month with an average value between IDR 1,000,000 and IDR 25,000,000.

Table 1. Respondent profiles (n=245)

Respondent Profiles	Frequency	Percentage
Gender		
Male	93	38.0
Female	152	62.0
Age		
20-24	12	4.9
24-28	75	30.6
29-33	88	35.9
34-39	70	28.6
Domicile		
Java	120	49.0
Sumatera	34	13.9
Bali	45	18.4
Kalimantan	14	5.7
Sulawesi	32	13.1
Education		
Senior High School	7	2.9
Diploma	56	22.9
Undergraduate degree	147	60.0
Master's degree	28	11.4
Doctoral degree	7	2.9
Occupation		
Private sector	150	61.2
Student	16	6.5
Self-employed	40	16.3
Housewife	10	4.1
Professional	13	5.3
State Civil Apparatus	16	6.5
Monthly income (in millions)*		
< IDR 10	54	22.0
IDR 10 - < IDR 25	111	45.3
IDR 25 - < IDR 50	36	14.7
IDR 50 - < IDR 75	19	7.8
IDR 75 - < IDR 100	15	6.1
> IDR 100	10	4.1

Type of invested mutual fund		
Money Market Mutual Funds, Fixed Income Mutual Funds, Stock Mutual Funds	16	7.3
Money Market Funds, Fixed Income Mutual Funds	37	15.1
Fixed Income Mutual Funds, Stock Mutual Funds	12	4.9
Money Market Mutual Funds, Stock Mutual Funds	8	3.3
Fixed Income Mutual Funds	53	21.6
Stock Mutual Funds	31	12.7
Money Market Mutual Funds	84	34.3
Others	2	0.8
Investment frequency per month		
< 3 times	130	53.1
3-5 times	102	41.6
> 5 times	13	5.3
Nominal of average transaction per investment (in millions) *		
IDR < IDR 25	198	80.8
IDR 25 - < IDR 50	30	12.2
IDR 50 - < IDR 75	9	3.7
IDR 75 - < IDR 100	1	0.4
> IDR 100	7	2.9

*As of May 2, 2023, IDR 1 million equals USD 68.48.

All items fulfilled the construct validity and reliability with factor loading more than 0.708, AVE greater than 0.5, as well as Cronbach's Alpha and composite reliability greater than 0.7 (Hair et al., 2019) as presented in Table 2. These items also met the discriminant validity with the square root of AVE of all constructs were greater than their correlations with other constructs as well as HTMT ratios less than 0.9 (Hair et al., 2019) as shown in Table 2.

Table 2. Validity and reliability test

Variables	Items	Factor loading	AVE	Composite reliability	Cronbach's alpha
Overconfidence Bias (OB)	OB1	0.880	0.786	0.956	0.945
	OB2	0.897			
	OB3	0.895			
	OB4	0.893			
	OB5	0.893			
	OB6	0.858			
Financial Literacy (FL)	FL1	0.802	0.722	0.940	0.923
	FL2	0.843			
	FL3	0.851			
	FL4	0.854			
	FL5	0.886			
	FL6	0.860			
Risk Tolerance (RT)	RT1	0.857	0.758	0.926	0.893
	RT2	0.885			
	RT3	0.929			
	RT4	0.807			
Risk Perception (RP)	RP1	0.763	0.669	0.910	0.875
	RP2	0.810			
	RP3	0.880			
	RP4	0.864			
	RP5	0.765			
Investment Decision (ID)	ID1	0.768	0.664	0.922	0.899
	ID2	0.826			
	ID3	0.792			
	ID4	0.869			
	ID5	0.854			
	ID6	0.776			

Table 3. Discriminant validity

Variables	Fornell-Larcker criterion					HTMT				
	1	2	3	4	5	1	2	3	4	5
1. FL	0.849									
2. ID	0.587	0.815				0,639				
3. OB	-0.331	-0.413	0.886			0,348	0,443			
4. RP	-0.585	-0.612	0.311	0.818		0,646	0,685	0,335		
5. RT	0.510	0.603	-0.425	-0.592	0.871	0,554	0,665	0,456	0,670	

The bootstrapping procedure showed that all hypotheses were supported, except for H1 (Table 4 and Figure 2). Investment decisions were found to be significantly influenced by overconfidence bias ($\beta = -0.136$, $p = 0.004$), financial literacy ($\beta = 0.253$, $p < 0.001$), risk tolerance ($\beta = 0.256$, $p < 0.001$), and risk perception ($\beta = -0.270$, $p < 0.001$). These four variables could explain the variability of investment decisions by 52.5 percent. Among three antecedents of risk perception, financial literacy ($\beta = 0.253$, $p < 0.001$) and risk tolerance ($\beta = -0.390$, $p < 0.001$) were significant, while overconfidence bias was insignificant ($\beta = 0.020$, $p = 0.702$). Lastly, financial literacy could explain risk tolerance by 26.1 percent and its effect on risk tolerance was significant ($\beta = -0.379$, $p < 0.001$).

Table 4. Results of hypothesis testing

Hypothesis	Path	t-value	p-value	Decision
H1: OB \rightarrow ID	-0.136	-2.928	0.004	Supported
H2: OB \rightarrow RP	0.020	0.382	0.702	Not supported
H3: FL \rightarrow ID	0.253	3.647	0.000	Supported
H4: FL \rightarrow RP	-0.379	-5.834	0.000	Supported
H5: FL \rightarrow RT	0.510	10.132	0.000	Supported
H6: RT \rightarrow ID	0.256	3.579	0.000	Supported
H7: RT \rightarrow RP	-0.390	-6.166	0.000	Supported
H8: RP \rightarrow ID	-0.270	-3.635	0.000	Supported

R^2 ID = 0.525
 R^2 RP = 0.459
 R^2 RT = 0.261

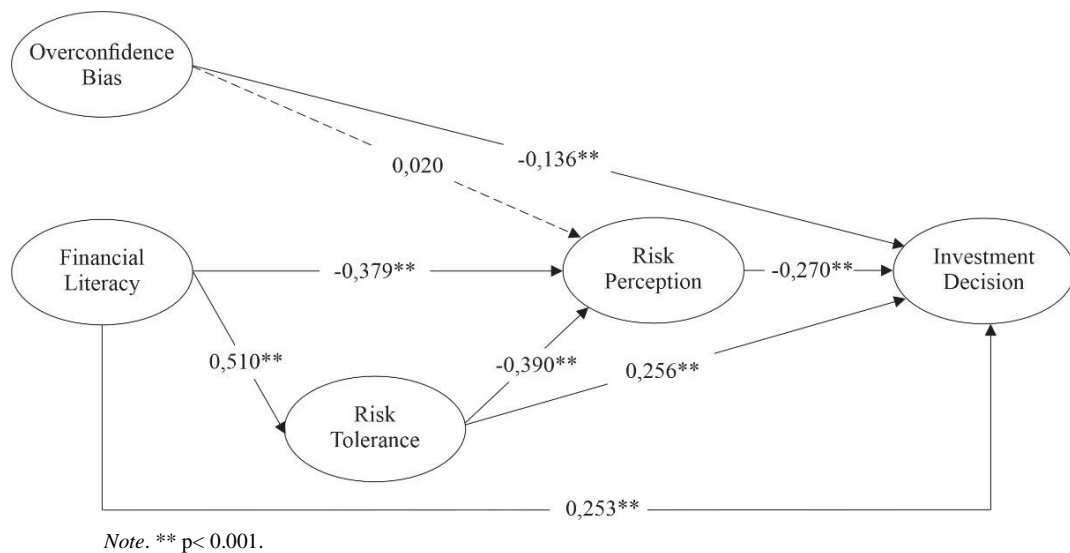


Figure 2. Path diagram

4. Discussion

This study successfully validates the effect of financial literacy, overconfidence bias, risk perception, and risk tolerance on investment decisions among millennial investors. Overconfidence bias has a significant negative

effect on the decision to invest, which gives support to Jain et al. (2020), Khan et al. (2019), and Ahmad and Shah (2020). Overconfidence bias tends to reduce the quality of investment decisions made by investors and leads investors to allocate funds to high-risk assets without proper analysis (Ahmed et al., 2022). Respondents of this study are mainly highly educated late millennial investors aged over 28 years old. Compared to the younger millennials, this segment is less emotional (Scheibe & Blanchard-Fields, 2009) which contributes to the moderate level of overconfidence bias and their ability to make wiser investment decisions.

This research rejected the hypothesis related to the effect of overconfidence bias on risk perception. This finding can be explained by the fact that most millennial investors in the study have moderate levels of overconfidence bias. It seems that millennial investors do not have excessive self-confidence, so it does not affect their risk perception. It is also corroborated by the fact that the respondents in this study are not aggressive in making investment transactions. As stated by Ainia and Lutfi (2019), overconfident investors tend to override the important information obtained. However, in the less developed financial market, late millennial investors appear to balance their emotions and financial literacy in predicting investment risk.

Financial literacy is confirmed to have a positive impact on investment decisions which supports previous research by Adil et al. (2022) and Kumari (2020). Almost 75% of respondents in this study are highly educated and as millennials generation, they are more connected to digital technology which can be utilized to increase their financial literacy. As a result, they are wiser in making investment decisions, which is believed that adequate financial literacy may produce the right financial decisions (Ansari et al., 2023; Kasoga & Tegambwage, 2022; Waheed et al., 2020). This research gives evidence of the negative effect of financial literacy on risk perception, consistent with Mudzingiri (2021) who has found that people with low levels of financial literacy are more risk averse than people with high levels of financial literacy. Contrary to its effect on risk perception, it has been found that financial literacy positively affects the perception of risk which supports Bayar et al. (2020) and Hermansson and Jonsson (2021). People with financial literacy tend to be more risk tolerant (Muthia et al., 2022) and more willing to take risks (Sharif & Naghavi, 2020).

This study proves the positive impact of risk tolerance on investment decisions, which implies that investors who are more tolerant of risk will be more able to make better investment decisions. This finding corresponds with Samsuri et al. (2019), Ainia and Lutfi (2019), and Kasoga (2021) who reported risk tolerance positively influences investment decisions. It is because when investors understand their degree of risk tolerance, they will be able to determine their investment strategy (Carr, 2014) that in line with their investment objectives (Ainia & Lutfi, 2019). It has been established that risk tolerance has a significant negative impact on risk perception, which is consistent with Nguyen et al. (2017) and Gibson et al. (2013). Investors with a high-risk tolerance are likely risk-seekers who exaggerate positive outcomes that lead to lower risk perception (Nguyen et al., 2017).

Lastly, this study confirms the negative effect of risk perception on investment decisions, which gives support to Ahmad et al. (2020) and Bairagi and Chakraborty (2018). Investors tend to allocate less investment when the perceived risk is high (Ainia & Lutfi, 2019), and even delay or withhold investment (Awais et al., 2016). Investors generally do not like risk (D'áz & Esparcia, 2019) and tend to avoid risks (Paun et al., 2008) which prevent them from investing in high-risk investment.

6. Conclusion

This study reveals the direct effects of overconfidence bias and financial literacy on investment decisions. The indirect effects of financial literacy on investment decisions through risk tolerance and risk perception were also proven. Unlike the prediction, this study fails to give support to the indirect effect of overconfidence bias on investment decisions via risk perception.

Considering that millennials are still relatively young, they might be strongly driven by emotions when making decisions. As such, their heuristic biases, one of which is shown by overconfidence bias, might lead them to make poor investment decisions. This tendency can be reduced by strengthening the financial literacy of young investors to give fundamental understanding of finance and investment. Socialization and education must be instilled from an early age to build a positive mindset about finance. While financial management and investments were studied at business schools, to widen access to these topics, government authorities must provide intensive financial education to the younger generation to cultivate an investment culture. Educational programs must be expanded and intensified to increase the financial literacy of the younger generation.

This study does not involve control variables on the attributes inherent in the respondents and only involves overconfidence bias, risk tolerance, financial literacy, and risk perception as predictors of decisions to invest. Future research may consider other factors that potentially influence investment decisions, such as heuristics, herding effect, market variables (Ahmed & Noreen, 2021), and financial status (Annamalah et al., 2019). In

relation to risk tolerance, demographic variables such as gender, education, age, and wealth (Kumar et al., 2015) and psychological variables (Rahman et al., 2023) could be included. It is also necessary to consider including control variables such as age, education level, income level, and occupation (Ahmed & Noreen, 2021; Wahyuni, 2021) as moderating variables in the relationships between variables in this research model.

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