P-ISSN: 1978-2853
E-ISSN: 2302-8890

MATRIK: JURNAL MANAJEMEN, STRATEGI BISNIS, DAN KEWIRAUSAHAAN

Homepage: https://ojs.unud.ac.id/index.php/jmbk/index

Vol. 19 No. 1, 2025 (Februari), 94-107

Heuristic Bias and Loss Aversion Impact an Stock Investment Decision Making in Batam

Fendy Cuandra [1)], Michael Setiawan [2)], Candy [3)], Hesniati [4)]
[1,2,3,4] Universitas Internasional Batam
Email: fendy.cuandra@uib.ac.id

DOI : https://doi.org/10.24843/MATRIK:JMBK.2025.v19.i01.p08

ABSTRACT

Technological advancements affect an individual's financial management by increasing spending and necessitating investments to meet these needs. This research intends to analyze the effect of heuristic bias and loss aversion on investment decision. This study uses the investment decision variable to be the dependent variable and uses overconfidence, availability, representativeness, anchoring, gambler fallacy, and loss aversion to be the independent variables. This study uses the SmartPLS application to analyze data and uses an online questionnaire to collect respondents' answers. Sampling was conducted using purposive sampling technique to collect samples from investors in Batam. The study shows that gambler fallacy, loss aversion, overconfidence and representativeness bias have a significant positive impact on investment decisions, while anchoring and availability bias have no significant impact on investment decisions.

Keyword: anchoring; availability; gambler fallacy; investment decision; loss aversion

INTRODUCTION

The advancement of technology continues to progress up to the present, impacting the sector of purchasing goods and services. Many products are offered online, facilitating buyers in making purchases. This results in an increase in human needs and desires that seem boundless. According to the latest report from the research firm We Are Social with title “Digital 2023 Indonesia”, no fewer than 178.9 million Indonesians will engage in online purchases from 2022 to early 2023. This figure marks a 12.8% increase compared to the same period last year (CNBC Indonesia, 2023). The increasing desires due to technological advancements can lead to individuals' incomes no longer covering their expenses. To address this issue, it is important for society to manage their finances well. One approach that can be utilized is investing. Investment is something that has several levels of risk and this is what makes a person have to choose what investment is suitable for him. This phenomenon needs to be studied because there are several things that can influence a person in making investment decisions. According to Mastura et al. (2020), investment is a form of capital or capital investment that creates wealth, capable of generating profitable returns, either now or in the future. According to Hamzah et al. (2022), the reason people invest is for a better future life.

Investment can be carried out through various channels such as property, bonds, mutual funds, and stocks. Discussing investment inevitably involves the concept of risk; the

higher the expected return, the greater the risk of experiencing losses, and conversely, the lower the expected return, the lower the risk of experiencing losses (Sudirman et al., 2023). Investments with high expected returns, such as stocks, are widely favored by investors in Indonesia. Until now, the number of investors in the stock market continues to increase. The Indonesian Central Securities Depository (KSEI) records that the number of investors in the capital market reached 11.42 million as of July 2023, marking a 22.53% increase from July 2022, when it stood at 9.32 million investors.

Mahadevi and Asandimitra (2021) defines investment decision as a policy of allocating or investing capital in various assets to gain future profits. In reality, individuals' investment decisions are not always based on rational considerations; they may so arise from irrational aspects related to their psychology, commonly referred to as behavioral finance. One theory frequently used in behavioral finance is the Heuristic theory. Heuristic theory consists of practical rules that facilitate investment decision-making in uncertain and complex situations. According to heuristic theory, decision-making can be quicker and more comprehensive when focusing on important information while disregarding less useful information (Ratnadi et al., 2020). Mahadevi and Asandimitra (2021) propose five variables within heuristic theory: overconfidence, availability, representativeness, anchoring, and gambler fallacy. Additionally, in the investment decision-making process, loss aversion, or the reluctance to accept losses, is one factor that can influence investment decisions. Fear of experiencing losses is one reason individuals refrain from investing (Setiawan, 2020). Hence, this research is conducted to understand the factors influencing individuals' investment decision-making.

Ainia and Lutfi (2019) state that investing involves committing capital or other resources in the present with the expectation of gaining profits in the future. Each investment carries different risks and returns commensurate with the level of risk. Understanding that investment risks and returns vary, it is important for investors to consider factors related to asset allocation. Asset allocation pertains to the decision-making process of how to allocate funds across various asset classes (Ainia & Lutfi, 2019). According to Hesniati and Dedy (2021), investment decision is defined as an aspect occurring within the economic and financial context and closely related to psychological and sociological factors. Investment decision can also be interpreted as an individual's policy to invest their capital in one or more assets to gain profits in the future or the matter of how one should allocate their capital in investments that will yield future profits (Mahadevi & Asandimitra, 2021).

Investment decision starts with identifying investment opportunities, often referred to as capital investment projects. When investors are confronted with lucrative investment decisions, risk becomes a crucial factor to consider, as the level of risk involved in alternative investments will influence investment outcomes. Investors and issuers face market risks associated with the potential for gaining or losing capital due to high risk, high return, and low risk, low return scenarios (Fitri & Cahyaningdyah, 2021). Dangol dan Manandhar (2020) argues that investors thoughts and emotions can change their decision-making process from rational to irrational. In Sudirman et al. (2023) study, every investor aims to attain maximum returns from their investments. All investors strive to make optimal investment decisions. Therefore, optimal rational investment depends on prior financial knowledge.

Anchoring is a phenomenon employed to describe situations wherein individuals utilize initial values to make estimations in investments (Iram et al., 2023). According to Novianto (2021), anchoring can lead investors to concentrate on initial information and hinder

rational decision-making. In the process of decision-making, anchoring plays a crucial role as investors necessitate an initial piece of information to facilitate investment decisions (Dangol & Manandhar, 2020). Sudirman et al. (2023) assert that anchoring serves as the primary guiding principle in investment decision-making. The research conducted by Mahmood et al. (2023) also yields significant findings linking anchoring to investment decisions. Kumara and Kawshala (2021) suggests that the anchoring effect has a significant positive impact on investment decisions. Therefore, this study hypothesizes that there is an anchoring effect on investment decisions.

H_1: The Positive Effect of Anchoring Bias on Investment Decision

According to Sudirman et al. (2023), availability bias is the tendency to make decisions based solely on the information readily available, relying on what is remembered, what has recently been done, and what has recently been seen or heard. Availability bias can lead investors to make investment decisions solely based on well-known investment companies, sometimes resulting in suboptimal returns (Novianto, 2021). In Vukovic (2022) research, significant results were obtained regarding behavioral bias, particularly between availability bias and investment decision. Cuandra and Tan (2021) research shows that the availability bias variable has a significant positive influence on decision-making. Availability bias means that investors rely on readily available information to make investment decisions, and as a result, they tend to favor things that they already know and are easy to use. According to Sudirman et al. (2023), availability bias can prevent investors from making wrong investment choices. In the studies conducted by Dangol and Manandhar (2020); Sudirman et al. (2023), significant results were shown between availability bias and investment decision. Therefore, the hypothesis of this study posits that availability bias has a positive impact on investment decisions.

H_2: The Positive Effect of Availability Bias on Investment Decision

Banerji et al. (2020) state that gambler's fallacy is a belief that an event can repeat within a certain timeframe, leading to errors in decision-making. Gambler's fallacy arises when individuals make inaccurate predictions and investment decisions, which can have both positive and negative impacts (Iram et al., 2023). Pradeepkumar (2021) concludes that an investor's expectations are influenced by gambler's fallacy when making investment decisions. Fitri and Cahyaningdyah (2021) study shows that gambler's fallacy significantly influences investment decision-making because investors with gambler's fallacy tend to make decisions based solely on beliefs, resulting in irrational decisions. Therefore, this study hypothesizes that the gambler's fallacy has a positive impact on investment decisions.

H_3: The Positive Effect of Gambler's Fallacy on Investment Decision

In Gupta and Shrivastava (2022) study confirm that investment decisions are greatly influenced by loss aversion, where investors tend to sell stocks that have reached higher values and hold onto stocks with lower values. Jain et al. (2020) demonstrate in their research that loss aversion can lead to irrational decision-making. This is supported by Saputra et al. (2020) study, which shows that loss aversion affects investment decisions because investors are sometimes too afraid to make investment decisions. The research by Addinpujoartanto and Darmawan (2020); Candy and Vincent (2021) also shows that loss aversion has a significant impact on investment decisions. Therefore, the hypothesis of this study assumes that loss aversion has a positive impact on investment decisions.

H_4: The Positive Effect of Loss Aversion on Investment Decision

Overconfidence can make individuals feel smarter and better informed, leading them to disregard other factors, and often resulting in investment decisions that do not meet expectations (Ainia & Lutfi, 2019). Novianto (2021) study on the relationship between overconfidence and investment decisions also led to positive and significant results as investors are confident in their skills and knowledge when making investment decisions. In the research by Mahmood et al. (2023); Wibowo et al. (2023); Qasim et al. (2019); Cuandra and Rinaldo (2021) consistent significant positive results were shown between overconfidence and investment decision. Therefore, the hypothesis in this study posits a positive influence of overconfidence on investment decision-making.

H_5: The Positive Effect of Overconfidence on Investment Decision

Representativeness guides investors to make investment decisions based on past performance, so if a company's past performance was poor, it is perceived as being poor in the future, and vice versa if the company's performance was good. Vukovic (2022) found that representativeness bias significantly influences investment decision-making. Representativeness bias can affect decision-making processes by causing individuals to disregard important information that does not align with the stereotypes in their minds (Sudirman et al., 2023). According to Kumara and Kawshala (2021); Dangol and Manandhar (2020), representativeness bias can lead investors to make better investment decisions and improve returns. Novianto (2021); Keswani et al. (2019) also found significant results linking representativeness bias to investment decision-making. Therefore, the hypothesis in this study posits a positive influence of representativeness bias on investment decision-making.

H_6: The Positive Effect of Representativeness Bias on Investment Decision

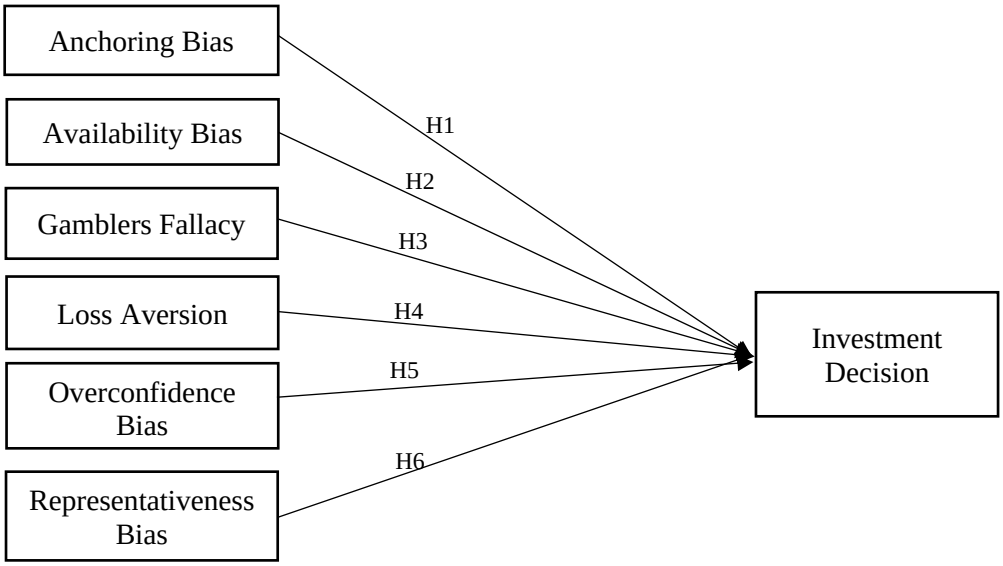

Figure 1. Conceptual Framework of Research
Source: Author, 2024

METHODS

This study employs a quantitative method, which is a research approach used to investigate specific populations or samples using instruments and quantitative/statistical data analysis to test hypotheses (Syahroni, 2022). This research was conducted on stock investors

investing in the Indonesia Stock Exchange (IDX). The object of this research is the community residing in the city of Batam.

Table 1. Questionnaires

Variable	Label	Question
Investment Decision (Iram *et al*., 2023)	ID 1	I prefer to invest in safe options
	ID 2	My investment decisions are optimized to generate interest payments and marginal returns
	ID 3	I prefer to invest in options that have low or medium risk, with better expected returns
	ID 4	I always avoid investing in high-risk options, even if they offer higher expected returns
	ID 5	With some investment decisions, I get better investment returns than I expected before making the investment
Anchoring bias (Iram et al., 2023)	AC 1	I rely on my previous market experience for subsequent investment decisions.
	AC 2	I forecast changes in the market based on recent investment decisions
	AC 3	A high profitability ratio is considered a key motivating factor for investing
	AC 4	Better investment returns encourage me to invest more
Overconfidence (Iram et al., 2023)	OC 1	I am an experienced investor
	OC 2	When I decide to invest, I feel that my knowledge and actions influence the outcome
	OC 3	I think that my investment decisions are wiser than those of others
	OC 4	I feel more confident in my own investment decisions than those made by analysts and advisor
	OC 5	I tend to invest in things that I believe in
Representative ness bias (Iram et al., 2023)	RB 1	I try to avoid deals that have performed poorly in recent times
	RB 2	I use trending financial analysis of random deals to make better investment decisions
	RB 3	I prefer deals that reflect desirable qualities
	RB 4	I rely only on selective sources of information when investing
Availability Bias (Iram et al., 2023)	AB 1	I prefer to invest locally rather than internationally as information about the local market is easier to find
	AB 2	I consider the information I receive from my close friends and relatives as reliable for my investment decisions
	AB 3	I rely on decisions from my social network when I lack relevant information
	AB 4	When making investment decisions, I consider the experience and advice of others
Gambler Fallacy (Siraji, 2019)	GF 1	I prefer to sell stocks when their prices start to rise
	GF 2	You can usually anticipate the end of good or bad market returns
	GF 3	I prefer to hold on to stocks even if they have not performed well in the past
	GF 4	I avoid selling stocks that have decreased in value and readily sell stocks that have increased in value
	GF 5	I prefer to hold on to a stock if its purchase price is greater than its current market price
Loss aversion (Ainia & Lutfi, 2019)	LA 1	price I am cautious of losses caused by changes in stock prices in the market
	LA 2	I am willing to invest in assets that show a definite loss
	LA 3	I often invest in assets that have performed well in the past
	LA 4	I expect to gain from investments that have shown losses

Data collection was carried out by distributing an online questionnaire. The questionnaire avoids statements that are ambiguous or have double meanings, and separates statements based on the existing variables. This research utilized purposive sampling technique in determining the sample. The sample of this study must be a stock investor, being an individual investor, having invested in the last three months. Data collection was conducted from November 2023 to January 2024. Data analysis will be performed using the SmartPLS application because it provides more informative data displays and more accurate information by providing reason codes.

To measure the variables of overconfidence, representativeness, anchoring bias, availability bias, and investment decision, loss aversion, gambler's fallacy this research employed a questionnaire. Assessment was done using a scale from 1 to 5, where 1 indicates strongly disagree and 5 indicates strongly agree.

RESULT AND DISCUSSION

Table 2. Characteristics of Respondents

Gender	**Quantity**	**Percentage (%)**
Male	217	56.4
Female	168	43.6
Status		
Married	184	47.8
Unmarried	201	52.2
Age		
17 - 25 Years	107	27.8
25-35 Years	244	63.35
35-50 Years	33	8.6
Above 50 Years	1	0.25
Profession		
Student (Not Working)	35	9.05
Government Employee	129	33.5
Private Sector Employee	165	42.9
Entrepreneur	56	14.55
Monthly Income		
Rp. 1.000.000 - Rp 3.000.000	41	10.6
Rp 3.000.000 - Rp 6.000.000	249	64.7
Rp 6.000.000 - Rp 10.000.000	85	22.1
Above Rp 10.000.000	10	2.6

Source: Google Form Statistic, 2024

From Table 2, it can be observed that the percentage of male respondents is 56.4% and the percentage of female respondents is 43.6%. This indicates that there are more male investors in Batam compared to female investors, and the majority of investors are unmarried, accounting for 52.2% compared to 47.8% who are married. Among the 385 investors surveyed, only one investor is above 50 years old. Furthermore, there are 107 investors aged between 17-25 years old, with the majority falling in the age range of 25-35 years old, comprising 244 investors or 63.35%. In contrast, there are only 33 investors aged between 35-50 years old. The total number of investors is 385 and predominantly composed of individuals

employed as private sector employees, with a count of 165 individuals and an average income ranging from 3-6 million Indonesian Rupiah per month.

Table 3. Validity Test

Variable	Indicator	Loading Factor	AVE	Description
Anchoring Bias	ANC 1	0.769	0.598	valid
	ANC 3	0.792		valid
	ANC 4	0.761		valid
Availability Bias	AV 1	0.792	0.629	valid
	AV 3	0.757		valid
	AV 4	0.831		valid
Gambler's Fallacy	GF 2	0.824	0.625	valid
	GF 4	0.793		valid
	GF 5	0.756		valid
Investment Decision	ID 2	0.755	0.581	valid
	ID 4	0.762		valid
	ID 5	0.773		valid
Loss Aversion	LA 1	0.830	0.657	valid
	LA 3	0.751		valid
	LA 4	0.849		valid
Overconfidence Bias	OC 2	0.835	0.633	valid
	OC 4	0.715		valid
	OC 5	0.837		valid
Representativeness Bias	RP 1	0.827	0.652	valid
	RP 3	0.767		valid
	RP 4	0.830		valid

Source: Data processed, 2024

According to the research by Hair et al. (2017), validity testing is conducted to measure the accuracy of an indicator in depicting the variable to be measured. Based on the validity testing conducted, there are indicators that have loading factor results < 0.6 that is ANC 2, AV 2, GF 1, GF 3, ID 1, ID 3, LA 2, OC 1, OC 4, and RP 2. These items are removed to avoid influencing the AVE value. Loading factor values and AVE are displayed in Table 3.

Based on the research by Hair et al. (2017), each indicator must have a loading factor value > 0.6 for exploratory research and have an AVE value > 0.5 for each variable used. In Table 3, each indicator and variable already has loading factor values > 0.6 and AVE values > 0.5, thus it can be concluded that all indicators and variables have passed the validity testing.

Table 4. Reliability Test

	Cronbach Alpha	Composite Reliability
Anchoring Bias	0.673	0.816
Availability Bias	0.704	0.835
Gambler's Fallacy	0.699	0.833
Investment Decision	0.641	0.805
Loss Aversion	0.736	0.851
Overconfidence Bias	0.704	0.836
Representativeness Bias	0.732	0.849

Source: Data processed, 2024

Reliability testing is conducted to demonstrate the consistency and accuracy of the instrument in measuring constructs. Reliability testing requires that the cronbach alpha value of each variable is greater than 0 6 and the composite reliability value is greater than 0.6 (Hair et al., 2017). In Table 4, all variables already have Cronbach Alpha and Composite Reliability values above 0.6. Therefore, it can be concluded that all variables are reliable.

Table 5. Discriminant Validity (Fornell Lacker)

	ANC	AV	GF	ID	LA	OC	RP
ANC	**0.774**						
AV	0.381	**0.794**					
GF	0.354	0.493	**0.792**				
ID	0.347	0.494	0.630	**0.763**			
LA	0.475	0.490	0.415	0.549	**0.811**		
OC	0.275	0.578	0.580	0.595	0.523	**0.798**	
RP	0.450	0.450	0.571	0.629	0.591	0.438	**0.809**

Source: Data processed, 2024

Discriminant validity testing is conducted with the aim of evaluating indicators that measure a variable differently compared to other variables. According to Hair et al. (2017), Variables are considered to be valid if the square root of the average variance extracted (AVE) value for each variable is greater compared to the intervariable correlations using the Fornell-Larcker criterion. Based on Table 5, the results of the Fornell-Larcker criterion test indicate that the discriminant validity of each variable is met because the square root of the AVE value for each variable is higher than the square root of the AVE correlation with other variables.

Table 6. Determination Coefficients Test

	R-square
Investment Decision	**0.565**

Source: Data processed, 2024

The determination coefficient test is used to obtain information about the extent of variation in the dependent variable that can be explained by the independent variables. In Table 6, the r-square value of the investment decision variables is 0.565, which means that the variables ANC, AV, GF, LA, OC and RP can explain 56.5% of the variance in the investment decision variables while the remaining 43.5% is explained by other variables which are not considered in this study. According to the research by Hair et al. (2017), if the R-square value is > 0.5, it indicates strong results, thus it can be concluded that all independent variables can strongly explain the dependent variable.

Table 7. Direct Test of Hypothesis

		Path Coefficients	P Values
H_1	ANC -> ID	-0.022	0.635
H_2	AV -> ID	0.052	0.358
H_3	GF -> ID	0.260	0.000
H_4	LA -> ID	0.144	0.008
H_5	OC -> ID	0.227	0.000
H_6	RP -> ID	0.280	0.000

Source: Data processed, 2024

Based on the results of the hypothesis testing, the p-value of anchoring bias variable for hypothesis (1) is 0.635, which means that anchoring bias does not have a significant effect on investment decisions. This result is supported by the majority of the respondents who do not rely solely on the initial information while making investment decisions. The study by Shaleha and Hakim (2022) also supports that Anchoring bias does not significantly affect investment decisions because stock investors do not make investment decisions based on initial values to buy and sell investments. This research is supported by the studies of Madaan and Singh (2019); Sudani and Pertiwi (2022); Saputra et al. (2023); Falah and Haryono (2023) which show that Anchoring bias does not have a significant effect on investment decisions. However, Novianto (2021) argues that investors make investement decisions based on initial information and hinder rational decision-making.

In the second hypothesis (2), the availability bias variable does not have a significant effect on investment decision. This is evidenced by the hypothesis testing results showing that the availability bias variable has a p-value of 0.358, indicating that the majority of respondents do not solely rely on available information to make investment decisions, but rather tend to conduct deeper analysis when making investment decisions. Kumara and Kawshala (2021) stated that availability bias does not have a significant effect because investors tend to focus on current events rather than reflecting on past occurrences. This research is supported by Saeed (2019); Elhussein and Abdelgadir (2020); Loris and Jayanto (2021); Kumar and Nayak (2019); Sudani and Pertiwi (2022) indicating that the availability bias does not have a significant effect on investment decisions. However, Iram et al. (2023); Novianto (2021) argues that availability bias have a significant effect on investment decision because people usually make investment decision with a little information that they know.

In the third hypothesis (3), the gambler's fallacy variable obtains a p-value of 0.000 with a path coefficient of 0.260, indicating that gambler's fallacy significantly and positively affects investment decision. This suggests that gambler's fallacy influences an individual's investment decision-making to continue holding onto declining stocks, hoping for events that could change the stock's value for the better. Herman et al. (2018) in their research also found similar results, suggesting that investors have a logical concept that a stock that has experienced a price decline in previous periods, and even maintains the same price, is likely to experience the opposite in the future. This research is supported by Ratnadi et al. (2020); Keswani et al. (2019); Almansour and Arabyat (2017); Dewi et al. (2020) indicating that Gambler's Fallacy significantly and positively affects investment decisions. However, Darwis et al. (2021) say that gambler’s fallacy don’t have significant effect to investment decision because investors generally achieve more favorable outcomes by conducting thorough analysis prior to engaging in speculative activities.

In the fourth hypothesis (4) states that loss aversion has significantly and positively affects investment decision. This hypothesis evidence by the loss aversion variable obtains a p-value of 0.008 with a path coefficient of 0.144. This occurs because loss aversion makes an investor tend to be afraid to invest in stocks that show poor results and more often make investment decisions on stocks with good performance. Saputra et al. (2020) found that investors loss aversion encourages the desire to invest. This research is supported by Shaleha and Hakim (2022); Pokharel (2020); Elhussein and Abdelgadir (2020); Hunguru et al. (2020); Keswani et al. (2019) indicating that Loss Aversion significantly and positively affects investment decisions. However, Pradhana (2018) argues that loss aversion haven’t significant

effect to investment decision because investors don't experience fear when facing losses, as they are aware that such risks are inherent possibilities in investment activities.

In the fifth hypothesis (5) The overconfidence bias variable has a p-value of 0.000 and a path coefficient of 0.227. Through hypothesis testing, it is evident that the overconfidence bias variable significantly and positively affects investment decision. This indicates that overconfidence bias can lead an investor to make better investment decisions. This is because in making investment decisions, an investor only requires self-analysis and does not need analysis from other investors. According to Jain et al. (2020), being overly confident in making investment decisions can have a positive impact on stock investments. This research is supported by Armansyah (2021); Fitri and Cahyaningdyah (2021); Madaan and Singh (2019); Mahmood et al. (2023); Wibowo et al. (2023) indicating that overconfidence bias significantly and positively affects investment decisions. However, Gamage et al. (2021) argues that overconfidence bias does not have a significant impact on investment decisions, as most investors rely on expert analyses for comparison.

In the sixth hypothesis (6) the representativeness bias variable has significantly and positively affects investment decision. This is evidenced through hypothesis testing with a p-value of 0.000 and a path coefficient of 0.280. This indicates that representativeness bias leads an investor to rely only on clear information when making investment decisions. Vukovic (2022) also stated that representativeness bias impact to investment decision because individuals who are more meticulous, reliable, persistent, confident, and considerate often tend to use trend analysis when evaluating investment alternatives and are cautious when investing in companies that have recently experienced losses. This research is supported by Kumara and Kawshala (2021); Dangol and Manandhar (2020); Novianto (2021); Elhussein and Abdelgadir (2020); Khan et al. (2020) indicating that representativeness bias significantly and positively affects investment decisions. However, Aigbovo and Ilaboya (2019) say that some investors conduct analysis not only based on a company's past performance but also through quantitative assessments of the current market conditions, which indicates that representativeness bias does not have a significant impact on investment decisions.

CONCLUSIONS

The results of the conducted tests show that the variables anchoring bias do not have a significant effect on investment decision because stock investors do not make investment decisions based on initial values to buy and sell investments. Availability bias also do not have a significant effect on investment decision it's because investor do not solely rely on available information to make investment decisions, but rather tend to conduct deeper analysis when making investment decisions. This study also demonstrates a significant influence of gambler's fallacy, loss aversion, overconfidence, and representativeness bias on investment decision. Gambler's fallacy have significant effect to investment decision it's because gambler's fallacy influences an individual's investment decision-making to continue holding onto declining stocks, hoping for events that could change the stock's value for the better. Loss aversion makes an investor tend to be afraid to invest in stocks that show poor results and more often make investment decisions on stocks with good performance. Overconfidence also impact in making investment decisions, an investor only requires self-analysis and does not need analysis from other investors. Representativeness bias make individuals who are more meticulous, reliable, persistent, confident, and considerate often tend to use trend analysis

when evaluating investment alternatives and are cautious when investing in companies that have recently experienced losses

Limitations of this study include its narrow scope, limited to Batam only. The R-square value in this study is only 56.5%, indicating that there are other variables that could be explored to explain the investment decision variable. This study recommends that future research should encompass a broader scope by utilizing a sample of respondents from around the world and incorporating other variables that can explain investment decisions, thereby yielding better research results.

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), 175. https://doi.org/10.26623/jreb.v13i3.2863

Aigbovo, O., & Ilaboya, O. J. (2019). Does Behavioural Biases Influences Individual Investment Decisions. *Faculty of Management Sciences, University of Benin, Benin City, Nigeria*, *10*(1), 68–89. https://www.researchgate.net/profile/Aigbovo-Omoruyi/publication/335455695_Does_Behavioural_Biases_Influences_Individual_Investment_Decisions/links/5d66e05c299bf11adf297c6b/Does-Behavioural-Biases-Influences-Individual-Investment-Decisions.pdf

Ainia, N. S. N., & Lutfi, L. (2019). Pengaruh Risk Perception, Risk Tolerance, Overconfidence dan Loss Aversion Terhadap Pengambilan Keputusan Investasi. *Journal of Economics, Business & Accountancy Ventura*, *21*(3), 401–413.

Almansour, B. Y., & Arabyat, Y. A. (2017). Investment Decision Making Among Gulf Investors: Behavioural Finance Perspective. *International Journal of Management Studies*, *24*(1), 41–71. https://doi.org/10.32890/ijms.24.1.2017.10476

Armansyah, R. F. (2021). Over Confidence, Mental Accounting, and Loss Aversion In Investment Decision. *Journal of Auditing, Finance, and Forensic Accounting*, *9*(1), 44–53. https://doi.org/10.21107/jaffa.v9i1.10523

Banerji, J., Kundu, K., & Alam, P. A. (2020). Influence of behavioral biases on investment behavior. *SCMS Journal of Indian Management*, *17*(1), 81–98.

Candy, C., & Vincent, K. (2021). Analisis Pengaruh Behavioural Finance Terhadap Pengambilan Keputusan Investasi Investor di Kepulauan Riau. *Jesya (Jurnal Ekonomi & Ekonomi Syariah)*, *4*(2), 864–873. https://doi.org/10.36778/jesya.v4i2.403

Cuandra, F., & Rinaldo, J. (2021). Why do investors choose a mutual fund? *Jurnal Inovasi Ekonomi*, *6*(03), 133–138. https://doi.org/10.22219/jiko.v6i03.18221

Cuandra, F., & Tan, H. (2021). Analysis of Factors That Are Considered By Investors in Stocks Investment Decision Making in Batam City. *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis Dan Inovasi Universitas Sam Ratulangi).*, *8*(1), 1–31. https://doi.org/10.35794/jmbi.v8i1.33266

Dangol, J., & Manandhar, R. (2020). Impact of Heuristics on Investment Decisions: The Moderating Role of Locus of Control. *Journal of Business and Social Sciences Research*, *5*(1), 1–14. https://doi.org/10.3126/jbssr.v5i1.30195

Darwis, H., Suwito, S., & Jhay, Z. (2021). Testing of behavior bias: Gamblers' fallacy, halo effect and familiarity effect on investors. *International Journal of Research in Business and Social Science (2147- 4478)*, *10*(8), 275–283.

https://ssbfnet.com/ojs/index.php/ijrbs/article/view/1482

Dewi, S., . E., & Rini, E. S. (2020). The Effect of Efficient Market Hypothesis, Gambler's Fallacy, Familiarity Effect, Risk Perception, and Economic Factors on Investment Decisions (Studies on Capital Market Investors in Medan City). *International Journal of Innovative Science and Research Technology*, *5*(8), 285–291. https://doi.org/10.38124/ijisrt20aug202

Elhussein, N. H. A., & Abdelgadir, J. N. A. (2020). Behavioral Bias in Individual Investment Decisions: Is It a Common Phenomenon in Stock Markets? *International Journal of Financial Research*, *11*(6), 25. https://doi.org/10.5430/ijfr.v11n6p25

Falah, F. F., & Haryono, N. A. (2023). The Influence of Herding, Anchoring, Disposition, Personal Income, and Financial Literacy on Generation Z's Investment Decision Making in Surabaya City. *Technium Social Sciences Journal*, *47*, 379–397.

Fitri, H. K., & Cahyaningdyah, D. (2021). The Influence of Representativeness on Investment Decision Through Overconfidence. *Management Analysis Journal*, *10*(2), 739–748. https://journal.unnes.ac.id/sju/index.php/maj/article/view/48890

Gamage, R., Wijekumara, N., & Sugathadasa, K. (2021). The Impact of Behavioral Factors on Individual Investment Decisions of Equity Investors : A Study in Kurunegala Area. *Proceedings of the Annual Emerging Financial Markets and Policy Conference - EFMP*, *January*, 43–50.

Gupta, S., & Shrivastava, M. (2022). Herding and loss aversion in stock markets: mediating role of fear of missing out (FOMO) in retail investors. *International Journal of Emerging Markets*, *17*(7), 1720–1737. https://doi.org/10.1108/IJOEM-08-2020-0933

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2017). *Partial Least Squares Structural Equation Modeling* (Issue September). https://doi.org/10.1007/978-3-319-05542-8

Hamzah, A., Djuniardi, D., & Supriadi, A. (2022). Pengaruh Overconfidence Bias, Mental Accounting Dan Familiarity Bias Terhadap Pengambilan Keputusan Investasi. *Journal of Global Business and Management Review*, *4*(1), 50. https://doi.org/10.37253/jgbmr.v4i1.6777

Herman, H., Hady, H., & Arafah, W. (2018). The Influence of Market Orientation and Product Innovation on the Competitive Advantage and Its Implication toward Small and Medium Enterprises (Ukm) Performance. *International Journal of Science and Engineering Invention*, *4*(08), 8–21. https://doi.org/10.23958/ijsei/vol04-i08/02

Hesniati, & Dedy. (2021). Faktor-Faktor Yang Mempengaruhi Keputusan Investasi Properti Pada Kota Batam. *E-Bisnis : Jurnal Ilmiah Ekonomi Dan Bisnis*, *14*(2), 89–98. https://doi.org/10.51903/e-bisnis.v14i2.506

Hunguru, P., Sibanda, V., & Tadu, R. (2020). Determinants of Investment Decisions: A Study of Individual Investors on the Zimbabwe Stock Exchange. *Applied Economics and Finance*, *7*(5), 38. https://doi.org/10.11114/aef.v7i5.4927

Iram, T., Bilal, A. R., & Ahmad, Z. (2023). Investigating The Mediating Role of Financial Literacy on The Relationship Between Women Entrepreneurs' Behavioral Biases and Investment Decision Making. *Gadjah Mada International Journal of Business*, *25*(1), 93–118. https://doi.org/10.22146/gamaijb.65457

Jain, J., Walia, N., & Gupta, S. (2020). Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process. *Review of Behavioral Finance*, *12*(3), 297–314. https://doi.org/10.1108/RBF-03-2019-0044

Keswani, S., Dhingra, V., & Wadhwa, B. (2019). Impact of Behavioral Factors in Making Investment Decisions and Performance: Study on Investors of National Stock Exchange. *International Journal of Economics and Finance*, *11*(8), 80. https://doi.org/10.5539/ijef.v11n8p80

Khan, I., Afeef, M., Jan, S., & Ihsan, A. (2020). The impact of heuristic biases on investors' investment decision in Pakistan stock market: moderating role of long term orientation. *Qualitative Research in Financial Markets*, *13*(2), 252–274. https://doi.org/10.1108/QRFM-03-2020-0028

Kumar, Y., & Nayak, R. (2019). Role of Behavioral Factors in Share Market Investment Decision Making. *International Journal of Innovative Technology and Exploring Engineering*, *8*(12S2), 786–796. https://doi.org/10.35940/ijitee.l1135.10812s219

Kumara, R. M. K. S., & Kawshala, B. A. H. (2021). The Impact of Heuristic Biases on Investors' Investment Decision Making; Evidence from Colombo Stock Exchange. *Journal of Business and Technology*, *2028*, 86–103. https://doi.org/10.4038/jbt.v5i0.55

Loris, R. P., & Jayanto, P. Y. (2021). the Effect of Representativeness, Availability, Anchoring, Risk Perception, and Herding on Investment Decisions Syariah Investors. *Jurnal Akuntansi*, *11*(1), 81–92. https://doi.org/10.33369/j.akuntansi.11.1.81-92

Madaan, G., & Singh, S. (2019). An analysis of behavioral biases in investment decision-making. *International Journal of Financial Research*, *10*(4), 55–67. https://doi.org/10.5430/ijfr.v10n4p55

Mahadevi, A. S., & Asandimitra, N. (2021). Pengaruh Status Quo, Herding Behaviour, Representativeness Bias, Mental Accounting,Serta Regret Aversion Bias Terhadap Keputusan Investasi Investor Milenialdi Kota Surabaya. *Jurnal Ilmu Manajemen*, *9*(2), 1–15.

Mahmood, F., Arshad, R., Riaz, A., Usman, M., & Bashir, M. (2023). Do Behavioral Biases Impact Investment Decisions? Stock Market Investor's-Based View. *Multicultural Education, February*.

Mastura, A., Nuringwahyu, S., & Zunaida, D. (2020). Pengaruh Motivasi Investasi, Pengetahuan Investasi Dan Teknologi Informasi Terhadap Minat Berinvestasi Di Pasar Modal (Studi Pada Mahasiswa Fia Dan Feb Unisma Yang Sudah Menempuh Mata Kuliah Mengenai Investasi). *Jiagabi*, *9*(1), 64–75.

Novianto, J. (2021). Investor's Behavior and Stock Investment Decision in Batam City. *Akuntabel*, *18*(3), 532–542. https://doi.org/10.29264/jakt.v18i3.10029

Pokharel, P. R. (2020). Behavioral Factors and Investment Decision: A Case of Nepal. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3687104

Pradeepkumar, S. (2021). The Influence of Heuristics on the Investment Decisions of Investors. *The IUP Journal of Financial Risk Management*, *18*(2), 2021.

Pradhana, R. W. (2018). Pengaruh Financial Literacy, Cognitive Bias, dan Emotional Bias Terhadap Keputusan Investasi (Studi Pada Investor Galeri Investasi Universitas Negeri Surabaya). *Jurnal Ilmu Manajemen*, *6*(3), 108–117. https://jurnalmahasiswa.unesa.ac.id/index.php/jim/article/view/23849

Qasim, M., Hussain, R. Y., Mehboob, I., & Arshad, M. (2019). Impact of herding behavior and overconfidence bias on investors' decision-making in Pakistan. *Accounting*, *5*(2), 81–90. https://doi.org/10.5267/j.ac.2018.7.001

Ratnadi, N. M. D., Widanaputra, A. A. G. P., & Putra, I. N. W. A. (2020). Behavioral factors influencing investment decision-making by college student: An empirical study in Bali

Province, Indonesia. *International Journal of Scientific and Technology Research*, *9*(2), 1358–1368.

Saeed, K. (2019). Impact of Heuristic Biases on Investment Decision Locus of Control Playing a Moderating Role. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3499658

Saputra, M. H., R, M., & Hassandi, I. (2023). Anchoring Bias dalam Pengambilan Keputusan Investor Ritel (Studi Peristiwa Selama Pandemi COVID-19). *Jurnal Ilmiah Manajemen Dan Kewirausahaan (JUMANAGE)*, *2*(2), 182–190. https://doi.org/10.33998/jumanage.2023.2.2.780

Saputra, S. E., Natassia, R., & Utami, H. Y. (2020). The Effect of Religiosity Moderation with Loss Aversion on the Investment Decision of Personal Investors Kind of Stock Security in Padang City. *AMAR (Andalas Management Review)*, *4*(1), 40–55. https://doi.org/10.25077/amar.4.1.40-55.2020

Setiawan, E. P. (2020). Analisis Potensi dan Risiko Investasi Cryptocurrency di Indonesia. *Jurnal Manajemen Teknologi*, *19*(2), 130–144. https://doi.org/10.12695/jmt.2020.19.2.2

Shaleha, Hakim, R. (2022). Pengaruh Anchoring Bias Dan Loss Aversion Terhadap Keputusan Investasi Investor Di Mnc Trade Syariah Kota Kendari. *Journal of Management, Administration, Education, and Religious Affairs*, *4*(2), 286–305.

Siraji, M. (2019). Heuristics Bias and Investment Performance: Does Age Matter? Evidence from Colombo Stock Exchange. *Asian Journal of Economics, Business and Accounting*, *12*(4), 1–14. https://doi.org/10.9734/ajeba/2019/v12i430156

Sudani, F. S., & Pertiwi, I. F. P. (2022). Financial Information Analysis to Minimize Availability Bias, Representative Bias, Anchoring Bias and Adjustment Bias, and Overconfidence Bias in Ivestment Decision Making (Study on Investors at the Sharia Investment Gallery of UIN Raden Mas Said. *Social Science Studies*, *2*(5), 446–460. https://doi.org/10.47153/sss25.3852022

Sudirman, W. F. R., Winario, M., Priyatno, A. M., & Assyifa, Z. (2023). Risk Tolerance: Heuristic Bias Towards Investment Decision Making. *Jurnal Manajemen Teori Dan Terapan | Journal of Theory and Applied Management*, *16*(2), 266–279. https://doi.org/10.20473/jmtt.v16i2.47471

Syahroni, M. I. (2022). Prosedur Penelitian Kuantitatif. *EJurnal Al Musthafa*, *2*(3), 43–56. https://doi.org/10.62552/ejam.v2i3.50

Vukovic, M. (2022). Personality As a Predictor of Students' Heuristic and Herding Biases in Determining Their Predispositions for Long-Term Investment Decisions. *Economic and Social Development: Book of Proceedings*, 53–62. https://www.bib.irb.hr/1175551/download/1175551.Book_of_Proceedings_esdJanuary 2022_Online.pdf#page=58

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 (2147- 4478)*, *12*(5), 174–184. https://doi.org/10.20525/ijrbs.v12i5.2663