Herd Behavior and Heuristic of Investors in Malang City: The Influence on Investment Decision Making

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ABSTRACT *: Choosinginvestments can indeedbedifficult for investors, especially in uncertain times. Investorswill face number of considerationsthatwill impact future investmentresults, and it all depends on how investorsbehavewhenmakinganinvestmentdecision. However, investorsoccasionallymakebiased or irrationalinvestmentdecisions, whichcouldresult in bothmaterial and immateriallosses or undesirableoutcomes in theirinvestmentactivities. The aim of thisstudywas to investigate the impact of herdbehavior and heuristicsuch as anchoring, representativeness, availability, overconfidence, and gambler'sfallacy on investmentdecisionmaking of investors in Malang City. This study'ssampleconsist of investors in Malang city whomeet a number of predeterminedcriteria. Multiple regressionanalysisisused in thisstudy to test the data. According to the study'sfindings, herdbehavior, anchoring, representativeness, availability, overconfidence, and gambler'sfallacy all have a positive impact on investmentdecisionmaking of investors in Malang City. This demonstratedthatinvestors in Malang City occasionallymakedecisionsbased on irrationalthinking, which has a negative impact on theirinvestment return.*

KEYWORDS -*Herd Behavior, Anchoring, Representativeness, Availability, Overconfidence, Gambler's Fallacy*

I. Introduction

The rapid development of technology has contributed in disruptive innovations in many areas of life, including the financial sector, which have succeeded in changing, replacing, or updating existing business models. All of these developments had also led to the emergence of a new phenomenon known as financial technology. Financial technology, also known as fintech, is a combination of technology and financial services that ultimately shifts the business model from conventional to moderate (IDX, 2017). Financial technology in Indonesia is rapidly advancing nowadays. The presence of financial technology provides numerous benefits to humans, one of which is investing in the capital market, making all activities more affective, flexible, and accessible from anywhere (Malik, 2022).

According to data from PT Kustodian Sentral Efek Indonesia (KSEI) in 2021, young people, namely the millennial generation and generation Z, represent approximately 81% of the total capital market investors, with 60.02% being under 30 years old and 21.46% being between 31 and 40 years old. The millennial and Z generations do seem to be technologically literate generations who seek practicality and speed in conducting transactions, hence the role of fintech in boosting the capital market industry has become more promising.

Figure 1. Number of Capital Market Investors

Source: KSEI (2021)

As shown in Figure 1, the growing public interest in investing in the capital market is reflected in the Single Investor Identification (SID) or the number of individual investors. Referring to data form the PT Kustodian Sentral Efek Indonesia (KSEI), the number of Single Investor Identification (SID) has reached 7.489.337 in 2021, displaying a 92.99% increase from the position at the end of 2020. The capital market is one of the affective way to promote Indonesia's economic development and growth as it could bring together two parties with an interest (those with excess funds/ investors and those in need of funds/issuers) as well as provide

possibilities and opportunities for returns for funds owners, reflecting on the chosen investment's characteristics (IDX, 2017).

In investing, choosing investment could be a challenging task for investors, especially in times of high uncertainty. Investing losses are still common among investors. According to Data Indonesia (2022), the value of losses has reached IDR 2.5 trillion in 2021 (Dimas, 2022). This is due to inadequate financial literacy in Indonesia, which causes individuals to make irrational investment decisions, resulting in both material and immaterial losses (such as; emotions, feelings, and so on).

In term of making decision, the traditional finance concept assumes that every individual is rational in making investment or financial decision (Ariani et al., 2016). However, due to limited human thinking abilities, or known as bounded rationality, the assumption that individuals will behave rationally does not fully occur. As a result, a new approach known as behavioral finance has emerged which is thought of capability to explaining investor decision making. Behavioral finance is a study that combines the scientific fields of psychology and finance in order to explain individual emotional feelings and cognitive biases that influence investors during the decision-making process (Antonio, 2021). Herd behavior and heuristics are two factors that can influence investors' decisions. According to Kahneman & Tversky (1974) in Stephanie (2015), heuristics consist of anchoring, representativeness, availability, overconfidence, and gambler's fallacy. This bias could cause investors to think irrationally, resulting in investors not receiving the expected return.

It is further supported by Rasheed et al., (2018)'s study which demonstrated how representativeness and availability bias impacts investment decision. Furthermore, Loung & Ha (2011) discovered that herd behavior, overconfidence, and anchoring have a positive effect on investment decision making. Moreover, Djojopranoto & Mahadwartha (2017)'s research discovered that the gambler's fallacy has a positive impact on investment decision. This, however, refutes studies conducted by Pelisa (2020), which found no correlation between gambler's fallacy and investment decision making. The occurrence of a research gap in previous research empowers for additional research to further understand the relationship between herd behavior and heuristics on investment decision making, which is the foremost urgency in this study.

According to the PT Kustodian Sentral Efek Indonesia (KSEI), Malang City has the second most Single Investor Identification (SID) in East Java, which is 39.143. Besides that, large number of investors in Malang City have academic backgrounds and communities the value the capital market investment, namely the Youth Capital Market Community (YCMC), hence when making investment decision, investors should place a greater emphasis on rational thought education of capital market that has been gained (Qushoyyi, 2022).

Based on the existing background, this study aims to demonstrate the impact of herd behavior and heuristics such as anchoring, representativeness, availability, overconfidence, and gambler's fallacy on stock investment decision making by using sample of investors in Malang City. As a result, a study titled "Herd Behavior and Heuristic of Investors in Malang City: The Influence on Investment Decision Making".

II. Literature Review

2.1 Behavioral Finance

Behavioral finance theory or financial behavior is based on Simon's 1955 bounded rationality model. According to the bounded rationality model, individual rationality in making a decision is limited, so people prefer decisions that are deemed sufficient or satisfying over optimal decisions (Sisbintari, 2017). Behavioral finance is a method that combines studies from psychology and finance to explain emotions and cognitive biases in each individual that influence investors' decision-making, that may result in irrational behavior(Loung & Ha, 2011).

2.2 Investment Decision Making

Investment decisions are policies made on two or more investment alternatives in the hope of reaping future benefits (Virigineni & Bhaskara, 2017). The primary goal of any investor is to obtain the expected return. Knowledge of investing is critical for an investor to make sound investment decisions. However, due to bounded rationality, investors frequently do not act completely rationally when making decisions. According to Merton (1987) in Bakar (2017), optimal and rational decision making is dependent on knowledge of finance; the greater the knowledge of finance, the more rational decisions will be made. However, investors' thoughts and feelings can frequently shift the decision-making process from rational to irrational.

The higher an investor's behavioral bias, the more irrational in terms of investor's decision making. As a result, the level of irrational behavior in decision making was measured in this study by including intuition in the research questionnaire. According to Rasheed et al., (2018), an indicator of investment decision making is the tendency of investors to rely on instinct and intuition and believe that the investment made is correct despite the lack of rational reasons.

2.3 Herd Behavior

Herd behavior refers to the tendency of investors to imitate the behavior of other parties in the face of uncertainty rather than trusting their own strategy or information (Alteza & Harsono, 2021).Herding is the most

common behavioral bias in which investors tend to follow the majority's or influencers' investment decision making (Setiawan, 2022). According to Loung & Ha (2011), herding indicator are the influence of stock selection decisions, transaction volume, buying and selling of other investors' shares on an investor's investment decisions, as well as the speed with which an investor reacts to changes in other investors' decisions.

2.4 Heuristic

Khoshnood (2011) stated that heuristics are the use of shortcuts to make a decision in a short amount of time. As decision making is not based on a company's technical or fundamental analysis, hence the use of heuristics frequently leads to cognitive bias.The heuristic theory explains how investors make decisions in the face of uncertainty. This state of uncertainty can occur as a result of an active, dynamic, and complex environment, such as that found in the capital market. According to Saeed's (2019) research, heuristics may have a negative impact on investment decision making. This demonstrates that the greater the number of heuristics, the poorer the decision-making by investors, resulting in large losses or unexpected results. According to Kahneman & Tversky (1974) in Stephanie (2015), heuristics includes anchoring, representativeness, availability, overconfidence and gambler's fallacy.

2.5 Anchoring

Kahneman and Tversky (1974) in Setiawan (2022) that anchoring is a form of biased behavior that relies on the initial value of purchase price of a stock as an estimate to making a decision, thus making investors trapped in unprofitable investments continuously. Investors are reluctant to sell their investment if the investment price is lower than the purchase price in the hope that it will rise in value in the future. Anchoring will cause investors to choose to keep their investment, trapping them in unprofitable investments indefinitely (Antonio, 2021). An investor who has experienced anchoring is less likely to react to new information. According to Loung& Ha (2011), an anchoring indicator are reliance on past experiences to make decisions and reliance on historical prices to predict future stock prices.

2.6 Representativeness

Representativeness refers to a person's proclivity to make decisions based on stereotyped thinking or to focus only on limited information, resulting in bias or errors in investment decisions (Seto, 2017). Besides that, representativeness will induce someone to prefer to invest in trusted investment instruments (such as investing in large company stocks) as they believe that if the company is large, investing in that company will be good, and will rule out investing in companies that are not well known or are not well known. Azhari (2021) defines representativeness as the decision to buy shares that are currently being discussed and avoid stocks with low short-term performance, believing that the blue chip company is a good long-term investment and stocks from well-known companies provide good performance.

2.7 Availability

Availability refers to a person's tendency to rely on information or knowledge that is already available without considering alternatives or other options (Adielyani & Mawardi, 2020). This could lead to investors in become increasingly irrational in their decision-making because they ignore the company's fundamentals and base investment decisions on investors' preferences and memories. According to Loung& Ha (2011), indicators of availability bias include a proclivity to buy local stocks and opinions on information provided by parties close to investors.

2.8 Overconfidence

Overconfidence is the attitude of being overly confident, which is related to how well an individual understands his abilities and knowledge limits (Saeed, 2019). In addition, overconfidence leads investors to believe that logical investment decisions are made by them, whereas investment decisions made by others are the result of emotions, feelings, and perceptions (Gill et al., 2018). This will cause investors to trade excessively, lowering their returns. Confidence is required when making decisions, but often people become overconfident, which has a negative impact on investment decisions and increases the likelihood of individuals experiencing losses. According to Setiawan (2018), indicators of overconfidence include accuracy in investment selection, belief in one's own abilities and knowledge, confidence in investment decisions, and aggressiveness in buying and selling stocks.

2.9 Gambler's Fallacy

The Gambler's Fallacy is a cognitive bias in which a person believes that what happened in the past will influence future probabilities. Investors make decisions to buy or sell stocks in the same way that gamblers do. Stocks that continue to decline are expected to rise, while stocks that are rising are supposed to decrease soon. Investors may believe that stock prices cannot continue to rise or fall since there are periods when stock prices experience corrections (Khoshnood, 2011). According to Djojopranoto & Mahadwartha (2017), an indicator of gambler's fallacy is investor confidence in past events that could affect future probabilities, buying stocks during downtrend and selling it during an uptrend, and the courage to buy company's stock with a bad fundamental but have a high trading volume.

III. Hypothesis Development

3.1 The Impact of Herd Behavior on Investment Decision Making

According to behavioral finance theory, higher herding causes investors to follow other investors when making investment decisions that are neither based on technical or fundamental analysis of the company. This is consistent with Agustin (2021) and Dangol & Manandhar (2020) findings that herding has a significant influence on investment decision making. Based on the statement above, the research hypothesis is organized as follows.

H1: Herd behavior has a positive effect on investment decision making of investors in Malang City.

3.2 The Impact of Anchoring on Investment Decision Making

The greater a person's anchoring, the more irrational their investment decisions will be, trapping investors in unprofitable investments indefinitely. This is further supported by Agustin (2021) and Noah & Pasuria (2021), where anchoring has a positive influence on investment decision making. Based on the statement above, the research hypothesis is organized as follows.

H2: Anchoring has a positive effect on investment decision making of investors in Malang City.

3.3 The Impact of Representativeness on Investment Decision Making

When processing information to make investment decisions, the higher a person's representativeness, the easier it is for one to overreact. This is supported by research from Azhari (2021), Rasheed et al., (2018) and Rehan (2017), which show that representativeness influences positively on investor decision making. Based on the statement above, the research hypothesis is organized as follows.

H3: Representativeness has a positive effect on investment decision making of investors in Malang City.

3.4 The Impact of Availability on Investment Decision Making

According to the behavioral finance theory, availability could lead to irrational behavior. The greater individual's availability, the easier it will be for individual to buy known stocks (both from the business sector and country of origin) based on available information or knowledge without taking other alternatives or options into consideration. Research conducted by Dangol & Manandhar (2020) and Rasheed et al., (2018), show that availability has a positive effect on investor decision making. Based on the statement above, the research hypothesis is organized as follows.

H4: Availability has a positive effect on investment decision making of investors in Malang City.

3.5 The Impact of Overconfidence on Investment Decision Making

An overconfident investor will be more daring in making investment decisions, despite their actual abilities, causing investors to act irrationally and make mistakes in decision making. This demonstrates that overconfidence influences investment decisions. Excessive self-assurance will damage the portfolio. This statement is supported by research from Bakar (2017), Dangol&Manandhar (2020) and Setiawan (2022), which show that overconfidence has a positive effect on investment decision-making. Based on the statement above, the research hypothesis is organized as follows.

H5: Overconfidence has a positive effect on investment decision making of investors in Malang City.

3.6 The Impact of Gambler's Fallacy on Investment Decision Making

According to behavioral finance theory, the greater the gambler's fallacy, the more one will base investment decisions on probability rather than accurate or valid information. This statement is supported by Djojopranoto&Mahadwartha (2017) research, which found that gambler's fallacy influences investment decisions. Based on the statement above, the research hypothesis is organized as follows

H6: Gambler's fallacy has a positive effect on investment decision making of investors in Malang City

IV. Methodology

The model in this study involves two variables, the independent variable and the dependent variable. The dependent variable is investment decision making, while the independent variable is herd behavior and heuristics such as anchoring, representativeness, availability, overconfidence and gambler's fallacy. Hence, the research model can be classified as follows.
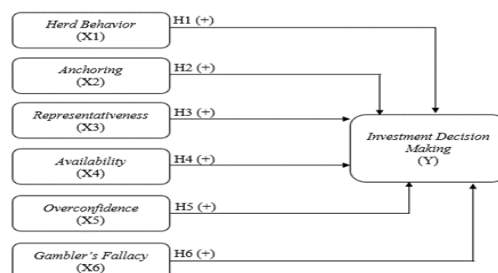

Figure 2. Research Model

The research was conceptualized with a quantitative approach, involving a direct relationship by analyzing the impact of herd behavior, anchoring, representativeness, availability, overconfidence, and gambler's fallacy on investment decision making for Malang City Investors (Figure 2). This study's population includes all capital market investors located in Malang City. According to PT Kustodian Sentral Efek Indonesia (2021), there are 49.143 investors in Malang City, with majority aged 30 and under. The Sloven's formula is used to determine the number of samples, which consists of 100 respondents who meet the following criteria when employing the purposive sampling technique: Investors must be an active investor and registered with official securities company registered with the Otoritas Jasa Keuangan (OJK); they must be between the ages of 18 and 30; they must have conducted transaction activities for at least one month; and they must invest in stock investment instruments.

A survey was utilized to collect data in this study. The data collection instrument was a questionnaire with four levels of answers preference ranging from Strongly Disagree (SD) to Strongly Agree (SA). Questionnaires will be distributed online using Google Forms, and respondents will fill out independently or self-administered questionnaire. Multiple regression analysis is performed on the data by the Statistical r Social Science (SPSS).

V. Result and Discussion

Respondents Profile Data

Based on the questionnaire distribution results, the grouping of samples based on the study's criteria amounted to 110 respondents out of a total of 118 respondents. The respondent's profile data is shown below.

Table 1. Respondents Profile Data

Characteristics	Total	Percentage
Gender		
Male	45	41%
Female	65	59%
Education		
Senior High School	13	11.8%
Associate Degree	7	6.4%
Undergraduate	85	77.3%
Graduated	3	2.7%
Doctoral	2	1.8%
Profession		
Student	73	66.4%
Private Sector Employee	9	8.2%
Government Employee	21	19%
Entrepreneur	7	6.4%
Income per Month		
≤ Rp 1.000.000	27	24.6%
Rp 1.000.001 – Rp 5.000.000	59	53.6%
Rp 5.000.001 – Rp 10.000.000	19	17.3%
>Rp 10.000.000	5	4.5%
Long Investment		
< 1 Month	0	0 %
1-5 Months	27	24.5%
6-12 Months	13	11.8%
> 1 year	70	63.7%
Total Investment		
≤ Rp 1.000.000	32	29.09%
Rp 1.000.001 – Rp 5.000.000	20	18.18%
Rp 5.000.001 – Rp 10.000.000	3	2.73%
>Rp 10.000.000	55	50%
Capital Market Training		
Ever followed	106	96.4%
Never follow	4	3.6%

Source: Processed data (2022)

Validity Test

The validity test was used to determine the validity of each question item on the study's questionnaire. Each statement item is considered to be valid if r count r table at a 5% level of significance (Suganda, 2018).

Table 2. Validity Test Result

Variable	Items	R Count	R Table	Result
Investment Decision Making	Y1.1	0.953	0.1857	Valid
	Y1.2	0.950	0.1857	Valid
	Y1.3	0.959	0.1857	Valid
Herd Behavior	X1.1	0.932	0.1857	Valid
	X1.2	0.883	0.1857	Valid
	X1.3	0.870	0.1857	Valid
	X1.4	0.931	0.1857	Valid
Anchoring	X2.1	0.921	0.1857	Valid
	X2.2	0.904	0.1857	Valid
	X2.3	0.927	0.1857	Valid
Representativeness	X3.1	0.936	0.1857	Valid
	X3.2	0.958	0.1857	Valid
	X3.3	0.925	0.1857	Valid
	X3.4	0.958	0.1857	Valid
Availability	X4.1	0.970	0.1857	Valid
	X4.2	0.960	0.1857	Valid
	X4.3	0.970	0.1857	Valid
Overconfidence	X5.1	0.976	0.1857	Valid
	X5.2	0.952	0.1857	Valid
	X5.3	0.938	0.1857	Valid
	X5.4	0.962	0.1857	Valid
Gambler's Fallacy	X6.1	0.960	0.1857	Valid
	X6.2	0.937	0.1857	Valid
	X6.3	0.921	0.1857	Valid
	X6.4	0.967	0.1857	Valid

Source: Processed data (2022)

According to Table 2, all questionnaire items have a R count > 0.1857 (R table), indicating that all questionnaire items are valid.

Reliability Test

Furthermore, the reliability test is only performed on statements that have passed the validity test. The term "reliability" refers to the instrument's ability to produce accurate results. A variable is said to be reliable if its Cronbach's Alpha value is > 0.6 (Suganda, 2018).

Table 3. Reliability Test Result

Variable	Cronbach's Alpha	Result
Investment Decision Making (Y)	0.950	Reliable
Herd Behavior (X1)	0.926	Reliable
Anchoring (X2)	0.905	Reliable
Representativeness (X3)	0.959	Reliable
Availability (X4)	0.965	Reliable
Overconfidence (X5)	0.969	Reliable
Gambler's Fallacy (X6)	0.961	Reliable

Source: Processed data (2022)

According to Table 3, all variables in this study have a Cronbach's Alpha value greater than 0.6, implying that all variables are reliable.

Normality Test

The normality test evaluates whether or not the distribution of data in a group of data or variables is normally distributed. If the significance value is < 0.05, the distribution is not normal; if the significance value is > 0.05, the distribution is normal (Suganda, 2018).

Table 4. Normality Test Result

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		110
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	1.01939987
Most Extreme Differences	Absolute	.062
	Positive	.062
	Negative	-.051
Kolmogorov-Smirnov Z		.646
Asymp. Sig. (2-tailed)		.798
Exact Sig. (2-tailed)		.775
Point Probability		.000

a. Test distribution is Normal.

b. Calculated from data.

Source: Processed data (2022)

Table 4 demonstrates that the significance value of Asymp.Sig 2 tailed is 0.798. As the significance value is greater than 0.05, hence the data in this study are normally distributed.

Multicollinearity Test

According to Suganda (2018), the multicollinearity test is used to determine whether the dependent variable and the independent variable in the regression model have a relationship or a close relationship. If a regression model has a VIF < 10 and a tolerance number between 0.1 and one, it is not infected with multicollinearity.

Table 5. Multicollinearity Test Result

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	X1	.714	1.401
	X2	.702	1.424
	X3	.670	1.492
	X4	.659	1.518
	X5	.664	1.505
	X6	.647	1.546

Source: Processed data (2022)

According to Table 5, the regression model does not have multicollinearity issues between the variables herd behavior, anchoring, representativeness, availability, overconfidence, and gambler's fallacy.

Heteroscedasticity Test

The heteroscedasticity test aims to determine whether there is a variance inequality between residual observations in the regression test. There is no heteroscedasticity if the significance value is > 0.05 (Suganda, 2018).

Table 6. Heteroscedasticity Test Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.773	.238		3.242	.002
	X1	-.006	.019	-.033	-.291	.772
	X2	.005	.026	.024	.209	.835
	X3	-.021	.019	-.132	-1.117	.267
	X4	-.017	.025	-.080	-.668	.505
	X5	.012	.019	.074	.618	.538
	X6	.027	.019	.170	1.407	.163

a. Dependent Variable: abs_res

Source: Processed data (2022)

Table 6 demonstrates that the significance of each independent variable has a Sig-value greater than 0.05, implying that this model does not have heteroscedasticity issues.

Multiple Linear Regression

The multiple linear regression model equation can be formulated as follows.

$$Y = 2.234 + 0.171 X_1 + 0.285 X_2 + 0.173 X_3 + 0.195 X_4 + 0.161 X_5 + 0.123 X_6 + \varepsilon$$

Where,

α = Konstanta
Y = *Investment Decision Making*
X_1= *Herd Behavior*
X_2= *Anchoring*
X_3= *Representativeness*
X_4= *Availability*
X_5= *Overconfidence*
X_6= *Gambler's Fallacy*
ε =*Error Term*

Hypothesis Testing

1. The F Test

The F test is used to determine the effect of the independent variables on the dependent variable jointly (simultaneously). If the calculated F value > F table and the Sig value is < 0.05, the independent variable has a significant effect on the dependent variable at the same time (Suganda, 2018).

Table 7. F Test Result

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	745.284	6	124.214	112.952	.000[a]
	Residual	113.270	103	1.100		
	Total	858.555	109			

a. Predictors: (Constant), X6, X1, X2, X5, X3, X4

b. Dependent Variable: Y

Source: Processed data (2022)

Table 7 demonstrates the calculated F value and Sig Value. The calculated F value was found to be 112.952 > F table 2.187 and Sig value was found to be 0.000 < 0.05, indicating that herd behavior, anchoring, representativeness, availability, overconfidence and gambler's fallacy all have a significant impact on investment decision-making at the same time.

2. The Coefficient of Determination Test

The coefficient of determination is a method for determining how well the model can explain the variation in the dependent variable. The coefficient of determination is either 0 or 1. The Adjusted R square value is close to 1, indicates that the independent variables provide nearly all of the information required to predict the dependent variable (Suganda, 2018).

Table 8. Coefficient of Determination Test Result

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.932^a	.868	.860	1.04867

a. Predictors: (Constant), X6, X1, X2, X5, X3, X4

b. Dependent Variable: Y

Source: Processed data (2022)

According to Table 8, the adjusted R square was found to be 0.860, implying that the independent variables, namely herd behavior, anchoring, representativeness, availability, overconfidence and gambler's fallacy can affect the dependent variables, notably investment decision making by 86%. Other variables or factors are responsible for the remaining 100% - 86% = 14%.

3. The T Test

The T test is a statistical test that is used to determine whether each dependent variable has a significant effect on the independent variable. If the calculated T value > T table and p-value < 0.05, then the hypothesis is accepted (Suganda, 2018).

Table 9. T Test Result

Coefficients^a

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-2.234	.411		-5.443	.000
	X1	.171	.034	.216	5.101	.000
	X2	.285	.044	.276	6.467	.000
	X3	.173	.032	.235	5.372	.000
	X4	.195	.043	.201	4.552	.000
	X5	.161	.032	.220	5.010	.000
	X6	.123	.033	.166	3.721	.000

a. Dependent Variable: Y

Source: Processed data (2022)

According to Table 9, all variables have T count > T table 1.983 and sig 0.05, indicating that hypotheses in this study are all accepted. This means that herd behavior (X_1), anchoring (X_2), representativeness (X_3), availability (X_4), overconfidence (X_5) dan gambler's fallacy (X_6) all have significant impact on investment decision making (Y).

5.1 The Impact of Herd Behavior on Investment Decision Making

The test results for the influence of herd behavior on investment decision making display that herd behavior has a positive effect on investment decision-making. The outcomes of this study are consistent with those reported by Agustin (2021) and Dangol&Manandhar (2020). As a result, it proves that investors in Malang City tend to follow other investors when making investment decisions such as buying, selling, stock selection, holding period, and transaction volume. This study's research sample consisted of investors between the ages of 18 and 30. According to Gupta (2021), the millennial and generation Z generations are frequently swept up in the fear of missing out (FOMO) trend. Fear of missing out (FOMO) can be dangerous for investors, especially beginners, as it can lead to hasty and rash investment decisions that result in losses. With this phenomenon, the younger generation mimics the behavior of others in response to uncertainty, encouraging investors to follow the steps of financial influencers or the voice of the majority of investors rather than trusting their own strategy or information. This suggests that investors in Malang City make irrational investment decisions. If this

behavior is supposed, it will lead to losses because this investment decisions will not be based on technical or fundamental analysis.

5.2 The Impact of Anchoring on Investment Decision Making

The test result regarding the effect of anchoring on investment decision making exhibit that anchoring has a positive effect on investment decision-making. This study's outcome are consistent with those found by Agustin (2021) and Noah &Pasuria (2021). This exemplifies that investors in Malang City tend to maintain their investments, resulting in them being trapped in unprofitable investment indefinitely since Malang City investors are unwilling to sell their investment if the investment price is lower than the purchase price in the hope that the investment price will rise in the future. The greater a person's anchoring, the greater the investor's decision making based on irrational thoughts.

5.3 The Impact of Representativeness on Investment Decision Making

The test results for the influence of representativeness on investment decision making portray that representativeness has a positive effect on decision-making. This finding is consistent with those published by Azhari (2021) and Rasheed et al., (2018). This demonstrates that investors in Malang City make decision based on stereotyped thinking and rely on past experiences. Tversky & Kahneman (1974) in Pelisa (2020) that stereotype are not the best way to evaluate a phenomenon since the assessment of the probability of truth is based solely on group similarity or representation. This induces investors in Malang City to overlook important factors that can affect stock performance, resulting in biased investment decisions.

Individuals cannot base decisions in uncertain conditions on accurate information analysis, but rather on what they have constructed in their memory. As happened in the capital market, which is full of uncertainty, it causes investors in Malang City to experience fear, panic, and greed, where psychological issues like this can distort an individual's ability to analyze information, exacerbating investment decisions to become irrational.

5.4 The Impact of Availability on Investment Decision Making

The tests outcome on the effect of availability on investment decision making indicate that availability has a beneficial effect on investment decision making. The findings of this study is align with Dangol&Manandhar (2020) and Rashed, et.al. (2018). According to the research findings, investors in Malang City have a greater propensity to buy known stocks based on information or knowledge that is already obtainable, rather than considering other alternatives or options. The greater individual's availability, the easier it will be for individual to buy known stocks (both from the business sector and country of origin) based on available information or knowledge without taking other alternatives or options into consideration. This also demonstrates that investors in Malang City place a high value on information provided by parties that are close to investors. Inventors who are affected by availability bias will tend to ignore technical and fundamental analysis that could also affect stock movements, resulting in irrational decision making. Irrationality in decision making lessens returns, increases risk, and even causes investment losses.

5.5 The Impact of Overconfidence on Investment Decision Making

Based on the test result, overconfidence has a positive effect on investment decision making. According to Bakar (2017) and Setiawan (2022), overconfidence has a favorable impact on investment decision making. Referring to the respondent profile data, 96.4% of investors in Malang City had participated in capital market training such as classes, seminars, capital market study groups or other available training. Therefore, this could be the factor that increases an investor's excessive confidence in his or her knowledge and abilities. An investor with a high level of overconfidence will be more daring in making investment decisions, regardless of actual abilities and knowledge, causing investors to act irrationally in making decisions.

5.6 The Impact of Gambler's Fallacy on Investment Decision Making

The result of the experiment on the influence of the gambler's fallacy on investment decision making show that gambler's fallacy has a positive effect on investment decision making. This study's findings are consistent with Djojopranoto&Mahadwartha's research (2017). As a result, investors in Malang City believe that events in the past will have an impact on future probabilities.Stock price triggers or fluctuations are influenced by a variety of factors, including the company's financial performance, macroeconomic situation, and so on. Henceforth, the greater the gambler's fallacy, the more irrational the decision-making is, as investors will base investment decisions on probability rather than accurate or valid information.

VI.   Conclusions

Based on the questionnaire distribution results, the grouping of samples based on the study's criteria amounted to 110 respondents out of a total of 118 respondents. The findings of this study, herd behavior, anchoring, representativeness, availability, overconfidence, and gambler's fallacy have a positive effect on investment decision making of investors in Malang City. This suggests that investors in Malang City make irrational investment decisions. If this behavior is supposed, it will lead to losses because this investment decisions will not be based on technical or fundamental analysis.

VII. Limitation

The limitation of this study is that the independent variables, namely herd behavior, anchoring, representativeness, availability, overconfidence and gambler's fallacy, are able to explain the dependent variable (investment decision making) by 86%. There is a remaining 14% meaning that there are still other variables that can influence investment decision making for investors in Malang City but are not examined in this study such as loss aversion, regret, status quo, income, age, occupation, educational status, culture and so on.

VIII. Recommendations

Based on the existing limitations, it is hoped that future researchers will be able to include additional variables that were not included in this study. On the other hand, investors in Malang City must emphasize rational decision making in order to achieve the expected return and reduce the risk of the investment. Else, as an investor, it is critical to understand, investigate, and map various data sources objectively, accurately, and clearly through fundamental analysis, technical analysis, and other analysis that can support investment decisions.

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