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THE IMPACT OF AVAILABILITY BIAS AND REPRESENTATIVE BIAS ON INVESTMENT DECISIONS AND PERFORMANCE: THE ROLE OF FOMO AS AN INTERVENING VARIABLE

Muhammad Nizar[1] , Daljono[2]

[1,2] Master of Management, Faculty of Economics and Business, Diponegoro University
email: m.nizar.n@gmail.com, daljono.garong@gmail.com

ABSTRACT

This research starts at the root of the problem of investor irrationality in the capital market. A series of studies in the last decade show that investors tend to behave irrationally, and phenomena or anomalies are repeatedly found in the capital market or financial markets that are not in line with standard/traditional finance theory or conventional/orthodox economics theory. This research aims to determine the impact of availability bias, representative bias, and fear of missing out (FOMO) on investment decisions and investment performance, and to find out that FOMO can act as a mediating variable between these relationships. The population in this study were all investors who traded in the Indonesian capital market through brokerage houses in several cities in Indonesia, and the sample size was 116 respondents, using a purposive sampling technique. The data used is primary data, data collection techniques use questionnaires. Structural Equation Modeling (SEM) data analysis technique with the SmartPLS analysis tool. The research results show that availability bias has a positive and significant impact on investment decisions and investment performance. Representative bias has a negative and insignificant impact on investment decisions, but representative bias has a positive and significant impact on investment performance. FOMO has a positive and significant impact on investment decisions and investment performance. Availability bias and representative bias have a positive and significant impact on FOMO. FOMO partially mediates the relationship between availability bias towards investment decisions and investment performance, then representative bias towards investment performance, but FOMO fully mediates the relationship between representative bias towards investment decisions. The results of this research would contribute to the development of knowledge about behavioral finance and have theoretical and policy implications for Indonesian retail investors.

Keywords: Availability Bias, Representative Bias, Fear of Missing Out (FOMO), Investment Decisions, and Investment Performance

INTRODUCTION

This research assumes that investors can behave irrationally in the capital market. A series of studies in the last decade show that investors tend to behave irrationally, and anomalies are repeatedly found in the capital market or financial markets that are not in line with standard finance theory or conventional economics theory (Ritter, 2003). Some of the basic frameworks of standard finance are Modern Portfolio Theory (MPT) by Markowitz (1952), Capital Asset Pricing Model (CAPM) by Sharpe (1964), and Efficient Market Hypothesis (EMH) by Fama (1965).

However, the three standard/traditional finance theories above, namely MPT, CAPM, and EMH, are less able to explain several anomalies in the capital market (Baker et al., 2019). These phenomena include (1) the January effect (Pompain, 2006), (2) the weekday and weekend effect (Cross, 1973), (3) the January and monthly effects (Rozeff and Kinney, 1976), (4) the month change effect (Ariel, 1987), (5) the Ramadan effect (Al-Ississ, 2015), (6) the festival effects (Lakonishok and Smidt, 1988), (7) the internet phenomenon (Suriani, 2022), (8) several downfalls in capital markets (market crash) in 1929, 1987, 1998, 2008, 2015, and 2020, and (9) even the recent market bubble phenomenon, which is related to the FOMO (fear of missing out) phenomenon (Gupta and Shrivastava, 2022). Several market anomalies create market price movements that are not normal and tend to be extreme because they are influenced by investor behavior factors (Woo et al., 2010).

The anomalous phenomenon in the capital market above shows that (1) investors tend not to be completely rational and security prices tend not to reflect fair value; (2) investors tend not to have portfolio uniformity (expected level of profit and risk); and (3) investors tend to follow sentiments

that occur from the various phenomena above (market effects, market bubbles, and market crashes). From the various phenomena above, it can be seen that investors tend to be irrational in making investment decisions in the capital market (Kim and Ha, 2010). From this point of view, it is understandable to use a behavioral finance approach to understand gaps in financial standards.

Behavioral finance theory assumes that investors do not always act rationally when deciding on an investment. Irrational investor actions occur because of psychological factors in making decisions (Pompain, 2006). These investors' psychological factors make the market abnormal (market effects, market bubbles, and market crashes). Investors can panic buy or panic sell only based on information that is not completely and precisely available on the market, so that the decisions taken by investors become irrational (Ding et al., 2021). This irrational investor behavior is called behavioral bias.

Behavioral biases are described as tendencies toward errors in judgment or prediction (Mittal, 2022). Nofsinger (2005) explains that behavioral biases are caused by psychological factors, which can reduce investors' capacity to make measured investment decisions and also cause investors to misjudge potential risks. Behavioral biases consist of an investor's cognitive, emotional, and social factors that have the potential to influence investment decisions and performance.

Much research has been conducted on behavioral biases related to cognitive, emotional, and social issues. The first is that Jain et al. (2020) researched the influence of behavioral biases on investment decisions in eight aspects including availability bias and representative bias, which have a positive impact on investment decisions in Punjab, India. Second, Parveen et al. (2020) researched the influence of behavioral biases on investment decisions in two aspects, one of which is representative bias, which has a positive impact on investment decisions in Pakistan. Third, Tin and Hii (2020) researched the influence of behavioral biases on investment performance in four aspects including availability bias and representative bias, which have a positive impact on investment performance in Johor, Malaysia.

However, several studies below have found different results. First, Dangol and Manandhar (2020) explain the influence of behavioral biases on investment decisions, consisting of five aspects, including availability bias and representative bias, which have a negative impact on investor decisions in Nepal. Furthermore, Shah et al. (2018) researched the influence of behavioral biases on investment decisions, consisting of four aspects, including availability bias and representative bias, which have a negative impact on investor decisions in Pakistan. Third, research by ul Abdin et al. (2017) regarding the influence of behavioral biases on investment performance consists of four aspects, including availability bias and representative bias, which have a negative impact on investor performance in Pakistan.

Fourth, the results of a different study conducted by Rehan and Umer (2017) regarding the influence of behavioral biases on investment decisions consist of seven aspects, including representative bias, which has a positive impact on investor decisions, and availability bias, which has no impact on investor decisions in Pakistan. This shows that investors tend not to be influenced by the availability bias factor before selecting and assessing an investment opportunity.

Other research, such as that conducted by Gupta and Shrivastava (2022), examined the influence of behavioral biases on investment decisions consisting of three aspects, namely: fear of missing out (FOMO), loss aversion, and herd behavior. The results of his research state that these three variables have a positive impact on investment decisions in India. This research suggests examining the relationship of other behavioral biases to investment decisions with FOMO as a mediating variable for future research. The following in Table 1 is a summary of several differences in research results (research gaps).

This research sees a gap in the results of previous research regarding the significance results (positive or negative) between availability bias and representative bias on investment decisions and performance. This research also seeks to develop previous research on FOMO, which is still limited regarding the impact of the relationship between behavioral biases on investment decisions and performance. The scope of this research is limited to retail investor research data in Indonesia, which still has similarities with the objects of previous research countries. This research is expected to contribute knowledge to capital market stakeholders in Indonesia and to the development of behavioral finance theory in general.

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Table 1. Research Gap

No	Variable X	Variable Y	Research Gap	Author
1	Availability Bias	Investment Decisions	Significant Positive	Jain et al. (2020), Khan (2017), Ikram (2016)
			Significant Negative	Dangol & Manandhar (2020), Shah et al. (2018)
			Insignificant	Rehan & Umer (2017)
		Investment Performance	Significant Positive	Tin & Hii (2020), Siraji, M (2019), Alrabadi et al. (2018)
			Significant Negative	ul Abdin et al. (2017)
2	Representative Bias	Investment Decisions	Significant Positive	Jain et al. (2020), Parveen et al. (2020), Rehan & Umer (2017), Ikram (2016). Irshad et al. (2016), Toma, F.M. (2015)
			Significant Negative	Dangol & Manandhar (2020), Shah et al. (2018)
		Investment Performance	Significant Positive	Tin & Hii (2020), Siraji, M (2019), Alrabadi et al. (2018)
			Significant Negative	ul Abdin et al. (2017)
3	FOMO	Investment Decisions	Significant Positive	Gupta & Shrivastava (2022), Kaur et al. (2023)

Source: Various journal sources.

Based on the research background above in the form of phenomena and research gaps, this research formulates the problem, namely whether availability bias and representativeness bias have a significant positive or negative influence on investment decisions and performance through FOMO as a mediating variable. From the problem formulation, this research describes several pieces of literature that will produce the following hypothesis.

Literature Review

There are many theories and concepts that can be used to explain the relationship between behavioral biases and investment decisions. Among them are (1) bounded rationality theory by Simon (1955), (2) heuristics theory by Kahneman and Tversky (1974), (3) prospect theory by Kahneman and Tversky (1979), and (4) Thaler (1980). However, this research only focuses on availability bias, representative bias, and FOMO, which can influence investment decisions and performance, and FOMO acts as a mediating variable.

Investment Decisions and Performance

Investment is a series of asset-purchase processes aimed at harvesting greater future benefits. Investment performance is the result of income, profit, or return from a portfolio of investment assets that has an impact on the valuation side. The behavioral finance approach assumes that investment decisions are often irrational and have strong psychological factors (related to investors' mental development), caused by (1) psychological biases (Baker and Nofsinger, 2002) or behavioral biases (Shefrin, 2007), (2) fundamental heuristics (Baker and Nofsinger, 2002), (3) market anomalies (Ajmal et al., 2011), (4) bounded rationality (Pompain, 2006), and (5) imperfect information (Bikhchandani et al., 1992).

According to cognitive bias theory, investment decisions based on heuristics can cause individuals to participate in less rational decision-making (Baron, 1998; Bazerman, 1998). However, cognitive biases help individuals face difficult decisions with strong personal beliefs (Bazerman et al., 1984). Cognitive biases and heuristics, both of which are mental shortcuts, are used by decision-makers in complex and uncertain situations (Ritter, 2003) by reducing complexity (Barnes, 1984). According to Kahneman and Tversky (1974), because of these heuristics and cognitive biases, systematic errors occur, and as a result, decision results are affected (Barnes, 1984). A limited review of previous research on heuristics is discussed below.

Heuristics-Driven Bias

Heuristics are closely related to irrationality and unavoidable cognitive illusions (Piattelli-Palmerini, 1994). Heuristics are referred to as rules of thumb or mental shortcuts, which are used by financial practitioners (both individual and group level) in complex and uncertain situations to make simple and efficient decisions.

The literature reveals that when financial practitioners and business actors use heuristics, they eliminate rationality, intellectual, and mental efforts in a series of decision-making processes, causing a number of behavioral biases. Among these behavioral biases are availability bias and representative bias. This research measures the impact of availability bias and representative bias driven by heuristics (heuristic-driven bias) on decision-making and investment performance. A limited review of previous research on availability bias and representative bias driven by heuristics and their influence on decision-making and investment performance is discussed below.

Availability Bias, Investment Decisions, and Performance

Availability bias is a cognitive heuristic bias that arises when investors rely heavily on information that is easily obtained (based on experience) (Ngoc, 2014), namely when investors predict possibilities that will occur or appear only based on their memories or things they have previously known in accordance with experience (Brahmana et al., 2012; Kahneman & Tversky, 1974). There are four types of availability bias: the first is retrievability, the second is categorization, the third is the narrow range of experience, and the fourth is resonance.

Several researchers concluded that cognitive heuristic-driven bias has a significant positive relationship with investment management activities. Jain et al. (2020), which confirm that heuristic-driven biases such as representativeness, availability, overconfidence, and anchoring lead to investment decision-making in Punjab City, India. Ikram's (2016) research found that bias heuristics (overconfidence, representativeness, availability, and anchoring) have a positive relationship with the decisions of investors who actively trade in the Johor Malaysia capital market and on perceived market efficiency. This is reinforced by research by Khan (2017), which shows that availability bias from within investors has a positive impact on improving investor decisions.

Jain et al. (2020) also studied heuristic-driven bias and its influence on investor decisions in Punjab, India. The results of their research reveal that heuristic-driven biases such as availability and representative bias significantly positively cause investors to make irrational decisions. Tin & Hii (2020) attempted to highlight the consequences of heuristic-driven bias, namely availability, representativeness, overconfidence, and anchoring on the performance of each investor. Overall, their research results show that heuristics are the cause of stock market anomalies, resulting in irrational decision-making that positively influences investor performance in Johor Malaysia. After reviewing some of the relevant literature above, this research hypothesizes that availability bias has a positive effect on investment decision-making. Therefore, availability bias has a significant positive impact on investment decisions and performance.

H1a. Availability bias has a significant positive impact on investment decisions.

H1b. Availability bias has a significant positive impact on investment performance.

Representative Bias, Investment Decisions, and Performance

Representative bias is a cognitive heuristic bias that occurs when investors use mental shortcuts and mental stereotypes in investment decisions (Shefrin, 2005). Representative bias places too much trust in stereotypes and leads investors to make estimates that are inappropriate for the relevant situation (Shefrin, 2008). There are two types of representative bias: one is known as base rate neglect, and the second is known as sample size neglect. The consequence of heuristics-driven representative bias is that decision makers adopt forecasts based on small samples and improve decisions with simple classifications rather than very complex ones (Shah et al., 2018).

Several researchers concluded that cognitive heuristic-driven bias has a significant positive relationship with investment management activities. Starting from (1), Jain et al. (2020) concluded that investors in the city of Punjab, India, were significantly positively influenced by representative bias in capital market trading activities. (2) The results of research conducted by Parveen et al. (2020) show that investors in Pakistan are also influenced by representative bias in a significantly positive way in the investment decision-making process. (3) Tin & Hii (2020) revealed that heuristics-driven bias (availability-representative) has a significant positive influence on investors' investment performance in Johor Malaysia. (4) Ikram (2016) stated that representative bias has a significant positive effect on investment decisions made by Pakistani investors. This is reinforced by the research results of Rehan & Umer (2017), which show that heuristics (overconfidence bias, representative bias, and anchoring bias) have a significant positive effect on the decisions of investors who actively trade in the Pakistani capital market and on market efficiency. The results of these studies confirm that heuristic-driven biases, such as representativeness, availability, overconfidence, and anchoring, lead to irrational decision-making and have a positive

effect on investment decision-making. After reviewing some of the relevant literature above, this research hypothesizes that representative bias has a significant positive impact on investment decisions and performance.

H2a. Representative bias has a significant positive impact on investment decisions.
H2b. Representative bias has a significant positive impact on investment performance.

FOMO, Investment Decisions, and Performance

Psychologically, individuals affected by FOMO will see, read, or learn about other people's actions and feel anxious and may also feel lost if they do not receive the latest news (Abel et al., 2016). FOMO investors are investors who are under the influence of the desire to obtain higher profits in the future and may feel they are missing out on return opportunities if they do not take immediate action (Dennison, 2018; Kang et al., 2020). Gupta and Shrivastava (2022) found in their research that investors who are affected by FOMO, herd bias, and loss aversion bias can influence investor decisions in India.

FOMO can also be said to be a cognitive-heuristic-driven bias. FOMO is part of heuristics because it equally influences the decision-making process by taking shortcuts (decision-making shortcuts by Hussain and Oestreicher, 2018). This research hypothesizes that FOMO bias has a positive effect on irrational decision-making. So FOMO has a significant positive impact on investment decisions and performance.

H3a. FOMO has a significant positive impact on investment decisions.
H3b. FOMO has a significant positive impact on investment performance.

The Mediating Role of FOMO

Past research conducted in the context of behavioral finance and investment decisions provides evidence that there are several variables that are proven to mediate the relationship between the two. Several researchers have studied the role of (1) risk mediation and various risk attributes that mediate this relationship (Sadiq and Khan, 2019; Raheja and Dhiman, 2019; Saurabh and Nandan, 2018; Hunjra and Rehman, 2016; Khan, 2014; Riaz et al ., 2012; Sitkin and Weingart, 1995), then (2) mediation of behavioral finance and financial strain (Falahati et al., 2012), (3) judgment and decision-making biases (Lakey et al., 2008), (4)) mediation of attitude towards the relationship between behavioral biases and investment decisions (Ali, 2011; Jamal et al., 2015), and (5) financial literacy and financial self-efficacy were also investigated as mediating factors (Akhtar and Das, 2019; Ameliawati and Setiyani , 2018).

With the same pattern of thinking, FOMO was chosen as a mediating variable in this research. Researchers in the past have not studied the mediating role of FOMO on the relationship between availability bias and representative bias with investment decisions and performance. Thus, the findings of this research will be very useful in the development of behavioral finance theory, especially regarding FOMO. After reviewing some of the relevant literature above, this research hypothesizes that availability bias and representative bias have a significant positive impact on FOMO in the context of Indonesian capital market investors.

H4. Availability bias has a significant positive impact on FOMO.
H5. Representative bias has a significant positive impact on FOMO.

Researchers in the past have identified a relationship between FOMO and investors using herd behavior and aversion in the form of greed. Dennison (2018), in his research, determined FOMO as a significant influence that leads investors to make hasty investment decisions in order to follow their peers and neighbors. He also pointed out that these investors are very driven by the desire to get more returns quickly and thereby hopefully avoid future losses. Kang et al. (2020) and Tarjanne (2020) support the relationship between FOMO and herd behavior.

When investors decide to invest in a certain industry because they see their friends and colleagues succeed in getting returns in that industry, then the investor is indicated to have FOMO in their investment decision. The spread of FOMO leads to herd behavior, and this continues to push up security prices (Hershfield, 2020). Likewise, the findings of Gupta and Shrivastava (2022) have proven that there is a partial or complementary mediating role for FOMO in the herd and loss aversion bias relationship in the decisions of Indian capital market investors.

After reviewing some of the relevant literature above, this research hypothesizes that FOMO can mediate the relationship between availability bias and representative bias on investment decisions and performance.

H6a. FOMO mediates the relationship between availability bias and investment decisions.
H6b. FOMO mediates the relationship between availability bias and investment performance.
H7a. FOMO mediates the relationship between representative bias and investment decisions.

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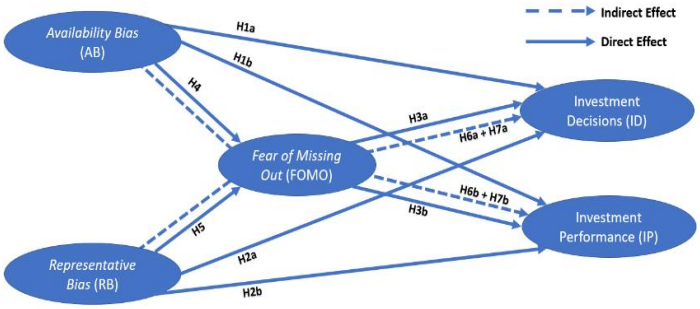
H7b. FOMO mediates the relationship between representative bias and investment performance.

Figure 1. Research Model



RESEARCH METHODS

The object of this research is Indonesian retail stock investors, whose aim is to obtain primary data. The target population in this study is all Indonesian retail capital investors in various cities in Indonesia, the number of which is quite large and cannot be measured with certainty. So, samples are needed to be used as subjects in this research. The sampling technique is non-probability sampling, or non-random sampling, which is a way of taking samples without providing identical opportunities or moments for elements or all members of the population selected as samples. The sample selection technique is purposive sampling based on certain measurements or studies (Sugiyono, 2019). The measures used include stock investors with more than two years of experience and a good understanding of the capital market. This research distributed more than 200 questionnaires using Google Form as a tool for collecting samples. Google Form is a tool that can support collecting questionnaires online and using statements.

The operational definition of variables is based on a set of variables used in research. Some of the variables in this research are: (1) availability bias (AB), namely as an independent variable (X1); (2) representative bias (RB), namely as an independent variable (X2); and (3) investment decisions (ID), namely as a dependent variable. (Y1), (4) investment performance (IP), which is the dependent variable (Y2), and (5) fear of missing out (FOMO), which is the intervening or mediating variable (Z). The following are each of these indicators in Table 2.

Table 2. Operational Variables

Variables	References
Availability bias (AB)	Dangol dan Manandhar (2020); Shah et al. (2018); Rasheed et al. (2018); Nada dan Moa'mer (2013)
Representative bias (RB)	Dangol dan Manandhar (2020); Shah et al. (2018); Rasheed et al. (2018); Nada dan Moa'mer (2013)
Fear of missing out (FOMO)	Gupta dan Shrivastava (2022)
Investment Decisions (ID)	Dangol dan Manandhar (2020); Rasheed et al. (2018)
Investment Performance (IP)	Ahmad dan Shah (2022); ul Abdin et al. (2017); Waweru (2008); Luong dan Thu Ha (2011)

Source: Various Journal Sources.

Descriptive analysis uses data and samples that have been obtained in current conditions without the need for in-depth analysis or making general conclusions. This is used to provide an overview of the topic being considered (Sugiyono, 2019). A descriptive analysis of respondents will provide an overview of these respondents in terms of gender, age, education, occupation, and income. Descriptive analysis of the variable AB consists of 6 statements, RB consists of 6 statements, FOMO consists of 6 statements, ID consists of 6 statements, and IP consists of 4 statements (for references to the statements of each variable, see Table 2.).

The data analysis method that will be applied in this research is Structural Equation Modeling-Partial Least Square (SEM-PLS), which is included in the Structural Equation Modeling (SEM) method group. Structural Equation Modeling-Partial Least Square (SEM-PLS) analysis will be carried out using SmartPLS software version 3.2.9.

In SmartPLS, there are testing stages that will be carried out (Hair et al., 2014; Ghozali, 2016), namely the first stage, the outer model test,

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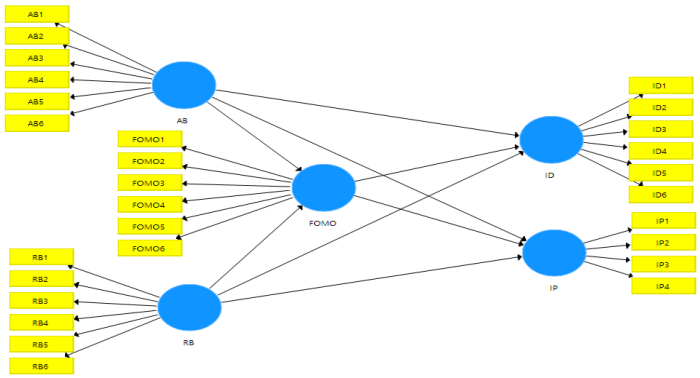
which includes convergent and discriminant validity tests, as well as construct reliability tests. The conditions are loading factor indicator> 0.7, AVE reflective construct > 0.5, the square root of AVE must be greater than the correlation between constructs, Cronbach's Alpha, rho A, and composite reliability > 0.7. Discriminant validity test using the Fornell-Larcker criterion.

The second stage is to test the goodness of fit model, which includes model fit SRMR < 0.10, inner VIF value < 5, and q square predictive relevance (to see the power of the model predictions). The third stage is inner model testing, which includes significance tests of p value < 0.05 and t value > 1.96 on 5,000 bootstrap samples, f square and r square.

The structural model developed is as follows:

Figure 2. Structural Model



RESULTS AND DISCUSSION

This research used respondents, namely investors who trade in the Indonesian capital market. The questionnaire was distributed via Google Form with the following link: https://forms.gle/nv9xmXHXCHXbR5Ev7 and from the distribution of the questionnaire, a total of 116 answers were collected from respondents, which were used as the sample size. The analysis of the respondent's identity is reflected in the following Table 3:

Table 3. Respondents' Profile

Demographic Variables	Categories	Frequency	Percentage (%)
Sex	Male	87	75
	Female	29	25
Age	21-30	6	5,2
	31-40	74	63.8
	41-50	29	25
	>50	7	6
Education	High School	2	1,7
	Associate's Degrees	5	4.3
	Bachelor's Degrees	101	87.1
	Master's Degrees	8	6.9
Occupation	Private Sector Employees	41	35.3
	Entrepreneurs	14	12.1
	State-Owned Company Employees	59	50.9
	Government Employees	1	0.9
	Other Professions	1	0.9
Monthly Income	<IDR 50 million	96	82.8
	IDR 50-100 million	12	10.3
	IDR 101-300 million	6	5.2
	>IDR 301 million	2	1.7

Source: Author's Calculation, 2023

Out of the 116 respondents, 75% were male and 25% were female investors. Sixty-three-point-eight percent of the respondents were from 31–40 age groups, while 5.2%, 25%, and 6% were

from 21–30, 41–50, and above 50 age groups. Around 87.1% of respondents had bachelor's degrees, while 1.7%, 4.3%, and 6.9% had high school, associate's degrees, and master's degrees. About 50.9% of respondents work as state-owned company employees, while 35.3%, 12.1%, 0.9%, and 0.9% work as private sector employees, entrepreneurs, government employees, and other professions. About 82.8% of the respondents had a monthly income of less than IDR50 million, compared to 10.3% in the income group of IDR50 million to IDR100 million. The remaining 5.2% and 1.7% of respondents earned between IDR101 million and IDR300 million and more than IDR301 million per month, respectively.

The description of the variables is used to determine respondents' perceptions about the variables AB, RB, FOMO, ID, and IP. The results of the variable description analysis were reviewed based on the frequency of respondents' answers to each statement item. Descriptive analysis of these variables is expressed at various scale levels as follows:

$$RS = \frac{m - n}{b}$$

$$RS = \frac{6 - 1}{6} = 0.83$$

Information:
RS = Range (level) of scale
m = Maximum score value on the scale
n = Minimum score value on the scale
b = Total categories or used

Thus, the scale categories can be determined as follows:
1.00 – 1.83 = Strongly Disagree
1.84 – 2.67 = Disagree
2.68 – 3.51 = Disagree
3.52 – 4.35 = Quite Agree
4.36 – 5.19 = Agree
5.20 – 6.00 = Strongly Agree

The results of data processing in this research related to research variable statistics can be presented in the following tables.

Table 4. Descriptive Analysis

Variables	Indicators	Min	Max	Modus	Mean
Availability Bias (AB)	I prefer to sell stocks when the composite index is downward trend (AB1).	1	6	4	4.02
	I prefer to buy stocks when the composite index is upward trend (AB2).	1	6	4	3.88
	I prefer to buy local stocks rather than international stocks because local stock information is more widely available (AB3).	3	6	5	4.86
	I prefer to buy stocks that are recommended by close friends or relatives (AB4).	1	6	4	4.34
	I prefer to buy local stocks rather than trading international stocks (AB5).	1	6	5	4.87
	I prefer to buy stocks that are recommended by financial experts or stock experts (AB6).	3	6	5	5.10
				Mean	4.51
Representative Bias (RB)	I avoid buying stocks that have performed poorly in the past (RB1).	2	6	4	4.69
	I prefer to buy stocks that have performed well in the past because I believe that good performance will continue in the future (RB2).	2	6	5	4.76
	I prefer to buy stocks that have good fundamentals (consistent earnings growth in the past) (RB3).	3	6	6	5.15
	I prefer to buy stocks that are doing well in the local composite index rather than stocks that will perform poorly in the near future (RB4).	2	6	4	4.64
	I definitely check the past performance of a stock before deciding to buy it (RB5).	3	6	5	5,03
	I use trend analysis before deciding to buy stocks (RB6).	2	6	5	4,92
				Mean	4.87
Fear of Missing Out	I feel uncomfortable if I don't immediately hear the	2	6	5	4.59

(FOMO)	latest news or news about the stocks I own (FOMO1).				
	I'm worried if I don't know the future corporate and business plans of the stocks that I currently own (FOMO2).	1	6	4	4.57
	I want to immediately find out the trend of the stocks I currently own (FOMO3).	3	6	5	4.90
	I feel anxious when I cannot check my current stock portfolio (FOMO4).	2	6	5	4.97
	I would feel disappointed if I lost the opportunity to buy or own stocks offered by other investors (FOMO 5).	2	6	4	4.42
	I feel afraid of being the last to know about news that is relevant to the stock portfolio that I own (FOMO 6).	2	6	5	4.60
				Mean	4.68
Investment Decisions (ID)	I trust my inner or heart before deciding to buy a stock (ID1).	2	6	4	4.43
	The stocks I bought were good stocks, according to my feelings (ID2).	2	6	5	4.51
	I buy and sell stocks based on instinct (ID3).	1	6	4	3.98
	I sold a stock that I felt was bad (ID4).	1	6	4	3.98
	I buy and sell stocks using intuition (ID5).	2	6	4	4.09
	I buy and sell stocks based on my feelings rather than logical or rational reasons (ID6).	1	6	4	3.60
				Mean	4.10
Investment Performance (IP)	I feel satisfied with the returns from my stock investment portfolio recently (IP1).	3	6	5	4.76
	I feel confident that my recent stock portfolio returns are at least the same, better, or higher than the average return given by the market or local composite index (IP2).	3	6	4	4.61
	I feel satisfied with the results of my recent stock investment decisions (including buying, selling, stock selection, and determining stock trading volume) (IP3).	3	6	5	4.76
	I feel satisfied with the results of my stock investment in the local composite index because the results are in accordance with my financial planning needs recently (IP4).	3	6	5	4.86
				Mean	4.75

Source: Author's Calculation, 2023.

Table 3 shows that the average AB response index value is 4.51 (agree or high category). The AB6 indicator has the highest average value, namely 5.10 (agree), and AB2 has the lowest average value, namely 3.88 (quite agree). The average RB response index value is 4.87 (agree or high category). The RB3 indicator has the highest average value, namely 5.15 (agree), and RB4 has the lowest average value, namely 4.64 (agree). The average FOMO response index value is 4.68 (agree or high category). The FOMO4 indicator has the highest average value, namely 4.97 (agree), and FOMO5 has the lowest average value, namely 4.42 (agree).

The average ID response index value is 4.10 (quite agree or quite high category). The ID2 indicator has the highest average value, namely 4.51 (agree), and ID6 has the lowest average value, namely 3.60 (quite agree). The average IP response index value is 4.75 (agree or high category). The IP4 indicator has the highest average value, namely 4.86 (agree), and IP2 has the lowest average value, namely 4.61 (agree).

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The following are the results of the convergent validity testing, which are presented in Table 5:

Table 5. Convergent Validity Testing

Variables	Indicators	Loading	CR	CA	rho A	AVE
Availability Bias (AB)	AB1	0.717	0.881	0.838	0.842	0.552
	AB2	0.748				
	AB3	0.765				
	AB4	0.718				
	AB5	0.762				
	AB6	0.746				
Representative Bias (RB)	RB1	0.782	0.924	0.902	0.906	0.671
	RB2	0.811				
	RB3	0.812				
	RB4	0.775				
	RB5	0.869				
	RB6	0.861				
Fear of Missing Out (FOMO)	FOMO1	0.876	0.920	0.895	0.901	0.657
	FOMO2	0.778				
	FOMO3	0.833				
	FOMO4	0.846				
	FOMO5	0.733				
	FOMO6	0.790				
Investment Decisions (ID)	ID1	0.790	0.929	0.907	0.916	0.686
	ID2	0.753				
	ID3	0.894				
	ID4	0.853				
	ID5	0.911				
	ID6	0.753				
Investment Performance	IP1	0.853	0.938	0.911	0.912	0.790
	IP2	0.900				
	IP3	0.904				
	IP4	0.898				

Notes: CR (Composite Reliability), CA (Cronbach's Alpha)
Source: Author's Calculation, 2023.

The loading factor value for each variable indicator is > 0.70. This result means that all indicators used for AB, RB, FOMO, ID, and IP can be considered valid. Reliability analysis of Cronbach's Alpha, Composite Reliability, and rho A values for each AB, RB, FOMO, ID, and IP variable is > 0.70. These results indicate that each variable is considered reliable and thus meets the requirements to be used as a research object. The analysis results show that the Average Variant Extracted (AVE) value for each AB, RB, FOMO, ID, and IP is > 0.5. These results mean that each measure of each variable is considered valid.

The following is Table 6 regarding discriminant validity testing using the Fornell-Larcker Criterion, which is as follows:

Table 6. Discriminant Validity Testing Using Fornell-Larcker Criterion

Variables	AB	FOMO	ID	IP	RB
AB	0.743				
FOMO	0.726	0.811			
ID	0.546	0.544	0.828		
IP	0.694	0.748	0.538	0.889	
RB	0.707	0.763	0.447	0.722	0.819

Source: Author's Calculation, 2023.

Table 6 shows that all the root values of the AVE (Fornell-Larcker criterion) for each variable are greater when compared to the correlation values with other variables. This can be taken as an example from the Fornell-Larcker criterion value for the AB variable of 0.743, which is greater than the correlation value with other variables. This is also shown in each of the RB, FOMO, ID, and IP variables. This means that the conditions for the discriminant validity of the model have been met. The following Table 7 is the result of the goodness-of-fit model:

Table 7. Model_Fit Results

Model_Fit	Saturated Model	Estimated Model
SRMR	0,071	0,073

Source: Author's Calculations, 2023.

The Model_Fit results show that the SRMR (standardized root mean square residual) value for both the saturated model and the estimated model is 0.071 and 0.073. This value is less than 0.10, so it can be concluded that the resulting model is fit. The following Table 8 shows the results of the inner VIF value testing:

Table 8. Inner VIF Values

Variables	FOMO	ID	IP
AB	1.998	2.401	2.401
RB	1.998	2.710	2.710
FOMO		2.870	2.870

Source: Author's Calculations, 2023.

The results of the inner VIF values show that each independent variable used in each model has a VIF value smaller than 5. This means that there is no strong correlation between the independent variables used in the first, second, and third models, so it is concluded that all models result in no multicollinearity. The following is Table 9 regarding q square to measure the relevant predictive value.

Table 9. Q Square

Variables	SSO	SSE	Q^2 (=1-SSE/SSO)
AB	696.000	696.000	
FOMO	696.000	405.922	0.417
ID	696.000	534.414	0.232
IP	464.000	235.699	0.492
RB	696.000	696.000	

Source: Author's Calculations, 2023.

The Q-Square values for each of the first, second, and third models are 0.417, 0.232, and 0.492, where these values are greater than 0, so it can be said that the three models produced have a relevant predictive value or could predict well.

Next, below is Table 10 regarding the f square and Table 11 regarding the r square.

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Table 10. F Square

Variables	FOMO	ID	IP
AB	0.201	0.071	0.060
RB	0.356	0.011	0.078
FOMO		0.059	0.131

Source: Author's Calculations, 2023.

The influence of AB on FOMO and the influence of RB on FOMO are included in the moderate influence, considering the value is between 0.15 and 0.35. The influence of AB on ID, the influence of FOMO on ID, the influence of AB on IP, the influence of RB on IP, and the influence of FOMO on IP can be included in the weak influence category, considering that the values are between 0.02 and 0.15, while the influence of RB on IP has no effect because the value is lower than 0.02.

Table 11. R Square

Variables	R Square	R Square Adjusted
FOMO	0.652	0.645
ID	0.345	0.327
IP	0.637	0.627

Source: Author's Calculations, 2023.

The r square value of the first model is 0.652. This means that AB and RB can explain 65.2% of the variation in the FOMO variable, while the remaining 34.8% of the variation in the FOMO variable is expressed by other variables, which are not the focus of this research. The r square value shows that the first model is moderate.

The r square value of the second model is 0.345. This means that AB, RB, and FOMO can explain 34.5% of the variation in the ID variable, while the remaining 65.5% of the variation in the ID variable is explained by other variables that are not the focus of this research. The r square value shows that the second model is moderate.

The r square value of the third model is 0.637. This means that AB, RB, and FOMO can explain 63.7% of the variation in the IP variable, while the remaining 36.3% of the variation in the IP variable is explained by other variables that were not studied. The r square value shows that the third model is moderate.

The full structural model obtained based on processing results using SmartPLS was shown in Figure 3 below:

Figure 3. Full Structural Model

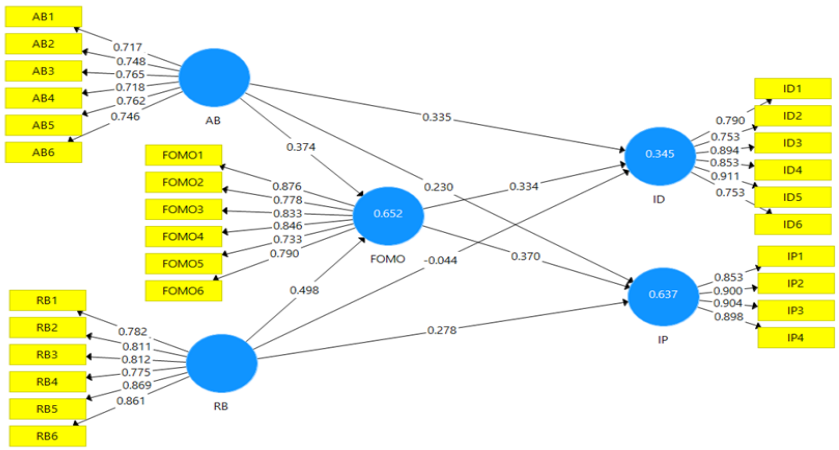

Table 12. Hypothesis Testing

Hypothesis	Relationship	Std. β	t value	p value	Confidence Interval	Supported
H1a	AB -> ID	0.335	2.973	0.003	0.107, 0.542	Yes
H1b	AB -> IP	0.230	2.161	0.031	0.024, 0.448	Yes
H2a	RB -> ID	-0.044	0.366	0.714	-0.273, 0.191	No
H2b	RB -> IP	0.278	2.038	0.042	0.018, 0.549	Yes
H3a	FOMO -> ID	0.334	2.695	0.007	0.075, 0.570	Yes
H3b	FOMO -> IP	0.370	2.631	0.009	0.068, 0.613	Yes
H4	AB -> FOMO	0.374	4.404	0.000	0.199, 0.535	Yes
H5	RB -> FOMO	0.498	5.718	0.000	0.323, 0.673	Yes
H6a	AB -> FOMO -> ID	0.125	2.601	0.009	0.027, 0.218	Yes (Partially)
H6b	AB -> FOMO -> IP	0.138	2.387	0.017	0.025, 0.254	Yes (Partially)
H7a	RB -> FOMO -> ID	0.166	2.182	0.029	0.034, 0.340	Yes (Fully)
H7b	RB -> FOMO -> IP	0.184	2.426	0.015	0.037, 0.336	Yes (Partially)

Source: Author's Calculation via Bootstrapping, conducted through SmartPLS, 2023.

AB has a significant positive impact on ID, IP, and FOMO. AB -> ID has a p value < 0.05, t value > 1.96, and β = 0.335, which means it supports **H1a**. AB -> IP has a p value < 0.05, t value > 1.96, and β = 0.230, which means it supports **H1b**. AB -> FOMO has a p value < 0.05, t value > 1.96, and β = 0.374, which means it supports **H4**.

RB has no positive and insignificant impact on ID, but RB has a positive and significant impact on IP and FOMO. RB -> ID has a p value > 0.05 and β = -0.044, even though the t value > 1.96, which means it does not support **H2a**. RB -> IP has a p value < 0.05, t value > 1.96, and β = 0.278, which means it supports **H2b**. RB -> FOMO has a p value < 0.05, t value > 1.96, and β = 0.498, which means it supports **H5**.

FOMO has a significant positive impact on ID and IP. FOMO -> ID has a p value < 0.05, t value > 1.96, and β = 0.334, which means it supports **H3a**. FOMO->IP has a p value < 0.05, t value > 1.96, and β = 0.370, which means it supports **H3b**.

FOMO partially mediates the relationship between AB -> ID, AB -> IP, and RB -> IP. AB -> FOMO -> ID has p value <0.05, t value > 1.96, and β = 0.125, which means it supports **H6a**. AB -> FOMO -> IP has p value <0.05, t value > 1.96, and β = 0.138, which means it supports **H6b**. RB -> FOMO -> IP has p value <0.05, t value > 1.96, and β = 0.184, which means it supports **H7b**. However, FOMO fully mediates the relationship between RB -> ID. RB -> FOMO -> ID has p value <0.05, t value > 1.96, and β = 0.184, which means it supports **H7a**.

Discussion of the impact of AB and RB on FOMO, then the impact of AB, RB, and FOMO on ID and IP, as well as the role of FOMO as a mediator between AB-RB and ID-IP, is as follows.

Availability bias (AB) has a significant positive impact on investment decisions (ID). The results of this research support the results of research conducted by Jain et al. (2020), Khan (2017), and Ikram (2016), but do not support the results of research by Dangol & Manandhar (2020) and Shah et al. (2018), which stated that AB has a significant negative impact on ID, and do not support the results of Rehan's research and Umer's (2017), which state that AB does not have a significant impact but is positive on ID.

Availability bias (AB) has a significant positive impact on investment performance (IP). The results of this research support the results of research conducted by Tin & Hii (2020), Siraji, M. (2019), and Alrabadi et al. (2018), but do not support the results of research by ul Abdin et al. (2017), which states that AB has a significant negative impact on IP.

Representative bias (RB) has no significant and negative impact on investment decisions (ID). The results of this study do not support the results of research by Jain et al. (2020), Parveen et al. (2020), Rehan & Umer (2017), Ikram (2016), Irshad et al. (2016), and Toma, F.M. (2015), which state that RB has a significant positive impact on ID, and do not support the results of research by Dangol & Manandhar (2020) and Shah et al. (2018), which state that RB has a significant negative impact on ID.

Representative bias (RB) has a significant positive impact on investment performance (ID). The results of this research support the results of research by Tin & Hii (2020), Siraji, M. (2019), and Alrabadi et al. (2018), but do not support the results of research by ul Abdin et al. (2017), which states that RB has a significant negative impact on ID.

Fear of missing out (FOMO) has a significant positive impact on investment decisions (ID). The results of this research support the results of research by Gupta & Shrivastava (2022) and Kaur et al. (2023).

Fear of missing out (FOMO) has a significant positive impact on investment performance (IP); availability bias (AB) has a significant positive impact on fear of missing out (FOMO); representative bias (RB) has a significant positive impact on fear of missing out (FOMO); fear of missing out (FOMO) plays a role in partially mediating the relationship between availability bias (AB) and investment decisions (ID); fear of missing out (FOMO) plays a role in partially mediating the relationship between availability bias (AB) and investment performance (IP); Fear of missing out (FOMO) plays a role in mediating the relationship between representative bias (RB) and investment decisions (ID) fully, and fear of missing out (FOMO) plays a role in mediating the relationship between representative bias (RB) and partial investment performance (IP). The results of this research contribute to academic discoveries about the variables studied, specifically the impact of the direct relationship between the variables AB-FOMO and RB-FOMO, which is then related to the impact of the indirect relationship between AB-FOMO-ID, AB-FOMO-IP, RB-FOMO-ID, and RB-FOMO-IP.

CONCLUSIONS, IMPLICATIONS, LIMITATIONS, AND FUTURE RESEARCH AGENDA

According to the research findings, availability bias has a positive and significant effect on investment decisions and performance. Representative bias has a negative and insignificant impact on investing decisions, but a positive and significant impact on investment performance. FOMO has a significant positive impact on investing decisions and performance. FOMO is impacted positively and significantly by availability bias and representative bias. FOMO partially mediates the association between availability bias and investment performance, then representative bias and investment performance, whereas FOMO fully mediates the relationship between representative bias and investment decisions.

It is known that the variables that have the most significant positive impact on ID are AB, FOMO, and RB, which are known to be insignificant. Regarding the impact of AB on ID, it is known that investors prefer to invest domestically rather than abroad because the information is easily accessible, so it can be seen that in information that is easy to obtain, there is a role for financial experts or stock experts who often refer to stocks' choice of domestic index for investors. If these financial experts or stock experts had referred to non-domestic stocks, the results would have been different. Therefore, investors should re-examine the references for domestic stocks presented by financial experts or stock experts. The stock reference must be revalidated and matched with the company's financial reports, considering future prospects and risks. Then, investors can also compare the results of stock reference presentations between financial experts and stock experts so that more moderate conclusions can be drawn. For this reason, investors must absorb as much information as possible from competent parties in order to minimize future risks.

Regarding the impact of FOMO on ID, it is known that the feeling of anxiety, worry, and discomfort felt by investors regarding their investment portfolio is exacerbated by irrational decision-making, which will increase the feeling of anxiety, worry, and discomfort itself. Therefore, investors should decide on all forms of investment on rational grounds to be free from feelings of anxiety and so on. In order to make rational decisions, investors must understand the ins and outs of the company whose stocks they want to buy. Both in terms of fundamentals, technical risks, and future prospects. An investor must diligently improve his investment abilities at all times so that he has strong confidence, no longer hesitates, and is afraid of future losses.

It is known that the variables with the most significant positive impact on IP are FOMO, RB, and finally AB. Regarding the impact of FOMO on IP, it is known that even though the foundation of the stock portfolio owned is not strong, causing feelings of discomfort and worry among investors who own it, investors still feel satisfied with the results of their investment performance, which is also in accordance with their financial planning needs. It could be that FOMO investors are still enjoying results that are in line with their estimates, even though that satisfaction is based on feelings of anxiety, worry, or discomfort. Of course, the results will be more satisfying if they are not accompanied by feelings of anxiety, worry, or discomfort. Therefore, continuing the researcher's suggestion on the previous page, investors should improve their investment abilities at all times so that they have strong beliefs, are no longer doubtful, and are afraid of future losses.

Regarding the impact of RB on IP, it is known that investors are satisfied with their investment results, which are in accordance with planning, because they contain stocks that have had good fundamentals in the past. Stocks that had good fundamentals in the past may not necessarily be good in the future. There are various possibilities that investors should be aware of. Investors must always check their performance developments, whether quarterly, semi-annually, or annually. The aim is that if it is known that there are things that will not be good in the future, investors can anticipate this by rebalancing their portfolio with other stocks that will perform better. Investors can look at other stocks in similar industries that have better performance.

It is known that the presence of FOMO in the indirect relationship between AB-FOMO-ID, AB-FOMO-IP, RB-FOMO-ID, and RB-FOMO-IP can weaken the relationship between them. This is caused by investors simply buying stock recommendations without examining the fundamentals, prospects, and risks in the future more carefully. This happens because investors may have limited abilities in terms of proper stock analysis. So, as suggested above, investors must be rational before investing, use common sense, financial ratios, and predictive ability for future potential and risks, and there is no harm in taking references from financial experts or stock experts and matching them directly to stock financial reports and comparing them with the analysis between financial experts and stock experts themselves.

This research is clearly not without limits. The goal for the future is that other scholars working on the same issue will enhance and perfect their work. The following research limitations have been summarized based on the findings of this study:

First, the number of respondents for this study is still restricted to a few places in Indonesia. Second, the factors investigated continue to be confined to availability bias, representative bias, fear of missing out, investment decisions, and performance in investments. Many more variables, particularly those connected to behavioral finance, need to be investigated further in the future. Third, men and employees of state-owned companies tend to dominate the demographic composition of respondents, with nearly identical demographics.

Based on the research's limitations, it is hoped that future research will improve and refine the findings. So, here are a few recommendations that might be incorporated into future research agendas on related topics:

First, future research should be more robust regarding respondent demographics, which are not just dominated by males and identical occupations, such as education level, monthly salary, flying hours in the capital market, and so on. The number of respondents must be raised with an equitable distribution throughout Indonesia to derive significant results.

Second, future research could explore the impact of additional behavioral finance factors on investing decisions and performance using the fear of missing out as a mediator or moderator. As an outcome, it is possible to investigate the significance of the impact and the role that the fear of missing out plays in mediating or moderating this link.

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