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MBTI personality type and financial behavioral bias

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ABSTRACT

Studies on behavioral financial theory found that the individual investment decision process involves many behavioral biases. This behavioral bias can cause investors to deviate from rational decision-making. The purpose of this study is to see whether there is an influence of gender factors on financial behavioral biases in this study, namely overconfidence bias, herding, and regret aversion. Then this study also aims to see whether MBTI personality types influence financial behavioral biases in this study, namely overconfidence bias, herding, and regret aversion. This study aims to identify the relationship between gender variables, MBTI personality assessments, and financial behavioral biases in investors in Indonesia. To conduct this study, a structured questionnaire was given to 230 respondents at the researcher.populix.co.id as the primary data collection page that includes questions related to gender variables, overconfidence bias, herding bias, regret aversion bias, and MBTI personality assessment. Of the 230 respondents, 182 respondents were accepted and met the analysis requirements. The findings obtained were that the gender factor that had a significant effect on this study was only on overconfidence bias while herding and regret aversion did not have a significant effect. Then the MBTI personality type significantly influenced the three financial behavior biases.

Contribution/ Originality: The contribution of this research is to provide findings that the 16 MBTI personalities have different tendencies in each financial behavior bias. The most dominant contribution is that this is the first time this research has been carried out in Indonesia.

1. INTRODUCTION

Financial markets in Indonesia rely on decision-making regarding available information to resolve two different levels of uncertainty. First, this is caused by the unavoidable information asymmetry at the time of decision-making. Second, since the future is essentially unknown (Gakhar & Prakash, 2017). Kahneman and Tversky (2013) prospect theory, one of the behavioral financial theories, argues that investors make irrational judgments because they are affected by their perceptions and fail to consider all relevant facts (Adil, Singh, & Ansari, 2022). Prospect theory further argues that when given a choice, people prefer gain over loss and that their judgments are impacted by the likelihood of gain and loss (Emami, Welsh, Ramadani, & Davari, 2020). Madaan and Singh (2019). According to Ishfaq, Nazir, Qamar, and Usman (2020) investors, in other words, base their decisions on predicted rewards rather than expected losses. Traditional financial theories such as the efficient market hypothesis (Fama, 1970) arbitrage theory by Modigliani and Miller (1958) and modern portfolio theory by Markowitz (1952) are at variance with this behavioral financial theory. These theories make the assumption that investors act rationally and base their

decisions on available information. Numerous behavioral biases are present in the decision-making process while making individual investments, according to literature reviews on behavioral financial theory. Among the most prevalent ones are herding bias, which is the propensity to make decisions by following the decisions of many people, regret aversion bias, which is the inclination to behave in order to avoid making mistakes, and overconfidence bias, which is the tendency to overestimate one's knowledge and talents. Investors might deviate from making logical decisions as a result of this behavioral bias, which they should take into consideration as a significant element affecting their decision-making (Adil et al., 2022; Baker, Kumar, Goyal, & Gaur, 2019; Gakhar & Prakash, 2017; Kumar & Goyal, 2015; Mehtab & Nagaraj, 2019; Moradi, Mostafaei, & Meshki, 2013).

The decision-making process in investing according to behavioral finance theory is based on a mixture of psychological, personality, demographic, and market conditions factors (Adil et al., 2022; Ahmad & Shah, 2020; Ishfaq et al., 2020; Menyeh, 2021). However, among all factors, a person's personality is considered the most significant factor influencing an individual's financial behavior (Fung & Durand, 2014). Personality is considered to have a long history in psychology, and each investor has a different personality, which can affect exposure to behavioral biases in different ways (Fung & Durand, 2014). In this study, the study specifically used the MBTI questionnaire in predicting investor personality. The Myers-Briggs Type Indicator (MBTI) is a self-report questionnaire designed to determine psychological preferences in how individuals view the world around them and make decisions. The MBTI sorts several psychological differences into four opposing pairs, or "dichotomies", resulting in 16 possible psychological types. The four pairs of opposing traits are Introversion (I) or Extroversion (E), Thinking (T) or Feeling (F), Sensing (S) or Intuition (N), and Perception (P) or Judging (J). If someone with Extrovert, Sensing, Thinking, or Judging preferences is called ESTJ. There are a total of 16 possible “types” based on unique combinations of preferences, namely ISTJ, INFJ, INTJ, ENFJ, ISTP, ESFJ, INFP, ESFP, ENFP, ESTP, ESTJ, ENTJ, INTP, ISFJ, ENTP, ISFP. The literature on financial behavioral biases and MBTI personality types is According to Moradi et al. (2013) there is a relationship between behavioral biases including availability and conservative bias among investors on the Tehran Stock Exchange and MBTI personality types. Gakhar and Prakash (2017) It is evident that the majority of investors exhibit balanced or conservative investing strategies. An important aspect determining an investor's propensity for taking risks is their MBTI personality type. Mehtab and Nagaraj (2019) The study findings demonstrated a strong relationship between the MBTI personality traits of individual Indian investors and behavioral biases (herding and overconfidence). Individual investors will find the study's conclusions highly helpful in understanding their personality traits and behavioral biases and how these affect their investment decisions. This will enable them to make better judgments, which will lead to improved financial results. The purpose of this study is to see whether there is an influence of gender factors on financial behavioral biases in this study, namely overconfidence bias, herding, and regret aversion. Then this study also aims to see whether there is an influence of MBTI personality types on financial behavioral biases in this study, namely overconfidence bias, herding and regret aversion.

2. LITERATURE REVIEW

2.1. Financial Behavioral Bias

In their research, Kahneman and Tversky (1982) proved that deviations made by investors are caused by factors, such as: regret, experience and/or following mathematical patterns so that irrational investor decisions become possible to measure and external stimuli can also influence decision making (Kahneman & Tversky, 1984). Then, irrational investor decision-making can be measured reaffirmed by De Bondt and Thaler (1985) who found that in irrational decision making an investor has a measurable impact on the financial market through his writing "Do the stock markets overreact". Furthermore, Thaler (2015) proved that all humans tend to make decisions that seem irrational caused of bias. The biases referred to by Thaler (2015) in his book entitled "Misbehaving" are

overconfidence bias, mental accounting bias, loss aversion bias, availability bias, confirmation bias, gambler's fallacy bias, hindsight bias, anchoring and adjustment bias, recency bias, status quo bias, endowment bias, regret aversion bias, and herding. This study specifically discusses overconfidence bias, herding, and regret aversion.

Overconfidence Bias - According to Plous (1993) this bias in decision-making is frequently regarded as the most prevalent one. Individuals that are overconfident also think they are superior to others and that they have outperformed them in their field (Moore & Healy, 2008). The results of investments are negatively impacted by overconfident investors because they frequently overreact to information they receive (Parveen, Satti, Subhan, & Jamil, 2020) and participate in excessive trading (Barber & Odean, 2001).

Herding – The concept of herding originates from Keynes' sociological processes, which establish norms in uncertain times (Keynes, 2018; Pigou, 1936). These forces may be driven, at least partially, by reputational concerns (Scharfstein & Stein, 1990). People emulate the choices made by others, and they frequently choose to follow collective decisions over those made in private (Baddeley, Allen, & HITcH, 2010). Decision-makers who believe that by imitating the actions of others, they can arrive at the best solutions may be the source of mimicry (Banerjee, 1992; Bikhchandani, Hirshleifer, & Welch, 1992). In asset pricing and the financial markets, herding is crucial (Chauhan, Ahmad, Aggarwal, & Chandra, 2020). Resilience in the face of various crises and economic turmoil causes market conditions to be depressed due to herding behavior that tends to encourage high levels of volatility and uncertainty. As a result, markets become unstable, investors have difficulty getting the appropriate returns on asset allocation and diversification, and companies struggle to obtain capital market funding (Gusni, Nugraha, Disman, & Sari, 2024). Regret aversion bias – People usually instinctively choose the safer alternative when given a choice. Empirical evidence indicates that individuals are motivated to minimize their potential for future regret (Zeelenberg, Beattie, Van der Pligt, & De Vries, 1996). Additionally, "preference reversal" and "framing" biases have been connected to regret aversion (Loomes & Sugden, 1982). Additionally, investors' inclination for cash dividends can be explained by regret theory (Shefrin & Statman, 1984). Risk aversion may be the reason why people are more terrified of losing money than they are of winning it (Kahneman & Tversky, 1979).

2.2. Personality Trait - MBTI

The basic concept of behavioral economics is that people are fallible and have unique decision-making processes; as such, they frequently choose paths other than utility maximization (Thaler, 2015). Individual personality also has an impact on human variables that further influence financial decisions (Brown & Taylor, 2014; Sreedevi & Chitra, 2012). According to Bernstein, Penner, Stewart, and Roy (2008) a person's personality is the distinct pattern of persistent ideas, feelings, and behaviors that characterizes them. However, trait theory is more widely accepted in academic circles because psychology has not provided a consensus definition of personality. Based on a few consistent and distinctive traits, trait theory aims to quantify a person's personality (Allport, 1937). Many theories exist for characterizing personality, including Cattell's 16-factor theory (Cattell, 1950) Considering that this study addresses individual personality differences together with the existence of biases in people and their many manifestations, the 16 MBTI personalities appear to be the most suitable model to use.

2.2.1. ISTJ Personality (Inspector)

ISTJ (Introverted, Sensing, Thinking and Judgment) is an organized person, a steady and productive contributor. This is an introverted sensing with an extroverted thinking personality.

2.2.2. INFJ Personality (Counselor)

INFJ (Introvert, Intuition, Feeling, and Judgment) is a visionary and idealist who has a creative imagination and brilliant ideas.

2.2.3. INTJ Personality (Mastermind)

INTJ (Introvert, Intuition, Thinking, and Judgment) is independent, original, analytical, and full of determination.

2.2.4. ENFJ Personality (The Giver)

ENFJ (Extravert, Intuition, Feeling, and Judgment) focuses primarily on people. They are extroverted, ethical, charismatic, highly principled, popular, and sensitive with excellent social skills.

2.2.5. ISTP (The Craftsman) Personality

ISTPs (Introverted, Sensing, Thinking, and Perception) are mysterious people who are usually quiet and reserved, very rational and logical, but also quite spontaneous and enthusiastic.

2.2.6. ESFJ Personality (Provider)

ESFJ (Extraverted, Sensing, Feeling, and Judgment) is externally focused. They act according to a strict moral code, feel a personal responsibility for the needs of others, and are popular, and conscientious.

2.2.7. INFP (Idealist) Personality

INFPs (Introverted, Intuitive, Feeling, and Perceiving) are quiet, reserved, idealistic, thoughtful, and caring. They are mentally quick and can see possibilities.

2.2.8. ESFP Personality (Doer)

ESFP (Extravert, Sensing, Feeling, and Perceiving) are fun-oriented and fun-loving people, generous, and friendly, like new experiences, dislike impersonal theories and analysis, and are generally seen as Entertainers.

2.2.9. ENFP (The Champion) Personality

ENFPs (Extraverted, Intuition, Feeling, and Perception) are enthusiastic, idealistic, perceptive, creative, have great social skills, are open-minded and flexible, with a wide range of interests and abilities.

2.2.10. ESTP (Doer) Personality

ESTPs (Extraverted, Sensing, Thinking, and Perception) are friendly, adaptable, action-oriented, live in the present, take risks, and live a fast-paced lifestyle.

2.2.11. ESTJ Personality (Supervisor)

ESTJ (Extraverted, Sensing, Thinking, and Judgment) are organized, practical, traditional, loyal, dignified, and hardworking and great at doing what they believe is right and socially acceptable.

2.2.12. ENTJ Personality (Commander)

An ENTJ (Extraverted, Intuitive, Thinking, and Judging) is assertive and outspoken – they are driven to lead, are generally intelligent and knowledgeable, excel at public speaking, and typically have little patience for inefficiency or disorganization.

2.2.13. INTP Personality (The Thinker)

INTP (Introvert, Intuition, Thinking, and Perception) is a logical, original, creative thinker and is very capable and driven to turn theory into clear understanding, highly valuing knowledge, competence, and logic.

2.2.14. ISFJ Personality (The Nurturer)

ISFJs (Introvert, Sensing, Feeling, and Judgment) are quiet, kind, stable, practical, and conscientious. They have a well-developed sense of space and function, very responsive to the feelings of others.

2.2.15. ENTP Personality (The Visionary)

ENTP (Extravert, Intuition, Thinking, and Perception) personality types are among the rarest in the world, and this is completely understandable. They are creative, resourceful, and intellectually quick, intelligent, and knowledgeable.

2.2.16. ISFP Personality (Composer)

ISFP (Introvert, Sensing, Feeling, and Perception) is a serious, sensitive, quiet, kind, loyal, and faithful person. They have highly developed senses, and an aesthetic appreciation for beauty and dislike conflict.

3. METHOD

The purpose of this study is to determine the association between financial behavioral bias among Indonesian investors, MBTI personality traits, and gender characteristics. In order to gather primary data for this study, 230 respondents were sent a structured questionnaire at researcher.populix.co.id. The questionnaire covered topics such as gender variables, overconfidence bias, herding bias, regret aversion bias, and MBTI (Myers-Briggs Type Indicator) personality assessment. Out of the 230 participants, 182 were deemed eligible and fulfilled the necessary criteria for analysis. Respondent data was gathered via a questionnaire-based survey approach, which was also utilized to evaluate the suggested study paradigm. Eleven constructs are measured by the questionnaire's statements, three statements measuring each construct. The survey instrument was created by finding the distinguishing traits of the chosen variables and carrying out an extensive review of previous research. The questionnaire is divided into three sections: financial behavioral bias questions are found in part three, various MBTI personality statements are found in part two, and information on respondents' gender is contained in part one. A total of 33 items were used to measure 11 constructs. Each respondent was given a choice that had been coded from 1 (strongly disagree) to 5 (strongly agree) on a Likert scale for each statement.

The MBTI assessment test is the most popular psychographic model used in the industry today It describes 16 personality types based on four aspects of personality:

- How a person interacts with the world and where a person directs their energy (Extrovert or Introvert - E vs. I).
- What type of information does a person naturally pay attention to (Sensing or Intuitive - S vs. N).
- How a person makes decisions (Thinking or Feeling - T vs. F).
- Whether a person prefers to live a structured or spontaneous life (Judging or Perceiving - J vs. P).

A four-letter classification system can be used to identify a person's personality type. An INFJ, for instance, is an introverted, intuitive, feeling, and judging person. The sixteen varieties of personalities that exist are ISTJ, ISFJ, INFJ, INTJ, ISTP, ISFP, INFP, INTP, ESTP, ESFP, ENFP, ENTP, ESTJ, ESFJ, ENFJ, and ENTJ.

Table 1 shows the questions asked to respondents regarding MBTI personality, namely extrovert, introvert, sensing, intuitive, thinking, feeling, judge, perception.

Table 1. MBTI personality questions.

MBTI	Questions
Extrovert (E)	Like being the center of attention Communicate enthusiastically Talk more than listen
Introvert (I)	Avoid being the center of attention Listen more than talk Keep their enthusiasm to themselves
Sensing (S)	Believe in what is definite and concrete Value realism and common sense Tend to be specific and literal; provide detailed descriptions
Intuitive (N)	Trust inspiration and conclusions Value imagination and innovation Tend to be general and figurative; use metaphors and analogies
Thinking (T)	Stand back; apply impersonal analysis to problems Value logic, fairness, and justice; one standard for all Naturally see flaws and tend to be critical
Feeling (F)	Step forward; consider the impact of actions on others Value empathy and harmony; see exceptions to the rule Naturally want to please others; show appreciation easily
Judge (J)	Happiest after a decision has been made Have a work ethic; work first, then play Prefer to know what they are getting into
Perception (P)	Happiest keeping their options open Have a play ethic; play first, then work Like to adapt to new situations

Table 2 shows the questions asked to respondents regarding financial behavioral biases, namely overconfidence, herding and regret aversion.

Table 2. Financial behavioral bias questions.

Behavioral Bias	Questions
Overconfidence	Often, my decisions are far superior to those of others. I am the best among my friends at handling complicated situations. My other friends are far superior to me in making decisions in complex situations. (R)
Herding	I always accept group decisions even when I know they are wrong. I always behave in such a way that I am identified separately from the crowd. (R) I believe that public opinion is generally correct.
Regret	I enjoy the challenge of dealing with uncertain and risky situations. (R) I would rather take the wrong route than the shorter but dangerous one, even when in a hurry. I really do not like to get involved in any situation with the slightest possibility of danger or risk.

4. RESULTS AND DISCUSSION

Data were collected from 182 respondents. The questionnaire consisted of questions related to gender profile, MBTI personality type, and financial behavioral bias such as overconfidence bias, herding, and regret aversion.

Table 3. Gender profile of respondents.

Gander	Frequency	Percent
Male	63	35
Female	119	65
Total	182	100

From Table 3, the 182 respondents consisted of 63 men and 119 women, or 35% men and 65% women.

Furthermore, MBTI data from 16 personality types obtained from 182 respondents are presented in Table 4.

Table 4. MBTI personality type of respondents.

MBTI personality type	Frequency	Percent
ISTJ	11	6
INFJ	13	7.2
INTJ	8	4.4
ENFJ	14	7.7
ISTP	5	2.7
ESFJ	39	21.4
INFP	7	3.8
ESFP	11	6
ENFP	6	3.3
ESTP	1	0.5
ESTJ	11	6
ENTJ	6	3.3
INTP	3	1.6
ISFJ	36	19.8
ENTP	3	1.6
ISFP	8	4.4
Total	182	100%

In Table 4, the most common MBTI personality type is ESFJ with 39 respondents out of 182 respondents or 21.4%. Next is the ISFJ type with 36 people or 19.8%. Then the least common personality type is ESTP with 1 person or 0.5% of the total respondents.

Furthermore, investor bias data from overconfidence bias, herding and regret aversion are presented in Table 5.

Table 5. Investment biases of respondents.

Behavioral Bias	Category	Frequency	Percent
Overconfidence bias	Less	25	14
	Neutral	59	32
	Over	98	54
	Total	182	100
Herding	Not herding	67	36,8
	Neutral	47	25,8
	Herding	68	37,4
	Total	182	100
Regret aversion	Risk avers	61	33,5
	Neutral	51	28
	Risk takers	70	38,5
	Total	182	100

In Table 5 the results show that the frequency of respondents who are overconfident is greater than those who are less confident or neutral, which is 98 people from the total respondents or 54%. Then the frequency of respondents who are herding is also greater than those who are not herding or neutral, which is 68 people from the total respondents or 37.4%.

The frequency of respondents who have regret aversion bias is actually more risk takers than risk avers and risk neutral, which is 70 people from the total respondents or 38.5. From the data obtained, it shows that out of 182 respondents, there is a tendency for overconfidence, herding and risk takers.

4.1. Gender Factor and Behavioral Finance Biases

In this analysis, the influence of gender factors on behavioral finance bias will be discussed. First, an analysis of the relationship between gender and overconfidence bias will be carried out, which is presented in Table 6.

Table 6. Gender factor and overconfidence bias.

Gender	Over confidence	Neutral	Less confidence	Total	P-Value
Male	44	14	5	63	0.038*
	70%	22%	8%	100%	(-2.088)
Female	56	45	18	119	
	47%	38%	15%	100%	

Note: * Significant level <0.05.

From Table 6, it is found that the gender factor has a significant effect on overconfidence bias with a p-value of 0.038. Then, from the results of Table 6, it is found that men are more overconfident than women with a percentage result of 70% of the total male respondents.

The results of this study are in line with the findings of Pompian and Longo (2004) who found that men have a higher tendency towards overconfidence bias than women. However, the results of this study are not in line with the results of Gakhar and Prakash (2017) who found that gender factors do not affect overconfidence bias.

The relationship between gender and herding bias will be presented in Table 7.

Table 7. Gender factor and herding bias.

Gender	Herding	Neutral	Not herding	Total	P-value
Male	22	14	27	63	0.764
	35%	22%	43%	100%	(-0.300)
Female	43	37	39	119	
	36%	31%	33%	100%	

From Table 7, it is found that the gender factor has no significant effect on herding bias with a p value of 0.764. According to the results of the statistical test, from the results presented in Table 7, men are more likely not to herd than women with only 43% of male respondents not herding (no more than 50%), while 35% tend to herd. Meanwhile, women tend to have a dominant herding bias with a percentage of 36% herding and 33% not herding, the rest are neutral. The results of this study are not in line with Pompian and Longo (2004) who found that men are more likely to herd or think irrationally than women who are more rational and not herding. Then, the relationship between gender and regret aversion bias is presented in Table 8.

Table 8. Gender factor and regret aversion bias.

Gender	Risk avers	Neutral	Risk takers	Total	P-value
Male	21	13	29	63	0.507
	33%	21%	46%	100%	(-0.665)
Female	42	38	39	119	
	35%	32%	33%	100%	

From Table 8, it is found that the gender factor on bias regret aversion has no significant effect with a p value of 0.507. In accordance with the results of the statistical test, in Table 8, it was found that men tend to be more risk takers than women, which is 46% of the total male respondents (no more than 50%). Also, women tend to be risk averse than men with a percentage result of 35% of the total female respondents.

The results of this study are in line with Gakhar and Prakash (2017) who found that gender factors do not have a significant effect on bias regret aversion. However, according to Pompian and Longo (2004) which is in line with these findings, men tend to be risk takers and women tend to be risk averse.

The findings obtained from the results above are the relationship between gender and financial behavioral biases such as overconfidence, herding and regret aversion are that men tend to be more overconfident, rational (not herding) and risk takers, while women tend to be more less confident, herding (irrational) and risk aversion.

Table 9. MBTI personality types and investment biases.

MBTI	Overconfidence			Herding			Regret aversion		
	Over	Neutral	Less	Herding	Neutral	Not herding	Risk avers	Neutral	Risk taker
ISTJ	6	3	2	7	3	1	3	3	5
Percentage	55%	27%	18%	64%	27%	9%	27%	27%	45%
INFJ	7	3	3	3	3	7	3	3	7
Percentage	54%	23%	23%	23%	23%	54%	23%	23%	54%
INTJ	7	0	1	3	0	5	5	2	1
Percentage	88%	0%	13%	37%	0%	63%	63%	25%	13%
ENFJ	10	2	2	6	4	4	3	3	8
Percentage	71%	14%	14%	43%	29%	29%	21%	21%	57%
ISTP	3	2	0	2	0	3	1	3	1
Percentage	60%	40%	0%	40%	0%	60%	20%	60%	20%
ESFJ	19	20	0	15	11	13	17	9	13
Percentage	49%	51%	0%	38%	28%	33%	44%	23%	33%
INFP	1	2	4	2	4	1	4	2	1
Percentage	14%	28%	57%	29%	57%	14%	57%	43%	14%
ESFP	7	3	1	3	3	5	3	1	7
Percentage	64%	27%	9%	27%	27%	45%	27%	9%	64%
ENFP	2	4	0	4	0	2	1	4	1
Percentage	33%	66%	0%	67%	0%	33%	17%	67%	17%
ESTP	0	1	0	1	0	0	0	1	0
Percentage	0%	100%	0%	100%	0%	0%	0%	100%	0%
ESTJ	6	5	0	3	5	3	0	2	9
Percentage	55%	45%	0%	27%	45%	27%	0%	18%	82%
ENTJ	2	4	0	3	2	1	2	3	1
Percentage	33%	67%	0%	50%	33%	17%	33%	50%	17%
INTP	1	0	2	0	0	3	2	0	1
Percentage	33%	0%	67%	0%	0%	100%	67%	0%	33%
ISFJ	19	9	8	10	11	15	11	12	13
Percentage	53%	25%	22%	28%	31%	42%	31%	33%	36%
ENTP	3	0	0	1	0	2	2	1	0
Percentage	100%	0%	0%	33%	0%	67%	67%	33%	0%
ISFP	5	1	2	5	1	2	4	2	2
Percentage	63%	13%	25%	63%	13%	25%	50%	25%	25%
P-value	0.000			0.005			0.009		

4.2. MBTI Personality Types and Behavioral Finance Biases

Table 9 presents data on the relationship between 16 MBTI personality types (namely: ISTJ, ISFJ, INFJ, INTJ, ISTP, ISFP, INFP, INTP, ESTP, ESFP, ENFP, ENTP, ESTJ, ESFJ, ENFJ, and ENTJ) with 3 financial behavioral biases (namely: overconfidence, herding and regret aversion).

The results of the data presented in Table 9, the MBTI personality factor has a significant influence on overconfidence bias (0.000), herding (0.005) and regret aversion (0.009) which are then presented in the form of a matrix such as Figure 1, Figure 2 and Figure 3 to be able to more easily understand the results of Table 9.

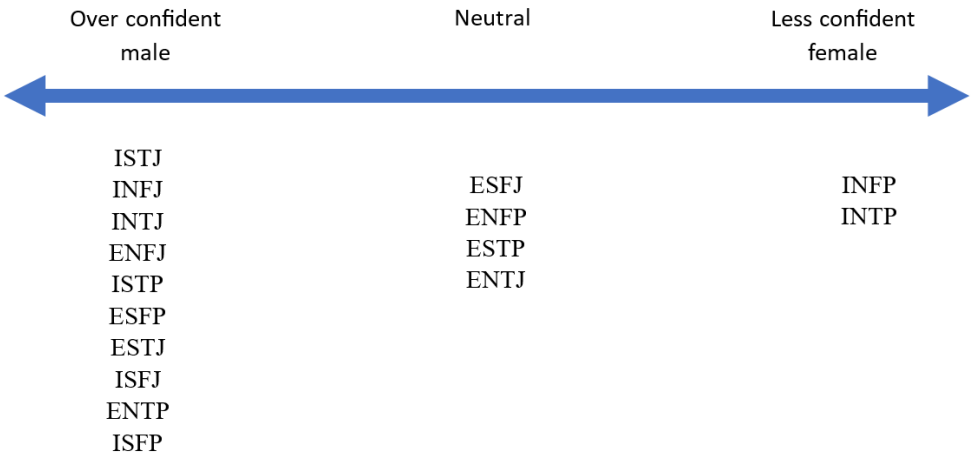

Figure 1. 16 MBTI matrix and overconfidence bias.

Figure 1 shows the results that, of the 16 MBTI personality types that have a tendency to overconfidence bias are 10 types, namely ISTJ, INFJ, INTJ, ENFJ, ISTP, ESFP, ESTJ, ISFJ, ENTP and ISFP with a percentage of 53% - 100%. While the other 4 types tend to be neutral towards the bias, namely ESFJ, ENFP, ESTP and ENTJ. And only the INFP and INTP types do not tend to overconfidence bias. The INFP personality type is known as the idealist type and INTP is known as the thinker type. So, it can be said that an investor who has an idealist type and a thinker type has his idealism and thoughts in making investment decisions, so that he can avoid overconfidence bias.

This study is in line with the results of research by Mehtab and Nagaraj (2019) and Yusuf (2021). which found that the MBTI personality type has a significant influence on overconfidence behavioral bias. According to Mehtab and Nagraj (2019) extroverted personality has a higher influence on overconfidence bias.

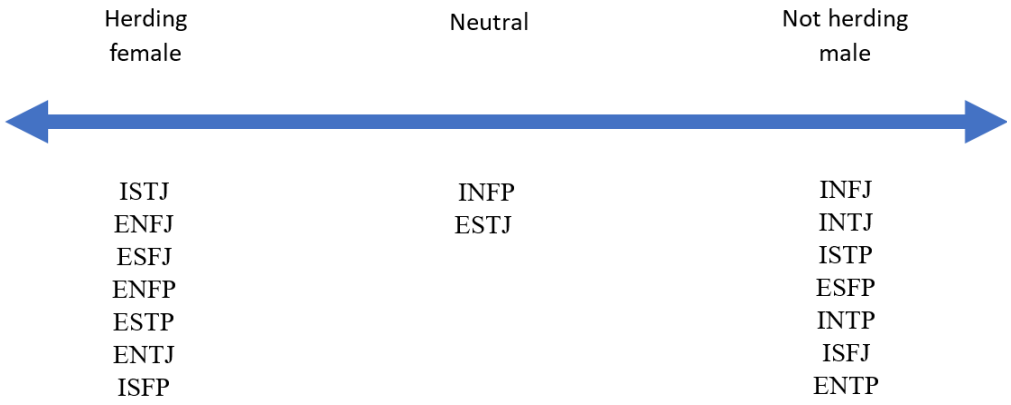

Figure 2. 16 MBTI matrix and herding bias.

The findings of Pompian and Longo (2004) found that INFP has a tendency towards less confidence, and ENTP, ESFP, and ESTJ tend to overconfidence bias. This implies that when making investment decisions,

psychological factors such as the capacity for bias from overconfidence play a very important role (Charness & Gneezy, 2010). This study is not in line with Gakhar and Prakash (2017) because the findings were that MBTI personality types did not have a significant effect on overconfidence behavioral bias because most investors were found to be neutral or balanced towards overconfidence bias. Figure 2 shows the results that out of 16 MBTI personality types, 7 have a tendency towards herding bias with a percentage of 43% - 100%, namely ISTJ, ENFJ, ESFJ, ENFP, ESTP, ENTJ, and ISFP. While the other 2 types are neutral, namely INFP and ESTJ, and 7 others are not herding, namely INFJ, INTJ, ISTP, ESFP, INTP, ISFJ, and ENTP. The 7 personality types that tend to herding bias are mostly extrovert types, this is because the extrovert personality type has a personality that tends to be open in receiving all information so that it tends to participate in the information that is spread. The other two types that tend to herding are ISTJ which has an introverted nature but only in its sensing, while its way of thinking follows the way of thinking of extroverts. Another tendency of herding bias is ISFP who has an introverted personality but does not like conflict, is not interested in leading and controlling others, and accepts the situation. Therefore, even though they have an introverted personality, the ISTJ and ISFP types tend to herding bias because they have an extroverted way of thinking and do not like conflict so they enjoy going with the flow rather than going against the heavy current. This study is in line with Mehtab and Nagaraj (2019) who found that there was a significant influence between MBTI personality types and herding behavioral bias. Pompian and Longo (2004) also found the same thing, namely that INFJ is one of the personality types that has a tendency towards non-herding or realistic behavioral bias and ESTP is the one that has the most tendency towards herding or unrealistic behavioral bias.

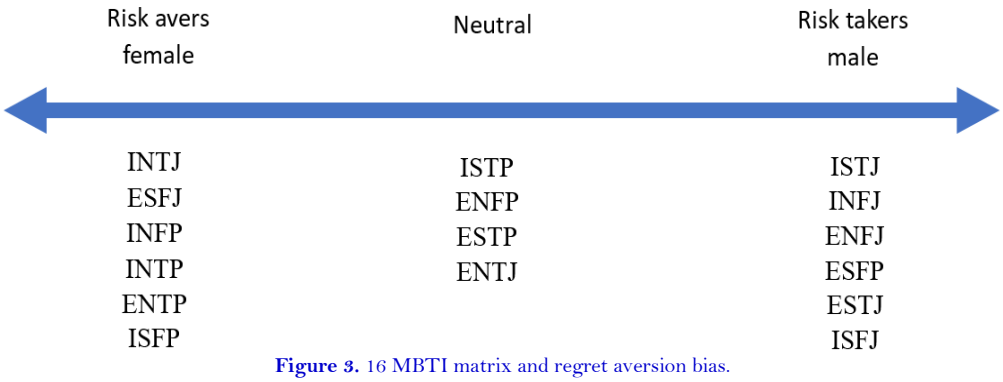

Figure 3. 16 MBTI matrix and regret aversion bias.

Figure 3 shows the matrix of the relationship between 16 personality types according to MBTI and Regret Aversion Bias. Regret aversion bias is a bias that dislikes risk or avoids risk, and prioritizes being free from risk rather than the possibility of obtaining high profits. 6 MBTI types have this bias tendency, namely INTJ, ESFJ, INFP, INTP, ENTP and ISFP. 4 MBTI types that are neutral to this bias are ISTP, ENFP, ESTP, and ENTJ. Those who do not tend to this bias are 6, namely ISTJ, INFJ, ENFJ, ESFP, ESTJ, and ISFJ. Most MBTI types that tend to regret aversion bias or avoid risk make decisions by thinking (T). This type makes decisions for investment by considering historical data, applying impersonal analysis to problems, highly valuing logic, justice, and fairness, and tends to be critical. So, in making investment decisions, they are very careful so that they often get caught in regret aversion bias because they consider the risks more than the benefits. Other types such as ESFJ, INFP, and ISFP, do not make decisions by thinking, this type has high accuracy (ESFJ), idealism (INFP), and risk avoidance (ISFP). So, in making investment decisions, having a tendency for regret aversion bias is natural because the decision is based on high accuracy, has an idealistic nature, and avoids risk. This study is in line with Gakhar and Prakash (2017); Mehtab and Nagraj (2019) and Mehtab (2019) who found that personality types according to MBTI have a significant effect on regret aversion behavioral bias. The findings of MBTI in this study are not in line with Pompian and Longo (2004) Where INFJ in this study tends to be risk takers, in their research tends to be

risk averse, and in this study, ENTP tends to be risk averse in their findings tend to be risk takers. These differences in findings may be due to differences in sampling and timing.

5. CONCLUSION

This study examines gender factors, MBTI personality, and financial behavioral bias. The purpose of this study is to see whether there is an influence of gender factors on financial behavioral bias in this study, namely overconfidence bias, herding, and regret aversion. Then this study also aims to see whether MBTI personality types influence financial behavioral bias in this study, namely overconfidence bias, herding, and regret aversion. The findings obtained are that the gender factor that has a significant effect in this study is only on overconfidence bias, while herding and regret aversion do not have a significant effect. Then the MBTI personality type significantly affects the three financial behavioral biases. In addition, this study specifically examines gender factors and 16 MBTI personality types, namely ISTJ, ISFJ, INFJ, INTJ, ISTP, ISFP, INFP, INTP, ESTP, ESFP, ENFP, ENTP, ESTJ, ESFJ, ENFJ, and ENTJ tend to overconfidence, herding or regret aversion behavioral bias. From the findings above, the influence between gender and financial behavioral bias such as overconfidence, herding and regret aversion is that men tend to be overconfident, rational (not herding) and risk takers, while women tend to be less confident, herding (irrational) and risk aversion. Meanwhile, in the MBTI type and financial behavioral bias, it was found that MBTI that tends to overconfidence bias is 10 types, namely ISTJ, INFJ, INTJ, ENFJ, ISTP, ESFP, ESTJ, ISFJ, ENTP, and ISFP with a percentage of 53% - 100%. While the other 4 types tend to be neutral towards the bias, namely ESFJ, ENFP, ESTP, and ENTJ. Only INFP and INTP types do not tend to have overconfidence bias. In this case, almost all MBTI personality types tend to have overconfidence bias. Meanwhile, for Herding, it has a balanced result, namely 7 types have a tendency to herding, namely ISTJ, ENFJ, ESFJ, ENFP, ESTP, ENTJ and ISFP. While the other types are 2 neutral, namely INFP and ESTJ, and 7 others are not herding, namely INFJ, INTJ, ISTP, ESFP, INTP, ISFJ, and ENTP. Then the MBTI type that tends to bias on regret aversion is also balanced, there are 6 that are risk aversion, namely INTJ, ESFJ, INFP, INTP, ENTP, and ISFP, and 4 MBTI types that are neutral to this bias, namely ISTP, ENFP, ESTP and ENTJ. And there are 6 risk takers, namely ISTJ, INFJ, ENFJ, ESFP, ESTJ and ISFJ. The interesting personality type in this finding is the INTP type which has a strong nature, namely not overconfident, not herding, and risk-averse or avoiding risk. This is because INTP is a Thinker. Then another interesting personality type is the ISTJ and ENFJ types which have a strong tendency towards overconfidence, herding, and risk takers. This is because ISTJ is an introverted sensing with an extroverted thinking personality and an extroverted personality type tends to be more open to all possibilities.

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Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
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