Investment Behavioral Biases in Indonesia Millenial Investor During Pandemic

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Abstract

Purpose: Digital financial inclusion era has brought Indonesian people to gain interest in financial sector by accessing more resources to financial literature. During Covid-19 Pandemic, there was a unique phenomenon occurred where the price was going down but the number of individual investors, dominated by millennial, was increasing. This paper aimed to examine the behavioral biases that may influence Indonesian millennial investors during investment decision making process. The main focus is examining possibility of given effects from overconfidence, disposition effect, and loss aversion of the Indonesian millennial investors to investment decision making during Covid-19 Pandemic, by also examining the mediating effect for financial literature.

Method: Using purposive sampling, a total of 1,035 valid respondents were collected using Google Form questionnaire. Structural Equation Modeling (SEM) analysis was conducted as the quantitative chosen method to examine the condition.

Result: Overconfidence, disposition effect, and loss aversion are proven to positively affect investment decisions for Indonesian Millennial Investors during Covid-19 Pandemic. Additionally, financial literature is also proven to receive the mediating effect from overconfidence to investment decision, over all other independent variables. This study is believed to broaden the investment insight, especially in terms of investment decision making process and behavioral bias.

INTRODUCTION

The new era of initiating the financial inclusion in Indonesia has become the great bridge for public to get more information and access to economy and finance conditions. Financial inclusion, including opening access to financial literature, came as the economic trend after global crisis 2008 that was believed as one of the solutions to lack of investors issue. Refer to Financial Action Task Force (FATF, 2021), financial inclusion is most needed to be implemented in global network such as emerging markets, developing countries, and low capacity countries where the unbanked people are still high, including Indonesia. Therefore, financial inclusion's objective is to protect the integrity of financial system by decreasing inequality in financial access and literacy, also by opening access to banking system and other financial products. Financial inclusion is supported by the condition where Indonesian people were familiar with using technology as the real form of digitalization. Besides the technology, financial literacy is also the core to financial inclusion. Referring to Mouna and Jarboui (2015), financial literacy is the ability to obtain information, process, and analyze it to be a material well-

being. Investors with a high level of financial literacy can limit, construct, compose, and mix the portfolio's instruments.

In 2014, Indonesian Stock Exchange (IDX) announced the significant decreasing change in stock lot unit from 500 shares/ lot to 100 shares/ lot and Indonesian Government decreased the minimum government bond in IDR 1,000,000 and mutual funds in IDR 10,000. These conditions were considered refreshment and a good start for the public to start being investors. Nevertheless, in the midst of building the public interest in investment, the Covid-19 Pandemic outbreak happened in the beginning of 2020. It has been spreading worldwide, affecting all sectors. Lockdown and recession happen in many countries. Indonesia is one of the countries that experienced recessions in Q3-2020 and Q4-2020, but came back rising in Q1-2021 and getting better in Q2-2021.Apart from the recession, the increasing of Indonesian investors was accounted by Go Public IDX (2019) by 2.4 times compared to 2012. KSEI (2021) also recorded the growth of Single Investors Identification in Indonesia has been steadily increasing, dominated by millennial.

The characters of millennial are tech-friendly, fast learners, adaptable, yet emotionally volatile. But, sometimes the volatility of their disposition emotional tends to drive them to unfortunate condition due to the bias occurring. Markowitz (1952) explained that optimal portfolio investment consists of two focuses on maximizing the investment return and minimizing the risk at a certain level. However, many scientists have proven that people are not being rational taking role in financial market due to their emotional and irrationality. Further study by Kahneman and Tversky (1979) explained that those conditions, from traditional theory and behavioral point of view are extensive and potentially lead to investment biases. Refer to prior researches conducted by Mouna and Jarboui (2015), Shefrin (2002), and Bouteska and Regaieg (2020), it is believed that behavioral biases happened and contributed in investment decision making by individual investors.

Acknowledging that Covid-19 Pandemic brought a dynamic change in the Indonesian stock market, especially for millennial investors, the Writer believed that there must be a behavioral bias occurred. Nevertheless, it is needed a further research on that presumption. Thus, the Writer conducted research focusing on examining investment biases condition during Covid-19 Pandemic titled "Investment Behavioral Biases in Indonesian Millennial Investors during Pandemic". The objectives of this thesis are to examine whether overconfidence, disposition effect, and loss aversion affect Indonesian millennial investors in investment decision making during Covid-19 Pandemic, to determine the most significant behavioral bias, and to examine the mediating effect of overconfidence, disposition effect, and loss aversion given to financial literacy in investment decision making during Covid-19 Pandemic for Indonesian millennial investors.

RESEARCH METHODS

The primary data was collected by using questionnaire distribution. The Writer distributed the questionnaires to the qualified respondents, which in this research were the millennial investors who have done investment transactions during Covid-19 Pandemic outbreak. After the raw data has been collected, the Writer conducted a sampling method using non-probability sampling, specifically purposive sampling. It was collected the data from 1,042 respondents, but only 1,035 respondents suited the requirements as the samples of this observation. The questionnaire consists of 44 questions and is divided into six sections that are related to behavioral bias affecting investment decision making for millennial investors (Appendix 1). First section consists of demography questions using multiple choices. Second section consists of behavioral bias of overconfidence using Likert scale. The third section examines the disposition effect using Likert scale. The fourth section focuses on examining the risk level using Likert scale. The fifth section is organized by providing multiple choices to examine the level of financial literacy. The sixth section focuses on examining the behavioral bias using Likert scale. Those questions already consist of reversed questions to check the consistency of the respondent's answer to each question.

Referring to prior researches, below is the hypothesis of this research:

According to Mouna and Jarboui (2015), Gill et al. (2018), and Nareswari et al. (2021), overconfidence occurs when an individual is extending the erroneous sense of control, also believes that he can overestimate his capacities in making the right decision, thus:

H_1 : There is a significant positive relationship between overconfidence and investment decision making.

According to Oreng et al., (2021), disposition effect occurs when an individual tends to hold losing for too long and out-winning position too early, thus:

H_2 : There is a significant positive relationship between disposition effect and investment decision making.

According to Bouteska and Regaieg (2020), loss aversion may occur when an individual does not count the gain and loss in the same way. It tends to make the investors think of the gain rather than contributing the loss while making investment decision, thus:

H_3 : There is a significant positive relationship between loss aversion and investment decision making.

According to Mouna and Jarboui (2015), financial literacy can be understood as the combination of financial experience and financial studies and it is possible to effect the investment decision making, thus:

H_4 : There is a mediating effect given from overconfidence to financial literacy in terms of investment decision making process.

H_5 : There is a mediating effect given from disposition effect to financial literacy in terms of investment decision making process.

H_6 : There is a mediating effect given from loss aversion to financial literacy in terms of investment decision making process.

According to Ahmed et al. (2021), Gill et al. (2018), and Nareswari at al. (2021), investment decision can be understood as buying and selling decisions considering the fundamental and technical analyses based on information sources (Figure 1).
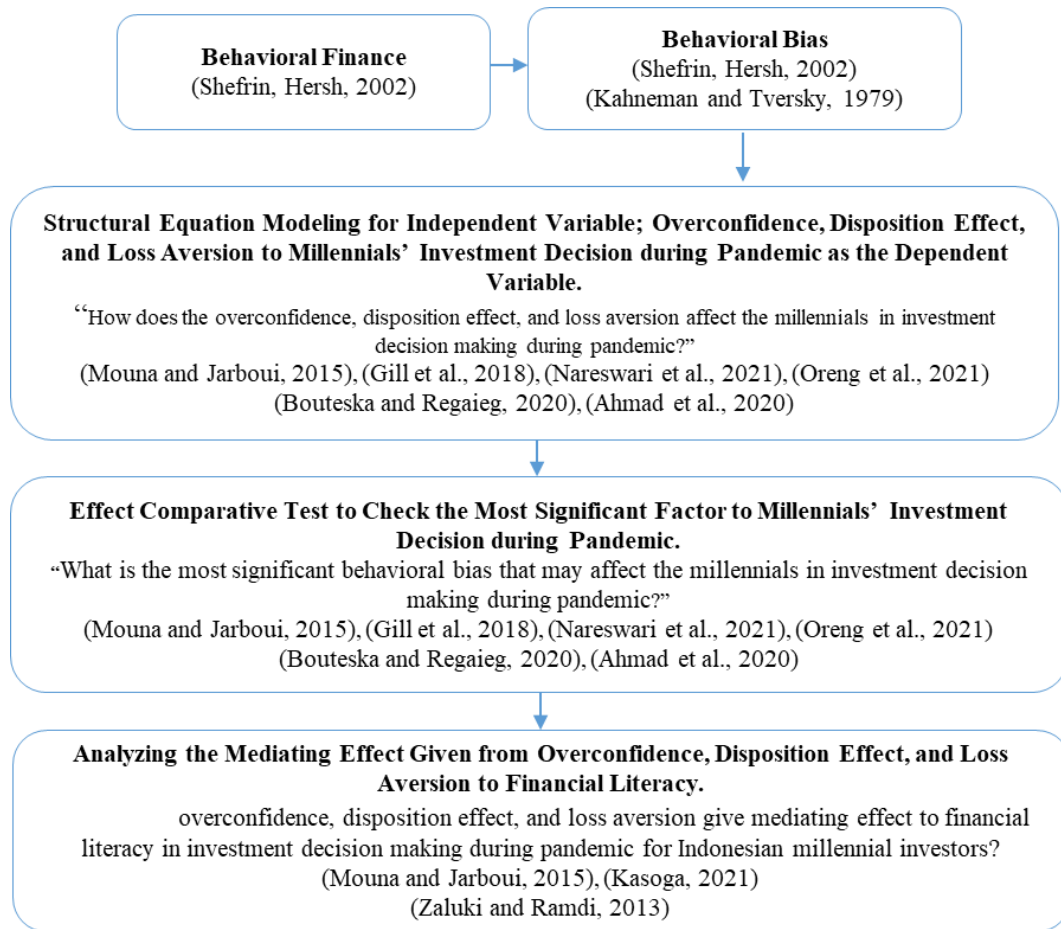
Figure 1. Research Framework
Source: Writer (2021)

The model used in this research used Structural Equation Modeling (SEM) to examine the effects of overconfidence, disposition effect, and loss aversion of millennial investors in Indonesia while taking investment decisions and examining the probability of given mediating effect from overconfidence, disposition effect, and loss aversion to financial literacy (Figure 2).
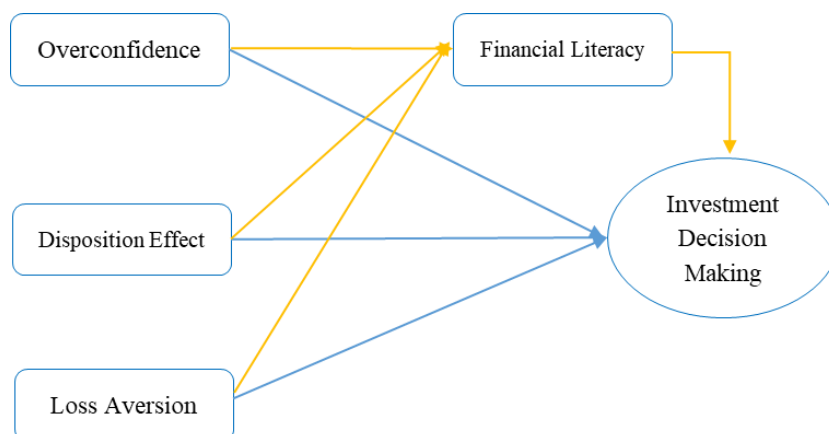

Figure 2. Research Design
Source: Writer (2021)

During the research, the statistical application used to examine the model and analyze the result is SmartPLS. The fundamental backgrounds of choosing SmartPLS were because it offers user-friendly access to researchers, provides readable outputs, requires only minimum 30 samples, provides complete analysis, provides reflective and formative constructs, and it may load thousands and complex data in details.

RESULTS & DISCUSSION

At the first stage, the demography screening has been conducted to know the respondents' details. The records showed the gender, domicile, educational background, income, age, and investment experience during Covid-19 Pandemic. The number of respondents for this research was 1,042 respondents. By purposive sampling, only 1,035 respondents were qualified to be observed (Table 1).

Table 1.
Demography Screening

Item	Frequency	Percentage
GENDER		
Male	365	35%
Female	670	*65%*
DOMICILE		
Jabodetabek	716	69%
Java	142	14%
Bali and Nusa Tenggara	42	4%
Sumatera	*45*	4%
Kalimantan	44	4%
Sulawesi	44	4%
Papua	2	0.2%
EDUCATION BACKGROUND		
Senior High School	10	1%
Diploma	109	11%
Bachelor's Degree	710	69%
Master Degreee	206	20%
INCOME/ MONTH		
< IDR 5,000 ,000	101	10%
IDR 5,000,000 - IDR 10,000 ,000	683	*65%*
IDR 10,000,000 - IDR 15,000,000	204	19%
> IDR 15,000,000	67	6%
INVESTMENT DECISION		
Yes	1035	99%
No	7	1%

Source: Observation, Processed by Writer (2021)

Before conducting the SEM analysis, the researcher examined the descriptive analysis, Cronbach's Alpha to define the reliability, Factor Analysis to define the validity, and R-Square value to examine the inner model. The reliability test result showed that the value is greater than 0.7 and validity test result showed that the value is greater than 0.5. Both test results showed that the data is reliable and valid to be observed. Those preliminary tests were used to capture the inner model and data proficiency. Covid-19

Covid-19 Pandemic has been bringing up dynamic changes to human living. In terms of this observation, it offered variant data based on variant respondent conditions due to their responds in investment decision making process during Covid-19 Pandemic. As the data has been observed and has shown sufficient value of validity and reliability, below are the crosstab for each

variable tested crossed the gender and education background to get more psychology and historical information of the respondents.

Table 2.
Crosstab Analysis

	Gender		Total
	Male	Female	
Overconfidence			
D	1	0	1
N	7	9	16
A	192	426	618
SA	165	235	400
Total	365	670	1035
Disposition Effect			
D	6	3	9
N	10	12	22
A	220	484	704
SA	129	171	300
Total	365	670	1035
Loss Aversion			
D	1	0	1
N	16	15	31
A	136	267	403
SA	212	388	600
Total	365	670	1035
Finansial Literacy			
3 Correct Answers	1	0	1
4 Correct Answers	1	2	3
5 Correct Answers	6	3	9
6 Correct Answers	330	614	944
7 Correct Answers	27	51	78
Total	365	670	1035

Source: Writer (2021)

From the crosstab analysis (Table 2), it is shown the respondents' responds captured. It showed how many respondents with each gender agreed or disagreed with each statement in each section. Also it showed how many respondents has lower or higher level of financial literacy for each gender. From those crosstabs, it is shown the tendency of experiencing investment decision making process during Covid-19 Pandemic for each gender. Besides the fact that female respondents had bigger amounts than male respondents, it is shown that female respondents tend to experience overconfidence, tendency of keeping loser stocks, and afraid of losing, but tend to gain more financial literature. After conducting crosstab calculation for each dependent variable to gender, the SEM analysis might be proceeding (Figure 3).
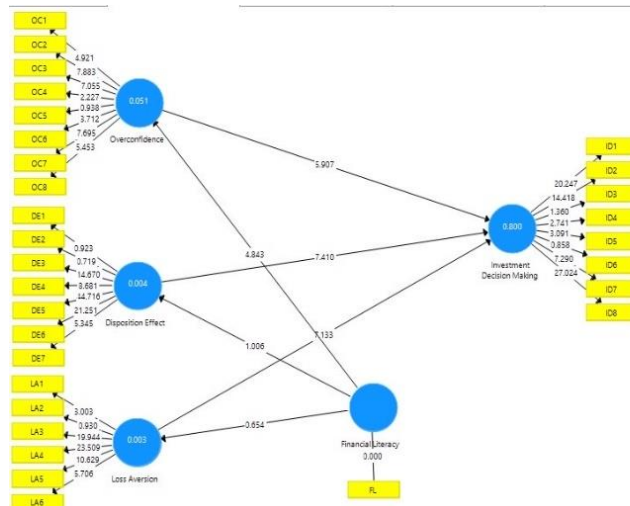
Figure 3. Diagram Path
Source: Observation, Processed by Writer (2021)

From the result in Table 3 Path Coefficient SEM Result, it is shown that from 3 independent variables, overconfidence, disposition effect, and loss aversion, all independent variables showed p-value less than 0.05, it means overconfidence, disposition effect, and loss aversion have significant effect to the investment decision as the H_0 is rejected. Adding financial literature to examine the mediating effect, it is shown that overconfidence has value less than 0.05. It means that overconfidence gives mediating effect to financial literacy in terms of investment decision.

Table 3
Path Coefficient SEM Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Disposition Effect → Investment Decision	0.329	0.324	0.043	7.663	0.000
Finansial Literacy → Disposition Effect	0.065	0.063	0.072	0.904	0.367
Financial Literacy → Overconfidence	0.226	0.224	0.049	4.587	0.000
Financial Literacy → Loss Aversion	-0.053	-0.058	0.082	0.645	0.519
Overconfidence → Investment Decision	0.437	0.432	0.071	6.158	0.000
Loss Aversion → Investment Decision	0.356	0.358	0.046	7.757	0.000

Source: Writer (2021)

Besides, it is shown that overconfidence give strongest effect to Indonesian millennial investors during Covid-19 Pandemic as the Original Sample Estimate has the greatest value over loss aversion and disposition effect, which is 0,437. The prior research has proven that behavioral biases occurred in the investors' investment decision making process. So did in this research. From this research, examining overconfidence, disposition effect, and loss aversion, it seems that overconfidence, disposition effect, and loss aversion influence psychological condition of Investors during investment decision making process. It may be a good result of following psychological intention if it gives higher gain, but it may also be a big mistake if it gives higher loss.

Added with financial literacy, it received mediating effect from overconfidence in terms of investment decision. It means that if investors have higher level of financial literature, they can

be more overconfident while making investment decisions. This situation is a sign that Indonesian millennial investors have characteristics that in terms of investment decision making process, Indonesian millennial investors are being overconfidence with their investment decision, sometimes may be shaken with fears of losing, and tendency of realizing loss, especially if they have much knowledge and access to financial literacy. By that condition, knowledge deepening and exploring access to financial literacy influence Indonesian millennial investors to avoid risk, as they conduct more complex fundamental analysis before making investment decision.

CONCLUSION

The variables tested in this observation were overconfidence, disposition effect, and loss aversion, added with financial literacy to examine the mediating effect. The observation used Google Form questionnaire to collect information from qualified respondents, who were Indonesian investors between 17 – 40 years old and have done investment during Covid-19 Pandemic. The total filled questionnaire is 1,042, but only 1,035 respondents were qualified that the data was proper to be observed. By conducting the SEM analysis using diagram path, it is shown that each independent variable has significant effect to the dependent variable, with overconfidence as the most significant independent variable. Knowing that overconfidence, disposition effect, and loss aversion have significant effects on investment decisions, it means there are indeed behavioral biases that occur during investment decision-making conducted by Indonesian millennial investors. In addition, financial literacy receives mediating effect from overconfidence in affecting investment decision making process during Covid-19 Pandemic.Covid-19 Pandemic gives a unique condition, especially when it hits the financial market. It has been creating a phenomenon of the increasing numbers of individual investors and being a root of behavioral biases occurs, as there are lots of worries and fears of losing, and market volatility is also dominating the consideration of choosing the best investment that may give higher return yet still in line with the risk appetite. The researcher believes that this research may contribute as resourceful information and insight for better and future research in investment and behavioral finance.

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APPENDIX

1. List of Questions

No.	Questions	Answer Method
	Section 1: Demography Screening	
1	Name	Fill in the Blank
2	Gender	Multiple Choice
3	Domicile	Multiple Choice
4	Age	Multiple Choice
5	Education Background	Multiple Choice
6	Income/ Month	Multiple Choice
7	Investment Experience	Multiple Choice
	Section 2: Overconfidence	
1	I am confident of my ability to do better than others in picking stocks.	Likert Scale
2	I feel myself qualified to make investment decisions.	Likert Scale
3	I am an experienced investor.	Likert Scale
4	I feel more confident in my own investment opinions over opinions of my colleagues or friends.	Likert Scale
5	I believe I can win a competition.	Likert Scale
6	I consult others (family, friends or colleagues) before making stock purchase.	Likert Scale
7	I believe I have more precise opinion compared to others'.	Likert Scale
8	I trust my data source.	Likert Scale
	Section 3: Disposition Effect	
1	I tend to sell more winning assets than underperforming ones.	Likert Scale
2	I tend to trade more frequently.	Likert Scale
3	I want to sell the bad performance stock when the price goes down.	Likert Scale
4	I believe the underperforming stock will outperform in the future.	Likert Scale
5	I will sell the good performance stock and hold the bad performance stock during Covid-19 Pandemic.	Likert Scale
6	I demonstrate a strong preference for realizing winners rather than losers.	Likert Scale
7	I tend to be a risk averse investor.	Likert Scale
	Section 4: Loss Aversion	
1	I do investment without conducting fundamental analysis.	Likert Scale
2	I tend to choose high return investment without considering the high risk following.	Likert Scale
3	I tend to sell the stock since I am afraid of losing.	Likert Scale
4	I am afraid of choosing the wrong investment that will lead to high risk of losing.	Likert Scale

5	I tend to avoid risk so I will not realize a loss.	Likert Scale
6	Paul owns shares of firm A. He wants to sell them to buy in their place shares of firm B, but he renounces to his idea. If he had pursued, he would have earned $20,000. Georgette owned shares of firm B, which it sold them to buy shares of firm A. If she had kept shares of firm B, she would have been richer by $20,000. I am more like Paul than Georgette.	Likert Scale
7	I will not do investment during Covid-19 Pandemic because I can not bare of losing money.	Likert Scale

Section 5: Financial Literacy		
1	Suppose you had 100 D in a savings account and the interest rate was 2 percent per year. After 5 years, how much do you think you would have in the account if you left the money to grow?	Multiple Choice a. More than IDR 102,000 b. Less than IDR 102,000 c. Exactly IDR 102,000 d. Do not know
2	If the interest rate falls, what should happen to bond prices?	Multiple Choice a. Rise b. Fall c. Stay the same d. Do not know
3	Stocks are normally riskier than bonds. True or false?	Multiple Choice a. True b. False c. Do not know
4	Considering a long time period (for example 10 or 20 years), which asset normally gives the highest return?	Multiple Choice a. Savings b. Stock c. Bond d. Do not know
5	Which of the following statements is correct? If somebody buys the stock of firm A in the stock market.	Multiple Choice a. He owns a part of company A b. He lends money for company A c. He is liable for company A's debts d. Do not know
6	Which of the following statements is correct? If somebody buys the bond of firm A in the stock market:	Multiple Choice a. He owns a part of company A b. He lends money for company A c. He is liable for company A's debts d. Do not know
7	If interest rates rise, what will typically happen to bond prices?	Multiple Choice a. Rise b. Fall c. Stay the same d. Do not know

Section 6: Investment Decision Making		
1	I base my stock buying decisions on the company's historical information, such as historical returns.	Likert Scale
2	I like to buy stocks that have high trading volumes.	Likert Scale
3	I like to buy stocks that recently outperformed the market.	Likert Scale
4	I like to buy the stock that has been a loser in the recent	Likert Scale

	past because I expect it to recover in the future.	
5	I like to buy the stock that remained safe in the recent past.	Likert Scale
6	Financial literacy as "knowing about money management" helps in investment decisions making.	Likert Scale
7	I would like to realize the gain as soon as the stock increases in price.	Likert Scale
8	I consider the stock index when I make investment decisions.	Likert Scale