THE EFFECT OF HEURISTICS, PROSPECTS, AND HERDING BEHAVIOR ON INVESTMENT DECISIONS-MAKING

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Abstract-- *Psychological factors drive the irrational behavior of the investor's decision-making. This study aims to obtain empirical evidence on the effect of heuristics, prospects, and herding behavior on investment decision-making. The sampling technique used was a convenience sampling technique. This study used primary data obtained using survey methods conducted by giving questionnaires to the younger generation in Denpasar City*, Bali Province, Indonesia*, who invests stock in the Indonesian Capital Market. Data analysis techniques using the structural equation (SEM) approach using Partial Least Square (PLS) software. The results show that heuristic and herding behaviors influence investment decision making, whereas prospect behavior does not affect young generation investment-decision making.*

Keywords-- *Heuristics, Prospects, Herding, Investment Decisions-Making*

I. INTRODUCTION

Decision-making is a complex process that includes an analysis of several factors and following various steps. Investment is an investment activity, both directly and indirectly, in the hope of profits from the investment results in the capital market [20]. Investment in the capital market, especially stock investment, has the advantage of getting returns that come from capital gains and dividends. Investors must have the right investment decision to get the expected return. Investment decisions are policies taken on two or more investment alternatives in the hope of earning benefits in the future [4]. Investors can behave rationally and irrationally in decision making, all aspects related to decision making [16]. However, investor perceptions and preferences make investors behave irrationally [27]. Culture, religion, ideology, and emotions are the primary factors that influence investor behavior in making investment decisions in different situations [33]. The stock market is known for its volatility and uncertainty because it is susceptible to factors that can affect market prospects both from internal and external companies [29]. Investor behavior can also affect stock prices.

Investor behavior is the main factor affecting financial markets. Various factors that influence investor decisions are market information, past stock trends, price changes, investor preferences, excessive reactions to changes in stock prices, and stock fundamentals [33]. Investors in the Indonesian capital market tend to behave irrationally rather than rationally [35]. Psychological factors drive the irrational behavior of investors. Financial behavior theory explained irrational investor decisions. Financial behavior is a study that studies how psychological phenomena influence financial behavior [2], [26]. The behavior of investors investing in the capital market is also a financial behavior that can be influenced by one's psychology. Behavioral factors can influence the investment decisions of retail investors in the Dhaka capital market into heuristics, prospects, and herding [28].

The interest in conducting this research is because there are different points of view about decision making according to the theory of financial behavior and financial theory. The difference between financial behavior theory and financial theory how the market reaction shapes stock prices [26]. The financial theory states that market participants always reason in making decisions, and investors to be adjusting behavior by the understanding of the signals conveyed by the information owner. However, the theory of financial behavior states that investors in the capital market behave irrationally by taking actions based on valuations that are far from rational assumptions [31]. Novice investors tend to use rumors, speculative and behave in mass behavior in investing because they have limited ability to interpret, analyze, and interpret information [1]. The young generation to be one of the ideal young investor candidates and contribute actively to advance and increase investment in the Indonesian capital market. Thus, it is essential to identify and understand what behavioral factors affect individual investment decisions, especially young generation stock investment decisions.

II. LITERATURE REVIEW

Financial behavior theory involves psychological theory, which in the field of finance. Psychology is a branch of science that studies human behavior and mental processes. So it is very natural for investors to make decisions to invest in the capital market involving psychology such as ratio and emotions [34]. What is meant by financial behavior is a study that studies how psychological phenomena affect financial behavior, in this case, the behavior of investors investing in the capital market [26]. The purpose of financial behavior theory is to systematically understand the implications of the capital market in terms of psychological aspects [10]. Financial behavior theory is based on psychology, trying to understand emotions and cognitive errors affecting the behavior of individual investors. Financial behavior is an inseparable part of decisions and can affect investor performance.

Investors need to make investment decisions to obtain the expected return. Investment decisions are policies taken on two or more investment alternatives in the hope of earning benefits in the future [4]. Investors make decisions through a process, so the time needed in the decision-making process is very relative. It could be that it requires a short time or a long time. When an investor decides to invest, the first thing to do is to evaluate which issuer will invest investment capital. An evaluation out to obtain information related to the investment that will allow so that investors can get maximum returns [5]. However, there are times when decisions without having to think too long without consulting with other parties or involving others. In psychological literacy, many explain that behavioral aspects play an essential role in every decision making process. Understood because humans are creatures that have a ratio (reason) and emotions. These two elements always underlie human behavior in all situations and conditions, including making decisions in investing.

Heuristics are practical instructions to facilitate the processing of information in decision making. The existence of heuristics accelerates individuals in making decisions [25]. The existence of heuristics makes complex decision making efficient. Heuristics is a filter that helps individuals to focus on relevant information and ignore information that is not important. However, if it is not appropriate in its use, heuristics will cause bias. Heuristics can cause mistakes in making decisions. Heuristics have three factors that cause bias: representativeness, availability bias, and anchoring [12]. The heuristic behavioral variables, namely representativeness, availability, and anchoring [14].

Prospect theory as a descriptive model of decision making and provide an alternative basis for behavior in rational decision theory [12]. Prospect theory describes how investors frame and value a decision in uncertainty. First, investors frame options in terms of potential gains and losses related to a specific reference point. Both Investors assess profits or losses as an alternative explanation in decision making. Prospect theory describes several statements that affect a person's thought process when making decisions. The involvement of emotions, likes, traits, and various kinds of things inherent in humans often causes humans to not always rationally make a decision. Also, this theory explains how a person makes decisions in uncertain conditions. Prospect theory explains several states of mind that influence individual decision-making processes, including regret aversion, loss aversion, and mental accounting [33].

Herding behavior is irrational investor behavior because investment decisions made are not based on the economic fundamentals of an asset at risk, but by looking at the actions of other investors under the same circumstances, as well as following market consensus. The momentum strategy is considered profitable, at least in the short term, the herding effect on financial markets as a tendency for investor behavior to follow others' actions. Practitioners usually consider carefully the presence of investors who join in, because this model investor relies more on aggregate information rather than personal information—deviation in the price of the security from the fundamental value. Therefore, many excellent opportunities for investment at this time not made. Herding behavior has an impact on changes in stock prices, so it also has an impact on the risk and returns model from asset pricing theory [8]. Herding behavior causes several emotional biases, including conformity, congruity, and cognitive conflict.

Psychological factors drive the irrational behavior of investors. Based on research conducted by Anum and Ameer [2] found Heuristic, Prospect, and Herding variables together influence the investment decisions in the Pakistan capital market. In line with the results of the survey identification conducted by Sochi [28], it found significant behavioral factors such as heuristics, prospects, and herding in making investment decisions of retail investors in the capital market. The biased behavior of investors and potential investors that can influence decision making, including herding, heuristics, and investor attitudes towards risk (prospect) [14]. Biased heuristic behavior (anchoring, gambler's fallacy, representativeness, and availability) had a significant effect on investment decisions [7].

Sadi et al. [23] found that there is an interaction effect between disposition effects, aspects of cognition, and accounting information. The effect of disposition, aspects of cognition, and accounting information. The biased behavior of investors and potential investors that can influence decision making, including herding, heuristics, and investor attitudes towards risk (prospect) [14]. Grinblatt and Han [8] see the application of mental accounting to investors after being sanctioned in Iran, which affects the buying and selling of these shares.

Sochi [28] found that herding behavior had a positive and significant influence on investment decision making. Kengatharan and Kengatharan [14] have also found that herding behavior has a positive effect on investor decision making. Herding has a positive and significant impact on investment decision making [11]. Herding can significantly contribute to analyzing and evaluating professional performance because individuals who have low ability try to imitate the behavior of individuals who have a high ability to develop their reputation [13].

Susilawaty et al. [30] examine the factors that influence investment decision making. The purpose of this study is to determine what factors influence investment decision making in the Indonesian capital market. Risk aversion has an influence on decision making, but heuristic behavior does not affect investment decision making [17]. The behavioral factors of heuristics and risk aversion and investment decision making in Pakistani stock mutual fund managers dan finding heuristic variables and risk aversion had a positive effect on investment decision making [21]. Pradikasari and Isbanah [19] found that each variable overconfidence, risk tolerance, and risk perception influenced investment decisions in students in Denpasar City. This study examines the effect of individual investor behavior divided into heuristic behavior, prospects, and herding on investment decision making.

H_1: Heuristic behavior influences investment decisions

H_2: Prospect behavior influences investment decisions

H_3: Herding effect influences investment decisions

III. DATA COLLECTION

The study population was individual investors of the young generation (young people aged 16-30 years) in Denpasar City-Bali, Indonesia, who invested stock in the Indonesian capital market. The data collected from questionnaires provide a basic understanding of the factors affecting investors' decisions. Questionnaires are sent to respondents using convenience sampling was chosen as it is the best technique to get the highest rate of response when sending to friends and relatives; there was 161 respondent. The questionnaire is divided into three parts: personal information, behavioral factors influencing investment decisions. The 5-point Likert scales, which are rating scales widely used for asking respondents' opinions and attitudes, are utilized to ask the individual investors to evaluate the degrees of their agreement with the impacts of behavioral factors on their investment decision as well as with the statements of investment performance. The 5 points in the scale are from 1 to 5: strongly disagree, disagree, no opinion, agree, and strongly agree. Behavioral factors influencing the investors' decision-making are divided into four groups: heuristic, prospect, market, and herding effect. Heuristic indicators (availability, representativeness, and anchoring), prospects (Regret aversion, loss aversion, and mental accounting) and herding (Buying and selling decisions of other investors, choice of stock to the trade of others, the volume of stocks to the trade of other, and speed of herding). The questioner adopted in instruments developed by Waweru et al. [33] replicated by Sochi [28]. Investment decision variables are measured by adopting an instrument developed by Waweru et al. [33]. Structural Equation Model (SEM) approach using Partial Least Square (PLS) software was data analysis.

IV. DATA ANALYSIS

The collected data are processed and analyzed by SPSS. At first, the data are cleaned by removing the questionnaire with poor quality, such as including too many missing values or bias ratings. Then, statistical techniques, which are used for the data to achieve the research objectives, include Descriptive Statistics, Structural Equation Model (SEM) approach using Partial Least Square (PLS) software was data analysis.

To establish reliability and validity of the questionnaire. The questionnaire was pre-tested with a 30 sample of young generation investors and finalized before it distributed. Cronbach's alpha to measure random reliability errors. The reliability coefficient of all indicators of industrial performance was 0.843 which indicated the high reliability

Respondent characteristics are the profiles of 161 respondents who participated in filling out the questionnaire. The majority of respondents aged between 21 to 25 years (68.94%). 50.93% of respondents invest less than one year. The majority have investment funds of less than IDR 1,000,000 (43.48%).

Outer models test through convergent and discriminant validity of latent construct indicators and composite reliability and Cronbach alpha for the indicator blocks. Based on the outer model test, two indicators do not meet the requirements of convergent validity. These are seen through the loading factor value so that the two indicators are heuristic availability and regret aversion. The inner model tested using R-square (R^2) for each endogenous latent variable as the predictive power of the structural model. The R^2 value of the heuristic, prospect, and herding influence on investment decisions is 0.194.

Table 1 shows that the heuristic effect on investment decisions is significant, with a p-value of 0.0039 (≤0.05). Thus, the H1 hypothesis is accepted. The highest statistical T value on the indicator heuristic variable is anchoring heuristic of 3.7097. The effect of prospects on investment decisions is insignificant, with a p-value of 0.8605 (≤0.05). Thus, the H2 hypothesis is rejected—the highest statistical T value on the indicator variable prospects, namely Mental accounting of 3.7097. The influence between herding on investment decisions is significant, with a p-value of 0.0000 (≤ 0.05). Thus, the hypothesis H3 is accepted. The highest statistical T value on the herding variable indicator is the choice of stock to trade of others at 7.0169.

The analysis shows that heuristics affect investment decisions. The results of this study support the research conducted by Quershi et al. [21], Farooq and Sajid [6], Anum and Ameer [2], and Sochi [28] found that heuristics had a significant influence on investment decisions made by individual investors. Heuristics is a practical guide to facilitate information processing in decision making. The existence of heuristics accelerates individuals in making decisions [25]. These results also confirm the theory of financial behavior, which involves psychological theories in finance. So it is very natural for investors to make decisions to invest in the capital market involving psychology such as ratio and emotions [34].

Based on the analysis of heuristics behavior that most influences investment decision making, it is anchoring heuristics. It shows that investors make investment decisions based on their initial value (based on current stock prices and experience) and generally do not make sufficient adjustments to these baseline values when making a final decision [25]. Anchoring behavior affects more experienced investor groups; this is because in making decisions, experienced investors will refer to events that have already [9]. However, in younger investors, this anchoring behavior can cause bias [24]. It happens because they still have minimal experience in the investment world. Based on the characteristics of the respondents, the majority of investors invest for 0-1 years, which indicates the possibility of young generation investors in Denpasar experiencing a heuristic bias in anchoring.

The analysis shows that the prospect does not affect investment decisions. The results of this study do not confirm the prospect theory that states the involvement of emotions, likes, traits, and various kinds of things inherent in humans often cause humans not always to behave rationally when making a decision. The results of this study do not support Sochi [28] and Waweru et al.[33], which states that there is prospect behavior in investment decision making in the Dhaka Capital Market. However, according to Aziz and Khan [3], the prospect did not influence the investment decisions of individual investors in the Pakistani capital market.

The prospect of not influencing investment decisions is likely due to the majority of respondents having investment funds of less than IDR1.000.000. The amount of income from investments per month is less than IDR 1.000.000. It indicates that respondents are not afraid of the losses received because the funds invested tend to be small. Also, respondents are mostly new investors, the majority of whom have invested less than one year. So that respondents do not involve their emotions in making investment decisions. This result is supported by Pradhana [18], which states that investors who tend not to overestimate investment risk make better decisions than the other.

The analysis shows that herding influences investment decisions. It means that the herding behavior of young investors in the city of Denpasar influences investment decisions made. The younger generation of investors saw the decision of other investors to choose the shares because the experience and knowledge of young investors in the city of Denpasar tend to be lacking, so they are not confident in their knowledge and see other investors. Its cause of the characteristics of respondents who showed the majority of young people in Denpasar investing less than one year.

Herding behavior is irrational investor behavior because investment decisions made are not based on the economic fundamentals of an asset at risk, but by looking at the actions of other investors under the same circumstances, as well as following market consensus. Other investors' choices will easily influence investors who have high herding behavior in making investment decisions

[15]. investors who are affected by herding behavior are emotional biases where investors do not care about the companies they invest but they only follow the decisions of the majority of other investors [22].

V. ANALYSIS RESULTS

Table 1. Summary of Hypothesis Testing

Construct	t- Statistics	p-value
Heuristics	2,8979	0,0039*)
Representative Heuristics	3,0519	
Anchoring Heuristics	3,7097	
Prospect	0,1758	0,8605
Loss aversion	2,9173	
Mental accounting	2,9717	
Herding	4,7408	0,0000*)
choice of stock to the trade of others	7,0169	
the volume of stocks to the trade of other	6,0811	
Buying and selling decisions of other investors	4,8805	
speed of herding	6,1132	

*) significant at level α= 5 percent.
Source: Data Analysis, 2020.

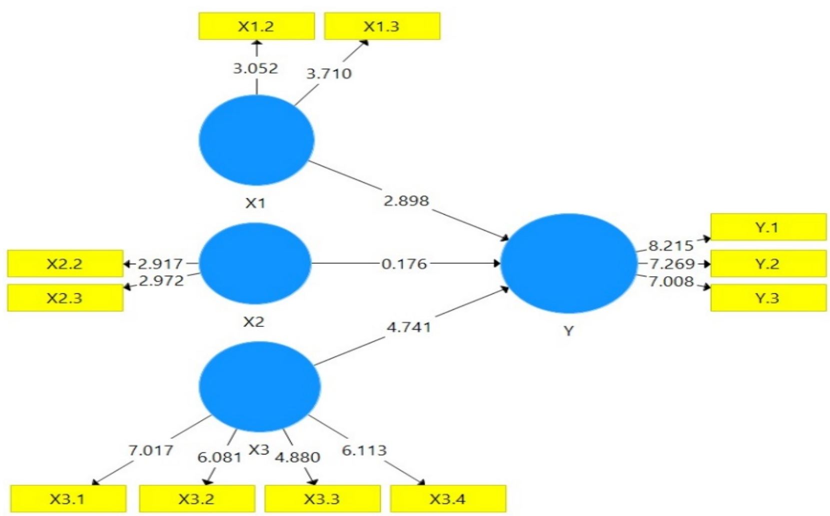

Figure 1. Full Model of Analysis Results

VI. STUDY R ESULTS, SUMMARY AND CONTRIBUTION

This study is concluded by giving all answers in the research question (1) heuristics affect investment decisions. It shows that the younger generation of investors in investing in stocks makes decisions quickly based only on the information they have without analysis. (2) Prospects do not affect the investment decision. It shows that risk considerations do not influence the younger generation of investors in making investment decisions. (3) Herding influence on investment decisions. This result shows that younger generation investors in making investment decisions tend to see the actions of other investors and follow market consensus.

The implications of the results of the research theoretically confirm the theory of financial behavior that studies psychological phenomena in influencing financial behavior, in this case, the heuristic behavior and herding of stock investors in the capital market. Investors will choose a profitable alternative according to the theory of decision making. The younger generation of investors in making stock investment decisions can use the information available on the Capital Market and conduct a fundamental analysis of the company so that there is no bias in making stock investment decisions. Investment decisions that are irrational or involve emotions can cause high stock price volatility (Untari, 2017).

This study shows an R square value of 0.194. This value means that 19.4 percent of the variation in investment decision changes explained by heuristic, prospect, and herding variables. In comparison, the remaining 80.6 percent is explained by other variables not included in the model. Future researchers advised adding other financial behavior variables such as overconfidence, risk perception, gambler's fallacy, and financial literacy. Besides, this research is only limited to investment decision making—the next researcher to develop this research by testing investment performance. For younger investors, investors should increase eruption and knowledge related to investment in the capital market to minimize behavior bias in investment decision making. Making investment decisions based on fundamental analysis and do not see the decisions of other investors without re-analysis.

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