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Analysis of Heuristic Behavior on Investment Decision

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Abstract: Stock investment decisions are the process of selecting a specific alternative from the evaluation of a number of alternative stocks that can provide the expected return. Stock investment decisions are influenced by investor behavior factor, there is a behavior bias one heuristic consisting of representativeness, availability bias, anchoring, gambler's fallacy and overconfidence. This study examines the influence of heuristic behavior toward investment decision of investor in Medan city. The population of this research is investor in Medan city, research sample is taken from active online investor who joined in securities company located in Medan city. This study uses primary data by questionnaires with a sample of 120 respondents. Data analysis using descriptive statistical analysis and Structural Equation Model. The results showed that there is a significant influence representativeness and availability bias with alpha 5% toward investment decision. There is no effect of anchoring, gambler's fallacy and overconfidence on investment decision. The implication of this research is that managers of securities firms must know and understand exactly the behavior of investors before offering their investment products.

Keywords: heuristic, behaviour, investment, investment decision.

1. INTRODUCTION

Rational investors will do the analysis in the process of making investment decisions. Analyzes conducted among others by studying the company's financial statements, as well as evaluate the performance of the company's business. The objective is the investment decision taken will provide optimal satisfaction/benefit, where the rate of return on investment becomes an indicator to improve the well-being for investors.

Stock investment decisions are complex processes that include analysis of several factors and various steps. It is believed that stock investment decisions are based on personal resources and technical factors. Stock investment decisions can be defined as the process of selecting certain alternatives from the evaluation
of a number of alternatives (Chandra, 2008). In order to carry out investment activities, investors need to take investment decisions. The investment decision in question is the decision to buy, sell or hold ownership of shares (Cahyadin and Milandari, 2009; Puspitaningtyas, 2013; Vyas, 2012). The concept of a rational individual investor in decision-making theory means that in making a decision, the action chosen is the action that will produce the highest expected utility/benefit (Puspitaningtyas, 2013; Shahzad et al., 2013).

Investment decisions related to stock trading, such as buying, selling, stock picking, length of time to hold shares, and stock volume for trading. Shefrin and Statman’s (1985) study found that investors’ decision to sell shares decreased due to losses compared to the initial purchase price, this trend is called “disposition effect”. Odean (1998) confirms the same conclusion that individual investors tend to sell shares of higher value than at the time of purchase, an increase compared to selling shares of declining value. Odean (1998) also admitted that the average return of shares sold is greater than the average return of stocks held by investors.

Behavioral finance can be helpful, based on psychology to explain why people buy or sell stocks, understand and explain feelings and cognitive errors affecting investment making (Waweru et al., 2008). Investors in capital markets often exhibit irrational behavior in their investment decisions. Investors tend to perform actions based on judgments that deviate far from the assumption of rationality. According to Chandra and Kumar (2012) the heuristic factor is influential in the context of individual Indian investors. Investors rely on traditional sources of information including corporate finance for investment decision-making processes. Research Chandra and Kumar (2011) states heuristics by definition are the process by which people reach conclusions, usually by what they find for themselves, from available information. This often leads them to develop the thumb rules, but these are not always accurate. These heuristics cause investors commit errors in particular situations. Heuristics are quite useful, particularly when time is limited (Waweru et al, 2008). Heuristics refers to experience-based techniques for problem solving and learning, such as rules of thumb, to reduce the search necessary to find the solution to a problem (Shefrin, 2000; Tversky and Kahneman, 1974). There are five cognitive deviations that can cause heuristics that are representativeness, availability bias, anchoring, gambler’s fallacy and overconfidence (Luong and Ha, 2011; Chandra and Kumar, 2011).

Investor behavior in making investment decisions is different. Study of Lakshmi et al. (2013) have asserted that behavioral biases such as herd behavior, overconfidence, risk aversion, cognitive dissonance, representativeness heuristic and reflection effect vary in investors who make short-term and long-term investment.

Representativeness heuristic could hinder the quality of managerial decision making, especially decisions involving investment in new ventures (Wickham, 2003). Wu and Liu’s (2009) research on the Taiwan stock market found the weakness of representativeness during the period 1988-2006 against earnings. Tversky and Kahneman (1974) show that representativeness heuristic is affected by individuals in that when they are asked to formulate judgments under uncertainty, most of them base their decisions on representative information.

Research Tversky and Kahneman (1974) have result that representativeness and availability are retained, even though they occasionally lead to errors in prediction or estimation. Results study of Khan (2015) reports weak negative correlation between availability bias and investment decision making, investors from
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Islamabad stock exchange and business students in Islamabad Pakistan. Tversky and Kahneman (1973) availability is correlated with ecological frequency, but it is also affected by other factors. Consequently, the reliance on the availability heuristic leads to systematic biases. The phenomenon of illusory correlation is explained as an availability bias. Schwarz et al., (1991) found that the obtained judgments were, in fact, opposite to the implications of recalled content, the availability heuristic by drawing attention to the other end of the ease-of-recall.

The research Wilson et al. (1996) found that anchoring effects can occur, whereby uninformative numerical anchors influence a judgment even when people are not asked to compare this number to the target value. Basic anchoring occurs if people pay sufficient attention to the anchor value; knowledgeable people are less susceptible to basic anchoring effects; anchoring appears to operate unintentionally and nonconsciously in that it is difficult to avoid even when people are forewarned. Anchoring and adjustment behavior has significant positive effect into investors’ risk tolerance. Anchoring and adjustment also conservatism behavior has no effect or correlation between them and investment decision making based on corporate image. Kaustia et al. (2008) found very large anchoring effect in the students’ long-term stock return expectations, that is, their estimates are influenced by an initial starting value. Professionals show a much smaller anchoring effect, but it nevertheless remains statistically and economically significant, even when we restrict the sample to more experienced professionals. Chang et al. (2014) explained that anchoring explanation for the ex-day abnormal returns of stock distributions including stock dividend distributions, splits, and reverse splits. Investors tend to anchor on cum-day prices in valuating ex-distribution stocks, resulting in a positive association between ex-day returns and adjustment factors. Positive return-factor relation is more pronounced among events that are more subject to investors’ anchoring propensity, featured by less investor attention, greater arbitrage difficulty, greater valuation uncertainty, less investor sophistication, and higher market sentiment.

Another consequence of the well-known gambler’s fallacy, after observing a long run of red on the roulette wheel (Tversky and Kahneman, 1974). Behavior has forced investors to make biased decisions. Investors expectations are affected by gamblers fallacy while investing in stocks is proven which adversely affect the outcome of the investing decisions (Rakesh, 2013). Study Chandra and Kumar (2011, 2012) proved that the Indian investors are not affected by Gambler’s fallacy. High-risk stock traders are overwhelmingly people who also engage in traditional gambling, the reverse relationship is not as strong - most gamblers do not engage in high-risk stock trading (Arthur, 2015). Jayaraj (2013) proved that investors are affected by Gambler’s fallacy able to anticipate the final rate of return during good or bad conditions in the stock market.

Nofsinger (2005), Bhandari and Deaves (2006) about the behavior of male investors tend to overconfidence compared with female investors. Overconfidence investors overestimate the precision of their information and thereby the expected gains of trading, overconfident investors will trade too much. Investors may even trade when the true expected net gains are negative (Barber and Odean, 2001). Odean (1998) shows that overconfidence investors—who believe that the precision of their knowledge about the value of a security is greater than it actually is—trade more than rational investors and that doing so lowers their expected utilities. Greater overconfidence leads to greater trading and to lower expected utility. Study of Zacharakis and Shepherd (2001) that venture capitalists’ are indeed overconfidence and negatively affects decision accuracy. The level of overconfidence depended upon the amount of information, the
type of information, and whether the venture capitalists’ strongly believes the venture will succeed or fail. In this study heuristic part of the behavioral investors on investment decision making, conducted on stock investors in the city of Medan Indonesia. The authors hope this research can be useful for investors as a consideration in making the right investment decisions, beneficial to securities firms as information useful in increasing investment.

2. THEORETICAL REVIEW

2.1. Heuristic Method

Shefrin (2002) describes investor behavior as the result of psychological interactions with financial behavior and performance of all investor category types. That investors should be more careful in making the investment they choose to avoid errors in the calculation. Psychological factors can shape investors’ behavior in buying and selling stocks in the stock. Ritter (2003) points out that “Behavioral finance has two building blocks: cognitive psychology and the limits to arbitrage”. Cognitive psychology involves how people think. In some psychological literature it is explained that people often make systematic errors in their way of thinking eg their overconfidence. Sometimes the choice of how they think distorts them. While the limits in arbitration concerning forecasting or predicting conditions that allow for the conduct of arbitration.

Heuristic method is the rule of thumb or general determination related to attitude to help the decision making process becomes easier, especially the complex and environmental uncertainty by measuring the probability and predicting the value of the stock so it is expected to reduce the complexity (Tversky and Kahneman, 1974). This method causes bias in some cases (Ritter, 2003). Tversky and Kahneman (1974) is the first author to introduce heuristic method factors in three cognitive deviations including representativeness, availability bias and anchoring. Waweru et al. (2008) adds two cognitive deviations to the heuristic method of gambler’s fallacy and overconfidence.

2.2. Representativeness

Study of Tversky and Kahneman (1974) that representativeness, which is usually employed when people are asked to judge the probability that an object or event A belongs to class or process B. De Bondt (1995) that representativeness induces people to give too much weight to recent evidence and too little weight to the base rate or prior odds. Representativeness also leads people to make forecast that are too extreme, given the predictive value of the available information. Representativeness, is an assessment based on stereotypes ie two things that have the same quality must be the same (Nofsinger, 2005). For example, good company must be good stock. A good investment is an investment in a good company. Indicators used are in determining the investment place investors always choose companies that have a good performance.

Pompian (2006) found two primary interpretations of representativeness bias apply to individual investors:

1. In base-rate neglect, investors attempt to determine the potential success of, say, an investment in Company A by contextualizing the venture in a familiar, easy-to-understand classification scheme
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2. In sample-size neglect, investors, when judging the likelihood of a particular investment outcome, often fail to accurately consider the sample size of the data on which they base their judgments. They incorrectly assume that small sample sizes are representative of populations (or “real” data).

The availability bias is a rule of thumb, or mental shortcut, that allows people to estimate the probability of an outcome based on how prevalent or familiar that outcome appears in their lives. People exhibiting this bias perceive easily recalled possibilities as being more likely than those prospects that are harder to imagine or difficult to comprehend (Pompian, 2006). Availability of bias is one form of cognitive deviation that occurs when investors too often use information that is easily obtained. In stock trading, these irregularities reflect a tendency of self, where investors are so familiar with the condition that it is very easy to obtain the information, although the fundamental principle states that portfolio management is an attempt to optimize (Luong and Ha, 2011). Availability is a mediating variable, rather than a dependent variable as is typically the case in the study of memory. Availability is an ecologically valid clue for the judgment of frequency because, in general, frequent events are easier to recall or imagine than infrequent ones. Availability is also affected by various factors which are unrelated to actual frequency. If the availability heuristic is applied, then such factors will affect the perceived frequency of classes and the subjective probability of events. Consequently, the use of the availability heuristic leads to systematic biases (Tversky and Kahneman, 1973).

When required to estimate a value with unknown magnitude, people generally begin by envisioning some initial, default number—an “anchor”—which they then adjust up or down to reflect subsequent information and analysis. The anchor, once fine-tuned and reassessed, matures into a final estimate. Numerous studies demonstrate that regardless of how the initial anchors were chosen, people tend to adjust their anchors insufficiently and produce end approximations that are, consequently, biased. Anchoring and adjustment is a psychological heuristic that influences the way people do probabilities. Investors exhibiting this bias are often influenced by purchase “points” or arbitrary price levels or price indexes. This is especially true when the introduction of new information regarding the security further complicates the situation. Rational investors treat these new pieces of information objectively and do not reflect on purchase prices or target prices in deciding how to act. Anchoring and adjustment bias, however, implies that investors perceive new information through an essentially warped lens (Pompian, 2006). Phenomenon anchoring is different starting points yield different estimates, which are biased toward the initial values. Anchoring occurs not only when the starting point is given to the subject, but also when the subject bases his estimate on the result of some incomplete computation (Tversky and Kahneman, 1974). Anchoring is defined as the tendency of investors to rely on some piece of information to take decision (Kansal and Sing, 2015). The concept of anchoring draws on the tendency to attach or “anchor” our thoughts to a reference point - even though it may have no logical relevance to the decision at hand, Meir (2010).

The belief that a small group of samples can be representative of the population known as the “law of small numbers” (Rabin, 2002) is an emergence opening gambler’s fallacy (Barberis and Thaler, 2003). Lodging at the stock exchange gambler’s fallacy occurs when investors are inaccurate predictions were then compared with the end of the return obtained (Waweru et al., 2008). The gambler’s fallacy intuitive judgments are liable to similar fallacies in more intricate and less transparent problems. Consider a person whose subjective probabilities for all possible outcomes of a coin-tossing game reflect the gambler’s fallacy (Tversky and Kahneman, 1974).
Overconfidence is a feeling of self-belief in excess. Overconfidence sometimes causes investors to overestimate the knowledge they have, underestimate the risks and overstate the ability to control what happens (Nofsinger, 2005). Overconfidence is a bias that causes people to overestimate their knowledge, abilities, and judgment when making decision (Barber and Odean, 2001; Ritter, 2003). Overconfidence can be summarized as unwarranted faith in one's intuitive reasoning, judgments, and cognitive abilities. The concept of overconfidence derives from a large body of cognitive psychological experiments and surveys in which subjects overestimate both their own predictive abilities and the precision of the information they’ve been given. People think they are smarter and have better information than they actually do. Making an investment decision, based on their perceived knowledge advantage (Pompian, 2006).

2.3. Investment Decisions

An investment is the current commitment of dollars for a period of time in order to derive future payments that will compensate the investor for the time the funds are committed, the expected rate of inflation and the uncertainty of the future payments (Reilly and Brown, 2006). Making investment decisions, investors need information that are important factors as a basis for determining investment choices. From the existing information, then form a decision-making model in the form of investment valuation criteria to enable investors to choose the best investment among alternative investment available (Lubis et al., 2013). Investment decisions are made by investors and investment managers. Investors commonly perform investment analysis by making use of fundamental analysis, technical analysis and judgment. Investment decisions are often supported by decision tools. It is assumed that information structure and the factors in the market systematically influence individuals’ investment decisions as well as market outcomes (Jagongo and Mutswenje, 2014). Investment Decisions Investment is the action or process of investing money with the hope of future benefit but the world of investment can be hot and cold but investing through research and by keeping your head straight can lead you to success. Every investor wants to get desired return from their investment to make optimal investment decision (Sharp, 1964).

3. RESEARCH METHODS

The population in this study are investors in the city of Medan, the research sample is taken from active online investors who are members of securities companies in the city of Medan. Number of questionnaires returned after being filled by investors and representative (purposive sampling) of 120 questionnaires. Data collection methods used in this study include: (1). Documentation study is data collection by studying scientific journals and books and internet search related to the problem under study. (2). The questionnaire is data collection by submitting a list of questions written to be filled by the respondent. Data analysis using descriptive statistical analysis and Structural Equation Model. Measurements made in this study is to use Likert scale. Likert scale is a scale used to measure attitudes, opinions, and perceptions of a person or group of people about social events or symptoms (Sugiyono, 2010). Measurement mode by confronting a respondent with a statement and then selecting from five answer options, where the answer value has different answer value (Handoko et al., 2017). In this study used statements with a range of assessment scales are: 1: Strongly Disagree, 2: Disagree, 3: Hesitate 4: Agree, and 5: Strongly Agree.

Questions asked to investors on representativeness are: investors buy stocks that have high returns and avoid stocks that have low returns in the past; Investors use trend analysis on some representative stocks to
make investment decisions on all of the invested shares. The question of availability bias are: investors tend to buy local shares rather than international stocks because more local stock information is available; Investors consider information from close friends as a reliable reference for investment decisions. For anchoring asked: investors make the basis of previous experience in the stock market for future investment decisions; Investors forecast future stock price changes based on today’s stock price (Lutfi et al., 2016). The question of gambler’s fallacy is: the investor is able to anticipate the final rate of return during good or bad conditions. Overconfidence with the question: investors believe their knowledge of the stock market can be helpful in buying or selling stock decisions.

This study examines the effect of representativeness, availability of bias, anchoring, gambler’s fallacy and overconfidence (which is part of the heuristic behavior) toward investment decisions. The model of this study is illustrated in Figure 1.

![Figure 1: The research model](image)

To achieve the research objectives, several hypotheses are formulated as follows:

$H_1$: There is a significant influence of representativeness toward investment decision.

$H_2$: There is a significant influence of availability bias toward investment decision.

$H_3$: There is a significant influence of anchoring toward investment decision.

$H_4$: There is a significant influence of gambler’s fallacy toward investment decision.

$H_5$: There is a significant influence of overconfidence toward investment decision.

4. RESULT AND DISCUSSION

4.1. Result

Respondents’ answers to questions about heuristic behavior can be seen in table 1. The first question for representativeness of respondents most chose agree (39.17%) and strongly agree (30%). The second question for representativeness of respondents is many agreed (49%) and strongly agree 36%). The first question of availability of respondent bias most chose agree (35.83%) and strongly agree (35%). For the second question...
of availability bias, most respondents chose hesitate (46.47%). The first question of respondents anchoring most chose agree (49.2%) and strongly agree (25%). The second question is anchoring, most prefer agree (39.17%) and hesitate (27.5%). The question of gambler's fallacy, respondents chose hesitate answer (46.67%), and the overconfidence question most respondents chose was agree (45.83%) and strongly agree (25.83%).

Table 1

Respondents’ answers to question about heuristic behavior

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Representativeness1</td>
<td>4.17%</td>
<td>5%</td>
<td>21.67%</td>
<td>39.17%</td>
<td>30%</td>
</tr>
<tr>
<td>Representativeness2</td>
<td>3.33%</td>
<td>5.83%</td>
<td>20%</td>
<td>40.83%</td>
<td>30%</td>
</tr>
<tr>
<td>Availability bias1</td>
<td>4.17%</td>
<td>8.33%</td>
<td>22.5%</td>
<td>35.83%</td>
<td>29.17%</td>
</tr>
<tr>
<td>Availability bias2</td>
<td>5.83%</td>
<td>7.5%</td>
<td>46.67%</td>
<td>24.17%</td>
<td>15.83%</td>
</tr>
<tr>
<td>Anchoring1</td>
<td>0%</td>
<td>1.67%</td>
<td>24.17%</td>
<td>49.2%</td>
<td>25%</td>
</tr>
<tr>
<td>Anchoring2</td>
<td>7.5%</td>
<td>13.33%</td>
<td>27.5%</td>
<td>39.17%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Gambler's fallacy</td>
<td>5.83%</td>
<td>10.83%</td>
<td>46.67%</td>
<td>30%</td>
<td>6.67%</td>
</tr>
<tr>
<td>Overconfidence</td>
<td>0%</td>
<td>6.67%</td>
<td>21.67%</td>
<td>45.83%</td>
<td>25.83%</td>
</tr>
</tbody>
</table>


The result of data processing of Structural Equation Model (SEM) can be seen in Table 2.

Table 2

The result of data processing of SEM with PLS method

<table>
<thead>
<tr>
<th>Variable</th>
<th>Question</th>
<th>Beta</th>
<th>CR</th>
<th>AVE</th>
<th>R²</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representativeness</td>
<td>Representativeness 1</td>
<td>0.808</td>
<td>0.838</td>
<td>0.721</td>
<td>0.619</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Representativeness 2</td>
<td>0.883</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability Bias</td>
<td>Availability bias 1</td>
<td>0.844</td>
<td>0.830</td>
<td>0.710</td>
<td>0.591</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Availability bias 2</td>
<td>0.841</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anchoring</td>
<td>Anchoring 1</td>
<td>0.630</td>
<td>0.743</td>
<td>0.598</td>
<td>0.354</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anchoring 2</td>
<td>0.894</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gambler's Fallacy</td>
<td>Gambler's fallacy</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Overconfidence</td>
<td>Overconfidence</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Investment Decision</td>
<td></td>
<td>0.268</td>
<td>0.423</td>
<td>0.302</td>
<td>-0.008</td>
<td></td>
</tr>
</tbody>
</table>


Main loading value shows the relationship between variables with the indicator. According to Hair et al. (2010) a minimum main loading value of 0.50 is considered to have a strong and significant relationship. Composite reliability (CR) > 0.700 and to explore a research value of 0.60 is acceptable (Mudaet al, 2017). Average Variance Extracted (AVE) for each variable > 0.500 where 50% or more indicators should be taken into account (Hair et al., 2012). Cronbach’s alpha shows the accuracy of parameter estimates (Chin,
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The relationship between the variable with the question/indicator has a main loading value above 0.5 so it has a strong and significant relationship. Average Variance Extracted (AVE) is used to measure the amount of variance that can be captured by its construct compared to the variance caused by measurement error. AVE also as a condition of discriminant validity is achieved. Representativeness, availability bias, anchoring, gambler’s fallacy and overconfidence, have an AVE above 0.50 so as to achieve validity requirements. Investment decision has an AVE value below 0.50 indicating that the indicator has a high average error rate. Composite reliability (CR) shows internal consistency that is high composite reliability value shows the consistency value of each indicator in measuring its construct. CR values for representativeness, availability bias, anchoring, gambler’s fallacy and overconfidence variables above 0.70, reflect acceptable indicator reliability (Muda, 2017 and Sadalia et al., 2017). The value of CR investment decision of 0.268 means less good reliability. Investment decision has R square 30.2% which means investment decision able to explain equation model in this research is 30.2%. The result hypothesis this study can be seen in Table 3.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Relationship</th>
<th>T – Value</th>
<th>Beta</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Representativeness → Investment Decision</td>
<td>4.148</td>
<td>0.367</td>
<td>Significant</td>
</tr>
<tr>
<td>H2</td>
<td>Availability Bias → Investment Decision</td>
<td>2.955</td>
<td>0.307</td>
<td>Significant</td>
</tr>
<tr>
<td>H3</td>
<td>Anchoring → Investment Decision</td>
<td>0.339</td>
<td>-0.037</td>
<td>No Significant</td>
</tr>
<tr>
<td>H4</td>
<td>Gambler’s Fallacy → Investment Decision</td>
<td>0.609</td>
<td>0.064</td>
<td>No Significant</td>
</tr>
<tr>
<td>H5</td>
<td>Overconfidence → Investment Decision</td>
<td>0.553</td>
<td>-0.055</td>
<td>No Significant</td>
</tr>
</tbody>
</table>


Based on the value of beta (path coefficient) and T-value. Beta value between -0.055 to 0.367, T-value as a reference of a significant or no significant hypothesis. The results of hypothesis representativeness have a significant positive effect on investment decision. So the hypothesis is accepted. It can be seen from beta value 0.367 and T-value 4.148. The T-value value ≥ 1.645 yields a significant estimated value of 5%. The availability bias has a significant positive effect on investment decision with beta value 0.307 and T-value 2.955. Anchoring has no effect on investment decision with beta -0.037 and T-value 0.339. Gambler’s fallacy has no effect on investment decision with beta 0.064 and T-value 0.609. Overconfidence has no effect on investment decision with beta -0.055 and T-value 0.553.

4.2. Discussion

Representativeness has a significant positive effect on investment decision. This hypothesis is in accordance with research Tversky and Kahneman (1974) that investment decision is influenced by representativeness. But not in accordance with Wickham’s research, 2003) that representativeness inhibits investment decision. And research Research Wu and Liu (2009) that representativeness leads to weakness / decrease earnings. The availability of bias has a significant positive effect on investment decision. In accordance with research Schwartz et al. (1991) that the availability of bias may affect the assessment for investment decision. Not in accordance with research Khan 2015 that the availability of bias have negative correlation and no effect on
investment decision. Anchoring has a negative correlation and has no effect on investment decision. In accordance with Wilson et al. (1996) that anchoring has no effect or correlation toward investment decision. Not in accordance with research Kaustia et al. (2008) who found that anchoring greatly affected the expectation of long-term stock returns that affected investment decision. Research Chang et al. (2014) found that there was a positive relationship between anchoring and returns on investment decision. Gambler's fallacy has a positive beta but has no relationship to investment decision. In line with Chandra and Kumar's (2011, 2012) research that gambler's fallacy has no effect on investment decision of Indian investors. Arthur, 2015 found that investors with gambler's fallacy were not involved in high-risk stocks and therefore had no effect on investment decision. In contrast to research (Rakesh, 2013) gambler's fallacy has a significant negative / negative relationship with investment decision. Jayaraj (2013) proves that investors are affected by Gambler's fallacy that ultimately affects investment decision. This study found that overconfidence has no effect on investment decision. Different from research (Barber and Odean, 2001) that overconfidence has an effect on investment decision. Zacharakis and Shepherd (2001) suggest that overconfidence negatively affects investment decision. Odean (1998) states that overconfidence causes investors to trade more which has an effect on investment decision. This study found that there is no relationship between anchoring bias, gambler's fallacy and overconfidence toward investment decision due to:

- Investors of medan cities have a high sense of friendship, with the result that investors’ investment decisions are less or more influenced by their friends/colleagues.
- Investors of Medan city like to show off and high prestige with the result that investment decision is more based on prestige and want to show off.
- Investors of Medan city in taking a decision may be influenced by rumors circulating in the stock market with the result that it can affect their investment decision.

5. CONCLUSION AND SUGGESTION

5.1. Conclusion
The results of this study obtained some conclusions, namely: There is a significant relationship between representativeness and availability toward investment decision. But there is no relationship between anchoring, gambler's fallacy and overconfidence toward investment decision.

5.2. Suggestion
Based on the results of research and conclusions obtained in this study, the suggestions required by the author are as follows: 1). This research is still far from perfect, hence more research is needed by looking at also effect of other behavioral bias like prospect, market and herding to investment decision. 2). This research is still within the scope of investors of Medan, this research should be continued to other major cities in Indonesia. 3). Investors need continuous education and high commitment to be guided in practice so that will remain consistent in investing and have a good investor behavior and ultimately produce good investment decisions and profitable and obtain the expected investment performance. 4). The implication of this research is that the managers of securities firms must know and understand exactly the behavior of investors before offering their investment products.
REFERENCES


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