



An Experiment : Distribution of the Adversity Quotient as a Reduction of Bias in Estimating Earnings

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Abstract

Purpose: This study aims to analyze the distribution of the role of adversity quotient in the estimation bias of future earnings. Adversity quotient is a cognitive ability that can be distributed as a reducer of bias effects that occur in profit forecasting or investment decision making. **Research design, data and methodology:** The study designs a full factorial within-subject 2×3 as a laboratory experiment. The study subjects are 30 accounting students who are proxied as investors. **Results:** The results show that the estimated earnings made by investors experience anchoring-adjustment heuristic bias which means the initial value becomes a basic belief that influences the decisions taken by investors. However, this study also provides evidence that heuristic bias can be reduced by the presence of adversity quotient. Investors who have high adversity ability are able to reduce the estimation bias when compared to investors who have medium and low adversity ability so the higher the difficulty ability possessed by investors, the less likely the occurrence of bias in decision making. **Conclusion:** Thus, the adversity quotient is proven to be distributed as a reducing opportunity from the bias that will occur in estimating future earnings or making investment decisions.

Keywords : Earnings estimates, Adversity quotient, Anchoring-adjustment, Heuristic bias, Distribution

JEL Classification Code: C91, G41, M41

1. Introduction

Capital markets generally have an irrational or anomalous phenomenon called capital market inefficiencies and are the impact of irrationality in making investment decisions.

Research on the irrationality of investors in the capital market stems from the research of De Bondt and Thaler (1985) which shows that there is an overreaction of investors to information that tends to cause market prices to be too high. De Bondt and Thaler (1985) also stated that prices are too low if they obtain new information that is considered bad

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(bad news). Overreaction behavior in investment decision making is related to investor behavior towards earnings information (Praditha et al., 2019). Investors rely on prior earnings information to predict the company's future earnings (Bloomfield et al., 2003). Accurate earnings estimates are important to be used as a basis for investment decision making (Habbe, 2017). Errors in estimating earnings (misestimated) will affect investors' decisions in determining the price of shares (mispriced) whether to be sold or bought so it is important to know the irrational factors that cause bias in the estimation of earnings made by investors (Brav & Heaton, 2002; Habbe, 2017; Praditha et al., 2019).

The irrationality of investors in the capital market is explained by the heuristic factors that investors have (Tversky & Kahneman, 1973). Investors not only do mathematical calculations but also use intuition (Praditha et al., 2019). Tversky and Kahneman (1973) say that investors tend to predict intuitively by combining estimates with the distribution of impressions in which feelings and thoughts influence the decisions taken so that a happy and sad feeling that is being experienced will be able to influence investors in making decisions. Investors who receive good news tend to give inaccurate predictions. Heuristics can be interpreted as a "rule of thumb" which guides investors to act practically in making various considerations (Habbe, 2017; Sundari & Habbe, 2018). Heuristics will then influence the estimation of earnings made by investors and allow bias in the estimation (Praditha et al., 2019).

Heuristics that are considered as the basis of many intuitive judgments are anchoring-adjustment heuristics (Gilovich & Epley, 2006). Heuristic bias from anchoring-adjustment is information that is explicitly present precedes decision making which can be used as an alternative in determining decisions but not always accurate (Praditha et al., 2019). One way to make judgments in conditions of uncertainty is to anchor (anchoring) information that comes to mind and make adjustments (adjustments) until a reasonable estimate is obtained (Habbe & Mande, 2016). Anchoring significantly influences a person's decision making so that the higher the anchoring an investor has, the more bias the investment decision is made (Praditha et al., 2019). Individuals who are easily affected by anchoring enable improper decision making (Musthofa & Ancok, 2005).

Investors do not always process data correctly so that it is possible to create the probability of incorrect distribution of estimated future earnings (Praditha et al., 2019). Pompian (2012) says that anchoring and adjustment bias can occur when investors are required to make estimates of something not yet known. The investor then sets a default number or anchoring as the basis for the estimation initiation. Investors will then adjust the estimation results to be slightly above or

below the anchoring value. Anchoring bias is the existence of information that explicitly appears prior to decision making that is not always accurate (Musthofa & Ancok, 2005). This anchoring bias is a cognitive bias that can be minimized by the presence of cognitive abilities (Bergman et al., 2010).

Cognitive abilities have been empirically proven to reduce the bias effect of heuristic representativeness and anchoring-adjustment (Stanovich & West, 2008; Bergman et al., 2010; An et al., 2012). The greater the cognitive abilities of an individual, the smaller the decision or assessment experience heuristic bias. And vice versa, the smaller the cognitive abilities of a person, the more likely the bias is in the assessment or decision (Bergman et al., 2010; An et al., 2012). Therefore, this study includes adversity quotient used as a measure of individual cognitive abilities that are considered capable of reducing the effects of bias from heuristics. Adversity quotient which is a concept of the construction of individual cognitive responses in which individuals who have adversity quotient will be able to control the tendency of attachment to anchoring (Musthofa & Ancok, 2005).

Intuition involvement in decision making as explained by image theory, makes adversity quotient play a role in providing clarity (Beach & Mitchell, 1987). The role of the Adversity quotient is to be able to provide investors with intuition to make predictions to make investment decisions. The sharper an investor's intuition will be able to reduce the effects of bias from anchoring (Musthofa & Ancok, 2005). So, it can be concluded that the possibility of anchoring bias that occurs can be reduced by the presence of quality Adversity quotient in individuals (Musthofa & Ancok, 2005). Thus, this study was conducted to examine the role of individual psychological factors of investors in influencing decisions taken and identify the decision bias that occurred and analyze the role of adversity quotient that is considered capable of reducing the anchoring-adjustment heuristic bias in estimating future earnings by investors.

2. Literature Review

2.1. Anchoring-adjustment Heuristic

Heuristics is an informal method or guideline for reasoning and solving a problem and is considered as an approach that does not provide guarantees to get the right answer (Pompian, 2012). Heuristics are cognitive "shortcuts" that can cause bias and contribute to mistakes (Habbe, 2017). Heuristics is a cognitive technique that acts as a shortcut to facilitate problem-solving and simplify decision making in situations of uncertainty (Gigerenzer & Gaissmaier, 2011). Although heuristics can increase the ease

and efficiency of decisions, heuristics can also cause bias and produce errors (Richie & Josephson, 2017). Heuristics is a decision-making approach in a fast and economical way, i.e. only by utilizing available information (Gigerenzer & Gaissmaier, 2011). Tversky and Kahneman (1973) add that the heuristic approach is useful and economical, and is sometimes considered effective for use in assessing situations with high uncertainty, but also sometimes giving bias results.

Anchoring-adjustment describes a phenomenon where one single information influences a decision, especially information found at the beginning of a particular situation (Richie & Josephson, 2017). One strategy for estimating an unknown amount is to start from known information and then make adjustments until an acceptable value is obtained (Tversky & Kahneman, 1973; Gilovich & Epley, 2006). The anchoring-adjustment model explains that in many situations, individuals make estimates by departing from the initial value (anchoring) which then makes adjustments (adjustments) with the final answer results where the initial value used is the earnings of the previous period (Wahyuni et al., 2018; Praditha et al., 2020).

Adjustments are usually inadequate because they end after reaching an acceptable value for an estimate (Habbe, 2017). This inadequate adjustment is only possible if the anchoring value is outside the acceptable value distribution which may be caused by extreme, or wrong anchoring values (Bahnik et al., 2017). However, the anchoring effect does not always occur due to inadequate adjustments (Bahnik et al., 2017). The study of Gilovich and Epley (2006) which looked at the anchoring paradigm found that the anchoring effect occurs due to an increase in the accessibility of information that is consistent with anchoring, rather than inadequate adjustments. The anchoring effect in a decision has a strong influence and can last long enough even after irrational decision making (Praditha et al., 2019).

2.2. Adversity Quotient

Adversity Quotient (AQ) is established science, theory, and approach to be measurably more resilient. The more resilient a person is, the more effective and constructive the individual responds to life's difficulties. AQ is a person's ability to adapt to difficulties, challenges, setbacks, suffering, problems, difficulties, and misfortune (Stoltz, 2000a). Adversity Quotient (AQ) predicts how well someone faces difficulties, overcomes them, and predicts possible outcomes from certain situation.

Adversity Quotient (AQ) is the capacity to adjust to difficulties in life, someone with good Adversity intelligence can achieve goals by resisting all obstacles (Stoltz, 2000a). Parvathy and M Praseeda (2014) add that this is also related to many other factors such as self-esteem,

motivation, fighting spirit, creativity, sincerity, positive attitude, optimism, emotional stability, and others. Therefore, it can be concluded that AQ explains one's survival ability in difficult situations (Stoltz, 2000a).

Adversity Quotient (AQ) explains that the response of the mind (conscious brain) is more necessary in responding to the problems faced, it is because the response of the mind will be more constructive where the perception of reality will lead to more accurate considerations (Stoltz, 2000a). If more responses go through the unconscious brain, then the response that occurs will be less constructive, and thoughtful consideration will be reduced (Musthofa & Ancok, 2005). AQ is referred to as a measure of human resilience and has become an important concept in human resource management (Stoltz, 2000a). Stoltz (Stoltz, 2000b) applies AQ principles to the work environment by explaining how to measure and improve one's AQ, as well as showing differences in the success rate of someone who has a higher AQ score than a medium and low AQ score. AQ is not only an indicator of job success but can be used to predict and influence all aspects of human capacity and performance (Chin & Hung, 2013).

2.3. Frameworks and Hypothesis Development

The integration of AQ with anchoring-adjustment heuristics can be explained by the image theory proposed by Beach and Mitchell (Beach & Mitchell, 1987). Image theory explains that individuals have a tendency to choose alternative options available, so it is very possible for bias in decision making (Musthofa & Ancok, 2005). AQ is said to be able to sharpen investors' intuition in making predictions to make an investment decision (Musthofa & Ancok, 2005). Therefore, the higher the level of AQ that investors have, the smaller the probability of bias occurring in decision making (Musthofa & Ancok, 2005).

Figure 1 illustrates the framework of this research based on the literature review that has been done.

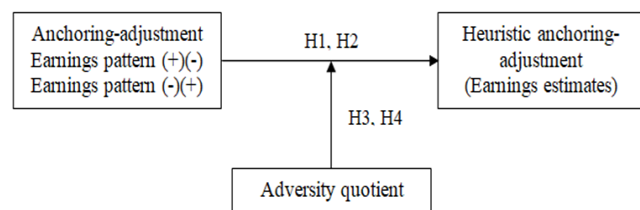


Figure 1: Framework

This research model is also supported by several previous studies, some of which are presented in table 1 below.

Table 1: Previous Research

Author (Year)	Result
Bloomfield et al. (2003)	The assessment relies on the presented earnings series information, whereas the subject relies on past information as anchoring.
Habbe (2017)	Respondents are known to experience misestimate and mispricing in their assessment, this is caused by the anchoring-adjustment heuristic experienced. Investors also over and underreact to the pattern of information presented.
Richie & Josephson (2017)	The effect of decision bias in diagnosing medical problems can be reduced by medical training.
Sundari & Habbe (2018)	The anchoring adjustment heuristic is proven not to affect the process of determining future budgets. So it can be concluded that the public sector budget makers overreact to the presented PAD information.
Praditha et al. (2020)	Anchoring adjustment will always occur to investors who are in a condition of high uncertainty when forecasting future earnings or making investment-related decisions.
Stanovich & West (2008)	Some heuristic biases are not proven to be correlated with cognitive ability, it can be concluded that individuals generally think rationally.
Bergman et al., (2010)	Cognitive ability has been shown to reduce the anchoring effect although it cannot eliminate it completely.
(Musthofa & Ancok, 2005)	Adversity quotient is able to reduce decision bias caused by the presence of anchoring
Chin & Hung, 2013)	Adversity quotient is able to moderate the effect of Psychological Contract Breach (PCB) and turnover intention on insurance industry workers.

Overreaction behavior is caused by investors over-relying on previous earnings information when predicting future earnings, thus creating prediction errors (Bloomfield et al., 2003). High dependence on previous period earnings will cause heuristic bias when used to predict future earnings values (Habbe, 2017). Investors rely on prior earnings information to predict the company's future earnings (Bloomfield et al., 2003). Anchoring bias occurs due to investors who tend to make estimates that are not much different from their initial values (Bloomfield et al., 2003; Habbe & Mande, 2016; Wahyuni et al., 2018; Habbe, 2017; Richie & Josephson, 2017; Sundari & Habbe, 2018). The higher the investor's dependence on anchoring, the more biased investment decisions are made (Praditha et al., 2020). Individuals who are easily affected by anchoring make biased decision making possible (Musthofa & Ancok, 2005). Based on a literature review, this study formulated the following hypothesis:

- H1:** The bias anchoring earnings estimation occurs in the earnings pattern that has a positive anchor.
H2: Estimation anchoring bias occurs on earnings patterns that have negative anchors.

Heuristic bias experienced by investors can be reduced by cognitive abilities, one of which is Adversity Quotient (AQ) (Chin & Hung, 2013). AQ explains about the ability to be able to survive in difficult situations, where it serves to empower potential (Musthofa & Ancok, 2005). Adversity quotient can be used to predict performance, motivation, empowerment, creativity, productivity, learning, strength, hope, happiness, vitality, emotional health, physical health, persistence, resilience, attitude, longevity, and change (Phoolka & Kaur, 2012). Cognitive abilities have been empirically proven to reduce the bias effect of heuristics (Stanovich & West, 2008; Bergman et al., 2010).

The greater the cognitive abilities of individuals, the smaller the decision or assessment experiences heuristic bias, conversely the smaller the cognitive abilities of a person, the greater the possibility of bias in the assessment or decision (Musthofa & Ancok, 2005). Adversity Quotient (AQ) is used as a measure of individual cognitive abilities, where AQ can reduce the biased effects of heuristics (Musthofa & Ancok, 2005; Chin & Hung, 2013). Based on a literature review, this study formulated the following hypothesis:

- H3:** Positive patterned anchoring bias is reduced by adversity quotient
H4: Negative pattern of anchoring bias is reduced by adversity quotient

3. Research Method

3.1. Experimental Design

This research is a laboratory experimental research. The design of this study involves the simultaneous variation of two or more treatments (explanatory variables). The design of this study is used to determine whether the subject experiences anchoring-adjustment heuristics in estimating future earnings and whether the bias can be reduced by the presence of AQ.

Table 2: 2x3 full factorial design

	Quitter	Camper	Climber
Positive Anchoring	I	II	III
Negative Anchoring	IV	V	VI

Table 2 shows the experimental design in which the two anchoring categories are positive and negative with the calibration of three levels of adversity quotient namely low (quitter), medium (camper), and high (climber). In quadrants, I and IV will show the estimated value with high bias because investors have low adversity ability, whereas in quadrants II and V, investors are categorized as having moderate adversity capabilities so the estimated bias that

occurs is smaller than the group of investors who have low adversity ability. In the group of investors who have high adversity capabilities in quadrants, III and IV indicate the level of estimated bias indicated will be very small.

3.2. Experimental Subject

The experimental subjects in this study were students majoring in accounting at the Tri Dharma Nusantara College of Economics who had passed the financial statement analysis course. Students are proxied as investors with the assumption that students are well-educated investors but lack experience. This is to control the external variables, namely experience in the capital market. The number of participants is 30 people who will all get two cases, namely positive and negative cases.

3.3. Research Variables

The dependent variable in this study is the estimation of future earnings which is the value of future earnings estimated by investors based on the information presented. The estimated value of future earnings is compared with the mean value of the information value of past earnings in the case presented. The mean value is used as an anchor value.

In the first case (positive anchoring), if the estimated future earnings value given by the investor is greater than the anchor value, then the investor is considered to have an anchor-adjustment heuristic bias, otherwise, if the estimated future earnings value is lower than the anchor value then the estimated bias level is small. In the second case (negative anchoring) the opposite applies.

The independent variable in this study is the earnings information pattern presented in the case, namely the positive-negative earnings information pattern and the negative-positive pattern. The pattern of positive-negative earnings information (past earnings are positive and current earnings are negative) is categorized as a positive anchoring case, where investors will tend to estimate future earnings that are also positive and not far from their initial value (past earnings). The pattern of negative-positive earnings (past earnings are negative and current earnings are positive) is categorized as a negative anchoring case in which investors have a tendency to estimate future earnings that are negative or close to their anchor value.

The moderating variable is Adversity Quotient (AQ) which acts as a reduction in the value of bias in estimating future earnings made by investors. Stoltz (Stoltz, 2000a) divides AQ into 3 levels namely low (quitter) which has a score of 0-94, medium (camper) which has a score of 95-165, and high (climber) which has a score of 166-200. Measurement of adversity quotient is based on 4 indicators proposed by Stoltz (Stoltz, 2000a) namely CO2RE (Control,

Origin-Ownership, Reach, Endurance). Each indicator has the same weight and will be added to form the AQ score.

3.4. Manipulation Check

A manipulation checks aims to measure the effectiveness of the experimental treatment as well as to ensure that the subject understands the assignment (Habbe, 2017). Manipulation checks are carried out on the experimental subject (investor) by giving three questions in the form of a binary questionnaire (true or false). If the subject is wrong in answering the question, then it fails to check manipulation and must be excluded from the experiment.

3.5. Method of Analysis

The subject demographics were analyzed with descriptive statistics to see the percentage of men compared to women, as well as the average age of the subjects. Hypothesis testing is analyzed using the General Linear Model (GLM) where hypotheses 1 and 2 test with Repeated Measurement Test and hypotheses 3 and 4 are tested with Univariate Test.

4. Result and Discussion

4.1. Anchoring-adjustment Test

Investor's estimated future earnings of the company compared to the anchor value is the average of the previous earnings information. In the first case, the anchor value is 103,500 while in the second case it is 113,500. The estimated value of future earnings made by investors is described in the table below.

Table 3: Comparison of estimated earnings with anchor values

	Estimated Value	Standart Deviation	Anchor Value	Estimation Bias
Positive Anchor	104.859,7	2397,7	103.500	1.359,7
Negative Anchor	111.866,7	2793,5	113.500	(1.633,3)

Table 3 shows that in the first case (positive anchor), the estimated value provided by investors is 104.859,7 and is greater than the anchor value of 103.500. a difference of 1.359,7 indicates the existence of anchor bias. A positive anchor value has anchored as an investor's initial belief and is used as the basis for estimating the value of future earnings. This can be interpreted that investors estimate future earnings are also positive and are not far from the anchor value so that the first hypothesis can be accepted. These results indicate that information patterns with positive

initial values will make investors tend to estimate future earnings that are also positive (Habbe, 2017; Praditha et al., 2019).

In the case of a negative anchor, investors are known to show estimated future earnings of 111.866,7 which is smaller than the anchor value of 113.500. These results indicate that investors estimate the negative future earnings of -1.633,3. This negative value indicates that investors who are given accounting information with a negative initial value will estimate future earnings as well as a negative value. These results support the second hypothesis proposed in the study.

Estimation results in both cases in both positive and negative anchor cases indicate investor dependence on anchors. An anchor is considered as an initial belief that is used as a benchmark in taking various considerations. It is this dependence on initial values that makes considerations taken subject to bias or deemed inaccurate. Cognitive psychology also says that humans tend to stick to the starting point in evaluating an event that is likely to occur later (Bergman et al., 2010). This tendency causes bias in decision making (Habbe, 2017). This bias is caused by the anchoring-adjustment heuristic that explains that investors depend on the initial information obtained (initial belief) and then make adjustments based on new information received (Tversky & Kahneman, 1973).

Table 4: Repeated measurement test

Source	Type III sum of squares	Df	Mean square	F	Sig.
Factor	736470735	1	736470735	60,999	0,000
error	350130015	29	12073448,79		

Table 4 shows the differences in estimates made by investors when obtaining information with a positive anchor and when obtaining information with a negative anchor. This result is shown by the F test value of 60.999 with a significance level of 0,000 which is smaller than 0.050 so it can be said that there are significant differences between the two estimates. These results reinforce the results of previous bias testing where investors show different reactions when obtaining information with different patterns. However, both of them show an anchoring-adjustment heuristic bias in the estimation. Investors tend to estimate future earnings not far from their initial value. When the initial value is positive, investors estimate the future earnings is also positive. The same thing when the initial value is negative, then investors tend to estimate future earnings that are also negative.

These results explain the high dependence on previous period earnings which causes heuristic bias when estimating earnings performance in the future (Bloomfield et al., 2003; Habbe, 2017). The anchoring bias occurs due to the tendency of investors to make estimates that are not much

different from the initial value (Bloomfield et al., 2003; Habbe & Mande, 2016; Wahyuni et al., 2018; Habbe, 2017; Richie & Josephson, 2017; Sundari & Habbe, 2018; Praditha et al., 2019 ; Praditha et al., 2020).

4.2. Testing the Adversity Quotient Reduction Effect

The anchoring-adjustment heuristic bias that is proven by investors in estimating earnings means that there are practical actions taken by investors in estimating earnings. Practical actions are based on initial beliefs owned by investors, which causes inaccuracies in estimating future earnings. Therefore, we need a cognitive ability to reduce the effects of bias. AQ has a role in reducing the effects of bias that occurs in the estimation of earnings made by investors.

Table 5: Reduction effect of adversity quotient in anchoring-adjustment bias

Anchor	Adversity quotient	Mean	Standart Deviation	N
Positif	Quitter	107.920,0	668,1	6
	Camper	105.175,6	629,1	18
	Climber	100.851,7	822,2	6
Negatif	Quitter	106.766,7	1183,9	6
	Camper	112.657,8	611,6	18
	Climber	114.593,3	499,9	6

Table 5 shows a decrease in the level of bias from the estimated earnings made by investors based on the level of adversity capabilities possessed. Based on the analysis of 30 participants in this study, 6 investors had low adversity (quitter), 18 people who had moderate adversity (camper), and 6 people who had high adversity (climber) capabilities. This research not only tests the bias in the estimation of earnings but also tests the role of AQ as cognitive ability in reducing the effects of the bias. In the first case (positive anchor), investors who are in the category of low adversity ability (quitter) estimate earnings of 107,920.0 while investors who have adversity ability are estimating earnings of 105,175.6 and estimates of 100,851.7 are carried out by investors who have the ability high adversity (climber). This estimation value has decreased consecutively which means the higher the ability of adversity owned by investors, the further the estimation will be from the anchor value.

Therefore, the third hypothesis is supported by research results. The higher the ability of adversity that investors have, the smaller the bias that occurs in the estimation so that it can be concluded that AQ has succeeded in reducing the effects of bias in cases with positive-negative earnings information patterns (Stoltz, 2000a; Musthofa & Ancok, 2005; Chin & Hung, 2013).

In the second case (negative anchor), the investor also shows the same result, where the estimated future earnings provided by the investor experiences a decrease in the effect of bias in line with the high level of adversity capabilities. Investors who have a high AQ (climber) provide an estimated earnings of 114,593.3 and those in the medium category (camper) provide an estimate of 112,657.8 while those categorized as low (quitter) provide an estimate of 106,766.7. This result means that the higher the AQ level the investor has, the more positive the estimated value that is given. In other words, the estimated value given is further from the initial negative anchor. Conversely, the lower the AQ of the investor, the estimated earnings made will be more negative and not far from the initial value (anchor).

The results of this study support the fourth hypothesis. AQ has proven to be successful in reducing the effect of bias in cases with negative-positive earnings information patterns, so the higher the investor's AQ, the more accurate the predictions made when compared to investors who have medium and low AQ (Musthofa & Ancok, 2005; Chin & Hung, 2013).

The results of this study also indicate that AQ is a factor that can determine how, so or not, and the extent to which attitudes, abilities and performance of a person can be realized, such as soil composition in a garden that can be enriched and strengthened (Stoltz, 2000a). AQ as a measure of an individual's ability to deal with difficulties, overcome them, and predict the possible outcomes of certain situation.

Therefore, the greater the level of AQ owned by an investor, the smaller the bias effect contained in the valuation. In other words, the greater the cognitive abilities that an investor has, the less likely the assessment will experience heuristic bias. Likewise, on the contrary, the smaller a person's cognitive abilities, the greater the chance for bias to occur in judgments or decisions (Musthofa & Ancok, 2005; Chin & Hung, 2013).

5. Conclusion

The occurrence of anomalies in the capital market is a reflection of the irrationality of investors in carrying out various considerations or investment appraisals. One of them is the assessment of earnings performance because mistakes in predicting future earnings will have an impact on errors in estimating stock performance. The irrationality of investors can be explained in terms of psychology, investors not only do mathematical calculations but also use intuition in carrying out various considerations and assessments that sometimes even have a larger portion than mathematical analysis. Investors show an excessive reaction when obtaining information that is considered good (good news) and vice versa, thus causing the assessment to be

inaccurate or bias.

Behavioral finance explains that the bias in financial decisions taken is influenced by heuristic factors. Investors tend to act practically in considering a decision, in which investors generally rely on the information of the previous period in order to estimate the value to come. The initial value is used as an initial belief (initial belief) that makes investors anchor their beliefs in their initial values. This makes all the considerations and decisions biased, which is then considered as anchoring-adjustment bias. However, this study also provides new evidence that there are cognitive abilities that can be considered by investors in reducing the possibility of estimation bias, namely by increasing their adversity abilities.

Adversity Quotient (AQ) or the ability/intelligence of adversity owned by investors will help reduce the inaccuracy of predictions made. Investor AQ is a measure of investor resilience in estimating the possibilities that occur in the future that have a high degree of uncertainty. AQ is useful as an empowering potential owned by investors so that the greater the ability of adversity possessed, the less likely the estimation bias.

The results of this study provide new literacy in behavioral finance and behavioral finance studies, where the integration of psychology adds a variety of theories in analyzing various financial and accounting problems.

However, this study also cannot be separated from the limitations of the scope of heuristics only on anchoring-adjustment, so that researchers can then try to test other heuristic factors such as representativeness and availability.

References

- Bahník, Š., Englich, B., & Strack, F. (2017). Anchoring Effect. In Rudiger F. Pohl (Ed.), *Cognitive Illusions: Intriguing Phenomena in Judgement, Thinking and Memory* (Second Edition, pp. 223–241). Routledge.
- Beach, L. R., & Mitchell, T. R. (1987). Image Theory: Principles, Goals, And Plans In Decision Making. *Theory and Decision*, 66, 201–220.
- Bergman, O., Ellingsen, T., Johannesson, M., & Svensson, C. (2010). Anchoring and cognitive ability. *Economics Letters*, 107(1), 66–68.
- Bloomfield, R., Libby, R., & Nelson, M. W. (2003). Do Investors Overrely on Old Elements of the Earnings Time Series? *Contemporary Accounting Research*, 20(1), 1–31.
- Brav, A., & Heaton, J. B. (2002). Competing Theories of Financial Anomalies. *Review of Financial Studies*, 15(2), 575–606.
- Chin, P.-L., & Hung, M.-L. (2013). Psychological Contract Breach and Turnover Intention: The Moderating Roles of Adversity Quotient and Gender. *Social Behavior and Personality: An International Journal*, 41(5), 843–859.
- De Bondt, W. F. M., & Thaler, R. (1985). Does the Stock Market Overreact? *The Journal of Finance*, XL(3), 793–805.

- Gigerenzer, G., & Gaissmaier, W. (2011). Heuristic Decision Making. *The Annual Review of Psychology*, 62(1), 451–482.
- Gilovich, T., & Epley, N. (2006). The Anchoring-and-Adjustment Heuristic. Why the Adjustments Are Insufficient. *Psychological Science*, 17(4), 311–318.
- Habbe, A. H. (2017). Estimation Error of Earnings Information: A Test of Representativeness and Anchoring-adjustment Heuristic. *International Journal of Economics and Financial Issues*, 7(1), 224–233.
- Habbe, A. H., & Mande, H. (2016). the Effect of Information Sequential and Personality on the Investor Belief Revision (an Experimental Study in Decision Making). *PONTE International Scientific Researchs Journal*, 72(10), 150–166.
- Musthofa, & Ancok, D. (2005). Hubungan antara bias keputusan dengan adversity quotient dan anchor dalam pengambilan keputusan. *Sosiosains*, 18(2), 179–192.
- Parvathy, U., & M Praseeda, M. (2014). Relationship between Adversity Quotient and Academic Problems among Student Teachers. *IOSR Journal of Humanities and Social Science*, 19(11), 23–26.
- Phoolka, S., & Kaur, N. (2012). Literature review: service quality in higher education institutions in Malaysia. *International Journal of Contemporary Business Studies*, 3(4), 67-78.
- Pompian, M. M. (2012). *Behavioral finance and investor types : managing behavior to make better investment decisions*. Wiley.
- Praditha, R., Haliah, H., Habbe, A. H., & Rura, Y. (2020). Do investors experience heuristics in earnings forecasting? *Business: Theory and Practice*, 21(2).
- Praditha, Riza, Haliah, H., Habbe, A. H., & Rura, Y. (2019). Earnings Estimation : Cognitive Psychology and Investor Reaction. *American International Journal of Business Management*, 2(11), 89–95.
- Richie, M., & Josephson, S. A. (2017). Quantifying Heuristic Bias: Anchoring, Availability, and Representativeness. *Teaching and Learning in Medicine*, 30(1), 67–75.
- Stanovich, K. E., & West, R. F. (2008). On the Relative Independence of Thinking Biases and Cognitive Ability. *Journal of Personality and Social Psychology*, 94(4), 672–695.
- Stoltz, P. G. (2000a). *Adversity Quotient - Turning Obstacle into Opportunities*. Wiley.
- Stoltz, P. G. (2000b). *Adversity Quotient Work: Putting the Principles of AQ into Action* (William Morrow (ed.); First Edition). Collins Publisher.
- Sundari, S., & Habbe, A. H. (2018). Heuristic of Representativeness and Anchoring-Adjustment in Budgeting. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 8(4), 52–60.
- Tversky, A., & Kahneman, D. (1973). Judgements under uncertainty: Heuristics and biases. *Oregon Research Institute Research Bulletin*, 13(1), 201–210.
- Wahyuni, S., Hartono, J., Supriyadi, S., & Nahartyo, E. (2018). The Information Disclosure Strategy of Single versus Benchmarks in Earnings Announcements. *The Indonesian Journal of Accounting Reserach*, 21(3). 321–346.