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# The Relationship Between Heuristics Behaviour and Investment Performance on Debt Securities in Johor

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## Abstract

Debt securities and bond market have been increasing in demand the investment performance of debt securities were less studied by the scholars. This study aims to examine the relationship between the dimensions of the heuristic behaviors (anchoring, availability, overconfidence and representativeness) and investment performance on debt securities in Johor. The findings shown that availability and representativeness have significant relationship with the investment performance of debt securities while the anchoring and overconfidence have no significant relationship with the investment performance of debt securities.

**Keywords:** Debt Securities, Heuristic Behaviors, Anchoring, Availability, Overconfidence, Representativeness, Investment Performance
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## 1.0 Introduction

According to National Australia Bank Limited - NAB (2013) have provided the reasons for investors to invest in debt securities which are return of capital. Typically, debt securities were designed to repay capital on the maturity date or the life of the security. Capital repayment depends on the issuer's ability to meet its obligations. Second, investors could get regular and fixed income streams (NAB, 2013). The debt securities can provide investors with fixed income once a year, twice or four times in the form of interest or coupon payment. These fixed income streams can be customized in the debt portfolio to meet the investor's cash flow needs. Furthermore, debt securities also can enhance investors' returns which were because investors can earn attractive returns with some debt securities providing higher returns than deposits offered by the financial institutions (NAB, 2013). Debt securities could also maintain liquidity of the investors (NAB, 2013) and Stable and Predictable Interest Payments (HKEx Cash Market Development & Operations, 2005). This is because maintaining liquidity is very important for investors to have sufficient liquidity in their portfolio. Cash is the most liquid asset class, but some debt securities might also satisfy this requirement and provide the investors with a return above the cash rate. Government and semi-government securities, as well as some corporate bonds, were highly liquid, and in most cases, it is easy to trade in a short period of time.

Most scholars studied the relationship between heuristics and investment performance on stock, and paid less attention to the relationship between heuristic effects and investment performance of debt securities. Therefore, there is a need to fulfil the literature gap with the increasing trend of the debt securities investment. The purpose of this research is to improve

the understanding about the importance and the dimensions of heuristics behaviors that could impact on the investment performance on the debt securities in Johor, Malaysia's second largest state economy within this few years (Johor to unseat Sarawak, 2017). According to Musa (2018), in view of the challenges posed by the global economic situation in recent years, Johor state government has taken many measures to promote economic growth, such as the progress and development of Iskandar Malaysia, Johor and the location as the neighbor of Singapore has promoting Johor to be the second largest economy in near future.

In Malaysia, research on behavioural finance with investment performance was still limited. Several studies had been carried out to explain investors' overconfidence in trading behaviours in Asian stock markets, including Malaysia. For example, Toh and Ahmad (2010) found that Malaysian investors were attention-driven and reference-dependent. Reference dependency could be defined as investors' trading behaviours, and each stock can be judged by using available information. Behavioural finance continues to emerge in Malaysia because it helped investors when they make stock investment decisions. Therefore, the question was raised whether Malaysia investor showed a certain irrational behaviour such as heuristics behaviours in the investment debt securities decision making, which leaded to the change of investment performance. Therefore, this study attempted to investigate the behaviour of investors in Malaysia, and fill in the gaps of previous studies.

## 2.0 Literature Review

### 2.1 Theories of Heuristic Behavior

Heuristics are defined as the rules of thumb, which makes decision making easier, especially in complex and uncertain environments (Ritter, 2003) by reducing the complexity of assessing probabilities and predicting values to simpler judgments (Kahneman & Tversky, 1974). Generally, heuristics are useful if time is limited (Waweru et al., 2008) and limited information (Kahneman & Tversky, 1974). Therefore, irrational people do not collect all information but follow some psychological shortcuts to make their decision-making process easier, simpler and more effective. Kahneman and Tversky (1974) introduce three heuristics that can be used by individual investors in their decisions, namely, representativeness, availability, and anchoring. However, Waweru et al. (2008) added the overconfident in the list of heuristic.

### 2.2 Representativeness

Representativeness heuristics refers to the rule of thumb, through which individuals assign probability to more representative and similar groups of events (Tversky & Kahneman, 1974). Furthermore, DeBondt and Thaler, (1995) explains that representativeness refers to the degree of similarity that an event has with its parent population or the degree to which an event resembles its population. Representativeness may result in some biases such as people put too much weight on recent experience and ignore the average long-term rate (Ritter, 2003). A typical example for this bias is that investors often infer a company's high long-term growth rate after some quarters of increasing (Waweru et al., 2008). In the representativeness heuristics, investors normally bought hot securities and avoid buying the securities which were performing poorly in recent years (Waweru et al., 2008). This behaviour explains why investors are overreaction in the market (DeBondt & Thaler, 1995). People are paying more and more attention to events related to good events in the past. For example, if the annual report of a company shows that earning has been increased for several quarters, the share price will

normally rise after because investors tend to infer a high long-term earnings growth rate and think they can earn a high long-term return (Waweru et al., 2008). Therefore, investors take advantage of the trend analysis of some representative security to make investment decisions and cause the investment performance increase.

### 2.3 Anchoring

Anchoring is a phenomena used in the situation when people use some initial values to make estimation (Pompain, 2011), which are biased toward the initial ones as different starting points yield different estimates (Tversky & Kahneman, 1974). Ul Abdin et al. (2017) stated that investors usually use previous stock prices as a reference of current stock prices. Furthermore, Shiller (1998) also stated that, the current prices are often decided merely by previous price. Thus, today prices are often determined by those of the past. Anchoring makes investors to define a range for a share price or company's income based on the historical trends, resulting in under-reaction to unexpected changes. Anchoring has some connection with representativeness as it also reflects that people often focus on recent experience and tend to be more optimistic when the market rises and more pessimistic when the market falls (Waweru et al., 2008). However, it will lead to insufficient response to changes in basic information and securities prices and reliable information will decrease. For example, due to absence of reliable information, investors set the previous price with the current price which based on the previous high rate of return achieved in the market as a point of reference or benchmark for the investor to estimate the future return on their investment and the main motivating factor for the investment (Ul Abdin et al., 2017). Anchoring can lead investors to expect a share to continue to trade in a defined range or to expect a company's earnings to be in line with historical trends, leading to possible under-reaction to trend changes. People typically use their experience and extrapolate recent trends. They tend to become more optimistic when the market rises and more pessimistic when the market falls. As an example, Waweru et al. (2008) shown that at the peak of the Japanese market, 14% of investors expected a crash, but after it did crash, 32% expected a further crash.

### 2.4 Availability

Tversky and Kahneman (1973) introduced availability heuristic - a judgmental heuristic in which people can evaluate the probability of events by availability by the ease with which relevant instances come to mind. In short, availability is the tendency in which people rely upon the knowledge that is easily available (Tversky & Kahneman, 1974; Waweru et al., 2008). For this reason, investors give more weight on easily available information (Pompain, 2011). Therefore, investors will be more preferable to the local securities than international securities in spite of the fundamental principles of investment is diversification and need for optimization (Waweru et al., 2008). However, the reliance on the availability heuristic will lead to systematic biases which make people think that what they have in mind to do is the most correct despite what the market indicators present. This means that people do not always act rationally nor do they fully utilize all the information available to them.

### 2.5 Overconfidence

When people overestimate the reliability of their knowledge and skills, it is the manifestation of overconfidence (DeBondt & Thaler, 1995; Hvide, 2002). Furthermore, According to Subash (2012), overconfidence was the unjustified faith in one's own cognitive abilities, predictive abilities and judgment and reasoning prowess. Subash (2012) also says that people always think they were smarter and more knowledgeable than they actually are. In short,

people view of themselves was far lower than actual abilities. There were some of the studies shown that excessive trading is one effect of investors (Barber & Odean, 2008; Evans, 2006).

The evidence was showing that financial analysts revised their assessment of a company slowly, even in case there was a strong indication proving that assessment is no longer correct. Investors and analysts are often overconfident in areas that they have knowledge (Evans, 2006). Overconfidence was believed to improve persistence and determination, mental facility, and risk tolerance. In other words, overconfidence can help to promote professional performance. It was also noted that overconfidence can enhance other's perception of one's abilities, which may help to achieve faster promotion and greater investment duration (Oberlechner & Osler, 2008). However, overconfidence always leads investors to underestimating underlying risk, overestimate their knowledge and predictive skills and exaggerating their ability to control some unrelated events or problem. According to Evans (2006), the impact of investor overconfidence is they would overtrade in their investment. People often see order where it does not exist and interpret good fortune to be the result of their skill (Waweru et al., 2008). For instance, investors always perceive themselves as experts after them success estimate their investment performance but it may be a coincidence.

## 2.6 Investment Performance

Since every investor have their own investment objective and investment benchmark, therefore they have different criteria to evaluate and judge their investment performance. According to Lin and Swanson (2003), they measure investment performance by using three return criteria (raw returns, risk-adjusted returns, and momentum-adjusted returns), through five times ranges (daily, weekly, monthly, quarterly, annually). They recognize that investors achieve excellent performance, which exists in the short run and is partially driven by short-term price momentum rather than by risk-taking. Excellent performance disappears or deteriorates in the mid-term and long-term periods. This means that superior performance is reached from short-term effects of excessive demand for past winning stocks and/or excessive supply of past losing stocks rather than from any advantage of familiar information. Investors can better understanding and implementing momentum strategies from buying past winners and selling past losers. These behaviours may lead to a rise in profit stocks in the past and the stocks in the past fell in the short term, but not in the long run. The short-term dominance is mainly controlled by the winner's momentum more than the loser's momentum, which means that the investor's buying behaviour creates new information to the market, so that investors have a good chance of making a profit on the daily horizon, not a weekly or longer level.

In short, there was many ways to measure the performance of the investment. The previous authors used secondary data of the investors' results in the security markets to measure the performance of stock investment (Lin & Swanson, 2003; Kim & Nofsinger, 2003). However, this study requires investors to evaluate their own investment performance, so the measurement of investment performance follows the study of Oberlechner and Osler (2008) on the rate of return on investment. In more detail, the rate of return on stock investment is evaluated by subjective and objective views of individual investors. The subjective evaluation of the investors is to compare the current rate of return with the expected rate of return, while the objective evaluation is carried out by comparing the actual rate of return to the average rate of return. Besides, this study also proposes satisfaction degree of investment decision as a standard to measure investment performance. In fact, investors are satisfied with their investment performance even if their investment profits are low; on the contrary, the other investors are dissatisfied with their investment even in relatively high profits. Therefore, the

influence of heuristic behaviours on investment performance is related to the decision of investors.

## 2.2 Hypotheses Development

### 2.2.1 Relationship between Anchoring and Investment Performance

According to the study of Babajide and Adetiloye (2012), the objectives are in twofold: one, to examine the extent of behavioural biases among security market investors in Nigeria and, to examine the effects of behavioural biases on stock market performance in Nigeria. This research employed questionnaire as instrument and the technique of correlation with Pearson Product Moment Coefficient to analyse a survey of 300 randomly selected investors in Nigeria security market. From the study of Babajide and Adetiloye (2012) showed that, anchoring have a positive relationship with the investment performance in Nigeria. However, as the result of Babajide and Adetiloye (2012) shown that there is no significant relationship between the anchoring and investment performance.

The objective of Kengatharan and Kengatharan (2014) is to explore the behavioural factors influencing individual investors' decisions at the Colombo Stock Exchange and the relations between these factors and investment performance. The result that had shown in this research was the anchoring has positive significant impact on investment performance which its significant value is 0.008 and the coefficients is 0.302.

Another study by Aziz and Khan (2016) which the objective was to study the behavioural factors that influenced the decisions and performance of individual investor in Pakistan stock exchange. This research is based on the primary data. The sample data comprising of 150 individual investors of Pakistani stock exchange. Finding was showing that the anchoring has a positive significant relationship with investment performance.

From these studies, it has shown that anchoring us related to investment performance in stock. Thus, to examine the relationship between anchoring and investment performance, the following hypothesis were proposed:

*H1: There is a significant relationship between the Anchoring and Investment Performance on Debt Securities in Johor.*

### 2.2.2 Relationship between Availability and Investment Performance

According to Javed, Bagh and Razzaq (2017), this study was to investigate the herding effects, overconfidence, availability bias and representativeness as Behavioural Determinants of Perceived Investment Performance in case of Pakistan stock exchange. From the results of the study, the availability has a positive significant impact on perceived investment performance.

Based on the study of Ranjbar, Abedini and Jamali (2014), the purpose of this study is to examine the relationship between effective behavioral factors on the investors' performance in Tehran stock exchange. A sample of 148 investors has been selected as sample members. The results revealed that the heuristic methods have the most effect on the investors' investment performance and its predicted variance is 0.59. The results of this study further

revealed that availability was consider as the main effective dimensions of heuristic methods on the investors' performance.

Aziz and Khan (2016) study the behavioural factors that influenced the decisions and performance of individual investor in Pakistan stock exchange. This research is based on the primary data. The sample data comprising of 150 individual investors of Pakistani stock exchange. The finding from the research was shown that the availability has a negative significant relationship with the investment performance.

As can be seen from these studies, availability is related to the investment performance of the stock. Therefore, in order to examine this relationship in the context of debt securities, the hypothesis was suggested as following:

*H2: There is a significant relationship between the Availability and Investment Performance on Debt Securities in Johor.*

### 2.2.3 Relationship between Overconfidence and Investment Performance

According to the study of Babajide and Adetiloye (2012) stated that, the objectives are in twofold: one, to examine the extent of behavioural biases among security market investors in Nigeria and, to examine the effects of behavioural biases on stock market performance in Nigeria. The paper employed questionnaire as instrument and the technique of correlation with Pearson Product Moment Coefficient to analyse a survey of 300 randomly selected investors in Nigeria security market. From the study showed that, there is a negative significant relationship between overconfidence and stock market performance in Nigeria.

Kengatharan and Kengatharan (2014) explored the behavioural factors influencing individual investors' decisions at the Colombo Stock Exchange and the relations between these factors and investment performance. The result indicated that the overconfidence from heuristics behaviour has negative significant impact on investment performance which it significant value is 0.002 and there is -0.356 of the coefficients.

In addition, the study main objective from Le and Doan (2011) is exploring the behavioral factors influencing individual investors' decisions at the Ho Chi Minh Stock Exchange. From this study, they found that, the heuristic behaviors are the highest positive impact on the investment performance while compare with the others behavioral factors. The heuristic behaviours which are related to overconfidence have a positive significant impact on the investment performance.

In view of these studies explained that overconfidence is related to the investment performance of the stock. Thereupon, in order to examine this relationship in the context of debt securities, the following hypotheses were proposed:

*H3: There is a significant relationship between the Overconfidence and Investment Performance on Debt Securities in Johor*.

### 2.2.4 Relationship between Representativeness and Investment Performance

Nghia (2014) proves that the performance of the institutional investors in Ho Chi Minh Stock Exchange (HOSE) were not significantly affected by representativeness.

Aziz and Khan (2016) study the behavioural factors that influenced the decisions and performance of individual investor in Pakistan stock exchange. This research is based on the

primary data. The result shown that the representativeness has a positive significant impact on investment performance.

Moreover, Menike et al. (2015) examined whether some behavioural and contextual factors influence on irrational behaviour of individual investors decisions in the Colombo Stock Exchange (CSE). The finding shown that the heuristic has a positive significant impact to the individual investors' performance. The results showed a strong evidence of the existence of representativeness among the individual investors' performance in the CSE.

Since these studies have shown that the representativeness has some interrelationship with the investment performance of stock. Hence, in order to examine the relationship in debt securities, the following hypothesis were proposed:

*H4: There is a significant relationship between the Representativeness and Investment Performance on Debt Securities in Johor.*

## 2.5 Conceptual Framework

Based on the hypothesis in this study, the conceptual framework was presented in Figure 1. The literature was supported for the relationship between the independent variable (dimensions of heuristics behaviors) and dependent variable (Investment Performance). The Heuristics Behaviors with four dimensions which were Representativeness, Anchoring, Availability and Overconfidence.

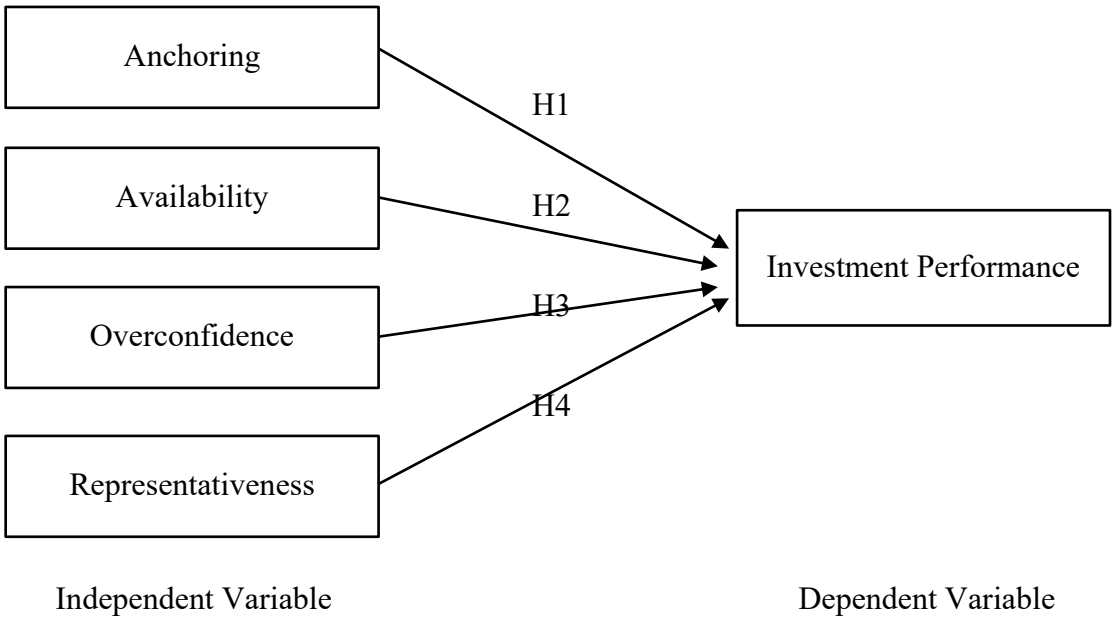


**Figure 1: Conceptual Framework**

## 3.0 Research Methodology

### 3.1 Data Collection and Sampling Plan

The data of this study were collected by the primary data collection method through personal administered questionnaire. For this study, 50 respondents had replied, and this study only focused and limited on a specific group of people that had invested on the debt securities in Johor.

### 3.1.2 Research Instrument

The main function of this questionnaire (Refer Appendix) was to capture the true thoughts and behaviors of the respondents while they invest in the debt security. The questionnaire in this study was organized into three sections as shown below.

**Table 1 Classification of Questionnaires' Question**

| Variables | Question | Adapted from |
|---|---|---|
| **Section 1:** | | |
| Demographics Information | 1 – 9 | Abdin et al. (2017) and Juliet (2017) |
| **Section 2:** | | |
| Representativeness | 10 – 12 | Abdin et al. (2017) and Juliet (2017) |
| Anchoring | 13 – 16 | Abdin et al. (2017) and Juliet (2017) |
| Availability | 17 – 18 | Abdin et al. (2017) |
| Overconfidence | 19 – 23 | Abdin et al. (2017) and Juliet (2017) |
| **Section 3:** | | |
| Investment Performance | 24 – 26 | Abdin et al. (2017) |

## 4.0 Data Analysis

After the result of the survey has been collected the SmartPLS 3.0 would been used for the analysis result. The SmartPLS was one of the prominent software applications for Partial Least Squares Structural Equation Modelling (PLS-SEM) which developed by Ringle, Wende, and Becker (2015). According to Hair et al. (2014) show that, the PLS-SEM have been widely used, which have including in tourism and travel research (do Valle & Assaker, 2016), and it was suitable for the present study.

SEM was a method that used for measured the relationship between unobserved variables since the beginning of the 20th century (Shah & Goldstein, 2006). It is a set of statistical models that seek to explain the relationship among multi-variables. Furthermore, it also examined the structure of the relationships expressed in a series of equations which similar to a series of multiple regression equations (Hair et al., 2006). This is a unique combination, interdependent and dependent on Technology (Hair et al., 2006).). It is particularly useful when a dependent variable becomes an independent variable in subsequent dependency relationships and leads to the interdependence nature of the structural model (Hair et al., 2006).

According to the Ramayah et al. (2018), there were three stages of the assessment such as reflective measurement model, formative measurement model and structural model to complete the SEM. However, in this study author only used the reflective measurement model and structural model.

### 4.1 Reliability Analysis

In order to examine the validity and reliability, the reflective measurement model is used in this section. According to Diamantopoulos and Winklhofer (2001), researchers commonly employ reflective measurement model to examine the validity and reliability such as assessment of internal consistency. There are four assessment criteria are needed while examine this study by the reflective measurement model which were internal consistency reliability, indicator reliability (outer loadings), convergent validity and discriminant validity.

Gefen et al. (2000) stated that, composite reliability (CR) was more appropriate to apply into different measure of internal consistency. However, the composite reliability has to follow the acceptable value which the value between 0.70 to 0.90 can be consider as satisfactory, value greater than 0.60 are still acceptable in exploratory research. But, while the value was greater than 0.90 are not desirable, because it indicates that all the indicators are measuring the same phenomenon and were invalid to constitute reliability assessment of the construct (Ramayah et al., 2018).

According to Urbach and Ahlemann (2010), the purpose of the indicator reliability (outer loadings) was to evaluate the degree of consistency between the indicator and its intended content. The indicator reliability refers the proportion of indicator variance that explained by latent variable. Based on Hulland (1999, cited in Ramayah et al., 2018) and Byrne (2010) stated that, the acceptable loading values need to be equal to or greater than 0.708, but the loading value which was lower than 0.708 would still acceptable while the results of average variable extracted (AVE) and CR were acceptable.

All of these criteria were met as shown in Table 2.

### 4.2 Reflective Measurement Model

In order to examine the validity and reliability, the reflective measurement model would be used in this section. According to Ramayah et al. (2018), there were two types of validity were assessed in the reflective measurement model which was convergent validity and discriminant validity. The convergent validity was the degree to which indicators of a specific construct converge or share a high proportion of variance in common (Hair et al., 2006). Hair et al. (2014) suggested that, the loading which is the indicator reliability, internal consistency reliability (CR) and Average Variance Extracted (AVE) are used to assess the convergent validity. Furthermore, the discriminant validity as the indicators that should load more strongly on their own constructs than on the other constructs in the model and the average variance shared between each construct and its measures should be greater than the variance shared between the constructs and the other constructs (Fornell & Larcker, 1981, cited in Ramayah et al., 2018). The discriminant validity would use different methods to examine this study which were including Fornell and Lacker Criterion, and Heterotrait-Monotrait Ratio (HTMT).

#### 4.2.1 Convergent Validity

The indicator loadings, AVE and CR of the reflective constructs are shown in the Table 2. According to Hair et al. (2014), the loading should be retained while it was exceeding the recommended value of 0.708 and it will be dropped while the loading was below 0.708. However, the loadings which lower than 0.708 can be kept when the AVE result have achieved 0.5. The item REP2 has been drop since it results at lowest loading. Furthermore, all of the five constructs have met the minimum cut-off value for AVE and CR, where all AVEs are greater

than 0.5 and all CRs have greater than 0.7 after the item was deleted. In short, the constructs which shown in Table 2 have been meet the reliability and the convergent validity requirement.

**TABLE 2:** Measurement Model

| Construct | Items | Loadings | AVE | CR |
|---|---|---|---|---|
| Representativeness | REP1 | 0.875 | 0.702 | 0.904 |
| | REP3 | 0.775 | | |
| | REP4 | 0.779 | | |
| | REP5 | 0.914 | | |
| Anchoring | ANC1 | 0.781 | 0.592 | 0.877 |
| | ANC2 | 0.867 | | |
| | ANC3 | 0.611 | | |
| | ANC4 | 0.823 | | |
| | ANC5 | 0.739 | | |
| Availability | AVA1 | 0.815 | 0.659 | 0.885 |
| | AVA2 | 0.699 | | |
| | AVA3 | 0.887 | | |
| | AVA4 | 0.835 | | |
| Overconfidence | OVE1 | 0.843 | 0.653 | 0.904 |
| | OVE2 | 0.732 | | |
| | OVE3 | 0.796 | | |
| | OVE4 | 0.831 | | |
| | OVE5 | 0.831 | | |
| Investment Performance | IP1 | 0.890 | 0.689 | 0.868 |
| | IP2 | 0.747 | | |
| | IP3 | 0.845 | | |

*Note:* REP2 was deleted due to low loading

### 4.2.2 Discriminant Validity

After the convergent validity had been done, the discriminant validity of the reflective model was assessed. When looking for the Fornell and Lacker Criterion (Table 3), all of the constructs were satisfactory discriminant validity. This is because, according to the Fornell and Lacker (1981, cited in Ramayah et al., 2018), the indicators should load more strongly on their constructs than others construct in the model. Thus, the result discriminant validity by using Fornell and Lacker Criterion has been achieved.

**Table 3:** Discriminant Validity using Fornell and Lacker Criterion

| | Anchoring | Availability | Investment Performance | Overconfidence | Representativeness |
|---|---|---|---|---|---|
| Anchoring | **0.769** | | | | |
| Availability | 0.707 | **0.812** | | | |
| Investment Performance | 0.705 | 0.675 | **0.830** | | |
| Overconfidence | 0.725 | 0.669 | 0.707 | **0.808** | |
| Representativeness | 0.727 | 0.582 | 0.721 | 0.737 | **0.838** |

The Table 4 was developed by another method of the discriminant validity which is HTMT Criterion and it was developed by Henseler, Ringle and Sarstedt (2015). The required values of the HTMT are lower than $HTMT_{.85}$ (Kline, 2011) and $HTMT_{.90}$ (Gold et al., 2001). As the Table 4 shown that all of the values from the HTMT Criterion below were fulfil the Criterion. Therefore, the result discriminant validity by using the method of HTMT has been also achieved.

**Table 4:** HTMT Criterion

| | **Anchoring** | **Availability** | **Investment Performance** | **Overconfidence** | **Representativeness** |
|---|---|---|---|---|---|
| **Anchoring** | | | | | |
| **Availability** | 0.841 | | | | |
| **Investment Performance** | 0.867 | 0.822 | | | |
| **Overconfidence** | 0.853 | 0.781 | 0.837 | | |
| **Representativeness** | 0.847 | 0.668 | 0.838 | 0.848 | |

### 4.2.3 Structural Model

A structural model involves specifying structural relationships between latent constructs which can be related to measured variables with a dependence relationship. Two types of relationships are possible among constructs (Cao, 2012). The first is a dependence relationship, which is always depicted by a straight arrow and used between an exogenous construct and an endogenous construct. The second is a correlation relationship, which is depicted by a two-headed arrow connection, which can be shared only between exogenous constructs.

In the initial stages of evaluating structural models, it is important to address the lateral collinearity problem. According to Kock and Lynn (2012), although the criterion for discriminant validity is met, the lateral collinearity problem may sometimes mislead this finding in a stealth manner because it can mask the strong causal effects in the model. Therefore, according to Hair, Ringle and Sarstedt (2011) suggest that, the VIF value of 5 or higher or more stringent criteria by Diamantopoulos and Siguaw (2006), where VIF value of 3.3 or higher, indicate a potential collinearity problem.

The outcomes of the lateral collonearity for this study have been shown in Table 5. The Inner VIF value for the independent variable which are Anchoring, Availability, Overconfidence and Representativeness that had been examined in the lateral collonearity are less than 5 and even more stringent less than 3.3. Therefore, these have shown that the lateral collinearity is not a concern in this study.

**Table 5:** Lateral Collinearity Assessment

| **Construct** | **Investment Performance (VIF)** |
|---|---|
| Anchoring | 3.035 |
| Availability | 2.228 |
| Overconfidence | 2.874 |
| Representativeness | 2.643 |

After define the lateral collinearity is not a concern in this study, hypothesis testing was continuing examine.

Based on the Table 6 showing the Hypothesis Testing, there are 4 direct hypotheses are developed between the constructs in this study. In order to test the significant level, t-statistic for all paths is generated using the bootstrapping function from SmartPLS 3.0. According to the assessment of the path coefficient as shown in Table 6, there are two relationships are found to have t-value >1.96 and at 0.05 level of significant, which are Availability and Representativeness. While look more specific into the predictors, Availability ($\beta = 0.250$, $p < 0.05$) and Representativeness ($\beta = 0.322$, $p < 0.05$) are showing positive significant relationship with Investment Performance; for the Anchoring ($\beta = 0.159$) and Overconfidence ($\beta = 0.187$), both of the constructs' t-value were not higher than 1.96 and p-value was not lower than 0.05 or 0.1,means Anchoring and Overconfidence have showing an insignificant relationship with the Investment Performance which explains 64.5% of the variance in Investment Performance. However, according to Ramayah et al. (2018), which has stated that currently, using t-values and p-values to report the significance and relevance of the structural model relationships is already not sufficient for paper publication. Thus, the confidence intervals bias result for upper and lower bound when performing bootstrapping test should also be provided. According to Ramayah et al. (2018), if 0 does not straddle in between the confidence bias interval result, it means that there is a significant result. While look into our result, we are able to discover that two of the hypothesis which are H2 and H4 that is significant in t-value and p-value which also significant in the confidence interval bias. This is because the upper and lower bounds of the confidence interval bias for the both hypothesis does not have any 0 result. As further proved for the insignificant of the result, the lower bounds of the rejected hypothesis, H1 and H3 do shows an existence of 0 between its upper and lower bounds of the confidence interval bias. Therefore, based on the result from p-value, t-value, and confidence interval bias the hypothesis H2 and H4 are supported. The $R^2$ value of this study is 0.645 which above the 0.50 value as the suggestion by Hair et al. (2014), which indicates a moderate model. Thus, H2 and H4 were supported and H1 and H3 were rejected.

Next, the effect size $f^2$ has been measured. As stated by Sullivan and Fein (2012, cited in Ramayah et al., 2018), both the effect size and p-value are needed to be reported because although p-value are able to inform the reader whether there is any exists of effect but it cannot reveal the size of the effect. Therefore, in order to measure the effect size, the guideline proposed by Cohen (1988) has been used. According to Cohen (1988), the values of 0.02, 0.15, and 0.35 represent small, medium, and the large effects respectively. According to the table 6, all of the constructs which are anchoring, availability, overconfidence and representativeness have a small effect in producing the $R^2$ for the investment performance.

Moreover, in order to examine the predictive relevance of the model, the blind-folding procedure has been conducted. According to Hair et al. (2014) and Fornell and Cha (1994, cited in Ramayah et al., 2018), if the $Q^2$ value is larger than 0, the model has predictive relevance for a certain endogenous construct. While look into the result of this research, the $Q^2$ in this research is larger than 0 which indicated that the model has sufficient predictive relevance. With this result, it can be concluded that the investment performance is more likely to be influence by availability and representativeness.

**Table 6:** Hypothesis Testing

| Hypothesis | Relationship | Std. Beta | Std. Error | t-value | Decision | $R^2$ | $f^2$ | $Q^2$ | 5% | 95% |
|---|---|---|---|---|---|---|---|---|---|---|
| *H1* | *Anchoring > Investment Performance* | *0.159* | *0.158* | *1.009* | *Rejected* | *0.645* | *0.024* | *0.383* | *-0.10* | *0.413* |
| *H2* | *Availability > Investment Performance* | *0.250* | *0.121* | *2.058*** | *Supported* | | *0.079* | | *0.059* | *0.449* |
| *H3* | *Overconfidence> Investment Performance* | *0.187* | *0.131* | *1.423* | *Rejected* | | *0.034* | | *-0.023* | *0.399* |
| *H4* | *Representativeness > Investment Performance* | *0.322* | *0.128* | *2.506*** | *Supported* | | *0.110* | | *0.096* | *0.526* |

*Note: ***p<0.01, **p<0.05, *p<0.1*

## 4.4 Hypotheses Testing

### 4.4.1 The Relationship between Anchoring and Investment Performance on Debt Securities

According to the result of hypothesis testing in this research, there is no significant relationship between anchoring and investment performance on debt securities in Johor. This result is in line with the previous study such as Babajide and Adetiloye (2012) and Obera (2015).

According to the previous study of Babajide and Adetiloye (2012) was also supported this finding which examine the effect of the behavioural on stock market performance in Nigeria. Babajide and Adetiloye (2012) conclude that, this finding was implies that the investors in Nigeria security market do not rely on the high rate of return that achieved in the market, they only judge the future outcome of the investment in the Nigeria security market. It indicated that similar phenomenon happened in debt securities market in Malaysia.

### 4.4.2 The Relationship between Availability and Investment Performance on Debt Securities

In this research, there is a significant relationship between availability and investment performance on debt securities in Johor. This result is in line with the evidences documented in the studies by Luong and Thu Ha (2011), Qureshi et al. (2012), Nofsingera and Varmab (2013) and Bakar and Yi (2016) which studied on the investment performance in stock market.

Based on a research by Bakar and Yi (2016) that study in Klang Valley and Pahang – Malaysia have showing that the availability has a significant relationship and conclude that investors generally depend highly on easily available information to predict the future price of the stock and this could explain the situation in debt securities investment.

Furthermore, the result of this study have further supported by Javed et al. (2017) which showing a significant relationship between availability and perceived investment performance. Even though the researchers were not further interpret the reason why showing a significant relationship, but Luong and Thu Ha (2011) conclude that while there was a significant relationship between availability and investment performance means that the result implies that investors are driven by the available information such as investors can get the information more easily from their friends and relatives. This is also proved in this study.

### 4.4.3 The Relationship between Overconfidence and Investment Performance on Debt Securities

According to the result of hypothesis testing in this research, there is no significant relationship between overconfidence and investment performance on debt securities in Johor. Nevertheless, there was not having any previous study that supported the result from this study.

Based on the research of Lai, Low and Lai (2001) stated that, Malaysian investors nowadays were much more rational than previous. This is because, they fear and refuse to face their mistakes and failures when they were overconfidence and overestimate themselves to predict the future result or decide a thing that actually takes more risk.

Furthermore, Lai, Tan and Chong (2013) further discuss that Malaysian investors demonstrated significant self-control when making investment decisions and they were more prefer on the liquid securities. Even more, the researchers also have shown that, most of the

investors in Malaysia claim that they have made their own decision after searching for enough information.

As the above two studies show the behaviour of Malaysian investors, so it may be a reason that proves there is not significant relationship between overconfidence and investment performance on debt securities in Johor while the availability was showing a significant result.

### 4.4.4 The Relationship between Representativeness and Investment Performance on Debt Securities

In this research, there is a significant relationship between representativeness and investment performance on debt securities in Johor. This result is in line with the previous study such as Aziz and Khan (2016), Menike et al. (2015), Javed et al. (2017) and Barber and Odean (1999).

According to Menike et al. (2015), the researchers have been proven that the respondents tend to follow recent past experiences or history in the market with respect to their investment and buy hot stock based on that. This result is consistent with the finding of Ritter (2003) which states that people put too much weight on recent experience and ignores the average long-term rate. However, Bracha and Brown (2012) has conclude that people or investors who used to follow the representativeness to invest are often would receive better-off in term of return. Those explanations might be the reason why there was a significant relationship between representativeness and investment performance on debt security in Johor.

Furthermore, the result of this study has further supported by Obera (2015) which showing a significant relationship between representativeness and investment returns in unit trust. Based on these researchers stated that, usually unit trust companies used the representativeness as a way to help their customers to make the investment decision which they use the past history to influence their investment decisions. This is because most of them were attracted by the previous profit or return that generated by their previous decisions and they always think that the previous returns would also represent the expected return. Thus, the finding of the relationship that indicated by the research of Obera (2015) also may consider one of the reasons why the representativeness has a significant relationship with investment performance on debt security in Johor.

## 5.0 Conclusion

### 5.1 Managerial Implication

The purpose of this study is to examine the relationship between heuristics behaviour and investment performance on debt securities in Johor. This study used four heuristic behaviours which are included anchoring, availability, overconfidence and representativeness. From the practical point of view, the result of this study was showing that availability and representativeness have significant relationship with the investment performance while the anchoring and overconfidence have a no significant relationship with the investment performance. This means that, for the individual investors who may benefit directly from the finding, they can use these finding as a reference of debt security investment behaviour in their investment decision. So, they may avoid some unnecessary losses in their future investment.

Furthermore, for the issuer of the debt security, they can use those finding as a reference for them to analyse and predict for their future debt security trend. Thus, they may provide more information about the company and more reliable information such as the share price of

the company, some important announcement that might influence the company and so on to their investors as the finding of this research shown that the availability and representativeness have impact on the investment performance on debt security in Johor.

Apart from that, the finding in this study may also help the government and company's policy maker to better understand which behaviour or method would normally use from the investors to make their investment decision and indirectly affect the investment performance. Therefore, the government and company policy maker may make adjustment in their strategy or add-in the policy in order to attract more investors get into debt security. For example, in order to attract more investors, invest in debt security, the government and company policy maker may upgrade or bring in a new system or website that can provide more available and reliable information about the debt security. Although the existing website have updated the latest information of bond and sukuk in Malaysia every day, but most of the information that they provided were new and upcoming bond and sukuk and the top daily traded bond and sukuk transactions (Bond and Sukuk Information Platform, n.d.). Furthermore, the webpage that created by Bond and Sukuk Information Platform was not like Bursa Malaysia which every investors or people recognized it. Therefore, Bond and Sukuk Information Platform may conduct some activities that can promote the website to investors or conduct a talk or training that can share some latest information to investors.

### 5.2 Scope Limitations

There are several limitations in this study. The first limitation is bounded by geographical restrictions which only covered the debt securities investment in Johor. Therefore, the results only describe the situation and behaviour for the investors in Johor and it would be possible to know that is the results would be similar when applied this study into the other states in Malaysia or conduct the study to whole Malaysian investors.

### 5.3 Recommendation for Future Research

There are some of the recommendations for future research was advised to make improvement and enhance the future research. This study was examining the relationship between some of the dimensions from heuristic behaviours and the investment performance on debt security in Johor.

Although the heuristics behaviour has others dimensions but there were only four dimensions have been used in this study. Therefore, for the future researches may also suggested to apply another dimensions of the heuristics behaviour which were gamble's fallacy or cognitive dissonance into the research. Furthermore, since the heuristics behaviour considers as a behavioural finance but behavioural finance was also included other behaviour such as Herding Behaviour, Prospect Behaviour and et al. into the research.

Furthermore, this research was only study in Johor Bahru and causes a limitation of the sample size. Thus, in order to have a better reflect the true and more reliable, future research can attempt to get more respondents and not only in Johor, might also study for whole Malaysia's investors.

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## APPENDIX – QUESTIONAIRES

*Note: There is no right or wrong answer, so please evaluate the most appropriate scale as to be.*

**Please indicate your response to the following statements by ticking √ the ☐ appropriate corresponding choice which depending on whether you strongly disagree, disagree, somewhat agree, agree or strongly agree with it.**

1 = Strongly Disagree
2 = Disagree
3 = Somewhat Agree
4 = Agree
5 = Strongly Agree

| Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **Representativeness** | | | | | |
| 1) Past history of the debt security influences my present investment decision. | | | | | |
| 2) I use trend analysis of debt security to make investment decisions for all security that I invest. | | | | | |
| 3) I think that I can forecast the future value of the debt security based on its past performance. | | | | | |
| 4) I prefer to depend on the past performance of debt security when I take my investment decision over any other indices. | | | | | |
| **Anchoring** | | | | | |
| 5) I rely on the high rate of return achieved in the market before as the benchmark for estimating future return on investment. | | | | | |
| 6) I rely on my previous experiences in the market in deciding my next investment. | | | | | |
| 7) I forecast the changes in the security prices in the future based on the recent security prices. | | | | | |
| 8) I as an investor will consider the past performance of the debt security before investing in it. | | | | | |
| 9) I fix a target price for buying/selling in advance (say, before start of trading day). | | | | | |

| Statement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **Availability** | | | | | |
| 10) I prefer to buy the debt securities which more information is more available. | | | | | |
| 11) I consider the information from my close friends and relatives as the reliable reference for my investment decisions. | | | | | |
| 12) I prefer to buy debt security in the days that witness an increase in the general index of Kuala Lumpur Composite Index (KLCI). | | | | | |
| 13) I prefer to debt security in the days that witness a decrease in the general index of Kuala Lumpur Composite Index (KLCI). | | | | | |
| **Overconfidence** | | | | | |
| 14) I trade excessively in the debt security market because I am sure of what step to take all times to increase the worth of my investment. | | | | | |
| 15) I am a smart participant in the debt security market. | | | | | |
| 16) I always confident that I will make profit when trading in the market. | | | | | |
| 17) My skills and knowledge of the debt securities market guide my decision to either sell or buy securities. | | | | | |
| 18) My skills and knowledge of the securities market helps me to outperform the market. | | | | | |
| **Investment Performance** | | | | | |
| 19) The return rate of my recent debt security investment meets my expectation. | | | | | |
| 20) My rate of return is equal to or higher than the average return rate of the market. | | | | | |
| 21) I feel satisfied with my investment decisions in the last year (including selling, buying, choosing securities, and deciding the security volumes). | | | | | |