
The Effect of Financial Literacy, Risk Attitude, and Saving Motive on Bias Disposition Mutual Funds Investor in Indonesia Stock Exchange

Farah Margaretha Leon & Dewi Pringganingrum
Faculty of Economics and Business
Universitas Trisakti

Abstract

This study aims to determine and analyze the influence of financial literacy, risk attitude and saving motive to bias disposition of reksa dana investors who invest in Indonesia Stock Exchange. Data processing is done by using ordinal logistic regression. Sampling technique in this research uses purposive sampling. Data obtained directly from respondents who meet the requirements of population characteristics through the process of distributing questionnaires within a period of not more than 1 year. The number of samples used in this study amounted to 321 respondents. The results of this research indicate the influence of technical knowledge of finance and knowledge of mutual fund to the bias of investor disposition. But the influence of market knowledge, risk attitude, and the motive of saving to the disposition bias otherwise not supported. This research is useful as a reference of an investor in planning and taking appropriate financial decisions where an investor must have adequate financial literacy to avoid bias behavior. It is also useful for financial services companies to understand the behavior of investors in order to apply appropriate patterns of approach and advice to investors in order to avoid a high bias. It is also useful for the government in making educational programs so that investors understand and comprehend how to avoid the behavior of bias.

Keywords: *disposition bias, financial literacy, saving motives, market knowledge, mutual funds (reksa dana) knowledge, financial technical knowledge, risk attitude.*

Introduction

Every individual has a purpose in his life be it both short-term goals and long-term goals. The management of personal finance becomes one of the important factors in the achievement of individual goals so that knowledge and understanding of personal financial management are required. This knowledge and understanding will support and direct each individual to know the goals to be achieved and how to utilize the financial resources possessed optimally to achieve those goals. With an optimal personal financial management, the individual will responsibly be able, more wisely, and purposeful in planning and realizing his future. Personal financial planning and investment management are an important task of the individual, not only for personal fulfillment but also assisting in the achievement of financial welfare. It is important to conduct financial planning effectively and evaluate the complete information required in rational decision making. Individuals who can build safe finances can generate returns above the average of expected returns in their investments.

Currently, financial literacy becomes very important for every individual in its financial management. Financial literacy is the ability to obtain information, analyze, manage, and communicate about personal financial situations affecting one's well-being (Mouna and Jarboui (2015) .This reflects the ability to gather important and relevant information, to

distinguish between diverse financial options, finance, and can plan and understand events affecting financial decision-making. Financial literacy has developed and attracted the attention of various parties such as governments, bankers, employers, communities and financial markets and other organizations, especially in developing countries. By factors related to the development of new financial products, the complexity of financial markets, changes in political, demographic, and economic conditions (Al-Tamimi and Bin Kalli, 2009).

The development of financial instruments makes a lot of choices in investing for an investor. Investor behavior in decision making is influenced by many factors both personal and situational. These different factors influence investor behavior during the personal finance management process. In the financial literature, the selection of an investor portfolio usually depends on the concept of risk-return assumed as a function of expected return and risk taking attitude. An investment is related to the current utilization of funds in the hope of getting a better return in the future. The choice of investor portfolio is usually conceptualized in the risk-return framework. They are assumed as a function of expected returns, expected risk and risk attitude. Much research is related to this which assumes that investor decisions depend on the variance and covariance of investment choices in calculating investment risk. Therefore, a person's own risk attitude determines how much asset allocation is risky and that is not risky in investing (Nosic and Weber, 2010).

Saving becomes one of the options investors in investing. There are many saving motives as revealed by research Yao et al (2011). Saving as a precautionary saving or being on the lookout for emergency funds when a loss of income or an unexpected surge in spending. Saving for retirement allows one to earn a stable life during retirement. Savings also make a person to withhold current consumption for the purchase of a home or for a child's education. Saving is one of the important things that must be utilized in order to achieve the goal and improve the financial welfare.

Financial behavior examines the psychological aspects of financial decision making and explains irrational investment decision making. Traditional financial theory assumes that investors use all available information and make rational decisions but in reality may be different. Usually the behavior of investors diverges in taking a rational or logical decision influenced by behavioral bias. The disposition effect is one of the behavioral bias in which the investor tends to sell the profit share or the stock that performs well and retains the losing stock (Kumar and Goyal, 2015). This disposition bias can lead to an investor is not right in making investment decisions.

Currently there are many types of investment that can be selected by the community along with the development of financial products. One of them is mutual fund (*reksa dana*) where this type of investment continues to develop in Indonesia. Indonesia Financial Services Authority as of February 2017 publish statistical data of net asset value of mutual funds in Indonesia has reached Rp 356,391,360,000. This mutual fund became one of the investment options of the community. It's just that many mutual fund investors are investing in good-performing funding but failing to let go of poorly performing investments (Sirri and Tufano, 1998). Therefore it is important to conduct research related to financial literacy, risk attitude and the motive of saving the investors to see the correlation with the behavior of investor disposition bias that often occur in investment decision making, where the research is devoted to investors who invest in Indonesia Stock Exchange mutual funds.

Literature Review

Disposition Bias

Disposition bias is a behavioral bias in which investors tend to sell stocks of profits or stocks that perform well and retain losing stocks (Kumar and Goyal, 2015). The bias is a tendency towards a certain disposition related to financial investment decision making (Sahi, 2012). This disposition bias is an investor's tendency to sell high value shares and retain losing stocks. Investors make good investments but fail to reach maximum potential profits, which are usually affected by not paying attention to information and continuing to maintain a poorly performing stock (Brown and Kagel, 2009). In research related to trading performance, the disposition, overconfidence, representativeness of bias, and investor experience by Chen et al (2007) found that many investors make bad decisions in investments where the purchased shares perform poorly. In addition these investors have a behavioral bias 1) they tend to sell stocks that rise or perform well than stocks whose prices are down, which is consistent with the disposition effect of admitting profit rather than loss 2) investors are overconfident and 3) investors believe that past gains also indicate future profits (bias). This cognitive error is due to the tendency of psychological considerations rather than doing more in-depth analysis. Investors may tend to have behavioral biases that cause them to make cognitive errors. One may be able to predict and the choice becomes less than optimal when faced with difficult and uncertain decisions. Investors look confident despite having little stock but more often do deals and their disposition effects look very strong. Investors who have experienced success or failure in the past will tend to be confident. This makes investors want to utilize the expertise they have to get a high return. A low disposition bias is shown by individuals who decide to sell poorly performing or impaired investments (Jonsson et al, 2016).

The behavior of the bias depends on the demographics of the investor and the way in which trading is performed which is the largest factor influenced by age, profession and trading frequency (Prosad et al, 2015). Any bias related to the specific characteristics owned by investors and overconfidence becomes the most important thing in bias. In stock investments, investor characteristics have a relationship with behavioral bias in which stock characteristics as well as stock market conditions tend to be a common determinant of various behavioral biases. This needs to be the concern of financial practitioners in making investment decisions and for financial advisors in understanding the psychology of the investor or his client. The disposition bias can also happen to stock investors when stocks are difficult to assess and the stock market is experiencing uncertainty (Kumar, 2009).

Currently investment products are increasingly diverse and complex so an investor needs more information about various financial problems. There are still many people who are not optimally related to financial knowledge and lack of financial knowledge is a trigger of bad financial behavior. Individual investors are likely to face difficulties in collecting and understanding financial information. This can cause bias so that financial decision making becomes inappropriate and inefficient.

This financial literature has important implications for welfare and also provides a broad insight into financial knowledge. Investors' decision to sell poor-performing mutual funds varies depending on their financial literacy (Jonsson et al (2017). In addition, the research has found that different forms of financial literacy have different effects. Capital markets and money markets affect the bias of disposition. Basic behavior consists of two components: first, the investor may not know the right behavior and secondly, the investor may well know

the right behavior but still fails in its application.

Individuals are ready to invest although experience and decisions are based on psychological conditions rather than quantitative analysis so often influenced by biased behavior. But the individual believes that true experience and understanding of finance will improve the process of good decision making. This implies that an understanding of financial behavior is very important for investors if they are to remain active in investing. In addition, market prospects, expert advice or third parties, understanding why investment decisions are wrong and how to deal with them are also important for investors in making investment decisions (Jaiyeoba and Haron, 2016).

In investing an investor's desire is to minimize risk and maximize revenue. Financial literacy and bias can be the individual determinants of portfolio diversification (Mouna and Jarboui, 2015). A lack of individuals in terms of financial literacy, the presence of bias, low incomes and inexperience leads to low portfolio diversification rates. The explanation of the disposition effects is based on the prospect theory presented by Kahneman and Tversky (1979) that the advantages and disadvantages are often judged by reference point and the individual avoids the risk of taking profits, otherwise taking the risk of losing. Risk-taking decisions can be seen as a choice between prospect and speculation. Consideration of decision making depends on the situation that can be affected by the bias.

Each individual will enter a phase or age where productivity decreases so it is necessary to plan and prepare for retirement. Pension plans relate to how much money is set aside for retirement and how to invest it (Madura, 2016). Individuals should be able to determine how much funding is invested and what type of investment is chosen. From these explanations, the conceptual framework that demonstrates the effects of financial literacy, risk attitude and saving motives on the disposition bias can be described as follows:

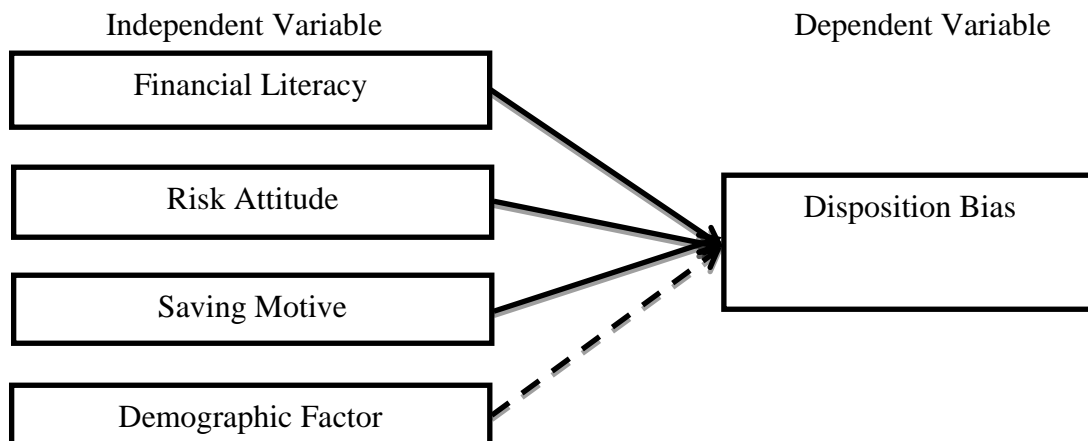


Figure 1: Conceptual Frame Chart

Financial Literacy

The complexity of increasing financial instruments and consumers who must respond with new financial products requires knowledge and understanding of financial problems (e.g. risk levels of various securities and interest rate effects). Lack of knowledge and understanding can lead investors to long-term sustained or undervalued investments. The pattern of professional and nonprofessional investor behavior in investing is influenced by the disposition effect whereby the disposition effect has more influence on nonprofessional

investors than professional investors (Shapira and Venezia 2001). Investors with high technical knowledge have a low bias. Trained and experienced investors can reduce bias even if they cannot avoid it. This disposition effect resulted in investors selling stocks of profits too soon and holding stocks of heavy losses suffered by heterogeneous investors (Shefrin and Statman 1985). For example, some investors may realize it will be a loss but too late to handle it. Others may be aware of the tax advantages of these losses but cannot exploit them due to disposition effects.

From these explanations, the effect of financial literacy on financial technical knowledge on investors' decisions to sell poor performing mutual funds can be formulated as follows:

H_{1a}: Investors with high levels of technical knowledge tend to sell poorly performing mutual funds.

Often decisions in buying or selling mutual funds are considered too easy as investors assume that they do not need to evaluate their investments (Kapoor et al, 2014). This can lead to errors and bias in decision making. In research related to the influence of financial literacy on the disposition bias conducted by Jonsson et al (2017) found that investors who have knowledge of mutual funds affect the tendency of investors in selling mutual funds that perform poorly. The intellectual-related research and the participation of mutual fund investors on the market found that investors with high intellectuals tend to have mutual funds and large numbers of stocks and have low risk (Grinblatt et al., 2011). Investors with high intellectuals have greater exposure to less risk and share value. Research on how the knowledge of mutual fund investors influences the search for information and its application in investor behavior has been done by Mishra and Kumar (2011) who found that investor knowledge has a significant effect on information and behavior searching although every investor may experience self-deception. Investing in mutual funds certainly involves a certain amount of funds and risks, so searching information and processing it into behavior are important before investors make investment decisions. Mutual fund investors with low knowledge will conduct different information and behavioral searches with high-knowledge investors. The level of knowledge owned tends to increase the involvement of investors in the investment process. A decrease in the value of a mutual fund because of poor performance and small market value over periods is the reason for an investor to abandon his mutual fund investment (Elton et al., 1996). Mutual fund investors tend to buy stocks based on previously earned returns, the performance of those shares and they tend to buy and selling shares at the same time in the hope that one of the stocks can give a good return (Grinblatt et al., 1995). From this explanation, the effect of financial literacy on mutual fund knowledge on investors' decisions to sell poor-performing mutual funds can be formulated as follows:

H_{1b}: Investors with high mutual fund knowledge tend to sell poorly performing mutual funds.

The research to analyze whether intellectuals affect trading behavior, performance and transaction costs is done by Grinblatt et al (2011) which find that investors with high intellectuals are less affected by disposition effects, more aggressive against tax-loss trading and tend to generate profits when stocks rise. Investors with high intellectuals also have good market predictions, expertise to choose stocks and able to run a good investment and buying activity. Market knowledge and market-following investors have an effect on the tendency to sell poor-performing mutual funds (Jonsson et al., 2017).

From this explanation, the effect of financial literacy on capital market and money market knowledge on investor's decision to sell poor performing mutual fund can be formulated as follows:

H_{1c}: Investors with high market knowledge levels tend to sell poorly performing mutual funds.

Risk Attitude

In a study conducted by Pellinen et al (2010) related to the measurement of financial capability with the object of mutual fund investors found that investors who have the ability and knowledge of less choose to invest in low-risk mutual funds. An investor, who has good ability in decision making, seeks a lot of information from various sources. Some investors are tolerant of risk when they think the investment can provide a high return (Madura, 2016). Investments made in 1 sector allow for high return potential but also indicate a high risk. A risk averse will choose a certain risk according to the expected return prospect. The knowledge and investment experience of an investor influences the tolerance level in the selection of investment. This increase in knowledge has a positive effect on investors' ability to take risks (Sadiq and Ishaq, 2014).

A person's tendency in taking the majority financial risk affects financial decision making (West and Worthington, 2014). A risk averse prefers to choose low-risk investment assets such as time deposits and government bonds, while non-risk adverse individuals prefer riskier assets such as stocks and corporate bonds. As a consequence a person's financial risk taking affects asset selection and the classification of its investment assets including portfolio diversification.

From these explanations, the effect of risk attitude on individual investment decisions to sell poor-performing mutual funds can be formulated as follows:

H₂: Investors who have a risk-seeking habit of investing tend to sell poor-performing mutual funds.

Saving Motives

In research related to financial literacy and pension planning conducted by Koenen and Lusardi (2011) suggests that financial literacy has an important influence in pension planning where individuals with low financial literacy are less likely to plan their retirement. The motive of saving is done by one's basic needs, safety, and security in the future, social status, luxury and self-actualization (Leon, 2018). Future security needs include buying a home, saving for unexpected illness or becoming unemployed, and saving for retirement. Retirement can be a valuable stage of one's life (Kapoor et al 2014). However, a successful and happy retirement does not just happen; it requires ongoing planning and evaluation. Early thinking about retirement can help someone to anticipate future changes and have a sense of control over the future. It's never too late to plan for retirement; one can avoid unimportant things or trouble with planning an early retirement. Saving now for the future requires the sacrifice of choice between spending and saving, where one sacrifices current consumption for saving. Retirement planning is important because someone is likely to spend a long time in retirement, the existing social security may not be enough to cover the cost of living and inflation can erode the purchasing power of retirement savings. Many young people are reluctant to think about retirement but they have to start retirement planning now before they reach the age of 45. Research done by Lawson and Hershey (2005) to see the effect of three psychological variables of future perspective, financial knowledge and financial risk tolerance to behavior saving for retirement found that these three psychological variables are related to knowledge of retirement planning and risk factors associated with investments made to prepare for retirement. His research results show that these 3 variables affect the aggressive level of a person in saving. Many people have realistic life expectancy and know

how much to save to achieve that expectation, only in reality the amount of their savings is not increased. Although already have knowledge about pensions only they have a low investment knowledge. But there is also the aspect of rational investment preferences in pension planning and knowing how to invest to achieve it only this individual cannot avoid bias (Byrne, 2007).

From this explanation, the effect of saving motive on individual investment decisions to sell poor performing mutual funds can be formulated as follows:

H₃: Investors who keep funds for stability and security tend to sell poor-performing mutual funds.

Research Methodology

Objects in this study are mutual fund investors who invest in Indonesia Stock Exchange. The method used is research through a survey of research methods conducted on a set of objects, but only take some of the population within a certain period of time using a questionnaire consisting of statements addressed to the respondent with multiple choice answers. The questionnaire is one of the efficient direct data collection mechanisms to know exactly what is needed and how to measure the variables studied. Observation and dissemination of this questionnaire was conducted less than 1 year.

Variables and Measurements

Variables used in this research are dependent variable, independent variable and control variable. Dependent variable is the variable of this disposition bias measured by the statement related to the tendency of an investor in selling poor-performing mutual fund, which is divided into 3 model statements with proxy SELL1, SELL2 and SELL3. The dependent variable is measured by using the Likert scale from 1 to 7, where 1 represents strongly disagree and 7 represents strongly agreed (Jonsson et al., 2017). The main variables in the study must be understood, described or explained variability (Sekaran, 2016). This variable has the meaning of being a dependent variable, an output variable, or a variable that becomes the result of which the size of the change in the dependent variable is caused or influenced by the independent variable. Analyzing the dependent variable makes it possible to find an answer or solution in a study. Dependent variable in this research is disposition bias.

Table 1: Variable and Disposition Bias Measurement

Variable Identification	Variable Name	Proxy	Measurement
Dependent	Disposition Bias	SELL1	Suppose you have a single mutual fund (mutual fund A) which for the past 1 year has decreased in value, then you will sell the A mutual fund.
		SELL2	Suppose you have three mutual funds with the same amount of investment in the three mutual funds (mutual funds A, B and C) where in the last 1 year mutual funds B and C increased value and mutual funds A decreased value, then you will sell the A mutual fund.
		SELL3	Suppose you have three mutual funds with the same amount of investment in the three mutual funds (mutual funds A, B and C) where in the last 1 year mutual funds A, B and C experience decreased value, then you will sell the A mutual funds.

Source: Jonsson *et al* (2017)

In this study the independent variables are financial literacy, risk attitude and saving motives. Variable financial literacy consists of financial knowledge technical variables, knowledge of mutual funds and knowledge about the market (money market and capital market). The financial technical knowledge variable consists of *knowEc*, *explain* and *finLitSum* proxies. The mutual fund knowledge variable consists proxies of *minLoss*, *redRisk*, *secProf*, *diversity*, and *lowFee*. For market knowledge variables consist of *followDev* and *interest* proxies.

Table 2: Variable and Financial Technical Knowledge Measurement

Variable Identification	Variable Name	Proxy	Measurement
Independent	Financial Literacy: Financial Technique Knowledge	knowEc	1. I have a good knowledge of financial issues related to: savings, mutual funds, shares, unit-link, derivatives, treasury bills / treasury bonds and deposits.
		Explain	2. I can explain about the advantages, disadvantages, costs, and returns of the following investment options: savings, mutual funds, stocks, unit-links, derivatives, treasury bills / treasury bonds and deposits.
		finLitSum	3. You have a fund of Rp. 20,000,000 in your savings, the annual interest rate is 10%. So in 2 years you will have funds in savings of
			4. The interest rate for your savings is 1% and the inflation rate is 2%. If you hold the money in your savings for 1 year, then you are only able to make the spend
Independent	Financial Literacy: Financial Technique Knowledge	Independent	5. Buying shares of one company in general Compared with buying mutual funds invested in various stocks.
			6. If the market interest rate falls, then the bond price will also be
			7. Bonds generally has maturity terms while the stocks ... term mature.

Source: Jonsson *et al* (2017)

The *knowEc* and *explain* proxies are measured by a statement using a likert scale of 1 to 7, where 1 represents strongly disagree and 7 represents strongly agree. The respondents were

given a score where the total sum of the sums represents the respondent's ability to explain the investment options listed in the statement with a minimum score of 7 and a maximum value of 49. While *fitLitsum* is measured by financial literacy questions with multiple answer options (multiple choice). The correct answer will be given a value of 1 and the wrong answer will be given a value of 0 with a minimum score of 0 and the maximum score is 6.

The independent variable of financial literacy in this study also consists of knowledge of mutual funds. This variable also measured statements using Likert scale 1 through 7. This variable is also based on previous research conducted by Jonsson et al (2017).

Table3: Variable and Mutual Fund Knowledge Measurement

Variable Identification	Variable Name	Proxy	Measurement
Independent	Financial Literacy: Knowledge Mutual funds	minLoss, redRisk, SecProf, diversity, lowFee	The following considerations are important factors in buying a mutual fund: a. Minimize losses b. Reduce risk c. Securing profits d. Change the portfolio composition e. Pay a lower fee

Source: Jonsson *et al* (2017)

The other independent variables of financial literacy in this study are market knowledge (capital market and money market). This variable is also based on previous research by Jonsson et al (2017). The capital market and money market knowledge variables have *followDev* and *interest* proxies, where *followDev* is scored with a score of 1 to 4 and *interest* with a likert scale of 1 to 7, of which 1 represents strongly disagree and 7 represents strongly agreed.

Table 4: Variables and Capital Market and Money Market Knowledge Measurement

Variable Identification	Variable Name	Proxy	Measurement
Independent	Financial Literacy: Capital Market and Money Market Knowledge	followDev	1. How often do you keep up with your financial investment? • Once a week • Once a month • Rarely • Never
		interest	2. I am interested in economic issues.

Source: Jonsson *et al* (2017)

In this study, in addition to financial literacy independent variables consist of risk attitude and saving motives. The proxy of the variable risk attitude is the *LoseWin*. Proxy *loseWin* measurement using Likert scale 1 up to 7. For saving motives measured with Likert scale 1 to 7 assessed with minimum score 3 and maximum 21.

Table 5: Variable and Risk Attitude and Saving Motives Measurement

Variable Identification	Variable Name	Proxy	Measurement
Independent	Risk Attitude	loseWin	1. I am prepared for the risk of losing some of my savings if there is an opportunity to earn a higher return.
	Saving Motives	Savepen (S1)	2. I am saving for retirement.
		Savegen (S2)	3. I am saving for my offspring.
		Savelive (S3)	4. I am saving for home purchase.

Source: Jonsson *et al* (2017)

In this study there are also control variables in the form of demographic factors. Demographic factors in this study consisted of gender, age, education, number of dependents and monthly income of respondents. These demographic factors are the profiles of respondents in the questionnaire.

Table 6: Variable and Respondent Profile Measurement

Variable Identification	Variable Name	Measurement
Control	Demographic Factors	1. Gender: <ul style="list-style-type: none"> • Man • Women 2. Age: year 3. Education <ul style="list-style-type: none"> • SMA D3 S1 • S2 S3 4. Number of dependents: people (including respondents) 5. Monthly income <ul style="list-style-type: none"> • <Rp 3,000,000 • Rp 3,000,000 - 7,000,000 • Rp 7,000,000 - Rp 10,000,000 • > Rp 10,000,000

Source: Jonsson *et al* (2017)

Sampling technique used is purposive sampling method that is sampling method that is not done randomly but based on criteria according to requirement of research. The sampling technique has specific targets and is limited to certain types of groups / individuals who can provide the desired information (Sekaran, 2016). The sampling criteria in this study are as follows:

1. Questionnaires distributed to securities companies are PT Danareksa Sekuritas, BullishFX Indonesia, PT Mega Capital Securities, and PT Mandiri Sekuritas.
 2. Spread of questionnaires done by offline and online.
 3. Period of questionnaires spread in May - June 2017.
 4. Respondents are investors who have mutual fund investment.
- Based on these criteria obtained the number of samples as much as 321 respondents.

Data analysis method

Data obtained from the results of this study were analyzed by using *descriptive analysis* and *ordinal logistic regression*. Descriptive analysis is used to describe or analyze a research result but not used to make wider conclusions. Ordinal logistic regression is a statistical technique used if the dependent variable category is ordinal or rank (Gozali, 2016). Ordinal logistic regression is used to model the relation between response variables (y variables) with ordinal scale with explanatory variables or x variables (Indahwati et al, 2010). The number of samples recommended by each group in the logistic regression minimum of 10 observations for each parameter (Hair et al, 2014).

Analysis and Discussion

H_{1a}: Investors with high levels of technical knowledge tend to sell poorly performing mutual funds.

Based on Table 4.6 overall results show that financial technical knowledge has a negative influence on the bias positioned (sig.SELL1 0.00, SELL2 0.004 and SELL3 0.00 smaller than 0.05). That is, the higher the technical knowledge of financial investors the more likely the disposition bias will be lower, the lower the financial technical knowledge that investors have, the higher the disposition bias will be. With good financial technical knowledge, an investor will be right in making investment decisions and can reduce the occurrence of disposition bias. The results of this study are in accordance with research Shapira and Venezia (2001) who found that the effect of disposition is higher on nonprofessional investors than professional investors. Professional investors have higher technical knowledge, are trained, have skills and experience than nonprofessional investors so have a lower bias.

H_{1b}: Investors with high mutual fund knowledge tend to sell poor-performing mutual funds.

Based on Table 4.6 overall results show that knowledge of mutual funds has a positive influence on the bias positioned (sig.SELL1 0.004, SELL2 0.015 and SELL3 0.048 smaller than 0.05). It means that the result of this study is similar to research by Jonsson et al (2017) who found that the knowledge of mutual funds owned by investors affect the disposition bias. The higher mutual fund investors the higher the bias disposition and the lower the knowledge of mutual funds, the lower the disposition bias that occurs to investors. This is similar to research by Chen et al (2007) which states that investors are overconfident and believe that past gains also indicate future profits that result in bias. This result is also in accordance with the research of Grinblatt et al (2011) which states intellectual and participation of mutual fund investors in the market found that investors with high intellectuals tend to have mutual funds and the number of shares that many and have low risk. The decline in the value of mutual funds due to poor performance and small market value over periods is the reason for an investor to release his mutual fund investment (Elton et al, 1996).

H_{1c}: Investors with high market knowledge levels tend to sell poor-performing mutual funds.

Based on Table 4.6 overall results indicate that market knowledge has no effect on disposition bias (sig.SELL1 0.218, SELL2 0.390 and SELL3 0.266 greater than 0.05). Knowledge of the market owned by an investor has no effect on bias. A person who has market knowledge and keep up with economic and financial developments and changes does not affect investors' biased behavior. The results of this study do not match with the research of Jonsson et al (2017) who found that having knowledge of the market has an effect on the disposition bias.

H₂: Investors who have a risk-seeking habit of investing tend to sell poor-performing mutual funds.

Based on Table 4.6 overall results show that risk attitude have not influence on the bias disposition (sig.SELL1 0.969, SELL2 0.733 and SELL3 0.096 greater than 0.05). This is not in accordance with the results of research proposed by Maditinos et al (2007) which states that investment decision-making depends on the behavior of every investor in the face of risk. But the results of this study are similar to those of Jonsson et al (2017) who also found that risk attitude does not affect the disposition bias. The risk-taking attitude of investors has no effect on bias even though the investor is in the category of seeking or avoiding risk.

H₃: Investors who keep funds for stability and security tend to sell poorly performing mutual funds.

Based on Table 4.6 the overall results show that investors' saving motives have no effect on position bias (sig.SELL1 0.169, SELL2 0.211 and SELL3 0.393 greater than 0.05). The results of this study are not in accordance with research conducted Lawson and Hershey (2005) which states that the planning of an investor's pension and risk factors associated with investments made to prepare for retirement. But the results of this study are similar to those of Jonsson et al (2017) who found that the savings motive of the investor had no effect on the disposition bias. Future perspective related to individual thinking about the future or retirement planning did not affect the bias of disposition. This is because saving is a long-term goal that is not affected by short-term market movements.

Control Variables

From Table 4.6 gender, age and educational level overall have a significance value greater than 0.05:

1.education level SELL1 0.267 > 0.05, SELL2 0.243 > 0.05, SELL3 0.243 > 0.05;

2.age at SELL1 0.385 > 0.05, SELL2 0.175 > 0.05, SELL3 0.694 > 0.05;

3.gender SELL1 0.071 > 0.05, SELL2 0.250 > 0.05, SELL3 0.116 > 0.05;

so that these 3 variables have no effect on the disposition bias.

Unlike the case with the three variables, for the number of dependents (sig. SELL1 0.024 < 0.05, SELL2 0.103 > 0.05, SELL3 0.032 < 0.05) and income (sig. SELL1 0.019 < 0.05, SELL2 0.657 > 0.05, and SELL3 0.138 > 0.05) as a whole has an effect on the disposition bias.

This is in line with the research found by Mohanta and Debasish (2011) that found investors who have large amounts of dependents and high incomes prefer to invest in mutual funds. Low-income investors are more vulnerable to bias (Tekce, 2016). Individuals who have high incomes have higher financial knowledge than individuals with moderate and low income so that the bias is lower (Keown, 2011).

Conclusion

From the results of the analysis and discussion that has been done, obtained some conclusions as follows:

1. The level of investor's financial technical knowledge negatively affects the disposition bias.
2. The level of investor's smutual fund knowledge has a positive effect on the disposition bias.
3. The level of market knowledge owned by investors has no effect on the disposition bias.

4. Risk attitude owned by investors has no effect on disposition bias.
5. Saving motives owned by investors have no effect on the disposition bias.
6. The number of dependents positively affects the disposition bias; and investor's income negatively affects the disposition bias.

The results of this study can provide recommendation for some parties including:

1. For Financial Companies

The results of this study can be a concern and input for financial companies where financial companies should pay attention to technical knowledge of finance and knowledge of mutual funds owned by investors. In addition, the company should also consider the demographic factors of investors that are the number of dependents and the level of investors' income, so the company can know the behavior of investors in investing and can know the right approach to investors to invest in mutual funds more desirable.

2. For Investors

In managing and planning investments, investors must have adequate financial literacy knowledge, especially financial technical knowledge and knowledge of mutual funds for investment can provide benefits.

Suggestion

From the results of research that has been obtained, the suggestions and recommendations that can be given for further research are as follows:

1. The research object can be further expanded to include not only one type of investment but other types of investments such as stocks such as Kumar's (2009) research which states that a disposition bias can happen to stock investors when stocks are difficult to assess and the stock market is uncertain.
2. The researcher can then add the variable of trading frequency in accordance with Prosad et al (2015) study which states that the disposition effect will be on investors who tend to increase their trading activity if they have experienced previous success.

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