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An analysis of Decision Making in the Stock Investment

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Abstract.

The research objective is to test how much risk investors are willing to take when making their investment associated with the loss aversion, in terms of the risk taking behavior in relation with that of the loss aversion. The later, the loss aversion is treated as the independent variable reviewed from the two sides of the gain and loss domain. When investors are in loss aversion within the gain domain, they tend to have a lower risk taking behavior than that of the loss domain. Such tendency of investor's behavior differences in those two different domains is described in a hypothetical value function (Kahneman and Tversky, 1979). ANOVA Test is applied to determine the risk taking behavioral differences in the two domains toward the loss aversion. Hypothesis test results with the alpha index indicate that investors, when in the loss aversion of the gain domain, have a lower risk taking than that of the loss aversion in the loss domain. Meanwhile, using post hoc for significant test results in that the loss aversion has a significant influence for the risk taking decision making in investment, particularly in that of the stocks.
Keywords*: decision making, investment, loss aversion, risk taking.*

A. Introduction

Investors must consider many factors for decision making in investment both the long term and the short one, also with the nature of investment assets as well as financial investment. There are factors to be considered either in the form of internal and external ones. The former can be derived from the investors themselves such as the level of education, knowledge, willingness or psychologically, while the latter is the macro external factors (both economics and politics) and the micro ones (the financial statements of the company or industry). Finance theory has shifted from fundamental finance theory to that of behavior with different emphasis. This fundamental finance theory relies on the economics while the behavior is on the psychology theory[1].

One of the fundamental finance theories is the efficient market hypothesis (EMH), which was introduced by Fama (1970). EMH describes the efficiency of the market with the

[1] Muh. Barid Nizaruddin Wajdi, Yuli Choirul Ummah, and Devit Etika Sari, “UKM Development Business Loan,” *IJEBD (International Journal Of Entrepreneurship And Business Development)* 1, no. 1 (October 1, 2017): 99–109, accessed November 9, 2017, http://jurnal.narotama.ac.id/index.php/ijebd/article/view/350.

assumption that people always tend to think rationally in every action. This theory of behavioral finance is a combination between finance theory and the psychology. Shefrin (2001) states that behavioral finance is a psychological phenomenon affecting the behavior finance[2]. One theory of behavior finance is the prospect theory of Kahneman and Tversky (1979) stating that one will make different decisions at different conditions, namely during the gain or the loss. This making of the decision described in the prospect theory is also related to investment decisions made by investors[3]. Some of the factors that influence the decision making for individual investment are the framing effect, loss aversion, over reaction, under reaction, overconfident and other demographic factors such as gender, age, education, income, wealth and marital status (Mittal, 2010).

Loss aversion empirically is regarded as the sensitivity level of people towards the loss which is twice as much as the gain even with the same nominal amount (Kahneman and Tversky (1979), Kahneman et al., (1990). This means that a person will experience deeper regret when losing than the pleasure obtained during experiencing gains despite the same amount. Such loss is regarded as an extraordinary event while the gain is considered as a matter of course that does not lead to anything special. Both of these may affect any different behavior or act from investors while under different conditions. This difference is supported by the statement from Haight and List (2005), Thaler et al., (1997), Kahneman et al. (1990) Levi (1992); basically, the loss aversion is the tendency of a person to be more considerate, sensitive and high prudential toward the decline than the increasing price or property owned. The loss aversion at the gain or loss domains will affect investors in their risk-taking assessment in making investment decisions, whether behaving as risk seekers or risk aversion[4].

Investors in making investment decisions always have consideration on affecting factor that will affect the level of investor courage in taking investment risks. At present more and more information may affect decisions, mainly about the uncertain information. Such uncertainty received by investors will determine how high or low the risk- taking investment.

[2] Nisaul Barokati and Fajar Annas, "Pengembangan Pembelajaran Berbasis Blended Learning Pada Mata Kuliah Pemrograman Komputer (Studi Kasus: UNISDA Lamongan)," *SISFO Vol 4 No 5* 4 (2013).

[3] Nisaul Barokati, Nizarudin Wajdi, and Muh Barid, "Application Design Library With Gamification Concept," *Jurnal Lentera: Kajian Keagamaan, Keilmuan dan Teknologi* 3, no. 1 (2017): 93–102.

[4] M. Ikhsan Setiawan et al., "The Development of the Central Business District (CBD) Based on Public-Private Partnership," *IJTI (International Journal Of Transportation And Infrastructure)* 1, no. 1 (September 29, 2017): 9–14, accessed October 21, 2017, http://jurnal.narotama.ac.id/index.php/ijti/article/view/327.

According to Seo et al., (2010) risk taking is divided into two, the less one called risk-averse and the greater risk taking, the risk seeking. This risk-taking investment made by investors will determine whether they can be classified as risk seeking investors or of the risk averse. The higher the risk-taking, the more risk seeking they are; conversely, the lower the risk taking the risk averse their behavior is.

One psychological factor affecting the risk-taking in investment decision is the loss aversion. Kahneman and Tversky (1979) are researchers who first introduced loss aversion in the prospect theory, while the concept of loss aversion in risk decisions was first introduced by Thaler (1980). Kahneman and Tversky (1979) states that loss aversion based on the prospect theory is that the onset of a person's tendency to hold the shares at loss domain longer than when they are on gain domain that is more quickly in selling their stocks. People tend to be longer in holding their shares in a state of loss for investors as individuals are optimistic about the decline in stock prices in the future. The investors expect that the decline in stock prices, one day, will experience price increases to regain benefits. Conversely, an investor when experiencing the gain will be likely to sell their shares faster despite the small increase in price. This is due to the fact that in gain domain they concern that the price will decline resulting in more losses[5].

According to Mittal (2010) the decision-making is affected by the loss aversion, as one of the factors. This loss aversion is one of the psychological biases that influence the decision-making process particularly the investment decision. This is also categorized as the investors' behavior fearing the loss which will determine the level of one's courage in taking investment risk or commonly referred to as the risk taking. Investors are classified as risk seekers if they are making an investment decision with a high risk taking, in addition to the so-called risk averse or the low risk taking behavior. Such a high or low risk taking is strongly influenced by the problem domain, namely the gain or loss domain. During the former, their tendency for the risk-taking is lower than that of the latter, the loss domain (Kahneman and Tversky (1979), Neale et al., (1986), Seo et al., (2010), Phuachan (2010) . One will sell his shares more quickly worrying that prices are going to decline when in the gain domain. Meanwhile, while in the loss domain, the action will tend to be a high risk taking expecting that prices will rise again.

[5] Muh Barid Nizarudin Wajdi, "Optimization Of Game Character Education Based On Traditional Physical Education Of Children With Behaviour And Emotional Problems through Learning Model Quantum Learning (Neuro Psychology Learning And Learning)," *ADRI International Journal Of Psychology* 1, no. 1 (2017): 25–32.

Based on the description of the research hypothesis, it could be formulated as follows: H1. Participants have a higher risk taking while in the loss domain than in that of the loss domain and also the onset of the loss aversion affecting the risk taking**.**

Furthermore, this article is written based on the sequence of steps. The first is a literature review and hypothesis. The next one is the methodology, followed with the results of research, discussions, limitations of the study and finally the conclusions. This article is employed to describe the loss aversion with the risk-taking on the basis of the results of a pilot test from an experimental research.

B. Methods

The loss aversion as an independent variable is measured and treated with two levels, namely the gain and loss ones (Kahneman and Tversky (1979), Levi (1992), Thaler et al., (1997), Vieder (2009). The risk-taking as the dependent one will be employed to determine whether investors will conduct the high or low one. Measuring the variable of the risk taking is by providing treatment of variable loss aversion. To assess the risk-taking is by calculating the index alpha with the post hoc to assess the significant influence. The index alpha used is Weber and Camerer (1988).

The total participants were 11 students of the last semester majoring in financial management. They are divided into two groups: the gain (6 participants) and the loss (5 participants). Their average age is 21 years.

C. Results And Discussions

Table 1

Mean Contrast, interactions loss aversion and risk taking

Contrast	Risk taking	standard Error	Sign
Gain and Loss	0.047928 vs -0,699208	0.20619	0.000

Source:Data processed

The table shows the index value alpha of risk taking in the gain domain with a positive value of 0.047928, indicating a low risk taking or risk averse. While in the loss domain, it shows a negative value of -.069208, indicating a high risk taking or risk seekers. The loss aversion strongly influences the risk taking, which is indicated with a significance level of 0.000 which is smaller than the limit of significance used in the pilot study of 0.05.

This shows that findings in the pilot studies confirm the hypothesis of subsequent research. When in the gain domain investors quickly decide to execute the sale of their shares held. This was made during the current stock price showed an increase or higher than the purchased price of their shares. Such a behavior in the gain domain indicates investors' fear of the loss risk in the risk averse which was shown with a positive index alpha value. This means that the investor has a lower risk taking. Furthermore, this is the risk averse action that is quickly selling their shares held for the benefits despite the low ones. In addition, this was also supported by the investors psychology namely their concern that the future price may decline and thus avoiding losses.

Findings from the pilot test of the loss domain indicate that investors are more willing to take risks called risk seekers as indicated by the negative alpha index. The risk seekers tend to hold longer or even not selling their shares despite the drop in stock prices from the previous purchase. This is due to the fact that if investors sell shares when stock prices decline, they will suffer losses. How to avoid losses is by not selling their shares when prices decline as investors individually hoping that the stock price will eventually increase as benefits in the future. Another factor, especially the psychology one, the risk seekers are feelings of shame because the loss will demonstrate their incompetence and weakness in making stock investments. As Puachan (2010) suggested that when experiencing loss, the risk seekers are trying to cover up and could not accept the reality of the loss they experienced. Moreover, the onset of effects of remorse causes greater losses when compared to the pleasure received while experiencing gains. These results strongly support the notion of some researchers as already described in the literature review from Haight and List (2005), Thaler et al., (1997), Kahneman et al., (1990) Levi (1992).

Loss aversion with the post hoc analysis showed that loss aversion greatly affects the risk taking investment decisions taken by investors. The level of sensitivity fearing the loss of the investment decision greatly affects the level of risk taking. The risk taking courage in the level will determine whether an investor would act as the risk seekers or the risk averse. It's like the results of research conducted by Mbaluka et al, (2012), Puachan et al (2010) stating that an investor tends to be affected with loss aversion in his investment decision.

Limitations of the study

In this pilot study, limitations are conducting the project during the day, causing the maturation effect. To avoid such effect, this research should be conducted in the morning. Participants in this study are students; for the next study practitioners should be employed which can be used as a comparison.

D. Conclusions

The behavior of investors, especially each individual in risk taking decision in terms of that of investment associated with loss aversion, is largely determined by the problem domain that is in the gain or loss domain. On the one hand, in the gain domain, investors conduct a low risk taking or risk-averse. On the other hand, in the loss domain then it will be a high risk taking or risk seekers. The loss aversion has a very significant effect on the risk taking. Thus, investors in making investment decisions, especially in the studies strongly have been affected by some external factors (financial statements) and internal (psychology) as described in behavioral finance particularly of the prospect theory.

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