



## The Effect of Regret Experienced in Investment Decision: an Experimental Study

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### ABSTRACT

This study explore the psychology of bias experienced stock investors when making an investment decision. The research method used is by an experimental design 2x5 factorial between subject. Researchers conducted manipulation on two different treatment condition (good and regretful experience) to the stock investors which refers to the theory of regret aversion bias. The experiment using a web stock simulation with participans as many as 70 students who were divided according to their risk aversion. Other research instrumen use a questionnaire using a measurement scale of 1-5. The experiment results show that experienced regret affect subsequentthe next investment choices of investors. There was no interaction between experience of regret with investors' risk aversion

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## **INTRODUCTION**

The growth of securities trading accelerated at an increasingly rapid pace. Investors are the main actors who play an important role in the movement of securities in the capital market. Many literature examines how investors react significantly to the information they receive. The classical theory assumes that investors are rational in every decision they make by considering various information and analyzing the information. These considerations are based on logical and transparent considerations. When investors receive new information, they will increase their confidence in the information received. Based on the confidence in this information, investors make investment decisions (Bernatzi & Thaler, 2002 in Grou & Tabak, 2008).

In fact, from the empirical evidence that has been carried out, it shows that there are odd phenomena that are not in line with classical theory. Oddities that occur such as market anomaly effects prove that investors have limited rationality in making investment choices. Verma (2008) in his research explains that behavioral financial theory is a theory that tries to identify and study various psychological phenomena of a person, especially investors in the capital market. In line with the opinion of Kahneman & Tversky (1979) who said that, more and more people are acting irrationally in making investment decisions. The main focus of this behavioral financial theory is the psychological bias that causes investors to have limited rationality because they are influenced by the psychological aspects of these investors.

Shefrin & Statman (2000) added that behavioral financial theory is an interaction between the psychological field and behavior in the financial sector which is expected to be able to describe and understanding of investor behavior. This theory also explains the extent to which the emotional and psychological aspects influence the decision-making process of investors. In the process of making a decision, investors often make decisions based on an assessment of the results of past decisions, so that investors tend to think about and consider various experiences and psychological conditions they have felt from past decisions (Bell, 1982; Loomes & Sugden, 1982 in Bailey & Kinerson, 2005). The results of these decisions can be good results, and can also be bad or unpleasant results for investors. If the results of investment decisions continue to decline, investors will experience feelings of unhappiness and regret.

Zeelenberg, Van Dijk, Van Der Pligt, Manstead, Van Empelen & Reinderman (1998) who found that the counterfactual role is related to the experience of regret experienced by investors. This is reinforced by research conducted by Bailey & Kinerson (2005), Fogel & Berry (2006) which says that the results of each decision that has been taken can cause investors to feel unhappy and regretful, so that these investors tend to wonder and blames himself for the wrong decision he has taken. This condition becomes a counterfactual and becomes an important consideration for various investment alternatives which will later influence investors in making investment decisions and choices in the future.

Based on various phenomena in the capital market which emphasizes the importance of understanding the relationship between bias psychology and the personal characteristics of investors. The author is interested in researching whether the experience of regret affects the next investment choice of investors? Does the experience of regret from the risk aversion character of different investors result in different investment choices? This study is to realize the importance of a behavior model that is able to explain investor's psychological bias.

## **LITERATURE REVIEW**

### **Behavioral Finance Theory**

The theory of behavioral finance arises basically from many psychological bias phenomena that occur in the capital market and is strengthened by existing empirical evidence (Shefrin & Statman, 2000; Statman, 1999). This psychological bias occurs because of the behavior of investors who often irrationally towards the information they receive. Then the act will ultimately have an impact on the movement of securities transactions in the capital market. Behavioral finance is a new paradigm that identifies the interaction between psychology and behavior in activities in the financial sector. how emotional processes can affect investor behavior that can affect investors in decision making (Shefrin and Statman, 2000; Weber and Camerer, 1998). This is reinforced by Verma, 2008; Ricciardi & Simon, 2000 states that behavior finance attempts to identify and study various phenomena psychology of a person, especially investors in the capital market. From this, it can be concluded that behavioral finance can describe and explain what factors influence investor in behavior, both in making decisions and in investing.

### **Regret Theory**

Regret is psychological condition of a person that occurs because of the fact that what happened from decision he made resulted something bad or disappointing which investment that causes a decrease in wealth, investors will feel persistent an intense remorse (Nofsinger, 2005). Kahneman and Tversky (1982) state that feelings of regret comes from two sources, namely feelings of regret as result of acting and not acting or as a result of taking a decision and not taking a decision. De Bondt and Thaler (1985) suggested that investors will feel remorse for their actions what he does, if the shares he sells too early continuously experienced an increase performing well, and investment decisions made is an important decision. Loomes and Sudgen (1982) found that investors who have experienced regret in investing tend to will behave in anticipation of regret on the next investment, and feel responsible for any investment mistakes that have been made before, because indirectly this causes investors experiencing loss. People will experience various sensations called a state of feeling sorry and experiencing anxiety. In making decisions in conditions of uncertainty, someone will try to anticipate and account for the various sensations he experiences. The same thing was found by Genesove and Mayer (2001) that fear of experiencing loss will affect behavior investors in selling the next stock. Feelings of regret associated with deep feeling of guilt and thinking about the mistakes that have

been made, missed opportunities, feeling pressured, want to fix the mistakes ever done (Zeelenberg, Dijk, Manstea & Pligt, 1998).

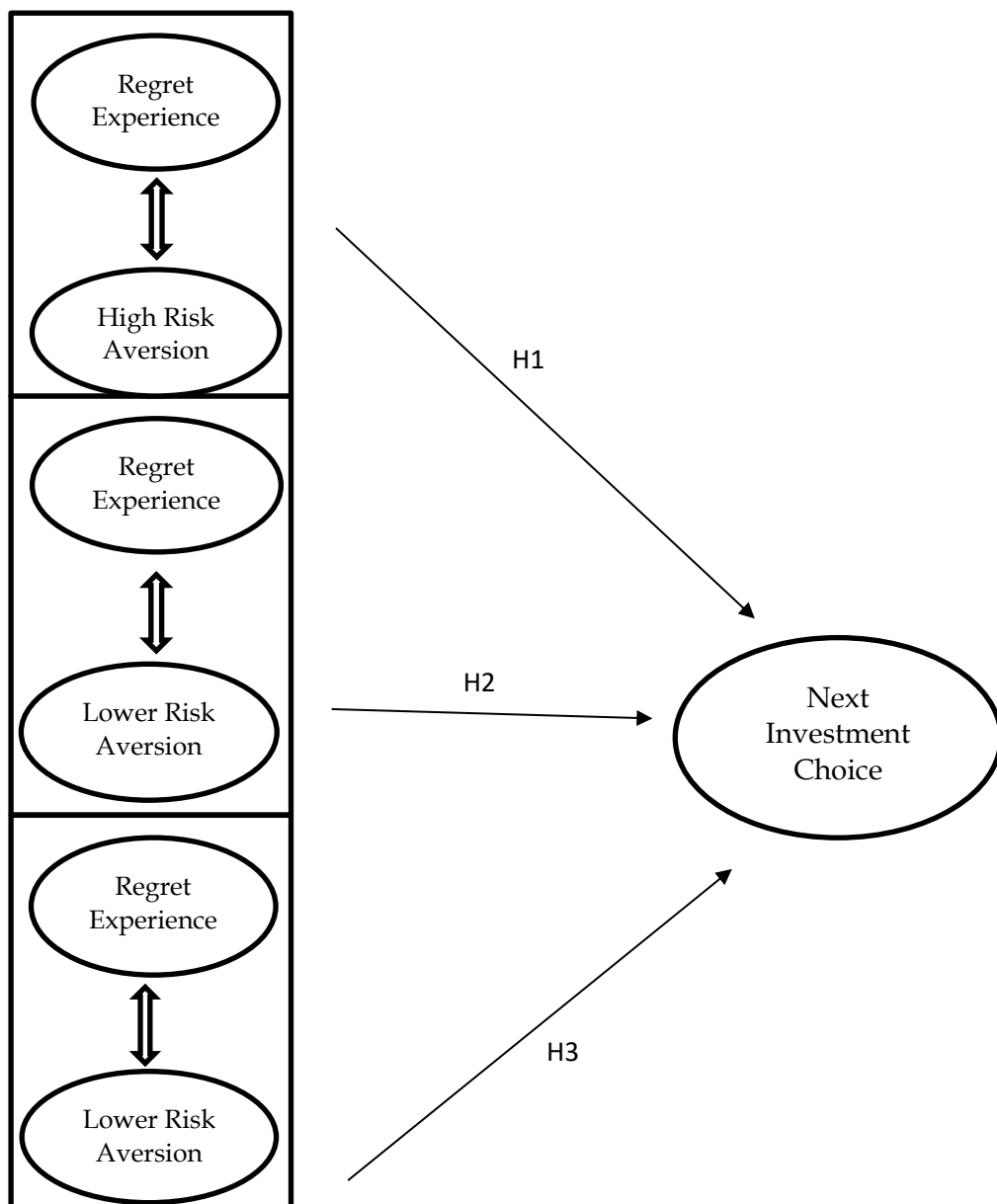
### **Risk Aversion**

Bazerman (1986) in Li, Zhou, Sun, Rao, Zheng & Liang (2009) suggest that risk aversion is a behavior that most dominant influence investors actions in viewing and measuring an investment risk or level of risk preference. The assumption is the ability to facing a risk is influenced by characteristic factors the personal nature of the investors (Bromiley & Curley, 1992). In the capital market, investors have different personal characteristics, there are investors who have the character to take risks namely risk takers, and there are investors who avoid risk namely risk averse. There are many ways that can be done to measure the level of an investor's ability to face risk (level of preference) in various different decision making, for example: through games, gambling, investing in the financial sector, making business decisions, and making personal and personal decisions (MacCrimmon & Wehrung, 1986; in Li et al., 2009). Ang and Schwarz, 1985; Scott and Horvath, 1980 suggested that characteristics and types personal of the investor can influence the investor in seeing risk especially in uncertain conditions. Based on this, it can be assumed that there is an experience of regret by investors in trading in past as well as their existence personal characteristics of investors in measuring a level of preference investor's risk will affect the investment choices made by investors furthermore.

### **Hypothesis Development**

Kahneman and Tversky (1982) state that feelings of regret come from two sources, namely feelings of regret resulting from actions and inaction or as a result of making decisions and not making decisions. The results of the study show that the feeling of regret making a decision is more painful than not making a decision in investing. Other research states that experience and anticipation of feelings of regret that investors have felt in previous trades will encourage investors to be passive under uncertain trading conditions (Goldberg & Nitzsch, 2001). Simonson (1992) in Bailey and Kinerson (2005) found that a sense of responsibility has a positive effect on feelings of regret for mistakes from making wrong decisions. Genesove and Mayer (2001), Li et al. (2009), Bell (1982), Loomes and Sugden (1982), Bailey and Kinerson (2005) found that the fear of experiencing losses in the past will influence investor behavior in making subsequent trades. Investors tend to choose investments with a small possibility that the investment results can cause repeated regrets. As a result, in making a further investment decision, investors often make decisions based on a consideration of experience and an assessment of the negative decision results (level of regret) they experienced in past trades. Risk aversion is a behavior that most dominantly influences investors' actions in measuring a risk (Bazerman, 1986 dalam Li et al, 2009; Bromiley & Curley, 1992; Ang & Schwarz, 1985). Based on this, it can be presumed that the experience of regret experienced by investors in past trades and personal characteristics of investors will influence the next investment choice.

- H1: Experience regret affects the level of risk aversion in investor groups with high risk aversion in investment choices furthermore
- H2: Experience of regret affects the level of risk aversion in investor groups with low risk aversion in investment options furthermore
- Bazerman, 1986 in Li et al., 2009; Bromiley & Curley, 1992 that risk aversion is a contributing factor most dominant influence investors action in viewing and measuring a risk. Furthermore, it will be analyzed in more depth whether this occurs the interaction between investor behavior in measuring a level of preference the risk with regretful experience he had in that trade then, will affect the investment choices of investors in the future come.
- H3: There is an interaction between experience of regret and risk aversion toward next investment choice.



Picture 1. Conceptual Framework

## **METHODOLOGY**

### **Subject**

This study used 70 student participants who have taken financial management classes and have never played and invested in the capital market before. Based on that opinion Myers and Hansen (2001) in Pangaran (2007) that in determining the study sample size is at least 15 or 20 subjects in each group laboratory experimental treatment, so that in this study using 35 people in each treatment group. The experiment was conducted in a classroom setting with 70 participants. This research using judgment sampling technique as part of purposive sampling.

### **Experimental Design**

The data collection method used is the experimental method using manipulated scenarios. Before conducting a stock simulation experiment first conducted a pre-test on participants as many as 35 people with the purpose of knowing and measuring participants' understanding of stock simulation treatment and questions asked in questionnaire. Before the experimental trial was carried out, the participants underwent a personal characteristics test to measure their risk level and were then divided into two groups (high risk aversion and lower risk aversion). The experience of regret is measured through stock trading transactions by giving the experience of regret in investing according to the manipulation scenario.

The research method used is by an experimental design 2x5 factorial between subject by using a web stock simulation. In order to be able to reflect on the actual conditions, in this experiment a reward will be given to the participant who has the highest return score. Before entering the stock trading session, an announcement will be made which is expected to spur participants to trade optimally and earnestly. On each trading session consisting of three rounds takes place each for 60 minutes in 3 hours duration. Filling out the questionnaire was carried out for 15 minutes. The questionnaire was conducted using a measurement scale of 1-5. Manipulation check is carried out in each trading session.

After each group was given treatment and expected have experienced regret in investing in stocks, then their filling a questionnaire containing several questions to measure investors' remorse level and their investment choices furthermore. Investment options provided are stocks, bonds, mutual funds, deposits, and fixed assets. Questionnaire given in each round (1-3) with the intention to avoid bias.

**RESULT**

In research requires that before testing hypothesis, first tested whether the difference in risk scores high aversion with low risk aversion statistically significant. If the difference in scores is significant, then the test analysis can be continued.

Tabel 1. Risk Aversion Scores

	F test	Significance	Conclusion
<i>Risk Aversion Scores</i>	4,623**	0,043	Significant

*Source: Data has been Processed*

The results of the one-way analysis of variance (ANOVA) test show that the F test value is 4.623 at  $\alpha = 0.05$ , which is significant at 0.043 so that it can be concluded that the average risk aversion score for each group of high risk aversion investors and the risk aversion investor group low significantly different statistically so that statistical analysis in testing this research can be continued. After testing the one-way analysis of variance (ANOVA), then the 70 experimental participants were grouped into two groups, namely: a high risk aversion investor group and a low risk aversion investor group with a composition based on gender and age as follows:

Tabel 2. Characteristics of Respondents Based on Gender

No.	Level of Risk Aversion	Numbers		
		Male	Female	Amount
1.	<i>High Risk Aversion</i>	14 people	21 people	35 people
2.	<i>Lower Risk Aversion</i>	19 people	16 people	35 people
	Participant			70 people

*Source: Data has been Processed*

Tabel 3. Characteristics of Respondents Based on Age

No.	Age Category	Amount
1.	Under 20 years old	1
2.	20-22 years old	61
3.	More than 22 years old	8
	Participant	70

*Source: Data has been Processed*

Tabel 4. Descriptive Statistics the Level of Regret Experienced

	Value	Label	N
Level of RA	1.00	High RA	35
	2.00	Lower RA	35
Degree of Regret	1.00	Very regret	5
	2.00	Regret	25
	3.00	Netral	16
	4.00	Few regret	17
	5.00	No regret	7

*Source: Data has been Processed*

Based on the results of the descriptive statistics in table 4, it can be seen that the high risk aversion investor group is 35 people, and the low risk aversion investor group is 35 people. The level of regret experienced by investors with great regret and regret is 30 people, and investors who are in a neutral position are 16 people. Investors who experienced little regret and no regrets were 24 people. In the results of this descriptive statistic, it can be seen that many investors have experienced regrets on past investments so that it will be seen how these investors make further investment choices.

Tabel 5. Investor's Investment Choices

Tingkat RA	Degree of Regret	Mean	Std. Deviation	N
High RA	Very regret	3.3333	.57735	3
	Regret	3.7143	.91387	14
	Netral	3.1429	1.34519	7
	Few regret	2.0000	1.06904	8
	No regret	2.0000	1.73205	3
	Total	3.0286	1.27154	35
Lower RA	Very regret	4.0000	.00000	2
	Regret	2.8182	1.16775	11
	Netral	2.1111	1.16667	9
	Few regret	1.8889	.92796	9
	No regret	1.2500	.50000	4
	Total	2.2857	1.17752	35
Total scores	Very regret	3.6000	.54772	5
	Regret	3.3200	1.10755	25
	Netral	2.5625	1.31498	16
	Few regret	1.9412	.96635	17
	No regret	1.5714	1.13389	7
	Total	2.6571	1.27274	70



The results of the descriptive statistics in table 5 above show that the high risk aversion investor group has different levels of remorse. The group of high risk aversion investors who experienced a lot of regret and regret were 17 people, then investors who were in a neutral position were 7 people, and investors who experienced a little regret and no regrets were 11 people. While the low risk aversion investor group experienced very regret and regret as many as 13 people, then that investor were in a neutral position as many as 16 people, and investors who experienced a few regret and not regret as many as 24 people.

After statistical descriptive testing, testing was carried out levene's test with aim of testing the ANOVA assumptions that require variance between groups must be the same (Ghozali, 2008).

Tabel 6. Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
1.214	9	60	.303

Based on the results of Levene's test in the table above, it can be seen that the assumptions in ANOVA have been fulfilled. This can be seen from the results of the sign 0.303 test > of  $\alpha = 0.05$  which means the null hypothesis (Ho) can be accepted, so that between groups of subjects there is no difference in variance.

Tabel 7. Between subject test

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	43.226(a)	9	4.803	4.204	.000
Intercept	333.248	1	333.248	291.704	.000
RA	2.177	1	2.177	1.905	.173
Regret	29.957	4	7.489	6.556	.000*
RA * Regret	4.248	4	1.062	.930	.453
Error	68.545	60	1.142		
Total	606.000	70			
Corrected Total	111.771	69			

Based on the results of testing the between-subject effect test, it shows that the main effect (main effect) occurs in the regret experience of investors where it is significant at 0.000 at  $\alpha = 0.05$ . The results of the study also show that investors' past experience of regret has an effect on investors' subsequent investment choices, so that it can be said that hypotheses 1 and 2 are supported.

In accordance with research put forward by Simonson (1992) that investors who have experienced regret in investing tend to behave in anticipation of regret on the next investment, and feel responsible for previous wrong decisions that have caused these investors to experience losses. The results of the

research conducted are in line with the research of Genosove & Mayer, 2001; Li et al., 2009, Bell, 1982; Loomes & Sugden, 1982 in Bailey & Kinerson, 2005 who found that the fear of experiencing losses in the past will affect the behavior of investors in making subsequent trades, investors tend to choose investments that are less likely subsequent investment results can cause repeated regrets. However, the results of the study show that there is no interaction between the experience of regret and risk aversion, which is sig 0.453.

The phenomenon of personal characteristics of investors can influence investor preferences in seeing a risk that has not been proven, so that H3 is not supported. This can happen that the experience of regret in investing in the past is more dominant in influencing investment choices made by investors in the future, compared to risk aversion. The feelings of regret experienced by investors in past trades contribute greatly to investors in considering the investment options they will make next. In line with what Markowitz stated in Pompian (2006) that investors will focus on minimizing regrets on future investments, so investors will share their risk preferences for future investments. Investors who experience repeated regret experiences tend to experience regret aversion bias (Pompian, 2006).

## **DISCUSSION**

The results of the study show that regret experiences are the main influence in investors' decision making on subsequent investments. This is in line with research conducted by Simonson (1992) in Bailey and Kinerson (2005) found that a sense of responsibility has a positive effect on feelings of regret for the mistake of making the decision. This is because investors are decision makers so that investors feel responsible for the decisions they make, as well as the results of these decisions. Other empirical evidence, finds that the results of decisions that have been taken in the past, cause investors to feel unhappy and regret so that investors will tend to ask and blame themselves for the decisions they have made. This condition will affect investors in making investment decisions and choices in the future (Bailey & Kinerson, 2005 and Fogel & Berry, 2006). However, the research results show that there is no interaction between regret experiences and risk aversion. It's can happen because the experience of regret in investing in the past is more dominant in influencing investment choices made by investors in the future, compared to risk aversion. The strong influence of regret experienced by investors in the past, as a result investors begin to analyze and evaluate past investment experiences. This makes investors put aside their level of risk preference in making investment decisions and choices and making decisions so as not to experience repeated regrets which can result in a decrease in investor wealth if they make mistakes in investing again in the future.

## CONCLUSION AND RECOMMENDATION

Investor actions are often influenced by regretful experiences experienced by investors in trading in the past, so that in the next investment investors tend to consider the various experiences they have experienced in the past. The experience of regret has a positive effect on the next investor's investment choices. However, there is no interaction between experience of regret and risk aversion. Investor behavior in making a decision or choice in investing further, is not influenced by preferences, attitudes, personal characteristics of investors in viewing a risk. It is suspected that this could happen because investors are more likely to consider the regretful experiences they experienced in trading in the past, not because they are influenced by their characteristics and preferences for risk. The experience of regret influence on investors in considering further investment choices.

## SUGGESTION

For further research, it is necessary to consider gender (gender, age, education) which might affect a person's risk averse level. As well as using original investor respondents who already have experience in trading in the capital market.

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