STATUS-QUO BIAS IN VALUING INVESTMENT ASSETS: A BEHAVIOURAL LOSS EXPERIMENT ON GAIN OR LOSS

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Abstract - Nowadays, human decision making is one of the most important area in financial & investment research. Previously, financial researches failed to detect market anomalies, which leads to investigation on investor decision-making process. In the decision-making process, behavioral economist found that the way people assessed value of the assets was completely different than utility theory at that time. Therefore, prospect theory was born to answer several biases in human thinking patern. The novelty of this research is to bring behavioral economics perspective on investment study in Indonesia as yet there is only very small numbers of investment study on this topic. This research was conducted based on experimental basis research. There were two conditions that were tested on the subjects: the first one was win condition when the stock price increased over the given time frame and losing condition when the stock price decreased over the time and subjects were asked to fill the questionnaire based on their preference on the given scenario. The result shows that status-quo bias is exist on both conditions and confirms the complexity on how these students make an investment decision. Several implications for investment business practice are also discussed in the final section

Keywords: ; Endowment Effect; Investment Valuation; Prospect Theory; Risk Preference; Status-Quo Bias

1. INTRODUCTION

1.1.Research Motivation

Lately, study of human decision making becomes very crucial and relevant for management study, especially in financial industry. One of the research areas in Financial Industry on people decision making is investors decision on buying and/or holding of certain assets. Old theories and financial literatures tend to focus on rational decision making and build certain financial model based on rational assumption. For example, there is no person would buy an asset which has more risk but less return, if they face a better option; an asset with certain return (very low return) but expose to no risk at all.

The problem is people are not behaving in this manner when they face “riskier” situation. This is the pivotal area when rational model failed to explain anomaly on the real-life situation and has been proved by various studies of (Kahneman & Tversky, 1979). This ground-breaking research on people decision making has led to understanding of how people evaluate risk and react on uncertainty situation. Initial finding suggested that people decide on something based on “endowment condition” that was exposed to them and usually prone to pain in losing condition. This phenomenon later known as “loss aversion”, people feel really bad when losing despite at the same time they win the same amount of prize (Kahneman & Tversky, 1979).

Furthermore, some experiments also conducted to understand how people value their belonging and ask how much they would like to sell it. The result was quite interesting as many participants who owned the items tend to overvalued, while the other participants who did not owned any items behave in the opposite direction (Kahneman et al., 1990). Rational model and portfolio theories failed to understand how investors made investment decision. Based on rational model, investors should evaluate and choose an asset based on the inherent risk, but in real life, most likely they preferred the intuitive way, such as familiarity and the fluency of stock tickers. Home bias phenomena even showed investors tend to choose riskier choice to the option that they had very strong familiarity (Riff & Yagil, 2016).

In summary, there are seven (7) type of biases that could be classified in behavioral finance. Each of this bias could affect people judgment and decision (Shukla et al., 2020). Another study also compared the decision making between financial assets and property investment. Based on tested model, investors who invested in property market would require more complicated process than investing in financial assets (Hala et al., 2020). The investigation on overconfidence and loss-aversion bias using analysis of panel data showed that the impact of loss-aversion bias had negatively affected both industrial and service firms in United State, but overconfidence had positive impact for industrial firms and negative affect on service industries (Bouteska & Regaieg, 2020).

1.2.Research Problem

Based on the previous finding on how people valued an item (Kahneman et al., 1990), this research has addressed a major problem in people decision making. It seems people would evaluate riskier choice completely different than the neutral one. For example, on neutral option between choice A: sure gain $100 or choice B: coin flip with 50% chance gets $200 or 50% chance gets nothing. The result might be varied, but most of people will choose sure gain rather the other one. However, on riskier choice between choice C: pay $50 or choice D: coin flip with 50% chance gets $100 or 50% chance paid $200, most of people would be sure become a gambler on this situation.

The riskier situation even could be worst in investment, when people owned certain assets but the value has decreased over the time and the investors are very reluctant to sell it. The goal in this research is to investigate how investors valuing their investment based on the endowment effect, especially on how people evaluate their investment (in this case stocks) when they face gain condition or lose condition.

Our motivation in this research was started from a dilemma that usually faced by investors whether to hold or sell their stock when investors have owned the assets. This research argued that investors always face a dilemma, before and/or after they buy an asset. Before they owned the stock, investors always wonder if the stock price would decrease, so they could buy it at the lowest point. After they have bought the stock, another dilemma arises as investors prefer the stock price keeps increase but they do not know when the right moment to sell. One of endowment-effect theory, specifically stated that status quo bias provided strong fundamental explanation why this phenomenon was happened.

The main hypothesis in this research is the investors who owned (have bought) the stock, tend to keep it because of status quo bias in their decision, despite the stock price has actually increased or decreased significantly. Therefore, for any given situation, group of winning behavior should be the same with losing respondents. To confirm this hypothesis, this research designed two experimental scenario and observed two different groups of university students. Both groups were given a certain scenario on their wealth and have the same initial value of wealth. However, one group will face constant 10% gain in nine steps while the other

group will face constant loss 10% for each step. If the theory of status quo on decision making is correct, then hypothetically both groups should hold their investment regardless win or loss condition. At the end of section, respondents also will be asked to rate their satisfaction regarding to their decision.

In the end, this research would like to make further contribution for application of behavioral economics theory on investor behavior in Indonesia. If the status quo bias was found and proven to be true, therefore this research would purpose some approaches that would be very useful for young investor to avoid status quo bias, especially on how they react on gain and loss condition of their investment.

1.3 Literature Review & Hypothesis

1.3.1 Emerging of Behavioral Economics & Finance

At the beginning of financial research, most of researchers focused on investment & portfolio creation. The first ground breaking theory in financial literature was (Markowitz, 1952) research on efficient frontier and the creation of optimal portfolio theory. After that, through complex understanding on the nature of risk and expected return, single index model introduced as the financial model to explain risk and return relationship, which known as CAPM (Sharpe, 1964).

Despite some limitations and assumptions, CAPM was proven as the most theoretical framework that ever invented in investment theory. This model provided the first academic theory about riskier asset also positively correlated with higher return. However, the model somehow lacks of accuracy on the real-world practice due to some anomalies and irrational market behavior. For example, one of the most famous market anomalies was January Effect. Based on the observed data, empirically there were very large abnormal return occurred in January on US market over 1963 - 1979 (Keim, 1983). This anomaly also confirmed by (Thaler, 1987).

After that, the well-established theory of Efficient market hypothesis tried to explain this market anomaly based on asymmetric information in the market (Warneryd, 2001), however it also provided a serious challenge to the theory as the result opened further question rather than answering the previous phenomenon. Overoptimistic expectation played very significant role in bubbling phenomena (Stiglitz, 1990). Overconfidence and expectation not always had negative meaning, as the research from (Bouteska & Regaieg, 2020) showed it had positive effect on service firms market performance.

Another empirical research on value-weighted return of U.S equity from 1802 - 2004 also supported this January Effect (Haug & Hirschey, 2006). This finding triggered a question about market rationality, if the market was rational then January Effect or other abnormal return and anomaly should not exist. Furthermore, some abnormal returns were also found not only in January but also in October (Kiky, 2016) but this finding still lack of robust result because only used single firm as the observation object. However from the other point of view, (Easterday & Sen, 2016) argued that the January Effect was actually rational economic behavior, which can be explained by tax-loss selling evidence.

These market anomalies have been a debate since it was found, fortunately, now it led financial researches into experimental study on people decision making. For the most recent extensive literature studies on behavioral finance, bias in decision making could be classified into 7 categories, over confidence, herding, disposition effect, anchoring, loss aversion, mental accounting, representativeness (Shukla et al., 2020). It also expands the direction of financial topic into the process before investment was made, the decision-making process. Lately, the

application of this kind of research (decision-making research) also had been used on property assets (Hala et al., 2020).

1.3.2 Rise of Experimental Economics & Status Quo Trap

After some findings on market anomaly, financial research started to investigate the issue back to the first step in portfolio creation, investor decision making. To understand how the decision is made, it is important for researcher to understand individual motivation and perception, which in this case the early researches about behavioral finance provide ground theory for it. Initially, most of financial researches argued that human as an actor in every financial decision should be a rational man. The term "rational" here has a meaning that they have carefully calculated and gone through all the possible outcomes before making any decision. However, the truth is people tend to avoid complex calculation and prefer the easiest way rather than the logical one, especially when a man has been mentally exhausted.

This mind system was investigated by two famous psychology Daniel Kahneman & Amos Tversky, which later provide the first theory about how our mind work. Based on (Kahneman & Tversky, 1979), through various experiments on human behavior on decision making, it was found that under "certain risk" situation, the rationality sometimes failed to take over. When a man faced a certain loss condition (negative prospect), the likelihood of a man conducts "gambling" behavior is higher. This research showed that people perceived a loss very different than a gain. This theory known as the prospect theory and became the first theory in many experimental economic.

From the finding of prospect theory, some issues that also related with loss-aversion phenomenon was status-quo bias. It can be traced back in 1988, from the research of (Samuelson & Zeckhauser, 1988), which stated that investors tend to maintain the existing choices rather than to switch to the other alternatives. In this research, there are three causes of status quo bias; presence of uncertainty, cognitive misperception and psychological commitment. Some researchers (Gilovich & Medvec, 1994; Kahneman, 2003) also provided further investigation that concluded regret played pivotal role on why people hate to change. In other word, most of subjects felt greater regret when they made a change from their current condition than maintained it. The sense of regret even worse and durable when it came from the former choice but people change their mind and resulting a loss (Boninger et al., 1994).

Furthermore, other researches also supported that investors tend to prefer uncertain gain (riskier choice) to certain gain (zero risk option) and prefer certain loss (riskier choice) to uncertain loss (greater risk) (Gilboa & Schmeidler, 1995; Tversky & Kahneman, 1974). Another interesting finding from (Kahneman et al., 1990) showed that the people with the endowment would evaluate their owned item very high than those who did not owned (in this case, a mug). Therefore, the theory has expanded into various range of investigation such as market anomaly, arbitrage, bounded rationality and finally investors behavior. So far, both rational and behavioral researchers tried their best in explaining investor behavior, perhaps new theory will emerge (Barberis & Thaler, 2002). The story also applied for university students who have owned the mask during the COVID-19 outbreak. Group of students who owned the mask tends to overvalue it than another group who did not own the mask (Kiky, 2020). From this endowment phenomena, the investigation on status quo bias began. The effect from framing, emotion and information were the important variables that affecting status quo on investor decision and the effect even stronger on the group with negative emotion (Li et al., 2009). However not all researcher agree that status quo was irrational as (Nebel, 2015) stated this phenomenon was actually rational based on subjective and objective theories of rationality

preference. The debate whether status quo is rational or irrational still ongoing but both sides agree on the importance to study the impact of status quo on decision making.

1.3.3 Hypothesis Development

Therefore, this research wants to investigate this issue (status quo bias) through simple experiment to university students that separated into two groups with different scenarios (win and lose). Based on our understanding on status-quo bias, both groups could be behaved in similar manner, despite their winning or losing condition. So, the main hypothesis is does status quo bias exist in both condition? This can be expressed into:

H_{01}: $\mu_{winning} = \mu_{lose}$ (Respondents on winning group behave similarly with respondents on losing group) – Confirming the theory.

H_{a1}: $\mu_{winning} \neq \mu_{lose}$ (Respondents on winning group behave differently with respondents on losing group) – Reject the theory.

2. RESEARCH METHOD & DATA ANALYSIS

Prospect theory has provided the fundamental understanding about people decision under uncertainty. Later on, this theory has opened further exploration on various biases in decision making, which one of them was status-quo bias. This table below lists the prominent works that have been used in this research.

Table 1. List of the Most Important Research on People Decision Making

No.	Construct	Sources
1.	Prospect Theory	(Tversky & Kahneman, 1974)
2.	Endowment Effect	(Kahneman et al., 1990; Thaler, 1980)
3.	Status Quo Bias	(Kahneman et al., 1990; Samuelson & Zeckhauser, 1988)
4.	Experimental on Status Quo Bias	(Li et al., 2009)

This research was inspired by (Li et al., 2009) research on experimental approaches in people behavior. However, due to some limitations, this research only designed and focused on specific observation in investors dilemma; on holding or selling their assets. The data were gathered from primary source, through a simple questionnaire that was filled by undergraduate students after finishing the given experiment. Convenient sampling method was used because all the respondents are enrolling in researchers' class and it also in line with our research goal to investigated status quo bias on inexperienced investors, which in this case is undergraduate students serves as suitable case. Further detail about data analysis will follow this steps:

1. At the first step, two different scenarios were designed based on two possible outcomes when people have bought the stock (gain or loss). Each scenario will assume the participants have owned a certain investment asset (in this case is stock worth of 100 million rupiah). Then, the participants were asked whether they would like to hold or sell their investment for any given scenario (for example, if their investment now increase 10% from previous value).
2. There were two groups of samples that observed based on the goal of the research, the first group is winning scenario and the second group is losing scenario. For winning scenario, at the first step the participants will be showed that they owned 100 million stock and it appreciates 10%. They will be asked to hold or to sell this investment. If the participants choose to hold their stock, it will proceed to the next step that showed

their investment now has increased another 10% from previous value and asked the same question whether they want to hold or sell now. Every participant will not know that their group belong to winning scenario, and being informed that at the next step, the stock has 50:50 chance to increase or decrease in order to let each the participant dwells with their own feeling and emotion through the experiment.

3. In total, there were 9 steps, which means that if the participants hold their stock until the end of experiment, the value would be appreciated up to 2.35 times of the initial value. This scenario also applied to losing scenario but with the opposite situation (loss 10% in every step). If the participants hold their stock until the end, the value would be decreased approximately 61% from the initial value. Previous researchers also realized the pain that caused by a loss should be more than a joy from the gain, so in the end of questionnaire, the respondents were asked about rate of their feeling to investigate this matter. The result from respondent's response will be analyzed further using S-Curve of Prospect Theory. The timing when the participants decide to sell their investment will be analyzed and marked with a score 1 to 9. For further detail, please see the diagram below (this diagram will explain how this research work for a respondent from group 1, winning condition that sells his/her stock at step 5). For further explaination, please refer to the this flow chart below. This flow chart will explain the experimental process for respondents who decide to liquidate his/her asset at the 5th steps.

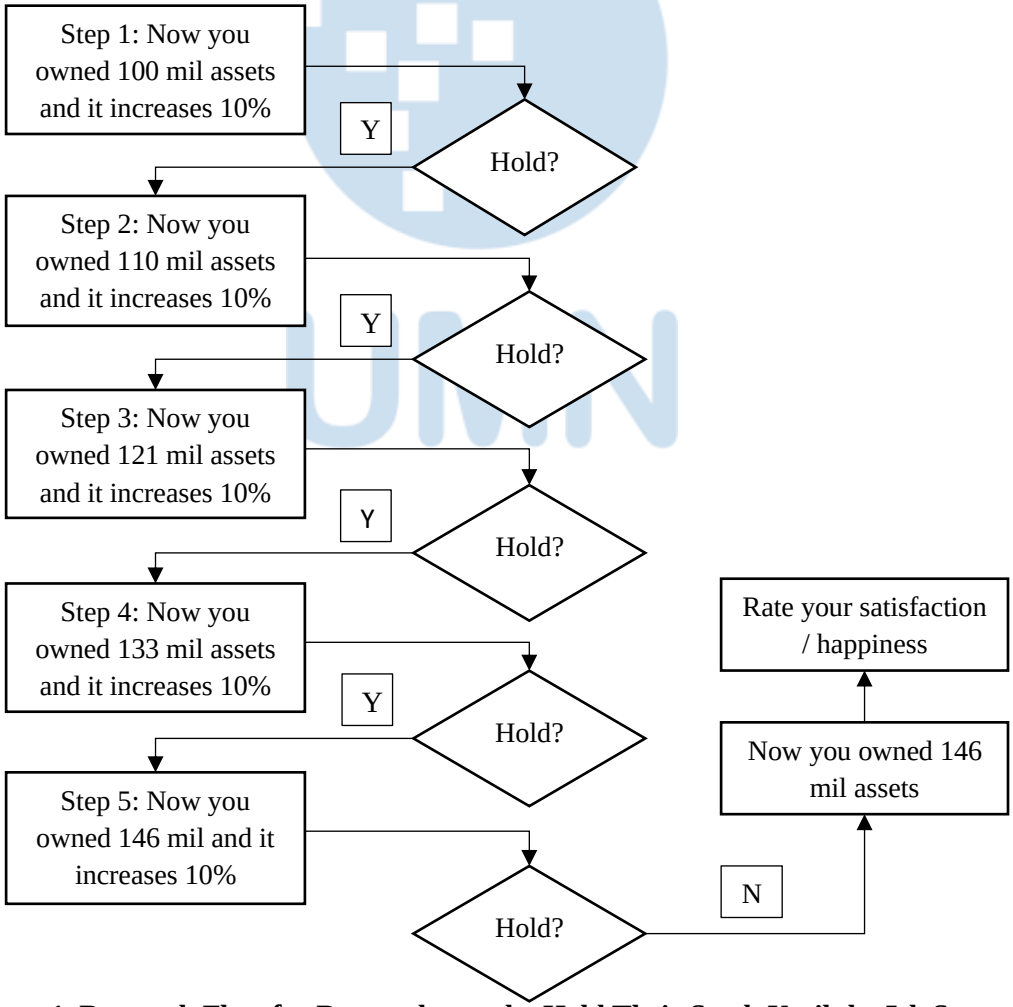

Figure 1. Research Flow for Respondents who Hold Their Stock Until the 5th Step

4. Every respondent will be marked when they decide to sell their investment, which in the following example, this respondent marked as 5 because he/she decided to liquidate his/her investment at step 5. This score will be examined further in statistical software to test whether the winning group and losing group decide differently using independent t-test. As the theory stated that people are very reluctant to change especially when they trapped with their "endowment", so whether winning or losing, both conditions will generate the same result. For additional analysis, further exploration on respondent's satisfaction toward their decision at the end of section. This additional analysis will provide further insight about loss aversion on prospect theory.

3. RESEARCH RESULT & DISCUSSION

4.1 Descriptive Result

The total respondents in this research were 119 students, which consist of undergraduate students from two higher education institution in Jakarta and Tangerang. For winning group, this research gathered 59 participants and for losing group there were 60 participants. Furthermore, most of respondents were women (58%) while men only accounted for 42% of sample.

Table 2. Participants Demographic based on Gender

Gender	Winning	Losing	Total
Male	20	30	50
Female	39	30	69
Total	59	60	119

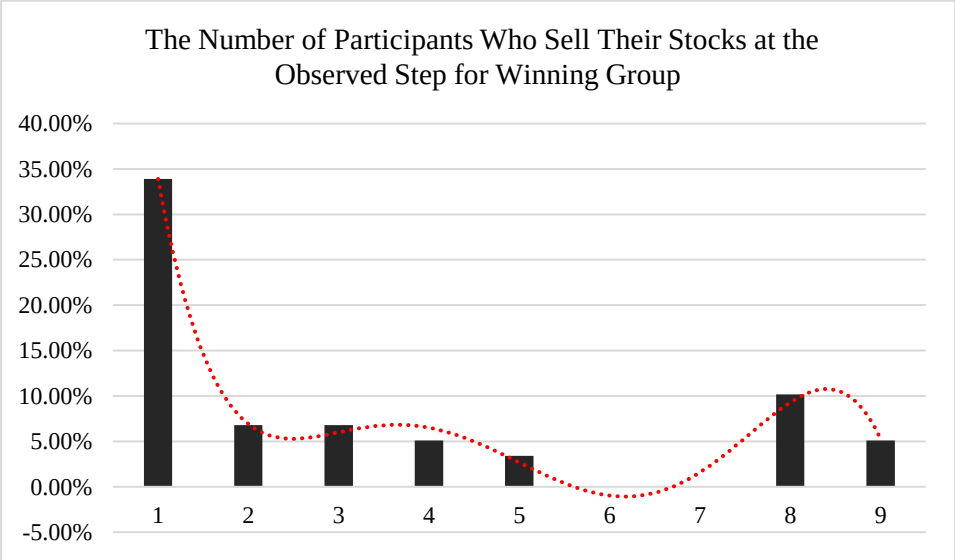

Figure 2. Result from Winning Group when the Participants sell their stock

Figure 2 above illustrated the result from winning group. There were approximately 34% of respondents sold their stock immediately after received 10% gain. The number decreased drastically at the next step with the total 37.3% of respondents sold their stock from step 2 to 9 and the rest of respondents (29%) decided to hold their stock until the end of experiment.

From this descriptive result, this research suspects that students who sold their stock at the first step because of the fear of future loss, so they took very quick action to sell their

asset (risk-averse characteristic). In this scenario, they usually do not gain significant amount of wealth due to this characteristic but it was quite useful on the opposite scenario. Another 37.3% students finally decided to sell their stock in the middle of the game. These respondents were considered as moderate risk person.

Status quo bias usually occurred to this kind of person and together with the risk-seeker students (29%), they are prone to status-quo bias. Interestingly, the figure 2 also indicated the dilemma from step 2 through the step 9 of the games. Although the respondents faced 10% gain each step, not all of respondents could hold until the end of simulation. Normally, their fear and expectation were the major determinant in their decision.

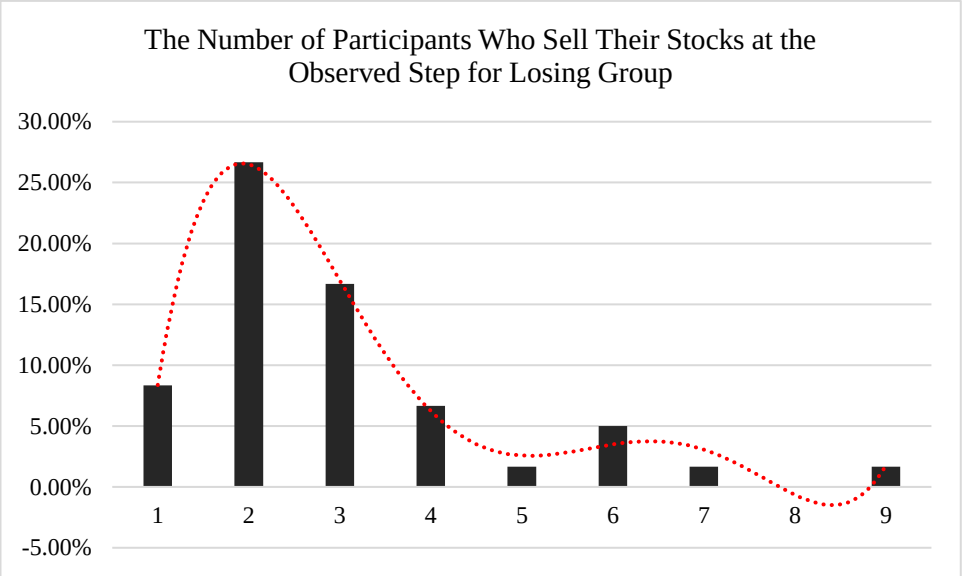

Figure 3. Result from Losing Group when the Participants sell their stock

Figure 3 showed the story from losing group. Comparing this figure with the first scenario, the story was almost the same, only with small delay in respondent's decision. There were about 8% of respondents in losing group took quick action to cut loss their investment after 10% loss. This action could be understood as defense mechanism to protect themselves from further loss, which very likely to risk-averse person. Then about 27% of respondents also cut their investment after another 10% loss and the number slowly decreased through the rest of the game. In total, there were about 33% respondents sell their stock at loss from step 3 to 9 and 32% hold their stock despite the loss was 61% from the initial value.

From losing scenario the result showed that there is an "invisible barrier" called expectation that hold student's decision when they faced a loss. As we can see from the both charts, in winning condition, students who gain 10% took an immediate action to leave the market (perhaps risk aversion characteristic could explain this behavior) but in losing condition, they did not take this action immediately due to some expectation the price might be increased at the next step. This was the explanation on why there was immediate spike at the first step on winning but only appeared at second step on losing group.

Furthermore, another interesting fact from the step 3 forward, status quo bias started to play its trick on student's mind as the number of respondents who sold their stock beyond this point was decided by their own preference on risk, which this research suspected that risk-seeker would hold the stock until the end of question. However, this explanation only suitable for winning condition, for losing condition, more complex explanation was needed.

Regret was the starting point to understand how people perceived a loss. Based on (Gilovich & Medvec, 1994; Kahneman, 2003), many respondents have felt greater regret when they made a change, especially when the result was unfavorable.

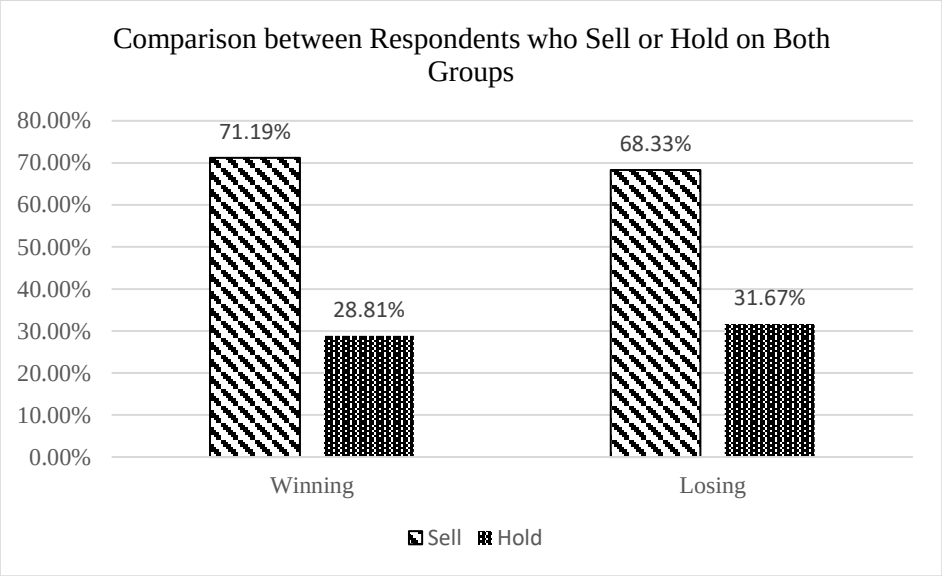

Figure 4. The Percentage of Respondents who Sell or Hold Assets on Both Groups

Both groups showed around 68% (in losing group) to 71% (in winning group) respondents finally decided to sell their asset. This number slightly lower in losing group as approximately 32% of respondents hold their asset until indefinite time (or in this case steps). Losing group only has 3% higher than winning group on respondents who hold their asset.

Table 3. Descriptive Result Based on Group and Sample Decision

Group	Decision	n	Steps Mean
Winning	Sell	42	3.26
	Hold	16	10
Losing	Sell	41	2.97
	Hold	20	10

For further detail, in winning group, the average step when respondents decided to sell their stock was 3.26. This value was slightly lower than average step in losing group, 2.97. In total, more than a half of respondents (36 respondents) hold their stock until very end of experiment.

Table 4. Status Quo Comparison between Two Groups

Levene's Test for Equal Variance		t-test for equal variance	
F	3.098	t	0.005
Sig	0.081	sig	0.996

Then this research proceeded to investigate whether this status quo bias was different for winning and losing group. The independent t-test was used to compare winning group and losing group recorded step and found both of sample groups have the same mean variance. Firstly, the Levene's test for equal variance was checked, and the result showed (p-value > 0.05) then equal variance was confirmed in this sample. This research proceeded to

independent t-test and the p-value indicated that respondents on winning group behave similarly with respondents on losing group (p-value > 0.05). This finding has opened further analysis and discussion regarding to status quo bias, which will be discussed further in discussion section.

Table 5. Average Score of Respondents Satisfaction

Indicators	Winning Group	Losing Group
Selling Satisfaction	5.50	3.51
Holding Satisfaction	6.47	3.42

At the end of the section, this research tried to explore respondents' satisfaction. After finishing the experiment, the respondents rated their satisfaction for the final decision of selling or holding their assets (from the scale 1 to 7). The neutral point was assumed at the rate 4, so for the respondents who rate their satisfaction with (4), it would be converted into (0), respondents who rate 7 for their satisfaction were considered +3 in their satisfaction, and those who rate 1 for their satisfaction were considered -3 in their satisfaction. After that, the result was mapped into this diagram. The result will be elaborated further in discussion section.

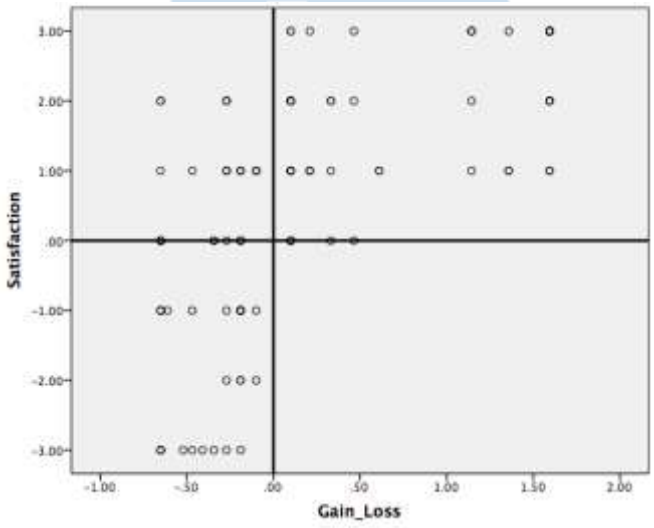

Figure 5. Result of Respondents Satisfaction

4.2 Discussion & Analysis

Firstly, this finding illustrates that respondent's behavior toward the uncertainty (risk-averse or risk seeker) is not constant state. It is determined by the endowment factor (whether the subjects have owned or have not owned the prospect/asset) and plays critical role in decision making. Previously, based on (Tversky & Kahneman, 1974), prospect theory stated clearly that people usually tend to be a gambler (or risk-seeker) when exposed to negative prospect. Fortunately, this result served as complementary for previous finding, which focused on the condition after the respondents have owned the prospect (ex-post). There is inconsistency in investor behavior and it could be even worse when a person exposed to negative emotion during their decision (Li et al., 2009). The finding shows that the same person could be very optimistic before owned the assets and act reactively to buy the assets but becomes very passive investors (reluctant) when exposed under losing condition.

Secondly, our investigation on ex-post condition classified the respondents into three categories, type 1, type 2 and type 3 based on the step when they decide to sell their stock. For the type 1 person, they sell their asset at step 1 or 2, for type 2 at step 3 to 9 and those who hold their stock until very end of the experiment are considered as type 3. From this classification, the result showed that type 3 person would suffer loss-aversion the most, especially on losing condition. These respondents (32% of losing group) became very reluctant to cut their asset as it has decreased over 50% of its initial value. The loss from losing scenario has made these respondents became a "coward" to act when it was needed. The main cause of this was pain of losing hold their decision to realize the loss.

Thirdly, both winning & losing scenario are prone to status-quo bias**.** The type-3 investors will always exist on both conditions. This result provides additional point of view from previous finding of (Li et al., 2009), which investigated framing, emotion, and information structure effect on status-quo bias. In previous research, (Li et al., 2009) found that under high price differential frame, the investors tend to trap under status-quo bias. Our finding still linear with previous literature, as the result found that there was about 29% of winning respondent trap into status quo bias after 159% gain. On the losing group there was about 32% of them still hold their stock after 65% loss. This result has critical impact for investment firms.

Fourthly, our understanding on investors decision making before and after owned a stock has enabled investment firms to evaluate the tipping point to create investors action (buy or sell). Obviously, only active investors are preferable for investment brokers as they receive a commission from the trading activity. Figure 6 below illustrates the flow of investors decision making process and by understanding this, perhaps investors behavior could be predicted when they become active investors (trader) or passive investors based on the appropriate tipping point.

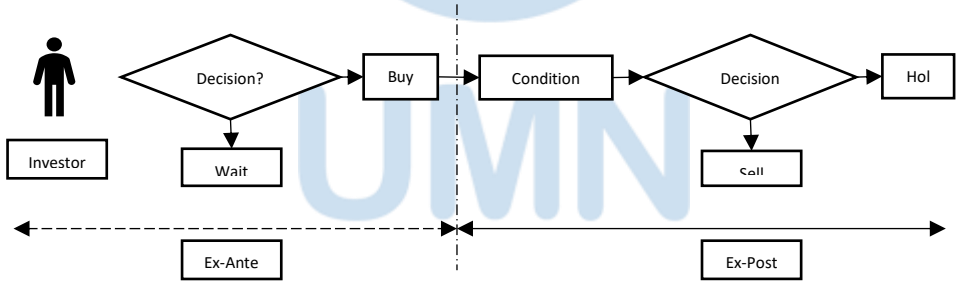

Figure 6. Investor Decision Making Process Before and After Obtained a stock

The tipping point for type-1 investor would be before they buy the stock. Type-1 investor always afraid with the potential loss when they have invested their money. When they gain a small amount of gain, they will sell it very quick to realize the gain. On the losing condition, they are very responsive and take immediate action before the loss is bigger, which in this case is not a problem for investment firms. However, this type of investors would make a decision very slow to enter the market due to their fear and become passive investors to wait for their momentum. Therefore, the goal of investment firms for type-1 investor is to create quick buying decision because the only delay for their action is their fear before owned the assets. Some recommendation prior to investment decision could serve as good tipping point for this kind of investors.

The tipping point for type-3 investor would be on the opposite condition, after they have bought the assets. A person who is a type-3 investor would be very active before they

enter the market. The speed of decision should be faster than type-1 investors as long as they still have the capital due to their optimistic nature, which in this case is favorable for investment companies. However, after owned the stock, this kind of investor would be very patient to sell their stock at the highest peak, at least until they reach their risk limit on the winning condition. And very slow to sell the stock on the losing condition due to loss aversion problem. So, investment firms should create small remainder (using smart notification) as tipping point for this kind of investors to trigger their action to realize their gain or loss immediately. It would be very beneficial for investors to realize the loss when it still very low. The implementation of smart robot trading is also applicable to avoid further loss if the market is facing downtrend. Our conclusion found that both type-1 or type-3 person could be an active or passive investor on certain condition.

Lastly, the result of respondent's satisfaction is quite confusing but gives another insight about how this research should progress on the next project. The comparison between samples satisfaction with their gain or loss divided figure 5 into 4 quadrants. Based on (Tversky & Kahneman, 1974) prospect theory, the S-curve shape could be drawed to understand the relationship between gain/loss and utility (in this case, satisfaction). From B quadrant, it is clear that respondents are happy with their gain, but the rate of their happiness might be varied for each sample. From C quadrant, it illustrates the unhappy respondents for their loss. Both B and C match the explanation of prospect theory as theory stated the pain of losing is more than the happiness of the equal gain. The graph shows very steep curve in C quadrant for loss-aversion (convex function) then move smoothly into concave curve in B quadrant. However, this research also found some confusing result in quadrant A. This quadrant describes the respondents of this experiment still happy with the result despite their losing.

There are only three possible explanations why the people in quadrant A exist. First, the respondents are not seriously filling the questionnaire, which could cause a bias in the result. Second, the respondents don't really own the real asset or loss any monetary unit through the experiment, so they do not feel any regret or unhappy feeling as this only imaginary scenario. Third, the respondents deny their unhappy feeling. So far, the most possible explanation is the second one. By designing future experiment with small reward and bet mechanism, perhaps the problem number 1 and 2 could be avoided and there is no further result in A quadrant. However, this research is still progressing with the problem number 3 and searching more literature in regret and denial theory.

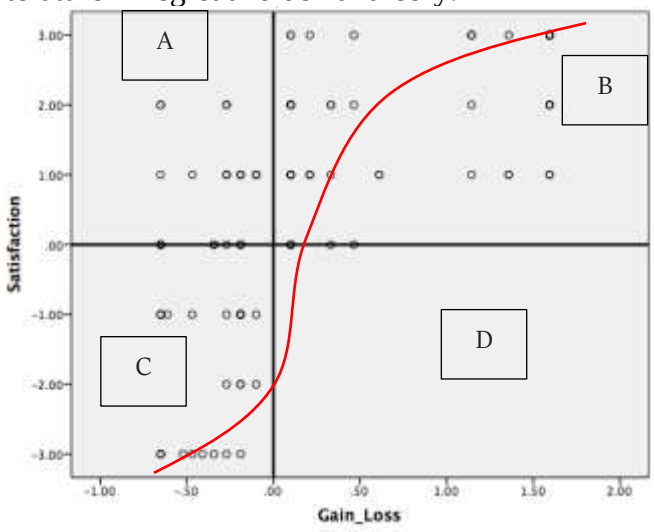

Figure 7. S-Curve and 4 Quadrants of Respondent Satisfaction

4. CONCLUSION AND MANAGERIAL IMPLICATION

5.1 Conclusion

In summary, this research found that risk preference will constantly change based on the endowment factor. This finding support previous research, especially prospect theory which have been conducted a long time ago. People or investors could behave as risk-averse or risk-seeker depend on their ownership of the assets. A person who has been a type-1 investor would take more time before buy the stock, but after that, they become active trader as their nature constantly warn them for the potential loss. In contrast with that, a person who has been a type-3 investor would enter the market very quick but take very slow phase to sell their asset, which also suffer the most from status-quo bias, especially on losing condition. For investment business, this insight gives potential knowledge to them about tipping point of their investors. If the investors have no portfolio asset within 1 month, then the goal for investment broker is to trigger faster transaction as the risk-averse need a guide and rumors to make a decision. For investors who have some portfolios but remain inactive more than 1 months, monthly notification of their asset gain or loss could be beneficial to induce some transactions and perhaps keep them away from status quo bias trap.

5.2 Managerial Implication

Investment business is the most relevant area that gain significant implication from this research finding. Tipping point of investors decision is the most important thing to trigger investor action. The investors initial risk preference could be detected from their portfolio, if they owned many portfolios but there is no transaction within 1 months, they could be a risk-seeker investor with very fast action at the beginning, but very slow decider later (type-3 investor). These investors also should be very active by default, but trap into status quo bias when they have gain or loss significant amount of wealth.

On the opposite side, investors who has no portfolio within 1 month, could be waiting for the right moment or recommendation to enter the market (type-1 investor). Somehow, this kind of investors would be very reactive after obtained the assets and the key action for investment management is to push their decision through right news and analysis. If the investment brokers want to make more transaction to improve their business, they should consider notification management as reminder for their clients.

The notification might be not so beneficial for clients who gain the large amount of capital gain, but this could be very useful for losing clients that have loss significant amount of money. Some investment brokers even have already had automatic system to trade for the clients so it could exercise the transaction within certain gain or loss in their assets. Perhaps the utilization of smart trading bot could be an answer for this problem and the effectivity of this system could be the future goal in our research.

The application from behavioral economic actually not exclusive for investment business. Because the main goal in behavioral economic focuses on people decision making, therefore, any decision making in marketing, business organization, or human capital should be relevant. For this research, this research would like to describe another application in marketing campaign. From the finding, people with risk-averse by the nature would not make any quick decision to buy something, therefore any limited offers campaign only effective for risk-seeker people. It is even worst for the products or services that need long-term evaluation, which by default make their consumer become risk-averse, such as education business. The effectiveness of limited offer campaign would be great for the products or services that have very low risk for its consumers.

5.2 Limitation and Future Research Development

The first limitation of this research is this experimental design only account for observed decision steps, which only accommodate until 9 steps. The real-life experience is far more complex and long from that, which even could reach indefinite steps. Perhaps for the future research, longer decision steps could be considered to expand the status quo bias into longer length of decision frame. The result should be very interesting as this research suspects that the victims of status quo bias would not very different from our result.

The second limitation is this experiment also lacks of real reward or monetary unit. For the next experiment, this research would like to conduct another investigation based on real reward (could be a chocolate bar) for the real endowment, so the ambiguous result in A quadrant could be minimized.

Finally, this experiment also has not yet observed the complete factors of status-quo bias, which consist of the effect of framing, emotional condition of the subjects and the information structure (Li et al., 2009). For the next research, the exploration on the effect of prior emotion before the subjects make any decision would be investigated. Other researchers also very welcome to conduct the complete investigation on these three factors.

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