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Early winners and loser's sale long ride. (Experimental Evidence from Indonesia)

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ABSTRACT

This paper investigates the mediating role of disposition effect between mental accounting, aversion to regret, self control and portfolio Management. For this purpose we use the extended version of Shefrin and Statman framework and include Dyl's tax consideration. The survey is conducted from fund managers. AMOS is used to test the structure equation model for disposition effect and portfolio management. The study concludes that disposition effect plays significant role in investment decisions; however tax consideration is there.

Keywords: Disposition effect. Aversion to loss realization. Mental accounting

1. Introduction

It has been well known truth now that market is not mean variance efficient, so individual decisions are not based on the maxim of expected utility theory. Problem in decision making arises in uncertain situations. Researchers have tried to develop a theory which describes the behavior of individual investors when they are confronted with uncertainty (Kahneman & Tversky, 1979). Kahneman and Tversky (1979) focused on gamblers, specifically those who incurred losses in their recent history. Their study was performed in more controlled environment. Economist and financial analyst are reluctant to adopt theories that are based on controlled environment; the stochastic nature of market makes them reluctant to adopt those theories. This paper is an attempt to shed light on behavior of fund manager in market settings. More specifically, focus is given to primary data so that it can be determined that, fund managers manage their portfolio towards short term winners and are reluctant to realize losses. This phenomenon can be defined as, disposition to “ride losers for long period of time”. In this regard, this study is based on studies which focused on character of individual investors in respect of realizing gains or losses (Constantinides, 1983; Shefrin & Statman, 1985)

This study is different from that of Constantinides, who focused on immediate realization of losses; moreover he focused on trade where transaction cost is absent while this study focuses on portfolio managers decisions in presence of transaction cost and capital gain tax. This study also differentiates itself from the study of Shefrin and Statman (1985), as they focused on secondary data while this study generates primary data. Following their work on disposition effect, this study adopted the theory of loss realization. However the Tax consideration has been added in their model. This study differentiates itself from tax based studies on disposition effect like that of Dyl (1977), and Odean (1998) by including three more factors in addition to tax consideration. This study employs adapted version of theoretical framework of Shefrin and Statman (1985). Their model was based on four elements: mental accounting; self control; prospect theory; and regret aversion. In order to make the theory more descriptive rather than normative a fifth element, tax consideration, is added in this study.

Aim of the study This study is motivated by many factors; first, many studies are conducted in laboratory settings while this study is done in market settings. Second, it enriches the existing literature on the relationship between behavioral biases and their impact on portfolio management.

Objective of the study The basic purpose of this study is to test the role of disposition effect as mediating variable between different behavioral biases and portfolio management.

Research question This study will try to answer the following questions:

Does Disposition Effect play mediating role between behavioral biases and Forward integration?

Does Disposition Effect play mediating role between behavioral biases and Stock Retention?

2. Literature Review

Prospect theory acts as descriptive theory of choice under uncertainty (Kahneman & Tversky, 1979). According to prospect theory, the disposition effect arises because of number of factors. It

passes through many stages, in the first stage, individual form a frame of choice in front of them called the “editing stage.” In editing stage, investors frame all future aspects of their transaction as potential gains or losses. Investors use a reference point to compare their choice. This reference point is simultaneously linked with the account created by the individual through mental accounting. The reference point is then evaluated through S shaped utility function in “evaluation stage” (Shefrin & Statman, 1984). The concave side of utility function represents potential gains, and losses are represented by the convex side. Suppose, fund managers original position’s worth at time (t) is (x). After some time say (t+1) his position may change his worth. It can fall to (X-Y) or it can increase to (X+Y), where Y is change in value of securities due to noise or any stochastic change. In case value fall to (X-Y), fund manager will not liquidate his position and will wait for time (t+2) hoping that securities will revert their worth to X. Since, the choice is associated with the convex side of S-shaped utility function, thus, it leads managers to disposition effect. They will still wait for (t+2), hoping that, the security will revert its value at least to near x. while Prospect theory emphasis on why investors are reluctant to realize loss, it fails to grasp the aspect of tax swaps. If the investor assumes market to be efficient with no transaction cost and does not vary his portfolio. With the above assumption in mind he will only sell a stock to gain benefits from tax differences. Tax difference arises because of downward moment in a stock in preceding period. Moreover, the swap is possible if almost near alternatives are available for the stock that experienced loss. But, in reality market imperfection and stock repurchase regulations make it difficult for managers to engage themselves in the swap. Thus, they will continue with the stock that has experienced loss. His decision to move with the stock is not knowingly taken; rather he has been guided by a mental account. Reference point plays an important role in framing the riding decision. This phase of decision making is known as editing stage. Keeping in mind the importance of editing stage, and reference point constructed framework of mental accounting (Thaler, 1984). Basic idea is the creation of different mental accounts that are not mutually exclusive. These mental accounts itself create hindrance in reducing disposition effect, rather they increase the tendency to ride losers for long. Fund managers will be reluctant to liquidate the stock with value X-Y and use the proceedings to purchase a similar stock. This process involves dealing with two mental accounts. Fund manager has to close mental account for stock X with loss, and create another mental account for possible swap in shape of stock Z. Fund manager will not close the account with loss in mind. Thus, the regret in mind compels them to ride losers for long period.

Thaler (1980) and Kahneman and Tversky (1979) discussed the regret associated with a decision that encounters loss. Closing a mental account with loss in mind is difficult because of the regret. The pursuit for pride also directs towards disposition effect. In practice regret is stronger tendency than pride (Thaler, 1980), (Kahneman & Tversky, 1979), because with time pride can change into regret.

If investors come to know about a stock that can immediately earn some return, investors will quit the market with positive returns in hand and pride in mind (Glick, 1957). Question arises that to what extent self control enhances disposition effect? (Thaler & Shifren, 1985). Self

control is an interpersonal agent between a rational player (principal) and an irrational player (doer). As soon as the investor sees profit both the players create mental accounts. The agent is more powerful, thus defeats the planner and investors liquidate the position for enjoying pride (Thaler & Shefrin 1985).

Family problems and tax motivated transactions are key factors which contribute to the strength of the doer. Branch (1977), Keim (1983) and Givoly and Ovadia (1983) concluded that tax loss in year-end plays key role in this. The fund managers are more likely to possess the problem of self control. If the fund is not performing well for significant period of time fund managers can face pressure from investors. This pressure can compel the manager to manage his portfolio despite the fact that decision may not be rational.

The main objective of the fund managers is to construct a portfolio of stocks with high return/less risk profile. Numerous evidences suggest that fund managers must add style in portfolios. Style managers add unique risk to the portfolio, but in the same time style increases the probability to beat the market (Fama & French, 1992; 2010; 2012).

Suppose a fund is not performing well its manager will be pressurized by fund unit holders. Disposition at this situation is more likely to happen. Another reason for selling winner is mental accounting. Suppose, manager decides to manage his portfolio by excluding some assets that are not performing well, for this purpose he has to close the account for losers. Aversion to regret provides a very important base for riding losers. Self control strategy provides another base for selling the winners too early. Investors manage their portfolio by selling the winners to have pride in their mind.

Theoretical Framework The framework used in this study is the extension of Shefrin and Statman (1985) and Constantinides (1983) behavioral model. This study hypothesizes that prospect theory; mental accounting, aversion to regret and self control are key variables underlying disposition effect. This study develops the hypothesis that, Disposition effect plays mediating role between mental accounting, aversion to regret, tax consideration, self control strategy and management decision. Here in this model Management is categorized into forward Management and Stock retention. Forward Management refers to liquidating the winners too early and Stock retention refers to riding losers too long.

3. Methodology

Basic purpose of this study is to investigate the effect of disposition effect on portfolio management. The population, sample and data collection techniques are discussed below:

Population of the study

Population for the study is all actual or potential investors.

Sample for the Study

This study use convenient sampling strategy for collecting data from investors. Data is also collected from those who have the basic know how of stock markets. Thus sample for this study is composed of students, finance professionals and actual investors. A total of 300 questionnaires were circulated out of which 160 have been received and are found to be valid.

Data Collection

Indonesia is a developing country, so account level data of unit-holder is not available. This study uses primary data to test the hypotheses. Questionnaires are used to collect the data.

4. Finding

In order to provide evidence for disposition effect this study conducts survey of mutual fund managers. Only those managers are investigated who are regularly and actively involved in portfolio management. Survey includes items that were asked about mental accounting, regret aversion, prospect theory and self control. These items are based on the adapted version of items discussed in Michael M. Pompian "Wealth of Nation, how to build optimal portfolios that account for investors biases". Validity and reliability are checked using various techniques. Exploratory factor analysis, confirmatory factor analysis and reliability analysis have been used to group more relevant and reliable items. Then data is collected from managers of open end mutual funds. This study uses structure equation model to test hypotheses through AMOS. Forward Management period is taken as six months as encouraged by SECP for tax benefits. Stock retention refers to more than one year. Schlarbaum (1978) used panel information about individual traders for six years. We use data from 2006-2012. The time period an investor will consider for holding a stock before he sells. Data is categorised into three categories based on taxation law provided by SECP. One month or less, one to six months and above one year. Number of realization due to losses were high in case of one month and less, as compared to six months or above. Our results are same to Shefrin and Statman's findings.

Results: Scale Validity and Reliability

In order to test the role of disposition effect as mediator, this study uses two steps analysis following the methodology of Anderson and Gerbing (1988). First step focus on measurement and the second is for identifying different relations. In order to test the construct validity confirmatory factor analysis (CFA) is employed. Two CFA's were run separately for four dimensions of disposition effect as the independent variables. Similar procedure is repeated for backward and forward integration as well. The results in table 1 in appendix confirm the significant loading of respective items on their respective construct. Overall model fit and items loadings are indicated by RMSEA, NFI, NNFI, and CFI. Their values show that there is acceptable uni-dimensionality and convergent validity for the four variables measures (Bollen, 1989; Bagozzi et al., 1991; Hoskisson, 1993). For reliability analysis Cronbach's measure is used. Its value is well above the acceptance region "0.70" thus all the items show satisfactory reliability for their respective construct (Nunnally, 1978). Three items are deleted from the survey because they have poor loading path and reliability score, following the methodology of (McDermott & Stock, 1999).

Discriminant validity is tested with the method used by Ahire (1996). All the four variables are arranged in pairs and then subjected to CFA. The preliminary correlations were estimated two times with both constrained and unconstrained models. The statistical significance of chi square at 0.01 probability value verified the validity of each variable. Harmann's single factor test suggested by Podsakoff and Organ (1986) was used to ensure that the data collected from fund managers has no response bias. Factor scores were calculated from the items so that composite

scores can be obtained for further analysis. Before testing our major hypothesis normality of data has been checked through skewness and kurtosis. Their values are in acceptable range.

Table 1: Scale validity and reliability

Scale	Items	Loading Path	Cronbach's alpha
Tax consideration	TC1	0.83	0.88
	TC2	0.84	
	TC3	0.87	
	TC4	0.80	
	TC5	0.75	
Mental accounting	MA1	0.83	0.91
	MA2	0.89	
	MA3	0.87	
	MA4	0.85	
	MA5	0.79	
Aversion to Regret	ATR	0.78	0.84
	ATR	0.88	
	ATR	0.86	
	ATR	0.81	
	ATR	0.77	
Self Control	SC1	0.89	0.86
	SC2	0.82	
	SC3	0.77	
	SC4	0.83	
	SC5	0.80	
Disposition Effect	DE1	0.75	0.83
	DE2	0.84	
	DE3	0.89	
	DE4	0.78	
	DE5	0.79	
Forward Management	FT	0.81	0.79
	FT	0.83	
	FT	0.87	
	FT	0.79	
	FT	0.72	
Stock retention	SR	0.86	0.88
	SR	0.79	
	SR	0.87	
	SR	0.78	
	SR	0.88	

Notes: χ^2 "chi-squared = 126.99; df = 65; RMSEA = 0.06; NFI = 0.95; NNFI = 0.97; CFI = 0.98

Preliminary Correlation Analysis

Pearson correlation coefficients for prospect theory, self control, mental accounting and regret aversion are at medium level. It suggests the coexistence of different types of behavioral biases. The results confirm the relationships among variables. However the values are not too high to affect the results of path analysis (Tabachnick & Fidell, 2007).

Table 2: Correlation analysis

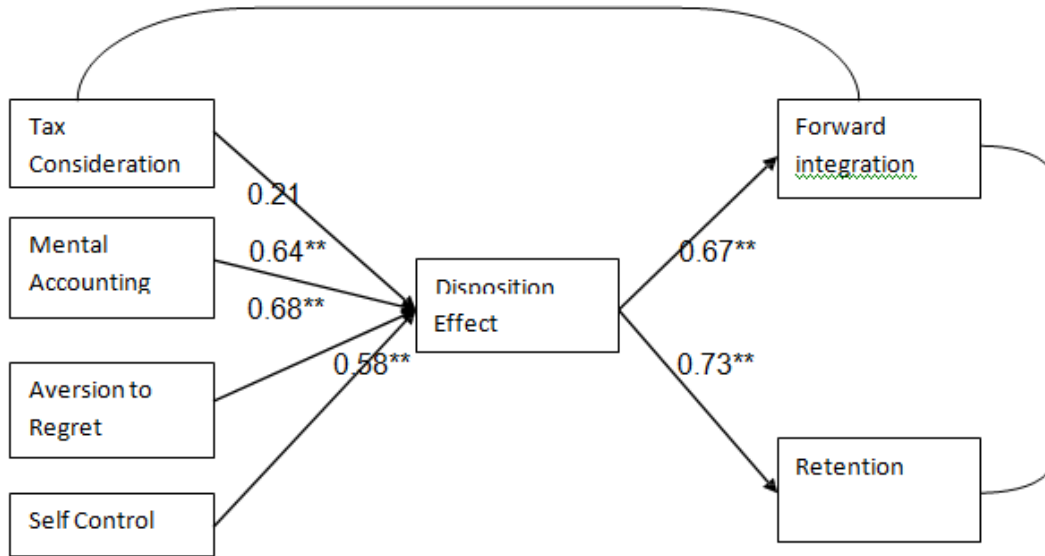
Mea n	S.D	TC	ATR	MA	SC	DE	FI	R						
1		Tax consideration			4.35	0.82	1.00							
2		Aversion to Regret			4.37	0.83	0.59**	1.00						
3		Mental Accounting			3.89	0.78	0.55*	0.51**	1.00					
4		Self control			3.98	0.89	0.54*	0.46**	0.54**	1.00				
5		Disposition effect			4.78	0.81	0.49**	0.48**	0.48**	0.52**	1.00			
6		Forward Management			3.39	0.84	0.44**	0.51*	0.41**	0.58**	0.54**	1.00		
7		Retention			3.63	0.83	0.47**	0.53*	0.42**	0.46**	0.58**	0.21**	1.00	
Note: Significance at					*P ≤	0.05	**P ≤	0.01						

Structure Equation Modeling

Set of multiple hypothesis are tested simultaneously using structure equation model (SEM). In addition to Dyl's tax consideration three underlying behavioral biases are considered as independent variables and two measures of portfolio Management are considered as dependent variables. Disposition effect has been placed as mediating variable. The results are presented in table 3 and path diagram is shown in Fig 1. All the fitness indices are in acceptance region. Values of RMSEA is well above 0.08, and the other fitness indices i.e. NFI, GFI and NNFI are above 0.90 indicating good fit for the SEM model. Mediating role of disposition effect can be observed. Indirect relations between the independent variables and dependent variables through mediation are six. Probability values show that all six hypothesized paths are significant. If we exclude the mediating variable i.e. disposition effect a total of eight relations can be observed. For confirmatory purpose a competing model with all the possible relations has been tested and the results are inferior to one tested before shown in appendix fig 3. Thus the indirect model with disposition effect is more superior to the direct one. Models are compared on the basis of chi square value, degree of freedom and fitness indices "RMSEA, NFI, NNFI and GFI". Error correlations are also estimated by AMOS.

Table 3: Results of Structure Equation Model

	Mediating variable Disposition Effect	Dependent Forward Integration	Variables Retention
Independent variables			
Tax consideration	0.21	---	---
Aversion to regret	0.68**	---	---
Self control	0.58**	---	---
Mental accounting	0.64**	---	---
Mediating variable			
Disposition Effect	---	0.67**	0.73**
Note: Significance *P ≤ 0.05 **P ≤ 0.01			



Note: Paths are significant at *P = 0.05 and **P = 0.01. χ^2 chi-squared = 16.99; RMSEA = 0.08; NFI = 0.94; NNFI = 0.97; CFI = 0.98

H1: DE plays mediating role between TC and FI.

H2: DE plays mediating role between TC and SR

H3: DE plays mediating role between MA and FI.

H4: DE plays mediating role between MA and SR

H5: DE plays mediating role between ATR and FI.

H6: DE plays mediating role between ATR and SR

H7: DE plays mediating role between SC and FI.

H8: DE plays mediating role between SC and SR

Figure 1: Figure standardized path coefficient

Path analysis shows that tax consideration has three possible relations. Tax consideration has no effect on disposition effect. Other two possible links are with forward Management and Stock retention decisions. Path from tax consideration to forward Management is significant. It shows that a manager liquidates a security due to tax considerations. Fund managers confirm that they liquidate most of their winners in December as found by Odean (1998). Thus tax consideration is an important component of excessive selling of winners.

In addition to tax, disposition effect is key factor for portfolio Management. Prospect theory leads to disposition effect and disposition leads the manager to forward Management. In contrast to tax consideration mental accounting, regret to aversion and self control paths are loading on disposition effect. It shows that these biases have affect on Management decision but the direction of causality is not direct. In fact, these biases give rise to disposition effect which plays role of mediator. Disposition effect compels the manager to rebalance his portfolio either through forward Management or Stock retention. This confirms that Management decisions are affected by these biases.

5. Discussion & Conclusion

The basic purpose of this study is to shed light on aversion to loss realization. The theoretical framework used is an adapted version of Shefrin and Statman. We included tax considerations to mental accounting, prospect theory and self control. SEM is used in the study. The study finds that excessive realization after capital gain is not just because of tax consideration rather also due to disposition effect. Difficulty in closing an account with losses, regret, and rationale for

methods used to realize losses are key factors affecting disposition effect. Survey results from AMOS show that disposition effect plays a key role in Management decision. This tendency is because of mental accounting, regret to aversion and self control. Significance of tax consideration confirms findings of Dyl that investors are aware of tax benefits associated with capital gains.

Finding from this study will help investors. In order to reduce disposition effect, managers can adopt different strategies i.e. a benchmark for the level of losses and gains. Managers must be brave to accept losses. In particular tax consideration alone is not enough to explain the observed pattern of fund manager's decisions, rather also consider mental accounting, regret to aversion, self control and tax consideration.

The main limitation of the study is non availability of account level data of unit holders.

Recommendations

Researchers for future studies must use account level data of unit holders and then match the frequencies of realization in terms of losses and gains.

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