International Journal of Management and Commerce Innovations ISSN 2348-7585 (Online)
Vol. 5, Issue 2, pp: (1059-1065), Month: October 2017 - March 2018, Available at: www.researchpublish.com

Effect of Loss Aversion Behavior on Stock Market Reaction in Kenya

[1]Irene Cherono, [2]Tabitha Nasieku, [3]Tobias Olweny

[1, 2, 3] School of Business: Department of Economics, Accounts and Finance,
Jomo Kenyatta University of Agriculture and Technology, Juja, Kenya

Abstract: **Loss aversion behavior indicates that people are more sensitive to losses than to gains. Loss aversion behavior can causes stock prices to deviate from its fundamental value leading to stock market reaction resulting from abnormal stock returns. The objective of the study was to determine the effect that loss aversion behavior has on stock market reaction in Kenya. The target population was 67 listed companies at the Nairobi Securities Exchange. A sample of 48 listed companies was used for analysis. Secondary data extracted from Nairobi Stock Exchange historical data of listed companies for the period 2004 to 2016 was used for analysis. The study adopted quantitative research design. Unit root results showed that all the variable were stationary. Panel data regression was used to analyze data. Panel Pooled Least Squares estimation model was used in the analysis. The results indicate that loss aversion behavior has a negative significant effect on stock market reaction in Kenya.**

Keyword: **Loss aversion behavior, Stock Market Reaction, Behavioral Finance and Efficient Market Hypothesis.**

I. INTRODUCTION

Loss aversion behaviour is a salient feature of prospect theory that explains high mean, excess volatility and predictability of stock returns that cause stock market in the financial markets. Loss aversion behavior is measured using prior gains and losses: A loss that comes after prior gains is less painful than usual, because it is cushioned by those earlier gains. On the other hand, a loss that comes after other losses is more painful than usual: After being burned by the first loss, people become more sensitive to additional setbacks. Investors are much more sensitive to reductions in financial wealth than to increases, also known as loss aversion. Loss aversion behavior could lead to stock prices moving from its fundamental values causing abnormal returns hence stock market reaction resulting in variations returns (Barberis, Huang & Santos, 2001); (Barberis & Huang, 2001); (Shefrin & Statman, 2011).

Problem Statement:

Loss aversion behavior indicates that investors are more sensitive to decreases in their wealth than increases. This explains why investors have the tendency to hold on to loss making stocks while selling winning stocks too early. After prior gains, an investor becomes less loss averse because the prior gains will cushion any subsequent loss an investor might incur in future therefore making it more bearable in case it incurs loss after incurring gains. Conversely, after a prior loss, an investor becomes more loss averse: after being burned by the initial loss, investor become sensitive to additional setbacks and will avoid further investments. Loss aversion behavior could cause abnormal returns that contradict EMH on stock market efficiency. The study will determine the effect loss aversion behavior drives stock prices away from the fundamental values causing abnormal returns and distorting the stock market efficiency (Barberis & Huang, 2001).

Investors at the Nairobi Stock Exchange equity market lost close to Kshs. 500 billion in 2016 to a market value of Kshs. 1.931 trillion as share prices declined by 25.35% compared to 2015 which was valued at Kshs. 2.42 trillion (Capital Market Authority). The demand for stocks has been limited by a continued wait-and-see attitude by investors amid persistent volatility. In violation of the Bayes rules, individuals tend to overweigh recent information and under weigh prior data or base rate, hence overreaction (DeBondt & Thaler, 1985). Previous studies have looked at the impact of investor behaviour biases on investment decisions, investor performance and stock market developments. An investor

behavior model is needed to explain the observed pattern of returns that explains stock market reactions. The research will use investor behavioral loss aversion to determine predictability of abnormal returns in Kenya. The research gap therefore was to determine the effect of loss aversion behavior on stock market reaction in Kenya.

Objective:

The objective is to determine the effect of loss aversion behavior on stock market reaction in Kenya.

Hypothesis:

Loss aversion behavior has no significant effect on stock market reaction in Kenya.

II. LITERATURE REVIEW

Theoretical Literature:

Kahneman and Tversky's (1979) hypothesized the descriptive model of decision making under risk, prospect theory, which uses experimental evidence to argue that people get utility from gains and losses in wealth, rather than from absolute levels. Schoemaker (1982) noted quite early that people's choices were sensitive to how the problem or decision was presented. Translated to the domain of loss aversion, these insights indicated that the magnitude of loss aversion might depend on whether people were focused on the negative or the positive. Shefrin and Statman (1985) explained utility representation concept embedded in the disposition effect. The disposition effect was the desire to hold losing investments too long (risk-seeking behaviour) and to sell winning investments too quickly (risk-avoidance behaviour).

Kahneman, Knetsch and Thaler (1990) explained loss aversion using the theory of endowment effect with the fact that people place a higher value on a good that they owned than on an identical good that they did not own. Tversky and Kahneman (1991) introduced a loss aversion coefficient the ratio G/L (Gains/Losses) that made an even chance to gain G or lose L just acceptable. The authors observed a gain/loss ratio of 2 (2/1) in their experiments, showing that gains on average needed to be twice as large as the losses to make an even chance to gain, G or loss, L acceptable. Losses loomed larger than corresponding gains. In prospect theory, loss aversion referred to the tendency for people to strongly prefer avoiding losses than acquiring gains. Tversky and Kahneman (1992) explained in the economics and decision theory that loss aversion referred to investor's tendency to strongly prefer avoiding losses to acquiring gains. Thaler, Tversky, Kahneman and Schwartz (1997) showed that if people use a one-year horizon to evaluate investments in the stock market, then the high equity premium was explained by myopic loss aversion. Loss aversion also explained one of the most common investing mistakes: investors evaluating their stock portfolio were most likely to sell stocks that have increased in value or have gone down the least amount. Odean (1998) found that the stocks investors sold outperformed the stocks they didn't sell by 3.4 percent. Even professional money managers were vulnerable to this bias, and tended to hold losing stocks twice if winning stocks. Because selling shares that have decreased in value makes the loss tangible and losing sucks, investors tried to postpone the pain for if possible. The result was more losses.

Rozin and Royzman (2001) found that loss aversion had been linked to the negativity bias. The negativity bias described that people paid more attention to negative information than to positive information. Barberis and Huang (2001) showed that a loss coming after prior gain was proved less painful than usual while a loss arriving after a loss seemed to be more painful than usual. Barberis and Thaler (2003) showed evidence showing that people were more distressed at the prospect of losses than they are pleased by equivalent gains Lehenkari and Perttunen (2004) found that both positive and negative returns in the past could boost the negative relationship between the selling trend and capital losses of investors, suggesting that investors are loss averse.

Empirical Literature:

Barberis, Huang and Santos (2001) findings indicated that the framework can help explain the high mean, excess volatility, and predictability of stock returns, as well as their low correlation with consumption growth. The design of the model is influenced by prospect theory and by experimental evidence on how prior outcomes affected risky choice. Seo, Goldfarb and Barrett (2010) found that individuals' tendency to avoid risk after experiencing gains disappeared or even reversed when they simultaneously experienced pleasant feelings. Harinck, Beest, Dijk and Zeeland (2012) consistently showed that using within - and between - subject designs and anticipated and real coin-toss gambles the strength of loss aversion depended on the measurement format (fill-in-the-loss versus fill-in-the-gain); filling in the loss side increased loss aversion. Barberis and Huang (2001) findings were that the typical individual stock return has a high mean and excess volatility, and there is a large value premium in the cross section which can, to some extent, be captured by a commonly used multifactor model.

Gächter, Johnson and Herrmann (2007) found that in both choice tasks loss aversion increases in age, income, and wealth, and decreases in education. Brenner, Rottenstreich, Sood and Bilgin (2007) results show endowment effect reversals consistent with Possession Loss Aversion. Bell and Lattin (2000) used reference dependence choice model to review the theory of reference-dependent choice in USA. The theory of reference-dependent riskless choice is presented in Tversky and Kahneman (1991 findings strongly suggest that loss aversion may not in fact be a universal phenomenon, at least in the context of frequently purchased grocery products.

Bond and Satchell (2006) findings showed that when agents are loss averse, there are utility gains to be made from using models that explicitly capture this feature. These results linked the theoretical discussion on loss aversion to empirical modeling. Jarrow and Zhao (2006) findings indicated that when asset returns are nearly normally distributed, there was little difference between the optimal Mean-Variance and Mean-Lower Partial Movement portfolios. When asset returns were not normal with large left tails, the author documented significant differences in Mean-Variance and Mean-Lower Partial Movement portfolios optimal portfolios. This observation was consistent with industry usage of Mean-Variance theory for equity portfolios but not for fixed-income portfolios. Easley and Yang (2015) result showed that if loss aversion is the only difference in investors' preferences, then for empirically relevant parameter values, loss-averse investors will be driven out of the market and do not affect long run prices. The selection process is slow in terms of wealth shares; but it is effective in terms of price impacts, because of endogenous withdrawal by loss-averse investors from the stock market. Overall, the market selection mechanism was efficient.

III. RESEARCH METHODOLOGY

Quantitative research design is useful in the study where cross-sectional and time series data analysis is required (Gujarati, 2003). The target population for this study comprises 67 listed companies in Kenya trading in equity stocks in the period 2004 to 2016 at the NSE. All the 67 listed companies were used as the population for this study in order to determine how the investor behavior has an effect of stock market reactions in Kenya. The sample for this study was 48 listed companies in Kenya from 2004 to 2016 because these were the companies that had traded for less than 3 years during this period of study. Sampling frame involves identifying samples from which to infer about the population. The dependent variable is the Stock Market Reactions and herding behavior variable as the explanatory variables. Nairobi Securities Exchange historical data on stock returns for the 13 year period 2004 to 2016.

Measurement of Study Variables:

Stock Market Reactions:

Stock market reaction was measured using abnormal returns. Excess return AR_{it} are computed as the difference between the stock return and the market portfolio return to get market adjusted return. Market adjusted returns was measured as follows:

Abnormal return = Observed return – Expected market return

$$AR_{i,t} = R_{i,t} - R_{m,t} \quad (1)$$

Where for the monthly period t, market return constant R_{mt} is subtracted from $R_{it.}$ R_{mt} is the equal-weighted return of the entire 20 share index. There is no risk adjustment except for movements of the market as a whole and the adjustment is identical for all stocks (De Bondt & Thaler, 1985); (Boussaidi, 2017).

Investor Loss aversion

Utility of gains or losses of prior returns is to measure loss aversion behavior (Barberis & Huang, 2001). The gain or loss on stock *i* between time *t* and *t* + 1 was measured as follows:

$$X_{i,t+1} = S_{i,t}R_{i,t+1} - S_{i,t}R_{f,t} \quad (2)$$

Where:

$X_{i,t+1}$ is the measures the gain or loss on stock *i* between time *t* and time *t*_1, a positive value indicating a gain and a negative value, a loss, $S_{i,t}$, is the reference state of the value of the investor's holdings of stock *i* at time *t*, R_{it+1} is the future expected return (one year lead), $R_{f,t}$ is the risk free rate (treasury bill rate). In words, the gain is the value of stock *i* at time *t* + 1 minus its value at time *t* multiplied by the risk-free rate. Expected return lead by one month minus equals to market return minus risk free rate.

IV. RESULTS AND DISCUSSION

Unit Root Test:

Table I: Unit Root Test

Panel unit root test: Summary				
Series: stock market reaction			Cross	
Method	Statistic	Prob.**	Sections	
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-24.0422	0.0000	48	
Breitung t-stat	-4.51212	0.0000	48	
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.64753	0.0000	48	
ADF - Fisher Chi-square	265.728	0.0000	48	
PP - Fisher Chi-square	348.391	0.0000	48	
Panel unit root test: Summary Series: Investor loss aversion				
			Cross-	
Method	Statistic	Prob.**	Sections	
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.62003	0.0000	48	
Breitung t-stat	-1.63466	0.0511	48	
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.04823	0.0012	48	
ADF - Fisher Chi-square	134.371	0.0000	48	
PP - Fisher Chi-square	249.815	0.0000	48	

The results from the unit root test for all the cross-sections in the variables stock market reaction and investor herd behavior in table 1 above shows that all the cross sections were stationary. The first part of each section for each variable presents the common unit root tests developed by Levin, Lin and Chu (2002) and the one developed by Breitung t-stat. The test shows that considered simultaneously all the cross-section is stationary for all the variables. In other words, they do not have the unit root problem since the null hypothesis of unit root is rejected as depicted by the significant p-value of 0.0000.

The lower section presents three other test of stationarity in panel data setting. These are Im, Pesaran and Shin (2003), ADF - Fisher Chi-square Maddala, and Wu (1999), PP - Fisher Chi-square (Choi, (2001). These tests assume there is a unit root process on individual cross sections. As depicted by the p-values which are very statistically significant, the null hypothesis of non-stationarity was rejected. The interpretation was that all the variables were found to be stationary in the two cases of test. In conclusion, the test of stationarity is important because it help to identify the order of integration of a variable and avoid spurious regression. In this case all the variables were found to be integrated of order zero (0).

Regression Result:

The results in Table 2 indicated that the overall model was a goodness of fit statistics. Since the value of F-statistic was found to be 981.3872 and it p-value was found to be 0.000 which is less than the critical value of 0.05. The value of the adjusted R square was 0.671320.This value clearly suggests that after adjusting for the degrees of freedom, there is significant effect of loss aversion on stock market reaction. This indicates that all independent variables considered cause a variation of 67.1320 % on stock market reaction. The Durbin-Watson statistic value of 1.969347 is very close to 2 and indicates the absence of serial correlation in the model.

Table 2: Regression Results

Dependent Variable: Stock Market Reaction; Method: Panel Pooled Least Squares; Periods included: 13; Cross-sections included: 48; Total panel (unbalanced) observations:				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Investor loss aversion	-0.081461	0.002600	-31.32710	0.0000
C	-0.073255	0.082411	-0.888900	0.3745

R-squared	0.672005	Mean dependent var	0.236366
Adjusted R-squared	0.671320	S.D. dependent var	3.129849
S.E. of regression	1.794362	Akaike info criterion	4.011325
Sum squared resid	1542.253	Schwarz criterion	4.028689
Log likelihood	-962.7237	Hannan-Quinn criter.	4.018150
F-statistic	981.3872	Durbin-Watson stat	1.969347
Prob(F-statistic)	0.000000		

From the regression results in table 2 above the long run coefficient of investor loss aversion was found to be -0.081461. This value shows that holding other variables in the model constant, an increase in the investor loss aversion by one unit causes the stock market reaction to decrease by a value of 0.081461 percent. The negative effect shows that there is an inverse relationship between loss aversion variable and stock market reaction. The coefficient in the short run equation was also found to be statistically significant with a t-statistic value of -31.32710. The p-value was found to be 0.0000. Loss aversion behavior variable has a negative statistically significant effect on stock market reaction.

The findings therefore indicate that there is a negative significant effect of investor loss aversion behavior variable on stock market reaction in Kenya. Seo, Goldfarb and Barrett (2010) results were consistent with the results in this study as it showed that the degree of gain was significantly and positively related to pleasant feeling, whereas the degree of loss was significantly and negatively related to pleasant feeling. Similarly, the degree of loss was positively and significantly related to unpleasant feeling, and the degree of gain was significantly and negatively related to unpleasant feeling. These findings support those of Genesove and Mayer (2001) who found that investor loss aversion had positive effect on stock market reaction when considered to enter the model linearly and negative when raised to the second power. Harinck, *et. al*. (2012) results were consistent with this study because the results showed that loss aversion increases when larger amounts of money are at stake, but especially when people fill in the loss side of the gambles.

Gächter, Johnson and Herrmann (2007) were consistent with this study because the results showed that loss aversion in the riskless choice task and loss aversion in the risky choice task are highly significantly and strongly positively correlated. Brenner, *et al.* (2007) results indicated that Possession Loss Aversion is stronger than Valence Loss Aversion. Bell and Lattin (2000) results showed that PGAIN and PLOSS are replaced by a single PRICE variable. The author found strong evidence of loss aversion. Bond and Satchell (2006) results were consistent with this study because the findings showed that when agents are loss averse, there are utility gains or losses are incurred.

Easley and Yang (2015) were inconsistent with results in this study because the findings showed that if loss-averse investors and arbitrageurs only differ in the way of deriving loss aversion utility, then loss-averse investors vanish and have no effect on long run asset prices for an empirically relevant range of parameters. Jarrow and Zhao (2006) results were consistent because it showed significant differences in Mean-Variance and Mean-Lower Partial Movement optimal portfolios. De Bondt and Thaler (1985) were consistent with the findings in this study because results indicate that long-term prior losing stocks on average outperform long term prior winning stocks. Barberis, Huang and Santos (2001) was consistent with the results in this study because the authors developed a framework can help explain the high mean, excess volatility, and predictability of stock returns, as well as their low correlation with consumption growth.

V. CONCLUSION

The study concludes that loss aversion behavior has a statistically significant effect on stock market reaction. This variable was significant in the pooled, model that was estimated. This showed that investors are concerned about the losses or gains in their investment decisions causing stock market reaction in Kenya. The investors and stock brokers should be aware that loss aversion behavior to ascertain abnormal returns in the stock market. Loss aversion behavior could lead to stock prices moving from its fundamental values causing abnormal returns hence stock market reaction resulting in variations returns. In this research, it has been revealed that investor loss aversion has a significant effect on stock market reaction. It was noted that the investor loss aversion has significant negative effect on reaction which meant that it leads to the fluctuation of abnormal returns in the market. It would thus be of help to the investors and stock brokers to consider this variable when tracking the prices of securities.

VI. RECOMMENDATION

The study also recommends that Capital Market Authority should be keen on malpractices that may cause information asymmetry in the market on securities prices in the market. The regulator should ensure that the trading activities are disclosed to the market players to ensure that investors make informed decisions when deciding on the investment strategies investing. Capital Market Authority and the Nairobi Securities Exchange should work to improve the modelling of stock prices so as to be able to reflect the information flow and factor in some behavioural factors that may be significant in influencing returns in the market. This will have the effect of increasing transparency and confidence in the market hence attracting more investors and surely more capital flows into the capital markets.

Area for Further research:

This research was not able to identify conclusively all the possible variables with explanation power on stocks pricing in Kenya. This was evident from the pooled, model that showed that the model tried to explain approximately 67.1320 % on the variation of the stock market reaction. It is therefore in this light that the future researchers are encouraged to consider other investor behavior variables that are deemed to cause stock market reaction which would increase the predictive capability of the model. An event study to analyze changes in expected and actual earnings should also be studied. Neuroeconomics research on brain activity of economics and behavioral psychology to study how the brain affects financial decisions should also be the next area of further research.

REFERENCES

[1] Barberis, N., & Huang, M. (2001). Mental accounting, loss aversion, and individual stock returns. *The Journal of Finance*, *56*(4), 1247-1292.

[2] Barberis, N., & Thaler, R. (2003). A survey of behavioral finance. *Handbook of the Economics of Finance*, *1*, 1053-1128.

[3] Barberis, N., Huang, M., & Santos, T. (1999). *Prospect theory and asset prices* (No. w7220). National bureau of economic research.

[4] Bell, D. R., & Lattin, J. M. (2000). Looking for loss aversion in scanner panel data: The confounding effect of price response heterogeneity. *Marketing Science*, *19*(2), 185-200.

[5] Bond, S. A., & Satchell, S. E. (2006). Asymmetry, loss aversion, and forecasting. *The Journal of Business*, *79*(4), 1809-1830.

[6] Boussaidi, R. (2017). The winner-loser effect in the Tunisian stock market: A multidimensional risk-based explanation. *Borsa Istanbul Review*.

[7] Brenner, L., Rottenstreich, Y., Sood, S., & Bilgin, B. (2007). On the psychology of loss aversion: Possession, valence, and reversals of the endowment effect. *Journal of Consumer Research*, *34*(3), 369-376.

[8] De Bondt, W. F., & Thaler, R. (1985). Does the stock market overreact? *The Journal of finance*, *40*(3), 793-805.

[9] Ed Easley, D., & Yang, L. (2015). Loss aversion, survival and asset prices. *Journal of Economic Theory*, *160*, 494-516.wards, W. (1968). Conservatism in human information processing. *Formal representation of human judgment*, *17*, 51.

[10] Gächter, S., Johnson, E. J., & Herrmann, A. (2007). Individual-level loss aversion in riskless and risky choices. IZA Discussion Paper No. 2961. Retrieved from anon-ftp.iza.org

[11] Gujarati, J. (2012, April). A comprehensive induction system: A key to the retention of highly qualified teachers. In *The Educational Forum* (Vol. 76, No. 2, pp. 218-223). Taylor & Francis Group.

[12] Hardie, B. G., Johnson, E. J., & Fader, P. S. (1993). Modeling loss aversion and reference dependence effects on brand choice. *Marketing science*, *12*(4), 378-394.

[13] Harinck, F., Van Beest, I., Van Dijk, E., & Van Zeeland, M. (2012). Measurement-induced focusing and the magnitude of loss aversion: The difference between comparing gains to losses and losses to gains. *Judgment and Decision Making*, *7*(4), 462.

[14] Jarrow, R., & Zhao, F. (2006). Downside loss aversion and portfolio management. *Management Science*, *52*(4), 558-566.

[15] Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica: Journal of the Econometric Society*, 263-291.

[16] Kahneman, D., & Tversky, A. (1982). Variants of uncertainty. *Cognition*, *11*(2), 143-157.

[17] Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American psychologist*, *39*(4), 341.

[18] Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1990). Experimental tests of the endowment effect and the Coarse theorem. *Journal of political Economy*, 1325-1348.

[19] Lehenkari, M., & Perttunen, J. (2004). Holding on to the losers: Finnish evidence. *The Journal of Behavioral Finance*, *5*(2), 116-126.

[20] Odean, T. (1998). Do investors trade too much? *Available at SSRN 94143*.

[21] Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and social psychology review*, *5*(4), 296-320.

[22] Schoemaker, P. J. (1982). The expected utility model: Its variants, purposes, evidence and limitations. *Journal of economic literature*, 529-563.

[23] Seo, M. G., Goldfarb, B., & Barrett, L. F. (2010). Affect and the framing effect within individuals over time: Risk taking in a dynamic investment simulation. *Academy of Management Journal*, *53*(2), 411-431.

[24] Shefrin, H., & Statman, M. (1985). The disposition to sell winners too early and ride losers too long: Theory and evidence. *The Journal of finance*, *40*(3), 777-790.

[25] Shefrin, H., & Statman, M. (2011). Behavioral finance in the financial crisis: Market efficiency, Minsky, and Keynes. *Santa Clara University, November*.

[26] Thaler, R. H., Tversky, A., Kahneman, D., & Schwartz, A. (1997). The effect of myopia and loss aversion on risk taking: An experimental test. *The Quarterly Journal of Economics*, 647-661

[27] Tversky, A. and D. Kahneman, (1974), "Judgments under Uncertainty: Heuristics and Biases," Science pp. 1124-1131.

[28] Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, *211*(4481), 453-458.

[29] Tversky, A., & Kahneman, D. (1985). The framing of decisions and the psychology of choice. In *Environmental Impact Assessment, Technology Assessment, and Risk Analysis* (pp. 107-129). Springer Berlin Heidelberg.

[30] Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The quarterly journal of economics*, 1039-1061.

[31] Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and uncertainty*, *5*(4), 297-323.