

DEMOGRAPHICS AND INVESTOR BIASES AT THE NAIROBI SECURITIES EXCHANGE, KENYA

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ABSTRACT

The purpose of the study was to determine how demographics influence the effect of investor biases among individual investors at the Nairobi Securities Exchange, Kenya. A cross-sectional study was carried out for the year 2015 among 279 investors. Data was analyzed using ANOVA. The findings depicted that men were more affected than women and the difference was significant. In terms of individual biases (Representativeness bias, availability bias, confirmation bias and disposition effect), gender had a significant effect on anchoring bias only. The effect of the investor biases did not differ significantly in terms of age, education and experience.

Key words: Representativeness bias, Availability bias, Anchoring bias and Status quo.

1.0 INTRODUCTION

Modern portfolio theory asserts that investors should aim to optimize their portfolios by carefully choosing investments so that risk is minimized and returns maximized (Markowitz, 1952). This notion assumes investor rationality in decision making. Fama (1970) advocates for market efficiency such that no investor can outperform the market. This is based on the fact that all available information is quickly absorbed in the asset prices and therefore it is not possible for an investor to earn abnormal returns. However, the events in the market place portray a picture which is contrary to the foundations of traditional finance. Bubbles have been evidenced in financial market for example the Dot-com bubble of the 1990s which contradicts the market efficiency proposition.

The behaviour of the investors is far from being rational. They are investors who follow the crowd 'herd behaviour' with the belief that the crowd cannot be wrong. Representativeness bias has also been found in investors where they assume that past performance will be replicated in the future (hot hand fallacy) or there will be a reversal in the performance (gambler's fallacy). Availability bias is also evidenced when investors purchase securities which can be recalled without effort any effort (Kahneman & Tversky, 1974). Status quo is also portrayed when investors exhibit reluctance in changing the portfolio composition (Samuelson & Zeckhauser, 1988).

Nairobi securities exchange was instituted in the year 1954 and it is an emerging financial market with 1,612,338 individual investors (CMA, 2016). Studies in this area are scarce and therefore this study contributes to finance theory and also guide investment advisors on how individual differences influence investor behaviour. The objective of the study is to ascertain how demographics influence investor behaviour. The research questions were:

1. Are the investors at the Nairobi Securities Exchange affected by representativeness bias, status quo, availability bias and anchoring bias?
2. Does the influence differ in terms of age, gender, experience and education?

2.0 LITERATURE REVIEW

Several researches have been conducted with respect to investor biases and the influence of demographics. Hon-Snir et al. (2012) examined individual stock market investors in Israel to analyze the effects of disposition effect, herd behaviour, availability heuristic, gambler's fallacy and hot hand fallacy, and, in particular, the individual differences in the degrees of these effects on stock market decision-making. The sample was made up of 41 professional portfolio managers and 305 market investors. The findings depicted that the longer the investment experience the lower the bias and professional portfolio managers were more affected by the biases than non professional but experienced investors. In terms of gender, females were affected more by the biases than males.

A study by Bashir et al. (2013a) considered the heuristics which interrupt investor rational decision making in Pakistan. Correlation and Linear regression model techniques were used to investigate whether investor decision making was affected by these biases. The behavioral biases which were found to have an impact on investor decision making were excessive

optimism, overconfidence, illusion of control, and confirmation biases. Status quo, Loss aversion and Mental accounting biases had no impact on investor decision making.

Bashir et al. (2013b) did a study to establish whether behavioral biases are influenced by demographic characteristics and personality traits among investors in Pakistan. The demographics considered were residential area, age, gender, marital status, and education background, personality traits (extraversion, openness, conscientiousness, neuroticism, and agreeableness) and behavioral biases (overconfidence, herding/mass behavior and disposition effect). A Sample size of 225 respondents was considered and structure equation modeling (SEM) analysis was used to analyze the impact of personality traits and demographics on the investment biases. The findings depicted that demographics do not have significant relationship with the investment biases and risk taking behavior.

An investigation was carried out by Hassan, Khalid and Habib (2014) on the effect of gender and age on overconfidence bias and loss aversion among Pakistan investors. The data was analyzed using chi square analysis, correlation analysis and regression analysis. Males and older investors were found to be more affected by the overconfidence bias. Loss aversion was exhibited more by women and older investors. Also Chitra and Jayashree (2014) examined whether demographics influence investor behavior by using a sample of 110 investors. Data was analyzed using descriptive statistics, factor analysis and ANOVA. Investors were found to be affected by representativeness bias, conservatism, regret aversion, anchoring and overconfidence. Age, education and experience influenced the effect of biases among the investors. In terms of age, a significant difference was evidenced with representativeness bias, anchoring bias and overconfidence bias. Education differences were significant with respect to representativeness bias and anchoring bias. The influence of anchoring bias, conservatism and overconfidence differed significantly in terms of occupation.

Mishra and Metilda (2015) conducted a study to determine whether the impact of overconfidence bias and self-attribution bias differs among investors based on their demographics (gender, level of education and investment experience). A sample of 309 mutual fund investors was considered for the study. The findings showed that overconfidence bias is affected by gender with men exhibiting more impact as compared to women. Experience and education were also positively related with overconfidence bias. Self attribution was found to be positively related with education but not with gender and experience.

Armaki and Abbasi (2015) investigated the effect of demographics (gender, age and education) on overconfidence bias and loss aversion in Iran's capital market. The results depicted that gender differences did not influence the effect of overconfidence bias among the investors. Age was found to be negatively related with overconfidence bias implying that older investors exhibited less of the overconfidence bias effect. Education had a positive correlation with overconfidence bias. As such, highly educated investors were more affected by the overconfidence bias. In terms of loss aversion, the effect did not differ in terms of gender. Older investors had higher levels of loss aversion while educated investors were less loss averse.

Onsomu (2015) studied the relationship between gender and behavioural biases among equity investors at the NSE, Kenya. A sample of 58 investors was considered. Data was analyzed using descriptive statistics and Chi-square test. The results depicted existence of availability bias, representativeness bias, confirmation bias and disposition effect. However, there was no significant correlation between the behavioural biases. The current study considers a large sample and includes other demographic variables (education, experience and age).

3.0 Research Methodology

This research was carried out among individual local investors at the Nairobi Securities Exchange, Kenya. The population of the study was 1,219,113 individual local investors (CMA, 2015). The number of listed companies was 65 in the year 2015 which comprise of 11 segments. The period of the study was 2015 and a sample of 279 investors was considered. Analysis of variance (ANOVA) was carried to ascertain whether the effect of investor biases differed among individuals based on their demographics; age, gender, education and experience. The findings are discussed below.

3.1 Investor Biases and Gender

The study considered four biases; status quo bias, representativeness bias, availability bias and anchoring bias. In the first step, ANOVA for the investor biases (mean of composite score of status quo bias, representativeness bias, availability bias and anchoring bias) evidenced that responses did differ significantly in terms of gender ($P\text{-value} < 0.05$). Men were affected more than women with a mean of 3.22 and 3.07 respectively (Appendix I). A test was carried out to ascertain the effect of gender on the individual biases and the results evidenced that gender had no effect in representativeness bias, status quo bias and availability bias but significantly differed in anchoring bias as shown in Appendix II where males were more affected than females.

3.2: Investor Biases and Age

The study considered 5 age categories; 18-25 years, 26-35 years, 36-45 years, 46-55 years and more than 55 years. The results depicted that the most affected age group was 26-35 years with a mean of 3.2 while the least affected group was 46-55 years with a mean of 3.07 (Appendix III). The results did not differ significantly across the different age groups when all the biases were considered together ($p\text{-value} > 0.05$). When the individual biases were considered, the results showed that status quo bias, representativeness bias, availability bias and anchoring bias does not differ in terms of age ($p\text{-value} > 0.05$) as shown in Appendix IV.

3.3 Investor Biases and Education Levels

The study considered 5 levels of education and another level for those who did not qualify in the 5 levels. The most affected level was the post graduate group with a mean of 3.235. The least affected group was the diploma holders with a mean of 3.098 (Appendix V). However, the responses did not differ significantly for investor biases among the different education levels ($p\text{-value} > 0.05$). The individual biases (status quo bias, representativeness bias, availability bias and anchoring bias) when they were considered separately did not differ significantly in terms of education ($p\text{-value} > 0.05$) as shown in Appendix VI.

3.4 Investor Biases and Experience

Investors with the least experience had a mean of 3.126 while those who had traded between 6-10 times, 11-15 times and 16-20 times and more than 20 times had a mean of 3.22, 3.12, 2.95, and 3.21 respectively (Appendix VII). The effect of investor biases did not significantly (p -value > 0.05) differ in terms of the level of experience. Also the effect of status quo bias, representativeness bias, availability bias and anchoring bias among investors did not differ significantly with respect to education level (Appendix VIII).

4.0 CONCLUSION

Investors at the NSE were found to be influenced by biases: representativeness bias, availability bias, anchoring bias and status quo. In terms of demographics, age, education and experience did not significantly affect investor biases. However, gender had significant influence on the effect of the investor biases with men being more affected than women. Similar findings were obtained by Barber and Odean (2000). However contrary results were found by Bashir et al. (2013) where demographics were found not to have any influence (residential area, age, gender, marital status, and education). As such, investment advisors should consider individual differences (gender) when guiding investors on their finance decision making.

REFERENCES

- Armaki, A.G. & Abbasi, E. (2015). The Effect of Gender, Age and Educational Level on Overconfidence and Loss Aversion in Iran's Capital Market. *Asian Journal of Research in Marketing*, 4(3), 75-87.
- Barber, B.M. & Odean, T. (2000). Trading is Hazardous to your Wealth: The Common Stock Investment Performance of Individual Investors. *Journal of Finance* 55, 773–806.
- Bashir, T., Azam N., Butt A.A., Javed A. & Tanvir A. (2013a). Are Behavioral Biases Influenced by Demographic Characteristics & Personality Traits? Evidence from Pakistan. *European Scientific Journal* 9 (29), 277- 293.
- Bashir, T., Javed, A., Meer, U.I., M. Naseem M.M. (2013b). Empirical Testing of Heuristics Interrupting the Investor's Rational Decision Making. *European Scientific Journal* 9 (28), 432-444.
- Capital Markets Authority, *Quarterly Statistical Bulletin* (December, 2015).
- Capital Markets Authority, *Quarterly Statistical Bulletin* (December, 2016).
- Chitra, K. & Jayashree, T. (2014). Does Demographic Profile Create a Difference in the Investor Behavior? *The International Journal of Business & Management*, 2(7), 24-30.

- Fama, E.F. (1970), Efficient Capital Markets: A Review of Theory and Empirical Work. *Journal of Finance*, 25(2), 383-417.
- Hassan, T.R., Khalid, W. & Habib, A. (2014). Overconfidence and Loss Aversion in Investment Decisions: A Study of the Impact of Gender and Age in Pakistani Perspective. *Research Journal of Finance and Accounting*, 5(11), 148-157.
- Hon-Snir, S., Kudryavtsev A. & Cohen G. (2012). Stock Market Investors: Who Is More Rational and Who Relies on Intuition? *International Journal of Economics and Finance*, 4(5), 56-72.
- Markowitz, H. (1952). Portfolio Selection. *Journal of Finance*, 7(1), 77-91.
- Mishra & Metilda (2015). A Study on the Impact of Investment Experience, Gender and Level of Education on Overconfidence and Self-Attribution Bias. *IIMB Management Review*, 27(4), 228-239.
- Samuelson, W. & Zeckhauser R. (1988). Status Quo Bias in Decision Making. *Journal of Rzsk cind C'ncertaznt*, 1, 7-59.
- Tversky A. & Kahneman, D. (1974). Judgment under uncertainty: heuristics and biases. *Science*, 185, 1124-1131.

APPENDICES

Appendix I

Difference in Means in terms of gender and Investor Biases

	N	Mean	Std. Deviation	Std. Error
FEMALE	128	3.0748	.45778	.04046
MALE	151	3.2223	.49092	.03995
Total	279	3.1546	.48083	.02879

Appendix II**Status quo bias, Representativeness bias, Availability Bias, Anchoring bias and Gender**

		Sum of Squares	df	Mean Square	F	Sig.
STATUS QUO	Between Groups	1.446	1	1.446	1.637	.202
	Within Groups	244.637	277	.883		
	Total	246.082	278			
REPRESENTATIVENESS	Between Groups	.036	1	.036	.059	.808
	Within Groups	169.585	277	.612		
	Total	169.621	278			
AVAILABILITY BIAS	Between Groups	.122	1	.122	.168	.682
	Within Groups	200.387	277	.723		
	Total	200.509	278			
ANCHORING BIAS	Between Groups	12.510	1	12.510	10.641	.001
	Within Groups	325.654	277	1.176		
	Total	338.164	278			

Appendix III**Difference in Means in terms of age and investor Biases**

	N	Mean	Std. Deviation	Std. Error
18-25	47	3.1723	.50434	.07357
26-35 YEARS	99	3.2035	.46321	.04655
36-45 YEARS	77	3.1312	.52644	.05999
46-55 YEARS	37	3.0738	.42905	.07053
MORE THAN 55 YEARS	19	3.1079	.42677	.09791
Total	279	3.1546	.48083	.02879

Appendix IV**Status quo bias, Representativeness bias, Availability Bias, Anchoring bias and Age**

		Sum of Squares	df	Mean Square	F	Sig.
STATUS QUO	Between Groups	2.080	4	.520	.584	.674
	Within Groups	244.002	274	.891		
	Total	246.082	278			
REPRESENTATIVENESS	Between Groups	4.679	4	1.170	1.943	.104
	Within Groups	164.942	274	.602		
	Total	169.621	278			
AVAILABILITY BIAS	Between Groups	1.911	4	.478	.659	.621
	Within Groups	198.598	274	.725		
	Total	200.509	278			
ANCHORING BIAS	Between Groups	5.444	4	1.361	1.121	.347
	Within Groups	332.720	274	1.214		
	Total	338.164	278			

Appendix V**Difference in Means in terms of Education and investor Biases**

	N	Mean	Std. Deviation	Std. Error
CERTIFICATE	25	3.1832	.46296	.09259
DIPLOMA	51	3.0980	.57048	.07988
GRADUATE	141	3.1347	.47507	.04001
POST GRADUATE	51	3.2351	.39822	.05576
ANY OTHER	11	3.2336	.51877	.15642
Total	279	3.1546	.48083	.02879

Appendix VI**Status quo bias, Representativeness bias, Availability Bias, Anchoring bias and Education**

		Sum of Squares	df	Mean Square	F	Sig.
STATUS QUO	Between Groups	3.049	4	.762	.859	.489
	Within Groups	243.034	274	.887		
	Total	246.082	278			
REPRESENTATIVENESS	Between Groups	3.988	4	.997	1.649	.162
	Within Groups	165.633	274	.604		
	Total	169.621	278			
AVAILABILITY BIAS	Between Groups	2.930	4	.733	1.016	.400
	Within Groups	197.579	274	.721		
	Total	200.509	278			
ANCHORING BIAS	Between Groups	3.854	4	.964	.790	.533
	Within Groups	334.310	274	1.220		
	Total	338.164	278			

Appendix VII**Difference in Means in terms of Experience and investor Biases**

	N	Mean	Std. Deviation	Std. Error
5 OR LESS	142	3.1260	.44596	.03742
6-10	46	3.2243	.48201	.07107
11-15	12	3.1208	.44001	.12702
16-20	12	2.9542	.62814	.18133
MORE THAN 20	67	3.2093	.52612	.06428
Total	279	3.1546	.48083	.02879

Appendix VIII**Status quo bias, Representativeness bias, Availability Bias, Anchoring bias and Education**

		Sum of Squares	df	Mean Square	F	Sig.
STATUS QUO	Between Groups	2.027	4	.507	.569	.685
	Within Groups	244.055	274	.891		
	Total	246.082	278			
REPRESENTATIVENESS	Between Groups	2.218	4	.555	.908	.460
	Within Groups	167.403	274	.611		
	Total	169.621	278			
AVAILABILITY BIAS	Between Groups	1.919	4	.480	.662	.619
	Within Groups	198.590	274	.725		
	Total	200.509	278			
ANCHORING BIAS	Between Groups	8.130	4	2.033	1.687	.153
	Within Groups	330.034	274	1.205		
	Total	338.164	278			

Source: Author, 2017