

Concentrated or Diversified portfolios, which is better?

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ABSTRACT

The objective of the study was to establish whether portfolio diversification affects the investor returns. A sample of 279 investors was considered for the study. Portfolios were categorized as either being concentrated or diversified. The findings showed that investors held a mean of four stocks and a majority was diversified. The returns for concentrated portfolios were lower than diversified portfolios. The degree of diversification was found to be affected by behavioural biases and individual characteristics. The study recommends diversification of portfolios by investors so as to earn higher returns.

Key words: diversification, performance, behavioural biases, demographics

1. Introduction

Modern portfolio theory (MPT) as advocated by Markowitz (1952) suggests that portfolio diversification is necessary so as to eliminate idiosyncratic risk. However, the question that remains unanswered is how many stocks comprise a diversified portfolio? Several suggestions have been forwarded by researchers. Statman (1987) advocates for 30 stocks for a well

diversified portfolio which is a significantly large number. Ivkovic, Sialm, and Weisbenner (2008) considers a concentrated (non diversified) portfolio to constitute 1 or two stocks while a diversified portfolio has 3 or more stocks. Goetzmann and Kumar (2008) measures diversification using the normalized portfolio variance whereby a diversified portfolio exhibits a lower value.

Diversification is expected to increase portfolio returns due to the advantage in terms of reduced risk. Does this hold all the times? Findings by Feng and Seasholes (2008) evidenced that investors held lowly diversified portfolios and also risky. Men investors were found to hold more risky and larger portfolios as compared to women. However, the portfolio performance and trading levels were similar for both men and women investors. The context of the study was China and the sample of the study constituted 51,218 individual investors for the duration January 1999 and December 2000. Goetzmann and Kumar (2008) studied 62,387 U.S. households on equity portfolio diversification and found that a large proportion of investors underperformed the market portfolio. Also less diversified investors traded excessively and incurred high transaction costs. Investors with concentrated portfolios earned lower risk adjusted returns as compared to diversified portfolios.

Contrary findings were evidenced by researchers such as Ivkovic, Sialm, and Weisbenner (2008), Barber and Odean (2000), and Odean 1999 data set of U.S. households depicted that concentrated portfolio performed better than diversified portfolios. Similar findings were found by Mitton and Vorkink (2007) using a sample of 60,000 individual investor accounts found that portfolio returns were higher for concentrated portfolios. The undiversified stocks were found to be highly skewed and high skewness was evident among young investors, male investors and investors with low levels of wealth. Kumar (2007) also tested the hypothesis that concentrated portfolios earn higher returns than the portfolio of stocks with the most diversified investors. The findings showed that concentrated portfolios earned higher returns than the diversified portfolios.

The level of diversification may be affected by behavioural biases, lack of knowledge and individual characteristics. Odean (1999) found that overconfidence bias was attributed to portfolio concentration by investors. In terms of individual characteristics, Goetzmann and Kumar (2008) depicted that under diversification was evident in young, low income, less educated and less sophisticated investors.

This study focuses on individual investors at Nairobi Securities Exchange (NSE), Kenya for the year 2015. It addressed four issues. Firstly, the degree of diversification among NSE investors. Secondly, how portfolio diversification affected portfolio performance. Thirdly, the influence of investor demographics on portfolio diversification. Lastly, the influence of behavioural biases on portfolio diversification. The paper is organized as follows: Part II covers the research methodology applied in the study, Part III presents the results and part IV is the conclusion of the study.

2. Research Methodology

The population of the study constituted 1, 629,746 individual investors who invested in common stocks at the Nairobi Securities Exchange for the year 2015. The study used both primary data and secondary data. Questionnaires were issued among 400 investors who made up the sample of the study. Responses were received from 279 investors which represented a proportion of 69.8% of the targeted sample. The proportion was considered adequate and a similar proportion was used in Babajide and Adetiloye (2012). Data was analyzed using SPSS and the tests that were carried out included independent sample t-test and ANOVA.

3. Results

The demographics of the respondents are presented in Table 3.1 (gender) Table 3.2(age) and Table 3.3 (education). Table 3.1 below shows that the male respondents were more than the female respondents at a percentage of 54.1% and 45.9% respectively.

Table 3.1: Gender Profile of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
FEMALE	128	45.9	45.9	45.9
Valid MALE	151	54.1	54.1	100.0
Total	279	100.0	100.0	

The age demographic was divided into five categories as shown in Table 3.2 below. A majority of the respondents were in the 26-35 age group with a percentage of 35.5%, followed by 36-45 years, 18-25 years, 46-55 years and lastly more than 55 years at 27.6%, 16.8%, 13.3% and 6.8% respectively. This shows that a large proportion of the investors comprised of young and middle age bracket.

Table 3.2: Age Profile of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18-25 years	47	16.8	16.8	16.8
26-35 years	99	35.5	35.5	52.3
36-45 years	77	27.6	27.6	79.9
46-55 years	37	13.3	13.3	93.2
more than 55 years	19	6.8	6.8	100.0
Total	279	100.0	100.0	

The respondents were asked to indicate their academic qualification; Certificate, diploma, graduate, post graduate and "any other". A large percentage of the respondents were graduates at 50.5%. Diploma holders constituted 18.3% of the respondents while certificate holders and post graduates had 9% and 18.3% respectively as shown in Table 3.3 below.

Table 3.3: Education Profile of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
CERTIFICATE	25	9.0	9.0	9.0
DIPLOMA	51	18.3	18.3	27.2
GRADUATE	141	50.5	50.5	77.8
POST GRADUATE	51	18.3	18.3	96.1
ANY OTHER	11	3.9	3.9	100.0
Total	279	100.0	100.0	

3.1 Portfolio Diversification

Investors were asked to indicate the companies where they had invested. The investor portfolios were categorized as either being concentrated or diversified using the criteria by Ivkovic, Sialm and Weisbenner (2008). According to the study, a portfolio with one or two stocks was categorized as being concentrated and a portfolio with three or more stocks was considered to be diversified. The findings depicted that the number of investors who had concentrated portfolio were 86 while diversified portfolio were 193. This represented proportions of 31% and 69% respectively.

3.2 Portfolio Diversification and Portfolio Performance

The study compared the investor portfolio returns with a market index (NASI) to ascertain the performance of the portfolios relative to a market benchmark portfolio. The results showed that 26% of the portfolios underperformed the market while 74% of the portfolio outperformed the market. The mean portfolio returns and standard deviation are shown in Table 3.4. The findings depicted that investors with diversified portfolios earned higher returns as compared to the investors with concentrated portfolios. Results from independent sample t-test indicated that the difference in mean returns was significant at 5% significance level. In terms of risk, diversified portfolios had a higher risk ($\sigma = 0.2678$) while concentrated portfolio had lower risk ($\sigma = 0.0645$).

Table 3.4: Portfolio Diversification and Portfolio Performance

	Concentrated portfolios	Diversified portfolios
Returns	0.3547	1.0549
Standard deviation	0.0645	0.2678

3.3 Investor Demographics and Portfolio Diversification

All the investors were diversified according to Ivkovic, Sialm and Weisbenner (2008). However, differences were exhibited in terms of age, gender and education. The study considered the differences in portfolio returns which are attributed to individual characteristics. Table 4.5 shows that portfolio diversification differed with respect to gender with male investors being

more diversified than female investors. Portfolio returns for male investors were higher than for the female investors at 1.075 and 1.014 respectively. However the difference was insignificant as the P-value was more than 0.05.

In terms of age, five categories were considered: 18-25 years, 26-35 years, 36-45 years, 46-55 years and > 55 years. Diversification increased with age except for the older investors where a lower mean was depicted. The age group with the highest mean was those investors with more than 55 years at 1.682 while the age group with the least mean was those between 46-55 years at 0.533. The other age groups; 18-25 years, 26-35 years and 36-45 years had 0.849, 1.276, and 0.963 respectively. The differences were significantly different (p-value < 0.05).

Education levels of the investors did not influence the degree of diversification as diploma holders had a higher level of diversification as compared to degree holders. The mean portfolio performance differed across the varying education levels. Certificate, diploma, graduate, postgraduate holders earned a mean return of 0.895, 0.999, 1.0399, 1.2319 and 0.9701 respectively. It evidences that post graduates earned the highest return and the lowest was earned by the investors with a certificate. However, these differences were insignificant at 5% significance level.

Table 3.5: Investor Demographics and Portfolio Diversification

Investors	Mean number of stocks	Portfolio returns
Gender		
Male	5.40	1.075
Female	4.67	1.014
Age		
18-25 years	4.29	0.849
26-35 years	4.56	1.276
36-45 years	4.76	0.963
46-55 years	5.65	0.533
>55 years	5.35	1.683
Education		
Certificate	3.55	0.895
Diploma	5.941	0.999
Graduate	4.48	1.03
Post graduate	5.88	1.23
Any other	4.41	0.970

3.4 Behavioral Biases and Portfolio Diversification

The study further considered the behavioral biases which investors were prone to. The results showed that investors with concentrated portfolios were affected more by status quo bias. This implies that the investors were reluctant to change the composition of their portfolios. However, investors with diversified portfolios exhibited more of representativeness bias, availability bias and anchoring bias. The effect by representativeness bias depicted that the investors made generalizations based on a small sample. For instance, investors considered the performance of a

stock in the recent past before buying or bought stocks from a sector where a company or companies reflect good performance. The effect by availability bias implies that investors bought stocks that they recalled with ease while anchoring bias showed that investors made use of irrelevant benchmarks when making decisions.

Table 3.6: Behavioral Biases and Portfolio Diversification

	Concentrated portfolios	Diversified portfolios
Status quo	2.92	2.87
Representativeness bias	3.32	3.38
Availability bias	3.03	3.25
Anchoring bias	3.12	3.23

Conclusion

Individual investors held diversified portfolios as the mean was four stocks. Similar findings were obtained by Barber and Odean (2000). Majority of the investors held diversified portfolios which is contrary to Goetzmann and Kumar (2008) and Ivkovic, Sialm and Weisbenner (2008). Portfolio returns and risk were higher for diversified portfolios as compared to concentrated portfolios. The level of diversification differed among individuals based on gender, age and education. Behavioural biases affected portfolio diversification with status quo bias being evident among investors with concentrated portfolios. Heuristics (availability bias, representativeness bias and anchoring bias) were depicted among investors with diversified portfolios.

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