Board Gender Diversity and Financial Performance of Commercial Banks in Kenya

Caleb BwÁuma Manyaga[*], Willy Muturi, Oluoch Oluoch

School of Business, Department of Economics, Accounting and Finance,
Jomo Kenyatta University of Agriculture and Technology, P.O. Box 62000, 00200, City Square, Nairobi, Kenya
*Corresponding author: cmanyaga@yahoo.com

Abstract Institutions are managed by board of directors who have delegated authority from the owners of the firm to enhance corporate governance. Board of directors manage the firms on behalf of the owners. Despite control measures being instituted by CBK as a regulator Kenyans have witnessed 40 commercial banks collapsing in the past. Most recent was 2015 and 2016 where three commercial banks collapsed with a combined asset valuation of Kshs 187.9 Billion. This caused panic in the sector. Eliciting examination of the influence of board gender diversity on financial performance of commercial banks in Kenya. The target population was 43 commercial banks in operation in Kenya as at 31st December 2017. The study collected secondary data on board gender diversity as independent variable and return on equity as a dependent variable from 34 commercial banks for the years 2008 to 2017. Panel data was collected from the internet and perusal of the annual accounts of the individual commercial banks. The study adopted causal research design. Data was analysed using both descriptive and inferential statistics. For descriptive statistics: mean, standard deviation, coefficient of variation was used to indicate the nature of both independent variable and dependent variable. For inferential statistics fixed effect regression model was adopted. Using STATA Version 13 to analyse data, the study revealed that board gender diversity had a negative but significant influence on return on equity across peer and across banks. However, in regard to time, board gender diversity had insignificant influence on return on equity across time. In regard to individual years, board gender diversity had a positive and significant variability on return on equity across time, across peer and across banks. This imply that board gender diversity had generally a negative influence on return on equity across time, across peer and across banks. Whereas, in regard to individual years, peer and bank, board gender diversity had a positive and significant variability on return on equity across time, across peer and across banks. Based on the analysis, the study concluded that board gender diversity had a negative but significant influence on return on equity on commercial banks in Kenya. The study recommended a board gender diversity to be embraced by commercial banks since as their increased presence might bring some positive influence in financial performance especially in small banks where currently some banks have not embraced board gender diversity. CBK Act stipulate that commercial banks diversify their boards.

***Keywords**: board gender diversity, Corporate governance, return on equity (ROE), Kenya*

1. Introduction

This study sought to examine the influence of board gender diversity on return on equity of commercial banks in Kenya. Corporate governance are the controls of public businesses consisting of both legal and non-legal practices and principles of running the business [1]. Corporate governance is the control, direction and exercising authority in a firm [2]. According to [3], corporate governance aligns manager's actions with firm's policies and procedures. Empirical evidence show that corporate governance can be measured through board share ownership, board women, board age, board frequency, board size, board education, and board independence [4].

Reference [5] emphasized the critical role played by commercial banks in developing economies as: firstly, to facilitate payment and depositories of savings. Secondly, they are the driving force of economic development in any economy. Thirdly, since the financial market in the developing economies are not fully developed, they are the major sources of capital. The Basel Committee on Banking Supervision (1999) echoes the importance of corporate governance in the banking sector as aligning firms' behavior and activities with a view that their operations will be of sound and safe manner; taking into consideration of the interests of all the stakeholder of the bank; setting the bank's objectives with a view of making

economic gains for the investors. Therefore, corporate governance is the financial discipline which encompasses legislations, contracts and business regulations.

This study focused on influence of board gender diversity on the financial performance of commercial banks from the perspective of shareholder who seeks highest return for their investments. Therefore, board attributes conceptualize practices targeted at constraining management from exercising their discretion through monitoring. The board will design policies aimed at attracting the best and competent brains to the firm by aligning interests of top management vis a vis those of the shareholders [6].

The Kenyan financial sector plays a pivotal role in the economy. The sector mobilizes capital resources. Facilitates banking and withdrawal of funds. The sector also enables settlement payments to its clients. The sector is regulated by the Central Bank of Kenya. CBK had issued various guidelines in the past: 2000, 2006 and 2013. Section 33 [7] of the Banking Act CAP 488 empowers CBK to issue and enforce guidelines on corporate governance to be adhered to by the financial institutions. Reference [8] defines corporate governance as the manner in which affairs and business of an entity is governed by the board appointed by the shareholders and the senior management who are appointed by the board.

Between 1986 and 1998, 37 commercial banks collapsed and most recently, in the years 2015 and 2016, three banks collapsed with a combined asset valuation of Kshs 187.9 Billion [9]. Causing an uproar which made Central Bank of Kenya to issue further guidelines meant to institute sanity and stability within the sector. Non-adherence to good corporate governance practices by the board caused the collapse of these banks.

2. Review of Theory, Literature and Hypothesis Development

2.1. Stakeholder Theory

Reference [10] developed stakeholder theory arguing that managers of a firm should consider interests of the stakeholders when making decisions. Stakeholders here are groups or individuals capable of substantially affecting welfare of the firm. They consist not only those with financial claimants but also government officials, employees, customers, and communities. The purpose of the theory was to bring into focus groups whose actions affect the firm. The concept of stakeholder theory is to focus on all the interested groups in the business as opposed to focusing on the shareholder [11]. Stakeholder theorist suggest that board characteristics should use its networks to ensure business decisions are beneficial to all interested parties [12]. Accordingly, board members are to act in the best interest of the stakeholders by providing support to the management [11]. Through monitoring the management, board members are to ensure that profits are made and firm assets are protected to the best interest of the stakeholders [12].

According to [13], increased presence of female in directorship may compel the board to meet expectations of stakeholders, thus execution of improved financial performance. Therefore, stakeholder theory has a limitation as personal interests override the stakeholder. Therefore, once there is personal interest, stakeholder theory cannot explain where there exists conflict of interest. The maximizing of the shareholder's return is not the sole purpose rather consideration of interests of other parties are well considered in decision making. Additionally, increased presence of female directorship in the board compels the board to meet expectations of the stakeholders, thus execution of improved financial performance of the firm [13]. Therefore, a positive relationship between board gender diversity and financial performance of a firm is expected.

2.2. Board Gender Diversity

Board gender diversity is the ratio of women in the board to the total board members. Reference [14], found female directors had brought better understanding of the business environment into the board as they understand market better than their male counterparts and brings onboard better images in the perception of the community. While [15] argues that board gender diversity enhances disclosures, corporate governance and bring on board personalities that have divergent views on matters affecting the firm and its performance. Reference [7] concluded that female directors were found to be keener than their male counterparts in board meeting attendance, accordingly they are keen in seeing management deliver [16]. However, Reference [17] concluded that board gender diversity had a negative influence to financial performance of a firm. This is evidenced by [18] who concluded that female in the board impacts negatively on financial performance of a firm. In the Kenyan context, [19] found board gender diversity had no influence on financial performance of commercial banks in Kenya. Reference [20] argued that market does not punish boards with female directors. In view of women board member being negligible in the board there is likelihood of their contribution not being felt [20]. Reference [4] posited that appointment of women directors was only public relations and recommended an increase to between 30 and 35 percent for their impact to be felt.

Several confounding studies relating to board characteristics and financial performance have been carried around the globe. Reference [21] found board gender diversity having a negative influence on performance of a firm while [22] suggest appointment of women directors in Malaysian listed firms creates value to the firm and in Netherlands and Denmark [23] found no relationship between board gender and firm performance. Reference [24] studied the impact of board of directors' attributes on financial performance of Nigerian commercial banks and concluded that board gender has a significant negative influence on the financial performance of Nigerian firms. While [18] found negative relationship between board gender and firm performance in Nigeria, [4] also found that board gender has no influence on firm performance.

Reference [8] has listed board diversity to include gender, age, academic qualification, relevant banking knowledge, experience and nationality. It is incumbent upon the shareholders to ensure board is composed with persons with a viewpoint of diversity and skills. Therefore,

the study focused on gender diversity as firms with more female directors tend to have higher financial performance by ROA and Tobin's Q ratio [25]. Reference, [26] in their study analyzed how board composition impact financial performance in Kenya. They found female directors impacted positively on performance of the firm while [27] found board gender had a positive but insignificant effect on firm performance in Kenya. Reference [19] found board gender diversity has no influence on the performance of banks in Kenya.

Based on the above arguments, it is hypothesized that:

Ho$_1$: Board gender diversity in board membership has no significant influence on financial performance of commercial banks in Kenya.

3. Methodology and Data

3.1. Research Design

This study applied causal research design where secondary panel data was collected.

3.2. Population and Sampling Technique

The population of this study is all commercial banks in Kenya that were in operation during the period 2008 to 2017. A total of 43 commercial banks were in operation as listed by the Central Bank of Kenya as at 31st December 2017. The study adopted census sampling technique. Secondary data was collected from 34 commercial banks generating 340 observations. The purpose for using commercial banks was guided by the role the finance sector plays in an economy: resource mobilization, facilitation of payment settlements and savings depositories and it is the driving force of the economy [5].

3.3. Data Collection

This study collected secondary data from the commercial banks annual accounts published in their websites, Central Bank of Kenya and Think Business Banking Survey. This is in tandem with other studies which made use of the company's annual accounts and financial reports [28,29,30].

3.4. Research Model and Measurement

The independent variable of this study was board gender diversity and the dependent variable was financial performance proxied as return on equity. This was consisted with [31]. The study measured board gender diversity (BGD) as the ratio of female board members to total board members sitting in the board in a year while return on equity (ROE) was a ratio of profit before tax to equity. Scaling down was done to make data presentable without altering its importance [4].

The study employed bivariate fixed effect regression model of analysis within the panel data framework and the multiple regression model is of the following form:

$$y_{it} = \beta_1 x_{1,it} + \ldots\ldots + \lambda_1 D_i + \lambda_2 D_{2i} + \ldots\ldots \lambda_n D_{ni} + \mu_i \quad (1)$$

Where Y= is the dependent variable ROE financial performance.

Subscript i and t represent firm and time period respectively.

β_1 are regression coefficients.

X_1 = Ratio of board female board members (BGD) siting in the board within the year

D_1 to D_{ni} are the dummy variables where n is equivalent to number of variables.

λ_1 to λ_{ni} is the slope

μ_1 error term.

4. Findings and Discussion

4.1. Descriptive Statistics

Board gender diversity was measured as a ratio of board women to total board members siting in the board [25]. Table 1 shows the annual board gender diversity for the years 2008 to 2017 for the Kenyan commercial banks. The results of the board gender diversity indicate that on average commercial banks had a ratio of 0.1248 in 2008 which increase to a ratio of 0.1794 in the year 2017. This implies that on average there was one-woman director in every eight board directors in the year 2008. This is in line with the findings of [19] who on average, one board member in every 8-board membership. However, [32] found board gender diversity in the Nigerian listed firms with a mean ratio of 0.6033.

The result also shows that coefficient of variation (CV) starts with 0.8760 the year 2008 with gradual decline to 0.6439 in the year 2017. This translates to 87.60 percent in the year 2008 and 64.39 percent in the year 2017. The higher the CV the higher the dispersion is from the mean of the board gender diversity. This imply that in the year 2008 the dispersion was highest which declined through the years to 2017 to be lowest in dispersion from the mean. Reference [4] found CV of 82.49 percent of women director in the listed corporations in the Nigerian Stock Exchange. Reference [14] found CV of 97.82 percent in his study in the listed firms in the Johannesburg Stock Exchange.

Reference [33] ascertained a CV of board gender diversity in the US banking sector of 90.90 percent. Reference [34] studied effects of board structure on the financial institutions in Kenya found CV of 73.85. Reference [35] evaluated board characteristics of the Fortune 500 firms and found firm size had a CV of 0.7022 which translate to 70.22 percent. Reference [25] evaluated impact of board gender diversity on the performance of listed firms from 47 different countries globally found CV of 116.76 percent. From these studies, the least study had a CV of 41.25 percent in Hong Kong and the highest had 116.76 percent in globally sampled countries. Table 1 shows the descriptive analysis of board gender diversity of the Kenyan commercial banks for the year 2008 to 2017.

Table 2 shows the overall descriptive analysis for the board gender diversity of the Kenyan commercial banks for the period 2008 to 2017. The results on overall descriptive analysis for board gender diversity depict that

the overall mean is a ratio of 0.1507. The variability indicated that on overall there was 0.1105 while that of between was 0.1050 and that of within was at 0.0385. This imply that within had the least variability followed by between and overall having the highest variability from the mean. However, with the overall standard deviation being 0.1105, imply that there was no much variability from the mean. The Table 2 depicts a CV of 0.7333 which translate to 73.33 percent. The higher the CV the higher the dispersion from the mean. Table 2 show overall descriptive analysis for board gender diversity of the Kenyan commercial banks in the years 2008 to 2017.

Table 1. Annual Mean Board Gender Diversity

Year	Obs	Mean	Std. Dev.	Coefficient of Variation
2008	34	0.1248	0.1094	0.8760
2009	34	0.1305	0.1113	0.8530
2010	34	0.1318	0.1120	0.8495
2011	34	0.1348	0.1097	0.8141
2012	34	0.1463	0.1096	0.7497
2013	34	0.1522	0.1069	0.7022
2014	34	0.1665	0.1088	0.6535
2015	34	0.1698	0.1088	0.6406
2016	34	0.1711	0.1115	0.6515
2017	34	0.1794	0.1155	0.6439

Table 2. Overall Descriptive Analysis for Board Gender Diversity

		Mean	Std. Dev.	Coefficient of Variation	Obs.
Board gender diversity	Overall	0.1507	0.1105	0.7333	N=340
	Between		0.1050		n= 34
	Within		0.0385		T= 10

The study performed further analysis for board gender diversity against time (years) using one-way ANOVA. This was to ascertain whether there existed a significant change in the annual mean of board gender diversity across time. The ANOVA statistics in Table 3 indicate that F statistic ratio was 1.11 and the p-value of 0.3581.

Since p-value was 35.81 percent which is greater than 5 percent significance level. Board gender diversity was insignificantly different over the ten-year period under study. This suggested variances in the group are not equal. Table 3 shows the ANOVA analysis results.

Table 3. Board Gender Diversity One-way ANOVA against Time

Source	Sum of Square	Df	Mean Squares	F	Sig.
Between groups	0.1212	9	0.0135	1.11	0.3581
Within groups	4.0199	330	0.0122		
Total	4.1411	339	0.0122		

Bartlett's test for equal variances: chi2 (9) = 0.2698, Prob>chi2 = 1.000

4.1.1. Lowess Smooth Plot Annual Mean Board Gender Diversity

The Lowess smooth plot annual board gender diversity depict a steady growth from slightly above a ratio of 0.12 in the year 2008 and closes at a ratio of 0.18 in the year 2017. From Figure 1, shows years 2011, 2014 and 2016 appear to be off the lowess smooth plot line.

4.1.2. Average Board Gender Diversity

The study carried out another analysis depicting average board gender diversity per individual bank over the period. Figure 2 show how the average individual banks had a ratio of women on the board during the ten-year period under study. All the tier one commercial banks comprising 8 banks had a ratio ranging from a ratio of 0.1 to 0.3 of board gender diversity during the period under study. This imply that all large commercial banks had at least a women board member in the board during the period. This also means that they all met the requirement of diversity as stipulated by the regulator [8]. The medium commercial banks whose assets range between 1 percent and 5 percent had a ratio ranging from zero to 0.3 during the period under study. This means that in this group of commercial banks, there were some commercial banks which did not embrace board gender diversity during the period under review.
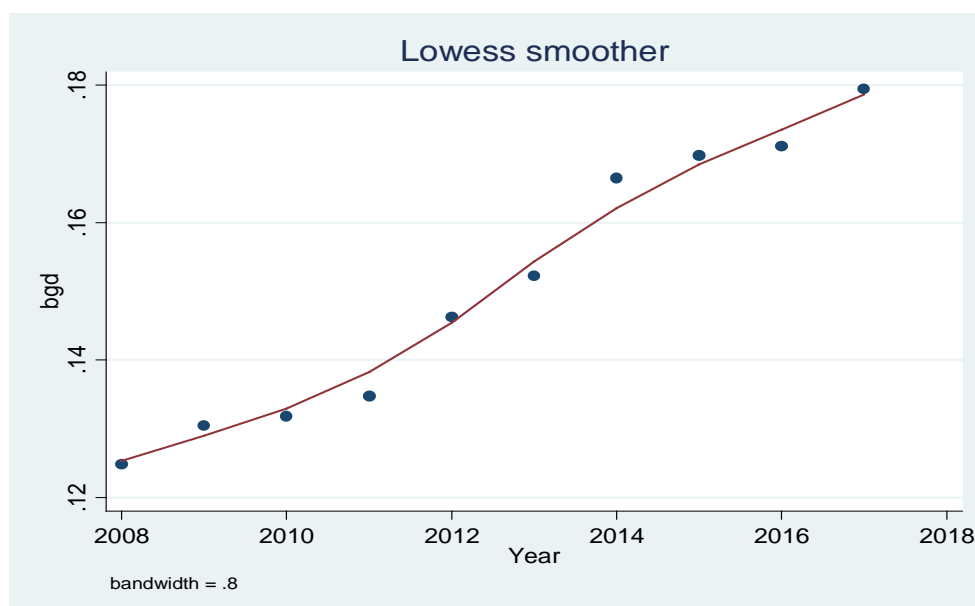

Figure 1. Lowess Smooth Plot Annual Mean Board Gender Diversity

Small commercial banks whose total assets were below 1 percent had a ratio of average board gender diversity ranging from zero and 0.3 over the period under study. This imply that some small commercial banks had not embraced board gender diversity during the period. On average, the banks had a ratio of board gender diversity ranging from zero to 0.35 during the period. This result show that the majority of the commercial banks which had not embraced board gender diversity were from the small commercial banks. In summary, seven commercial banks had not embraced gender diversity in terms of having a female board member as stipulated in the [8]. Figure 2 show at glance the average ratio board gender diversity of individual banks over the period.
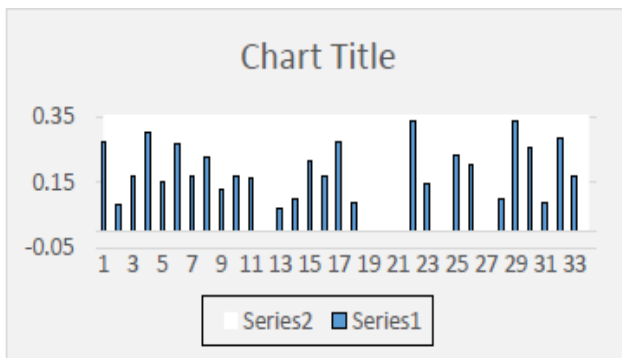

Figure 2. Average Board Gender Diversity Per Bank

The study performed growth trend on the board gender diversity. Fourteen of the commercial banks (3, 4, 5, 6 7, 8, 9, 11, 13 15, 18, 25, 28, 30 and 31) surveyed show an increase over the period. While, banks 1, 2, 10, 12, 14, 16, 17, 19, 20, 21, 22, 23, 24, 26, 27, 29, 32, 33 and 34 show no growth at all. This imply that some banks increased numbers of women board members while in other boards there was no change over the period under study. Appendix I depict the annual mean board gender diversity over the period.

4.1.3. Overall Descriptive Analysis

In regard to board gender diversity, the coefficient of variation was 0.7333 which translate to 73.33 percent. The higher the percentage the higher the dispersion from the mean. This imply that the panel data had a dispersion of 73.33 percent from the mean. The mean had a ratio of 0.1507 which means in every six directors you have one female director on average. The board gender diversity had a variability of 0.1105 which imply that there was no much variability of the board gender diversity in the period. Board gender diversity had a negative skewness of 0.0280 which imply that the left tail is longer than the right tail while kurtosis had 1.8494 which is below three. This imply that there was less data in the extreme of the tail. Table 4 overall descriptive analysis for model variables.

Table 4. Overall Descriptive Analysis

Variables	CV	Mean	Std. Dev.	Skewness	Kurtosis	Obs.
ROE	1.6864	0.1298	0.2188	-2.1603	11.2012	340
BGD	0.7333	0.1507	0.1105	-0.0280	1.8494	340

4.2. Normality Test

The study carried out Shapiro-Wilk test on the panel data with the objective of determining whether or not the data is normally distributed since the sample size is less than 50 [36]. Shapiro-Wilk test is also preferred due to its power properties considered best [37]. Usually Shapiro test is used when examining the fundamental assumptions of univariate normality. In carrying out the Shapiro test, the theoretical cumulative distribution is compared with the observed cumulative distribution data. The stated null hypothesis that the data is normally distributed against an alternative hypothesis that the data is not normally distributed.

From the results, when p-value exceeds 0.05, H_0 is not rejected and H_1 is rejected, if the p-value is less than 0.05, H_0 is rejected and H_1 is then accepted that data was not normal [38]. Table 5 Shapiro-Wilk Test results.

Table 5. Shapiro-Wilk Test for Normality

Shapiro-Wilk W Test for Normal Data				
Variable	Obs	W	V	Z	Prob>z
ROE	340	0.8409	37.8850	8.5830	0.0000
BGD	340	0.9646	8.4220	5.0320	0.0000

4.3. Multicollinearity Test

The Variance Inflation Factor (VIF) test was applied to test for multicollinearity in the model. When VIF exceeds 10 then there is a serious multicollinearity [39]. From the mean variance inflation factor, the results posit that the mean value of VIF is equal to 1.11 by fixed effects regression model. A Variance Inflation Factor with a value of 1 imply that there existed low level of collinearity between the independent variable. Table 6 multicollinearity test.

Table 6. Multicollinearity Test

	Model	
Variable	VIF	1/VIF
BGD	1.11	0.9009

4.4. Unit Root/Stationarity Test

The study applied the panel unit root test to determine the order of integration of the study variable. The test was carried out after the regression in order to determine whether the variables are stationary or non-stationary.

The results of the test are presented in Table 7. From the result under the Im-Pesaran-Shin Unit-root test and harris-Tzavalis Unit-root test for BGD have P-values less than 0.05 imply rejection of null hypothesis and adopting alternative hypothesis that data was stationary across all levels.

Table 7. Unit Root / Stationarity Test Results

	Levin-Lin-Chu Unit-root test	Im-Pesaran-Shin Unit-root test	Harris-Tzavalis Unit-root test
ROE	-11.4875	-3.2734	-0.0188
	0.0000	0.0005	0.0000
BGD	6.0902	-3.5711	0.2429
	1.0000	0.0002	0.0155

4.5. Correlation Analysis

Table 8 displays the Pearson-Wise correlation coefficient values between dependent (ROE) and independent variable (board gender diversity). Examination of the correlation coefficients helps in accepting or rejecting the null hypothesis that there is no correlation between the explanatory variable. The degree of the correlation between two variables ranges between +1 and -1. A correlation of +1 implies that there is perfect positive linear relationship between variables hence problem of multicollinearity (Sekran, 2003). On overall the correlations were below 1. Therefore, the variables can be used. Table 8 Pearson-Wise correlation coefficient matrix.

Table 8. Pearson-wise Correlation Coefficient Matrix

	ROE	BGD
ROE	1.0000	
BGD	-0.0400	1.0000
	0.4620	

Table 8 above show the statistical correlation among the variables. According to [40]. Values of correlation which are not close to -1 or 1 are an indication that the factors are exceedingly different measures of separate values. They further posit that the independent and the dependent variables are not correlated. Table 8 show that board gender diversity was negatively correlated with ROE. The study concluded that board gender diversity had a negative relationship with ROE.

4.6. Diagnostic Tests for Random Effects, Fixed Effects or Pooled OLS Models

The study applied diagnostic tests to determine the regression model of the study. Various estimation approaches were applied to the panel data, including; fixed effects model (FEM), pooled OLS and random effect model (REM). The study carried out the following panel data diagnostics tests to identify the best regression model for the current study.

4.7. Random Effect Model or Fixed Effect Model-Hausman Test

Based on the multivariate analysis results, the study tested the hypothesis Ho: Difference in coefficient not systematic and drew conclusions therefrom. The study adopted and applied a multiple panel data regression model. To determine which model to use, Hausman test was applied to determine whether fixed effects model or random effects model in panel data was to be used [41]. To choose, the appropriate model between random effect model and fixed effect model, Hausman test was done to ensure validity and reliability of the estimated model parameters.

Table 9 show the results of the Hausman test. The result show chi2 value of 16.03 and p-value of 0.0030 which is less than 5 percent significance level. We therefore reject the null hypothesis Ho: difference in coefficient not systematic in favour of the alternative hypothesis that difference in coefficient was systematic. In conclusion, the

test found that there is presence of heterogeneity problem meaning that we adopt the fixed effects model and drop the random effects model for board gender diversity. Table 9 Hausman test results model for board gender diversity.

Table 9. Hausman Test Results for Model

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed	Random.	Difference	S.E.
BGD	-0.7169	-0.7198	0.0029	0.2547

chi2 (4) = 16.03   Prob>chi2 = 0.0030.
Ho: difference in coefficients not systematic.

4.8. Hypothesis Testing

The study was based on the following hypothesis:

Ho1: Gender Diversity in Board Membership has no Significant Influence on Financial Performance of Commercial Banks in Kenya.

The study sought to ascertain the influence of board gender diversity on return on equity of commercial banks in Kenya. Bivariate model was used to ascertain the influence of the board gender diversity on the return on equity of the Kenyan commercial banks. Table 10 depicts fixed effect model regression results for board gender diversity across time. The results show board gender diversity had a negative and insignificant effect on return on equity across time (β=-0.1964, p= 0.2069). This imply that board gender diversity had a negative and insignificant influence on return on equity across time. This means that for every additional female board member had insignificant influence on ROE across time. In regard to time, all years had a positive and significant heterogeneous on return on equity across time except 2017 which do not have significant heterogeneity on return on equity across time. This study is in support of [42] and [32] who found board gender diversity had a negative and insignificant influence on firm performance of Nigerian firms. Reference [4] also found board gender diversity had insignificant influence on firm performance and recommended enhancement of gender diversity to between 30 and 35 percent of the board composition. However, the study contradicted [14] who found board gender diversity had a positive and significant influence on firm performance while [43] found board gender diversity had insignificant influence on bank financial performance. However, they found that higher female proportion in board had a better performance of the firm. Table 11 fixed effect regression model on board gender diversity across time. The fixed effect regression model on board gender diversity across time is fitted as follows:

$$
\begin{aligned}
Y = &-0.1964(BGD) + 0.1472(Y2008) + 0.1424(Y2009) \\
&+0.1879(Y2010) + 0.2180(Y2011) + 0.1648(Y2012) \\
&+0.1897(Y2013) + 0.1883(Y2014) + 0.1602(Y2015) \\
&+0.1253(Y2016) + 0.0731(Y2017)
\end{aligned}
\tag{2}
$$

Where:
Y_{it} = return on equity,
β_1= coefficient
X_{3it} = board gender diversity and
μ_1= error term.

Table 10. Fixed Effect Model on Board Gender Diversity across Time

	Value	Std. Error	t-value	p-value
BGD	-0.1964	0.1534	-1.2648	0.2069
Y2008	0.1472	0.0425	3.4643	0.0006
Y2009	0.1424	0.0430	3.3113	0.0010
Y2010	0.1879	0.0432	4.3534	0.0000
Y2011	0.2180	0.0434	5.0172	0.0000
Y2012	0.1648	0.0443	3.7170	0.0002
Y2013	0.1897	0.0448	4.2330	0.0000
Y2014	0.1883	0.0460	4.0977	0.0000
Y2015	0.1602	0.0462	3.4687	0.0006
Y2016	0.1253	0.0462	2.7102	0.0071
Y2017	0.0731	0.0469	1.5591	0.1199

The second analysis was the fixed effect regression model on board gender diversity across peer. Table 11 depict the results of the analysis. The board gender diversity had a negative but significant effect on return on equity across peer (β=-0.4297, p= 0.0010). This imply that board gender diversity had a negative but significant influence on return on equity across peer. This means that for every additional female board member return on equity across peer declines by 0.4297 units. In regard to individual groups, large commercial banks had a positive and significant heterogeneity on return on equity across peer (β=0.4400, p= 0.0000). Medium commercial banks had a positive and significant heterogeneity on return on equity across peer (β=0.2135, p= 0.0000). Lastly, small commercial banks had a positive and significant heterogeneity on return on equity across peer (β=0.0726, p= 0.0364). Table 11 fixed effect model on board gender diversity across peer. The fixed effect regression model on board gender diversity across peer is fitted as follows:

$$Y = -0.4297(BGD) + 0.4400(LB) + 0.2135(MB) + 0.0726(SM) \quad (3)$$

Where:
Y_{it} = return on equity,
β_1= coefficient
X_{1it}= board gender diversity and
μ_1= error term.

Table 11. Fixed Effect Model on Board Gender Diversity across Peer

	Value	Std. Error	t-value	p-value
BGD	-0.4297	0.1293	-3.3242	0.0010
LB	0.4400	0.0423	10.4072	0.0000
MB	0.2135	0.0395	5.4038	0.0000
SB	0.0726	0.0345	2.1013	0.0364

The third fixed effect regression model on the board gender diversity across banks was carried out. Table 12 depict the results of the fixed effect model on board gender diversity across banks. The results show that board gender diversity had a negative but significant effect on return on equity across banks (β=-0.9110, p= 0.0000). This imply that board gender diversity had a negative but significant influence on return on equity across banks. This means that for every additional female director return on equity declines by 0.9110 units across banks. On individual banks, most commercial banks except bank-16, bank-24 and bank-31 had a positive and significant

heterogeneity on return on equity across banks. Table 13 fixed effect model on board gender diversity across banks. The fixed effect regression model on board gender diversity across banks is fitted as follows:

$$
\begin{aligned}
Y = &-0.9110(BGD) + 0.4948(B01) + 0.3194(B02) \\
&+ 0.5246(B03) + 0.6862(B04) + 0.4128(B05) \\
&+ 0.6061(B06) + 0.4879(B07) + 0.3827(B08) \\
&+ 0.3778(B09) + 0.4381(B10) + 0.2683(B11) \\
&+ 0.2370(B12) + 0.2376(B13) + 0.3481(B14) \\
&+ 0.2900(B15) + 0.0888(B16) + 0.2821(B17) \\
&+ 0.0062(B18) + 0.0981(B19) + 0.2536(B20) \\
&0.1992(B21) + 0.3723(B22) + 0.3905(B23) \\
&+ 0.0566(B24) + 0.2361(B25) + 0.1553(B26) \\
&+ 0.0684(B27) + 0.2068(B28) + 0.2150(B29) \\
&0.3256(B30) + 0.2759(B31) + 0.0414(B32) \\
&+ 0.2272(B33) + 0.1058(B34)
\end{aligned}
\quad (4)
$$

Where:
Y_{it} = return on equity,
β_1= coefficient
X_{3it}= board gender diversity and
μ_1= error term.

Table 12. Fixed Effect Model on Board Gender Diversity across Banks

	Value	Std. Error	t-value	p-value
BGD	-0.9110	0.2225	-4.0939	0.0001
bank-01	0.4948	0.0624	7.9286	0.0000
bank-02	0.3194	0.0226	14.1144	0.0000
bank-03	0.5246	0.0354	14.8268	0.0000
bank-04	0.6862	0.0610	11.2402	0.0000
Bank-05	0.4128	0.0366	11.2640	0.0000
bank-06	0.6061	0.0615	9.8530	0.0000
Bank-07	0.4879	0.0394	12.3738	0.0000
Bank-08	0.3827	0.0533	7.1830	0.0000
Bank-09	0.3778	0.0346	10.9087	0.0000
Bank-10	0.4381	0.0371	11.8075	0.0000
Bank-11	0.2683	0.0366	7.3340	0.0000
Bank-12	0.2370	0.0158	15.0439	0.0000
Bank-13	0.2376	0.0249	9.5598	0.0000
Bank-14	0.3481	0.0275	12.6690	0.0000
Bank-15	0.2900	0.0489	5.9292	0.0000
Bank-16	-0.0888	0.0421	-2.1098	0.0357
Bank-17	0.2821	0.0636	4.4319	0.0000
Bank-18	0.2262	0.0237	9.5514	0.0000
Bank-19	0.0981	0.0146	6.7096	0.0000
Bank-20	0.2536	0.0211	12.0292	0.0000
Bank-21	0.1992	0.0210	9.4869	0.0000
Bank-22	0.3723	0.0760	4.8967	0.0000
bank-23	0.3905	0.0350	11.1658	0.0000
bank-24	-0.0566	0.0150	-3.7684	0.0002
bank-25	0.2361	0.0521	4.5313	0.0000
Bank-26	0.1553	0.0464	3.3506	0.0009
Bank-27	0.0684	0.0146	4.6885	0.0000
bank-28	0.2068	0.0256	8.0760	0.0000
Bank-29	0.2150	0.0780	2.7547	0.0062
Bank-30	0.3256	0.0564	5.7724	0.0000
bank-31	-0.2759	0.0243	-11.3456	0.0000
bank-32	0.0414	0.0707	0.5858	0.5584
bank-33	0.2272	0.0383	5.9362	0.0000
bank-34	0.1088	0.0157	6.9492	0.0000

Table 13 show a summary of effect of board gender diversity across time, across peer and across banks. From the results, board gender diversity had a negative coefficient across time, across peer and across banks. In regard to p-value, board gender diversity had insignificant effect on return on equity across time while it had a significant effect on return on equity across peer and across banks. In general board gender diversity had a negative but significant effect on return on equity. The alternative hypothesis was therefore accepted that board gender diversity had a negative but significant influence on return on equity across banks. This study was in support of [4] who found board gender diversity had a negative but significant influence on performance of Nigerian listed firms at the Nigerian Stock Exchange. However, the study contradicted that of [43] who concluded board gender diversity had no influence on deposit taking banks of Nigeria.

Table 13. Summary of Board Gender Diversity

		Time	Peer	Banks
BGD	Coefficient	-0.1964	-0.4297	-0.9110
	p-value	0.2069	0.0010	0.0000

5. Conclusion and Recommendation

The objective was to ascertain the influence of board gender diversity on the return on equity of commercial banks in Kenya. Women board members had a negative and insignificant influence on return on equity across time. However, in regard to across peer and across banks, board gender diversity had a negative but significant influence on return on equity.

5.1. Conclusion

Based on the analysis the study concluded that board gender diversity had a negative but significant influence on return on equity on commercial banks in Kenya. Reference [4] also found board gender diversity had insignificant influence on firm performance and recommended enhancement of gender diversity to between 30 and 35 percent of the board composition in the Nigerian listed firms. However, the study contradicted [14] who found board gender diversity had a positive and significant influence on firm performance while [43] found board gender diversity had insignificant influence on bank financial performance. However, they found that higher female proportion in board had a better performance of the firm.

5.2. Policy Recommendations

The study concluded that board gender diversity had a negative but significant influence on the return on equity of commercial banks in Kenya. Based on these findings, a more varied board of directors enhances good understanding of markets that are differentiated in terms of growing creativity and innovativeness, improved decision-making provided evaluation of other available alternatives. Since some commercial banks had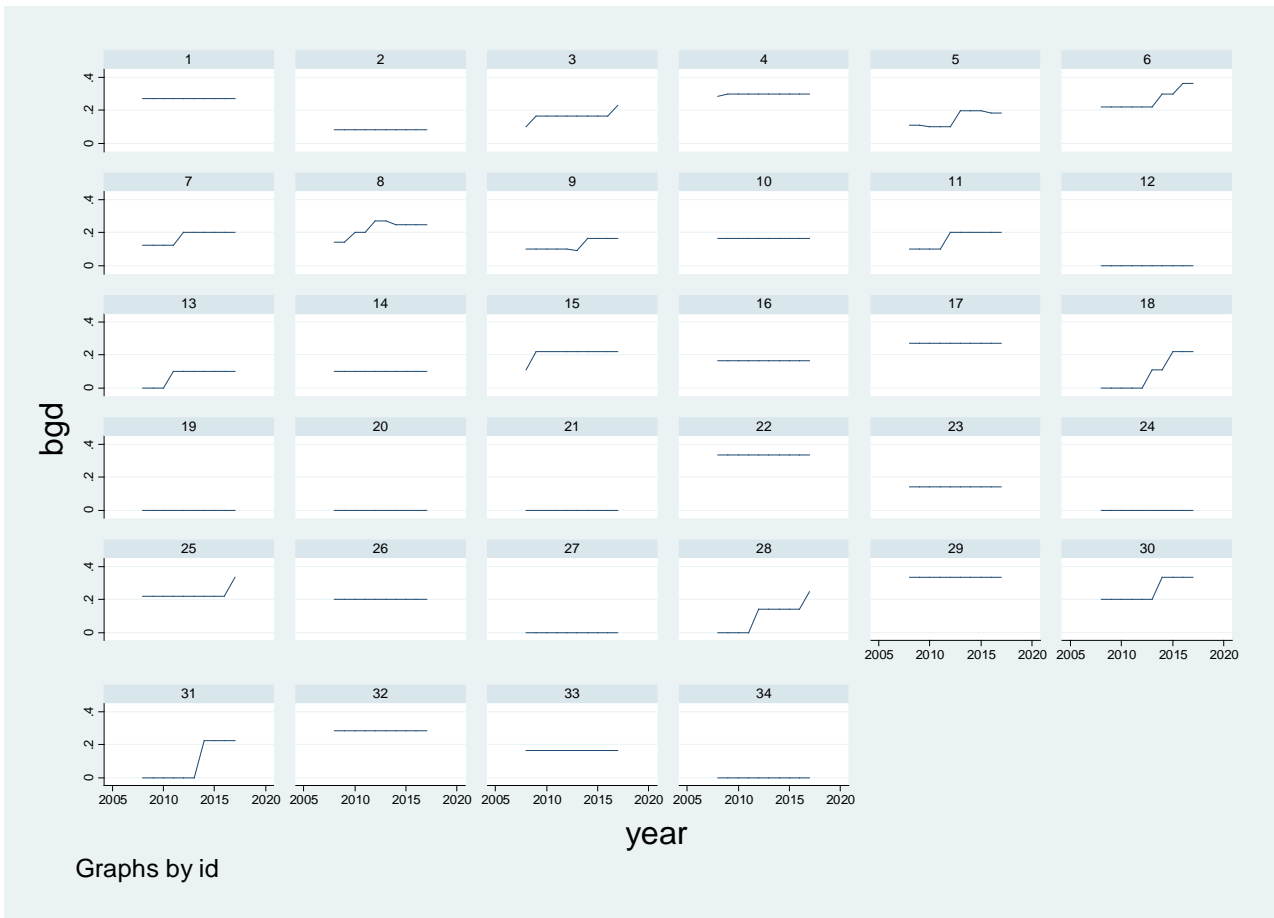 not embraced gender diversity, the government should take steps to enact mandatory laws to increase female membership in the board. This action will be in line with that taken in Spain where enactment raised women board membership by 98 percent between the years 2005 and 2009 after enactment [44].

References

[1] Brown, J. R., & Casey, L. L. (2012). *Corporate governance: Cases and materials.* Oxford: Oxford University Press.

[2] Wessels, R., & Wansbeek, T. (2014). What is the relation (if any) between a firm's corporate governance arrangements and its financial performance? CESifo Working paper 4599.

[3] Blair, R. D., & Knight, T. (2013). *Compliance with corporate policy: An economic approach, Managerial and Decision Economics*, John Wiley and Sons, Ltd.

[4] Akpan, E. O., & Amran, N. A. (2014). Board characteristics and company performance: Evidence from Nigeria. *Journal of Finance and Accounting*, 2(3), 81-89.

[5] King, R. G., & Levine, R., (1993). Finance, entrepreneurship, and growth theory and evidence. *Journal of Monetary Economics, 32*, 513-542.

[6] Aaron, J. R., Harris, M. L., McDowell, W. C., & Cline, B. N. (2014). Optimal CEO incentive contracts: A prospect theory explanation. *Journal of Business Strategy*, 31(2), 336-357.

[7] Adams, R. & Ferreira, D. (2009). Women in the boardroom, and their impact on governance and performance. *Journal of Financial Economics, 94*(2), 291-309.

[8] CBK, (2013). *Prudential guidelines for institutions licensed under the Banking Act.* Nairobi: CBK.

[9] Gathaiya, R. N. (2017). Analysis of issues affecting collapsed banks in Kenya from 2015-2016. *International Journal of Management & Business Studies, 7*(3), 9-15.

[10] Jensen, M. C. (2001). Value maximization, stakeholder theory, and the corporate objective function. *European Financial Management, 7*(3), 297-317.

[11] Mallin, C. A. (2007). *Corporate Governance*. (2nd ed.). Oxford: Oxford University Press.

[12] Abdullah, H., & Valentine, B. (2009). Fundamentals and Ethics Theories of Corporate Governance. *Middle Eastern Finance and Economics, 4,* 88-96.

[13] Zhang, J. Q., Zhu, H., & Ding, H. B. (2013). Board composition and corporate social responsibility: an empirical investigation in the post Sarbanes Oxley era. *Journal of Business Ethics, 114*(3), 381-392.

[14] Ntim, C. G. (2015). Board diversity and organizational valuation: Unravelling the effect of ethnicity and gender. *Journal of Management & Governance, 19*(1), 167-195.

[15] Barako, D. G., & Brown, A. M. (2008). Corporate social reporting and board representation: Evidence from the Kenyan banking sector, *Journal of Management and Governance, 12*, 309-324.

[16] Ren, T., & Wang, Z. (2011). Female participation in TMT and firm performance: Evidence from Chinese private enterprises. *Nankai Business Review International, 2*(2), 140-157.

[17] Darmadi, S. (2013). Do women in top management affect firm performance Evidence from Indonesia? Corporate Governance: *The International Journal of Business in Society, 13*(3), 288-304.

[18] Ujunwa, A. (2012). Board characteristics and the financial performance of Nigerian quoted firms. *Corporate Governance: The International Journal of Business in Society, 12*(5), 656-674.

[19] Wachudi, E. J., & Mboya, J. (2012). Effect of Board Gender Diversity on the Performance of Commercial Banks in Kenya. *European Scientific Journal, 8*(7), 128-148.

[20] Campbell, K., & Minguez-Vera, A. (2008). Gender diversity in the boardroom and firm financial performance, *Journal of business ethics, 83*(3), 435-451.

[21] Johl, S. K., Kaur, S., & Cooper. (2015). Board characteristics and firm performance: Evidence from Malaysian public listed firms. *Journal of Economics, Business and Management*, 3, 239-243.

[22] Abdullah, S. N., Ismail, N. I., & Nachum, L. (2016). Does women on board create value? The impact of societal perceptions and corporate governance in Emerging Markets. *Strategic Management Journal, 37*, 466-476.

[23] Marinova, J., Plantenga, L., & Remery, C. (2010). Gender diversity and firm performance: Evidence from Dutch and Danish boardrooms. *The Journal of Human Resource Management, 27*(15), 1777-1790.

[24] Saleh, M. (2016). Effects of board of directors' attributes on the financial performance of listed deposit money banks in Nigeria. *Developing Country Studies, 2*(10), 1-10.

[25] Terjesen, S., Couto, E. B., & Francisco, P. M. (2015). *Does the presence of independent and female directors impact firm performance? A multicounty study of board diversity.* New York: Springer Science Business Media.

[26] Ongore, V. O., K'Obonyo, P. O., Ogutu, M., & Bosire, E. M. (2015). Board composition and financial performance: empirical analysis of companies listed at the Nairobi Securities Exchange. *International Journal of Economics and financial Issues, 5*(1), 23-43.

[27] Mohamed, A. B., & Atheru, M. G. (2017). Corporate governance and financial performance of mobile service providers in Kenya: A case of Airtel Kenya: Ltd. *International Journal of Finance, 2*(6), 1-34.

[28] Arora, A., & Sharma, C. (2015). Impact of firm performance on board characteristics: empirical evidence from India. *Kozhikode Society & Management Review, 4* (1), 53-70.

[29] Bebeji, A., Mohammed, A., & Tanko, M. (2015). The effect of board size and composition on the financial performance of banks in Nigeria. *African Journal of business Management, 9*(16), 590-598.

[30] Yasser, O. R., Entebang, H., & Mansor, S. A. (2015). Corporate governance and firm performance in Pakistan: The case of Karachi Stock Exchange. *Journal of Economics and International Finance, 3*(8), 482-491.

[31] Adebayo, O. S., Olusola, A. G., & Abiodun, O. F. (2013). Relationship between Corporate Governance and Organizational Performance: Nigerian Listed Organizations Experience. *International Journal of Business and Management Invention* 2(9), 1-6.

[32] Dabor, A. O., Isiavwe, D. T., Ajagbe, M. A., & Oke, A. O., (2015). Impact of corporate governance on firms' performance. *International Journal of Economics, Commerce and Management, 3*(6), 634-653.

[33] Mamatzakis, E., & Bermpei, T. (2015). The effect of corporate governance on the performance of US investment banks. *Financial Markets, Institutions and Instruments, 24*(2-3), 191-239.

[34] Mandala, N., Kaijage, E., Aduda, J & Iraya, C. (2018). An empirical investigation of the relationship between board structure and performance of financial institutions in Kenya. *Journal of Finance and Investment Analysis, 7*(1), 37-57.

[35] Carter, D., D'Souza, F. P., Simkins, B. J., & Simpson, W. G. (2007). The diversity of corporate board committees and firm financial performance. *Available at SSRN 972763.*

[36] Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality (Complete sample). *Biometrika, 52*(3/4), 591-611.

[37] Mendes, M & Pala, A., (2003). Type 1 error rate and power of three normality tests. *Pakistan Journal of Information and Technology, 2*(2), 135-139.

[38] Kilungu, W., Morck, R., Shleifer, A. & Vishny, R. (2015) *Research Methods in the Social Sciences Oaks*: Sage Publications.

[39] Alagathurai, A., & Nimalathashan, B. (2013). Corporate governance and banking performance: A comparative study between private and state banking sector in Sri Lanka. *Ajanthan, A., S. Balaputhiran, and B. Nimalathashan." Corporate Governance and Banking Performance: a Comparative Study between Private and State Banking Sector in Sri Lanka." European Journal of Business and Management, 5*(2013), 92-100.

[40] Hope-Hailey, V., Farndale, E., & Kelliher, C. (2010). Trust in turbulent times: organizational change and the consequences for intra-organizational trust. *Research methods for business students*, 336-357.

[41] Gujarati, D. N., (2007). *Basic Econometrics (4th Ed.)*, the McGraw-Hill Companies, North America.

[42] Temile, S. O., Jatmiko, D. P., & Hidayat, S., (2018). Gender diversity, earnings management practices and corporate performance in Nigerian Quoted Firms. *International Journal of Economics, Commerce and Management, 6*(1), 1-14.

[43] Odudu, A, S., James, O. A., & James, O. U. (2016). Board characteristics and financial performance of deposit money banks in Nigeria. *International Journal of Business and Social Science, 7*(9), 159-173.

[44] Reguera-Alvarado, N., De Fuentes, P., & Laffarga, J., (2017). Does board gender diversity influence financial performance? Evidence from Spain. *Journal of Business ethics, 141*(2), 337-350.

Appendix I: Annual Mean Board Gender Diversity of Commercial Banks in Kenya

Graphs by id