

EFFECT OF BOARD CHARACTERISTICS ON FINANCIAL PERFORMANCE OF THE BANKING SECTOR IN KENYA: CASE OF LISTED COMMERCIAL BANKS IN NAIROBI SECURITIES EXCHANGE

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ABSTRACT

The study examined the effect of the board of directors' (BOD) characteristics on the financial performance of the banking sector in Kenya by looking at the listed commercial banks in the Nairobi Securities Exchange (NSE). It used the director independence, board of director financial expertise, and multiple directorships as proxies of board of directors characteristics of the 11 listed commercial banks in the NSE. The agency theory was used as the theoretical framework for the study. The sampling frame was the 11 listed commercial banks for the period 2009-2016 that were selected using judgmental sampling, while the unit of measure was the board of directors of the listed commercial banks in the NSE. Panel data was used to test the effect of the board of directors' characteristics on the financial performance of listed commercial banks in the NSE. The study revealed that the overall model is significant at 5% significance level with a p-value of 0.0283. The study further concludes that the more the board of directors is independent the more there is attainment of high return on assets (financial performance). It was found that a unit increase in director independence could result in 0.0198 increase in return on assets (financial performance). The study also concludes that an increase in number of board members with financial expertise could lead to increase in return on assets with specific reference to both fixed and random effects analyses by a factor of 0.246 and 0.290 respectively. This therefore implies that the more the number of board members with financial expertise the more the improved financial performance of the listed banks.

Key Words : *Board of director independence , Board financial expertise , Board multiple directorships , Financial performance, NSE*

Introduction

Licensed and listed commercial banks carry out their business operations in similar political, economic, social, technological, environmental and legislative surroundings. Despite the fact that they enjoy similar business environments, they report dissimilar financial performance results in terms of profits or losses emanating from their operations. Some commercial banks report constant increments in profits whereas others continually report losses leading to their collapse, placement in statutory liquidation or receivership by the government. The financial performance/profitability of the commercial banks is often associated with the poor strategic investment decisions and bad corporate governance practices that are associated with the board of directors. Disparities in the financial performance of listed commercial banks have prompted stakeholders to question the major causes of the disparities and try to suggest solutions that are meant to mitigate this outcome (Cho & Kim, 2007).

Shareholders and other stakeholders of listed commercial banks play a passive role in their management. The passive involvement creates information asymmetry which disadvantages the providers of resources. Because of the information gap and the inability of the principals to actively manage their investments in these entities, they entrust this role of management of the corporations to managers (agents). The providers of resources (shareholders) in addition appoint boards of directors to oversee the management of these entities on their behalf. For the appointed board of directors to strengthen corporate governance in terms of overseeing the agents' actions it is therefore expected that they have current and relevant characteristics (Mustapha & Ahmad, 2011). Many scholars in corporate governance like Carter and Lorsch (2004) are of the agreement that competent board of directors play a major role in strategic and investment decision making in the public and private entities. The strategic decisions made by the board of directors, in turn influences the performance of the entity in terms of profitability. For any competent board of directors to have an impact on a listed entity's financial performance it is therefore important for the stakeholders to identify the most relevant, effective important characteristics of the appointed board of directors and then make an assessment of the effect of these characteristics on the financial performance of these entities (Sarbanes-Oxley Act 2002).

Statement of the Problem

Whenever a corporation fails, the boards of directors are held culpable because it is expected to be the driver of strategy on behalf of the stakeholders. Examples of corporate failures in the international scene that have led stakeholders to question the effect of the board of directors on their financial performance include the USA corporations such as, the Enron Corporation scandal that came to light in 2001, World Com in 2002, Tyco in 2002, Satyam in 2009, Maxwell Publishing group, Holtzman, Berliner Bank, and HIH in Germany, Credit Lyonnais and Vivendi in France, Ansett Airlines and One Tel in Australia and Swissair in Switzerland, India's Satyam Computers among others.

The boards of directors were found culpable for the failure of each of these corporations (Hussin & Othman 2012; Abdul-Qadir & Kwambo, 2012). Following these corporate failures, stakeholders all over the world advocated for a major review of existing legislation by demanding more from the board of directors (Elson & Gyves, 2003). A major outcome of the stakeholder demands was the enactment of the Sarbanes-Oxley Act (SOX) of 2002 which recommended the appointment of effective BODs (Naidoo, 2002). Following in suit, the

Capital Markets Authority (CMA) in Kenya released the Code of Corporate Governance Practices for Issuers of Securities, for application by both listed and unlisted public companies (Republic of Kenya (ROK), 2015). Section 2.1 of the Code gives the guidelines on effective boards of directors. The code guides the process of BOD appointment, its composition, size and qualification in the listed corporations in the NSE. The section of the code further indicates that director independence, expertise, multiple directorships, board size, frequency of board meetings and tenure of the board are the relevant characteristics of effective board of directors (Republic of Kenya (ROK), 2015). Notwithstanding the existence of these legal instruments, and competent regulatory agencies in Kenya, the decision to place Dubai bank, Imperial bank and Chase bank respectively under receivership was a strong indication that the appointed board of directors was not effective in their monitoring role of the management which eventually translated to the poor financial performance of these commercial banks (Lewin, 2016).

Objectives of the Study

1. To examine the effect of board of director independence on the financial performance of commercial banks listed in the NSE.
2. To examine the effect of board financial expertise on the financial performance of commercial banks listed in the NSE.
3. To examine the effect of board multiple directorships on the financial performance of commercial banks listed in the NSE.

Literature Review

Theoretical Review

Agency Theory

Agency theory is grounded on the agent-principal relationship. Adam Smith (1776) in the Wealth of Nations concluded that economic value was purely motivated by the personal interest of managers. Adam Smith argued that the providers of resources (principals) are passively involved in the running of the entities where they have invested their resources. As a result of this inability to manage the entities, they hire qualified managers to manage on their behalf for a reward. The delegation of management by the principal to the agent for a reward leads to conflict of interest (Smith, 1981). Habbash (2010) presumed that the maximization of shareholder wealth is taken as the single most measure of the efforts of the board of directors in successful firm financial performance. Habbash therefore suggested several ways that can be used by the principal to evaluate the relationship between the principals and agents to verify how the critical objective of wealth maximization is achieved. The researcher indicated that the role of the board in monitoring the actions of the agent eventually reduce the agency or controlling costs and helps to solve the conflict of interest between the agents and the principals. Further Habbash (2010) suggested that boards of directors are expected to be independent, diverse in terms of skills, qualifications, experience, and gender balanced in order for them to be effective in their oversight role over the agents on behalf of the providers of resources.

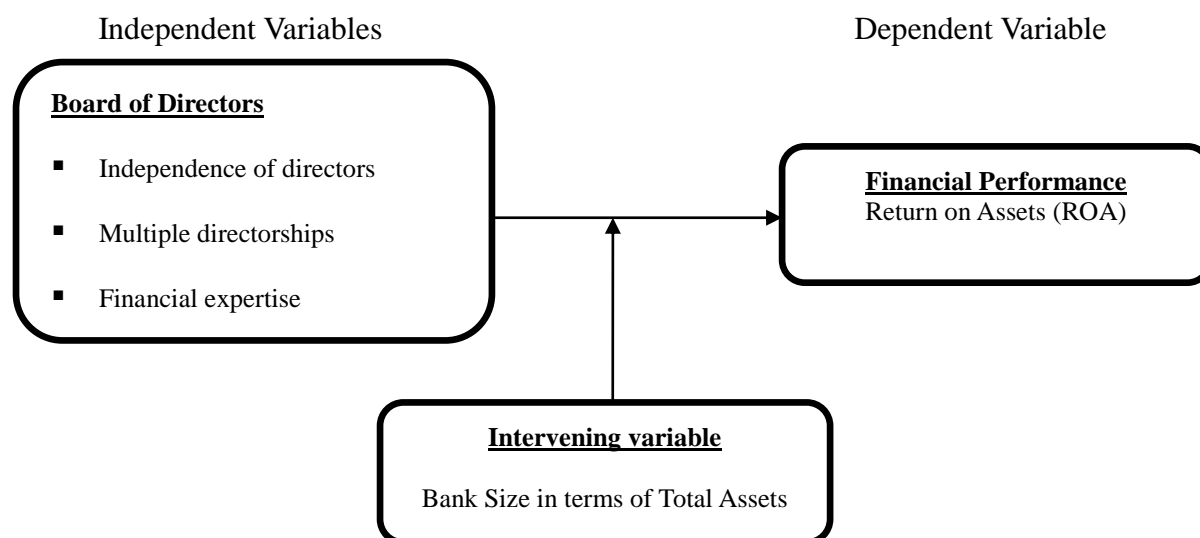
Stakeholders Theory

The stakeholder theory was adopted to fill the observed gap in the agency theory where only the firm shareholders are recognized. This was achieved by including several stakeholders (Sanda, Garba & Mikailu, 2005). The stakeholders' theory attempts to address the existing gap in agency theory by proposing that corporations have a social responsibility that requires them to consider the interest of all parties affected by the actions of the appointed managers (Sanda, Garba & Mikailu, 2005). According to the stakeholder theory, decisions made by the agents regarding the company affect different parties that have an interest in the company in addition to shareholders of the company. Hence, the managers should manage the company in order to benefit all the stakeholders (Fanta & Waka, 2013). The limitation that resulted from the agency theory therefore is what led to the stakeholder theory that expanded the interested parties to include all the stakeholders of the company (Fanta & Waka, 2013).

Resource Dependency Theory

According to Abdullah and Valentine (2009), resource dependency theory concentrates on the role of the board of directors which is the provision of access to resources needed by the firm. Resource dependency theory argues that the primary function of the board of directors is the provision of resources to the firm (Abdullah & Valentine, 2009). The board of directors is considered as a provider of resources to the firm, in terms of information, skills, business expertise, and access to key constituents such as suppliers, consumers, public policy makers, and social groups. The resource dependency theory suggests that the board of directors could be used as a mechanism to form links with the external environment in order to support the management in the areas where there is knowledge gap in order to ensure the achievement of organizational goals (Wang & Yen, 2009).

Figure 1.1: Theoretical Framework of Bank Financial Performance



Source: Own formulation based on Agency theory (Smith, 1981).

Empirical Review

Board of Directors

Studies by Kariuki, Njenga and Irungu (2017), Ngulumbu and Aduda (2017), Adams and Jiang (2017) Naseem, Xiaoming and Rehman (2017), Chemweno (2016), Ongore, Peter, Ogutu and Bosire (2015), identified several variables which can be used to proxy for board of directors effectiveness in public entities. Abbott, Daugherty, Parker and Peters (2016) explained that the effectiveness of the board of directors is their ability to execute their mandate independently in the institution in which they are dully appointed. Aier, Comprix, Gunlock and Lee (2005) suggested that the measure of board of directors' effectiveness is the ability of the board to reduce prior-period entity loss as a result of poor investment decisions. There is still no consensus in literature on the effect of the board of directors' characteristics on company financial performance due to conflicting outcomes of studies. Crutchley, Garner and Marshall (2002) report that large boards in poorly performing corporation was associated with subsequent performance improvement, while having a larger board in a high performing firm slowed subsequent performance improvement. Mishra and Nielsen (2000) found that pay-for-performance in the board was a better predictor of financial performance of the entity when there were fewer or shorter tenure independent directors in the board. Various studies indicate conflicting findings on the effect of director independence on firm financial performance.

Yasser, Mamun, Rodriqs and Rodriqs (2017) examined the association between the board of director structure and financial performance of Pakistani public listed companies in the Karachi Stock Exchange (KSE), using a sample of 100 indexed companies from 2009 to 2013. The accounting measure, market based measure and the economic value added measures of financial performance by using return on assets, Tobin's Q and economic profits while controlling for firm size which was taken as the natural logarithm of total assets were used. Pearson Correlation was used to measure the correlations of the independent variables on firm financial performance. The results indicated that the independence of board was negatively associated with financial performance in the sample companies. In agreement with prior studies, Ngulumbu and Aduda (2017) used a correlational survey design for the period (2010-2012) by means of proxy variables of board size, director independence, number of board committees, number of founder directors, gender mix, level of education of the directors and age of directors. The researchers used regression analysis and descriptive statistics to test the correlation between the proxy variables. Ngulumbu and Aduda (2017) reported that all the independent directors significantly affect the financial performance of the listed companies. Naseem, Xiaoming, Riaz and Rehman (2017), explored the impact of board of director characteristics on the financial performance of 1074 listed companies in the Pakistan Stock Exchange, using the board of director characteristics of board independence, audit committee independence, board size, frequency of meetings, gender diversity and executive directors' compensation for the period 2009 to 2015. The researchers used secondary data from the audited published financial statements and balance sheets of the sample companies with the accounting and market measures as indicators of financial performance. Panel data analysis was used for regression analysis, while firm size was used as the control variable. The researchers reported that the director independence was negatively associated with the firm financial performance.

Research Design and Methodology

The study made use of the descriptive study design because of the fact that the main interest of the study was to examine the nature of relationships between the board of directors and the financial performance of listed commercial banks. The general population for the study was all the licensed commercial banks in Kenya. According to the Central Bank of Kenya website, (<https://www.centralbank.go.ke/commercial-banks>) at December 2016 there were 42 licensed commercial banks in Kenya. The banking sector was selected as the target population due to the important role it plays in Kenya's achievement of the economic pillar of Vision 2030 through the creation of a vibrant and globally competitive financial sector promoting high-levels of savings and financing for Kenya's investment needs. The study made use of a checklist in order to obtain secondary data from the audited annual financial reports of the listed banks. The sample of the study was the 11 commercial banks that were continuously listed at the NSE, for the period, 2009-2016. The period selected for the study was significant as it coincided with the Central Bank of Kenya Prudential guidelines for institutions licensed under the Banking Act, issued under section 33(4) of the Banking Act in January 2013. The study focused on the listed commercial banks in Kenya because they carry out their operations in a similar way and are guided by similar legislation and constitutive instruments such as the Capital Markets (Amended) Act 2016, the Banking Act 2015, the Code of Corporate Governance Practices for Issuers of Securities to the public, 2015 and the NSE listing rules. From the total population of 42 licensed commercial banks 11 banks were selected because they met the selection criteria for the study. The criterion that was adopted was that the sample selected comprised of only the banks listed in the NSE and licensed to operate in Kenya. The study used descriptive statistics and panel data in the form of fixed and random effects, Multi-collinearity, normality tests and stationarity as well as heteroskedacity tests. The study used Stata version 12 to analyze the secondary data collected for the period 2009 to 2016.

Results

Descriptive Statistics

The results presented in table 1 shows that the average total assets as a measure of bank size was 7.014 with a standard deviation of 1.411 varying from a minimum of 4.985 to a maximum of 8.775. The results indicate that return on assets (ROA) as a measure of financial performance had an average of 2.982, a standard deviation of 1.203 with a minimum of -.94 and a maximum of 6.15. Results also show that on average director independence was 6.284 with a standard deviation of 2.51 fluctuating from a minimum of 2 to a maximum of 12. The analysis found that the average financial expertise was 0.966 with a standard deviation of 0.535 varying from a minimum of 0 to a maximum of 3. The results finally indicate that on average the multiple directorship for all the listed banks was 4.83 while the standard deviation was 1.889, with a minimum of 2 and a maximum of 11.

Table 1: Descriptive Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
totala~s	overall	7.013974	1.410575	4.984581	8.774692	N = 88
	between		.8948291	5.852562	8.18713	n = 8
	within		1.253902	4.74922	9.561701	T-bar = 11
roa	overall	2.982159	1.203125	-.94	6.15	N = 88
	between		.7274808	1.974667	4.35	n = 8
	within		.9722498	.0674925	6.242504	T-bar = 11
ind	overall	6.284091	2.509517	2	12	N = 88
	between		1.965372	4	9.5	n = 8
	within		1.987388	1.450758	10.08409	T-bar = 11
fexp	overall	.9659091	.5349587	0	3	N = 88
	between		.225935	.6666667	1.416667	n = 8
	within		.4915816	-.1007576	2.899242	T-bar = 11
mdr	overall	4.829545	1.888998	2	11	N = 88
	between		2.915476	2	11	n = 8
	within		0	4.829545	4.829545	T-bar = 11

Fixed Effects Regression

In statistical analysis, fixed effects are variables that are constant across individuals. The study therefore used this model to remove omitted variable bias by measuring changes within groups across time. The results in Table 4.2 on fixed effect analysis indicate that there was a total variation of 18.68% that explains financial performance among the studied banks while the remaining 81.32% may have been factored in by other variables that did not form part of the study. Regarding the between results, the study found a high R square of 69.86% of variable variations with financial performance as measured by return on assets while R square within themselves of 5.83% was realized. R squared for within the firms and overall were too low indicating the need to add more independent variables to improve the model so as to have a relationship between board characteristics and financial performance devoid of bias. This could be interpreted to imply that all the independent variables in the multiple regression results better explain financial performance of commercial banks listed at Nairobi Securities Exchange between themselves than within and overall which had very low variations in the commercial banks. The study revealed that the model is significant at 5% significance level with a p-value of 0.0283. This means that all the variables used in the model are statistically significant in explaining the financial performance of commercial banks listed at the NSE. The study further indicates that a unit change in total assets leads to a unit decrease in financial performance which is measured by return on assets by a factor of -0.1835. The results are in contrast to findings of Mustapha and Ahmad (2011) whose results indicated that there was a 1.1890 unit increase in return on assets as a result of increase in total assets by similar factor.

The authors assert the need for firms to increase their total assets which ultimately leads to an increase financial performance. Dahmash (2015) results however indicated that the effect of total firm assets on firm profitability in the banking sector was insignificant by a factor of

0.078. Further, a unit increase in director independence could result to a 0.0198 increase in financial performance measured by return on assets. The findings are in concurrence with Section 2.4, of the Code of Corporate Governance Practices for Issuers of Securities to the public, 2015 which stipulates that independent directors should bring independent and objective judgment to the board of directors in order to mitigate risks arising from conflict of interest or undue influence from interested parties and ultimately increase performance. Again the study found that a unit increase in financial expertise could lead to an increase in return on assets by a factor of 0.2464. In conformity, Günter, Malmendier and Tate (2008) argue that presence of more than one director with financial expertise enhances the financial reporting and consequently financial performance.

Regarding significance level, the study found that total assets was statistically significant to financial performance, measured by return on assets with a p-value of 0.042 since it was less 5% level of confidence. In contrast, Qureshi (2007) states that an increase in total assets has significant and statistical relationship with financial performance as measured by return on capital employed (ROCE). This was affirmed by the author's study which found a total asset statistical significance level of 0.012. Kumar and Kaur (2016) using linear regression and cross sectional analysis reported varied results by concluding that there was a positive relationship between firm size and financial performance. However, director independence was statistically insignificant to return on assets since the p-value was found to be 0.718. Further, the study established that financial expertise was statistically insignificant to return on assets as its p-value was 0.275. The results affirms the findings by Randoy and Jenssen (2004) who found a negative association between board independence and firm financial performance. As established, the multiple directorships were rejected by fixed effect models as a result of multi-collinearity thus the inclusion of diagnostics.

Table 2: Fixed Effects Analysis

```

Fixed-effects (within) regression      Number of obs      =      88
Group variable: mdr                   Number of groups   =      8

R-sq:  within = 0.0583                Obs per group: min =      3
      between = 0.6986                avg =      11.0
      overall  = 0.1868                max =      29

corr(u_i, Xb) = 0.3976                F(3, 77)           =      1.59
                                           Prob > F            =      0.0283
    
```

roa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
total assets	-.183452	.0886484	-2.07	0.042	-.3599734	-.0069305
ind	.0198464	.0547442	0.36	0.718	-.0891632	.128856
fexp	.2464466	.2241318	1.10	0.275	-.1998569	.6927501
_cons	3.906125	.6655715	5.87	0.000	2.580803	5.231447
sigma_u	.58164741					
sigma_e	1.0028842					
rho	.25170456 (fraction of variance due to u_i)					

F test that all u_i=0: F(7, 77) = 3.28 Prob > F = 0.0042

Key: *mdr* (multiple directorship), *roa* (return on assets), *ind* (board independence), *fexp* (financial expertise)

The equation of fixed effect analysis therefore takes the form of:

$$ROA_{it} = -0.183452_1 \text{total assets}_{it} + 0.0198464_2 \text{ind}_{it} + 0.2464466_3 \text{fexp}_{it} + \epsilon_{it}$$

Random Effects Model

The random effects model is a special case of the fixed effect model. It was utilized to assist in controlling for unobserved independent variables when this heterogeneity is constant over time and correlated with other independent variables. Heterogeneity in statistics refers to a variation in study outcomes whereby populations, samples or results are different. The results of random effects are as presented in table 3.

Table 3: Random Effects ML Regression

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Random-effects ML regression      Number of obs      =      88
Group variable: mdr              Number of groups   =       8

Random effects u_i ~ Gaussian    Obs per group: min =       3
                                   avg =      11.0
                                   max =      29

                                   LR chi2(3)         =       8.55
Log likelihood = -127.37672      Prob > chi2        =      0.0358

```

roa	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
total assets	-.2405697	.0859045	-2.80	0.005	-.4089394	-.0722
ind	.0483276	.0508213	0.95	0.342	-.0512802	.1479355
fexp	.2909393	.21384	1.36	0.174	-.1281793	.710058
_cons	4.060307	.6564801	6.18	0.000	2.77363	5.346984
/sigma_u	.4550693	.1761339			.2131185	.9717035
/sigma_e	.9800396	.0770283			.8401206	1.143262
rho	.1773673	.1172818			.0351765	.483545

Likelihood-ratio test of sigma_u=0: chibar2(01)= 6.71 Prob>=chibar2 = 0.005

The random effects results in table 4.3 found that a decrease in total assets results to a unit decrease in return on assets by a factor of -0.2406 which is an indication of poor financial performance as measured by return on assets. The finding is in agreement with that of Carter and Lorsch (2004) where it was found that an increase in total asset by a factor of 0.1231 increased financial performances of the firms studied. The authors therefore asserted that a financially stable firm must have good and sound asset base that could enhance investments in order to improve performance. It is also evident that a unit increase in director independence could lead to an increase in return on assets by a factor of 0.0483. The data also found that an increase in financial expertise in the selected commercial banks could lead to an increase in return on assets by a factor of 0.2909. In congruence, Adams and Jiang (2017) opines that the more the number of directors with financial expertise, the more the accountability and transparency in the overall financial reporting.

Concerning tests for significance, the study established that only total assets had statistical significant level with return on assets due to the simple fact that the independent variable had a p-value less than 0.05 (actually it is 0.005). According to Qureshi (2007), an improvement in total assets has significant and statistical relationship with financial performance as measured by return on capital employed (ROCE). However, director independence was found to be statistically insignificant to return on assets with a p-value of 0.342. In Latif, Shahid, Haq, Waqas and Arshad (2013), there was no evidence that a board of directors that was made up of independent directors improved the entity's financial performance. Further, the study found that financial expertise was insignificantly statistical to return on assets as evidenced by a p-value of 0.174. In contrast (Al-Tamimi, et al., 2010) found that independence, size, experience and expertise of board of directors have statistical positive relationship with financial performance of micro-financial institutions. Based on the findings, it is concluded

that the fixed effects model is a more suitable model in explaining the financial performance of the listed banks in the NSE.

Multi-Collinearity Diagnostics

The study also tested for the multi-collinearity of independent variables using variance inflation factors (VIF). This was done with the aim of testing the existence of multicollinearity among the variables as a result of dropping of multiple directorships by the fixed and random effects. The results are presented in table 4.

Table 4: Multi-Collinearity Diagnostics

Variable	VIF	1/VIF = Tolerance	Eigenvalue	Condition Index
ROA (return on assets)	14.94	0.066950	3.104	1.000
TA (total assets)	14.76	0.067729	.241	4.335
Ind (director independence)	9.31	0.107423	.128	5.955
Fexp (financial expertise)	8.23	0.121555	.076	7.703
Mdr (multiple directorship)	7.66	0.132213	.022	14.195

Mean VIF 11.81

The results in Table 4 show that the independent variables indicate a $VIF > 5$, an indication of multicollinearity with varieties of tolerance close to 1. According to Belsley, Kuh & Welsch (2005), an informal rule of thumb is that if the condition number is 15, multicollinearity is a concern; if it is greater than 30 multicollinearity is a very serious concern. The results of multi-collinearity diagnostics indicate that multicollinearity is not a concern since VIF is less than 15 which is the threshold used to determine multicollinearity diagnostics in the current study. The eigenvalues and condition indices are also vastly improved relative to the original models which again is an indication of absence of multicollinearity. According to the informal rule of thumb, all the condition indices are lower than 15 and again the study conclude that multicollinearity is not a concern when one of the correlated variables is omitted. Thus, since the modulus of each eigenvalue is strictly less than four, the estimated variable is stable in accordance with Gonzalo's (1994) proposal.

Heteroskedasticity

The homoskedasticity is one of the assumptions of the Classical Linear Regression Models (CLRM) which states that the variance of the errors must be constant. If the errors do not have a constant variance, they are said to be heteroskedastic (Brooks, 2008). In this study the ARCH test for heteroskedasticity was used to test the presence of the heteroskedasticity.

Table 5: Heteroskedasticity

Dependent Variable: ROA				
Sample: 88				
Included observations:8				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
Ra	3.809365	0.041338	92.15104	0.0000
Ind	0.043853	0.004829	9.081645	0.0000
Fexp	-0.000627	0.000121	-5.190657	0.0000
R-squared	0.536179	Mean dependent var		4.325410
Adjusted R-squared	0.531943	S.D. dependent var		0.302511
S.E. of regression	0.206962	Akaike info criterion		-0.299140
Sum squared resid	9.380504	Schwarz criterion		-0.253158
Log likelihood	36.20452	F-statistic		0.023522
Durbin-Watson stat	1.434005	Prob(F-statistic)		0.000000

Accordingly, table 5 shows that the F-statistic test gives the same conclusion that there is significant evidence for the presence of heteroskedasticity in the variables. Since the p-values in all of the cases were below 0.05, that shows that there is evidence for the presence of heteroskedasticity. The results are in contrast with Getahun (2015) who found that both the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of heteroscedasticity on the variables, since the p-values were in excess of 0.05. The study then corrected presence of heteroskedasticity by use of White Heteroskedasticity Test.

Heteroskedasticity Correction

To obtain the White corrected robust variance estimates, the researcher simply typed in the robust option at the end of the regression command. The following results were obtained as presented in table 6.

Table 6: Heteroskedasticity Correction

```
. xtreg roa totalassets ind fexp, vce(robust)
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```
Random-effects GLS regression           Number of obs   =       88
Group variable: mdr                     Number of groups =        8

R-sq:  within = 0.0529                   Obs per group:  min =        3
        between = 0.7454                                     avg =       11.0
        overall = 0.2015                                     max =       29

corr(u_i, X) = 0 (assumed)                Wald chi2(3)    =       19.69
                                                Prob > chi2     =       0.1002
```

(Std. Err. adjusted for 8 clusters in mdr)

roa	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
totalassets	-.3240718	.1572761	-2.06	0.069	-.6323272	-.0158164
ind	.092669	.0747726	1.24	0.215	-.0538826	.2392206
fexp	.298553	.3407789	0.88	0.381	-.3693615	.9664674
_cons	4.384475	.910506	4.82	0.000	2.599916	6.169034
sigma_u	0					
sigma_e	1.0028842					
rho	0	(fraction of variance due to u_i)				

The results show that chi-square (χ^2) test give the same conclusion that there is no significant evidence for the presence of Heteroskedasticity in the models. Since the p-values in all of the cases were above 0.05, that shows that there is no evidence for the presence of the heteroskedasticity as supported by Getahun (2015).

Normality tests

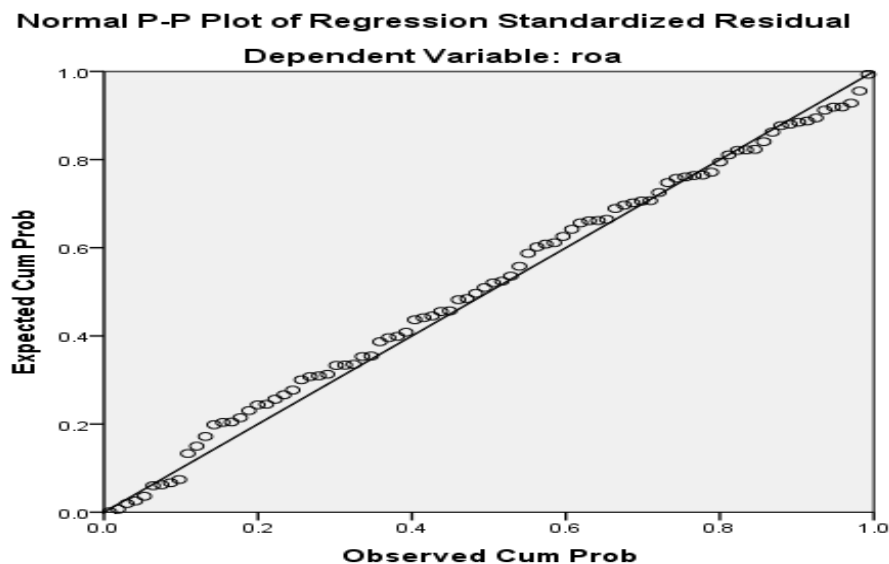
The normality assumption is that the mean of the residuals should be zero. In this study, the normality of the data was checked with the popular Jarque-Bera test statistic. Jarque-Bera statistic will not be significant for disturbance to be normally distributed around the mean.

Table 7: Normality tests

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. sktest totalassets roa ind fexp
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Variable	Skewness/Kurtosis tests for Normality					joint Prob>chi2
	Obs	Pr (Skewness)	Pr (Kurtosis)	adj chi2 (2)		
totalassets	88	0.1360	0.1220	5.21		0.1442
roa	88	0.3549	0.0975	3.72		0.0657
ind	88	0.8010	0.0600	16.08		0.0703
fexp	88	0.0958	0.0730	9.91		0.1070

Figure 2: Normality distributions



As shown in table 7 all the variables had significant relationship with financial performance with probability values more than 0.05 thus meets the assumption of normal distribution. This means that the p-value given at the bottom of the normality test plot screen (figure 4.1) should be more than 0.05 to reject the null of normality at the 5% level. Normalcy is also supported by the fact that the normal distribution in figure 4.1 is not skewed. The normal p-p plot in figure 4.1 also affirms that the variables are Normally distributed in this study thereby concluding that there is no problem of normality on the model since their distribution appears near the diagonal line. In agreement, Sufian (2011) study on profitability of the Korean Banking Sector: panel evidence on bank specific & macroeconomic determinants found a normal distribution of less than 5% among the variables tested.

Test for Stationarity

The time series analysis began with the investigation of the time series properties of each variable employed in the study by using the Augmented Dickey Fuller (ADF) test for stationarity. This is because when non-stationary time series data are used for analysis, the study may end up with spurious results because estimates obtained from such data possess non-constant mean and variance. Stationarity of a time series is when the mean, variance and covariances are time invariant.

Table 8: ADF Unit Root Test Results at Levels and First Difference

		Level 1	Level 2		First Diff	First Diff
Variables	ADF Test stat	1%	5%	ADF Test stat	1%	5%
ROA	1.124	-3.580	-2.930	-5.864	-3.587	-2.933
Total assets	-2.297	-3.580	-2.930	-5.978	-3.587	-2.933
Board independence	-1.744	-3.580	-2.930	-5.018	-3.587	-2.933
Multiple directorship	-3.504	-3.580	-2.930	-3.922	-3.587	-2.933
Financial expertise	-1.390	-3.580	-2.930	-6.653	-3.587	2.933

The study findings in Table 8 show that variables were not stationary in their original form since the ADF statistic was less than the entire critical statistic except for return on assets. The researcher therefore differenced the data to achieve stationarity. After differencing once the results show that all the variables were stationary. The data is stationary if the absolute value of ADF test statistic is greater than the critical values. In summary, all the variables in levels of total assets, ROA, board independence, financial expertise and multiple directorships are found to have a single unit root and are stationary at first differences at the 5% levels of significance. In congruence, Suvita and Xicoteng (2014) study based on “a comparison of Financial Performance of Commercial Banks in Nepal” found ROA and financial expertise had stationarity values at 0.05.

Conclusions

Based on the study findings, the overall study model was statistically significant in explaining financial performance of the listed banks in the NSE. The R squared for within the firms and overall were too low indicating the need to add more independent variables to improve the model so as to have an relationship between board characteristics and financial performance devoid of bias. This could be interpreted to imply that all the independent variables in the model better explain financial performance of commercial banks listed at Nairobi Securities Exchange between themselves than within and overall. The study revealed that the model is significant at 5% significance level with a p-value of 0.0283. This means that all the variables used in the model are statistically significant in explaining the financial performance of commercial banks listed at the NSE

According to fixed effects and random effects results, the study concludes that the more the board of directors is independent the more there is attainment of high return on assets (financial performance). It was found that a unit increase in director independence could result in 0.0198 increase in return on assets (financial performance). Evidently all the eleven selected banks adhered to independence of board of directors as prescribed by section 2.4 of the Code of Corporate Governance Practices for Issuers of Securities to the Public, 2015 which ultimately resulted to improved financial performance as measured by return on assets. The study also concludes that an increase in number of board members with financial expertise could lead to increase in return on assets with specific reference to both fixed and random effects analyses by a factor of 0.246 and 0.290 respectively. This therefore implies that the more the number of board members with financial expertise the more the improved financial performance of the listed banks. This finding is in line with Adams and Jiang (2017) who reported that when the boards of directors have qualified accountants and actuaries they contribute to the positive financial performance of the entity.

Recommendations

The results of the study signify the importance of re-evaluating the existing code of corporate governance in order to put more emphasis on a collective set of board characteristics that have a direct impact on financial performance. This is because from the results director independence and financial expertise individually are not statistically significant even though

they collectively contribute to the significance of the overall model. Thus, these results should be considered by regulators in the banking sector in Kenya in order to begin the necessary actions to thoroughly re-evaluate the existing corporate governance mechanisms. This study recommends that the regulatory authorities need to strengthen the policies regarding the levels of total assets that are required in the banking sector as it is evident from the results of both fixed and random effects models that there is a positive significant relationship between total assets and firm financial performance. Lastly, the study recommends that the regulatory agencies should put in place mechanisms to ensure that the directors with financial expertise are constantly evaluated and assessed by the professional body (ICPAK) for relevance and suitability and the results relayed to the banks where they serve as directors. This is because from the results, the financial experts in the board individually have no statistical significance on financial performance of the listed banks.

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