Board Composition And Value-Added Performance of Firms In Nairobi Securities Exchange: Mediating Role Of financial Leverage

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Abstract: *Nairobi Securities Exchange (NSE) remains the main source of long-term finance for listed firms in Kenya. However, statistics show declining performance evidenced by delisting of 21.4% of firms between 2003 and 2014 indicating ineffective board compositions. Past studies show plausible unsystematic direct relationships between board composition and either accounting-based or market-based financial performance measures. The alternative perspective of the relationships being mediated by contextual variables such as financial leverage has received little attention leading to theory stagnation. The study therefore purposed to analyse the mediating role of financial leverage on the relationship between board composition and value-added performance of firms in NSE Correlational research design is employed. The target population is 64 listed firms during 2014. Purposive sampling technique obtains 456 firm-year observations from 2003 to 2014 for 38 firms. Unit root test result indicate all variables stationary at levels (p < 0.05). Results show that financial leverage partially mediates the relationship between gender diversity (indirect effect = 0.1482; p = 0.000) and Value-added Intellectual Capital (VAIC) implying for unit increase in gender diversity, there is 14.82% increase in VAIC mediated by financial leverage. The study concludes: board gender diversity and board size are positive predictors of value-added performance; increase in financial leverage significantly reduces value-added performance; financial leverage mediates the relationship between gender diversity and value-added performance. It is recommended listed firms: increase their board sizes and women in boards but reduce non-executive directors; finance their investment activities using internal financing; restructure their boards partially based on financial leverage decisions.*

Keywords: *Financial Leverage, Mediating, Nairobi Securities Exchange, Board Composition, Value-added*

I.   Introduction

Globally, the focus of management of firms is gradually shifting from profit generation to value addition (Pandey, 2010) since firms that are value-added oriented have been shown to be more competitive (Bounfour and Edvinsson, 2004). The need to understand value-added financial performance drivers has therefore been enhanced especially for firms in developing countries like Kenya which seek to compete in the increasingly competitive business world. Moreover, firms in emerging markets such as the Nairobi Securities Exchange (NSE) face challenges of increased debt levels, declining profits, unregulated board compositions and stifling economic environment, all which threaten value addition (NSE, 2014). Additionally, the firms are relatively small and less diversified as compared to those in the developed economies which exposes them to shocks emanating from uncertainty of policy and macroeconomic environment. Prior research has shown that value addition depends on both macro-economic factors such as firm industry and firm specific factors such as board composition and financial leverage. Board composition refers to the mechanism instituted by firms to achieve a balance and a mix of skills in the highest management body of the firm to ensure efficiency and effectiveness of the monitoring function of the board over a company's top management (Sanda *et al.*, 2010). In recent years, firms the world over have been pressured by institutional investors and shareholders to appoint directors with different backgrounds and expertise under the assumption that greater diversity in board composition leads to less insular decision-making and improved financial performance. In Kenya, the Capital Markets Authority's (CMA) Guidelines on corporate governance practices by listed companies (GoK, 2002) direct that boards of the listed firms should compose effective and all-inclusive independent directors with diverse skills. The Guidelines offer both prescriptive and non-prescriptive approaches to board composition elements in order to provide flexibility and innovative dynamism to corporate governance practices by the listed firms. Notwithstanding, board size, board independence and board size should be structured to ensure board effectiveness (GoK, 2002).

The fundamental role of the board of directors as a critical component of a good corporate governance system has given rise to a great deal of research investigating the relevance of board composition elements. Despite this, theoretical literature remains inconclusive on the effect of board composition on financial performance. For instance, resource dependency theorists favour larger boards and more women in boards to increase the pool of expertise available to organizations hence improving financial performance (Dalton *et al.*, 1999). However, larger boards may become less effective at monitoring management due to increased decision-making time (Abidin *et al.*, 2009). According to agency theorists, board independence creates an effective monitoring and control system over management to minimize agency costs which enhances firm financial performance (Ongore *et al.*, 2015). Despite this, Kiel and Nicholson (2007) observe that inside directors are better placed to interrogate management proposals. Moreover, the presence of women in boards is desirable since it brings about better understanding of the market place and increases creativity and innovativeness (Carter *et al.*, 2003); but women are risk-averse and highly heterogeneous groups communicate less frequently which would therefore lead to sub-optimal investment decision-making hence negatively impacting firm financial performance (Earley and Mosakowski, 2000). Empirical findings (Adams and Mehran, 2008; Abidin *et al.*, 2009; Belkhir, 2009; Bermig and Frick, 2010; Amran, 2011; Adusei, 2011; Dunstan *et al.*, 2011; Al-Musalli and Ismail, 2012; Horvath and Spirollari, 2012; Letting' *et al.*, 2012; Wachudi and Mboya, 2012; Obradovich and Gill, 2013; Garba and Abubakar, 2014; Ongore *et al.*, 2015; Chemweno, 2016) demonstrate conflicting results that however indicate a possibility of board composition influencing firm financial performance. While Adams and Mehran (2008), Belkhir (2009), Abidin *et al.* (2009) and Bermig and Frick (2010) show that board size has a positive significant effect on firm financial performance, their studies notably focus on accounting-based financial performance measures which don't measure value creation abilities of the firms. Moreover, either conveniently selected samples which introduces bias or cross-sectional data are used implying that the cause-effect is not effectively established. On the contrary, other studies (Amran, 2011; Adusei, 2011; Obradovich and Gill, 2013; Ongore *et al.*, 2015) establish a negative significant relationship between board size and firm financial performance. However, Amran (2011) focuses on family controlled firms. Adusei (2011) and Ongore *et al.* (2015) use the pooled OLS methodology; the long-run effect of board size on value-added performance is not established. Elsewhere, Garba and Abubakar (2014) using insurance firms and Dunstan *et al.* (2011) using pooled OLS report findings that indicate no relationship between board size and financial performance. None of these studies focuses on value-added financial performance measures. The present study sought to establish how board size affects value-added performance using Pulic's (2001) Value-added Intellectual Capital (VAIC) for an emerging market.

The effect of board independence of financial performance has also received considerable attention empirically with Abidin *et al.* (2009) and Mahmudi and Nurhayati (2014) showing that a larger proportion of non-executive directors in the board enhances firm performance measured by value-added intellectual capital (VAIC). Mahmudi and Nurhayati (2014) sample listed banks in Indonesia therefore their findings cannot be generalised to other populations. The researchers who establish a negative significant relationship between board independence and firm performance include Horvath and Spirollari (2010), Al-Musalli and Ismail (2012), Garba and Abubakar (2014), Ongore *et al.* (2015) and Chemweno (2016). These studies are based on limited samples therefore their findings are cautiously interpreted. Horvath and Spirollari (2010) studies listed firms in the USA and Al-Musalli and Ismail study banks in the Middle East. Differences however exist between the smaller and less-diversified firms in NSE and those in the more developed securities exchange. The long-run effect of board independence across listed firms in an emerging market such as the NSE has not been established. Gender representation in boards has been shown to vary country by country with those countries where affirmative action is already in place having a higher representation of female directors (Wachudi and Mboya, 2012). Despite this, there seems to be inconsistent findings in scientific research on the effect of board gender diversity in influencing firm financial performance. For instance, while Wachudi and Mboya (2012), Horvath and Spirollari (2012) and Leting *et al.* (2012) report that the market does not reward or punish firms that have included more female directors in their boards, Dunstan *et al.* (2011) Garba and Abubakar (2014) and Ongore *et al.* (2015) show that gender diversity significantly explains why firms differ in financial performance. Wachudi and Mboya (2012) study commercial banks in Kenya indicating that firms from other sectors are not studied and therefore the findings are non-generalizable. Leting' *et al.* (2012) uses OLS to analyse data from 40 listed firms in the NSE. The use of OLS does not allow for the control of unobserved firm effects. Additionally, all these studies use accounting-based financial performance measures which don't measure the future value-creation abilities of the firms. Therefore, the effect of board gender diversity on value-added performance has not been established in the context of all listed firms in the NSE.

Modern corporate finance theorists indicate that agency cost is one of the determinants of financial leverage (Hasan and Butt, 2009). Furthermore, corporate governance practices such as board composition are structured to alleviate agency cost issues by influencing financial leverage (Abidin *et al.*, 2009). Grossman and Hart (1986) argue that in line with the agency cost theory, financial leverage decisions can reduce conflict

between managers and shareholders by influencing decisions made by managers. Board composition and financial leverage decisions influence firm performance by mitigating agency conflicts (Ramli and Nartea, 2016). A possibility of financial leverage as proposed by the agency cost theory mediating board composition and firm financial performance is therefore demonstrated. Studies examining the mediating role of financial leverage (Okiro *et al.*, 2015; Ramli and Nartea, 2016) show hat financial leverage mediates various relationships. Okiro *et al.* (2015) study firms listed in the East African securities markets using the traditional accounting-based measures of ROA and ROE as proxies for financial performance. They report significant mediating effect of financial leverage on the relationship between corporate governance practices and firm performance. Ramli and Nartea (2016) study firms in Malaysia using PLS-SEM methodology and report that the effect of some macro-economic factors such as growth opportunities and liquidity on firm performance is mediated by financial leverage. Reviewed literature indicates that board composition elements of board size, board independence and board gender diversity may influence firm financial performance albeit unsystematically. However, most of the studies use conveniently-selected firm-specific cross-sectional data which limits the generalization of findings to all listed firms in NSE. Additionally, most of the studies focus mainly on accounting-based and market-based performance measures which do not reflect the true value of total company's assets due to their exclusion of intellectual capital. None of the studies has incorporated value-based performance measures for all listed firms in emerging economies such as Kenya. Therefore, the effect of board composition on value-added performance of firms in the Nairobi Securities Exchange has not been established. Consequently, the mediating effect of financial leverage on the relationship between board composition and value-added performance of firms listed in the NSE has not been examined.

The Nairobi Securities Exchange is the single major open capital market in Kenya from which listed firms gain access to long-term finance (Mule and Mukras, 2015) with the listed firms contributing about 26% of gross domestic product (GDP) in 2013 alone (NSE, 2014). Increased local and foreign investments have made the NSE to grow in terms of market capitalisation (NSE, 2014) from KES 700.99 billion in December 2003 to KES 1921.61 billion in December 2014 representing an annual average growth of 17.4% during the twelve years. This increase is attributed to the increase in the number of listed firms from 50 in 2003 to 66 in 2015 (NSE, 2015). Despite the important contribution to Kenya's GDP, financial performance of the listed firms has generally remained poor (Abeysekera, 2010; Maina and Ishmail, 2014; Mule and Mukras, 2015). During the period 2003 to 2014, Unilever Tea (K) Ltd, Access Kenya, CMC Holdings, BOC, Carbacid, Uchumi, A. Baumann, Rea Vipingo and Hutchings Biemer were either delisted or suspended from the bourse (NSE, 2015), representing 21.4% of initially listed firms. A number of studies (Abeysekera, 2010; Leting' *et al.*, 2012; Wachudi and Mboya, 2012; Ayot, 2011; Maina and Ishmail, 2014; Mule and Mukras, 2015) indicate that the listed firms face challenges which exposes them to shocks emanating from uncertainty of policy and macroeconomic environment. The studies have ineffectively addressed these challenges by focusing on general corporate governance practices, investor apathy, lack of an effective regulatory framework, or stiff competition from the developed markets. The use of accounting-based and market-based financial performance measures has been another draw-back of all these studies. Moreover, studies conducted on the role of board composition on firm financial performance have implicitly assumed that this relationship is direct. An alternative perspective that the relationship can be mediated by contextual variables such as financial leverage has not been explored. No known study has been conducted to interrogate the mediating role of financial leverage on the relationship between board composition and value-added performance for firms in the Nairobi Securities Exchange. Therefore this study sought to analyse the mediating role of financial leverage on the relationship between board composition and value-added performance for firms in the Nairobi Securities Exchange, Kenya.

II. Methodology

The present research adopts the quantitative paradigm and since the cause and effect relationship between quantitative variables is sought, a correlational research design is adapted. The target population of the study comprises all the 64 firms listed in the Nairobi Securities Exchange (NSE) as at December 2014. Public listed companies are selected due to the central role they play in the economy of Kenya and are therefore a representative sample of firms in Kenya Purposive sampling technique is used to select a sample of 42 listed firms that had consistently been listed for the period January 2003 to December 2014. The method is considered suitable since it allows a longer longitudinal and broader cross-sectional market-wide study using balanced panel data. According to Cavana *et al.* (2001), balanced panel data is a more sensitive measurement of changes that could occur between two points in time and the results produced are more robust, consistent and stable to make generalizations about the population. Data is collected from annual financial reports of thirty eight firms whose complete data for the period January 2003 to December 2014 was available giving a sample of 456 firm-year observations. This is considered sufficient for data analysis and interpretation. According to Ayot (2011), twenty firms observed in a year are sufficient for estimation. The research items in the present study are evaluated in terms of face, content and construct validity by using expert opinions of four professional financial

analysts. The experts opined that the items adequately represented the content for each construct. In line with previous studies (Maina and Ishmael, 2014; Mule and Mukras, 2015), this study uses secondary data from published financial statements. The use of the statements which are prepared according to Generally Accepted Accounting Principles (GAAPs) and which are further audited before publication ensured preliminary reliability of the data. Moreover, the Augmented Dickey-Fuller (ADF) test of stationarity shows all the data series are stationary and therefore reliable for data analysis and interpretation. Before regressing data for analysis purposes, the data is checked to avoid violation of the assumptions of classical linear regression model as asserted by Hair *et al.* (2010). According to Field (2000), the common tests that should be conducted are; types of variables, normality, homoscedasticity, multicollinearity and serial correlation. Field (2000) observes that for reasonable empirical conclusions from sample data, the independent variables must either be quantitative or categorical and the dependent variable must be continuous, quantitative or unbound. This condition is fulfilled for the present study since elements of board composition, financial leverage and value-added performance measures are all quantitative. Similarly, control variables are all quantitative. This means that the type of variables do not violate the requirements of regression analysis in this regard.

The assumption of normality of residuals signifies the generalizability of findings (Gujarati, 2007). In this study, normality is diagnosed using a histogram of regression standardised residuals along with their summary statistics for value-added performance of the listed firms. Specifically, skewness and kurtosis tests and the Jarque-Bera (JB) test of normality are analysed. Skewness measure the degree of asymmetry of the distribution while kurtosis measures the relative peakedness or flatness of the distribution relative to the normal distribution. According to Tabachnick and Fidell (2007), data is considered normal if the skewness value for its residuals is zero or close to zero, and kurtosis value for the residuals is 3.0 or close to 3.0. The null hypothesis for the JB is that the residuals are normally distributed (Gujarati, 2007). Results for regression standardised residuals for value-added performance are shown in Figure 1.
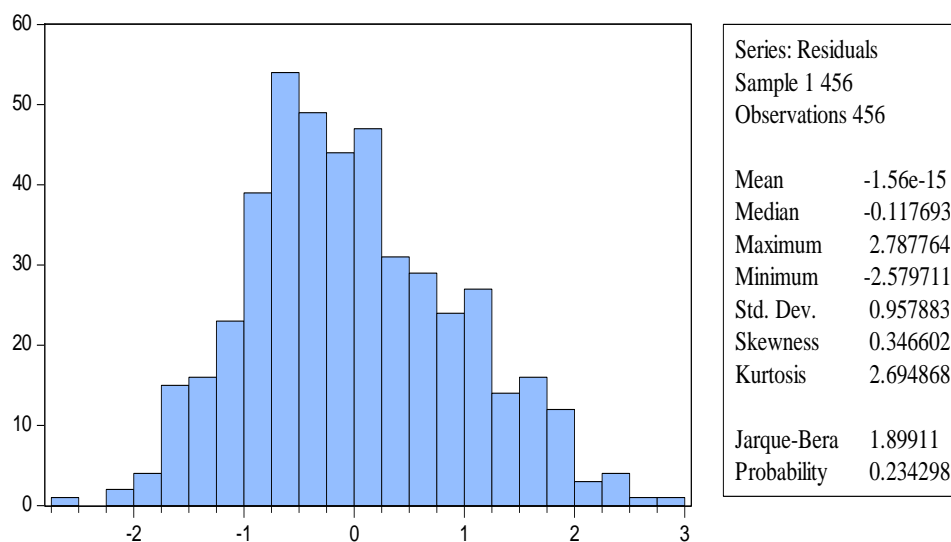

Series: Residuals	
Sample 1 456	
Observations 456	
Mean	-1.56e-15
Median	-0.117693
Maximum	2.787764
Minimum	-2.579711
Std. Dev.	0.957883
Skewness	0.346602
Kurtosis	2.694868
Jarque-Bera	1.89911
Probability	0.234298

Figure 1: Histogram of Regression Standardised Residuals for Performance

Overall, the histogram and the JB statistic indicate that there is no reason to reject the null hypothesis that the error terms are not normally distributed. Additionally, the values for skewness and kurtosis lie within the limits suggested by Tabachnick and Fidell (2007) of close to 1.0 and 3.0 respectively. The assumption for normality of data is therefore met. The homoscedasticity condition is fulfilled when at each level of the predictor variables, the variance of the residuals terms are constant. Otherwise if the assumption does not hold and the data is heteroscedastic, the regression analysis will yield biased standard errors, spurious results and incorrect conclusions about significance of the regression coefficients (Field, 2000). This study does test for heteroscedasticity since it is not considered a serious problem for panel data (Gujarati, 2007; Ayot, 2011). Mule and Mukras (2015) assert that the use of panel data allows identification and measurement of effects that are not detectable in pure cross-sectional or pure time-series data. Panel data therefore, allows the researcher to account for heteroscedasticity which may be arise due to the variations in the listed firms under study. According to Hair *et al.* (2010), multicollinearity refers to a situation where two or more explanatory variables are highly linearly related. Testing for multicollinearity is necessary before data analysis because highly collinear explanatory variables make estimation of individual regression coefficients and their standard errors difficult resulting to estimators that are not best linear unbiased estimators (BLUE). Multicollinearity is tested in the present study by

means of variance inflation factor (VIF). Pallant (2001) observes multicollinearity is present if VIF values of above 10 are present. Table 1 presents results of the VIF test for the independent variables.

Table 1: Testing for Multicollinearity using VIF

Variable	Coefficient Variance	VIF
BGDIV	0.114068	2.05199
BIND	0.343867	5.69131
BSIZ	0.000397	7.76871
TANG	0.155164	3.30081
FAGE	0.000004	6.32029
FLG	0.040420	7.55077
FSIZ	0.011587	2.54582

As observed in Table 2, all the VIF values lie below 10, indicating that there are no issues of multicollinearity. Autocorrelation refers to lack of independence between the residual terms of observations (Field, 2000). For data to have high predictive power, the residual terms between any two observations in different time periods should not be autocorrelated (Maddala, 2001). The Breusch-Godfrey Serial Correlation Lagrange Multiplier (LM) test is used to test autocorrelation. The null hypothesis for the test is that there is no serial correlation while the alternative hypothesis is that there is serial correlation. Table 2 shows the initial result of the test.

Table 2: Breusch-Godfrey Serial Correlation LM Test of Residual Terms

F-statistic	0.43592	Prob. F(2,448)	0.7900
Obs*R-squared	0.98721	Prob. Chi-Square (2)	0.7868

Based on the probability value of the observed R-squared value in the Breusch-Godfrey LM test results presented in Table 2 we fail to reject the null hypothesis and conclude that the residuals have no serial correlation. Panel data estimation methods are employed in this study because the observations have two dimensions; cross-section and time-series (Mule and Mukras, 2015). As asserted by Hsiao (2005), panel data estimation methodology contains more degrees of freedom and less multicollinearity leading to more efficient estimates. Moreover, it allows for greater flexibility in modeling differences in behaviour across entities which enables the control for unobserved heterogeneity (Wooldridge, 2002). The panel data analysis method has three approaches; pooled model, the fixed effects model and the random effects model. As observed by Hilmer and Hilmer (2014), in the pooled model, the data from the different time periods is lumped into one large cross-section and estimations made using the Ordinary Least Squares (OLS) methodology. However, OLS methodology does not yield the best estimators because it fails to exploit the significant advantages offered by the panel nature of the data (Hilmer and Hilmer, 2014) and therefore, for more plausible results, a choice between the fixed effects and the random effects models is made. The difference between the fixed effects and random effects approaches is the assumption made about the likely correlation between the individual or cross-section specific error component and the regressors. The fixed effects model allows for heterogeneity among the firms by allowing each firm to have its own intercept value. To make the choice, the Hausman test is conducted with the null hypothesis being that the errors are not correlated with the regressors (Hsiao, 2005). Where the null hypothesis is supported, the random effects model is adapted otherwise, the fixed effects model is adapted. Results for the Hausman test are presented in Table 4.

Table 3**: Testing for Model Selection using Hausman Test**

Test Summary	Chi-Sq. Stat	Chi-Sq. d.f.	Prob
Cross-Section Random	0.376231	2	0.0037

Results from the Hausman test presented in Table 3 indicate that the null hypothesis of random effects is rejected. The study therefore adopts the fixed effects model. To examine the mediating effect of financial leverage on the relationship between board composition and value-added performance, hierarchical panel data regression methodology is employed. As observed by Field (2000), in a hierarchical regression, predictors are selected based on past work and the experimenter decides in which order to enter the predictors in the model in order to meet objectives of the study. As a general rule, known predictors should be entered into the model first in order of their importance in predicting the outcome and thereafter, new predictors can be entered into the model in a stepwise manner. To this effect, steps proposed by Baron and Kenny (1986) are followed. According to Baron and Kenny (1986), testing for mediation can be done in three steps; first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable, and; third, regressing the dependent variable on both the independent variable and the mediator. Accordingly, the

independent variable in the first two models is expected to show statistical significance, while the third model is expected to show statistical significance of the mediator variable and the insignificance of the independent variable. The effect of the independent variable on the dependent variable must therefore be less in the third equation than in the second. Therefore, to test mediation, the following three models are employed and where applicable:

FLG_{it}: Firm financial leverage for firm i during time t;

BSZ_{it}: Board Size of firm i during time t;

$BIND_{it}$: Board Independence for firm i during time t;

$BGDIV_{it}$: Board Gender Diversity for firm i during time t;

$FSIZ_{it}$: Firm Size of firm i during time t;

$FLAG_{it}$: Firm Age of firm i during time t;

$TANG_{it}$: Asset tangibility of firm i during time t;

$VAIC_{it}$; Value-added intellectual capital coefficient (VAIC) for firm i in time t.

ε_{it}: The idiosyncratic disturbance term assumed to have a mean of zero and constant variance.

$$FL_{it} = \beta_{01} + \beta_{11}BSZ_{it} + \beta_{12}BIND_{it} + \beta_{13}BGDIV_{it} + \beta_{14}FSIZ_{it} + \beta_{15}FLAG_{it} + \beta_{16}TANG_{it} + \mu_i + \varepsilon_{it}; \dots\dots\dots \quad (1)$$

$$VAIC_{it} = \beta_{02} + \beta_{21}BSZ_{it} + \beta_{22}BIND_{it} + \beta_{23}BGDIV_{it} + \beta_{24}FSIZ_{it} + \beta_{25}FLAG_{it} + \beta_{26}TANG_{it} + \mu_i + \varepsilon_{it}; \dots\dots\dots \quad (2)$$

$$VAIC_{it} = \beta_{03} + \beta_{31}BSZ_{it} (FLV)^{-1}_{it} + \beta_{32}BIND_{it} (FLV)^{-1}_{it} + \beta_{33}BGDIV_{it} (FLV)^{-1}_{it} + \beta_{34}FSIZ_{it} + \beta_{35}FLAG_{it} + \beta_{36}TANG_{it} + \mu_i + \varepsilon_{it}; \dots\dots\dots\dots\dots$$

$$(3)$$

β_{01}, β_{04}, and β_{05}: The intercept for model 3, 4 and 5 respectively;

β_{kj}: The regression coefficients with k representing the model and j representing the coefficient, and;

μ_i: The unobservable individual heterogeneity.

$(FLV)^{-1}_{it}$: The mediating effect of financial leverage on board composition elements for firm i during time t.

The Sobel (1982) product of coefficients approach and the conservative Sobel-Goodman tests are used to obtain and test for significance of the indirect effect respectively.

III. Results And Discussion

Results of the hierarchical regression that sought to analyse the mediating effect of financial leverage on the relationship between board composition and value-added performance are reported in Table 4, 5 and 6 and the summary in Table 7.

Table 4**: Relationship between Financial Leverage and Board Composition**

Dependent Variable: FL Included Observations: 456				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.6189	0.1177	5.2591	0.0000
BGDIV	-0.0555	0.0137	-0.7535	0.0439
BIND	-0.1886	0.1256	-0.5012	0.1340
BSIZ	0.0268	0.0041	6.4171	0.0000
FSIZ	-0.0949	0.0231	-4.1030	0.0000
FAGE	0.0006	0.0004	1.4397	0.1506
TANG	-0.2728	0.0317	-8.5958	0.0000
R-Squared	0.3403			
Adj. R-Squared	0.3315			
S.E. of Reg.	0.2140			
F-Stat.	38.607			
Prob. (F-Stat.)	0.0000			

Dependent Variable: VAIC				
Included Observations: 456				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.4997	0.5365	6.5231	0.0000
BGDIV	0.0737	0.0211	0.2193	0.0265
BIND	-0.0830	0.0726	-3.1965	0.0015
BSIZ	0.0934	0.0190	4.9066	0.0000
FSIZ	-0.0291	0.1054	-0.2762	0.0783
FAGE	0.0054	0.0020	2.6796	0.0076
TANG	-0.4124	0.1447	-2.8512	0.0046
R-Squared	0.1528			
Adj. R-Squared	0.1412			
S.E. of Reg.	0.9758			
F-Stat.	13.494			
Prob. (F-Stat)	0.0000			

first condition of mediation requires that variations in levels of the independent variable significantly account for variations in the presumed mediator (Baron and Kenny, 1986). Table 4 shows that this condition is only met for two elements of board composition: board size ($\beta = 0.0268$, $p = 0.0000$) and board gender diversity ($\beta = 0.0555$, $p = 0.0439$). However, the condition is not met for board independence ($\beta = 0.1886$, $p = 0.1340$). This implies that board independence as an element of board composition cannot be mediated by financial leverage, which indicates that board independence decisions do not influence financial leverage. However, board gender diversity and board size may be mediated by financial leverage.

Table 5: Relationship between VAIC and Board Composition of Listed Firms

Dependent Variable: VAIC				
Included Observations: 456				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.4997	0.5365	6.5231	0.0000
BGDIV	0.0737	0.0211	0.2193	0.0265
BIND	-0.0830	0.0726	-3.1965	0.0015
BSIZ	0.0934	0.0190	4.9066	0.0000
FSIZ	-0.0291	0.1054	-0.2762	0.0783
FAGE	0.0054	0.0020	2.6796	0.0076
TANG	-0.4124	0.1447	-2.8512	0.0046
R-Squared	0.1528			
Adj. R-Squared	0.1412			
S.E. of Reg.	0.9758			
F-Stat.	13.494			
Prob. (F-Stat)	0.0000			

Results in Table 5 shows that variations in the dependent variable significantly account for variations all three components of the independent: board gender diversity ($\beta = 0.0737$, $p = 0.0265$), board independence ($\beta = -0.8302$, $p = 0.0265$), and board size ($\beta = 0.0934$, $p = 0.000$). This implies that the second condition of mediation as proposed by Baron and Kenny (1986) has been met for all the three constructs of board composition. According to Zhao *et al.* (2010), the independent variable in the first two models is expected to show statistical significance, while the third model is expected to show statistical significance of the mediator variable and the insignificance of the independent variable. However, since significance of board independence was not met in the first condition, significance of board independence construct in this second condition is inconsequential.

Table 6: Relationship between Board Composition, Financial Leverage and VAIC for Listed Firms

Dependent Variable: VAIC				
Included Observations: 456				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.9319	0.5468	7.1899	0.0000
BGDIV	0.0607	0.0219	0.3381	0.0006

BIND	-0.0962	0.0866	-2.4549	0.0650
BSIZ	0.0119	0.0039	3.6978	0.0000
FLG	-0.6984	0.2128	-3.2812	0.0011
FSIZ	-0.0954	0.1063	-0.8980	0.0369
FAGE	0.0059	0.0020	2.9248	0.0036
TANG	-0.6029	0.1544	-3.9041	0.0041
R-Squared	0.1256			
Adj. R-Squared	0.1112			
S.E. of Reg.	0.9653			
F-Stat.	13.356			
Prob (F-Stat.)	0.0000			

Table 6 reveals that after introducing financial leverage into the model, board gender diversity (β = 0.0607, p = 0.0006) and board size (β = 0.0119, p = 0.000) reduce but still remain significant in influencing firm performance. However, board independence becomes insignificant (β = -1.9619, p = 0.0650) when financial leverage is introduced into the model. Since the beta values for both board gender diversity and board size reduce but remain significant after introduction of financial leverage into the model, it implies that partial mediation is present. A summary of the steps proposed by Baron and Kenny (1986) in relation to the analysis is presented in

Table 7: Summary for Mediating Role of Financial Leverage on the Relationship between Board Composition and VAIC

Dependent Variable: VAIC	Independent Variable	Step 1	Step 2	Step 3	Type of Effect
	BGDIV	0.0555***	0.0737***	0.0607***	P
	BIND	-0.1886	-0.0830***	-0.0962	-
	BSZ	0.0268***	0.0934***	0.0119***	P
	Mediator: FL				

Note: Step 1: Regression of the Independent Variable on Mediator Variable
Step 2: Regression of the Independent Variable on Dependent Variable
Step 3: Regression of both the Dependent Variable and the Mediator Variable on
Dependent Variable.
P refers to Partial Mediating Effect
*** $p < 0.05$

Table 7 indicates that the three conditions as proposed by Baron and Kenny (1986) are fulfilled for only two elements of board composition; board gender diversity and board size. Therefore, financial leverage partially mediates the relationship between both board gender diversity and board size and firm value-added performance implying that the two variables are necessary in influencing financial leverage which will in turn influence value-added performance. However, since mediation is partial, it implies that the variables are not dominant. To test the significance of the mediation effect, the conservative Sobel-Goodman test is employed. The Sobel (1982) product of coefficients approach is first used to obtain the indirect effects for both board gender diversity and board size. This involves multiplying two regression coefficients; the partial regression coefficient for financial leverage predicting VAIC, and the simple regression coefficient for board gender diversity and board size predicting financial leverage (Wahba and Elsayed, 2015). The partial coefficient for financial leverage predicting VAIC was found to be -0.2281. Simple regression of board gender diversity and board size on VAIC gives coefficients of - 0.6498 and 0.1002 respectively. Therefore, the indirect effect for board gender diversity through financial leverage is 0.1482 (-0.2281 × -0.6498) while that for board size is - 0.0281 (-0.2281 × 0.1002). The Sobel-Goodman test for significance of indirect effect shows that the effect of board gender diversity through its indirect effect via financial leverage is significant (Z = 0.2175, p = 0.0003) while that of board size is insignificant (Z = 0.2290, p = 0.0921). This implies that for every unit increase in board gender diversity, there is a significant increase of about 14.82% in VAIC that is mediated by financial leverage. Similarly, for every unit increase in board size, there is an insignificant decrease of about 0.6% in VAIC that is mediated by financial leverage. The mediation results presented seem to suggest that presence of women in board of directors does help reduce financial leverage levels which in turn increase firm value-added performance. The reduction in financial leverage levels in the firms associated with more women in board could arise from theoretical underpinnings that women tend to ask more questions than men and would therefore question borrowing of finances. The results of the mediating role of financial leverage in the present study for

board gender diversity are consistent with findings by Okiro *et al*. (2015) and Ramli and Nartea (2016) who find that financial leverage has a significant mediating effect between macro-economic factors and corporate governance respectively and firm performance.

IV. Conclusion And Recommendation

The study reveals that financial leverage has no mediating effect on the relationship between board independence and value-added performance, but has a partial insignificant mediating effect between board size and value-added performance. However, financial leverage is found to partially but significantly mediate the relationship between board gender diversity and value-added performance. It is therefore concluded that financial leverage does not mediate the relationship between both board independence and board size and firm value-added performance. However, since financial leverage partially but significantly mediates the relationship between board gender diversity and value-added performance, it is concluded that board gender diversity is an important board composition element since it influences the levels of value-added performance through its influence on financial leverage. It is therefore recommended that firms listed on the Nairobi Securities Exchange seek to increase the number of women directors in their boards since women tend to question investment decisions which partially but significantly influences financial leverage decisions which in turn influence the firms' value-added performance.

The present study's findings, conclusions and recommendations may immensely contribute to the existing scholarly works in the fields of corporate governance, financial leverage and firm financial performance. Nevertheless, several limitations that may limit the general applicability of the findings can be identified. First, the study is limited to only three elements of board composition; board size, board gender diversity and board independence. This alienates other equally important board composition elements such as board age diversity, educational qualification and board specialisation which may equally be significant in influencing both financial leverage and financial performance. This implies that the entirety of board composition's influence on value-added performance is not analysed. Second, the study is restricted to listed firms only which excludes a significant number of non-listed firms which equally contribute significantly to the Kenyan economy. This compromises the general applicability of the findings to the Kenyan and global business environments. Third, the study is restricted in terms of data collection to those firms which were listed on or before 2002. This means that a number of firms which were listed after this period are not included in the study even though they may be contributing immensely to Kenya's and global business environments. This implies that the study's findings and recommendations should be interpreted cautiously. Fourth, the study relies on secondary data which is derived from the individual firms' financial statements filed with the NSE. Even though the data is prepared by following the laid down GAAPs, different firms use different accounting policies such as year-ends and rates of depreciation. However, data in the study is standardised by use of ratio analysis to delimit it. Lastly, some raw variables such as sales, liabilities and sales values are kept at their book values. This implies that the effect of inflation and time value of money during the different time periods is not factored in the financial statements. To avoid adjustment for inflation and time value of money, ratios are used.

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