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Board Structure and Stock Liquidity: An Empirical Study on Nairobi Securities Exchange

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Abstract The aim of this paper was to assess the influence of board structure on the stock liquidity of firms listed at the Nairobi securities exchange. Stock market plays a crucial role in the country's economy in that it serves as a financial market avenue to enhance openness, create trust and ensure increased firm competitiveness. The success of stock market however highly depends on its ability to trade large size quickly at low cost. This is the ease of buying and selling large quantities of shares in a stock market while not bringing any effect on the prices. The board structure has been found to play a key role as an aspect of corporate governance on firms' financial performance but its role still remains unclear on stock liquidity of listed firms at the NSE. The study was anchored on the agency theory. It is on this merit that this paper sought to investigate the influence of board structure on stock liquidity of firms listed at the NSE. A census was carried out where all the target population comprised of the 68 firms listed at the Nairobi Securities Exchange. The study used secondary data obtained from the Nairobi securities exchange and the respective firms' publications annual financial statements using a data collection sheet. Data analysis was done by the use of Eviews 7. The findings indicated that board structure had negative and significant influence on stock liquidity when measured by turnover but no significant influence when measured by quoted spread, illiquidity and liquidity ratio.

Keywords: *board structure, stock liquidity, Nairobi Securities Exchange*

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1. Introduction

1.1. Background of the Study

Board structure refers to the number of directors and the type, as determined by the usual insider- outsider classification [1]. Board structure offers a critical internal corporate governance mechanism to provide strategic direction and to protect the interests of shareholders and stakeholders [2]. Board structure represents one of the core issue of corporate governance, as it affects the nature and extent of directors' powers, influence, and responsibilities and may also affect the ability of boards to hold managers to account in directing and controlling of the firms. In all firms, the board of directors is charged with oversight of management on behalf of shareholders. Agency theorists argue that in order to protect the interests of shareholders, the board of directors must assume an effective oversight function. It is assumed that board of directors' performance of its monitoring roles is influenced by structure of board, which in turn is influenced by factors such as CEO duality of chief executive officer and independence of directors.

"Reference [3] demonstrated that board structure tends to reflect the firm's industry, the need for monitoring of activities and the transparency of the firm's earnings". "Reference [4] shows that troubled firms expand their board in response to poor past performance in order to increase managerial capacity". The CEO of a company plays the dual role of chairman of the board of directors. There are two schools of thought on CEO - chairman duality. Several researchers argue that CEO - chairman duality is detrimental to firms as the same person will be marking his "own examination scripts". Separation of duties will lead to: avoidance of CEO entrenchment, increase of board monitoring effectiveness, availability of board chairman to advise the CEO and establishment of independence between board of directors and the firm management. The low level of transparency can be used to hide the fraud and incompetence. Separation of the position of the chairperson and CEO promotes accountability and facilitates division of responsibilities among the boards. This weakens the adverse selection component thus improves stock liquidity.

According to the survey by [5] the majority of chairpersons confirmed that board structure, diversity, ratio of executive to non - executive directors and independence are of secondary importance to the effectiveness of the board. However, a majority of

chairpersons' were supportive of unitary board system. "Reference [1] noted that the number of independent directors on boards increased from 29 percent in 2000 to 34 percent in 2010". The survey results show that both firm size and firm performance are positively related to board independence in European countries. The proportion of boards with a combined CEO and chair varies among member countries. "Reference [6] found that the Netherlands had the highest number of independent directors at 68 percent, while the United Kingdom, Germany, Sweden, and Poland are at the low end with 0 percent". The survey also found that 93 percent of directors of European listed firms believed that it is important for the leadership of the chair to encourage excellent team dynamics.

1.2. Statement of the Problem

The stock liquidity plays a critical role in determining and increasing competiveness of the securities exchange. The ease of buying and selling of large quantities of shares in the securities exchange while not influencing the prices perseveres at the NSE. Despite of corporate governance guidelines by the Kenya Capital Markets Authority. The firms' inability to trade large volume quickly at low cost has adversely affected trading resulting to some firms been delisted and suspended from trading. A well-structured board as an aspect of corporate governance improves operational and financial transparency and mitigates information asymmetry between insiders and as well as among outsiders. This study therefore sought to fill this gap by investigating the influence of board structure on stock liquidity of listed firms at the NSE.

1.3. Objectives of the Study

1.3.1. General Objective

The general objective was to investigate the influence of board structure on stock liquidity of firms listed at the Nairobi securities exchange.

1.3.2. Specific Objectives

1. To establish the influence of board structure on stock liquidity of listed firms at the Nairobi securities exchange.
2. To analyze the moderating influence of firms size on the relationship between board structure and stock liquidity of listed firms at the Nairobi securities exchange.

1.4. Research Hypothesis

H_{O1}: There is no significant influence of board structure on stock liquidity of firms listed at the Nairobi securities exchange.

H_{O2}: The moderating influence of firm size on the relationship between board structure and stock liquidity of listed firms at the Nairobi securities exchange is not significant.

1.5. Scope of the Study

The study covered the period spanning January 2014 to December 2018. The choice of January 2014 as the starting point of this study was informed by the fact that this was after the introduction and implementation of the Capital Market Authority corporate governance guidelines in Kenya of 2002 and the great financial crisis of 2008 and the time period captures the activities after NSE automated its trading activities in 2012.

2. Literature Review

2.1. Agency Theory

The agency theory has its origins in the in the organizational works of [7] and economical agency theory developed by [8] both published in 1973. The theory argues that agency cost would arise when there is a separation between ownership and control. This refers to the situation in a company where those who own the firms may not be the same people as those who control the firms. The principal – agent relationship originates when a principal hires an agent to act on his behalf [9]. Agency theory is concerned with aligning the interests of owners and managers and is based on the premise that there is an inherent conflict of interest between the firm's owners and their managers [10]. The managers possessed superior knowledge and expertise to the firm owners and were in position to pursue self-interest at expense of the owners.

2.2. Empirical Review

"Reference [11] studied on corporate governance and firm value for firms listed at the NSE". The study investigated the relationship between corporate governance using the attributes of board size, board composition, CEO duality and audit committee composition compared against measures of firm value of return on asset and market to book value of listed firms at the NSE. The data was analyzed using regression analysis to build the relationship between corporate governance attributes and firm value. Descriptive research methodology was adopted. The findings show that corporate governance attributes have a significant influence on market to book value ratio as measures of firm value. The study further found that audit committee as a corporate governance attribute had significant influence on both return on asset and market to book value ratio as measures of firm value. The study demonstrated the importance of external members in the audit committee than insider ones thus enhancing corporate governance through external independent directors and brings new dimension for effective running of the firms.

"Reference [12], researched on the relationship between corporate governance and performance of commercial banks in Kenya". The study conducted a survey on 43 commercial banks incorporated and were operating in Kenya during the period. The study used long term series data of 2001 to 2013. Corporate governance mechanisms were measured using selected internal corporate monitoring mechanisms of block ownership, institutional ownership, board independence and board size. Data analysis was primarily done using descriptive and inferential statistics. The study used return on assets, return on equity and Tobin's q ratio as key variables that

defined banks performance, whereas bank size was adopted as a control variable. The findings demonstrated that board independence was not significant in the relationship between corporate governance and performance of commercial banks when using return on asset, return on equity and Tobin's q. The study also failed to address the issue of the firms' inability to trade large quantities quickly at low cost which is likely to increase firm value.

2.3. Conceptual Framework

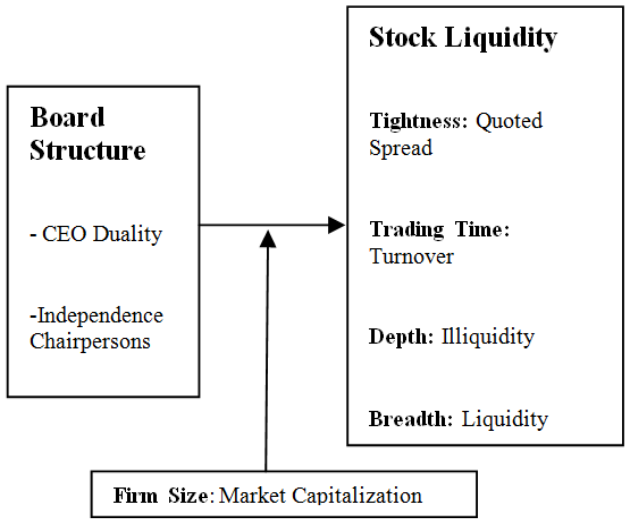

Figure 1.

3. Methodology

Study census was conducted on the 68 firms listed at NSE for period from 2014 – 2018. The choice of this data time series was informed by the fact that this was after the introduction and implementation of corporate governance guidelines and 2013 new prudential guidelines by central bank of Kenya [13]. The period also captured the activities after NSE automated its trading activities in 2012. The descriptive research design was adopted as the best approach to fulfill the objectives of this study. This used secondary data obtained from the Nairobi securities exchange and the firms' published annual financial reports. Under descriptive statistics mean and standard deviations were used and inferential statistics the hypotheses tested through regression models, regression coefficients and P-values. Data analysis was done using descriptive and inferential statistics by the use of Eviews 7.

3.1. Regression Model

In order to establish the combined influence of the independent variables on the dependent variable, a linear model was used. Therefore the model for this study was consolidated as:

$$Y = \beta o + \beta_1 X_1 + \varepsilon \quad \text{(i)}$$

Moderating Variable Regression Model

The moderating variable in this study was firm size. To determine the presence of moderating effect, the OLS model will be then compared with the MMR model. Equation (ii) shows the Ordinary Least Squares (OLS) regression equation model predicting Y scores from the first-order effects of X and Z observed scores.

$$\mathbf{Y} = \boldsymbol{\beta}_0 + \boldsymbol{\beta}_1 \mathbf{X}_1 + \mathbf{Z} + \boldsymbol{\varepsilon} \quad \text{(ii)}$$

Equation (iii), the Moderated Multiple Regression (MMR) model was formed by creating a new set of scores for the two predictors (i.e. X, Z), and including it as a third term in the equation, which yields the following model:

$$\mathbf{Y} = \boldsymbol{\beta}_0 + \boldsymbol{\beta}_1 \mathbf{X}_1 + \boldsymbol{\beta}_4 \mathbf{Z} + \boldsymbol{\beta}_5 \mathbf{X}_1 * \mathbf{Z} + \boldsymbol{\varepsilon} \quad \text{(iii)}$$

Where:
Y is the Stock Liquidity
X1 is the Board Structure
Z is the firm size (moderating variable)

4. Findings and Discussion

4.1. Response Rate

The study relied on secondary data which were obtained from the Nairobi securities exchange. The study used time series data for the five years from January 2014 to December 2018 comprised of 295 observations on the 59 firms who participated in this study. The inclusion of each firm year observation was conditioned on the availability of the corporate governance data, financial data and liquidity data. However, listed firms that had been delisted or merged during the period under study and newly listed firms whose governance, financial and liquidity data would not be obtained were excluded from this study. The participation of 86.76%, was quite high compared to the usually expected participation of 50 - 75% [14]. These participation was good and perfect as seconded by [15], who argued that 50% is adequate, 60% is good and one which is above 70% is perfect or very good, since the participation was 86.76%, these was considered to be excellent representation.

4.2. Empirical Results

Table 1 revealed that quoted spread as a measure of stock liquidity reported an average of 4.83% with a maximum of 80% and minimum of 3.21% with a deviated of 6.21% on both sides of the mean. Turnover as measure of as a measure of stock liquidity, the findings indicated an average of 8% with a maximum of 72.67% and a minimum of 1.7% with a deviated of 15.37% on both sides of the mean. The standard deviation of turnover was relatively high to that of quoted spread by 9.09%. Illiquidity when used as a measure of stock liquidity of listed firms at the NSE, the findings indicated an average of illiquidity was Ksh8.66 with a maximum of Ksh40.42 and a minimum of Ksh6.40 which deviated on both sides of the mean by Ksh7.82. Liquidity ratio as a measure of stock liquidity, the results indicated that firms listed at the NSE reported an average liquidity ratio of 0.2587 with a maximum of 1.928 and a minimum of zero that deviated by 0.2644 on both sides of the mean.

The descriptive statistics results indicated that the standard deviation was relatively low with stock liquidity measures of quoted spread, turnover and liquidity ratio of

6.21%, 15.37%, and 26.44% respectively and highest with illiquidity over 100%. The maximum over 100% and the minimum of 6.21% implied that all other factors constant the trading cost variation was 6.21% and over 100%. Given these findings of quoted spread suffers from the hereroskedesticity and high volatility when adopted as stock liquidity measure. The illiquidity emerged as the best measure of the influence of corporate governance on stock liquidity. A number of studies demonstrated that illiquidity was a reliable measure of price impact and stock liquidity [16,17,18]. Skewness coefficients revealed that both board structure and firm size were skewed to the positive side. These findings were in support of [19], who demonstrated that stock liquidity in Nigeria was not normally distributed though it was positively skewed. These findings were in support of random walk hypothesis which stipulates that stock market returns responds to both positive and negative news and could explain its ability to trade large size quickly at low cost. All these values were far away from zero that meant the variables were not normally distributed as indicated by Jarque – Bera statistics.

Table 1. Descriptive Statistics

	LR	ILLIQ	QS	TO	BS	FS
Mean	0.258	8.6577	0.048	0.080	0.086	0.177
Med.	0.186	6.4000	0.032	0.017	0.062	0.035
Max.	1.928	40.420	0.800	0.726	1.000	2.500
Min.	0.000	1.0800	0.000	0.000	0.000	0.000
S D	0.264	7.8170	0.062	0.153	0.152	0.347
Skew.	2.801	2.0268	6.466	2.548	5.232	3.579
Kurt.	15.37	7.230	74.39	8.889	30.93	17.34
JB	2269	421.9	64716	745.5	1093	3157
Prob.	0.000	0.000	0.000	0.000	0.000	0.000

4.3. Correlation Analysis

Table 2 indicated that the correlation of quoted spread with each of the four proxies of corporate governance namely; board effectiveness, independence of directors and board structure were not statistically significant at 5% level (r=.24, p – value =.696; r=.21, p – value =.735 and r=.050, p –value = .936 respectively). Implied that the correlation between each of these variables with quoted spread does not exist above and beyond the influence of firm size. Invariably meant that the above corporate governance mechanisms had no influence on the quoted spread of firms listed at the NSE. The correlation between board effectiveness and firm size was about r=0.867, which indicated that there was a positive relationship between the variables.

The correlation between independence of directors and firm size was r= 0.297 and between independence of directors and quoted spread was r=-.21. The relationship between these variables was negative, which indicated that as firm size and quoted spread increases, board effectiveness decreases thus stock liquidity. These findings were similar with those found by [8] that there was a negative association between bid ask spread and trading volume. This findings were also in line with those of [20] that an increase in the spread had a negative influence on stock liquidity and firm performance.

Stock liquidity measure of turnover was observed to have a negative and statistically not significantly correlated at 5% level of significance with board effectiveness, independence of directors and seniority of directors (r=-.83, p – value =.079; r=-.20, p – value = .742; r=-27 p – value = .660 respectively). Implied that the correlation between board effectiveness, independence of directors and seniority of directors with turnover did not have any influence on stock liquidity of firms listed at the NSE when turnover was adopted as a stock liquidity measure. A positive and insignificant correlation at 5% level of significant was observed between turnover with seniority of directors (r=.717 and p – value = .173). Implied that the correlation between seniority of directors with turnover exist above and beyond the influence of firm size. Invariably meant that turnover increase with seniority of directors.

The results indicated that correlation between board effectiveness and quoted spread was about r=-.24, which indicates that there was a negative relationship between the variables. The correlation between independence of directors and quoted spread was r=-.21 and independence of directors and turnover was r=-.20. The relationship between these variables was positive, which indicated that as quoted spread and turnover increases, independence of directors decreases. This findings were in line with those of [21] that show a strong negative correlation with turnover on investigating the relationship between market microstructure and corporate governance in the Tunisian stock market.

The study findings indicated that correlation between board effectiveness and liquidity ratio was about r=-.54, which indicates that there was a positive relationship between the variables. The correlation between seniority of directors and illiquidity was r=-.892 and seniority and liquidity ratio r=.717. The relationship between these variables was negative, which indicated that as illiquidity and liquidity ratio increases, seniority of directors' decreases. This findings corroborates with those [21] who illustrated that depth exhibits a strong negative correlation with insurance and investment companies and a strong positive correlation with pension funds. On the contrary, [22] found that corporate governance quality was positively correlated with firm size, implied that better governed firms were large and older.

Table 2. Partial Correlation Analysis Results

	FS	QS	TO	ILQ	LR	BE	ID	BS
FS	1							
	…							
QS	.144	1						
	.817	…						
TO	-.48	.527	1					
	.441	.361	…					
ILQ	.814	.098	-.57	1				
	.094	.876	.308	…				
LR	-.55	-.03	.591	-.93	1			
	.333	.958	.294	.021	…			
BE	.867	-.24	-.83	.726	-.54	1		
	.057	.696	.079	.165	.342	…		
ID	.297	-.21	-.20	-.25	.517	.43	1	
	.628	.735	.742	.674	.372	.46	…	
BS	.221	-.05	-.27	.720	-.86	.15	.80	1
	.721	.936	.660	.170	.057	.81	.098	…

*Correlation is significant at the 0.05 level (2 –tailed).

4.4. Unit Root Test Board Structure

Board structure was found to be stationary as shown on Table 3, at intercept and level I (0) because the Levin, Lin & Chu t* had a probability value of 0.0000 which was significant at 5% level of significance. Therefore, the null hypothesis that board structure has a unit root was rejected.

Table 3. Results on Board Structure

Method	Statistic	Prob.	Cross-section	Obser.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.50157	0.0000	10	40
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W- stat	0.20343	0.0581	10	40
ADF – Fisher Chi-square	15.8843	0.7238	10	40
PP – Fisher Ch-square	18.3805	0.5624	10	40

** Probabilities for Fisher tests are computed using asymptotic Chi-square distribution. All other tests assume asymptotic normality.

4.5. Regression Results

Hausman test was conducted to test the hypothesis that there was no influence between the dependent variable of liquidity and the predictor independent variables: board effectiveness, independence of directors, board structure and seniority of directors while moderating the influence of firm size. The results test were as per Table 4, show that the Chi-square test statistic was 3.252403 with an insignificant p - value of 0.6611. This therefore meant that the null hypothesis was rejected in favor of the random effects model. Therefore, the random effects model was accepted as suitable for this equation.

Table 4. Hausman Test Results on Liquidity Ratio

Test Summary	Chi-square statistic	Chi-square difference	Probability
Cross-section random	3.252403	5	0.6611
Cross-section random effects test comparisons:			
Variable	**Fixed**	**Random**	**Variable (Difference)**	**Probability**
Board Effectiveness	0.093905	0.120508	0.008275	0.7700
Independence of Directors	0.053182	0.271707	0.026075	0.1760
Board Structure	-0.09552	-0.116688	0.001235	0.5469
Seniority of Directors	-0.20938	0.593036	0.623317	0.3095
Firm Size	0.014311	0.098760	0.013392	0.4655

Table 5 revealed that board structure had r=-0.12 and an insignificant probability value of 0.1915. This meant that board structure had no significant influence on breadth during the study period. Board effectiveness had a positive but insignificant relationship. Independence of directors had r=0.27 and an insignificant p - value of 0.3413. This implied that independence of directors had no significant influence on breadth during the study period. Board structure had a negative but insignificant relationship. Firm size had r=0.10 and an insignificant p - value of 0.1057. This indicated that firm size had no significant influence on breadth during the study period. Firm size had a positive but insignificant relationship. The constant had r=-0.54 and a significant p - value of 0.0272. This meant that jointly these proxies of corporate governance influenced breadth as a measure of stock liquidity during the period of study. When corporate governance reduced by 0.54 percent stock liquidity (Breadth) increased by 1 percent in the same year.

Table 4. Random Effects Model on Liquidity Ratio

Variable	Coeff.	Standard error	t-statistic	Prob.
Board Effectiveness	0.1205	0.128909	0.934827	0.351
Independence of Directors	0.2717	0.285049	0.953193	0.341
Board Structure	-0.117	0.089122	1.309304	0.192
Seniority of Directors	0.5930	0.191500	3.096799	0.002
Firm Size	0.0987	0.060853	1.622932	0.106
Constant	-0.536	0.241214	-2.220138	0.027
Effects Specification			**Standard Deviation**	**Rho**
Cross-section random			0.155215	0.386
Idiosyncratic random			0.195875	0.614
Weighted Statistics				
R-squared	0.0603	Mean dependent var.		0.127
Adjusted R-squared	0.0441	S.D. dependent Var.		0.199
S.E. of regression	0.1953	Sum squared residual		11.02
F –statistic	3.7115	Durbin – Watson stat		2.361
Probability (F –statistic)	0.0028			
Unweighted Statistics				
R-squared	0.1427	Mean dependent variable		0.259
Sum squared residual	17.613	Durbin-Watson stat		1.477

5. Conclusion

The study concluded that board structure had negative and significant influence on stock liquidity when measured by turnover but no significant influence when measured by quoted spread, illiquidity and liquidity ratio. Firm size was found to have no significant influence on stock liquidity of firms listed at the NSE. The listed firms should embrace a proper board structure that has clear focus and properly constituted to enhance effective decision making and ensure proper leadership towards enhanced stock liquidity. Independent directors should be embraced as a way of monitoring and spearheading the decision making. The study recommends that the CEO duality be reduced among the listed firms as a way of bringing refined governance where decisions are made by the board and the implementation made by the CEO without further confrontations. It was recommended that larger firms to focus on board structure as an aspect to improve stock liquidity. However, smaller firms may not need to invest much in board structure since they are already small and easier to manage hence they ought to focus on other aspects of corporate governance to enhance stock liquidity. Further studies to be conducted to take into consideration other variables not considered in this study such board size and ownership structures.

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