

3] Board Characteristics and Working Capital Management Linkage: Panel Data Analysis Approach across Listed Construction and Manufacturing Firms in Kenya

Dr. Peninah Jepkoge Tanui & Dominic Omare

Catholic University of Eastern Africa & Kaimosi Friends University College, Kenya

Abstract

A firm does not operate in a vacuum but where there is an interaction with shareholders and stakeholders. Thus, other than providing resources, a firm given its board as one of corporate governance aspect is in a better position to enhance management of its resources. To extend existing knowledge in literature, the study therefore examined the effect of board characteristics on working capital management of listed construction and manufacturing firms in Kenya. The specific objective was to test the hypotheses as to whether there was a significant relationship board size, board independence, board committee, board's gender and working capital management. As guided by resource dependency theory and explanatory research design, 14 listed construction and manufacturing firms from 2008 to 2017 were targeted. From the panel regression analysis, WCM positively and significantly related to board's gender, board size as indicated by $\beta = 18.293$ (p-value=.011) and $\beta = 3.822$ (p-value = .019) respectively. Moreover, board composition had significant (p-value = .028<.05) and negative ($\beta = -35.833$) result while relationship between board independence and WCM was negative ($\beta = -6.581$) but insignificant (p-value = .558 >.05). The study thus concluded that board size and gender diversity of the board enhanced WCM. The findings of the study contributed to resource dependency theory by examining the extent to which the features of the board affect management of resources inform of working capital. The management firms listed in construction and manufacturing sectors were suggested to increase female representation in the board as well as ensuring that optimal board size and committee is maintained. Future studies were expected to extend the model by incorporating other board characteristics. Furthermore, working capital strategies and ownership structure could be considered by upcoming researchers as mediating and moderating variables in that order.

Keywords: Corporate governance; board characteristics; working capital

Introduction

Efficient management of a firm is essential in ensuring its going concern. In Kenya, firms are formed and registered under the Companies Act Cap 486. In section 147 of this act, firms are required to keep books of account with respect to all sums of money received, expenses, all sales and purchases of goods as well as assets and liabilities. According to this Act, proper books of account are necessary to give true and fair view of the state of the companies' affairs and to explain its transactions. Due to fast changing competitive global market, businesses are forced to react instantly to these changes. Firms are now entering into

the era of real time economy or 'now economy' (Vasarhelyi & Alles, 2008). As a result of these, they are in dire need of accurate and timely information for decision making. Despite several decisions to be made by the firm, the main concern is the liquidity position which ascertains the ability to meet obligations. As a result, the firm needs to closely provide information on her working capital.

Working Capital Management (WCM) entails application of management roles as planning and controlling of current assets and current liabilities (Eljelly, 2004). They are all management decisions and actions that influence the size and effectiveness of working capital. Firms have large cash invested in working capital thus WCM is significant (Makori & Jagongo, 2013). Considerable time is spent on day to day working capital decisions. However, working capital is the most powerful but least understood driver of company's cash flow and profitability. After the financial crisis, WCM is seen as a way to withstand economic turbulence impacts (Reason, 2008) but should not be seen as an immunization for firms from the said crisis (Akinlo, 2012). It is suitable for all firms to develop competitive position and increase its profitability. Thus, by embracing WCM, it helps to eliminate the inability to meet shorter obligations in the firm, determine optimal working capital balances and increase firm's free cash flow (Eljelly, 2004). However, there is need for proper structure, systems and processes as to succeed in WCM. This brings in the element of corporate governance (CG) of the firm which the current world has received much attention. This further justified by the fact that a firm does not operate in a vacuum but where there is an interaction with shareholders and stakeholders. Corporate governance refers to structures, processes, cultures and systems which define clear responsibilities and accountability in the firm to maximize performance as well as shareholders' value. In any firm, there exists all levels of management but at the top, the tone is set by the board of directors (BOD) regarding the its aspects. According to (Wambua, 2012), the board ensures that shareholders' wealth is maximized through efficient management of resources. For this reason, the study was conceived as to analyze the effect of board characteristics on working capital management of listed construction and manufacturing firms in Kenya.

In reality, many scandals related to companies have been reported. The common types of fraud relates to misappropriation of assets as well as over or understatement of liabilities. The main cause is attributed to the weak internal control system, an activity relating performed by the management and other key departments in the organization. The three famous scandals in the world are that of Enron in 2001, World com in 2002 and Lehman Brothers in 2008. All these companies were liquidated as a result of accounting related scandals. In Kenya, companies listed in NSE undergoing a turnaround process in Kenya Airways, Uchumi Supermarket and Mumias Sugar Company Limited. Many of the problems facing these giant companies in Kenya are related to liquidity. This creates the need to evaluate board characteristics as one of the CG aspect of the firm in relation to WCM. Failure to do so, liquidity position of some firms might be affected which may lead to inability to meet day to day operations. This in the long run may lead to winding up of firms hence affecting the entire economy as they contribute by providing employment opportunities as well as payment of taxes to the government.

Overtime, studies have been conducted to scrutinize the relationship that exists between CG and WCM. Some studies have documented positive relationship, negative relationship, while others found no significant relationship between them (Achchuthan & Rajendran, 2013, Kamau & Basweti, 2013). In other studies, mixed results were found given the nexus between the two (Obradovich, Gill, & Biger, 2014). In these studies, CG has been reviewed generally given the key internal mechanisms as board, chief executive officer and audit committees attributes. In Kenya, no study has been conducted among listed firms in general (Mugo, 2015). Hence, to fill the existing gap, this study sought to specifically investigate board characteristics as board size, board independence, gender diverse board and board committee in relation to WCM among listed manufacturing and construction firms at Nairobi Stock Exchange for a period of ten years (2008 to 2017). The findings of this study are expected to assist financial managers regarding management of working capital. This might also help in improving the liquidity position which may lead to attainment of key goals as profit and shareholders wealth maximization. As a result, this will aid Kenya in improving manufacturing sectors as one of her 'Big Four' agendas alongside the Vision 2030.

Research Hypotheses

H₀₁: There is no significant effect of board characteristics on working capital management of listed construction and manufacturing firms in Kenya

H_{01a}: There is no significant effect of board size on working capital management of listed construction and manufacturing firms in Kenya

H_{01b}: There is no significant effect of board independence on working capital management of listed construction and manufacturing firms in Kenya

H_{01c}: There is no significant effect of gender diverse board on working capital management of listed construction and manufacturing firms in Kenya

H_{01d}: There is no significant effect of board committee on working capital management of listed construction and manufacturing firms in Kenya

Literature Review

Theoretical Framework

The study was guided by Resource Dependency Theory which was proposed by Jeffrey Pfeffer and Gerald R. Salancik in 1978. The theory states that BOD are responsible for providing resources to the firm which will create dependency if they are controlled. The theory assumes that organization depends on resources which are a source of power. In addition, it is assumed that organization is surrounded by groups whose demands must be satisfied. Thus, to satisfy shareholders and stakeholders demands, resource dependency of the firm is created through control which involves management of working capital. This theory was thus essential as its forms basis of conceptualizing the relationship between board characteristics and WCM among listed construction and manufacturing firms in Kenya.

Board Characteristics

CG is referred to as strategies to attain objectives of the firm which can be short, medium and long term (Achchuthan & Rajendran, 2013). Pistor (2009) refers to corporate governance as an economic function of a firm to maximize its residuals while Solomon *et al.* (2003) bring in the aspect of relationship between the company management and other stakeholders. In the recent past, a significant number of companies in the world have fallen prey to scandals. The main causes of these scandals are on the rise caused by accounting related and corporate governance issues. In the recent past, the pressures from directors, investors, stakeholders and regulators aim at ensuring that a company is managed effectively, efficiently and ethically. The managers need to run the companies well to create wealth to distribute to shareholders, corporate accountability, attract more foreign investors, and to ensure successful operations (Keasey *et al.*, 1997). In the same breath, Organization for Economic Cooperation and development (OECD) principles of corporate governance outlines the board's responsibilities which include acting in the best interest of the company, treating shareholders fairly and applying high ethical standards to account for the interests of stakeholders.

In a company set up, corporate governance decisions rest with the Board of Directors who happens to be the governing body (Tricker & Tricker, 2015). In Kenya, there is the code of corporate governance practices guidelines issued by the Capital Markets Authority (CMA) in 2002 for public listed companies. The code refers corporate governance as a process and structure to direct and manage the affairs of the company as to enhance its prosperity, accounting and realize shareholders' long term value. The code of 2015 however requires the boards to formulate additional internal policies and strategies of growing the company, protecting shareholders, stakeholders and community interests. Companies in Kenya therefore need to exercise exceptionally top quality CG practice to survive in current times.

Jensen (1986) states that managers can deviate from shareholders' interests if there are no corporate governance controls. These managers have tendency to undertaking projects that benefit themselves and aim in any way at maximizing shareholders' wealth. The managers of organizations can however be tamed as agency theory emphasize incorporation of non-executive directors on the board of directors and discouraging chief executive officer's duality. Stewardship theory which is seen as extension of agency theory supports the use of non-executive board of directors but encourage CEO duality and reduction of size of the former. While explaining the free cash flow hypothesis, Jensen, (1986) states that corporate managers are agents to increase the resources under their control for the firm to grow beyond its optimal size. Given this, CG brings about the relationship between management of the company, its board, shareholders and other stakeholders (Solomon *et al.*, 2003). These parties are pillars in ensuring that management of working capital and other aspect is attained. Moreover, CEO serves the interests of management team given corporate liquidity. Therefore, for corporate governance to be complete there is need to have structures, systems, processes and cultures (Keasey *et al.*, 1997). As pointed out by Gill and Biger (2013), CG

which mainly comprises of board size, board independence, managerial ownership, managing director and audit committee are crucial as they help lay down policies to control working capital management.

Working Capital Management (WCM)

In any company, WCM entails application of management functions mainly planning and controlling given the current assets and current liabilities (Eljelly, 2004). Optimal working capital is required to mitigate inability to meet short term obligations and increase free cash flow (Van Horne & Wachowicz, 2005). In a nutshell, success depends on ability to manage components of working capital. Sound working capital management contributes positively to firm's survival; enhance performance and liquidity position. However, efficiency of working capital management is influenced by firm age, size and profitability. The key activities in WCM involve management of account receivables (AR), account payables (AP), inventory and cash. Each of these components plays an important role in ensuring that the company's ability to meet its day to day obligations is not affected (Van Horne & Wachowicz, 2005).

Board Characteristics and Working Capital Management

In attempt to explain the relationship between corporate governance practices and working capital management, a significant number studies have been done which according to help firms survive after a serious financial crisis (Reason, 2008). There is also the need of WCM to improve performance as well as competitive position of the firm apart from surviving economic turbulence. On the other hand, corporate governance ensures sustainability of a firm, guide in investment choices, maximization of residuals (Pistor, 2009), shareholder's wealth generation and distribution, harmonizes the interests of managers and shareholders, increase corporate, attracts foreign investors and improves efficiency of working capital (Gill & Biger, 2013).

Drobetz and Grüninger, (2007) conducted a study among non-financial firms as to assess the determinants of cash holding between 1995 and 2004. In their findings, asset tangibility and firm size had a negative while leverage and liquidity had non-linear relationship with cash holding. On the other hand, both dividend payments and operating cash flows positively affected cash holding. Furthermore, CEO duality was found to positively increase the cash holding while board size had no impact on the same..

In America, Gill and Biger, (2013) investigated the impact of corporate governance as indicated by chief executive officer's duality, tenure, board size and audit committee on working capital management efficiency among listed manufacturing corporations. Using correlation research design, 180 American manufacturing firms listed in New York stock exchange were sampled. The findings indicate that corporate governance plays some role in improving working capital management efficiency. In their study, account receivables management efficiency positively correlated with CEO duality while account payables management efficiency positively correlated with its tenure and duality, and board size and audit committee. On the other hand, cash management efficiency was found to positively

correlate with CEO tenure, board size and audit committee. Lastly, no significant relationship was found given corporate governance indicators and inventory management efficiency. Achchuthan and Rajendran, (2013) purposed to find out if there was a significant difference between corporate governance and working capital management efficiency in 25 listed manufacturing firms in Sri Lanka's Colombo Stock Exchange. The study focused on data from 2007 to 2011 and analyzed using one way ANOVA. Corporate governance was measured using CEO duality, board committee, board meeting and percentage of independent directors while working capital management efficiency using cash conversion cycle. The findings indicated that there was no significant difference between mean levels of working capital management efficiency given corporate governance practices.

Aghajari, Mousavi, and Mohammadipour, (2015) conducted a study among 75 listed firms listed in Tehran stock exchange. From the data analyzed relating to 2009 to 2014, cash conversion cycle (CCC) as a proxy of working capital management efficiency was positively affected by CEO duality but negatively given institution shareholder ownership and its tenure. In Pakistan, Chaudhry and Ahmad (2015) investigated the impact of corporate governance on working capital management among listed firms from 2010 to 2013. While controlling for firm size, sales growth, return on sales and leverage, corporate governance indicators comprised of board size, audit committee, board composition, number of board meetings and board independence. On the other hand, WCM in this study was measured using cash conversion cycle, average collection period, average payment period, and inventory and turnover period. After analysis, there was significant influence of former on later. Obradovich *et al.*, (2014) sampled 189 American manufacturing firms listed at New York Stock Exchange from 2009 to 2013 to assess the impact of independent directors on cash conversion cycle, and found that the percentage of independent directors negatively affect CCC compared to the positive effected reported given board size, audit committee, CEO tenure and its duality.

In India, Jamalinesari and Soheili, (2015) explored the impact of corporate governance practices on working capital management efficiency of 127 large industrial firms from 2004 to 2013. Using structural equation analysis, the findings indicate that corporate governance indicators as board size, number of independent directors in the board and percentage of independent members in an audit committee do significantly affect the working capital management efficiency. It also indicates that increase in independence of the board and audit committee compels management to be conservative in managing short term capital. This will in turn negatively affect working capital management efficiency. However, independence of a board has more effect on working capital management efficiency than independence of an audit committee. Further, as the board size increases, control weakens and allows management to follow aggressive working capital management strategies. Jamalinesari and Soheil (2015) sampled 115 listed companies in Tehran listed from 2008 to 2013. Corporate governance aspects examined were board size, board independence, ownership concentration and institutional ownership in the firm. Working capital management indicators ere current ratio, cash holding level, cash conversion cycle and average payment period. From their study, corporate governance was found to play a significant role in enhancing firm's working capital management.

In Jordan, Al-Rahahleh (2016) conducted a study to determine the impact of corporate governance (board size, number of board meeting and audit committee) on working capital management as indicated by cash conversion cycle among listed firms in Amman stock exchange. From the findings, there was a negative effect of corporate governance practices on working capital management. Thus, internal mechanisms were concluded to negatively affect cash conversion cycle, inventory, receivables and payables periods. Kamel (2016) assessed the impact of firm maturity in addition to corporate governance on working capital management efficiency. A total of 583 listed firms in Europe from 2002 to 2013 were targeted. CG aspects analyzed were board size, board independence, chief executive officer's duality, audit committee independence, number of board meetings and ownership concentration. Working capital management indicators were account receivables days, account payables days, inventory days held, cash holding level, current ratio, and cash conversion cycle and cash conversion efficiency. The study documented significant relationship between corporate governance and working capital management.

Ali and Shah, (2017) assessed the impact of corporate governance on working capital management efficiency among 62 listed firms at Pakistan stock exchange from 2014 to 2016. Corporate governance aspects comprised of audit committee, board meeting, board size, CEO duality and gender diversity of the board. From the findings, there was a positive impact of gender diverse board on working capital management proxy. Audit committee had significant impact while board size negatively affected cash conversion cycle. Both CEO duality and board meeting had no impact on cash conversion cycle of the sampled firms. Ahmad, Ahmed, and Samim (2018) sampled 40 listed firms in Pakistan from 2008 to 2012 to investigate the impact of corporate governance on working capital management. The former was measured using board size, audit committee, CEO tenure and its duality while the latter was indicated by cash conversion cycle and current ratio. In the end, it was found that corporate governance significantly influences working capital management of the firm.

Moreover, Njoku (2017) conducted a study among 89 listed firms from 2013 to 2014 in Nigeria. Corporate governance comprised of CEO tenure and its duality, audit committee and board size while working capital management was measured using current assets, current liabilities, cash conversion cycle and current ratio. From the analysis, board size and audit committee had significant impact on working capital management which was contrary to no relationship given CEO tenure and duality. In Kenya, Kamau and Basweti (2013) examined the relationship between corporate and working capital management efficiency. 42 firms were sampled listed in NSE from 2006 to 2012. Secondary data was analyzed using ANOVA. It was found out that there was no significant relationship between corporate governance and working capital management efficiency. Meshack (2015) assessed the effect of corporate governance on working capital management of firms in Kenya. The several aspects of corporate governance were internal audit, share holders' interests and board structure. The latter corporate governance aspects comprised of board characteristics as composition, size, effectiveness, meetings, CEO tenure, director's remuneration, multiple directorships, experience and qualification. After analysis, board structure was found to have

the highest impact on working capital management than internal audit and shareholders' interest. Mugo, (2015) looked at the impact of corporate governance on working capital management efficiency of Kenyan listed firms. A sample size of 27 firms was used drawn from sectors for a period of 2009 to 2014. Regression analysis was used and the findings indicate that CG plays some role in improving working capital management. However, there was no necessarily a causal relationship between the two study variables.

In terms of measurement, corporate governance has been measured using varied indicators as shown in Table 1;

Corporate Governance Indicators from Empirical Studies

From the studies reviewed in Table 1, the commonly used working capital management proxy is the cash conversion cycle. Other measures of working capital management include current ratio and cash holding. Working capital management indicators in other studies were average payment period, account receivables, account payables and inventory days held, cash conversion efficiency. Generally in line with resource dependency theory, board of directors is tasked with ensuring that resources are adequate. Moreover, board of directors help in maintaining optimal working capital directs the firm through supervision of management, and formulating of working capital management regulating policies. Therefore to fill the existing gap in literature, the study focused specifically on board characteristics in relation to working capital management of listed manufacturing and construction firms. The study further adopted from previous studies the use of widely used cash conversion cycle as an indicator of working capital management.

Table 1

Corporate Governance Indicators from Empirical Studies

Corporate Governance Indicator	Author (s)
Board size	(A. S. Gill & Biger, 2013); (Kamau & Basweti, 2013); (Chaudhry & Ahmad, 2015); (Obradovich <i>et al.</i> , 2014); (Jamalinesari & Soheili, 2015); (Meshack, 2015); (Al-Rahahleh, 2016); (Kamel, 2016); (Njoku, 2017); (Ahmad <i>et al.</i> , 2018)
Board committee	(Achchuthan & Rajendran, 2013); (Kamau & Basweti, 2013); (Chaudhry & Ahmad, 2015)
Board composition	(Meshack, 2015)
Board effectiveness (leadership, monitoring and reporting)	(Meshack, 2015)
Board meetings	(Achchuthan & Rajendran, 2013); (Kamau & Basweti, 2013); (Chaudhry & Ahmad, 2015); (Meshack, 2015); (Al-Rahahleh, 2016); (Kamel, 2016)
Board independence	(Achchuthan & Rajendran, 2013); (Chaudhry & Ahmad, 2015); (Obradovich <i>et al.</i> , 2014); (Jamalinesari & Soheili, 2015); (Meshack, 2015); (Kamel, 2016)
Board's gender diversity	(Achchuthan & Rajendran, 2013); (Ali & Shah, 2017); (Obradovich <i>et al.</i> , 2014)
Board qualification and experience	(Meshack, 2015)
CEO duality	(Gill & Biger, 2013); (Achchuthan & Rajendran, 2013); (Kamau & Basweti, 2013); (Aghajari <i>et al.</i> , 2015); (Obradovich <i>et al.</i> , 2014); (Jamalinesari & Soheili, 2015); (Kamel, 2016); (Njoku, 2017); (Ahmad <i>et al.</i> , 2018)
CEO tenure	(Gill & Biger, 2013); (Kamau & Basweti, 2013); (Aghajari <i>et al.</i> , 2015); (Obradovich <i>et al.</i> , 2014); (Meshack, 2015); (Njoku, 2017); (Ahmad <i>et al.</i> , 2018)
Audit committee	(Gill & Biger, 2013); (Chaudhry & Ahmad, 2015); (Obradovich <i>et al.</i> , 2014); (Al-Rahahleh, 2016); (Kamel, 2016); (Njoku, 2017); (Ahmad <i>et al.</i> , 2018)
Internal Audit	(Meshack, 2015)
Director's remuneration	(Kamau & Basweti, 2013); (Meshack, 2015)
institutional ownership	(Aghajari <i>et al.</i> , 2015); (Jamalinesari & Soheili, 2015)
Ownership concentration	(Jamalinesari & Soheili, 2015); (Kamel, 2016)
Source; Conceptualization of CG Measurements from Empirical Review	

Methodology

The study was quantitative and anchored on post positivist research paradigm claims of developing knowledge. As such, the paradigm's assumptions hold as noted by Phillips & Burbules, (2000). These include assumptions that there is no absolute truth, researcher is objective and collect information using instruments to advance relationship among variables. Explanatory research design was appropriate to explore relationship between variables

statistically without looking for their cause and effect (Creswell, 2014). Construction and manufacturing sector play a role towards the attainment of the ‘big four agenda’ in Kenya. The study was therefore singled out the listed construction and manufacturing firms as to shade new light on ways of enhancing WCM given CG. The target population consisted of 14 firms whereby 5 are from the construction while 9 are from manufacturing and allied sector (NSE, September 2018). Inclusion criteria were based on the firms with complete information and have been operation during the entire study period, that is, 2008 to 2017. Thus given this criterion, 2 firms were excluded from the target population leaving out 12 firms. Panel data was obtained from the annual financial reports of the firms. Stationarity of the panel data was tested using Levin, Lin and Chu (LLC), Im, Pesaran and Shin (IPS) tests. Moreover, regression assumptions which include normality, homoscedasticity, serial autocorrelation and multicollinearity were tested. Hausman test was used in selecting the appropriate model for the study. In the closing stages, hypotheses were tested using regression analysis and the model was as follows:

$$WCM_{it} = \beta_0 + \beta_1 FA_{it} + \beta_2 FS_{it} + \beta_3 BS_{it} + \beta_4 BI_{it} + \beta_5 BG_{it} + \beta_6 BC_{it} + e_{it}$$

Key: WCM - Working Capital Management; FA - Firm Age; FS - Firm Size;

BS - Board Size; BI - Board Independence; BG - Board's Gender;

BC - Board Committee

Measurement of Research Variables

Board Characteristics. Corporate governance in the study was examined based on board characteristics. These include board size which is based on the number of directors in the board. Board committee was measured using the number of directors in the board committee constituted by the firm. On the other hand, the number of independent directors was used as an indicator of board independence. Lastly, gender diversity of the board was determined using the number of female representation.

Working Capital Management as the dependent variable was measured using cash conversion cycle.

$$CCC = (NODAR + NODI) - NODAP$$

Where;

CCC; Cash conversion cycle

NODAR (Number of days account receivable) = Account receivables/ Sales * 365 days

NODAP (Number of days account payable) = Account payables/ Cost of goods sold * 365 days

NODI (Number of days inventory) = Inventory/ Cost of goods sold * 365 days

Control Variables. From empirical studies reviewed relating to CG and WCM, the study controlled for firm size (Gill & Biger, 2013).

Findings

Cash conversion cycle indicates the number of days it takes a firm to collect cash resulting from sale of its inventory. Hence, cash conversion cycle was used to measure the effectiveness of the firm given its working capital. The efficiency per se is gauged by the ability to acquire the inventory, convert and sell the final product, collect all receivables arising before payment of account payables becomes due. In the Table 2, working capital management had a mean of 44.478 (SD = 130.491) with the maximum and minimum of 827.314 and -535.911 respectively. The negative minimum value of cash conversion cycle implies that most firms were able to collect receivables from their customers early enough before making payment to the suppliers. From the board size descriptive analysis, it was evident that the highest and the lowest number of directors represented in the board of most firms were 13 and 4 respectively.

Table 2

Descriptive Statistics

	WCM	BC	BG	BI	BS	FA	FS
Mean	44.478	3.175	1.442	5.783	8.417	3.337	22.888
Maximum	827.314	6.000	5.000	11.000	13.000	4.190	25.236
Minimum	-535.911	2.000	0.000	1.000	4.000	0.693	20.465
SD	130.491	0.837	1.460	2.356	2.318	0.707	1.285

*WCM (Working capital management); BC (Board committee); BG (Board's gender); BI (Board independence); BS (Board Size); FA (Firm Age); FS (Firm Size); SD (Standard Deviation)

Source; Research data (2019)

In regards to board independence, the uppermost number of independent directors in the board was 11 while some firms had the lowest number of 1. The highest number of independent directors in the board thus supports the opinion by agency theory which opines that non executive directors are indispensable in taming the managers of the firm. Board committee had a mean of 3.175 (SD = 0.837) with the maximum of 6 and minimum of 2. This implied that there was a slight difference between firms with maximum and minimum representation of the directors in the board. This was evident with the lower SD which indicated that most numbers were closer to the mean. Despite that some firms had the highest female representation (maximum = 5) in the board, other firms had no female in their board (minimum = 0).

Diagnostic Tests

Table 3

Panel Unit Root Test

Unit root test	BC	BG	BI	BS	FA	FS	WCM
LLC	.040	.000	.000	.000	.000	.000	.000
IPS	.020	.035	.034	.004	.000	.005	.001

*WCM (Working Capital Management); BC (Board Committee); BG (Board's Gender); BI (Board Independence); BS (Board Size); FA (Firm age); FS (Firm Size)

Panel unit root analysis is usually conducted to test for stationarity of data. The study ran two test using LLC an IPS techniques. For panel data to be stationary, the null hypothesis (panels are not stationary) ought to be rejected. From the Table 3, the null hypothesis was rejected since the probability values of all variables under LLC and IPS tests were less than 5% level of significance. Therefore, the study concluded that all panels were stationary at levels. In Table 4, the study found out that data drawn was normally distributed. Moreover, the variances of residuals were homogeneous and independent given the testing of homoscedasticity and autocorrelation assumptions correspondingly. Lastly, absence of multicollinearity implied that no single independent variable highly correlated within a set of other independent variables.

Table 4

Test of Regression Assumptions

Regression Assumption	Test	Result	Decision
Normality	Jarque-Bera test	P-value = .469 > .05	Data was normally distributed
Homoscedasticity	Breusch-Pagan/ Cook-Weisberg test	p-value = .215 > .05	Variances of residuals were homogeneous
Autocorrelation	Durbin Watson (DW) test	DW Value = 1.721	Errors were independent
Multicollinearity	Variance inflation factor (VIF)	VIF were; WCM = 1.58, BC = 2.61, BG = 3.16, BI = 3.26, BS = 3.19, FA = 4.75 and FS = 3.34	All VIFs were less than 10 hence no multicollinearity

*WCM (Working capital Management); BC (Board Committee); BG (Board's Gender); BI (Board Independence); BS (Board Size); FA (Firm Age); FS (Firm Size)

Relationship between Board Characteristics and Working Capital Management

Regression analysis was done as to test the hypotheses stated given the nexus between board characteristic and WCM of listed construction and manufacturing firms in Kenya. After conducting Hausman test, random and not fixed effect model was found to be appropriate since the probability of Chi square (χ^2) statistic was 0.897. Since the statistic was greater than 5% level of significant, the null hypothesis (random effect model is appropriate) was failed to be rejected. From the R-Squared results (0.526) in Table 5, 52.6% variations in WCM were explained by the board characteristics.

Table 5

Regression Analysis Results

Dependent Variable: Working Capital Management (WCM)

Periods included: 10

Cross-sections included: 12

Total panel (balanced) observations: 120

F. Statistic (Probability) = .011

R-Squared = 0.526

Variable	Coefficient	t-Statistic	Prob.
Constant	416.560 (142.207)	2.930	0.045
Firm Age	17.586 (8.376)	2.099	0.024
Firm Size	-4.398 (22.378)	-0.197	0.845
Board Composition	-35.833 (16.091)	-2.227	0.028
Board's Gender	18.293 (6.892)	2.655	0.011
Board Independence	-6.581 (11.202)	-0.588	0.558
Board Size	3.822 (1.601)	2.388	0.019

*Standard errors are shown in parenthesis

The study controlled for the firm size and firm age with the assumption that large firms which have been listed for several years had improved working capital management as a result of better decisions by the BOD. Out of the two control variables, firm age had a positive ($\beta = 17.586$) and significant ($p\text{-value} = .024 < .05$) relationship with working capital management. Hence, as the number of years since the firm was listed change by 1 year, working capital management is increased by 17.586 units. This further implies that firms that have been listed for several years could have better working capital management strategies. There was a negative and significant relationship between board committee and working

capital management as indicated by $\beta = -35.833$ and $p\text{-value} = .028 < .05$. This implied that change in the number of board members in the committee by 1 unit led to decline in working capital management by 35.833 units. As a result, hypothesis H_{01d} was rejected and concluded that there was a significant relationship between board committee and working capital management. This finding thus contradicts Achchuthan and Rajendran, (2013) who found no relationship between board committee and working capital management. Moreover, the findings failed to support the positive relationship reported by Meshack, (2015) between board committee as part of the board structure and working capital management.

In most studies, findings regarding female directors studied under gender diversity concept are found to have strong impact on firm performance, enhance innovation, and provision of diverse external resources to enhance growth orientation. Women on boardroom put more effort on monitoring role with a significant effect on board inputs such as board meeting attendance and committee assignments. According to Fauzi, Basyith, and Ho, (2017) women in the board are known to be consciously committed to their roles and responsibilities. Women on boardroom of firms have tendency to improve firm's image, increase firm's survival and growth (Basyith, Idris & Fatriya, 2014), reduce leverage and volatility of earnings. This is because they are female role models with ability to give diverse opinions, influence leadership style and strategic thinking. In Table 5, gender as a characteristic of the board was found to positively ($\beta = 18.293$) and significantly ($p\text{-value} = .011 < .05$) affect working capital management. Hence, change in the number of female directors in the board by 1 unit increased working capital management by 18.293 units. Basing on this result, hypothesis H_{01c} was rejected and concluded that gender diversity of the board has significant effect on working capital management. This finding was in tandem with (Ali & Shah, 2017) but contradicted no and negative relationship documented by Achchuthan and Rajendran, (2013), and Obradovich *et al.*, (2014) respectively.

Board independence negatively ($\beta = -6.581$) but insignificantly ($p\text{-value} = .558 > .05$) affected working capital management. Consequently, hypothesis H_{01b} was failed to be rejected implying that board independence had no significant relationship with working capital management. From the finding, it was evident that working capital management declined as the number of independent directors in the board increased. This finding disagreed with agency theory proponents who stated that independent directors play a significant role in aligning the manager's interests to those of shareholders. In the case of listed construction and manufacturing firms in Kenya, board independence failed to drive it. On the other hand, the finding opposed the positive relationship between board independence and working capital management reported by Chaudhry and Ahmad, (2015). Lastly, there was a positive $\beta = 3.822$, and significant $p\text{-value} = .019 < .05$, relationship between board size and working capital management. Consequently, alteration in firm's board size by 1 unit increased working capital management by 3.822 units. This led to rejection of hypothesis H_{01a} and conclusion that board size did had significant relationship with WCM. The finding was concurrent with (Obradovich *et al.*, 2014; Jamalinesari & Soheili, 2015; & Meshack, 2015),

$$WCM_{it} = 416.560 + 17.586FA_{it} + 8.376FS_{it} + 3.822BS_{it} - 6.581BI_{it} + 18.293BG_{it} - 35.833BC_{it}$$

[142.2017] [8.376] [-4.398] [1.601] [11.202] [6.892] [16.091]

Key; WCM (Working Capital Management); FA (Firm Age); FS (Firm Size); BS (Board Size); BI (Board Independence); BG (Board's Gender); BC (Board Committee)

Conclusion

From the findings, board independence and board committee negatively affected working capital management. The study thus concluded that increase in the number of independent directors in the board as well as in the committee decreased it. More specifically, decline in working capital management could be attributed to delay in decision making due to diverse opinions by independent directors and increased number in the committee. Board size and board's gender were found to positively relate with working capital management. According to agency theory, the board offers advise the management of the firm and play monitoring role. Thus, having an optimal board size helps not only in enhancing firm performance but also working capital management. In the recent past, diversity in the boardroom increases knowledge base, creativity and innovation and competitive advantage in the long run. Fauzi *et al.*, (2017) assert diversity in boardroom as a necessary ingredient to improve firm performance given independence, innovativeness and good governance. From general view of female directors in firms, studies have found them to be young, risk averse, less overconfident and shy from competition and trade less. Female directors are found to be more about benevolence, universalism and stimulation but care less about power, security, conformity and traditions (Adams & Funk, 2012). Therefore, given these general of female directors and specific attributes of women in boardroom, the study found that gender diversity in the board enhances working capital management.

Recommendations

- To boost performance, working capital levels, cash flows and liquidity position, the study suggested to management of listed firms in construction and manufacturing sector o maintain low if not a negative cash conversion cycle.
- The firms need to maintain the optimal number of board members in the committee as to enhance working capital management. In addition, there is need to regulate the number of independent directors in the board since once enlarged, working capital management of firm declines. The number of directors in board could not only be used as a way of taming the selfish interests of the managers but also in driving working capital management.
- Changes in business environment and regulatory environment has increased search in corporations for experts, experienced and diverse boards in terms of gender, race, ethnicity, skills, background, personalities and opinions. Thus in the current world, board diversity is becoming household names in most corporations. Demographic diversity consists of gender, age, race and ethnicity; while cognitive include

knowledge, education, values, perceptions, affection and personality characteristics. As such, demographic diversity results to diverse and unique views that may influence strategic choices of the firm based on International Labor Organization (ILO) report in 2016, women take time and a lot of effort to climb the corporate ladder. This is because of challenges relating to work and family life balancing which in turn increases their working days on average. Therefore, the study suggested to the firms to look into gender diverse boards as an emerging issue by increasing female representation in the board as to increase the positive effect on working capital management.

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