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Corporate Governance, Financial Characteristics, Macroeconomic Factors and Performance of Manufacturing Firms Listed at the Nairobi Securities Exchange

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Abstract
Performance of manufacturing firms listed at the Nairobi securities exchange has been varied since the introduction of the corporate governance policies and practices in the year 2002. This has been blamed to a number of factors including financial characteristics and macroeconomic factors. The specific objectives were to establish the effect of corporate governance on performance of manufacturing firms listed at the Nairobi securities exchange; to determine the intervening effect of financial characteristics on corporate governance and performance of manufacturing firms; to establish the moderating effect of corporate governance and performance of manufacturing firm; and to determine joint effect of corporate governance, financial characteristics, macroeconomic factors and performance of listed manufacturing firms at the Nairobi securities exchange. This study was anchored on, agency theory, stewardship theory, stakeholders' theory and resource dependence theory. The study used census approach and a target population of 10 manufacturing firms listed at the Nairobi securities exchange between 2002 and 2016 were incorporated. This study employed longitudinal descriptive research design to determine relationships amongst independent, intervening, moderating and dependent variables. A panel data regression analysis was conducted using random effects model. The study findings revealed that corporate governance had insignificant effect on performance of listed manufacturing firms in Kenya; investments, leverage and liquidity significantly intervene in the relationship between corporate governance and performance of listed manufacturing firms; interest rate, inflation rate and growth domestic product rate, significantly affect returns on assets and Tobin's Q of listed manufacturing firms in Kenya; and corporate governance, financial characteristics and macroeconomic factors were good predictors of listed manufacturing sector firms' performance.
Keywords: Firm performance, corporate governance, financial characteristics, macroeconomic factors, manufacturing firms, Nairobi securities exchange
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1.0 Introduction

Background Information

The relationship between corporate governance and performance of manufacturing firms, which is one of the most appealing and controversial issues, has received a lot of attention from many different countries all over the world after great corporate failures (Dang & Nguyen, 2016). Manufacturing firms practicing good corporate governance normally have good firm performance, and this is further influenced by financial characteristics and macroeconomic factors (CMA, 2015). Financial characteristics usually intervene in relationships between corporate governance and performance of manufacturing firms. Financial characteristics such as investments, leverage and liquidity are expected to have a positive impact on performance of manufacturing firms. Increase in investment implies that manufacturing firms have identified lucrative opportunities that they seek to exploit which plays a critical role in the use of leverage (Aivazian, Ge & Qiu, 2005). Macroeconomic factors universally influence performance of manufacturing firms in an economy and have moderating effect on the relationship between corporate governance and performance of manufacturing firms (Ghabayen, 2012).

The above conceptualization on the relationship between corporate governance, financial characteristics, macroeconomic factors and performance of manufacturing firms is explained by agency theory by Jensen and Meckling (1976), stewardship theory by Donaldson and Davis (1981), stakeholders' theory by Freeman (1984) and resource dependency theory by Preffer and Salanuk (1970). The agency theory is an agreement between principals and agents, in a firm, it deals with various relationships between shareholders and various agents. These agents perform various activities on behalf of shareholders (Jensen & Meckling, 1976). The stewardship theory deals with directors as stewards of a business, with interest to protect and enhance shareholders' wealth through superior firm performance (Davis & Donaldson, 1997). The stakeholder theory proposes a network of relationship of all stakeholders of a firm (Freeman, 1999). The resource dependency theory focuses on the function of board of directors in providing resources needed by the firm to achieve an improved firm performance (Hillman, Canella & Paetzold, 2000).

According to Tricker (2015) corporate governance can be defined as the way power is exercised over corporate entities. It consists of the board activities of the enterprise and its relationships with shareholders, with the managers as well as with other legitimate stakeholders. Corporate governance is a mixture of policies and best practices used by firms to achieve their goals in relation to their shareholders (Millin, 2007). Corporate governance promotes efficient and transparent management of organizations to meet definite objectives through best practices and structures (Abu-Tapanje, 2005). Corporate governance policies and practices used in this study include board structures and board activities. The board structures dimensions include board composition which comprises both executive and non-executive directors, gender and ethnicity (Carter, Simkins, & Simpson, 2003); board skills and experience, which are occupational expertise of board members (Kesner,1998); board age, is the average age of board members (Rose, 2007); and board size, the number of directors instituting the board (Jensen, 1993; Khanchel, 2007). The board activities are responsibilities performed by the board and committees set up by board for specific duties. The board activities include board tenure which is the duration the directors take in a firm (Mathew, Paul, Kamel & Cherif, 2010); board ownership which is the holdings in a firm's stock by board members (Brickley, Lease & Smith, 1988); board tools which are necessary tools and aids in place to enable discharging of responsibilities of the board (CMA, 2015); board meetings including statutory and non-statutory meetings (Lipton & Lorch, 1992) and board committees for deliberations of board activities (Klein, 2002); and board compensation is the remuneration to board members (Murphy, 1984).

Financial characteristics are financial management factors of a firm that are expected to have effect on its efficiency and level of performance. Finance is the life blood of a firm; it is required to bring a firm into existence, to keep it alive and to see it growing and prospering. The financial characteristics used in this study include: investment, leverage and liquidity because of their direct influence to performance of manufacturing firms. Investment refers to the sacrifice of current cash flows for future cash flows. It involves time, risk and returns since the sacrifice takes place in the present, and is certain, while returns come later, and are uncertain (Iraya, 2014; Sharp *et al*., 2005). Investment measures the increase in capital spending such as buying new machines, building bigger factories. Investment in long term assets makes firms to remain competitive and to survive given constant flow of ideas for new products, making existing products better and reducing the operating cost (Hillie, Jaffe, Jordan, Ross & Westerfield, 2010). Investment in tangible and intangible assets such as property, plant, equipment and securities also ensures a good firm's performance in profitability and value (Mudida & Ngene, 2010).

Macroeconomic factors are general economic factors having universal effect on a nation or a region and affect a large population (Deraso, 2012). Macroeconomic factors impact on performance of all manufacturing firms in an economy. Macroeconomic factors affect macroeconomic environment and determines the level of performance of manufacturing firms due to cost of capital benefits arising from favorable interest rates prevailing in the country. The macroeconomic factors used in this study include: Gross Domestic Product (GDP) growth rate, interest rate and inflation rate. GDP is a measure for all finished goods and services produced in a country for a specific fiscal year. GDP is equal to total investment, consumption, government spending, and exports less value of imports (Maclennan & Pryce, 1996). The real GDP portrays economic performance in a country. During periods of economic boom, manufacturing firms demand more external financing for investment to expand their business portfolios. Economic growth strengthens firms' alteration of their leverages. The growth in GDP affects the cost of finances and hence the future performance of manufacturing firms. Interest rate is the price that a borrower pays in order to be able to consume resources now. It represents the cost of borrowing capital for a given period of time. A high rate of interest significantly affects a firm's earnings and capital base; and increases the operating expenses (Keynes, 1936; Lazonick & O'Sullivan, 2000). Increase in interest rate drives cost of debt capital affecting investment, leverage, liquidity and performance of firms. Interest rate assists in mobilizing financial resources in the promotion of economic growth and development (Koori, 2015). Inflation refers to the change in the general level of prices in the economy over given period of time (Santoni, 1986). Inflation rates have effects on the value of money and it is measured by the changes in the consumer price index (Liow, Ibrahim & Huang, 2005). Pressures of inflation heavily impact on investment, leverage, liquidity and performance of manufacturing firms. Higher rate of inflation has a negative impact on the cost of debt which could increase debt to equity ratio and affect performance of manufacturing firms (DeAngelo & Masulis, 1980).

Performance of a firm is a measure of overall well-being of a firm in terms of wealth creation over a given period of time. It measures how a firm can use investment in long and short term assets to create revenues (Iraya, 2014). Performance measurement is the process of assessing proficiency with which reporting entity succeeds by economic acquisition of resources and their efficient and effective deployment of resources, in achieving its objectives. Performance measure may be based on financial and non-financial information (Murby & Gould, 2005). Performance measurement refers to the process of measuring the actions, efficiency and effectiveness of a firm (Neely, Gregory and Platts, 2005). There are 10 listed manufacturing firms at the Nairobi securities exchange as at 31st December, 2016. The performance of listed firms have been varied since the introduction of corporate governance policies and practices. B.O.C Kenya Limited had increased operating profit from KES

154,990,000 in 2002 to KES 308,392,000 in 2013 and reduced to KES 190,682,000 in 2016. British America Tobacco Kenya Limited had operating profit of KES 1,310,423,000 in 2002 to KES 7,672,448,000 in 2015 and reduced to KES 5, 911,310,000. East African Breweries Limited had KES 2,300,794,000 in 2002 to KES 15,253,011,000 in 2012 to KES 13,618,504,000 in 2016. Unga Limited, CABACID Limited, Eveready Limited, Mumias Sugar Company limited, Flame Tree group and Kenyan Orchards Limited among others posted varied fluctuating results over the period.

2.0 Literature Review

2.1.1 Theoretical Review

Agency Theory

Agency theory was developed by Jensen and Meckling (1976). The theory is grounded on the separation of ownership and relationship between principals and agents. It is based on short term gains where principals delegate decision making authority to their agents; who are to use resources given by the principals to enhance principals' benefits. Agents however, may commit moral hazard by substituting principals' interest with their own (Fama & Jensen, 1983). Principals normally monitor the activities of agents to ensure that they act on the interest of the firms. Monitoring costs are normally expensive and adversely affect the principals' income (Agrwal & Knoeber, 1996). Agency theory has been applied to today firms since shareholders have realized that firm performance depends crucially on having the right managers at the helm and incentivizing them properly (Anderson, Bustamante, Guibaud, & Zervos, 2018). Todays' firms have adopted various compensation structures to motivate the managers hence avoiding agency costs and conflicts as a result of principal-agency relationships.

Stewardship Theory

Stewardship theory was developed by Donaldson and Davis (1991). The theory was an innovative view in understanding relationship between ownership and management of a firm from the agency theory. Directors are stewards making decisions for long term survival of firms as well as maximizing shareholders' wealth. Directors normally perceive firms as an extension of them, rather than use their resources for own interest; the executives main interest is ensuring the sustained life and success of the firm. The theory is based on the duties of executives acting as stewards, integrating their goals as part of the firm and recognizes the importance of structures that empower the steward and offers maximum autonomy built on trust (Donaldson & Davis, 1991). The critics of steward theory argue that there is lack of conclusive evidence linking board to firm performance which have turned researchers' attention back to the black box of board process, and emphasized the element of firm context in determining the role and value of the corporate governance (Huse, 2003). This implies that board of directors which are components of corporate governance may act as stewards but they do not have direct impact on firm profitability.

Stakeholder Theory

Stakeholder theory was developed by Freeman (1984). The theory takes into account diverse intrinsic interest of all stakeholders of the firm. Stakeholders are individuals or groups who can affect or are affected by the achievement of the firm's objectives. The theory suggests that directors of a firm have interests of different stakeholders to serve. It is important for directors not to have preference in a group of network they serve in administering the activities of the firm and the moral perspective of the theory is that all stakeholders have a right to be treated fairly as this leads to a better firm performance (Freeman, 1999). The theory has also faced some criticism among corporate governance researchers. Critics of this theory argue that meeting all stakeholders' interest leads to corruption as it gives chances to divert wealth and directors may use stakeholders' reasons to justify poor performance and provide inadequate explanation of the firm's behavior with its environment (Okiro, 2014). Firms today apply the stakeholders' proposition to promote the vision of the company and the role of managers whose objective is mainly to maximize shareholder value in order to be sustainable. Roberts and Mahoney (2004) examined 125 accounting studies that used the stakeholder language and found that nearly 65 percent "use the term stakeholder" without reference to any version of stakeholder theory.

Resource Dependency Theory

Resource dependency theory (RDT) was developed by Pfeffer and Salancik (1978). The theory deals with the study of how external resources affect the behavior of the organization. The procurement of external resources is an important tenet for both the strategic and tactical management of any company. The theory concentrates on the role of board directors in providing access to resources needed by the firm. The theory emphasizes on the activities that directors play in finding resources required by the firm through connections to its external environment (Hillman, Canella & Paetzold, 2000). The theory further gives direction on recruitment of directors who assist in gaining access to vital resources of the company for survival (Johnson, Daily & Ellstrand, 1996). The critics of this theory have based their arguments concerning the boundary of space; Casciaro and Piskorski (2005) for instance argue that the RDT can be bounded to the boundaries of the organization concerning internal issues. Hillman *et al.,* (2000) on the other hand, posit that the RDT is bounded to the environment of the

organization and assumes that the organizational actions are constrained to the events in the organizational environment, leaving the environment as a space boundary.

2.1.2 Empirical Review

Wagana and Karanja (2015) examined the influence of corporate governance mechanisms such as board diversity, board duality, government ownership and management ownership and found significant positive relationship between corporate governance and performance of manufacturing firms in Kenya. The study however is not grounded on a specific research design. Lekaram (2014) studied corporate governance and performance of listed manufacturing firms in Kenya and found that board size is inversely related to ROA and ROE for listed manufacturing firms at the Nairobi securities exchange, on contrary a larger proportion of outside directors led to a higher shareholders' value but does not explain why listed manufacturing firms exhibit a high market price to net assets value. The study concentrated on one sector of the market and used board size and outside directors as the only characteristics of corporate governance. Mbalwa,Kombo,Chepkoech,Koech and Shavulimo (2014) study effect of corporate governance on performance of sugar manufacturing firms in Kenya, a case study of sugar manufacturing firms in western Kenya using correlation survey design and found that corporate governance practices are positively related to the performance of sugar manufacturing firms in western Kenya. The study however used one sector of manufacturing firms in Kenya. Valnampy (2013) studied corporate governance and firm performance of Sri-Lanka manufacturing companies and found that corporate governance has no effect on firm performance as measured by return on equity and return on assets. They however concentrated on sectors of the economy that is the manufacturing firms.

3.0 Research Methodology

This study used a census approach and a target population of the study comprised of manufacturing firms listed at the Nairobi securities exchange (NSE) between years 2002 and 2016. A total of ten manufacturing companies were listed at the NSE as at 31st December 2016. Manufacturing companies listed at NSE were targeted because the NSE acts as a country's financial barometer and the market had received empirical studies and financial data that were used to support this study (Ongore & K'obonyo, 2011). The 10 companies were screened against various factors which included availability of data for the period under review and the integrity of data. Data was extracted from annual reports of listed firms from Capital Markets Authority of Kenya; published financial statements from Nairobi securities exchange; and economic reports from Central Bank of Kenya (CBK) and Kenya National Bureau of Statistics (KNBS). This study used descriptive research design and panel data regression in analyzing the relationship between corporate governance and performance of manufacturing firms listed at the NSE.

Descriptive analysis was carried out to measure average, minimum, maximum, and dispersion of variables such as standard deviations and coefficient of variation which was used to disclose the volatility in relationships of the variables under study. A panel data regression analysis was conducted using random effects model which allowed the companies to have a common mean value of the intercept to determine whether corporate governance influence performance of manufacturing firms. Coefficient of Determination (R^2) and p-values were used to interpret the regression functions at a level of significance of 0.05 (Bryman & Cramer, 1997). The respective individual regression coefficients were also tested for their statistical significance using the t-test. Simple regression model was used to test hypothesis one: Relationship between Corporate Governance (CG) and Performance of Firms (FP). Panel data regression model of random effects was used to determine the relationship among Corporate Governance (CG), Financial Characteristics (FC), Macroeconomic Factors (MF) and Performance of Firms (FP). These models were used to test hypothesis four, the joint effect: Panel data regression model of random effects was used to determine the relationship among Corporate Governance (CG), Financial Characteristics (FC), Macroeconomic Factors (MF) and Performance of Firms (FP). These models were used to test hypothesis four, the joint effect:

$FP_{it} = \beta_0 + \beta_1 CG_{it} + \acute{\varepsilon}_{it}$ ..... Equation 1.

$FP_{it} = \beta_0 + \beta_1 CG_{it} + \acute{\varepsilon}_{it}$ ..... Equation2 (a).

$FP_{it} = \beta_0 + FC_{it} = \beta_0 + \beta_2 CG_{it} + \acute{\varepsilon}_{it}$ ..... Equation2 (b).

$FP_{it} = \beta_0 + \beta_3 FC_{it} + \acute{\varepsilon}_{it\,t}$ ..... Equation2 (c).

$FP_{it} = \beta_0 + \beta_4 CG_{it} + \beta_5 FC_{it} + \acute{\varepsilon}_{it}$ ..... Equation2 (d).

$FP_{it} = \beta_0 + \beta_1 CG_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 INR_{it} + \beta_5 GDP_{it} * CG + \beta_6 INF_{it} * CG + \beta_7 INR_{it} * CG + \acute{\varepsilon}_{it}$ ..... Equation 3.

$FP_{it} = \beta_0 + \beta_1 CG_{it} + \beta_2 FC_{it-1} + \beta_3 MF_{it-1} + c_i + \acute{\varepsilon}_{it}$ ..... Equation 4.

Where:

FP_{ij} is Performance of Firms;

CG is Corporate Governance;

FC is Financial Characteristics;

MF is Macroeconomic Factors;

c_i unobserved variable; β_0 is the intercept;
β_1, β_2, and β_3 are regression coefficients for Corporate Governance, Financial Characteristics and Macroeconomic Factors for firm i in time t
ε is error term.

The study's null hypotheses were rejected when calculated p-values exceeded 0.05 significance level adopted by the study

4.0 Results and Discussions

4.1 Descriptive Analysis

The findings presented in this section include findings on descriptive statistics, and correlation test results. Tables and charts were used in presentation of the findings. The results presented in table 1 shows the descriptive statistics of the variables under the study.

Table 1: Descriptive Statistics of Study Variables

Variables	N	Mean	Std. Dev.	Min	Max
Board Independence	107	0.82	0.09	0.60	1.25
Gender Diversity	107	0.15	0.14	0.00	0.63
Occupational Expertise	107	6.12	1.79	2.00	9.00
Board age	107	57.64	5.83	47.60	74.00
Board size	107	8.55	2.44	3.00	12.00
Board tenure	107	2.02	0.93	1.00	3.00
Board ownership	107	0.10	0.13	0.00	0.48
Board tools	107	3.40	0.55	2.00	4.00
Board meetings	107	4.55	1.01	3.00	8.00
Number of board committees	107	2.90	1.00	0.00	6.00
Committees Meetings	105	8.36	4.74	0.00	24.00
Board remuneration	107	0.00	0.58	0.00	0.99
Investments	107	0.52	0.16	0.15	0.93
Leverage	107	0.36	0.42	0.03	0.19
Liquidity	107	0.19	0.17	-0.37	0.51
GDP growth Rate	135	4.85	2.19	0.20	8.40
Interest Rate	135	15.07	2.26	12.25	9.85
Inflation Rate	135	7.43	3.50	0.90	15.20
ROA	107	0.29	0.27	-0.53	0.76
Tobin's Q	107	1.83	1.25	0.11	0.19

4.2 Correlation Analysis

4.2.1Board Structure and Financial Characteristics in Manufacturing Firms

Table 2 presents the correlation findings of board structure indicators and financial characteristics of manufacturing firms listed on NSE. The results showed that board independence had a negative correlation with investment while had a positive correlation with liquidity and leverage. Gender diversity on the other hand had a negative correlation with both investments and liquidity while it had a positive correlation with Leverage. Occupational expertise had a negative correlation with leverage and liquidity while it had a positive correlation with investments. The findings showed that Board age had positive correlation with investments and liquidity while it had negative correlation with leverage. Finally, the findings showed that board size had negative correlation with leverage while it had positive correlation with investment and liquidity of manufacturing firms listed on NSE.

Table 2: Board Structure and Financial Characteristics in Manufacturing Listed Firms

		Board independence	Gender Diversity	Occupational Expertise	Board Age	Board Size	Investments	Leverage	Liquidity
Board independence	r	1							
Gender Diversity	r	.225*	1						
Occupational Expertise	r	-0.069	0.093	1					
Board Age	r	0.012	-.508**	-.277**	1				
Board Size	r	0.172	.207*	.499**	-.313**	1			
Investments	r	-0.025	-.208*	0.105	.375**	.235*	1		
Leverage	r	.251**	.359**	-0.124	-.204*	0.17	0.059	1	
Liquidity	r	0.047	-.317**	-0.175	.197*	-.412**	-.59**	-.49**	1
	N	107	107	107	107	107	107	107	107

** Correlation is significant at the 0.01 level (2-tailed).

4.2.2 Board Activities and Financial Characteristics in Manufacturing Firms

Table 3 presents the findings on correlation analysis between board activities indicators and financial characteristics of manufacturing firms listed on NSE. The findings showed that investments was positively correlated to board ownership, board tools, board meetings, number of board committees, committees meetings and board remuneration while it was negatively correlated with board tenure. The findings further revealed that leverage was positively correlated with board tenure, board ownership, number of board committees and committees meetings while it was negatively correlated with board tools, board meetings and board remuneration of manufacturing firms listed on NSE. Finally, the study findings showed that liquidity was positively correlated with board remuneration while negatively correlated with board tenure, board ownership, board tools, board meetings, number of board committees and committees meetings of manufacturing firms listed on NSE.

Table 3: Board Activities and Financial Characteristics in Manufacturing Firms

		Board Tenure	Board Ownership	Board Tools	Board Meetings	No. Board Committees	Committees Meetings	Board Remuneration	Investments	Leverage	Liquidity
Board Tenure	r	1									
Board Ownership	r	.378**	1								
Board Tools	r	-.311**	-.415**	1							
Board Meetings	r	-0.111	-0.106	.363**	1						
Number of Board Committees	r	-0.069	-0.076	.283**	0.113	1					
Committees Meetings	r	0.009	0.119	0.005	0.025	.805**	1				
Board Remuneration	r	-0.059	-0.018	0.043	0.054	-0.06	-0.019	1			
Investments	r	-0.122	.195*	0.127	.278**	.256**	0.102	0.148	1		
Leverage	r	0.176	0.07	-0.126	-0.14	.307**	0.059	-0.137	0.059	1	
Liquidity	r	-0.146	-0.119	-0.018	-0.153	-.360**	-.228*	0.023	-.592**	-.496**	1
	N	107	107	107	107	107	105	107	107	107	107

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

4.2.3 Board Structure and Macroeconomic Variables in Manufacturing Firms

Table 4 presents the results for board structure indicators and macroeconomic variables for listed manufacturing firms in Kenya. The findings showed that GDP growth rate had a positive correlation with gender diversity and board age while it was negatively correlated with board independence, occupational expertise and board size. Interest rates were negatively correlated with board independence, occupational expertise, board age and board size while it was positively correlated with gender diversity. Inflation rates on the other hand, had a positive correlation with all the board structures.

Table 4: Board Structures and Macroeconomic Variables in Manufacturing Firms

		Board independence	Gender Diversity	Occupational Expertise	Board Age	Board Size	GDP	Interest Rate	Inflation Rate
Board independence	r	1							
Gender Diversity	r	.225*	1						
Occupational Expertise	r	-0.069	0.093	1					
Board Age	r	0.012	-.508**	-.277**	1				
Board Size	r	0.172	.207*	.499**	-.313**	1			
GDP	r	-0.009	0.153	-0.036	0.042	-0.032	1		
Interest Rate	r	-0.041	.305**	-0.103	-0.113	-0.119	-0.15	1	
Inflation Rate	r	0.059	0.061	0.061	0.056	0.082	-.262**	-0.126	1
	N	107	107	107	107	107	107	107	107

** Correlation is significant at the 0.01 level (2-tailed).

4.2.4 Board Activities and Macroeconomic Variables in Manufacturing Firms

Table 5 presents the findings of correlation analysis between board activities indicators and macroeconomic variables among manufacturing firms listed on NSE. The findings similarly showed that GDP growth rate, interest rate and inflation rate had weak association with board activities indicators for listed manufacturing firms in Kenya.

Table 5: Board Activities and Macroeconomic Variables in Manufacturing Firms

		Board Tenure	Board Ownership	Board Tools	Board Meetings	No. of Board Committees	Committees Meetings	Board Remuneration	GDP	Interest	Inflation
Board Tenure	r	1									
Board Ownership	r	.378**	1								
Board Tools	r	-.311**	-.415**	1							
Board Meetings	r	-0.111	-0.106	.363**	1						
No. of Board Committees	r	-0.069	-0.076	.283**	0.113	1					
Committees Meetings	r	0.009	0.119	0.005	0.025	.805**	1				
Board Remuneration	r	-0.059	-0.018	0.043	0.054	-0.06	-0.02	1			
GDP Growth Rate	r	0.047	0.051	0.132	0.044	0.074	0.03	-0.168	1		
Interest Rate	r	0.041	0.058	0.173	0.093	0.104	0.04	0.071	-0.151	1	
Inflation Rate	r	0.034	0.028	0.174	0.069	0.052	0.02	0.15	-.262**	-0.126	1
	N	107	107	107	107	107	107	107	107	107	107

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

4.2.5Board Structure and Performance of Firms in Manufacturing Firms

Table 6 shows the correlation between board structure indicators and performance of listed manufacturing firms in Kenya. The results showed that board structure indicators had a weak correlation with performance of listed manufacturing firms in Kenya.

Table 6: Board Structure and Performance of listed Manufacturing Firms

		Board independence	Gender Diversity	Occupational Expertise	Board Age	Board Size	ROA	Tobin's Q
Board independence	r	1						
Gender Diversity	r	.225*	1					
Occupational Expertise	r	-0.069	0.093	1				
Board Age	r	0.012	-.508**	-.277**	1			
Board Size	r	0.172	.207*	.799**	-.313**	1		
ROA	r	-.386**	-.434**	.453**	.192*	0.113	1	
Tobin's Q	r	-.288**	-0.064	.514**	0.014	.286**	.617**	1
	N	107	107	107	107	107	107	107

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

4.2.6 Board Activities and Performance of Manufacturing Firms

Table 7 presents the findings of correlation analysis of board activities indicators and performance of manufacturing firms listed on NSE. The findings showed that board activities indicators had a weak correlation with both ROA and Tobin's Q of manufacturing firms listed on NSE.

Table 7: Board Activities and Performance of Manufacturing Firms

		Board Tenure	Board Ownership	Board Tools	Board Meetin	No. of Board Committees	Committees Meetings	Board Remuneration	ROA	Tobin's Q
Board Tenure	r	1								
Board Ownership	r	.378**	1							
Board Tools	r	-.311**	-.415**	1						
Board Meetings	r	-0.111	-0.106	.363**	1					
No. of Board Committees	r	-0.069	-0.076	.283**	0.113	1				
Committees Meetings	r	0.009	0.119	0.005	0.025	.805**	1			
Board Remuneration	r	-0.059	-0.018	0.043	0.054	-0.06	-0.019	1		
ROA	r	-.406**	-.318**	.302**	0.163	0.125	0.052	0.09	1	
Tobin's Q	r	-.281**	-0.175	0.184	0.147	.304**	.303**	0.04	.617**	1
	N	107	107	107	107	107	105	107	107	107

**Correlation is significant at the 0.01 level (2-tailed).

4.2.7 Financial Characteristics Variables and Performance of Manufacturing Firms

Table 8 presents the findings of correlation analysis between financial characteristics and performance of manufacturing firms listed on NSE. The findings showed that investments, leverage and liquidity had a weak positive correlation with both ROA and Tobin's Q of listed manufacturing firms on NSE.

Table 8: Financial Characteristics Variables and Performance of Firms in Manufacturing Firms

		Investments	Leverage	Liquidity	ROA	Tobin's Q
Investments	r	1				
Leverage	r	0.059	1			
Liquidity	r	-.592**	-.496**	1		
ROA	r	0.07	-.510**	.267**	1	
Tobin's Q	r	0.117	-.429**	-0.111	.617**	1
	N	107	107	107	107	107

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

4.2.8 Macroeconomic Variables and Performance in Manufacturing Firms

Table 9 presents the correlation analysis of macroeconomic variables and performance indicators of manufacturing firms listed on NSE. The results presented showed that GDP growth rates, interest rates and inflation rates had a weak correlation with both ROA and Tobin's Q of listed manufacturing firms in Kenya.

Table 9: Macroeconomic Variables and Performance in Manufacturing Sector

		GDP	Interest Rate	Inflation Rate	ROA	Tobin's Q
GDP	r	1				
Interest Rate	r	-0.151	1			
Inflation Rate	r	-.262**	-0.126	1		
ROA	r	0.043	-0.125	0.044	1	
Tobin's Q	r	0.141	-0.172	0.066	.617**	1
	N	107	107	107	107	107

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

4.3 Regression Analysis

4.3.1Corporate Governance Variables and Performance of Manufacturing Firms

Table 10 presents the findings of effect of corporate governance variables on performance of listed firms in manufacturing sector in Kenya. The results revealed that models used to link corporate governance variables to ROA (Prob>Chi2 =0.0000) and Tobin's Q (Prob>Chi2 =0.0000) were statistically significant which also implied that corporate governance variables were significant predictor of performance of listed firms in manufacturing sector in Kenya.

Table 10: Corporate Governance Variables and Performance of Manufacturing Firms

	ROA		**Tobin's Q**	
	Coef.	P>|z|	Coef.	P>|z|
Foreign Director	0.0280	0.129	0.404	0.000
Women Director	-0.1232	0.00	-0.120	0.307
Occupational Expertise	0.0873	0.004	0.271	0.107
Board Age	-0.0007	0.894	0.038	0.168
Board Size	-0.0348	0.068	-0.048	0.651
Board Tenure	-0.0057	0.829	-0.163	0.266
Board Ownership	0.3848	0.042	2.728	0.010
Board Tools	0.0371	0.429	-0.153	0.559
Board Meetings	0.0177	0.343	0.042	0.690
Number of Board Committees	0.1243	0.006	0.128	0.610
Committees Meetings	-0.0081	0.292	0.015	0.725
Board Remuneration	0.0107	0.721	-0.004	0.982
Cons	-0.3246	0.322	-2.442	0.184
	Wald chi2(12)=162.13		Wald chi2(12)= 80.36	
	Prob > chi2= 0.0000		Prob>chi2=0.0000	
	R-sq: = 0.1488		R-sq:= 0.4662	

The study findings revealed that occupational expertise, board tenure, board ownership, board tools, board meetings and number of board committees were positively related to ROA of listed manufacturing firms in Kenya while board independence, gender diversity, board age, board size, committees meetings and board remuneration had a negative effect on ROA of listed manufacturing firms in Kenya. The effect of board independence, gender diversity, occupational expertise, board size and number of board committees on ROA was significant.

The findings also shows that occupational expertise, board age, board ownership, board meetings, number of board committees and committees meetings were positively related to Tobin's Q of listed manufacturing firms while board independence, gender diversity, board size, board tenure, board tools and committees meetings had a negative effect on Tobin's Q of listed manufacturing firms in Kenya. The effect of board independence, occupational expertise and board size on Tobin's Q was significant. Table 11 presents the regression results of the models fitted to test the relationship between CG composite and performance of firms (ROA and Tobin's Q) of listed manufacturing firms in Kenya. The results also revealed that the models fitted were statistically insignificant which implied that CG composite was insignificant predictors of performance of firms on both (ROA and Tobin's Q) of listed manufacturing firms in Kenya.

Table 11: Model Corporate Governance Composite and Performance of Firms in Manufacturing Sector

	ROA		Tobin's Q	
	Coef.	P>|z|	Coef.	P>|z|
CG	-0.0185212	0.593	0.2662	0.128
_cons	0.4075335	0.147	-0.3425	0.807
	Wald chi2(1) = 0.96		Wald chi2(1) = 0.10	
	Prob > chi2 = 0.3284		Prob > chi2 = 0.7480	
	R-sq:= 0.1792		R-sq: = 0.0011	

4.3.2 Summary of the Intervening Effect of Financial Characteristics in Manufacturing Firms

Intervention is deemed when corporate governance predicts performance of firms, corporate governance predicts financial characteristics and financial characteristics predicts performance of firms, additional corporate governance should predicts performance of firms in presence of financial characteristics.

Step One: Relationship between Independent Variable and Dependent Variables

The first step of testing the intervening involves fitting a model for independent variables and dependent variables while ignoring the intervening variables. The study fitted a Random Effect (RE) effect model to test the relationship between CG composite and performance of manufacturing firms measure using ROA and Tobin's Q.

Table 12: Step One RE Regression Results: Corporate Governance and Firm Performance

	ROA		Tobin's Q	
	Coef.	P>|z|	Coef.	P>|z|
CG	-0.00455	0.568	-0.0702	0.017
_cons	0.179561	0.01	1.9618	0.000
	Wald chi2(1) =0.23		Wald chi2(1) = 0.13	
	Prob >chi2 =0.6348		Prob >chi2 =0.7208	
	R-sq: = 0.0105		R-sq: = 0.0183	

Table 12 presents the RE regression results of the models fitted to test the relationship between CG composite and performance of manufacturing firms (ROA and Tobin's Q). The regression coefficient further revealed an insignificant relationship between CG Composite and performance of firms (ROA) (β=0.000, p=0.635) and Tobin's Q (β=0.000, p=0.721).

Step Two: Relationship between Independent Variable and Intervening Variables

Step two involved testing the relationship between independent variable (corporate governance) and intervening variables (financial characteristics) as dependent variables. The results are presented in Table 13

Table 13: Step Two RE Regression Results: Corporate Governance and Financial Characteristics Variables

	Investments		Leverage		Liquidity	
	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|
CG	0.010	0.06	-0.003	0.954	0.004034	0.529
_cons	0.551	0.00	1.014	0.038	0.171453	0.004
	Wald chi2(1) = 0.07		Wald chi2(1) = 6.77		Wald chi2(1)= 0.54	
	Prob > chi2 = 0.7887		Prob > chi2 = 0.0093		Prob > chi2 = 0.4643	
	R-sq= 0.0480		R-Sq = 0.0797		R-sq: = 0.0008	

The results revealed that first model that tested the relationship between CG and investments was statistically insignificant (Prob >chi2= 0.7887). The second model fitted to test the relationship between CG and leverage was statistically significant (Prob > chi2 = 0.0093). The third model fitted to test the relationship between CG and liquidity was also statistically insignificant (Prob > chi2 = 0.4643).

Step Three: Relationship between Intervening Variables and Dependent Variables

Step three in testing for the intervening involved regressing the intervening variables with dependent variables without the independent variables. The study also conducted diagnostics tests before fitting the models.

Table 14: Step Three RE Regression Results: Financial Characteristics Variables and Firm Performance

	ROA		Tobin's Q	
	Coef.	P>|z|	Coef.	P>|z|
Investments	-0.12536	0.025	-0.89195	0.000
Leverage	-0.0135	0.003	-0.04612	0.006
Liquidity	0.385251	0.000	-0.41655	0.025
_cons	0.156274	0.000	2.071693	0.000
	Wald chi2(3) = 112.20		Wald chi2(3)= 23.31	
	Prob > chi2 = 0.0000		Prob > chi2 = 0.0000	
	R-sq: = 0.1318		R-sq: = 0.0301	

The results presented in table 14 revealed that financial characteristics variables (investment, leverage and

liquidity) had a significant effect on ROA and Tobin's Q. The two models fitted to link Financial Characteristics Variables to both ROA and Tobin's Q was statistically significant.

Step Four: Relationship between Independent Variable, Intervening Variable and Dependent Variables

Step four in testing for intervening effects of financial characteristics involved fitting model to link independent variables and dependent variables in presence of intervening variables.

Table 15: Step Four RE Regression Results: Corporate Governance, Financial Characteristics Variables and Firm Performance

	ROA		Tobin's Q	
	Coef.	P>|z|	Coef.	P>|z|
CG	-0.006	0.446	-0.061	0.038
Investments	-0.119	0.034	-0.832	0.000
Leverage	-0.014	0.002	-0.048	0.004
Liquidity	0.386	0.000	-0.387	0.038
_cons	0.200	0.005	2.537	0.000
	Wald chi2(4)=104.80		Wald chi2(4) = 22.94	
	Prob > chi2 = 0.0000		Prob > chi2 = 0.0001	
	R-sq: = 0.1243		R-sq:= 0.0299	

Table 16: Overall Summary of the Intervening Effect of Financial Characteristics

Steps	IV	DV	Result	Intervention
1	CG	ROA	Insignificant	Not Achieved
		Tobin's Q	Insignificant	Not Achieved
2	CG	Investment	significant	Achieved
		Leverage	significant	Achieved
		Liquidity	significant	Achieved
3	Investment	ROA	significant	Achieved
		Tobin's Q	significant	Achieved
	Leverage	ROA	significant	Achieved
		Tobin's Q	significant	Achieved
	Liquidity	ROA	significant	Achieved
		Tobin's Q	significant	Achieved
4	CG	ROA	Insignificant	Not Achieved
		Tobin's Q	Insignificant	Not Achieved
	Investment	ROA	significant	Achieved
		Tobin's Q	significant	Achieved
	Leverage	ROA	significant	Achieved
		Tobin's Q	significant	Achieved
	Liquidity	ROA	significant	Achieved
		Tobin's Q	significant	Achieved

Table 16 presents the summary of the intervening effect of financial characteristics on the relationship between corporate governance and performance of listed manufacturing firms. The results also revealed leverage and liquidity partially intervene the relationship between corporate governance and performance of listed manufacturing firms in Kenya. The results also revealed firm investments did not significantly and fully intervene the relationship between corporate governance and performance of listed manufacturing firms in Kenya.

4.3.3 Moderating effect of Macroeconomic Variables in Manufacturing Firms

This section presents for moderating effect of macroeconomic variables on the relationship between corporate governance variables and performance of manufacturing firms listed on NSE in Kenya.

Table 17: Step One: Models Fitting for Moderating effect of Macroeconomic Factors in Manufacturing Sector

	ROA		Tobin's Q	
	Coef.	P>|z|	Coef.	P>|z|
CG	0.000000494	0.239	0.00000162	0.479
GDP growth rate	0.0150841	0.049	0.1110762	0.008
Interest rate	-0.0091923	0.188	-0.0708646	0.063
Inflation rate	0.0074342	0.119	0.041618	0.11
_cons	0.2752696	0.07	1.962707	0.017
	Wald chi2(4)= 9.26		Wald chi2(4)= 14.07	
	Prob > chi2 = 0.0549		Prob > chi2 = 0.0071	
	R-sq:= 0.0924		R-sq:= 0.1295	

Table 18: Step Two: Models Fitting for Moderating effect of Macroeconomic Factors in Manufacturing Sector

	ROA		Tobin's Q	
	Coef.	P>|z|	Coef.	P>|z|
CG	-0.00000861	0.458	0.00000883	0.896
GDP growth rate	0.015022	0.055	0.1092932	0.017
Interest rate	-0.0122666	0.088	-0.065424	0.119
Inflation rate	0.0078969	0.101	0.0384522	0.170
IT1	-3.15E-08	0.976	0.00000144	0.240
IT2	0.000000614	0.084	-0.00000143	0.485
IT3	0.000000109	0.862	0.0000008	0.827
_cons	0.3113936	0.045	1.947707	0.020
	Wald chi2(7)= 13.99		Wald chi2(7)=13.08	
	Prob > chi2 = 0.0513		Prob > chi2= 0.0701	
	R-sq: = 0.1451		R-sq: = 0.1347	

The findings in Table 17 and Table 18 revealed that R-squared increased from 0.0924 to 0.1451 in the first model while increased from 0.1295 to 0.1347 in the second model with the inclusion of the interaction variables. The findings also showed that macroeconomic variables had significant moderating effect on the relationship between corporate governance and firm performance as measured by ROA and Tobin's Q of listed manufacturing firms in Kenya since all the interaction variables IT1, IT2 and IT3 were significant.

4.3.4 Joint Effect of Corporate Governance, Financial Characteristics, Macroeconomic Factors on Performance of Manufacturing Firms

This section presents findings of effect of corporate governance, financial characteristics, and macroeconomic factors on performance of firms listed in manufacturing sector in Kenya. During the period of the study NSE had listed 10 manufacturing firms hence the data for these firms was adequate in conducting analysis.

Table 19: Joint Effect of Corporate Governance, Financial Characteristics, Macroeconomic Factors on Performance of Manufacturing Firms

	ROA		Tobin's Q	
	Coef.	**P>|z|**	**Coef.**	**P>|z|**
CG	2.955E-07	0.644	0.00000364	0.886
Investments	0.217	0.289	2.982	0.000
Leverage	0.353	0.000	3.384	0.000
Liquidity	0.185	0.373	5.13	0.000
GDP Growth rate	0.007	0.513	0.068	0.139
Interest Rate	0.002	0.830	0.052	0.224
Inflation Rate	0.003	0.677	0.017	0.546
_Cons	0.236	0.376	5.801	0.000
	Wald chi2 (7)=4.598		Wald chi2 (7) =13.838	
	Prob > chi2= 0.000		Prob > chi2 = 0.000	
	R-sq: within = 0.194		R-sq: within = 0.464	

The results in Table 19 shows that both model 1 linking CG, FC, macroeconomic variables and ROA (Prob >chi2=0.000), and Model 2 linking CG, FC, macroeconomic variables and Tobin's Q (Prob >chi2=0.000) were statistically significant. These findings implied that CG, FC, macroeconomic variables were good predictors of listed manufacturing sector firms' performance. The study's findings revealed that only leverage significantly (β=0.353, p=0.000) affected ROA of listed manufacturing firms in Kenya. The results showed that

CG, investments, liquidity, GDP Growth rate, interest rate and inflation rate insignificantly affected ROA. On the other hand, investments (β=2.982, p=0.000), leverage (β=3.384, p=0.000) and liquidity (β=5.130, p=0.000) significantly affect Tobin's Q of listed manufacturing firms in Kenya. CG, GDP Growth rate, Interest Rate and Inflation Rate insignificantly affected Tobin's Q of listed manufacturing firms in Kenya.

Model 1

FP_{it} (ROA) = 0.236 + 0.353LE_{it-1} +c_i +$\acute{\varepsilon}_{it}$

Model 2

FP_{it} (Tobin's Q) = 5.801 + 2.982IN_{it-1}+ 3.384LE_{it-1} + 5.130LI_{it-1} +c_i +$\acute{\varepsilon}_{it}$

Where;

IN = Firm Investments

LE= Firm Leverage

LI= Firm Liquidity

ε =Error Term

5.0 Conclusion and Recommendations

The study concluded that manufacturing listed firms in Kenya strengthened their corporate governance due to poor performance, further the study concluded that corporate governance practices used by manufacturing listed firms failed to impact on performance. The study also concluded that manufacturing listed firms in Kenya continued to record poor performance despite corporate governance investments. The study further concluded that financial characteristics of the manufacturing firms are important component for better overall performance of firms. However, such characteristics do not provide the necessary environment for corporate governance to affect performance of the manufacturing firms. Financial characteristics such as investments, leverage and liquidity provide the necessary vehicle to be used by management in combining other factors of production to fuel high performance of firms but do not impact on the activities and structure of the board.

On the moderating effect of macroeconomic factors, the study concluded that unfriendly macroeconomic conditions act as a catalyst that enhances corporate governance activities such as frequency of board meetings to approve some of the immediate actions the management may wish to undertake to mitigate the effect of volatility in the macroeconomic environment. The findings of this study revealed that macroeconomic factors enhanced the strength of the relationship between corporate governance and performance of manufacturing firms through enhancing the explanatory power of corporate governance variables on firm performance. The study therefore concluded that the macroeconomic factors play a critical role in moderating the relationship between corporate governance and performance of manufacturing firms. The study finally concluded that listed manufacturing firms that focused on enhancing their corporate governance, financial characteristics and operated in favourable macroeconomic environment are likely to increase their performance since jointly corporate governance, financial characteristics and favourable macroeconomic conditions were found to account for the highest variations in both ROA and Tobin's Q of the listed manufacturing firms in Kenya.

Based on the findings, the study recommended that listed manufacturing firms should revisit their corporate governance practices to ensure that they leverage on board structures and board activities that improve their performance, while obsolete corporate governance practices should be eradicated. The study also recommended that management and stakeholders of listed manufacturing firms should not only focus on streamlining corporate governance practices, but also further enhance their level of investments, liquidity and use of leverage to significantly improve their firms' performance. The study further recommended that state authorities and policymakers should formulate policies to keep the economy afloat which will provide the necessary environment for operations of manufacturing firms to enhance profitability.

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