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Effect of Capital Structure on Financial Performance of Manufacturing Firms Listed at the Nairobi Securities Exchange

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Odipo [α], Martin Khoya [σ] & Obbayi Getrude [ρ]

Abstract- The study investigated the effect of capital structure on financial performance of manufacturing firms that are listed at the Nairobi Securities Exchange. The population of the study consisted of 8 manufacturing and allied firms. The period of study was over 8 years (eight-years) period from 2013 and 2020. The study used secondary data. Multilinear regression model was used to assess the financial performance of these manufacturing firms that are quoted at NSE. Both descriptive statistics and Pearson correlation matrix was used to assess the outcome of the study. The following results were found: A unit increase in the debt in the firm capital structure results in a -0.782 decrease in the financial performance of the manufacturing firms while an increase in one unit of equity results in 0.667 increase in financial performance of the firms. There was negative correlation between the debt ratio and the financial performance and a positive correlation between equity and financial performance of manufacturing firms. The study also showed that firm's liquidity level has a positive influence on the financial performance, which indicates that, the more liquid a firm is in meeting its short term obligations the more profitable it becomes. The study concludes that there is a strong positive relationship between capital structure at channels and firm financial performance of manufacturing firms listed at Nairobi Securities Exchange and that 64.6% of the total changes in financial performance of the manufacturing firms. This can be attributed to changes in the debt level in the capital structure, equity, firm's liquidity, firm size and firm growth. The study shows that equity, firm's liquidity, firm size and firm growth affects financial performance of the manufacturing firms' performance positively and in a statistically significant way. Which indicates that, the more liquid a firm is in meeting its short term obligations the more profitable it becomes. The study concludes that firm size is positively correlated with the financial performance of firms listed at NSE.

Keywords: debt, equity, liquidity, firm size, return on asset, growth option and manufacturing listed firms.

I. Introduction

Two major studies carried out in Nairobi Securities Exchange in the last decade on the effect of capital structure have come up with contradicting results. One study concludes that Capital Structure has positive influence on financial performance of a manufacturing firm. This was based on one manufacturing firm. The other study conclude that capital structure has negative influence on financial performance of manufacturing firms. This study examines a number of manufacturing firms that are listed in Nairobi Securities Exchange to determine the effect of capital structure in relation to financial performance, taking into account all listed manufacturing firms from 2013 to 2020.

An important aspect to finance managers' responsibility is that of making financial decisions which enables them to recognize when to obtain finances and how to meet the investment needs of the company Zhao & Wijewardana (2012). The finance decisions form the firm's capital structure (CS) that defines the financial stability of the corporate which is of significance. The importance of the CS ratio of debt to equity cannot be compromised as it forms the foundation of the operations of the corporate Copeland, Weston & Sharsti (2013). This study is anchored on five theories, pecking order theory Myers & Majluf (1984), trade off theory Myers (1984), capital structure theory Modigliani & Miller (1958) market timing theory Luu & Dang (2022) and liquidity preference theory Keynes (1936). Modigliani & Miller (1958) assert that, financial performance and hence the value of firms are dependent on risk and cash flows. Most decisions related to capital structure are anchored on other aspects such as applicable taxes, liquidity and cost which directly affect the use of finances in a company. The notion of pecking order states that companies favor internal resources rather than external resources Myers & Majluf (1984). They presume that companies do not aim at debt ratios, but prefer external sources of money when inadequate internal funds are available. The idea of trade off highlights the distinction between the costs of distress-related to money and the tax advantage of capital structure usage of debt. It suggests that organizations deal with a variety of factors including liquidity exposures and the expense for the organization's interest tax protection benefit Black & Scholes (1974). Capital structure refers to how a company supports its activities via the use of bank loans, equity or both Brigham & Houston (2015) it is the various alternatives used by a corporation in financing its assets Kyissima, Xue, Koselle & Abeid (2020). Economic performance is the frame work of financial dealings and shows the company's capacity to transfer its finances into relevant

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activities Chen (2014). The impact of public decision-making can also be wildly overstated since many of these variables may be handled through risk and capital selections that encourage investment and the accomplishment of corporate goals Majumdar (2014). The choice of the firm's CS mix is influenced by several factors for instance the firm's growth rate, market conditions, tax exposure, business risk and the cost of capital Huang & Song (2016). CS is generally classified as debt or equity finance or a combination of both being the firm's components of its sources of financing. The debt to equity ratio (D/E) is used in calculating CS. Equity financing is a method of raising capital whereby shares in an enterprise are sold, that is to say capital is raised internally. It includes own savings, contribution from partners, contribution from board members, retained earnings, deferred income and cash flows of the business Kongmanila & Kimbara (2007). Equity financing comprises of IPOs and SEOs issues of stock by a company as a form of coming up with capital through the sale of stock as opposed to obtaining additional debt Abdula & Zaby (2021). Debt financing, on the other hand, is a method of raising working capital externally, from borrowing outside the enterprise. Debt financing includes bonds, debentures, leases, mortgages, certificates and notes. It aids the firm to raise capital where they lack adequate internal resources to assist them carry out operations and investments Onchong'a, Muturi & Atambo 2016. Debt financing can be broadly categorized into two; short-term or long-term. Short-term debt financing is whereby such finances are repaid in a period of less than a year while long-term financing is whereby the debt repayment is beyond a year Zietlow, Hankin, Seidner & O'brien (2018). The optimal CS is that combination of debt and equity that is obtained at the least cost and yields the maximum shareholder's wealth. The optimal CS should minimize the entire enterprise's COC, since the enterprise creates value when it provides a return greater than its COC.

Financial performance is a subjective approach in measuring an organization's effectiveness in the use of available assets and finances in fulfilment of their business objectives Ikapel & Kajirwa (2017). The financial performance of a firm can either be making profits, breaking even or making losses at the end of the financial period. In the view of the shareholders, financial performance is measured by the favorability of the shareholder at the period end of the financial year compared to the beginning which can be deduced using ratios derived from financial statements; that is statement of financial position and the income statement, or using data on stock market prices Berger & Bonaccosi Di Patti (2006). Financial performance is assessed in several ways, like: return on asset Kopecka (2015), return on equity (ROE) or net profit in a period Drury (2017). In addition, standard accounting key performance indicators (KPIs) include sales growth, operational profit margin, economic value added and income before tax Abshir & Nigib (2016].

Firms which convert mechanical, physical or chemical materials into finished goods are what are referred to as manufacturing firms KAM (2018). The manufacturing sector in Kenya is wide and divided into sub divisions dealing with different areas, with food products being the largest contributing around 43% of the entire manufacturing sector contribution to GDP; with other sectors including textile and apparel, non-metallic minerals, basic equipment among others. (KAM, Manufacturing Priority Agenda, (2018).

According to Kenya National Bureau of Statistics (2017), in 2010, the manufacturing industry in Kenya experienced its highest growth rate with 5.8%. This growth rate nevertheless was lower than the 10% growth rate anticipated in Vision 2030 goal. To add to this, the GDP contribution of the manufacturing sector too deteriorated from 9.2% in 2016 to 8.4% in 2017, which is also further from the 2022 target of 15% set by the government as part of the Big Four action plan of enhancing manufacturing KAM (2018). The 2018/2019 budget allocated US$21million in order to create employment in the manufacturing sector to over 800,000 job Kenya Budget Estimates (2018/2019)

This study sought to establish how capital structure affects financial performance of manufacturing firms listed at the Nairobi Securities Exchange in particular it has five objectives: To establish the effects of debt financing on financial performance of manufacturing firms listed at the Nairobi Securities Exchange; to ascertain the effects of equity financing on financial performance of manufacturing firms listed at the Nairobi Securities Exchange; to assess the effects of liquidity on financial performance of manufacturing firms listed at the Nairobi Securities Exchange; to determine the effects of firm size on financial performance of manufacturing firms listed at the Nairobi Securities Exchange; to find out the effects of growth on financial performance of manufacturing firms listed at the Nairobi Securities Exchange.

II. Literature Review

The study is grounded into the following theories; pecking order theory, trade off theory, capital structure theory, market timing theory and liquidity preference theory. Pecking order theory was developed by Myers & Majluf (1984) as an attempt to unfold managers' financial proclivity. It implies that managers do not have a fixed CS, instead they heed to specific hierarchical ranking. Internal funding is the first preferred source of finance followed by external funding from debt, convertible debt and equity. Myers (1984) posits that equity is issued as the final course of action when debt capacity has been depleted. This is due to the fact

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that additional costs associated with raising capital from external sources should always be minimal. The underlying assumption of this theory is asymmetric information. This means that facts in regards to the company such as the entity's present earnings and future growth prospects lie with the managers as opposed to investors thus creating information imbalance. As the degree of asymmetric information widens, so does the cost of financing increase Brennan & Kraus (1987).

Issuance of new shares holds the highest degree of information asymmetry. Potential investors conclude that the stock issued by the entity is overvalued since the managers have greater insider intelligence. This indicates that management is sourcing finances by diluting company shares. In turn, a lower value is placed on the newly issued shares by investors from factoring in the costs of adverse selection. This would mean that additional shares of stock have to be sold to raise the same amount of proceeds. Furthermore, investors capture more than the Net Present Value (NPV) of the new project resulting to the existing shareholders going at a loss as a result of severe underpricing. The project, in such a case, will be rejected regardless of the NPV being positive. Similarly, managers must always act in the best interest of the shareholders if issuance of equity will be of much substantial benefit to the new shareholders at the expense of the old Fischer, Heinkel & Zechner (2009). Myers (1984) Posits that investors might also take external equity issuance as unfavorable indicator on the organization's performance. Such will be taken negatively as it assumes that managers want outside shareholders to share the losses thus increasing cost of external equity. Firms can avoid costs of adverse selection by issuing equities with minimal asymmetric information like equity to existing stock holders or to employees in their compensation plan Fama & French (2005).

Debt financing is preferred to equity since the cost of debt is lower than the cost of equity. Lower returns are set for debtholders as opposed to shareholders since a higher claim of assets are entitled to them in the event of dissolution or bankruptcy. Owner managers favor internal funds since this type of financing ensures they can retain control over operations and assets Holmes & Kent (1981). Furthermore, no flotation costs are incurred and competitive advantage is not lost from additional disclosure of financial information to the public. High financial slack in a company enables internal funding without resorting to external sources. The theory poses limitations as it implies that it is only internal funds, or lack thereof, that motivates firms to raise funds externally while ignoring institutional factor effects which might affect the entity's choice of funding Adedeji (1998). The study assumes that this theory is relevant since it asserts that the best CS choice is that with the least asymmetric information. Asymmetric information increases as the entity moves from internal sources of funding to external.

Trade off theory was suggested by Myers (1984) as a development of MM irrelevancy theorem by taking into account the effects of bankruptcy costs and taxes. Unlike the pecking order theory, this theory holds that an entity has an optimal capital structure determined by weighing the cost against the benefits of debt financing. Firms, thus acquire debt gradually until they reach their target debt-equity ratio. Once reached, the entity is able to utilize financial performance by adding up the potential costs against the expected benefits of leverage Bontempi & Golinelli (2001). Al-Tally (2014) posits that firms with more tangible assets take up debt whereas those with more intangible assets issue equity since they diminish in value in case of liquidation. The tax benefit accrued from debt financing is tax shield which means that interest payment on debt is tax-deductible Hutchinson & Hunter (1995). The entity in turn pays less taxes than they would have if they had used their own equity financing. Therefore, after tax profits increases with leverage thus increasing the firm's profitability and in turn the company's value. However, with an increase in debt financing, the cost of financial distress and agency costs also increases. According to Shirata (2012) financial distress are the costs that arise as a result of failure to meet financial obligations by an entity when due which can lead to bankruptcy. Brealey, Meyers & Mohanty (2018) noted that shortage of funds by the entity, reduction of trade credit by suppliers, firm's borrowings are at a maximum and the entity's books of account display consistent losses are indicators of financial distress. These actions by stakeholders towards the entity inevitably lead to drop in financial performance, hence a decline in the firm value. Declaring bankruptcy has been the most prevalent basis for an entity's financial distress Davidson (2020) this theory is challenged by various researchers such as Miller (1977) who argued that the theory concentrates on maximizing the tax shield advantage while downplaying the costs of financial distress encouraging entities to be more levered than they are Guner (2015) contend that profitable firms rely on internal funds rather than debt which is contradictory to the trade-off theory that profitable firms are highly levered so as to benefit from tax shield.

Modigliani & Miller (1958) investigated capital structure and made several propositions. At the onset, they found that the traditional perspective unacceptable in part because it seemed unsupported by the theoretic frameworks. In particular, they found little reasons apart from some marketing perceptions which affect the capital structure of the firm and hence altering the value of that firm Banafa (2015). After all, neither the earnings flows nor the inherent risk could alter the value because

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it would remain the same under the same industries. The capital structure changes will have no effect on the current financial performance of the firm. At dis-equilibrium a levered firm may appear to have a higher value which according to MM will not persist for long and the levered firm is overvalued and therefore the investors in this company will attempt to make a switch from a levered firm to unlevered firm. Such investors will sell shares of a levered, borrow an amount which is equivalent to the amount which the management of the firm had borrowed on his behalf and then invest entire cash proceeds in the levered firm. As investors attempt to make a switch from a levered to an unlevered firm the financial performance of a levered firm will come down to equilibrium point where the financial performance of a levered firm shall equal to unlevered firm Modigliani & Miller (1958). Since a perfect market under manufacturing industry in Kenya does not exist, the research will establish the effects of entry of certain conditions that will influence the CS and its impact on financial performance.

Market Timing Theory as propounded by Luu & Dang (2022) asserts that entities select the structure of financing at a particular time, be it debt or equity that are more valued by the market. When the financial performance of stock is perceived to be overvalued, the firm takes the opportunity and issues new shares, whereas repurchases shares when they are under-valued. Organizations favor equity financing when they deem the cost of equity is fairly low otherwise debt financing is preferred. Entities judge the cost of equity from better understanding of themselves and their industry and from following specific psychological patterns such as reference points, as proposed by prospect theory.

Similar to Pecking order theory, there is no specific optimal CS attached to this theory, instead, managers time the equity markets for favorable conditions. Boudry, Kallberg & Liu (2010) posit that due to fluctuation of stock prices, CS arises from market timing of when to issue debt or equity in regards to market performance. The prevailing market conditions and frequent observations of financial market results in the financial structure of an entity Graham & Harvey (2001). Under this theory, economic agents are presumed to be rational, in that entities issue equity immediately after positive information is publicized since information asymmetry between the management and stockholders is reduced. With a decrease in information failure comes an increase in stock prices thus benefiting the entity. A firm can create its own timing opportunities by disclosing information frequently. The study will seek to establish whether the prevailing market conditions in the manufacturing industry in Kenya has a bearing in the CS choice of manufacturing firms listed in NSE as claimed by this theory.

a) Liquidity Preference Theory

This theory was developed by Keynes (1936) 'The General Theory of Employment, Interest and Money' to construe liquidity determinants from supply and demand for money. He argued that investors lend out their money when liquidities are high as they are willing to hold less money so as to benefit from profit. Whereas borrowers opt for long term debt in order to eliminate constraints of repaying the debt under adverse conditions, short term investments are favored by investors since they are convertible to cash easily with loss of principle being minimal Trinh (2022).

b) Determinants of Financial Performance

Over the years, capital structure has been perceived to directly influence the financial performance of firms. Optimal capital structure translates to an improved financial performance of a firm. The determinants of financial performance include liquidity, growth and firm size.

i. *Liquidity*

Begg, Fisher, Vernasca & Dombush (2014) defined liquidity as the conversion of assets to cash with ease without affecting the market price when needed by the asset holder. Pecking order theory propose that higher liquid firms are less leveraged since it is a part of internal source of financing. Oztekin & Flannery (2012) support POT by concluding that highly liquid enterprises use that as a source of financing in place of debt. Trade off theory differs in that it argues that debt is more appealing to firms with suitable liquidity since it can repay its debt while benefiting from its advantages.

When it comes to liquidity and financial performance, different studies have yielded differing results. Investigation done by Sarlija & Harc (2012) on the impact of liquidity on the CS of Croatian firms, found a statistically significant correspondence between liquidity ratio and leverage ratio. The study concluded that the relationship between liquidity and debt ratio as negative. This finding however contradicts the study done by Sibilkov (2009) whose research was based on American companies and concluded that liquidity and leverage are positively related.

ii. *Growth*

Hossain & Ali (2012) posited that the more growth prospects an enterprise has, the less leveraged it should be and rather engage more in equity financing. Reason being wealth from investments is shifted from shareholders to debtholders Huang & Son (2016). Booth, Cornett & Tehranian (2002) assert that agency costs related to debt is increased with increase in growth opportunities. Jensen & Meckling (1976), argue that growth is negatively associated with leverage. This is because growing firms have a bigger investment pool hence issue less debt to avoid potential unprofitable investments, in line with the tradeoff theory. Pecking order theory prefer internal sources funding which would

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imply that growing firms have a negative correlation with leverage Watson & Head (2010).

On the other hand, Kariuki & Kamau (2014) investigated the determinants of CS in 121 food and beverages private manufacturing firms listed in KAM (2018) as of 2013 concluded that growth and CS are positively correlated, since growth opportunities usually rely more on debt than equity.

iii. *Firm Size*

Pecking order theory asserts that larger firms have stronger access to capital market and have less asymmetric information costs and so would opt for equity as opposed to debt. Rajan & Zingales (1995) similarly argue that smaller firms are more leveraged since the cost of asymmetric information is high.

Trade off theory, however, implies that larger firms are highly leveraged since the cost of debt will be less due to advantages of economies of scale. Larger firms would therefore apply more debt as a financing measure (Vasiliou, Eriotis & Daskalakis, 2009).

A study on the effect of CS determinants of financial performance of firms listed in NSE was carried out by (Bongoye, 2018). The study concentrated on 37 non-financial entities under NSE and concluded that firm size had a positive and significant interplay with financial performance.

iv. *Empirical Literature*

Multiple empirical researches have made contradictory results with some indicating little influence of remittances on economic growth while others found financial performance greatly impacted on the company. The influence of CS on the corporate profitability in Sri Lanka was studied by (Tharmila & Arulvel 2013). Thirty companies were included in the research for five years throughout 2007 and 2011 listed on the Colombo Stock Exchange. Secondary data was used for the examination with financial statements, mainly income statements and statements of financial position, as the primary source of data. Pearson products-to-moment correlation coefficients and regression analysis evaluated the premise that there is a favorable connection between capital structure and financial performance. In order to explain the strength and influence of the variables, correlation and regression analyses were performed. The conclusion was that there is a weak negative correlation between CS in terms of debt and financial performance, therefore rejecting the hypothesis. This is because most entities spend on interest expense since they depend on debt capital as a source of financing.

A study done by Al-Qudah (2017) to establish the relationship between CS and financial performance in companies in United Arab Emirates, came up with differing findings. A sample of 48% of all entities listed in Abu Dhabi Securities Exchange from the years 2008 to 2015 was considered. The study hypothesis was interpreted using statistical package for the social sciences while the variables of capital structure and financial performance were analyzed using ANOVA, model summery and coefficients. Capital structure was represented using debt ratio while financial performance was expressed in terms of ROA and ROE. The data collected from published financial statements, specifically income statement and balance sheet, was analyzed and concluded that generally CS and financial performance, in terms of ROA are positively correlated. However, CS is inversely correlated to profitability in terms of ROE.

Mauwa, Namusonge & Onyango (2016) carried out a study to determine the difference between CS and the financial success of six Rwandan stock-listed firms as of 2014. Descriptive research approach and referred to secondary sources. Secondary data was collected from the audited accounts of the companies, interviews were carried out for the collection of primary data. Result showed that CS was negatively connected to the performance in terms of both ROA and ROE.

Ibrahim (2009) carried out a study on Egyptian listed non-financial firms' to determine corporate financial performance between 1997 and 2005. Using a multiple linear regression analysis, the study found no connection between debt and business performance.

The link between capital structurer and financial performance in Kenya was examined by Maina and Ishmail (2014). They carried out a study to determine if there is link. The study aimed at determining the financial impact of CS on selected quoted firms in NSE from 2002 to 2011. They used secondary data obtained from balance sheet and profit and loss account. Panel data was used over multiple periods. Using casual research design and statistical software for regression analysis, it was discovered that the association between capital structure and financial performance is negative and significant. This infers that an increase in debt results to poor financial performance which can be explained by agency conflicts that cause firms to be highly leveraged resulting to dwindling financial performance.

Langat, Chepkoech, Shavulimo, Wachira and Thuo (2014) studied the relationship of CS and financial performance in the Tea Development Authority processing factories in Kenya and concluded contrary findings. Total debt and long-term debt were strongly and positively linked to financial performance using both ROE and ROA as a measure of performance. The results concur with the findings of Banafa (2015), which found that CS has a substantial favorable connection to Kenya's financial success.

III. Methodology

The study used descriptive research design as it presents a comprehensive impression of a

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phenomenon. The target population under this study was 8 manufacturing and allied firms listed in NSE with an eight-year evaluation between 2013 and 2020. Listed firms were chosen since access to their financial reports is readily available as they are published as part of Capital Markets Authority regulations. The study utilized secondary data as it is readily available and can be examined over a long period of time. Panel data, comprising of cross-sectional and time series data, was employed in the study. The analyzed data was sourced from audited financial statements of company websites and NSE Handbook. From the income statement, the sales, earnings before interest and tax and retained earnings will be collected for analysis. In the balance sheet, the study utilized both the assets and liabilities while also considering the interest-bearing debt.

a) Diagnostic Tests

The genetic testing mostly on data to check that they comply with the underlying principles of the traditional pattern of linear regression. Multicollinearity was tested to find out whether independent variables may be potentially correlated to each other. Existence of multicollinearity results in an unstable regression and inflation of standard error. Variance inflation factor was utilized to test how each independent variable is related to the others. Normality testing was carried out to ensure that sample data is drawn from a normally distributed population. Jarque Bera test was used to establish the skewness and kurtosis. Homoscedasticity was tested using the Breush-Pagan test to establish that the error terms along the regression are constant. Linearity test indicated that the relationship between the independent variables and dependent variable are linear.

b) Data Analysis

The multiple linear regression model used was;

$$Y=\beta 0 + \beta 1\ X1 + \beta 2\ X2+ \beta 3\ X3+ \beta 4\ X4+ \beta 5\ X5+\varepsilon$$

Where Y is the financial performance of firms determined by return on assets.

$\beta 0$= Is the constant. β_1, β_2, β_3, β_4 and β_5 are the independent variables coefficients and determine the response of Y to a unit change in variable x.

X1= Debt: Measured by total interest-bearing debt liabilities.

X2= Equity: Measured by total assets – total liabilities.

X3= Liquidity: Measured by current assets/current liabilities

X4= Firm size: Measured using the Natural Log of Total Assets

X5= Growth option: Measured using Revenue Growth Ratio.

c) Test of Significance

The combined meaning of all equations and the test significance of individual coefficients were tested using the F-test. In 95 percent confidence interval and 5 percent level of significance, the importance of the regression model was established.

IV. Results and Discussion

This section presents the research findings on the study on the relationships between capital structure and the financial performance of manufacturing firms listed at Nairobi Securities Exchange. Applying analytical tools which include descriptive statistics, regression and correlation analysis, the research findings were represented on tables as illustrated in the subsequent sections. The research used yearly secondary data, which covered a time of 8 years from the year 2013 and 2020. The study obtained complete data for the considered period.

a) Descriptive Statistics

Descriptive statistics comprises of the mean, standard deviation, maximum, minimum values, number of observations, skewness and kurtosis. Table 4.1 shows the descriptive results.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Dev	Skewness	Kurtosis
Financial performance	64	0.02	0.11	0.07	0.03	0.52	0.32
Debt	64	2377142	11075714	6536607	2796214	-0.44	-0.76
Equity	64	3681144	17151390	10122318	4330100	0.53	-0.99
Liquidity	64	0.27	0.65	0.49	0.13	0.33	-0.97
Firm size	64	6.91	12.68	9.21	2.31	-0.84	-0.64
Growth	64	0.02	0.54	0.21	0.20	0.51	0.45

The finding on table 4.1 indicates that the average financial performance of the listed manufacturing firms for the considered study period was 0.07 with a minimum and maximum financial performance of 0.02 and 0.11 respectively. The results further show that the average debt is 6536607 with a minimum and maximum fluctuation of 2377142 and 11075714 while the average equity is 10122318 with the minimum and maximum values being 3681144 and 17151390 respectively. The findings further show that the average liquidity over the study period is 0.49 with minimum and maximum liquidity being 0.27 and 0.65 where as the average firm size is 9.21 with the minimum and maximum firm size being 6.91 and 12.68

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respectively. The average firm growth is 0.21 with the minimum and maximum firm growth being 0.02 and 0.54 respectively. The kurtosis and skewness values range between the recommended ranges of -1 and +1 thus an indication the data is normally distributed.

b) Diagnostic Tests

Diagnostic tests were completed before running the regression model. In relation to this study the diagnostic tests done included normality test, multicollinearity test, auto correlation and homoscedasticity tests.

c) Normality Tests

To test for normality, the researcher used the Shapiro-Wilk test. Below are the null hypotheses as well as the alternative hypotheses.

H_0: The secondary data is not normal.

H_1: The secondary data is normal.

A p-value more than 0.05, would lead to rejecting the null hypothesis and vice versa. The table 4.3 below summarizes the outcomes.

Table 4.2: Shapiro-Wilk Test of Normality

Variables	Shapiro-Wilk Statistic	df	Sig.
Debt	.747	210	.401
Equity	.656	210	.401
Liquidity	.742	210	.401
Firm size	.703	210	.401
Firm Growth	.703	210	.401
Financial performance	.616	210	.401

In accordance to the results, the Shapiro-Wilk values were 0.401 for debt, equity, firm size, liquidity, firm growth and financial performance each. The data revealed a p- value of higher than 0.05 hence rejecting the null hypothesis and accepting the alternative hypothesis which means the normality test revealed the data was normally distributed. This data was henceforth suitable for usage in guiding parametric tests like ANOVA, Pearson's correlation as well as regression analysis.

d) Homoscedasticity Test

Breusch-Pagan test was applied in order to test for homoscedasticity. This test is conducted on the basis that there is a normal distribution in the error terms. The null hypothesis of the test is a constant variance. Consequently, if the p-value is very significant, the null hypothesis is rejected in support of alternative hypothesis that is variance is not constant. Results below show that the p value is greater than 0.05 thus the error term is constant.

Table 4.3: Test for Heteroscedasticity

Breusch-Pagan/Cook-Weisberg test for Heteroscedasticity		
Ho: Constant variance		
Variables: fitted values of net profit		
chi2 (1)	=	1.34
Prob> chi2	=	0.248

Basing on the level of output, the values obtained were greater than 0.05, hence there is no big difference existing in the variation of dependent to independent variables that were tested. Therefore the data tested was Homoscedastic.

e) Multicollinearity Test

Multicollinearity in statistics is an instance where two or more predictor variables are highly correlated. Strong correlations among independent variables are undesirable situation. In situations where there are two or more linear relationship between some of the variables a perfect multicollinearity is said to exist. Multicollinearity test was carried out on the data collected. VIF value of the variable was applied. Result where the value of VIF is below 10 means that multicollinearity is nonexistent. The analysis found no VIF value of more than 10, meaning that there was no multicollinearity. The outcome of multicollinearity test was as presented in table 4.4

Table 4.4: Multicollinearity Test

	Collinearity Statistics Tolerance	VIF
Debt	.500	2.000
Equity	.608	1.646
Liquidity	.633	1.580
Firm size	.493	2.027

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Firm Growth	.416	2.404
Financial performance	.242	2.083

f) Test of Stationary

Stationarity was tested using Augmented Dickey Fuller test and the table below shows a summary of the results. All variables were found to be stationary at 1% confidence level having taken care of any trends and drifts.

Table 4.5: Serial Correlation

	Test Statistics	1% Critical Value	5% Critical Value	10% Critical Value	Sig.
Debt	-3.311	-2.457	-1.697	-1.31	Stationary
Equity	-2.152	-2.457	-1.697	-1.31	Stationary
Liquidity	-2.304	-2.457	-1.697	-1.31	Stationary
Firm size	-3.301	-2.457	-1.697	-1.31	Stationary
Firm growth	-2.613	-2.457	-1.697	-1.31	Stationary
financial performance	-3.512	-2.457	-1.697	-1.31	Stationary

g) Correlation Analysis

To test the relationship existing between two variables a correlation analyses was done. A negative and positive correlation coefficient indicates a negative and positive correlation respectively. Pearson correlation test was applied in evaluating the correlation between financial performance and the independent variables under study. Correlation was used to determine the strength of the connection among the variables. Table 4.6 shows the correlations.

Table 4.6: Correlation Matrix

	Financial performance	Debt	Equity	Liquidity	Firm Size	Firm Growth
Financial performance	1					
Debt	-0.773	1				
Equity	0.463	0.316	1			
Liquidity	0.618	0.163	0.216	1		
Firm size	0.652	0.161	0.233	0.462	1	
Firm Growth	0.456	0.145	0.245	0.143	0.352	1

The study established the association between debt, equity, liquidity, firm size and firm growth and the financial performance of manufacturing companies listed at the Nairobi Securities Exchange using a Pearson Correlation analysis. The study findings presented in Table 4.6 established that there is a significant negative relationship between financial performance and Debt (r=-0.773). Therefore, it can be implied that an increase in debt is associated with decreased financial performance. Secondly, the findings showed that there is a positive significant relationship between financial performance and equity (r=0.463). This is an indication that an increase in equity will definitely increase the financial performance of the manufacturing firms listed at the NSE. Also, there was a significant positive relationship between liquidity and financial performance (rho=0.618) an indication that higher liquidity level increases the financial performance of the manufacturing firms listed at the NSE. Further, there was a significant positive relationship between firm size and financial performance (r=0.652) an indication that increase in firm size increases the financial performance of the manufacturing firms listed at the NSE. Finally, the findings showed that there is a positive significant relationship between firm growth and financial performance (r=0.456) an indication that firm growth have a positive impact on the financial performance of the manufacturing firms listed at the NSE.

h) Regression Analysis

The relationship between debt, equity and the financial performance of manufacturing firms listed at the Nairobi Securities Exchange was established using multiple regression model after the diagnostic tests indicated that the assumptions of multiple regression model would not be violated. Regression analysis involved the analysis of coefficient of determination, model significance and model coefficients.

Table 4.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.804053	0.646501	0.616543	1.035581

Dependent Variable: Financial performance
Predictors: (Constant), debt, equity, liquidity, firm size and growth

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In determining the influence of selected predictor variables on financial performance, the research employed the coefficient of determination- R-squared. The study findings indicate that the value of the R-square was 0.646 implying that the selected predictor variables explain 64.6% of changes in financial performance. The R-square column highlights the quality of prediction by the independent variables. The study revealed that the predictor variables and the response variable have a strong relationship as shown by an R value of 0.804.

Table 4.8: Anova of the Regression

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	123.56	5	24.712	21.580	0.000002
Residual	66.4158	58	1.1451		
Total	**189.9758**	**63**			

Dependent Variable: Listed manufacturing firms' financial performance
Predictors: (Constant), debt, equity, liquidity, firm size and growth

Table 4.8 provides the outcomes of the ANOVA. With P value being 0.000 and below the critical p value of 0.05, the model was considered statistically significant wholly and this is confirmed by an F statistic of 21.580 which implies that the selected predictor variables are good predictors of financial performance.

Table 4.9: Coefficient of Correlation

	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.77	0.451		8.3592	0.000
Debt	-0.782	0.221	0.146	-3.538	0.001
Equity	0.667	0.215	0.526	3.102	0.004
Liquidity	0.737	0.123	0.645	5.992	0.000
Firm Size	0.549	0.2654	0.442	2.069	0.045
Growth	0.463	0.179	0.142	2.587	0.014

a. Dependent Variable: financial performance

$$\text{Financial performance} = 3.77 - 0.782X_1 + 0.667X_2 + 0.737X_3 + 0.549X_4 + 0.463X_5 + \varepsilon$$

The findings in the table 4.9 above show the statistical significant test of the predictor variables in the study model. It shows the estimation of the independent variables, standard error and the t-ratios. According to the regression model shown above, the financial performance of manufacturing firms quoted at NSE is 3.77 provided all the other independent variables are held constant at zero value. A unit increase in the debt in the firm capital structure will result to a -0. 782 decrease in the financial performance of the manufacturing firms quoted at NSE. Similarly, a unit change in equity in the firm capital structure will lead to 0.667 increase in financial performance. When liquidity increases with one-unit financial performance of the manufacturing firms quoted at NSE increases by 0.737. Further a unit increase in firm size will result to an increase on financial performance of the manufacturing firms quoted at NSE by 0.549. Finally, when the firm growth increases with one unit, the financial performance of the firms quoted at NSE increases by 0.463.

i) Interpretation of the Findings

Results of the Pearson's correlation coefficient depicts that there is a significant negative relationship between financial performance and debt. Therefore, it can be implied that an increase in debt is associated with reduced financial performance. Similar findings were found by Adekunle (2009) who did a research study on the impact of financial structure on the firm's profitability in Nigeria for the period 2001-2007. Kaumbuthu (2011) also concluded that a negative correlation exists between debt and the financial performance in NSE. This study has established a positive relationship between liquidity and financial performance implying that an increase in firm liquidity increases the financial performance of manufacturing firms quoted at NSE. In addition, a positive relationship has been established between firm size and financial performance implying that an increase in firm size increases the financial performance of manufacturing firms quoted at NSE. In tandem with the study findings Booth, Cornett and Tehranian (2002) assert that agency costs related to debt is increased with increase in growth opportunities. From Jensen and Meckling (1976), expected growth is

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negatively associated with leverage. This is because growing firms have a bigger investment pool hence issue less debt to avoid potential unprofitable investments, in line with the tradeoff theory. Pecking order theory prefer internal sources funding which would imply that growing firms have a negative correlation with leverage (Watson and Head, 2010). Furthermore, a positive relationship was established between growth and financial performance implying that an increase in firm growth increases the financial performance of manufacturing firms quoted at NSE. As Jensen and Meckling (1976) assert, expected growth is negatively associated with leverage. This is because growing firms have a bigger investment pool hence issue less debt to avoid potential unprofitable investments, in line with the tradeoff theory. Pecking order theory prefer internal sources funding which would imply that growing firms have a negative correlation with leverage (Watson and Head, 2010).

V. Conclusion

The study shows that there is a strong relationship between capital structure channels and firm financial performance of manufacturing firms listed at Nairobi Securities Exchange. 64.6% of the total changes in financial performance of the manufacturing firms listed at NSE can be related to debt, equity, firm size, liquidity and sales growth

VI. Suggestion for Further Research

The study suggests that further research should be conducted for an extended period of time, incorporating more variables including macroeconomic variables. In addition, the research study suggests similar study to be conducted covering the whole of East Africa.

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