FIRM SPECIFIC DETERMINANTS OF THE CAPITAL STRUCTURE OF MANUFACTURING FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE, KENYA

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DECLARATION

This research proposal is my original work and it has not been presented and submitted to any in university or college for examination.

Signed…………………………… Date…20/11/2021…………………………..

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This research proposal has been submitted for examination with the authority and approval as the university supervisor.

Signed…………………….. Date November 21, 2021 ……………………………..

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DEDICATION

To Keif and Salad, my mother and father respectively, thank you.

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I thank Allah for the sufficient grace that enabled me to clear this project. To Dr. Winnie Nyamute, this was an amazing supervisor who was so responsive, cooperative and mentor throughout the period I was undertaking the task. To my moderator, Dr. Kennedy Okiro, I am grateful for moderating this work as that enabled me to defend and finally come up with this project report.

ABBREVIATIONS AND ACRONYMS

CMA	Capital Market Authority
EBIT	Earnings before interest and taxation
GDP	Gross Domestic Product
KAM	Kenya Associations of Manufacturers
KNBS	Kenya National Bureau of Statistics
MM	Modigliani and Miller
NSE	Nairobi Securities Exchange
SPSS	Statistical Packages for Social Sciences
VIF	Variance of Inflation Factor

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ABSTRACT

The contribution of the manufacturing sector towards employment and the growth of the economy of Kenya cannot be underestimated. Presently, the Kenyan government is leveraging this manufacturing sector as a pillar of Big-4 Agenda and Vision 2030. In order for Kenya to be regarded as a globally competitive country, the competitiveness of the manufacturing sector is important. Capital structure decisions are critical for competitiveness of this manufacturing sector in Kenya. The poor financial results reported by some listed manufacturing firms like Mumias raises a lot of question of whether the government would realize the Big-4 Agenda and overall Vision 2030. No country has attained full industrialization without emphasizing the manufacturing sector. The link between firm specific determinants and capital structure of Kenya's listed manufacturing entities was explored by this inquiry. The study adopted descriptive survey design covering quantitative methods where 9 manufacturing listed firms in Kenya were targeted and census was used. Information was sought from secondary sources and analyzed using means, standard deviations, correlation and regression analysis. The study established that interest tax shield (β=.400, $p<0.05$ & $t>1.96$) has the greatest significant contribution towards capital structure of the listed manufacturing firms in Kenya followed by profitability (β=.344, $p<0.05$ & $t>1.96$), asset tangibility (β=.257, $p<0.05$ & $t>1.96$) and liquidity (β=.217, $p<0.05$ & $t>1.96$) respectively. The study concludes that firm specific determinants have significant effect on capital structure. The study recommends that in order to establish optimal capital structures, the finance managers of the listed firms in Kenya should fully leverage the interest tax shield while investing in profitable investments and other fixed assets that can be used as collaterals when borrowing.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

As a judicious mix between debts and equities used to finance investment opportunities in the firm, capital budgeting has gained a lot of attention among corporate finance scholars (Stradomski & Schmidt, 2020). Although the decisions on relevant source of funding is a function of the decisions at firm level as ratified by the board of directors, there exists some underlying factors that influencing these financing decisions (Berg, 2021). This implies that there are some firm's specific factors that would influence financing decisions in the firm. A clear understanding and appreciation of these firms' specific determinants will finance managers to establish optimal capital structures that would maximize the wealth of shareholders which is one of the underlying objectives of existence of the firm (Garach, 2019).

Capital structure can be underpinned by the pecking order theory, agency theory and the Modigliani and Miller (MM) theory. Premised on existence of information asymmetry between external parties and the firm, the pecking order theory place more weight on use of internal sources of funds compared to external funds. Because of the costs related with this information asymmetry, the pecking order argues that retained earnings are preferred by the firm over use of debts which are then preferred over use of equity (Myers, (1984; Myers & Majluf, 1984). The agency theory acknowledge the agency costs that arises when control and ownership of the firm are separated (Jensen & Meckling, 1976). One of the relevant ways of resolving this conflict is issuance of debts (which are key components of the capital structure) as act to discipline the managers (Jensen, 1986). Modigliani and Miller theory argue that the constitution of the capital structure. This has an implication that in perfect world, the value of the entity will be constant irrespective of the mix in the capital structure (Modigliani & Miller, 1958).

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Manufacturing sector is critical in the growth of the economy. The government has shown its commitment towards this sector by recognizing it in the wider Big-4 agenda (health, manufacturing, housing and agriculture). Stagnation has been evident in the output from the manufacturing for the GDP in Kenya at about 10% and it was 8.4% in the year 2017 compared to 9.2% in the year 2016 (KAM, 2018). It is hoped that by 2022, the manufacturing entities would be contributing towards 15% of the GDP. Besides Big-4 Agenda, vision 2030 seeks to realize industrialization largely by the manufacturing sector. However, the Capital Market Authority (CMA) reports indicate that the manufacturing firms, especially the listed ones are currently facing debt financing challenges occasioned by cash flow and liquidity constraints. These firms include Mumias Sugar Company and Bamburi Cement Ltd and they have increased policy concerns.

1.1.1 Firm Specific Determinants

Firm specific determinants are specific factors that determine actions and decisions taken by the management of an organization (Li & Islam, 2019). Ndung'u (2019) identified the firm specific determinants to include asset tangibility, leverage, and liquidity and growth opportunities. Orangi (2017) established the firm specific determinants to include firm growth, dividend policy, taxation and liquidity. Firm specific determinants according to Kerubo (2018) include firm size, profitability, asset tangibility and interest tax shield. Wahome (2018) covered profitability, size and firm risk as firm specific determinants. Mohamud (2019) covered age, size, capital adequacy, business risk and profitability as the firm specific determinants.   Moradi and Paulet (2019) used tax shield, profitability and growth as the specific firm level factors.

The firm specific factors adopted by Berg (2021) include liquidity, tangibility, age, size, tax shield and profitability. Garach (2019) explored profitability, growth, and size and credit risk as

the firm specific determinants. Dalci, Ozyapici and Unlucan (2019) used profitability, liquidity and tangibility as well as growth as the firm specific determinants. Sant (2018) covered asset tangibility, age, risk, growth opportunities and profitability as the firm level determinants. Bajramović (2017) shared the firm specific determinants to include growth, size, profitability and tangibility. Doan (2019) focused on profitability, tangibility, liquidity, size and foreign ownership as the firm specific determinants. In this study, the firm specific determinants will include asset tangibility, profitability, liquidity and tax shield. These measures are selected because they will allow adoption of ratio scale during their operationalization hence uniformity.

1.1.2 Capital Structure

Capital structure (CS) is a mix of debts and equities that the firm leverages in funding the investments in place (Ndung'u, 2019). Debts involve the issue of bonds as well as the long term notes payable while the components of equity include common or preferred stock as well as the retained earnings. CS is an important construct in a firm since it inform the financing decisions of the existing projects. Bajramović (2017) argues that capital structure is important as it aim at creating an optimal financing mix that would result into maximization of the market value of the entity.

There are several measures of CS, for instance Omet (2008) used the value of long term debts against total assets of the firm. Mangafiý and Martinoviý (2015) recognized capital structure in terms of leverage. Berg (2021) measured capital structure using total debt. Sant (2018) determined leverage ratio as the total book value of debts against sum of total book value of debts and total market value of equity. There are other measures of capital structure like debt equity ratio, debt ratio, equity (proprietary ratio) and solvency (Moradi & Paulet, 2019). This study will measure capital structure using the ratio of debts against sum of debts and equity.

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1.1.3 Firm Specific Determinants of Capital Structure

Ndung'u (2019) shared that while liquidity and leverage positively influences capital structure, growth opportunities and asset tangibility have an inverse relationship. Orangi (2017) revealed that dividend policy is the most influential determinant of capital structured followed by liquidity, taxation and the growth of the firm. According to Kerubo (2018), while profitability determines retained earnings, debts are informed by interest tax shield and asset tangibility. Wahome (2018) shared that risk; profitability and firm size significantly shape capital structure. Mohamud (2019) profitability and size of the firm are positively linked with capital structure. Kariuki and Kamau (2014) shared that while opportunities for growth are positively linked with capital structure, firm size is inversely linked with capital structure. Moradi and Paulet (2019) noted that tax shield, profitability and growth are inversely linked with leverage.

Berg (2021) shared that liquidity; tangibility and profitability are significant attributes of capital structure. Garach (2019) noted that an inverse link between profitability, risk and size with capital structure while growth was found to have a positive relationship. Dalci, İOzyapici and Unlucan (2019) were of the view that profitability, liquidity and tangibility are inversely linked with capital structure. Sant (2018) argued that while profitability and age have a direct interplay with CS, size, risk and asset tangibility have an inverse relationship. Bajramović (2017) established a direct interplay between non-debt tax shield, tangibility and capital structure while size had an inverse connection. Mangafiý and Martinoviý (2015) noted that while profitability has an inverse relationship with leverage, size did not have a significant relationship.

1.1.5 Listed Manufacturing Firms in Kenya

Manufacturing sector has received a lot of attention among the policy makers including the government. In fact, the commitment of the government towards this manufacturing sector in

Kenya is demonstrated through support of Vision 2030. The sector contributes about 10% to the GDP of Kenya as a country. Sources of funds (informing capital structure) are important factors supporting the need for the manufacturing entities to expand in size. The sector has a lobby group called KAM.

Nairobi Securities Exchange (NSE) started operations in 1954 as an association of stock brokers in Kenya. Presently, it has grown to become one of the largest securities markets in East Africa and beyond. There are 9 firms that are listed under manufacturing bourse on NSE as shown in appendix II. Some of these listed manufacturing firms like Mumias Sugar Company Ltd have been posting losses with constrained ability to pay their loan facilities.

1.2 Research Problem

Maintaining an optimal CS in the firm is one of the most challenging tasks for the finance managers (Sant, 2018). In order to come up with optimal levels of equities and debts in the capital structures, an understanding and control of the firm specific determinants is of great essence to the finance managers of the firms (Garach, 2019). There exists unclear interplay between CS and firm specific concerns. While Garach (2019) and Mangafiý and Martinoviý (2015) note an inverse interplay between CS and the need to stay profitable. Mohamud (2019) pointed out this relationship to be positive. Therefore, these inconsistencies require further empirical analysis.

The contribution of the manufacturing sector towards employment and the growth of the economy of Kenya cannot be underestimated. Presently, the Kenyan government is leveraging this manufacturing sector as a pillar of Big-4 Agenda and Vision 2030. In order for Kenya to be regarded as a globally competitive country, the competitiveness of the manufacturing sector is

important. Capital structure decisions are critical for competitiveness of this manufacturing sector in Kenya. The poor financial results reported by some listed manufacturing firms like Mumias raises a lot of question of whether the government would realize the Big-4 Agenda and overall Vision 2030. No country has attained full industrialization without emphasizing the manufacturing sector.

The available studies include Li and Islam (2019) in Australia who observed that industry specific factors significantly inform capital structure of the firm. In an inquiry by Berg (2021) in the United Kingdom, the identified factors include tangibility, liquidity and profitability. In the Indian banking sector, Garach (2019) identified factors include credit risk, size, growth and profitability. Within the beverage industry in Europe, Dalci et al (2019) identified liquidity and tangibility as the firm specific determinants.

In a local study in Kenya, Ndung'u (2019), the identified factors include growth opportunities. Orangi (2017) carried out an investigation on determinants of the NSE automobile listed entities where dividend policy, liquidity, taxation and growth were the identified factors. Kerubo (2018) assessed the determinants of capital structure with emphasis on construction listed entities at the NSE. It was shown that while profitability shaped retained earnings, interest tax shield and tangibility informed the debts. In a study by Wahome (2018), the identified factors include risk, size and profitability.

The reviewed studies create contextual gasps as some of them were conducted in Australia, UK and India and not in Kenya. Other studies were conducted in service oriented firms like in the insurance industry or banking industry and not the manufacturing sector.

1.3 Research Objective

To establish the relationship between firm specific determinants and capital structure of manufacturing firms listed at the Nairobi Securities Exchange, Kenya

1.4 Value of the Study

The management of the respective listed manufacturing firms may understand the salient factors that need to be considered when capital structure decisions. The finance managers in other non-listed manufacturing firms may develop implement optimal capital structure that would maximize the wealth of the shareholders. The policy makers at KAM and the Ministry of Industrialization, Trade and Enterprise Development may formulate relevant policies that support capital structure of the manufacturing firms.

The findings may be important to regulatory bodies like the Capital Market Authority as it regulate the manufacturing firms and the endeavors to optimize their CS. Investors may understand the best way of pressing management to maximize their wealth. The literature on capital structure and its associated firm specific determinants may be enhanced..

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The past inquiries are reviewed in this chapter to point out relevant gaps.

2.2 Theoretical Review

2.2.1 Pecking Order Theory

The proponents of this theory include Donaldson (1961) as well as Myers and Majluf (1984). The theory argues that when financing investment projects, a firm should put first preference to internal as opposed to external sources of funds. In the event that internal sources of funds are not adequate, then considerations should be given to external funds. As a last resort, the firm should issue new shares. The order of the financing options available to the firm according to this theory include debts, hybrid securities like debts that have ease of convertibility and lastly the issuance of shares (Mangafiý & Martinoviý, 2015).

Information asymmetry is the key premise of this theory, implying that the management of the firm is more informed of the projects as compared to investors. In compensating this information asymmetry, higher risk premiums should be paid top investors (Myers & Majluf, 1984).. Thus, in compassion to internal funding, external funding is so expensive to the firm under this pecking order theory. More generally, taking up debts would require firm to place collaterals unlike equity. This implies that equity has a higher risk premium as compared to debts. Further, issue of shares may result into loss of ownership in the firm. Issuance of equities or debts also ignites some signals in the mind of stakeholders.

This theory will provide how the firm can balance between external and internal sources of funds. The theory implies that optimization of the capital structure require entities to have preference for internal funds before external funds.

2.2.3 Agency theory

This theory was formulated by Jensen & Meckling (1976) and its main proposition is that management (agents) does engage in actions that deviates the interests of the shareholders (principals) resulting into conflict of interest. A body corporate has its control and ownership separated and this breed these conflict of interest. In order to reduce this conflict of interests, shareholders can issue debts. By issuing debts, the available cash at hand will be lowered since the same will need to be paid to debt holders in form of interest and the principal.

This agency theory provides an analysis of the agency costs by carrying out an analysis of the decisions based on profitability and inherent risk. Myers (1984) said that the optimal debt ratio in the firm is determined by the costs against benefits of holding the assets of the entity and borrowing. The need for the use of debts in the capital structure so as to counter agency costs that arise from separation of ownership and control of the entity is elaborated by this theory.

2.2.3 Modigliani-Miller Theory

Modigliani and Miller (1958) came up with this theory and it opines that the composition of the capital structure is not relevant in valuation of the entity in the stock markets. The theory indicates that the entity's value will be constant irrespective of the mix in the capital structure when conditions of perfection are assumed to hold. There are two basic propositions of this theory: the first one MM1 indicate that the leverage in an entity does not affect the firm's value within markets irrespective of the mix of equity and debt that are used to fund projects. The

theory argues that the value of the entity is informed by the earning ability of the entity and the riskiness of the assets in question (Garach, 2019). The second proposition MM2 illustrates the link between leverage and the average weighted costs of the entity. This means that if weighted average, the cost of capital will not change. The theory provides suggestion that the value of the entity is determined by capability of the assets to generate earnings and not the capital structure (Mangafiý & Martinoviý, 2015).

This theory is premised on existence of perfect capital markets characterized by free flow of information that could easily be accessed by investors. The theory further assumes non-existence of costs like transaction fees, floatation charges when issuing new shares and concerns about taxation (Unlucan, 2019). The parties in the financial markets are assumed to exhibit rational behavior of working to maximize their profits or minimize their exposure to losses. Furthermore, the expectations with regard to future earnings of all investors are assumed to be similar (Psiwa 2015). The theory indicates the need for leverage in the capital structure of the firm.

2.3 Firm Specific Determinants of Capital Structure

2.3.1 Asset Tangibility
Tangibility is reflected in the proportion of tangible against intangible assets. During financing arrangements, firms leverage the fixed assets as collaterals especially for the case of interest bearing debt facilities. Tangible assets play a role in minimization of the agency costs associated with debts. The relationship between asset tangibility and capital structure is mixed. For instance, while Pinková (2012) established a positive relationship, Noulas and Genimakis (2011) established negative relationship.

2.3.2 Profitability

In line with the pecking order theory, firms have strong preference of retained earnings compared to other sources of funding. However, retained earnings are a function of the profits ploughed back in the firm. Thus, an inverse interplay is p0redicted between CS and the need to be profitable when pecking order theory is considered. Mazur (2007) provides an explanation of this inverse relationship that profitable entities that hold they own funds do not often rely on borrowed funds. Similalry, de-Jong, Kabir and Nguyen (2008) were of the opinion that firms which profitable mostly rely on in-house funds hence resulting into an inverse link between debts and profitability.

2.3.3 Liquidity

There are more cash to the firms that have strong liquidity position. As such, creditors usually prefer these highly liquid firms as being safe hence can easily access funds (Berg, 2021). This will lower the costs incurred to access debts by these highly liquid firms since they probability of insolvency is relatively low. In light of the pecking order theory, entities will give strong preference to internal as opposed to external funds so as to lower agency costs and information asymmetry. This has an implication of an inverse link between liquidity and capital structure of the entity (Singh, 2016). While Frąckowiak *et al.* (2005) established a positive link between liquidity and capital structure, Mazur (2007) showed an inverse relationship. This study will operationalize liquidity using current assets against current liabilities.

2.3.4 Interest Tax Shield

Use of debts is beneficial to the firm since it results into interest tax shield. The higher the interest paid by the firm, the lesser the tax to be deducted from profit. Thus, while payment of interest related with debts are tax deductible, payments linked with equity like dividends aren't

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tax deductible. Mutsotso (2017) documented a positive link between tax shield and the capital structure of the entity. Mutwiri and Okello (2015) established the link between tax shield and capital structure to be significant. Mutsotso (2017) measured tax shield by dividing interest against earnings before interest and taxation (EBIT). Similarly, interest tax shield in the present study will be measured by interest payable against EBIT.

2.4 Empirical Review

On an international scale, the study by Moradi and Paulet (2019) covered the period before and after occurrence of the Euro Crisis. In total, 559 enterprises in European nations were covered focusing on the period 1999 all through to 2015. It was noted that tax shield, profitability and growth are negatively linked with leverage while negatively linked with equity. Within markets in Australia, Li and Islam (2019) focused on the publicly listed entities within the period 1999 all through to 2012. A significant link was registered between industry and firm specific factors and capital structure.

Relying on evidence from emerging countries, Doan (2019) showed that variability in income, tangibility and profitability significantly influenced capital structure. In an inquiry by Berg (2021), the horizon of consideration of the inquiry was 2014 all through to 2018 covering 12169 listed and non-listed entities in UK. It was shown that leverage is informed by liquidity, tangibility and profitability. Garach (2019) showed that while credit risk, size and profitability have an inverse relationship with total leverage, growth has a positive link. In the beverage industry of Europe, Dalci, Ozyapici and Unlucan (2019) covered listed entities within the beverage industry within the time frame 2010 all through to 2018. The inquiry documented an inverse link between profitability, tangibility and liquidity and leverage.

Locally in Kenya, Ndung'u (2019) covered investment listed firms at the NSE. Descriptive design was embraced in this study covering the period 2000 all through to 2018. The inquiry did show that tangibility of assets, leverage and liquidity are not the key issues determining firm value. On the other hand, opportunities for growth do shape the value of the listed entities. Orangi (2017) focused on automobile listed entities on NSE to bring out the determinants of CS. The period of consideration was 2007 all through to 2016. It was shown that firm growth; policies with regard to dividends, liquidity and taxation all determine the capital structure significantly.

In an inquiry by Kerubo (2018), the horizon considered by this inquiry was 2012 all through to 2016. It was shown that profitability informs the value of retained earnings while interest tax shield and tangibility of the assets inform the debts. In an inquiry by Wahome (2018), the horizon covered was 2003-2012. It was shown that risk, size and profitability of the firm inform the capital structure.

Mohamud (2019) looked at determinants of capital structure focusing on microfinance banking entities in Kenya. In total, 3 major microfinance banks were sampled out and included in the inquiry. It was shown that risk, profitability and risk all shape capital structure. Kariuki and Kamau (2014) showed that while the opportunities for growth have direct link with capital structure, size has an inverse significant link, profitability has an inverse and non-significant interplay while asset tangibility equally has a positive and non-significant connection with capital structure.

2.5 Summary of Literature and Knowledge Gaps

The study by Moradi and Paulet (2019) covered European nations and not Kenya. Berg (2021) did a study covering UK firms and not the Kenyan firms. Garach (2019) used the Indian banking industry and not the manufacturing sector. Orangi (2017) focused on automobile listed entities on NSE and not the manufacturing firms. Kerubo (2018) used a case of construction listed firms and not the manufacturing listed firms. Wahome (2018) placed emphasis on insurance firms in Kenya and not the listed manufacturing entities. Mohamud (2019) covered the microfinance banks in Kenya and not the listed manufacturing firms.

2.6 Conceptual Framework

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┌─────────────────────────────┐          ┌─────────────────────────────┐
│ Independent   Variable (Firm │          │ Dependent Variable          │
│ Level Determinants)          │          │                             │
└─────────────────────────────┘          └─────────────────────────────┘

┌─────────────────────────────┐          ┌─────────────────────────────┐
│  • Asset Tangibility         │ ──────▶  │ Capital Structure           │
│  • Profitability             │          │   • Debts/(Debts+Equity)    │
│  • Liquidity                 │          │                             │
│  • Interest Tax Shield       │          │                             │
└─────────────────────────────┘          └─────────────────────────────┘
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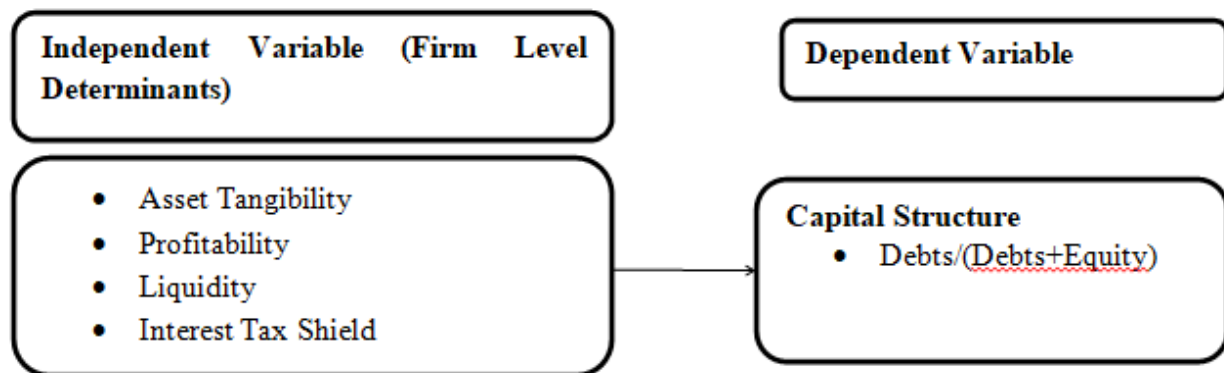
Figure 2.1: Conceptual Framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The embraced design, targeted participants and concerns on how information is to be gathered and processed are all detailed in this chapter.

3.2 Research Design

Descriptive survey design covering quantitative methods was adopted in this study. Yin (2017) argues that a descriptive design provides an account of things the way they exist in their original state. There are past related studies like Mohamud (2019) as well as Kariuki and Kamau (2014) who equally used this descriptive design.

3.3 Target Population

This study targeted 9 listed manufacturing firms at the NSE. These firms are shown on appendix II. Census was adopted as the population is relatively small.

3.4 Data Collection

Secondary data was collected in this study from existing reports and publications by the CMA, NSE, KAM, KNBS and the financial reports of the respective listed firms. The study gathered annual data over a 5-year period (2016-2020). The period was selected because it was current and such data can easily be accessed.

3.5 Data Analysis

Editing of the gathered information through excel to clear inconsistencies was done. From excel, the cleaned and edited data was exported to SPSS. Processing of the information was conducted descriptively and inferentially.

3.5.1 Model Specification

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Capital structure (debts/(debts+equity)

β_0 = constant

β_0, β_1 = beta coefficients

X_1 = Asset tangibility (Non-current assets/Total assets)

X_2 = Profitability (ROA=Net income/Total assets)

X_3 = Liquidity (Current assets/Current liabilities)

X_4 = Interest tax shield (Interest paid/EBIT)

ε = Error term

Table 3. 1: Operationalization of Variables

Variable	Measurement/Operationalization	Scale
Capital structure	debts/(debts+equity)	Ratio
Asset tangibility	Non-current assets/Total assets	Ratio
Profitability	Net income/Total assets	Ratio
Liquidity	Current assets/Current liabilities	Ratio
Interest tax shield	Interest paid/EBIT	Ratio

3.5.2 Diagnostic Tests

Multicollinearity Test

Multicollinearity is any circumstance when at least one of the independent variable is related with each other (Andren, 2007). This should not be the case as it will have violated the regression analysis assumption. Variance of Inflation Factors (VIF) were computed to determine multicollinearity in the data. Muia (2017) share that VIF values above 10 signify presence of multicollinearity in the data.

Heteroskedasticity test

This is a situation when there is constancy in the error term of the regression model over time. This should not be the case as it is the violation of regression analysis assumption. BreuschPagan

test was used to test for Heteroskedasticity with 0.05 being the threshold. Thus, $p<0.05$ signify presence of Heteroskedasticity.

Normality Test

The data to be used for regression analysis should be normally distributed. To this assumption, normality test is usually conducted. In this study, Shapiro-Wilk was used to test for normality. When the $p>0.05$, the deduction drawn is presence of normality in the data.

Autocorrelation Test

This test is used to ascertain the presence of serial correlation in the data. Such serial correlation can either be positive or negative. Durbin Watson Statistic was computed to test for autocorrelation with the figure approximately 2 signify absence of serial correlation in the data.

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION

4.1 Introduction

The chapter is set out to detail the analyzed findings in response to the research objective. The specific contents of the chapter include the descriptive statistics, diagnostic tests, and correlation as well as regression results.

4.2 Descriptive Statistics

Table 4.1 summarizes the descriptive statistics of the study.

Table 4.1: Descriptive Statistics

	N	Min	Max	Mean	Std. Dev
Capital Structure	45	.15	.95	.54	.241
Asset Tangibility	45	.03	.84	.38	.241
Profitability	45	.01	.56	.15	.118
Liquidity	45	.17	6.24	1.36	1.146
Interest Tax Shied	45	.11	1.26	.50	.287

Source: Survey Data (2021)

Table 4.1 shows that on average, listed manufacturing firms had a capital structure of .54, asset tangibility of .38, profitability of .15, liquidity of 1.36 and interest tax shield of .50 respectively. The highest standard deviation of 1.146 arose from liquidity with the lowest value of .118 being represented by profitability.

4.3 Diagnostic Tests

Consider subsequent sections

4.3.1 Autocorrelation Test

Durbin Watson statistics was computed to determine autocorrelation and Table 4.2 gives a summary of the findings.

Table 4.2: Autocorrelation Test

Model	Durbin-Watson
1	2.036

Source: Survey Data (2021)

Statistics for d is 2.036, this is a strong indication that autocorrelation was absent in the sample data and hence the assumption was not violated.

4.3.2 Mulicollinearity Test

Table 4.3 gives a summary of the findings.

Table 4.3: Multicollinearity Test

	Collinearity Statistics	
	Tolerance	VIF
Asset Tangibility	.868	1.152
Profitability	.726	1.378
Liquidity	.847	1.181
Interest Tax Shied	.744	1.344

Source: Survey Data (2021)

Table 4.3 gives the VIF values of the individual variables of the study. From the findings, all the VIF values happen to fall within the threshold of 1-10, an indication that there was no multicolinearity in the data.

4.3.3 Normality Test

Kolmogorov-Smirnov and Shapiro-Wilk were used to test for presence of multicollinearity with the findings as summarized in Table 4.4.

Table 4.4: Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Capital Structure	.473	5	.501	.552	5	.403
Asset Tangibility	.504	7	.600	.453	7	.300
Profitability	.367	5	.726	.684	5	.506
Liquidity	.492	6	.800	.496	6	.667
Interest Tax Shied	.347	11	.901	.665	11	.890

Source: Survey Data (2021)

The respective p-values for Kolmogorov-Smirnov and Shapiro-Wilk are all above 0.05, an indication that the data used in the study was normally distributed. This is desirable condition for regression modeling.

4.3.4 Heteroskedasticity Test

BreuschPagan test was conducted to test for heterokesdasticity and Table 4.5 gives the summary of the findings.

Table 4.5: Heteroskedasticity test

```
Test:   Var(u) = 0
                   chibar2(01) =   235.34
              Prob > chibar2 =   0.5672
```

Source: Survey Data (2021)

H_0: Constant variance

Table 4.5 shows the p-value as 0.5672 that is p>0.05. This leads to rejection of the null hypotheses where presence of homokesdasticity was assumed.

4.4 Correlation Matrix

Table 4.6 gives the correlation results.

Table 4. 6: Correlation Matrix

		Capital Structure	**Asset Tangibility**	**Profitability**	**Liquidity**	**Interest Tax Shied**
Capital Structure	Pearson Correlation	1				
Asset Tangibility	Pearson Correlation	.586	1			
Profitability	Pearson Correlation	.654	.313	1		
Liquidity	Pearson Correlation	-.155	-.002	-.203	1	
Interest Tax Shied	Pearson Correlation	.482	.473	-.077	-.209	1

Source: Survey Data (2021)

The results in Table 4.6 show that while profitability (r=.654) and asset tangibility (r=.586) have a strong and positive relationship with capital structure of the listed manufacturing firms, interest tax shield (r=.482) has a moderate relationship while liquidity (r=-.155) has a weak and negative relationship. This implies that firm specific determinants are related with capital structure of the firm. These findings contradict with Garach (2019) and Mangafiý and Martinoviý (2015) who noted an inverse link between profitability and CS. However, the finding agrees with Mohamud (2019) who point out this relationship to be positive. Ndung'u (2019) shared that while liquidity and leverage positively influences capital structure, growth opportunities and asset tangibility have an inverse relationship. Kerubo (2018) observed that debts are informed by interest tax shield and asset tangibility. Wahome (2018) shared that profitability significantly shape capital structure. Mohamud (2019) said that profitability is positively linked with capital structure. Moradi and Paulet (2019) noted that tax shield, profitability and growth are inversely linked with leverage. Berg (2021) shared that liquidity, tangibility and profitability are significant attributes of capital structure.

4.5 Regression Results

Regression results covering the model summary are detailed in Table 4.7.

Table 4.7: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.859[a]	.739	.712	.12974

Source: Survey Data (2021)

Table 4.7 shows that 73.9% change in capital structure of the listed firms is explained by changes in firm specific determinants. This means that other factors exist with an implication on capital structure apart from the firm specific determinants. The ANOVA findings are presented in Table 4.8.

Table 4.8: Analysis of Variance Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.902	4	.475	28.247	.000[b]
	Residual	.673	40	.017		
	Total	2.575	44			

Source: Survey Data (2021)

Table 4.8 indicates that $p<0.05$, with F=28.247, these imply that on overall, the study model was significant. Table 4.9 gives the coefficients and significance.

Table 4.9: Regression Beta Coefficients and Significance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.046	.062		.745	.460
Asset Tangibility	.257	.103	.156	2.495	.035
Profitability	.344	.089	.657	3.865	.000
Liquidity	.217	.098	.079	2.214	.013
Interest Tax Shied	.400	.084	.475	4.741	.000

Source: Survey Data (2021)

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Table 4.9 shows that interest tax shield (β=.400, p<0.05 & t>1.96) has the greatest significant contribution towards CS of Kenya's listed entities followed by profitability (β=.344, p<0.05 & t>1.96), asset tangibility (β=.257, p<0.05 & t>1.96) and liquidity (β=.217, p<0.05 & t>1.96) respectively. This implies that firm specific determinants significantly enhance capital structure of the firm. These findings contradict Garach (2019) who noted that an inverse link between profitability, risk and size with capital structure. Dalci, İOzyapici and Unlucan (2019) were of the view that profitability, liquidity and tangibility are inversely linked with CS. Sant (2018) argued that while profitability has a direct relationship with capital structure, asset tangibility has an inverse relationship. Mangafiý and Martinoviý (2015) noted that profitability has an inverse relationship with leverage.

4.6 Interpretation of the Findings

From descriptive statistics, the value of mean for capital structure was 0.54. This means that over half of the CS of the listed firms is made up of debts. Hence, a vast number of listed manufacturing firms in Kenya are debt financed. Thus, the listed manufacturing firms are levered. The average value of asset tangibility was given as .38, this means that intangible assets account for over half of the assets in place. This is important that majority of these firms are debt financed and thus would require collaterals that are easily availed from the available tangible assets. The intangible assets on the other hand are critical towards ensuring that these firms are liquid enough to meet their current obligations as they become due. Profitability determined through ROA had an average figure of .15; this implies that on average, listed manufacturing firms generate 15% of their net incomes by leveraging their assets. This could be an indication that more of the net incomes generated by the listed manufacturing firms arise from equities. The average value of liquidity is given as 1.36; this means that the manufacturing firms were

liquid enough to meet their short term obligations as they arose. In other words, the available current assets of the listed manufacturing firms were adequate to finance the current liabilities that may include short term debts. The value of interest tax shield was equal to 0.5; this means that about half of the EBIT is spent to pay for interests. This could be because a strong appetite of debts among the listed manufacturing firms that require payment of interest as it the debt matures.

From correlation results, the study established that profitability (r=.654) and asset tangibility (r=.586) have a strong and positive relationship with CS of the listed manufacturing firms. The implication of these results is that profitable firms will easily access debt facilities from investors as compared to the least profitable firms. This also implies that firms with some proportion of tangible assets in their balance sheets will find it easy to access debt facilities now that the same can be placed as collaterals during borrowing. Thus, one would expect more profitable firms with some level of non-current assets to have more debts in their capital structure. Interest tax shield (r=.482) has a moderate link with CS. The moderate relationship implies that firms will only enjoy interest tax shield when they have debts in their capital structure. Liquidity (r=-.155) had a weak and negative relationship. This means that increasing liquidity in the firm could hurt the capital structure, as this may result into an increase in tied up capital that represents an opportunity cost to the firm.

Regression results showed that interest tax shield interest tax shield (β=.400, p<0.05 & t>1.96) has the greatest significant contribution towards CS. The most outstanding motivation for use of debts in capital structure is the benefit of interest tax shield. Interest paid on debts is a tax deductible expense, hence will reduce the tax paid by the firm. This is important because it will allow the firm to fully maximize the wealth of shareholders which is one of the basic goals.

Profitability (β=.344, $p<0.05$ & $t>1.96$) had the second greatest significant effect on CS. This implies that more profitable firms will have optimal capital structures that maximize the value at the market place for the shareholders. Asset tangibility (β=.257, $p<0.05$ & $t>1.96$) had the third greatest and significant effect on capital structure. This means that having a proportion of non-current assets can allow the firm to borrow funds which would increase the amount of debts in the capital structure. Liquidity (β=.217, $p<0.05$ & $t>1.96$) had the least but significant effect on CS. This means that staying liquid can allow the firm to meet its short term obligations thus countering possibility of financial distress.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The processed views from the statements are summarized her. The concluding remarks and recommendations are further raised. The limiting factors and areas that need further inquiries are raised also.

5.2 Summary of the Findings

From descriptive statistics, over half of the capital structure of the listed firms is made up of debts. Hence, most listed manufacturing firms in Kenya are debt financed. Thus, the listed manufacturing firms are levered. Intangible assets account for over half of the assets in place. This is important that majority of these firms are debt financed and thus would require collaterals that are easily availed from the available tangible assets. Less than half of the net income generated by listed manufacturing firms arises from leveraging their assets. This could be an indication that more of the net incomes generated by the listed manufacturing firms arise from equities. The manufacturing firms were liquid enough to meet their short term obligations as they arose. About half of the EBIT is spent to pay for interests. This could be because a strong appetite of debts among the listed manufacturing firms that require payment of interest as it the debt matures.

From correlation results, the study established that profitability and asset tangibility have a strong and direct link with CS of the listed manufacturing firms. On the other hand, interest tax shield has a moderate link with CS. Liquidity had a weak and negative relationship. Regression results showed that interest tax shield interest tax shield has the greatest significant contribution

towards CS. Profitability had the second greatest significant effect on capital structure. Asset tangibility had the third greatest and significant link with CS. Liquidity had the least but significant effect on capital structure.

5.3 Conclusion

The study has shown that manufacturing listed firms have more debts as compared to equities in their capital structures. In other words, the listed manufacturing firms in Kenya have a strong appetite for debts as compared to equities. This observation resonates well with the pecking order theory that favors the use of debts before issue of new equities by the firm.

The study has established that maintaining an optimal capital structure require significant attention towards the firm specific determinants. In particular, the role played by interest tax shield, profitability, asset tangibility and liquidity toward capital structure of the firm cannot be ignored. Firms have a strong appetitive of debts in their capital structure as this would result into interest tax shield that is beneficial in maximization of shareholder value. In order for firms to access debt facilities from lenders, they should be profitable enough with a given proportion of their assets in non-current form besides being liquid enough.

Liquidity gives firms positive credit rating that can allow them to access debt facilities with ease. Lenders have strong preference to firms that are profitable. In fact, appraisal of debt facilities by lenders largely concentrates on profitability of the firm. Profitable firms are deemed to have capability to repay debt when the same has been advanced to them by lenders. The tangible assets of these firms including land can be pledged as collaterals when seeking for funds.

5.4 Recommendations of the Study

The study recommends that finance managers of the listed manufacturing firms should invest in profitable projects by leveraging more on the assets in place to create value for the shareholders. Prudence should be adhered to when utilize debt funds by manufacturing listed firms. In order to establish optimal capital structures, the finance managers of the listed firms in Kenya should fully leverage the interest tax shield while investing in profitable investments and other fixed assets that can be used as collaterals when borrowing.

Shareholders of the listed firms in Kenya should seek management to optimize the capital structure of their firms by balancing between debts and equities that maximize their wealth at the market place. The board of directors of the listed firms in Kenya should put in place relevant checks and balances that ensure funds are prudently utilized by the management in creating value for the shareholders.

The policy makers at CMA should stipulate relevant guidelines with regard to capital structure of the listed firms. Equally, policy makers at KAM should come up with relevant policies with regard to capital structure of their member firms. Policy makers at KRA should come up with clear guidelines regarding taxation that would optimize the interest tax shield enjoyed by levered firms.

5.5 Limitations of the Study

This study was limited in terms of context, concept and methodology. In terms of context, listed firms in Kenya were covered in this study. More specifically, manufacturing listed firms in Kenya were covered. A total of 9 firms were studied, which are too small to allow for

generalization of the findings to the rest of the manufacturing firms in Kenya. This also limits generation of the findings to other sectors as well as all other listed firms.

Conceptually, the study was limited to firm specific determinants and capital structure. Four proxies of firm specific determinants were profitability, tangibility, liquidity and interest tax shield. Thus, capital structure was the dependent and these proxies of firm specific determinants were the independent variables.

Methodologically, the focus of the study was on secondary data covering the period 2016-2020. This period is a limitation as it did not address current circumstances before 2016 or after 2020. Using this finding to generalize across these stated periods beyond cannot be valid hence a limitation.

5.6 Suggestions for Further Research

Other contexts for instance in insurance or banking sectors should be explored. Future studies can also be conducted by covering all the listed firms. The focus of future studies should be on all the manufacturing firms in Kenya. This will allow robust generalization of the findings.

Other dependent variable for instance firm value or profitability should be analyzed. Future studies can be conducted to cover other firm specific determinants apart from the four that were covered in the current study. Intervening and moderating variables can also be incorporated in future studies.

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Appendix I: Data Collection Sheet

Year	Total Debt	Total equity	Non-current assets	Current assets	Current liabilities	Total assets	Interest paid	EBIT	Net income
2016									
2017									
2018									
2019									
2020									

Appendix II: Listed Firms

1. B.O.C Kenya Ltd
2. British American Tobacco Kenya Ltd
3. Carbacid Investments Ltd
4. East African Breweries Ltd
5. Mumias Sugar Co. Ltd
6. Unga Group Ltd
7. Eveready East Africa Ltd
8. Kenya Orchards Ltd
9. Flame Tree Group Holdings Ltd

Source: NSE (2020)

Appendix III: Raw Data

Firm	Year	Capital Structure	Asset Tangibility	Profitability	Liquidity	Interest Tax Shied
B.O.C Kenya Ltd	2016	0.245	0.642	0.117	1.536	0.541
British American Tobacco Kenya Ltd	2016	0.216	0.606	0.280	1.152	0.112
Carbacid Investments Ltd	2016	0.305	0.659	0.117	1.139	0.354
East African Breweries Plc	2016	0.235	0.612	0.111	1.125	0.555
Mumias Sugar Co. Ltd	2016	0.277	0.564	0.131	1.141	0.277
Unga Group Ltd	2016	0.319	0.603	0.154	2.507	0.228
Eveready East Africa Ltd	2016	0.272	0.435	0.092	2.669	0.596
Kenya Orchards Ltd	2016	0.280	0.427	0.233	1.893	0.362
Flame Tree Group Holdings Ltd	2016	0.152	0.481	0.105	2.332	0.564
B.O.C Kenya Ltd	2017	0.294	0.696	0.186	0.343	0.412
British American Tobacco Kenya Ltd	2017	0.272	0.704	0.218	0.355	0.580
Carbacid Investments Ltd	2017	0.249	0.453	0.414	0.408	0.151
East African Breweries Plc	2017	0.734	0.754	0.161	0.354	0.395
Mumias Sugar Co. Ltd	2017	0.886	0.788	0.069	0.325	0.296

Company	Year					
Unga Group Ltd	2017	0.785	0.459	0.208	0.437	0.402
Eveready East Africa Ltd	2017	0.793	0.843	0.037	3.375	0.459
Kenya Orchards Ltd	2017	0.770	0.821	0.086	0.356	0.284
Flame Tree Group Holdings Ltd	2017	0.780	0.760	0.192	0.426	0.241
B.O.C Kenya Ltd	2018	0.773	0.156	0.562	0.210	0.402
British American Tobacco Kenya Ltd	2018	0.784	0.334	0.196	0.173	0.773
Carbacid Investments Ltd	2018	0.699	0.185	0.116	0.281	0.646
East African Breweries Plc	2018	0.790	0.087	0.047	1.497	0.541
Mumias Sugar Co. Ltd	2018	0.815	0.062	0.042	3.013	0.523
Unga Group Ltd	2018	0.818	0.050	0.121	2.403	0.146
Eveready East Africa Ltd	2018	0.853	0.085	0.142	1.819	0.199
Kenya Orchards Ltd	2018	0.938	0.106	0.019	0.739	0.773
Flame Tree Group Holdings Ltd	2018	0.588	0.029	0.243	1.013	0.165
B.O.C Kenya Ltd	2019	0.949	0.254	0.205	1.002	0.173
British American Tobacco Kenya Ltd	2019	0.749	0.273	0.012	0.824	1.060
Carbacid Investments Ltd	2019	0.425	0.311	0.089	0.593	0.277
East African Breweries Plc	2019	0.611	0.234	0.065	0.950	0.460

Mumias Sugar Co. Ltd	2019	0.364	0.155	0.018	1.634	0.824
Unga Group Ltd	2019	0.782	0.067	0.027	1.369	1.260
Eveready East Africa Ltd	2019	0.392	0.144	0.066	0.325	1.139
Kenya Orchards Ltd	2019	0.453	0.376	0.490	0.217	0.708
Flame Tree Group Holdings Ltd	2019	0.233	0.163	0.202	0.680	0.619
B.O.C Kenya Ltd	2020	0.729	0.603	0.025	0.514	1.110
British American Tobacco Kenya Ltd	2020	0.499	0.453	0.165	1.691	0.582
Carbacid Investments Ltd	2020	0.520	0.333	0.198	1.792	0.522
East African Breweries Plc	2020	0.275	0.259	0.205	2.661	0.131
Mumias Sugar Co. Ltd	2020	0.535	0.227	0.084	2.752	0.885
Unga Group Ltd	2020	0.567	0.269	0.210	2.046	0.478
Eveready East Africa Ltd	2020	0.350	0.373	0.261	1.408	0.359
Kenya Orchards Ltd	2020	0.436	0.166	0.065	6.244	0.838
Flame Tree Group Holdings Ltd	2020	0.623	0.306	0.291	1.602	0.275