CAPITAL STRUCTURE, PROFITABILITY, SIZE AND VALUE OF NON-FINANCIAL FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

This thesis is my original work and has not been submitted to any other University for an award of a degree.

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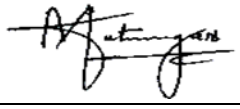
Signature:  **Date:** 04.12.2023

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DEDICATION

I dedicate this work to my dad Samuel Obio and my mum Agnes Nyariki for laying and instilling in me the value of education.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA- Analysis Of Variance
CS - Capital Structure
FCF - Free Cash Flow
LM - Lagrangian Multiplier
MM - Modigliani and Miller
NPM - Net profit margin
NSE - Nairobi Securities Exchange
Obs - Observations
OLS - Ordinary Least Square
SMEs - Small and Medium Enterprises
SPSS - Statistical Package for Social Sciences
UK - United Kingdom
USA - United States of America
VIF - Variance Inflation Factor

ABSTRACT

Capital structure is critical because it determines survival and firm values since it aids in describing how their finances are raised through equity, debt or firms combining equity and debt. The urge to better the values of the firms has led them to massive application of debt. It is argued that debt use is beneficial provided that the acquisition rates are favorable and the monies are well utilized for example in the acquiring of productive assets which are beneficial to the firms. Nevertheless, the linkage between capital structure and value is among unresolved areas in finance and also due to conflicting outcomes from empirical literature. Current research therefore, aimed at assessing the influence of profitability and size on the relationship between capital structure and the value of non- financial firms listed at the NSE. The study was anchored on trade off theory and positivism philosophy. This study utilized panel data of twenty- nine non-financial listed entities. The research relied on secondary data from the published reports which were availed from various websites of the twenty- nine non-financial firms. Collection of data was from 2013 to 2020. Analysis involved descriptive statistics as well as inferential statistics. Descriptive statistics was used in the analysis to aid in deep understanding of the specifics of collected data. Prais Winsten Panel regression was utilized in the inferential analysis. The study confirmed that equity ratio and firm value were positively related and statistically significant ($R^2 = 0.3590$, $p<0.05$) and the link between debt ratio and value was negative and significant ($R^2 = 0.3590$, $p<0.05$). The study further found that profitability does not mediate the link between capital structure and value ($R^2 = 0.0302$, $p>0.05$). On moderation, size does not moderate the link between capital structure and value ($R^2 = 0.5248$, $p>0.05$). Jointly capital structure, profitability and size influenced firm value ($R^2 = 0.5461$, $p<0.05$). This study supports the need of ensuring organizations are managed in a manner that ensures risk of excessive debt-taking is minimized. There is need for organizations to evaluate benefits and risks of debt before committing on new debt. This study further supports the need for injecting more money inform of equity instead of relying heavily on borrowed funds. This study is critical in contributing to already existing knowledge in this important area of finance. This was achieved by confirming that, capital structure significantly impacts value of the firms, size does not moderate the relationship between capital structure and value, profitability does not mediate the link between capital structure and value and finally established that jointly capital structure, profitability and size influenced the value of non-financial entities listed at Nairobi Securities Exchange. It is additionally significant to the government and regulators, for example capital markets authority in formulation of various policies which are aimed at providing guidelines and in defining suitable mix for governing debt levels of non-financial firms aimed at financial stability. Additionally, other institutions tasked with policy making can come up with strategies aimed at effective capital structure decisions with the goal of achieving certain firm targets and improving firm values. Investors can be enlightened how capital structure affects firm value; this helps them to make investment decisions that guarantees good return on their investment in the long run. Managers of non-financial entities may use the recommendations of this study in developing best capital structure choices which are aimed at improving the value of their entities. Future studies can focus on the mediating role of corporate governance in the relationship between capital structure and firm value. Further, a study can be done on capital structure, profitability and value of listed firms at East African Securities Exchange.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Capital structure decisions are critical because they determine survival and final values since they help in describing how their finances are raised through equity, debt or by the combination of debt and equity. Critical decisions must be taken with an aim of achieving an ideal financing mix due to its pivotal role (Brigham, 2010). Theoretically, capital structure is pivotal in the firms since it influences their profitability, size and values making it key in any managerial decisions (Sinha, 2017). The value of business entity is critical since shareholders are able to know the worth of their investment at any point in time. The size of an entity is also critical in the determination of the final value of any business organization since it influences its value and management can control it to attain its goal (Kurshev, 2011).

Capital structure directly influences how firms utilize their available resources with an aim of maximizing firm value. Efficiency hypothesis opines that, firms which are more efficient choose higher debt ratios. This is supported by the fact that, financial distress is not likely to be experienced by more efficient entities. Therefore, they have the capacity and are likely to take more debt. Further, interest payment's tax deductibility causes cost of debt reduction among efficient firms (Berger, 2012). On contrary, franchise hypothesis asserts that, entities which are more efficient give preference to lower debt ratios. This is supported by the fact that, entities which are more efficient are endowed with valuable assets which in the event of bankruptcy could be lost. This implies that, efficient firms' shareholders prefer equity capital to debt capital with an aim of protecting the shareholders interest of value maximization (Berger, 2012).

The present study was anchored on trade off theory by Myers (1984). It asserts that striking the balance of costs and the associated advantages of leverage improves the firm's value and profitability. Other supporting theories include; Modigliani and Miller relevancy theory (1963) which asserts that an entity's value is dependent on capital structure which implies that if a firm changes its capital structure, it results into changes in cost of capital and ultimately its value. Agency theory which was coined by Jensen and Meckling (1976) asserts that optimal capital structure which maximizes firm's value can be attained by the minimization of the agency costs. Pecking order theory which was coined by Myers and Majluf (1985) asserts that order of financing exist which minimizes the risk of financing where by entities prefer funds which are internally generated to externally generated which improves firm values.

Unresolved issues still exist among capital structure, profitability, size and value. Despite the general consensus that, the link between capital structure and value is positive, optimal capital structure which is the combination of debt and equity that simultaneously maximizes the value of the firm and minimizes the overall cost of capital still remains unresolved. According to trade off theory by Myers (1984), optimal capital structure exists. On the other hand, pecking order theory by Myers and Majluf (1985) affirms no existence of optimal capital structure. Intervening role of profitability is unresolved, some studies have confirmed profitability mediates capital structure and value link while other researchers have confirmed no mediation effect of profitability. Further, moderating role of size is unresolved, some studies have confirmed size moderates capital structure and value link while other researchers have confirmed no mediation effect of size. Hence the need for more research to understand the relationships among capital structure, profitability, size and firm value.

Non-financial sector is critical in any economy especially in accelerating the major economic activities. CS is critical because it determines the final values, therefore necessary decisions pertaining to financing need to be implemented with an aim of improving the values (Lewellen, 2016). Globally, non-financial entities values have declined in the recent decade and among the causes is the failure by entities to adequately address the capital structure component. Firms have been negatively impacted due to cash flow challenges. However, those that have addressed CS decisions adequately have improved their values (Hirdinis, 2019). Moreover, profitability has turned out to be very critical since it plays a critical role in the firms' value improvement (Kurshev, 2011). Some non-financial entities at NSE have been hit by share erosion which implies reduced values, others have recorded improved share prices which is a signal of high values (NSE, 2019). Non-financial entities at NSE have continued to increase debt capital in financing their operations hence the need for an investigation to determine whether it affects the final values.

1.1.1 Capital Structure

This relates to particular overall funding of an entity operations from the two main sources namely equity and debt (Haugen & Senbet, 2010). According to Berger and Bonaccorsi (2012), capital structure implies that portion of financial structure that mirrors the ratio of owned and which is sourced from long-term term debt and from own capital which is simply equity. As indicated by Penrose (2008), CS entails financing mix of the available funds of organization. It entails two major sources from where entities are able to raise their money from. These two sources include; the use of company's own money in the investments for example the share capital and retained earnings. The second source involves the application of borrowed funds which is majorly obtained from external sources.

Capital structure is the financial framework which firms uses to finance their operations in achieving the objectives and consists debt and equity (Soliha & Taswan, 2012). According to Modigliani and Miller relevancy theory (1961), if a firm changes its capital structure, it results into changes in cost of capital and ultimately its value. Further, trade off theory by Myers (1984) supports the need of balancing the costs and benefits of debt with the sole aim of improving firm values due to tax shield. Net operating income approach opines that, any change in leverage will not lead to any change in the total value of the firm or overall cost of capital (Durand, 1952). According to net income approach, change in financial leverage leads to corresponding change in overall cost of capital and firm value (Durand, 1952). Firms use debt capital to finance growth (Adams, 2020).

Capital structure is critical especially for the survival of the firms. How firms decide to mix available financing options forms the basis for future profitability and values (Ruan, 2011). For the achievement of better capital structure, it is the duty of finance managers to consider risk associated with the raising of funds, different types of costs incurred in the process of raising the funds and the level of control in the organizations especially the shareholders who have a stake in the firms (Kraus & Litzenberger, 1973). Decisions pertaining capital structure are critical in ensuring the operations of the firms are carried out smoothly without interruptions. According to Gibbs (2005), lack of adequate capital structure decisions exposes the firms to financial distress which threatens their survival or eventual wound up. According to Guler (2018), debt enhances cash flow generation and operational efficiency by managers because financial obligation inform of interest payments creates financial discipline for managers. This influences managerial behavior which directly leads to increased efficiency.

Capital structure is critical area in finance and has been widely researched by different scholars worldwide with varied operationalization. Taylor *et al* (2019) operationalized it by ratio of debt to that of equity which is the measure of outsiders' funds and corresponding shareholders' funds and by debt ratio. Bilafif and Ibrahim (2019) utilized liquidity which focused on access to capital markets, leverage which focused on interest on debt and ordinary share in the measurement of capital structure. Hirdinis (2019) utilized ratio of debt to that of equity in analyzing the capital structure. Mangesti *et al* (2019) utilized ratio of debt to that of equity in analyzing the capital structure component. This study utilized debt ratio and equity ratio in analyzing the capital structure component since they are the major components of capital structure.

1.1.2 Profitability

Profitability is that ability of an entity to generate profits, generation is within certain time frame (David, 2007). Profitability of an entity means the degree of yielding a financial gain by an activity or a business. Profitability of an organization entails that difference between revenue an organization receives when the sales have been made and total costs which are incurred in revenue generation and it is a clear pointer to gauge the performance and business sustainability and the ultimate reward for an investment or the money committed (Kim, 2015). According to Lozano *et al* (2022), profitability implies efficient management of firm operations to yield a gain.

According to Stuart (2005), profitability implies the capacity to derive benefits and the benefit is majorly from all the operations of an entity during a particular period. Monopoly theory of profits asserts that, market power of a firm is critical because it controls product price which in turn gives rise to profits of an entity (Titman, 2018). Uncertainty- bearing theory of profit opines that, the reward for any entrepreneur is profit for bearing uncertainty. Uninsurable risk and insurable risk

exist and uninsurable risk gives rise to profit. That can be achieved when an entrepreneur makes the right decisions (Frank, 2021).

One of the key business goals is profitability. Profitability is one of the key measures of business entities survival since it is able to give a clear indication of how an entity is performing. Profitability is significant because entities apply it in establishing how effective and efficient the resources an entity is endowed with have been managed (David, 2007). Profitability is crucial in any entities' setup, it helps in determining the best investment option by the shareholders especially in deciding its continuity. For any business entity to survive in the changing environment, it must evaluate its profits (Gibbs, 2005).

Profitable business entities have added advantage because they are more preferred by the investors. More investors translates to injection of extra capital which the firms can apply in expanding their entities in future and this enhances future growth by these firms (Ogbulu & Emeni, 2019). A profitable company is likely to have a higher value than an unprofitable firm because it has the ability to generate more cash flows. It is expected that, profitability indirectly connects capital structure to value. This implies that, profitability affects capital structure which in turn affects firm value (Galpin, 2015).

Profitability of an entity is measured by the profitability ratios. These ratios measure the capacity of any entity in converting sales into profits and in the process earn profits which are majorly from the assets utilized by an entity (Sujoko & Soebiantoro, 2007). Net profit ratio is critical in analyzing the profitability of an entity. Return on investment is also critical, it measurers the ability of an entity as a whole in the generation of profits by utilizing the available assets. It also assesses the level of operating efficiency of an entity as a whole (Fakhruddin & Hadianto, 2014). In their

survey, Taylor *et al* (2019) utilized return on assets in analyzing the profitability component. Mule *et al* (2015) operationalized profitability by assessing return on equity. Profitability was assessed by net profit margin since it reveals amount of profit an entity extracts from its sales.

1.1.3 Firm Size

Brigham (2005) defines size as the magnitude of resources endowment. It is a scale of an entity based on its total sales, operations and number of employees. This implies that a firm with high number of employees is considered large and with fewer employees small and a firm with high number of daily sales is a large firm compared with minimal sales. According to Stuart (2005), firm size implies the items of value which an organization owns. According to Aras (2019), firm size is the amount of assets an organization owns which are productive to a firm. According to Kim (2015), firm size is the sum of capital which the shareholders have invested in an organization. Firm size forms part of the internal factors which the management can control to attain its goal which is demographic and managerial in nature and they are considered as internal environment components of the firm and are majorly determined by management's actions (Kurshev, 2011).

Size is critical since is a major determinant of the final value of any business entity. For instance, firms which are large have the capacity to attract and retain more experienced work force unlike small firms with less financial capabilities. In terms of the competition, small firms are able to concentrate on the small niche markets which are not competitive unlike large firms (Gibbs, 2005). Size is also critical since any resource a company owns is reflected in its size and eventually its value. When investors are making investment choices, the size of the firm is inevitable since it is the basis for making informed choices. Entities which are large in size are able to provide the information which is detailed to various accounting information users for example the government,

creditors, management and investors this is critical in decision making aimed at improving the value of their entities (Sinha, 2017).

According to Kim (2015), economies of scale is attained when an organization gets larger because it uses production methods which are more efficient with an aim of lowering costs per unit of production. Additionally, economies of scale can occur when quantity of output increases due to low average production costs. This is due to spread of costs. Fixed costs tend to remain constant over time. Production of more units by an entity ensures fixed costs are spread leading to lower average cost per unit. This implies that large firms can further purchase in bulk which translates to high values compared to small firms Kim (2015).

Studies on firm size have been conducted and the operationalization confirmed to vary. Mule *et al* (2015) in their study used sales as the measure of the size. Sales of an entity imply selling related activities and goods sold in a given accounting period. Wayongah and Mule (2019) in their research used sales to assets ratio in operationalizing size. Mangesti *et al* (2019) in their study proxied the size by tangibility of assets which was measured by fixed assets owned by the firm and their corresponding total assets, sales and also by the employees which were employed by the different entities. Falola *et al* (2019) in their research proxied size of entities by the volume of sales. This study utilized sales and assets in operationalizing size since they reveal scale of entity's operations. Assets are items of value owned by an entity and they include non-assets and current assets.

1.1.4 Firm Value

Roy (2004) defines value as the worth of an entity. The value of an entity is the total of entitlements to be advanced to stakeholders for the money invested (Lawal, 2016). The value of a firm is the

economic measure which reflects the market value of an entity as a whole and is investor's assessment of how well an entity is performing (Kurshev, 2011). Basil and Dana (2018) define value as the total claims of the shareholders and creditors. Value is holding something in high regard (Lewellen, 2016). Sujoko and Soebiantoro (2007), defines firm value as the perception of the investors towards the stock price. When the stock value increases, it triggers increase in firm value, growth in the market and future prospects.

Value of the firm is critical since it informs us about their worthiness. Firm value forms one of the key central measurements since it is utilized in valuing business entities and in analysis of portfolio. A portfolio is critical in the entities since it aids in risk diversification. Shareholders being the proprietors of firms would need the administrators to maximize the investment value which is the superior goal of any entity. By creating high values, wealth creation is enhanced in the long run and increased pay out of the dividends and reinvestment to the owners (Soliha & Taswan, 2012). The primary target of any business firm is to make and improve long term investors' value (Weston & Copeland, 2008). Introduction of debt has both negative and positive effects on value. Debt can affect value by providing tax shield which is beneficial to the firms. However, high leverage increases financial risk which negatively affects value (Graham, 2003).

The estimation of any entity is just the entirety of value and debts and the value relies upon the income flows which are being produced by the company (Aras, 2017). The closing price which is the prevailing price during stock trading in the market is mostly utilized in measuring firm value (Brigham, 2010). Outstanding shares and equity are other indicators related to market value of a firm. Tobin's Q is critical in valuation of organizations. Tobin's Q expresses relationship between firm's market value and its book value. Zuhron (2019) survey utilized Tobin's Q. Aras (2019),

Basil and Dana (2018) all operationalized the value by market capitalization, Bilafif and Ibrahim (2019) utilized return on assets in analyzing the value component and Taylor *et al* (2019) operationalized value as total of equity shares, debt capital value and book value of preference shares. Tobin's Q was applied in operationalizing value since it reveals the worth of an entity.

1.1.5 Non-Financial Firms Listed at the Nairobi Securities Exchange

The establishment of NSE was in 1954 with the key responsibility of listing firms, it is mandated with the issuance of securities which are traded in the stock market which involves buying and selling of securities. These securities are traded by institutional and individual investors locally and internationally. The major focus of NSE is to facilitate the exchange of securities that are issued by the listed firms and the government. Trading in the secondary market is also facilitated by NSE by the provision of trading hub (NSE, 2019).

There are non-financial entities listed at the NSE. Unlike financial entities which are highly regulated by CBK to protect the interest of all stakeholders in financial markets, non-financial firms are not highly regulated and are free to have any capital structure. They do not take deposits or give credit neither do they issue securities for lending to deficit units in an economy. Capital Markets Authority is tasked with the responsibility of monitoring, licensing and supervising non-financial firms and other listed firms (NSE, 2020). Nevertheless, non-financial firms listed at NSE have confirmed variations in terms of capital structure decisions, their profitability, size and values.

According to Njeri and Kagiri (2018), debt levels for non-financial entities at NSE ranged from 30% to 72% for the period 2015 to 2017. Adequate decision making on capital structure ensures improved values due to minimization of the costs incurred by non-financial entities which have

the capacity to maximize the profits. Some non-financial entities at NSE have been hit by share erosion which implies reduced values, others have recorded improved share prices which is a signal of high values. Massive share price erosion has led to suspension and delisting of the entities from trading. In terms of profitability, mixed results were evident. Profitability of some firms dropped significantly with others continually recording losses over some time while others recorded profits. In terms of the sizes of the entities, variations in assets base and turnover were evident and firms confirmed variations in their values (NSE, 2020). The urge for more investment has motivated the entities to look for sources of funds with debt finance being preferred by listed non-financial entities at Nairobi securities exchange.

1.2 Research Problem

Capital structure assumes a key role since it is connected with the requests of the shareholders who are essential to a firm regarding success or failure (Haugen & Senbet, 2010). However, the link between capital structure and value still remains a puzzle in corporate and academic world to date. This is backed by the evidence of no agreement from empirical literature as well as theoretical evidence of the direct capital structure and value relationship. In theory, it is expected that good capital structure decisions lead to improved profitability, size and value of the entities, poor capital structure can negatively impact the profits of the entities thus reducing their values (Guler, 2018). However, optimal financing mix that guarantees maximum values is still unanswered.

The values of non-financial entities are dependent on several factors, some are controlled by management while others are beyond management control for example the presence of macroeconomic factors. Capital structure is a critical factor and is of great concern among non-financial entities. The urge to better their values has led them to massive application of debt as per

the NSE annual report (NSE, 2020). It is argued that debt use is beneficial provided that the acquisition rates are favorable and the monies are well utilized for example in the acquiring of productive assets which are beneficial to the firms. Non-financial sector has experienced performance and values related issues as evidenced by delisting and collapse of once giant firms in Kenya for example Mumias sugar company ltd, Athi River Mining, Express Kenya, Kenolkobil and Deacons ltd. (NSE, 2019). According to Njeri and Kagiri (2018), poor performance and collapse of firms emanated from poor capital structure decisions and corporate governance issues. Therefore, investigation is critical especially to aid in understanding whether capital structure, profitability and differences in sizes of the entities explains the variations in the values of the entities.

Theoretically, existing theories presented contradicting arguments leading to theoretical gaps. Modigliani and Miller theory (1961) asserts that an entity's value depends on capital structure and this implies that capital structure is relevant which means that if a firm changes its capital structure, it results into changes in cost of capital and ultimately its value. This theory means that optimum capital structure exists. Pecking order theory by Myers and Majluf (1985) asserts that typical firms normally commence financing by use of internal sources followed by debt and finally equity. The theory assumes that optimum capital structure does not exist. Trade off theory by Myers (1984) asserts that striking the balance of costs and the associated advantages of leverage improves the firm's value and profitability and optimum capital structure exist.

Conceptually, contradicting results were confirmed with inconclusive outcomes. Guler (2018) confirmed that increase in borrowing reduced the value of the entities and profitability increase directly increases the entity's value. Hirdinis (2019) confirmed that capital structure and

profitability influence value of entities and according to Ardina and Isnalita (2018), profitability and firm's growth increases the entities' values. Zaher (2019) concluded that debt ratio was confirmed to have no impact on values of entities. Additionally, limited studies have been conducted incorporating the four variables together and different operationalization of the study concepts were evident. This presented conceptual gaps in this analysis.

Contextually, the study by Hudu *et al* (2021) was conducted in Nigeria, Angelo (2019) carried out a research in Ghana, Musah *et al* (2018) carried out a research in Ghana, Edore and Ujuju (2020) did a research in Nigeria, Mita *et al* (2017) carried out a research in Liberia, Kreen and Sagn (2020) carried out a research in South Africa, Galpin (2020) carried out a research in Ghana and Lawal (2020) in Nigeria. Additionally, studies were also done in different sectors for example mining, insurance sector, public sector, automobile industry entities, real estate sector, and pharmaceutical entities and in developed economies. This presented contextual gaps.

Methodological gaps were also evident from the empirical literature, for example the use of primary data by Bilafif and Ibrahim (2019) and Omondi and Kamau (2018) to measure the study variables. Dakane and Warui (2019), employed cross-sectional survey in their studies. This was an indication of different research design employed in the studies and also different methods of collecting data. A number of studies exist in this area. This study differs from earlier ones because research questions addressed and methodology employed are different from earlier studies. This necessitated the present study aimed at addressing the gaps in answering the question; what is the influence of profitability and size on the relationship between capital structure and the value of non- financial firms listed at the NSE?

1.3 Research Objectives

The general objective was to determine the influence of profitability and size on the relationship between capital structure and the value of non-financial firms listed at the Nairobi Securities Exchange.

1.3.1 Specific Objectives

The specific objectives of the study were:

i. To determine the relationship between capital structure and the value of non-financial firms listed at the Nairobi Securities Exchange.
ii. To establish the effect of profitability on the relationship between capital structure and the value of non-financial firms listed at the Nairobi Securities Exchange.
iii. To examine the effect of firm size on the relationship between capital structure and value of non-financial firms listed at the Nairobi Securities Exchange.
iv. To investigate the joint effect of capital structure, profitability and firm size on the value of non-financial firms listed at the Nairobi Securities Exchange.

1.4 Value of the Study

This study gives more basis for critiquing the existing theories because the study outcome contradicted trade off theory by Myers (1984) which asserts that striking the balance of costs and the associated advantages of leverage improves the firm's value and profitability by confirming that leverage negatively affects value. The study further contradicted Modigliani and Miller relevancy theory (1961) which asserts that an entity's value is dependent on capital structure and leverage increases value. To the academicians and researchers, this area of capital structure,

profitability, size and value is very critical hence more studies are needed to be done in future for comparison purposes and this study will form the basis for reference.

This study is additionally significant to the government and regulators, for example capital markets authority in formulation of various policies which are aimed at providing guidelines and in defining suitable mix for governing debt levels of non-financial firms aimed at financial stability. Additionally, other institutions tasked with policy making are able to come up with strategies aimed at effective capital structure decisions with the goal of achieving certain firm targets and improving firm values.

This study sharpens industry practitioners for example finance managers engaged in setting capital structure choices of their entities. It is helpful in ideal planning of finances of the firms to create high values. Administration of non-financial entities may use the recommendations of this study in developing best capital structure aimed at improving the value of their entities. Investors can be enlightened how capital structure affects firm, this helps them to make investment decisions that guarantees good return on their investment in the long run.

1.5 Organization of the Thesis

This segment outlines how various sections of this thesis were presented in a chronological order in six chapters in achieving its objectives. In chapter one, key concepts were introduced namely; background of the study which primarily introduced this thesis followed by the following concepts; capital structure, profitability, size, value, the context of study, research problem which highlighted research gaps and research question, objectives and finally value of the research.

Second chapter highlights major theories which include; trade off theory (1984) by Myers, Modigliani and Miller relevancy theory (1961) by Modigliani and Miller, agency theory (1976) by

Jensen and Meckling and Pecking order theory (1985) which was coined by Myers and Majluf. The chapter further highlights empirical literature review together with its summary and corresponding research gaps and finally the conceptual framework which depicts the relationship of the variables.

Chapter three presents various steps and procedures which guide this survey namely; philosophy, design of research, population, data collection, diagnostic tests and data analysis procedures. Fourth chapter presents descriptive outcomes from the analysis of various study variables namely; the predictor variable which is capital structure, intervening variable which is profitability, moderating variable which is firm size and firm value which is the response variable. Correlation analysis is also highlighted and finally it concludes with the summary of the chapter.

Chapter five highlights hypothesis testing and discussion of study outcomes for all variables. Finally, chapter six summarizes research findings, it highlights the study's conclusion, it discusses the study's contributions and it further highlights the study's drawbacks and finally suggested areas to be researched in future.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This segment highlights the major theories of the study, it further reviews the empirical literature and the corresponding research gaps, conceptual model applied of the study and finally research hypothesis.

2.2 Theoretical Review

Theories relevant to this study include; trade off theory by Myers (1984), Modigliani and Miller relevance theory by Modigliani and Miller (1963), agency theory of Jensen and Meckling (1976) and pecking order theory of Myers and Majluf (1985). The study was anchored on trade off theory since it explains the link between capital structure and profitability, profitability and value and capital structure and value.

2.2.1 Trade off Theory

This proposition was coined by Myers (1984) and it asserts that striking the balance of costs and the associated advantages of leverage improves the firm's value and profitability. The classical version of this theory is traced to Krazis and Litzenbeger (1973) who introduced the balance between dead weight costs of bankruptcy and tax benefits of debt capital. There are advantages to leverage as the benefits are attained until optimal capital structure is attained. This theory recognizes the principle that the interest on debt is tax deductible, this implies that tax liability is greatly reduced and this increases tax shield (Myers, 1984). This theory makes an assumption that a company is able to tradeoff between costs and the benefits arising from the use of debts.

Entities tradeoff a number of aspects which includes the exposure to bankruptcy and agency cost against the tax benefit which results from debt use. The common cost incurred by firms is financial distress costs and personal tax expenses. The tax benefit from debt application by the companies has necessitated the application of more debt (Myers, 1984). Theory is critical in the non-financial sector, for the entities to increase in value, they must strike a balance of the costs and the advantages derived from the utilization of debt for increased values and profitability (Myers, 1984).

Trade off theory however has been criticized by various scholars, according to Titman (1992) companies which are more profitable are likely to borrow less which contradicts the actual tradeoff phenomena which asserts that highly profitable companies ought to do more borrowings so that tax liabilities is minimized. Companies with high proportion of debt are riskier for the investors. According to Graham (2003), high level of debt is common among the firms but it reduces their profitability since they are faced with high cash flow challenges. Kurshev (2005) criticized the theory by arguing that entities incurring high proportions of debt is a signal that they are struggling in terms of their finances. The analogy of comparing cost benefit to a rabbit and a horse balancing act on a scale by miller (1978) provides more criticism. He based this argument on the fact that bankruptcy has low cost which to some extent is rare against taxes which are huge.

The theory gives managers of non-financial entities a solution to leverage by determining the optimal debt to employ and also the ideal debt equity ratios in terms of the amounts of equity and also amounts of debt to adopt by their entities with an objective of maximizing the value of the entities. Managers can also make decisions based on the assets base, entities with high number of tangible assets can borrow more and entities with less intangible assets to go for equity since in

the event of liquidation, high levered entities are likely to lose value. There's need to improve trade off theory further by taking into consideration other factors that are likely to affect an organization's optimal capital structure. Currently, the theory only puts more emphasis on debt's tax benefits and financial distress costs. Theory was relevant by providing the need to ensure balanced costs and benefits from the use of debt to improve the profits and value.

2.2.2 Modigliani and Miller Relevance Theory

Theory was founded by Modigliani and Miller (MM) in the year 1963 and it asserts that an entity's value depends on capital structure and this implies that capital structure is relevant which means that when an entity changes its capital structure, it results into changes in cost of capital and ultimately its value. They investigated capital structure and made several propositions. At the onset, they found that the traditional perspective is unacceptable in part because it seemed unsupported by the theoretic frameworks. They confirmed that earnings streams and inherent risk could alter the value of the entities and their weighted average cost (Modigliani & Miller, 1963).

Modigliani and Miller theory is grounded on the following assumptions; no transaction and bankruptcy costs in the selling and purchasing of securities, there are no floatation costs and there is symmetry of information. An entity with debt has higher value than the firm with equity only because of tax shield since interest expense is a deduction which is allowable from taxable income. This means that how firms decide to allocate the investment funds has a bearing on the final value. Therefore, firm decisions should focus on attaining optimal capital structure through proper utilization of equity and borrowed funds to improve on profits and better the size of the entities and ultimately increase their values in the long run (Modigliani & Miller, 1963).

MM theory has been criticized by other scholars. Brigham (2005) argues that MM is grounded on unrealistic and unpractical assumptions for example markets being perfect which implies information in the market is costless which does not exist in the practical world. It further makes an assumption that bankruptcy does not exist. According to Stuart (2005), MM theory ignores financing aspect of the entities through retained earnings because in the real world, corporate entities normally don't payout all of their earnings in form of dividends.

How business entities allocate funds can greatly affect their value, also the risk factors in the operating environment. Thus, the value of non-financial entities is affected by the capital structure decisions, also how the resources are employed by these firms to attain the goals. Therefore, the firms should ensure minimal wastage of the resources so as to guarantee maximum values (Modigliani & Miller, 1963). Management of non-financial firms should come up with adequate measures geared at addressing the concerns on the management of the firm resources especially the borrowed funds. MM theory is critical since it supports the need for effective resources use especially the borrowed funds in order to attain high entity values. The relationship between debt and value is a positive one. The critical role this theory plays in regard to capital structure decisions by the managers makes it relevant since it supports financing by debt increases value of entities since application of debt by the entities allows them to pay less in taxes.

2.2.3 Agency Theory

Agency theory was coined by Jensen and Meckling in the year 1976 and it postulates that an entity's capital structure which is optimal which maximizes entity's value can be attained by the minimization of agency costs which are caused by the conflicting interests of debt holders, managers and equity holders of the firm. Agency costs which are the costs involved in the

relationship between the principal and agent are vital since they form the basis for capital structure. Debt holders, stockholders and managers are majorly responsible in the mediation of funding of the firms. It is prudent to ensure the increase in managerial ownership in the firms this is key in aligning the managers and shareholders' interests in the firms and agency costs will greatly be minimized which is achieved by the control of free cash flows (FCF). FCF entails the amount of cash an organization has after it has catered for all the expenses for the period (Jensen, 1986). Managers use FCF in promoting their personal interest according to agency theory.

Agency conflict is due to agency problems as a result of self-serving behavior of managers which is done at the expense of the shareholders for example pursuing of more perquisites which include splendid offices and company cars. Agency problem need to be addressed for the survival of the firm by recommending various incentives and other controls. The incentives include the share option which is factored in as part of remunerating package scheme and also bonuses tied to profits. Managers can be monitored by audited accounts of the firms and lenders imposing restrictive covenants for example maximum borrowings and ceilings on dividend payments (Jensen, 1986).

Gibbs (2005) disagrees with the assumption that availability of FCF leads to agency problem. He confirms that free cash flow is a significant measure because it acts as a sign of efficient cash generation by entities. In addition, investors can use FCF in measuring whether an entity might have sufficient cash for the payment of the dividends. Musafran *et al* (2019) criticized the agency theory on its ground of theoretical foundation that agency costs must be incurred which are aimed at imposing checks and balances in ensuring no maximization of the perquisites by the managers of the entities.

The theory is very critical by asserting that for the value to be maximized, agency costs must be minimized and the application of more debt financing compared to equity financing leads to tax benefits because interest payments are tax deductible (Jensen & Meckling, 1976). High debt levels will ensure managers don't engage in non-profitable ventures by minimizing cash flows they control which might be misused. Managers must be compelled to pursue only the investment opportunities which are beneficial to the shareholders which are aimed at improving value of the entities. There is need to manage agency conflicts. Theory was relevant since it supports the need of more debt use to control FCF to ensure profitability is enhanced and value of entities.

2.2.4 Pecking Order Theory

Theory was coined by Myers and Majluf (1985) and it asserts that typical firms normally commence financing their new investments by use of retained earnings followed by a debt which is safe, then finance by the debt which is risky and finally finance with outside equity and this is aimed at reducing adverse selection costs by the firms. The pecking order normally arises when the cost used to issue the securities which are riskier which include transaction costs and any costs which management may create concerning the value of the riskier securities exceeds the proposed constant benefits (Myers & Majluf, 1985).

Pecking order theory is grounded on information asymmetry, however according to Pandey (2004), the financing hierarchy can exist without the information asymmetry and the incentive conflicts are a major source which can give rise to pecking order behavior. Transaction cost is a critical factor in the order of financing by firms. In the hierarchy of the financing decisions, it is assumed that for the value of the entities to be high, internal sources must be exhausted and this will in turn improve the profitability of the entities in the long run and their corresponding sizes.

Sometimes firms initiate a pecking order, however, they fail to follow it in order to have some internal earnings. An assumption that will be beneficial in the future to invest in the profitable ventures (Fama & French, 2006).

This theory has been criticized; it disregards other theories which argue that not only the shortage of internal funds can motivate entities to external borrowing but also other factors for example favorable interest rates. Favorable interest rate is a critical aspect because it directly impacts on the cost of borrowing by making borrowing of money cheaper and also encouragement of investment. Graham (2003) confirms optimum capital structure exists in business environment which implies that the combination of debts and equity which simultaneously maximizes entity's value and also minimizes cost of capital exist contrary to pecking order argument which asserts no existence of target debt ratio. Kim (2015) criticized this theory further by stating that it does not take into consideration taxation effects and also financial distress. Sujoko and Soebiantoro (2007) criticized the theory because it fails to outline the hierarchy of determining capital structure of an entity.

This theory operates under the following assumption; it makes an assumption that firms do not target debt ratio but instead it prefers external sources of funds when internal sources are insufficient, it further assumes financing of entities is majorly from the following three sources namely; equity, debt and internal financing. In the non-financial sector, pecking order is significant since it signifies the importance of internal financing as opposed to external financing (Fama & French, 2006). Therefore, managers should adopt internal financing since it is beneficial to the firm in improving their values. The order of financing ensures that risk associated with financing is minimized which improves value of firms. Theory was relevant, value of non-financial entities

is enhanced based on the choice of capital structure utilized, and it supports internal financing instead of debt since the theory does not support debt usage since debt has a negative relationship with value.

Table 1: Summary of Theories

Theory	**Proposition**	**Contributions to current study**
Trade off theory by Myers (1984)	Striking balance of costs and associated advantages of leverage improves firm's value and profitability	Explains relationship among capital structure, profitability and value
Modigliani and Miller relevancy theory by Modigliani and Miller (1963)	Capital structure is relevant meaning change in capital structure affects value	Better understanding of the link between capital structure and value
Agency theory by Jensen and Meckling (1976)	Optimal capital structure attained when agency costs are minimized which maximizes value	Better understanding of the link between capital structure and value
Pecking order theory by Myers and Majluf (1985)	Financing hierarchy exists and firms prefer internal sources to external sources	Explains relationship between capital structure and value

Source: Researcher (2023)

2.3 Empirical Literature Review

Various past researches are reviewed in this section which include; research related to capital structure and the values of the entities, intervening impact of profitability, moderating impact of size and finally the impact of capital structure, profitability and size on the entity's values.

2.3.1 Capital Structure and Firm Value

Hudu *et al* (2021) analyzed how the value of the firms were related with their financial leverage. The study focused in Nigerian banking sector from 2017 to 2020. Survey applied secondary information in the analysis and was readily available in the websites of the entities. Longitudinal research design was applied in the research. A census was done for the fifteen entities in the banking sector. The values of the entities were measured by market capitalization and debt to equity indicated financial leverage. Multiple regression technique was conducted. It was evident that leverage of the entities had insignificant effect on the entities' values and the relationship was negative. Survey was done in Nigeria and in the banking sector. Findings might not be applicable to other contexts because of contextual differences. Current study focused in Kenyan context and targeted non-financial entities.

Edore and Ujuju (2020) carried out a research in Nigeria aimed at assessing the decisions on capital structure and how they relate to the value of firms. Survey's duration was from 2002-2017 with the aid of secondary data which was obtained for five entities which were from the mining sector and were listed. In terms of the methodology, longitudinal research design was utilized in the survey. Multiple regression technique was employed with analysis done using SPSS. The analysis concluded major findings namely; no evidence of direct association between debt and ratio of equity and the entity's value and that the association was not significant. Analysis was conducted in Nigeria and it targeted the mining sector. Findings might not be applicable to other sectors because of sector differences. Present study focused on non-financial entities and it was done in the Kenyan setup.

Bilafif and Ibrahim (2019) carried out a research in Kenya aimed at assessing the decisions on capital structure and how they relate to the value of firms. They focused on the firms in the manufacturing sector within Mombasa County. 281 firms were the target of the survey and the survey analyzed 170 entities with the utilization of primary information in the survey. Cross sectional design with the aid of questionnaire was utilized. Multiple regression technique was employed. The analysis concluded that high debt levels utilized produced a corresponding rise in the value of the entities due to tax shied benefits. The survey employed primary data in the measurement of the variables, cross sectional design and the study focused on manufacturing sector within Mombasa County hence the study outcome might not be applied to other counties. Present study used secondary data, longitudinal descriptive research design and the focus was non-financial entities at NSE.

Angelo (2019) analyzed how the value of the firms were related with their capital structure. The study focused in Ghana's manufacturing sector from 2008 to 2016. Survey applied secondary information in the analysis since it was readily available. Longitudinal research design was applied in the research. A census was done in arriving at the eight entities in the manufacturing segment. The values of the entities were measured by Tobin's Q, equity and debt indicated capital structure. Multiple regression technique was conducted. It was evident that equity and debt of the entities had a positive link with the entities' values. Survey was done in Ghana's manufacturing sector. Outcome is limited to manufacturing sector and might not be extended to other industries in other sectors. Current study focused in Kenyan context and targeted non-financial entities.

Chaleeda *et al* (2019) did a study in Malaysia aimed at assessing the association between corporate financing decisions and how they relate to the value of firms. The focus was on 256 firms which

were drawn from 8 sectors in Malaysia from 2000 to 2016. Inferential statistics was done using secondary data. Mixed conclusions were drawn from the study which include; short term debt and the assets of the entities relates positively with value and the association is significant and debt ratio of the entities relates positively with organization's value and the association is significant. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present survey target was non-financial entities listed at the NSE.

Guler (2018) carried out a research in Turkey and Brazil in assessing the decisions on corporate finance and how they relate to the value of firms. 2013 to 2017 was identified as the study period with 273 firms drawn from the real estate sector. Secondary sources of information were utilized. In terms of the methodology, longitudinal research design was utilized and multiple regression technique was employed with analysis done by SPSS. Two major findings from the analysis were confirmed which include; increase in borrowing has the ultimate effect of reducing the entity's value and profitability increase directly increases the entity's values in Turkey and Brazil. Analysis was conducted in developed economies. Debt as indicated by borrowing was the only considered indicator for predictor variable. Context of the survey was in the real estate sector. Focus of a single sector (real estate) limits the extension of study outcome to multi- industry set up. Present survey's target was non-financial entities at NSE and also debt ratio and equity ratio were main indicators of capital structure which was the predictor variable.

Hirdinis (2019) carried out a research in Indonesia aimed at assessing the association between capital structure and how they relate to the value of firms. The focus was on the 45 listed firms from 2016 to 2019, purposive sampling was conducted with the aid of panel correlation

methodology and multiple regression technique using secondary data. Conclusion from the study was that debt influences negatively value of entities. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present study was conducted on non-financial entities at NSE and also census was performed on the entities since it was ideal when the population is small.

Taylor *et al* (2019) did a research in India aimed at assessing the decisions on capital structure and how they relate to the value of firms. They focused on the automobile industry entities. Fourteen firms which are listed were selected in the study (2014 - 2018). Study utilized longitudinal design based on secondary information. SPSS was employed in conducting descriptive and inferential analysis in the study. Analysis found that debt ratio was positively linked with the firm's value and the association was significant. Survey was limited to only one indicator of capital structure which was debt ratio, analysis was conducted in developed economies. Context of the survey was automobile industry entities. Focus of a single sector (automobile) limits the extension of study outcome to multi- industry set up. Present study employed two indicators of capital structure which were equity ratio and debt ratio and finally focus of the survey was non-financial entities at NSE.

Omondi and Kamau (2018) carried out a research in Kenya aimed at assessing the decisions on capital structure and how they relate to the value of firms. They focused on the firms in the small and medium sized sector in Kenya. 200 firms were the target of the survey which analyzed 138 entities with the utilization of primary information. Cross sectional design with the aid of questionnaire was utilized. Multiple regression technique was employed. The analysis concluded that capital structure of the entities had had a positive link with the entities values. The survey

employed primary data in the measurement of the variables, cross sectional design and the study focused on SMEs sector hence the study outcome might not be applied to other industries. Present study used secondary data and the focus was on the non-financial entities at NSE.

Sinha (2018) analyzed how the value of the firms were related with their capital structure. The study focused in Indian power sector from 2014 to 2018. Survey applied secondary information in the analysis and was readily available. Longitudinal research design was applied in the research. A census was done in arriving at the forty entities in the power sector. The values of the entities were measured by Tobin's Q and debt to equity indicated capital structure. Multiple regression technique was conducted. It was evident that leverage of the entities had insignificant effect on the entities' values and the relationship was negative. Survey was done in developed economies with elaborate political and economic features. Current study focused in Kenyan context and targeted non-financial entities.

Aras (2019) surveyed how value was affected from the investment and financing decisions in Turkey. Survey was conducted from 2015-2019 with the aid of secondary data which was obtained for 274 entities which were from the public sector. In terms of the methodology, longitudinal research design was utilized in the survey. Multiple regression technique was employed with analysis done by SPSS. The analysis concluded major findings namely; no evidence of direct association between debt and ratio of equity and the entity's value and that inventory turnover did not affect the market value and the association was not significant. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present study focused on non-financial entities and it was done in the Kenyan setup.

Lawal (2020) analyzed how the value of the firms were related with their capital structure. The study focused in Nigerian insurance sector from 2017 to 2020. Survey applied secondary information in the analysis and was readily available for the entities. Longitudinal research design was applied in the research. A census was done in arriving at 134 insurance entities. The values of the entities were measured by market capitalization and equity ratio and debt to equity indicated capital structure. Multiple regression technique was conducted. It was evident that capital structure of the entities had insignificant effect on the entities' values. Survey was done in Nigeria and in the insurance sector. Focus of a single sector (insurance) limits the extension of study outcome to multi- industry set up. Current study focused on the Kenyan context and targeted non-financial entities.

Galpin (2020) analyzed how the values of the firms in Ghana were affected by the capital structure decisions from 2017 to 2020 with the aid of secondary data which was obtained for 114 entities which were from all sectors for the listed companies. Longitudinal research design was applied and sample of 56 firms which were selected from all sectors. The values of the firms were measured by market capitalization and EPS, debt ratio and equity were used to measure capital structure. Multiple regression technique was employed with analysis done by SPSS. Analysis revealed capital structure of the entities had insignificant effect on firm's value. Survey was done in Ghana, current study focused in Kenyan context. Findings might not be applicable to other contexts because of contextual differences. In terms of operationalization of variables, market capitalization and EPS indicated value, the current survey used Tobin's Q.

Kulati (2019) analyzed how the value of insurance entities were related with their capital structure in Kenya. 2017 to 2019 was survey's target which was a three-year period. Survey applied secondary data in the analysis and was readily available with an aim of attaining research outcome.

The values of the entities were measured by market capitalization, equity ratio and debt ratio indicated capital structure. Multiple regression technique was conducted. Researcher revealed utilization of debt reduced values of the entities in insurance sector. Analysis was conducted in the insurance sector. Focus of a single sector (insurance) limits the extension of study outcome to multi- industry set up. Present study focused on non-financial entities.

2.3.2 Capital Structure, Profitability and Firm Value

Megawati (2021) carried out a research in Indonesia aimed at assessing the decisions on leverage and profitability and how they relate to the value of the entities of firms. The focus was on the entities in consumer goods industry. Survey was conducted from 2018 to 2020 which was a three-year period. 43 firms were the target of the survey that analyzed 13 entities with the utilization of secondary information. Longitudinal design was employed. Multiple regression technique was used. Analysis concluded major findings namely; no evidence of direct association between leverage and the entity's value and that profitability affects the market value and the association is significant. Survey considered one indicator of capital structure as indicated by leverage. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present study considered two indicators of capital structure targeting non-financial entities at NSE.

Sayed *et al* (2021) did a research in Indonesia aimed at assessing the association between liquidity, leverage, and profitability and how they relate to the value of the entities. Purposive sampling was utilized and the focus was on 21 entities listed on Indonesia securities exchange for the duration 2015 to 2020 which was a six-year period. Multiple regression technique was employed. Conclusions from the study include; leverage relates positively with entity's value and the

association is significant, liquidity relates positively with entity's value and the association is significant and profitability relates positively with entity's value and the association is significant. Study focused on leverage, current study focused on capital structure. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Current study focused in Kenyan context.

Kaniz and Mohiuddin (2020) conducted a survey aimed at assessing the link between capital structure and profitability and how they affected the value. Target was firms in Bangladesh in ceramic sector. Survey was conducted from the year 2017 to 2020. Survey applied secondary data in the analysis and was readily available with an aim of attaining research outcome. Longitudinal research design was employed, a sample of 35 entities was chosen for analysis. The values of the firms were measured by Tobin's Q, leverage parameterized CS, profitability was indicated by return on sales and return on assets. Multiple regression technique was conducted in the survey. From the analysis, it was evident that debt ratio significantly affected profitability and the effect was a positive outcome. Profitability was confirmed to have no effect on value. Analysis was conducted in developed economies in ceramic sector. Focus of a single sector (ceramic) limits the extension of study outcome to multi- industry set up. Present study focused on non-financial entities at NSE.

Eli (2019) conducted a survey aimed at assessing the link between capital structure and profitability and how they affected the value. Target was firms in Amman stock exchange in Jordan with an exclusion of the firms in the banking and insurance sectors. Survey was conducted from the year 2015 to 2019. Survey applied secondary data in the analysis and was readily available

with an aim of attaining research outcome. Longitudinal research design was employed. A sample of 214 entities was identified for analysis. Values of the firms were measured by Tobin's Q, debt ratio and equity were employed to measure capital structure, profitability was indicated by return on equity. Multiple regression technique was conducted in the survey. From the analysis, it was evident that debt ratio significantly affected firm's values and the effect was a negative outcome. Profitability was confirmed to have no effect on value. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present study survey targeted non-financial entities at NSE.

Akrama and Nsour (2019) carried out a research in Jordan aimed at assessing the association between capital structure, profitability and how they relate to the value of the entities. The focus was on 40 entities which were majorly from manufacturing sector drawn from the population of 62 entities. Survey was done from 2014 to 2018. Multiple regression technique was employed. Conclusions from the study include; debt to equity ratio relates positively with the firm's value and the association is significant, ROA as an indicator of profitability was confirmed to relate positively with the firm's value and the association is significant. Analysis was conducted in developed economies. Context of the survey was manufacturing entities. Present study analyzed non-financial entities at NSE. Survey was limited to only one indicator of capital structure as indicated by debt- to- equity ratio. Focus of a single sector (manufacturing) limits the extension of study outcome to multi- industry set up. Present study employed two indicators of capital structure which were equity ratio and debt ratio.

Isfenti *et al* (2018) conducted a survey aimed at assessing capital structure, profitability and how they affected value. Target was pharmaceutical entities in Indonesia. Survey was conducted from the year 2011 to 2016 which covered six years. Census was adopted targeting all 54 entities. Multiple regression technique was conducted in the survey. Panel data was utilized. Values of the entities were measured by price to book value, return on assets parameterized profitability of entities and debt ratio and equity ratio were used to measure capital structure. From the analysis, it was evident that debt ratio significantly affected entities' values, equity ratio significantly affected entities' values and profitability was confirmed to relate positively with the firm's value and the association is significant. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present study focused in Kenyan setup. Context of the survey was pharmaceutical entities. Present study analyzed non-financial entities at NSE.

Sambasivam and Ayele (2018) carried out a research in Iran aimed at assessing the decisions on capital structure and profitability and how they relate to the value of the entities of firms. They focused on the firms in the agricultural sector. 87 firms was the target of the survey and the survey analyzed 41 entities with the utilization of primary information in the survey. Cross sectional design with the aid of questionnaire was employed. Multiple regression technique was employed. The analysis concluded that capital structure decisions affected the value of the entities. Profitability was confirmed to have no effect on value of the entities. The study utilized primary data in the measurement of the variables, cross sectional design and the study focused on agricultural sector. Focus of a single sector (agricultural) limits the extension of study outcome to multi- industry set up. Survey considered one indicator of capital structure as indicated by debt

ratio. Present study used secondary data, two indicators of capital structure were employed, longitudinal research design and the focus was non-financial entities at NSE.

Barakat and samhan (2018) carried out a research in Saudi Arabia aimed at assessing the decisions on financial structure, financial leverage and profitability and how they relate to the value of the entities. The focus was on the firms in the industrial sector. The study was conducted from 2012 to 2016 which was a five year period. 60 firms was the target of the survey and the survey analyzed 33 entities with the utilization of secondary information in the survey. Longitudinal design was employed. Multiple regression technique was done. Analysis concluded major findings namely; evidence of direct association between leverage and the entity's value and that profitability affects the market value and the association is significant. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies and in industrial sector. Present study targeted non-financial entities at NSE.

Mule *et al* (2015) did a survey in Kenya aimed at assessing the association between corporate size, profitability and how they relate to the value of firms. The focus was on listed entities from 2010 to 2014, the major source of data was secondary, and panel correlation methodology was used. Multiple regression technique was employed. Conclusions from the study include; corporate size predicts profit of the firms, financial leverage has the potential effect of affecting the value of firms negatively and finally asset tangibility can negatively predict the value of the firms. Non comparability in the outcome is evident since the study was for all listed firms. Current study focused on non-financial firms and profitability was indicated by return on assets. Current study indicated profitability by net profit margin.

Setiadharma (2019) conducted a survey aimed at assessing the link between capital structure, profitability and growth and how they affected the value. Target was insurance firms in Greece. Survey was conducted from the year 2013 to 2019. Longitudinal research design was employed in this study, a sample of 145 insurance entities. The values of the firms were measured by market capitalization and EPS, debt ratio and equity was used to measure capital structure. Multiple regression technique was conducted in the survey. From the analysis, it was evident that debt ratio significantly affected insurance firm's values. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present study focused in Kenyan setup. Context of the survey was insurance entities. Present study focused on non-financial entities at NSE.

2.3.3 Capital Structure, Firm Size and Firm Value

Gantino and Margono (2021) carried out a research in Indonesia aimed at assessing the association between size and leverage of the entities and how they relate to the value of firms. The focus was on 10 firms from 2016 to 2019 and the target was for entities in the food and beverage sector. Multiple regression technique was conducted in the survey. Panel data was utilized in this research. Leverage was indicated by debt ratio, size was indicted by assets and value was indicated by price to book value. Conclusions from the study include; debt ratio had a positive impact on values of entities and size was confirmed to relate positively with entities' value and the association is significant. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Context of the survey was food and beverage sector. Present research focused on non-financial entities at NSE. Survey was limited to only one indicator which was leverage. Present study employed two indicators of capital structure which were equity ratio and debt ratio.

Zheng and Wang (2020) carried out a research in Greece aimed at assessing the decisions on capital structure, firm growth and size and how they relate to the value of firms. They focused on the firms in the mining sector. 112 firms was the target of the survey and the survey analyzed 64 entities with the utilization of primary information in the survey. Firm growth was indicated by sales and size was indicated by the assets of the entities. Cross sectional design with the aid of questionnaire was employed. Multiple regression technique was employed. The analysis concluded that capital structure decisions affected entities' value. Size and firm growth were confirmed to have positive link with the value of the entities. Survey used primary data in the measurement of the variables, cross sectional design and the study focused on mining sector. Focus of a single sector (mining) limits the extension of study outcome to multi- industry set up. Present study used secondary data, longitudinal research design and the focus was non-financial entities at NSE.

Malik (2020) carried out a research in Japan aimed at assessing the association between asset structure and size and how they relate to the value of firms. The focus was on 290 firms from 2016 to 2020, purposive sampling was conducted with the aid of panel correlation methodology and multiple regression technique. Conclusion from the study were; asset structure impacts value and size has the potential effect of influencing the value of the entities. Context of the survey was developed economies. Present research analyzed non-financial entities at NSE in Kenya. Survey was limited to only one indicator which was debt ratio which indicated asset structure. Current study focused on capital structure with two indicators. Purposive sampling was performed, Present study employed census. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present study focused in Kenyan setup.

Kreen and Sagn (2020) carried out a research in South Africa aimed at assessing the association between leverage, size and how they relate to the value of firms. The focus was on the 67 firms from 2018 to 2020 which were majorly from investment sector. Secondary data was the main source of data in the survey. The values of the firms were measured by market capitalization and EPS. The researcher conducted multiple regression. Study found a significant link existing between firm's leverage and firms' values. Study focused on investment sector. Present study focused on non-financial entities. Study was undertaken in South Africa. Survey looked at one indicator of capital structure which was leverage, present study employed two indicators of capital structure which were equity ratio and debt ratio. Analysis was conducted in South Africa. Present study focused in Kenyan setup. Focus of a single sector (investment) limits the extension of study outcome to multi- industry set up. Present research analyzed non-financial entities at NSE in Kenya.

Zaher (2019) carried out a research in Jordan aimed at assessing the association between leverage, size of the entities and asset structure and how they relate to the value of firms. The focus was on 12 firms from 2011 to 2018 and the focus was for entities in the mining sector. Multiple regression technique was conducted in the survey. Panel data was utilized in this study. Leverage was indicated by debt ratio, size was indicted by assets and value was indicated by earnings per share. Conclusions from the study include; debt ratio was confirmed to have no impact on values of entities, size and asset structure were confirmed to relate positively with entity's value and the association is significant. Study focused on leverage as indicated by debt ratio, current study focused on capital structure. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-

applicability in developing economies. Present study focused in Kenyan setup. Context of the survey was mining entities. Present research focused on non-financial entities at NSE.

Raviv (2019) analyzed how the values of the firms in the banking sector in Nigeria were affected from short term financing decisions that were adopted and their respective sizes from 2017 to 2020. Secondary data was the major source of data in the survey. Purposive sampling was conducted with the aid of panel methodology and multiple regression technique in selecting of 92 firms from the population of 168. The values of the firms were indicated by Tobin's Q. The study confirmed that short term financing as well as firm's size negatively affected firm's values. Context of the survey was in Nigeria and targeted the banking sector. Focus of a single sector (banking) limits the extension of study outcome to multi- industry set up. Current research analyzed non-financial entities in the Kenyan setup.

Dakane and Warui (2019) carried out a research in Kenya aimed at assessing the association between firm characteristics and leverage of the entities and how they relate to their values. The focus was on 64 entities listed in NSE. Multiple regression technique was conducted in the survey. Primary data and secondary data were utilized in this study. Cross sectional design was used. Leverage was indicated by debt ratio, firm characteristics was indicated by assets and liquidity and value was indicated by price to book value. Conclusions from the study include; debt ratio had a positive impact on values of entities, assets and liquidity were confirmed to relate positively with the firm's value and the association was not significant. Study focused on leverage as indicated by debt ratio, current study focused on capital structure. Non comparability in the outcome is evident since the study was for all listed firms. Current study focused on non-financial firms.

2.3.4 Capital Structure, Profitability, Firm Size and Firm Value

Heri and Abdulah (2021) carried out a research in Indonesia aimed at assessing the decisions on profitability, leverage and size and how they relate to the value of the entities. The focus was on the firms in the financial sector which comprised of banks and non-bank financial entities. The study was conducted from 2014 to 2018 which was a five year period. 84 firms was the target of the survey and the survey analyzed 26 entities with the utilization of secondary information in the survey. Longitudinal design was employed. The researcher conducted multiple regression. Analysis concluded major findings namely; evidence of direct association between leverage and the entity's value and that profitability affects the market value and the association is significant. Analysis was conducted in developed economies and in financial sector with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present study focused on non-financial entities at Nairobi securities exchange.

Gede and Radja (2020) carried out a research in Indonesia aimed at assessing the association between size, profitability and leverage and how they relate to the value of firms. The focus was on firms in consumer goods segment from 2017 to 2019. Size was indicated by number of sales, leverage was parameterized by debt to equity ratio, profitability was indicated by ROA and value was indicate by share prices. Multiple regression technique aided in the analysis. Conclusion from the study was that; size was confirmed to link positively with the firm's value and the association is significant, leverage was confirmed to link positively with entity's value and finally profitability was confirmed to link positively with entity's value and the association is significant. Context of the survey was consumer goods segment and was conducted in developed economy. Focus of a

single sector (consumer goods) limits the extension of study outcome to multi- industry set up. Present study analyzed non-financial entities at NSE.

Zuhron (2019) carried out a research in Indonesia aimed at assessing the association between liquidity, size, leverage, profitability and how they relate to the value of firms. The focus was on firms in real estate segment from 2012 to 2016, sampling was conducted with an aim of identifying 31 entities. Size was indicated by assets, leverage was parameterized by debt ratio, profitability was analysed by earnings per share, liquidity was indicated by current ratio and value was indicate by Tobin's Q. Multiple regression technique aided in the analysis. Conclusion from the survey was that; liquidity and size were confirmed to link negatively with entity's value and the association was insignificant, leverage was confirmed to link positively with entities' value and the association is significant and finally profitability was confirmed to link positively with entity's value and the association is significant. Context of the survey was real estate segment. Focus of a single sector (real estate) limits the extension of study outcome to multi- industry set up. Present study analyzed non-financial entities at NSE. Analysis was conducted in developed economies. Present study focused in Kenyan setup.

Mita *et al* (2017) carried out a research in Liberia aimed at assessing the association between leverage, profitability, size and how they relate to the value of firms. The focus was on firms in manufacturing segment from 2012 to 2015, sampling was conducted with an aim of identifying 56 entities. Size was indicated by assets, leverage was indicated by debt-to-equity ratio and debt ratio, profitability was indicated by return on equity. Multiple regression technique aided in the analysis. Conclusion from the study was that; size was confirmed to link positively with entity's value and the association was significant, leverage was confirmed to link negatively with the firm's value

and the association is significant and finally profitability was confirmed to link positively with entity's value and the association is significant. Focus of a single sector (manufacturing) limits the extension of study outcome to multi- industry set up. Present study analyzed non-financial entities at NSE. Present study focused in Kenyan setup.

Ardina and Isnalita (2019) carried out a research in Indonesia aimed at assessing the association between profitability, liquidity, leverage, company size and how they relate to the value of firms. The focus was on the 112 listed firms from 2013 to 2016 which were drawn from the manufacturing sector, panel correlation methodology and multiple regression technique analysis was done by SPSS. It was evident from the survey that; profitability and size of entities have the potential of increasing entity's value and high amount of debt were confirmed to reduce the value of the entities. Context of the survey was manufacturing segment. Present research analyzed non-financial entities at NSE in Kenya. Analysis was conducted in developed economies with superior distinct regulatory, institutional, political and economic characteristics which leads to non-applicability in developing economies. Present study focused in Kenyan setup. Survey was limited to only one indicator which was leverage. Present study analyzed two indicators of capital structure which were equity ratio and debt ratio.

2.4 Summary of Empirical Literature and Research Gaps

Segment gives a detailed summary from the past researches done. From the empirical literature reviewed, contradicting results were confirmed with inconclusive outcomes on the association between capital structure and how it relates to the value of the firms. For example, the researcher confirmed increase in borrowing reduced firm's values and profitability directly increases the firm's value contrary to a study by other researchers who concluded that financial leverage

positively affects firm value and debt and the assets of the entities relates positively with value and the association is significant and debt ratio of the entities relates positively with entity's value and the association is significant.

Methodological gaps were established by the researcher, this survey employed Prais Winsten Panel regression. This is contrary to evidence from the empirical literature which confirmed the adoption of ordinary least square regression by majority of the researchers. Further, for example use of primary data in the analysis was evident of methodological gaps. Conceptual gaps were evident from the empirical literature, most studies failed to incorporate moderating and intervening effect in their analysis. Moderating and intervening variables aid in understanding the influence which can be either positive or negative between the variables. Different operationalization of research variables was also evident as well as mixed outcomes from different concepts employed by the researchers.

Contextual gaps were established by the researcher, studies were done in different geographical areas which were the researchers' main interest. The following developed and developing economies were previous survey's contexts; Malaysia, Turkey, Brazil, Indonesia, India, Liberia, South Africa, Japan, Ghana and Nigeria. Major studies were conducted in developed economies making it difficult to generalize the survey's outcomes to Kenyan setup. Additionally, studies were done in different sectors for example mining, insurance sector, public sector, automobile industry entities, real estate sector and pharmaceutical entities and the focus on the current study is non-financial firms at NSE. The following table outlines the detailed summary from the empirical literature and the gaps there after.

Table 2: Summary of Empirical Literature and Research Gaps

Researcher	Context	Focus of study	Methodology	Findings	Research Gaps	How research gap (s) are addressed
Heri and Abdulah (2021)	Indonesia	Assessing the decisions on profitability, leverage and size and how they relate to the value of the entities	Multiple regression technique	Evidence of direct association between leverage and the entity's value and that profitability affects the market value and the association is significant.	Survey was conducted in developed market and in financial sector	Current survey target was non-financial entities at NSE in Kenya
Hudu *et al* (2021)	Nigeria	How the value of the firms were related with their financial leverage	Multiple regression technique	leverage of the entities had insignificant effect on the entities' values in the long run and the relationship was negative	Survey was done in Nigeria and in the banking sector	Current survey target was non-financial entities at NSE in Kenya
Gantino and Margono (2021)	Indonesia	Assessing the association between size and leverage of the entities and how they relate to the value of firms.	Multiple regression technique	Positive link of debt ratio and values of entities and size was confirmed to relate positively with the firm's value and the association is significant.	Target was for entities in the food and beverage sector. Survey was limited to only one indicator which was leverage.	Current survey target was non-financial entities at NSE in Kenya Present study employed two indicators of capital structure which were

						equity ratio and debt ratio.
Megawati (2021)	Indonesia	Assessing the decisions on leverage and profitability and how they relate to the value of the entities of firms.	Inferential statistics	No evidence of direct association between leverage and the entity's value and that profitability affects the market value and the association is significant.	Survey considered one indicator of capital structure as indicated by leverage.	Present study employed two indicators of capital structure which were equity ratio and debt ratio.
Sayed *et al* (2021)	Indonesia	Assessing the association between liquidity, leverage, and profitability and how they relate to the value of the entities. Purposive sampling was utilized and the focus was on 21 entities listed on Indonesia securities exchange for the duration 2015 to 2020 which was a six year period.	Inferential statistics	Debt to equity ratio relates positively with the firm's value and the association is significant, return on assets as an indicator of profitability was confirmed to relate Positively with the firm's value and the association is significant	Analysis was conducted in developed economy Context of the survey was Manufacturing sector Survey was limited to only one indicator of capital structure	Current survey target was non-financial entities at NSE in Kenya Present study employed two indicators of capital structure which were equity ratio and debt ratio.
Edore and Ujuju (2020)	Nigeria	Surveyed how the market value was	Multiple regression technique	No evidence of direct association between debt and ratio of equity and	Analysis was conducted in Nigeria and it	Current survey target was non-

		affected from the capital structure decisions		the entity's value and that the association was not significant	targeted the mining sector.	financial entities at NSE in Kenya
Gede and Radja (2020)	Indonesia	Assessing the association between size, profitability and leverage and how they relate to the value of firms	Multiple regression analysis	Size was confirmed to link positively with the firm's value and the association is significant, leverage was confirmed to link positively with the firm's value and the association is significant and finally profitability was confirmed to link positively with the firm's value and the association is significant	Context of the survey was consumer goods segment. Analysis was conducted in developed economies,	Current survey focus was developing market
Galpin (2020)	Ghana	Link of capital structure and value of entities in Ghana.	Multiple regression analysis	Capital structure reported to have no effect on value of the firms.	Survey was done in Ghana, market capitalization and EPS indicated value	Current study focused in Kenyan context. Current survey used Tobin's Q.
Kreen and Sagn (2020)	South Africa	Relationship between leverage and firm size and their effect on the value of entities in South Africa	Multiple regression	leverage increased investment firm's values	Analysis was conducted in South Africa and targeted investment entities	Present study focused on non-financial entities

Lawal (2020)	Nigeria	Capital structure and insurance firm's value in Nigeria	Multiple regression analysis	Capital structure had insignificant effect on the value of the firms.	Survey was done in Nigerian Target was insurance sector.	Present research was done in Kenyan context and targeted non-financial entities.
Malik (2020)	Japan	Link between asset structure and firm size on value of the firms in Japan	Multiple regression analysis	A positive link existing between asets structure, size and value	Analysis was conducted in developed economy	Present study focused in Kenyan setup.
Kaniz and Mohiuddin (2020)	Bangladesh	Assessing the link between capital structure and profitability and how they affected the value.	Multiple regression analysis	Debt ratio significantly affected profitability and the effect was a positive outcome. Profitability was confirmed to have no effect on value.	Analysis was conducted in developed economies in ceramic sector.	Current survey focus was developing market
Angelo (2019)	Ghana	How the value of the firms were related with their capital structure	Multiple regression analysis	It was evident that equity and long term debt of the entities had a positive impact on the entities' values in the long run	Survey was done in Ghana's manufacturing sector	Current survey target was non-financial entities at NSE in Kenya
Dakane and Warui (2019)	Kenya	Assessing the association between firm characteristics and leverage of the entities and how they relate to their values	Multiple regression analysis	Positive link between Debt ratio and values of entities, assets and liquidity were confirmed and the association is insignificant.	Study focused on leverage as indicated by debt ratio	Current study focused on capital structure

					Non comparability in the outcome is evident since the study was for all listed firms.	Current study focused on non-financial firms
Eli (2019)	Jordan	Assessing the link between capital structure and profitability and how they affected the value.	Multiple regression analysis	Debt ratio significantly affected firm's values and the effect was a negative outcome. Profitability was confirmed to have no effect on value	Analysis was conducted in developed economies	Current survey target was non-financial entities at NSE in Kenya
Akrama and Nsour (2019)	Jordan	Assessing the association between capital structure, profitability and how they relate to the value of the entities.	Panel regression model	Debt to equity ratio relates positively with the firm's value and the association is significant, return on assets as an indicator of profitability was confirmed to relate positively with the firm's value and the association is significant.	manufacturing sector Survey was limited to only one indicator of capital structure which was debt to equity ratio,	Current survey target was non-financial entities at NSE in Kenya Present study employed two indicators of capital structure which were equity ratio and debt ratio.

Zaher (2019)	Jordan	Assessing the association between leverage, size of the entities and asset structure and how they relate to the value of firms	Multiple regression analysis	Debt ratio was confirmed to have no impact on values of entities, size and asset structure were confirmed to relate positively with the firm's value and the association is significant	Focus was entities in the mining sector. Study focused on leverage as indicated by debt ratio	Current survey target was non-financial entities at NSE in Kenya Current study focused on capital structure.
Hirdinis (2019)	Indonesia	Assessing the association between capital structure and how they relate to the value	Panel data procedure	Debt influences negatively value of entities	Analysis was conducted in developed economy	Current survey target was non-financial entities at NSE in Kenya
Zuhron (2019)	Indonesia	assessing the association between liquidity, size, leverage, profitability and how they relate to the value of firms	Multiple regression analysis	Size and liquidity were confirmed to link negatively with the firm's value and the association were insignificant, leverage was confirmed to link positively with the firm's value and the association is significant and finally profitability was confirmed to link positively with the firm's value and the association is significant.	Context of the survey was real estate segment.	Current survey target was non-financial entities at NSE in Kenya

Bilafif and Ibrahim (2019)	Kenya	Assessing the decisions on capital structure and how they relate to the value of firms.	Cross sectional design	Financial leverage positively affects firm value	Cross sectional design Study focused on manufacturing sector	Longitudinal descriptive research design All non-financial sectors were included
Chaleeda *et al* (2019)	Malaysia.	Assessing the association between corporate financing decisions and how they relate to the value of firms.	Panel data procedure	Ratio between debt and entities' assets relates positively with value and the association is significant	Analysis was conducted in developed economy	Current survey target was non-financial entities at NSE in Kenya
Ardina and Isnalita (2019)	Indonesia	Assessing the association between profitability, liquidity, leverage, company size and how they relate to the value of firms.	Multiple regression	Profitability and size of the firm increases firm's value and high levels of leverage were confirmed to reduce the value of the entities.	Focus was on manufacturing sector	Current study focused on non-financial entities
Aras (2019)	Turkey	Assessing financing and investment decisions on value.	Panel data procedure	No evidence of direct association between debt to equity ratio and the value of the entities and that inventory turnover did not affect the market value and the association was not significant.	Analysis was conducted in developed economy Target was public sector	Current survey target was non-financial entities at NSE in Kenya

Setiadharma (2019)	Greece	Link between capital structure, growth and their effects on the value	Multiple regression analysis	Debt ratio significantly affected the value of the insurance firms	Analysis was conducted in developed economy Target survey was insurance entities	Present research was done in Kenya
Kulati (2019)	Kenya	Link between capital structure and insurance entities 'values	Multiple regression analysis	Application of debt by the firms declined their returns which negatively affected their values	Analysis was conducted for insurance sector	Present study focused on non-financial entities
Raviv (2019)	Nigeria	Effect of short term financing decisions and size on the values of entities in the banking sector in Nigeria.	Multiple regression analysis	Short term financing and entities' size negatively affected firm's values.	Context of the survey was in Nigeria and targeted the banking sector	Current study focused on non-financial entities in the Kenyan setup
Guler (2018)	Turkey and Brazil	Assessing the decisions on corporate finance and how they relate to the value of firms.	Panel data procedure	Increase in borrowing reduces firm's value and profitability increase directly increases the value of the firms	Focus was on developed market	The current study focused on developing market
Isfenti *et al* (2018)	Indonesia.	Assessing the link between capital structure, profitability and how they affected the value	Multiple regression analysis	debt ratio significantly affected firm's values and profitability was confirmed to relate positively with the firm's	Target was pharmaceutical firms	The current study focused on non-financial entities

				value and the association is significant		
Barakat and samhan (2018)	Saudi Arabia	Assessing the decisions on financial structure, financial leverage and profitability and how they relate to the value of the entities.	Multiple regression	Evidence of direct association between leverage and the entity's value and that profitability affects the market value and the association is significant.	Survey was conducted in developed market and in industrial sector.	Current study focused on non-financial entities
Taylor *et al* (2018)	India	Assessing the decisions on capital structure and how they relate to the value of firms.	Panel data procedure	Debt ratio positively with the value of the firm and the association is significant and growth rate is inversely related to the firm's value	Context of the survey was automobile industry entities	Current study focused on non-financial entities Current study used census
Sambasivam and Ayele (2018)	Iran	Assessing the decisions on capital structure and profitability and how they relate to the value of firms.	Multiple regression analysis	The analysis concluded that capital structure decisions affected the value of the entities. Profitability was confirmed to have no effect on value of the entities	The study used primary data in the measurement of the variables, cross sectional design and the study focused on agricultural sector.	Present study used secondary data, two indicators of capital structure were employed, longitudinal research design and the focus was non-financial entities at Nairobi securities exchange.

Omondi and Kamau(2018)	Kenya	Assessing the decisions on capital structure and how they relate to the value of firms.	Cross sectional design	Capital structure affects value	The study used primary data in the measurement of the variables, cross sectional design and the study focused on SMEs	Present study used secondary data and focused on non-financial entities listed at the NSE
Mita *et al* (2017)	Liberia	Assessing the association between leverage, profitability, size and how they relate to the value of firms.	Multiple regression technique	Size was confirmed to link positively with the firm's value and the association was significant, leverage was confirmed to link negatively with the firm's value and the association is significant and finally profitability was confirmed to link positively with the firm's value and the association is significant	Context of the survey was manufacturing segment.	Current survey target was non-financial entities at NSE in Kenya
Zheng, X., & Wang, H. (2017)	Greece	Assessing the decisions on capital structure, firm growth and size and how they relate to the value of firms.	Multiple regression technique	The analysis concluded that capital structure decisions affected the value of the entities. Size and firm growth were	The study used primary data in the measurement of the variables,	Present study used secondary data, longitudinal research design and the focus was

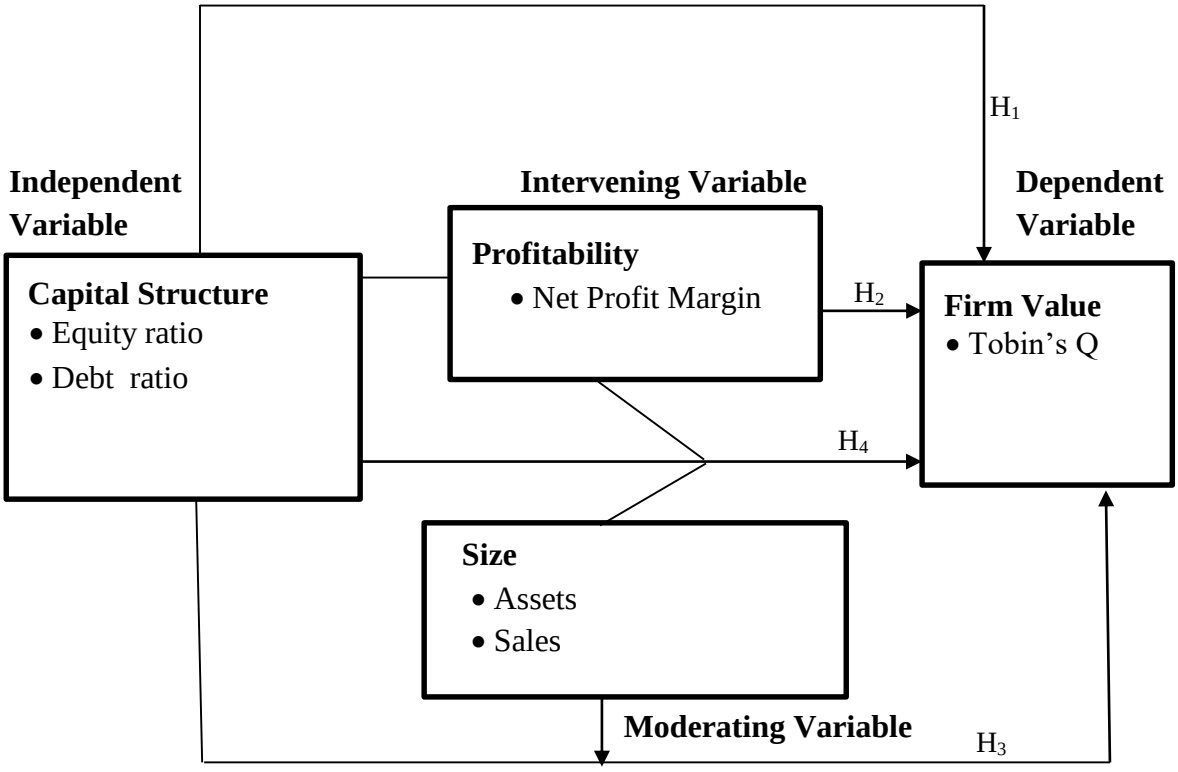
				confirmed to have positive link with value of the entities.	cross sectional design and the study focused on mining sector	non-financial entities at Nairobi securities exchange
Sinha (2017)	India	How the value of the firms were related with their capital structure.	Multiple regression analysis	It was evident that leverage of the entities had insignificant effect on the entities' values in the long run and the relationship was negative.	Survey was done in India and in the power sector.	Present research was done in Kenyan setup.
Mule *et al* (2015)	Kenya	Assessing the association between size, profitability and how they relate to the value of firms	Inferential statistics	Corporate size predicts profitability and asset tangibility predicts value of the firms.	Non comparability in the outcome was evident since the study was for all listed firms Profitability was indicated by return on assets	Current study focused on non-financial firms Current study indicated profitability by net profit margin.

Source: Researcher (2023)

2.5 Conceptual Framework

Research aimed at analyzing the relationships among capital structure, profitability, size and value of listed non- financial entities at the Nairobi Securities Exchange. Predictor variable was capital structure as indicated by equity ratio and debt ratio, intervening variable was profitability as measured by net profit margin, moderator variable was size which was indicated by assets and sales and value was response variable as operationalized by Tobin's Q.

Figure 1: Conceptual Model



Source: Researcher (2023)

2.6 Research Hypotheses

The study tested the following null hypotheses:

H_1: The relationship between capital structure and the value of listed non- financial firms at the Nairobi Securities Exchange is not significant.

H_2: The intervening effect of profitability on the relationship between capital structure and the value of listed non- financial firms at the Nairobi Securities Exchange is not significant.

H_3: The moderating effect of size on the relationship between capital structure and the value of listed non- financial firms at the Nairobi Securities Exchange is not significant.

H_4: Joint effect of capital structure, profitability and size on the value of listed non- financial firms at the Nairobi Securities Exchange is not significant.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Various steps and procedures which guided the study are outlined in this segment. It starts by discussing the philosophy this research was grounded on, research design, population, data collection method, how various variables and their corresponding indicators were measured and finally how data was analysed.

3.2 Research Philosophy

There are different views of the world and the processes that operate within it. It means being aware and formulating your beliefs and assumptions. Phenomenological and positivistic research philosophies are critical. In positivistic research philosophy, the researcher focusses in gaining knowledge in a world which is objective using various scientific tools and methods. According to Cooper & Schindler (2006), positivistic approaches are founded on a belief based on quantitative deductions and hypothesis.

Phenomenological research philosophy attempts to get a clear understanding of the perceptions of the people and their understanding concerning a certain phenomenon or situation. Phenomenological research philosophy is therefore particularly concerned with a clear understanding of behaviour from the participants' own subjective judgement (Cooper & Schindler, 2006). Thus, Phenomenological research tends to employ qualitative approaches grounded on human attitudes and experiences. Positivism is grounded on theory from where hypotheses which are quantitative in nature are drawn and tested. Positivism research philosophy guided this study since it is based on information collected through direct observation on phenomena being

investigated and can be measured by various statistical or quantitative methods. It aids in deep understanding of the link between capital structure and value as well as the mediating effect and moderating effect of size and profitability respectively.

3.3 Research Design

This entails the overall strategy that is applied in conducting the survey (Kothari, 2004). It can be used to integrate various study parts in a logical manner. It implies the necessary strategies employed in guiding the research with an aim of realizing its goals (Cooper & Schindler, 2006). According to Mugenda (2003), research design is just a blue print employed in carrying out surveys and is tasked with ascertaining that collected data can be adequately used in answering any research questions.

This analysis employed longitudinal descriptive research design because the researcher used panel data for different firms covering a time span of eight years (8-year data points) from 2013 to 2020. This research design is also capable of showing the variable patterns over time of a unit of analysis. This research design was ideal in summarizing the various variables which were helpful in the determination of the link of the variables.

3.4 Population of the Study

This is the complete collection of items to be analysed (Cooper & Schindler, 2006). It generally includes a collection of distinct items which are large in number that forms the major focus of the survey or analysis. Population is simply entire pool of items where samples are drawn from for analysis aimed at attaining the objectives of the researcher and are all objects of inquiry (Kothari, 2004). The objects of inquiry possess the characteristics the researcher perceives to comply with the goal of the survey.

Population of this research consisted non-financial entities at Nairobi Securities Exchange and were thirty-nine in number as per the records of 31st December, 2020. Ten firms were not considered since they were delisted, others were suspended from trading at the Nairobi securities exchange and sufficient data was not available. A census was performed since the study population was small. Twenty-nine non-financial firms which were drawn from seven sectors namely; construction, telecommunication, energy and petroleum, services, manufacturing, agricultural and automobiles were selected for the study.

3.5 Data Collection

This is simply the act of aggregating necessary data or information and measuring it with an objective of answering the research hypothesis (Kothari, 2004). According to Mugenda (2003), data collection is simply an approach which is orderly and aimed at assembling information with a sole purpose of maintaining the integrity of the research process. The gathering of information is conducted by secondary method and primary methods. Primary methods rely on information directly from main source and the other method is secondary data methods which makes use of data already collected.

This analysis relied on the already published data which was accessed directly from published financial reports which were availed from the NSE hand book and also from the NSE management and the various websites of the twenty nine non-financial firms. Necessary information was gathered for eight year period covering 2013 to 2020 because it provided the most recent data on the study variables and gave adequate data points for the study. Data collected include equity, assets, borrowings, market capitalization, revenue and net profit by the help of data sheet. Statistical procedures of panel data analysis employed include; pooled regression models, random

effects model, fixed effects model and Prais Winsten Panel regression model to enable evaluation of statistical procedures. Prais Winsten Panel regression model was employed in this study because it corrects heteroscedasticity and autocorrelation problems.

3.6 Diagnostic Tests

These are the procedures performed aimed at assessing the validity of the model of analysis (Mugenda, 2003). These procedures are significant also in exploring various statistical assumptions which underlie the model of analysis. Diagnostic tests aid in ensuring statistical analyses outcomes are generalizable and valid.

3.6.1 Normality Test

This test aims at assessing suitability of collected data for analysis to fit a normal standard distribution to enable hypothetical tests of model parameters. Normality test is also critical especially in the determination of a well modelled data set by a normal distribution. Normality also aids in determining whether a given sample of data for analysis has been drawn from a normally distributed population. Statistical tests like t-test and ANOVA require sample population to be normally distributed.

The test can be undertaken either mathematically or by the help of the graphs. Skewness, kurtosis, Shapiro-Wilks test and histograms are commonly employed in testing for normality. A normally distributed data will have a skewness of zero. Kurtosis implies peakedness of any distribution or flatness of distributed data in comparison with normal distribution. Skewness implies the balance of distributed data. If distributed data is not balanced, it is said to be skewed. Data transformations for example taking the logarithm of the data for analysis can normalize data (Kurshev, 2011).

Shapiro-Wilks test is widely applied in normality test. Kurtosis, Skewness, Shapiro-Wilks test and histograms assessed normality.

3.6.2 Multicollinearity Test

This is the state of high interrelationships or correlation existing among predictor variables. Multicollinearity in research can cause misleading results or the outcome that's skewed meaning it cannot be relied on by the researcher since it cannot determine how well the predictor variable can be employed most effectively in predicting or understanding the predicted variable in any statistical model and this makes the outcome less reliable. Therefore, it is better to employ the predictor variables that are not correlated.

Multicollinearity is a problem since it leads to reduction of precision of the estimated coefficients which leads to weakening of the statistical power of the model of analysis in the long run and this makes a researcher not trusting the p values in the identification of the independent variables which are statistically significant. Variance inflation factors were utilized in measuring the amount of multicollinearity in a given data set. When VIF is between 1 and 10, it confirms no multicollinearity and values greater than 10 implies multicollinearity problem. The problem of multicollinearity was managed by dropping the predictors which were highly correlated from the model of analysis.

3.6.3 Heteroscedasticity Test

A standard linear regression model assumes that data for analysis has similar variance or is homoscedastic. Homoscedasticity implies an error term of the predictor and the response variables relationship is similar for all values for any analysis undertaken (Graham, 2003). Heteroscedasticity means unequal variability of study variables and is as result of large differences

of observation size. Heteroscedasticity also implies unequal scatter which is as a result of data sets of smallest and largest values having a large range.

The presence of heteroscedasticity causes the variance to differ among the results of all the response variables and this leads to violations of the assumptions of classical linear regression. This will make ordinary least square estimator unreliable because of bias. This makes it critical to conduct heteroscedasticity test and correct it if data set confirms the presence of heteroscedasticity. Breusch-Pagan test was utilized in testing the presence of heteroscedasticity. The presence of heteroscedasticity was corrected by Prais Winsten Panel regression model.

3.6.4 Autocorrelation Test

Autocorrelation implies the extent of similarity of similar variables over successive time intervals making the model unsound (Roy, 2004). Autocorrelation also indicates degree of similarity existing between the current result of a variable and the variable's past results. Linear regression analysis calls for data which is not auto correlated. Autocorrelation is confirmed when the residuals lack independence and is occasioned by model misspecification for example omission of variables and transfer of error term from one period to another. Autocorrelation is also referred as serial correlation. Data set exhibiting autocorrelation is a problem because it correlates with each other. This will make ordinary least square estimator unreliable because of bias. This makes it critical to conduct autocorrelation test and thereafter take corrective measures to correct autocorrelation if data set is auto correlated. Breusch-Godfrey LM method was utilized in testing the presence of autocorrelation. The presence of autocorrelation was corrected by Prais Winsten Panel regression model.

3.6.5 Stationarity Test

Stationarity of data implies that the statistical properties of data remains constant and same over time for example the mean and its variance. Stationalized data is ideal for analysis since it is easily and effectively predictable (Cooper & Schindler, 2006). Non stationary data will lead to spurious regression which is the relationship of variables due to coincidence or unseen factors and not due to causality. A unit root is a common trend associated with time series analysis of data and it confirms or shows a pattern that's unpredictable. Augmented Dickey Fuller test was critical in the assessment and analysis of stationarity of data.

Transformation by difference converts non-stationary data to stationary data. It assumes that the time series data that's tested has a unit root which implies non-stationary. The presence of unit root implies that more than one trend exist in the series. Null hypothesis is such that data contains a unit root. Augmented Dickey Fuller test employed in the test is the negative number, the implication is that the more negative the value is, the stronger is the ground to reject the null hypothesis. Rejecting the null hypothesis means the alternative hypothesis is valid which implies that data is stationary.

3.6.6 Model Specification Test

Specification is the process of choosing an ideal form for the model of analysis (Hausman, 1978). There are two common assumptions made concerning individual specific effects, namely random effect and fixed effects. Random effects model regards time specific effects and individual effects as added source of random variation, it further asserts that the specific effects of any individual are not correlated with the predictor variables and they are unpredictable. Random effects is advantageous since it offers the provision of including time invariant variables.

Fixed effects model allows for the generalization of the constant intercept and gradient of the model by allowing the variation of the intercept across time and individuals. Time invariant variables are absorbed by the intercept during analysis. This study employed Hausman test which aids in selecting the appropriate variables to include in the statistical model in determining the effects of the model and to determine the ideal model to employ. Hausman test is grounded on the null hypothesis that data for analysis fits random effects model as opposed to alternative hypothesis which asserts that data for analysis fits the fixed effects model.

3.7 Operationalization of Study Variables

Variables of analysis included capital structure which was the predictor variable as indicated by debt ratio and equity ratio. Debt ratio was operationalized by taking the ratio of borrowings and total assets, equity ratio was operationalized by taking the ratio of equity and entity's assets. Profitability was an intervening variable as indicated by net profit margin. It was indicated by the ratio of net profit and revenue. Firm size was the moderating variable as operationalized by total assets. Firm value was the response variable as operationalized by Tobin's Q.

Table 3: Operationalization of Research Variables and Measurement

Variable	Operational Indicators	Operational definition	Measurement	Scale	Source
Capital structure	Equity ratio	Relative proportion of an entity's equity employed in financing its assets	Ratio of equity to total assets	Ratio	Gede and Radja (2020)
	Debt ratio	Relates to extent of utilizing debt in financing the assets of an entity	Ratio of borrowings to total assets	Ratio	Hudu *et al* (2021)
Profitability	Net profit margin	Net profit realized as percentage of revenue	Ratio of net profit to revenue	Ratio	Megawati (2021)
Firm Size	Total assets	Resources owned by an entity	Logarithm of total assets	Ratio	Gantino and Margono (2021)
	Sales	Exchange of services or goods for money	Logarithm of total sales	Ratio	Gantino and Margono (2021)
Firm value	Tobin's Q	Expresses relationship between firm's market value and its book value	Ratio of total market value to assets	Ratio	Heri and Abdulah (2021)

Source: Researcher (2023)

3.8 Data Analysis

This is the act of collecting data and organizing it aimed at deriving meaningful and helpful information to the researcher (Mugenda, 2003). According to Kothari (2014), this is the process of data evaluation by applying analytics and logical thinking in the examination of the provided data components. Analysis of data implies utilizing logic in the process of comprehending information collected (Cooper & Schindler, 2006). Descriptive statistics was used in the analysis to aid in deep understanding of the specifics of collected data. Correlation was applied as well as regressions. Respective regression models which were used in testing the hypothesis are explained below:

3.8.1 Relationship between capital structure and Firm Value

The relationship between capital structure and the value of non- financial firms at the Nairobi Securities Exchange was determined by the following regression model:

$FVi_t = \beta_0 + \beta_1 Ei_t + \beta_2 Di_t + \varepsilon$…….. (3.1)

FVit= Value for i firm in t period, E=equity ratio, D=Debt ratio, β_0=intercept, β_1 and β_2 are regression coefficients and ε= Error term

3.8.2 Capital structure, Profitability and Firm Value

The intervening effect of profitability on the relationship between capital structure and the value of non- financial entities at NSE was determined by Baron and Kenny (1986) model which was applied in testing hypothesis two to ascertain the effect in the following four steps: Step one focussed on ascertaining the link between capital structure which was the predictor variable and value which was the response variable not considering profitability which was the intervening variable. In step two, the focus was to ascertain the link between capital structure and profitability

not considering value. Step three focussed on ascertaining the link between profitability and value not considering capital structure and finally step four focussed on ascertaining the joint effect of capital structure and profitability on firm value.

Step 1: $FVi_t = \beta_0 + \beta_1 Ei_t + \beta_2 Di_t + \varepsilon$……. (3.2)

Step 2: $Pi_t = \beta_0 + \beta_3 Ei_t + \beta_4 Di_t + \varepsilon$…… ….(3.3)

Step 3: $FVi_t = \beta_0 + \beta_5 Pi_t + \varepsilon$,……...(3.4)

Step 4: $FVi_t == \beta_0 + \beta_6 Ei_t + \beta_7 Di_t + \beta_8 Pi_t + \varepsilon$,…….(3.5)

Where: Pi_t = profitability, FVi_t, Ei_t, Di_t, B_0, t, β_1 and ε are shown in equation 3.1 above. β_2, …. B_8 = regression coefficients.

3.8.3 Capital structure, Firm Size and Firm Value

The moderating effect of firm size on the relationship between capital structure and the value of non-financial firms at the Nairobi Securities Exchange was determined by hierarchical multiple regression by Baron and Kenny (1986) which was applied in testing hypothesis three. The model involved three steps as follows:

Step 1: Step 1: $FVi_t = \beta_0 + \beta_1 Ei_t + \beta_2 Di_t + \varepsilon$…… (3.6)

Step 2: $FVi_t = \beta_0 + \beta_3 Ei_t + \beta_4 Di_t + \beta_5 Ai_t + \beta_6 Si_t + \varepsilon$…… …… (3.7)

Step 3: $FVi_t == \beta_0 + \beta_7 Ei_t + \beta_8 Di_{t\ t} + \beta_9 Ai_t + \beta_{10} Si_t + \beta_{11} INT1i_t + \beta_{12} INT4i_t + \varepsilon$…….(3.8)

Where FV is firm value, β_0 is intercept, β_1…β12 are regression coefficients, A was assets, S was sales and ε = Error term. INT1 was the interaction term between equity ratio and sales, INT2 was the interaction term between debt ratio and sales, INT3 was the interaction term between equity ratio and assets and INT4 was the interaction term between debt ratio and assets.

3.8.4 Capital structure, Profitability, Firm Size and Firm Value

Multiple regression model was employed in the determination of the relationship among capital structure, profitability, firm size and firm value of non- financial firms at NSE in testing hypothesis four. The model was as follows:

$$FVi_t = \beta_0 + \beta_1 Ei_t + \beta_2 Di_t + \beta_3 Pi_t + \beta_4 Ai_t + \beta_5 Si_t + \varepsilon \ldots\ldots\ldots\ldots\ldots (3.9)$$

Where: FVi_t is firm value, Di_t is debt ratio, Ei_t is equity ratio, Pi_t is profitability, Ai_t is assets, Si_t is sales, β_0 is intercept, $\beta_1 \ldots B_5$ = regression coefficients, t and ε as defined in in the model 3.8. 1.

Table 4: Objectives, Hypotheses, Analytical Models and Interpretation

Objectives	Hypothesis	Analytical Model	Interpretation
To determine the relationship between capital structure and value of non-financial firms listed at NSE	H_1:The relationship between capital structure and value of non-financial firms listed at NSE is not significant	Multiple Linear Regression analysis $FVi_t=\beta_0+\beta_1 Ei_t+\beta_2 Di_t+\varepsilon$	Relationship exist if p -values of regression coefficients are less than 0.05. Reject null if the relationship between capital structure and value is statistically significant
To assess the intervening effect of profitability on the relationship between capital structure and value of non-financial firms listed at NSE	H_2:The intervening effect of profitability in the relationship between capital structure and value of non-financial firms listed at NSE is not significant	Stepwise Regression Analysis by Baron and Kenny (1986) Step 1:$FVi_t = \beta_0 +\beta_1 Ei_t+\beta_2 Di_t +\varepsilon$ Step 2: $Pi_t= \beta_0 + \beta_3 Ei_t+\beta_4 Di_t +\varepsilon$ Step 3: $FVi_t= \beta_0 +\beta_5 Pi_t +\varepsilon$, Step 4: $FVi_t== \beta_0 + \beta_6 Ei_t+\beta_7 Di_t + \beta_8 Pi_t +\varepsilon$	Mediation is confirmed if p- value of indirect effect is less than 0.05 Reject null if profitability mediates the relationship between capital structure and value

Objectives	Hypothesis	Analytical Model	Interpretation
To establish the moderating effect of firm size on the relationship between capital structure and value of non-financial firms listed at NSE	H_3: The moderating effect of firm size in the relationship between capital structure and value of non-financial firms listed at NSE is not significant	Stepwise regression model by Baron and Kenny (1986) Step 1: $FVi_t = \beta_0 + \beta_1 Ei_t + \beta_2 Di_t + \varepsilon$ Step 2: $FVi_t = \beta_0 + \beta_3 Ei_t + \beta_4 Di_t + \beta_5 Ai_t + \beta_6 Si_t + \varepsilon$ Step 3: $FVi_t = \beta_0 + \beta_7 Ei_t + \beta_8 Di_{t\ t} + \beta_9 Ai_t + \beta_{10} Si_t + \beta_{11} INT1i_t + \beta_{12} INT4i_t + \varepsilon.$	Relationship confirmed if p-value of the coefficient of interaction terms are significant Reject null if size moderates the relationship between capital structure and value
To establish the joint effect of capital structure, profitability, firm size on the value of non-financial firms listed at NSE	H_4: The joint effect of capital structure, profitability and firm size on the value of non-financial firms listed at NSE is not significant	Multiple regression analysis $FVi_t = \beta_0 + \beta_1 Ei_t + \beta_2 Di_t + \beta_3 Pi_t + \beta_4 Ai_t + \beta_5 Si_t + \varepsilon$	Significant relationship exist if p - value of overall model is less than 0.05 Reject null if joint relationship exist among capital structure, profitability, size and value

Source: Researcher (2023)

CHAPTER FOUR

DESCRIPTIVE DATA ANALYSIS AND FINDINGS

4.1 Introduction

This segment presents various descriptive outcomes from the analysis of various study variables. The chapter is organized in various sections in the following order; part 4.2 covered descriptive of data collected on the variables namely; the predictor variable which was capital structure and indicated by debt ratio and equity ratio, intervening variable was profitability as measured by net profit margin, moderating variable was size which was indicated by sales and assets. Firm value was the response variable as operationalized by Tobin's Q. Section 4.3 highlighted diagnostics tests which were conducted to ensure unbiased outcomes. Correlation analysis was highlighted in section 4.4 and finally it concludes with the summary of chapter four which was highlighted in section 4.5.

4.2 Descriptive Analysis

Descriptive statistics was achieved by employing the measurement of central tendency and spread. Measure of spread was indicated by the standard deviation, kurtosis and skewness while central tendency was indicated by the mean. The table below summarises data and the study variables.

Table 5: Summary Statistics of Study Variables

Variables	Obs	Min	Max	Mean	Std. Dev.	Skewness	Kurtosis
Tobin's Q	226	-2.180	2.790	0.707	0.760	-0.681	2.590
Equity Ratio	226	-0.780	0.970	0.539	0.236	-1.096	3.980
Debt Ratio	226	0.000	0.560	0.136	0.148	0.843	-0.403
Net Profit Margin	226	-1.590	1.360	0.048	0.297	-1.655	9.927
Sales	226	4.690	8.420	6.717	0.841	-0.092	-0.271
Assets	226	5.300	8.620	6.934	0.759	0.247	-0.178

Source: Researcher (2023)

The results of analysis confirmed that the mean value of Tobin's Q which indicated firm value was 0.707, corresponding minimum result was -2.180 and maximum result was 2.790 with the result of standard deviation of 0.760. It meant a moderate variation in terms of values of the entities. Kurtosis and skewness values were confirmed to be 2.590 and -0.681 respectively. Implying distribution was not peaked and data sets were skewed left. The mean value of net profit margin which indicated profitability was 0.048, the corresponding minimum result was -1.590 and maximum result was 1.360 with the value of standard deviation of 0.297. It meant a small variation in terms of profitability of the entities with some reporting losses and others reporting profits. Kurtosis and skewness values were confirmed to be 9.927 and -1.655 respectively. Implying that the distribution had a wider shape and data sets were skewed left.

Analysis results further confirmed that the mean value of total assets which indicated firm size was 6.934, the corresponding minimum result was 5.300 and the corresponding maximum result was 8.620 with the value of standard deviation of 0.759. It meant a small variation in terms of sizes of the entities with some having small sizes and others large sizes. Kurtosis and skewness values

were confirmed to be -0.178 and 0.247 respectively. Implying that the distribution had a flat shape and data sets were skewed right. The mean value of sales was 6.717, the corresponding minimum result was 4.690 and corresponding result was 8.420 with the value of standard deviation of 0.841. It was an indication of small variation in terms of sizes of the entities with some having small sizes and others large sizes this was based on the fact that total sales made by entities differed. Kurtosis and skewness values were confirmed to be -0.271 and -0.092 respectively. Implying that the distribution had a flat shape and data sets were skewed left.

The mean value of equity ratio which indicated capital structure was 0.539, the corresponding minimum result was -0.780 and corresponding maximum result was 0.970 with the value of standard deviation of 0.236. It was an indication of large variation in terms of financing by owners' equity with some firms having more liabilities than the corresponding assets as indicated by negative equity ratio which is a sign of financial distress of the entities. It meant a larger proportion of assets are not owned by an entity. Kurtosis and skewness values were confirmed to be 3.980 and -1.096 respectively. Implying distribution was not peaked and data sets were skewed left.

The mean value of debt ratio which indicated capital structure was 0.136, the corresponding minimum result was 0.000 and corresponding maximum result was 0.560 with the value of standard deviation of 0.148. It was an indication of a large variation in terms of financing by debt. With zero debt ratio implying that some entities do not finance through borrowing at all. Kurtosis and skewness values were confirmed to be -0.403 and 0.247 respectively. Implying that the distribution had a flat shape and data sets were skewed right.

4.3 Panel Diagnostic Tests

These are the procedures performed aimed at assessing the validity of the model of analysis (Mugenda, 2003). These procedures are significant also in various statistical assumptions which underlie the model of analysis.

4.3.1 Normality Test

The test for normality aimed at assessing whether the collected data for analysis can fit a normal standard distribution to enable hypothetical tests of model parameters. Shapiro-Wilk test was employed and also by the help of the histograms. From table 4.2 below, it was evident that all the p values for the variables analysed were less than 5% (0.00000) which was the significance level which translates to rejecting null hypothesis. Despite the fact that, the outcome of the research confirmed non normality of the variables, normality assumption puts more emphasis on the error term as opposed to individual variables.

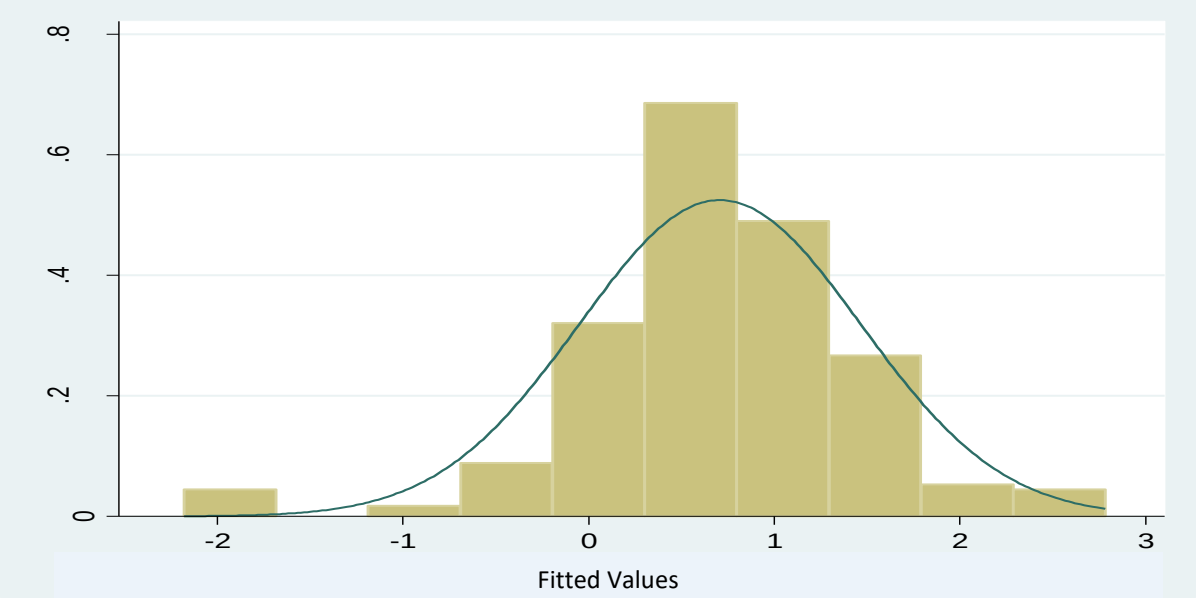
Table 6: Shapiro-Wilk Test

Variable	Obs	W	V	z	Prob>z
Tobin's Q	226	0.95035	8.242	4.883	0.00000
Equity ratio	226	0.93360	11.022	5.556	0.00000
Debt ratio	226	0.90486	15.792	6.388	0.00000
Assets	226	0.97893	3.498	2.899	0.00187
Sales	226	0.97804	3.645	2.994	0.00138
Net profit Margin	226	0.76942	38.273	8.438	0.00000

Source: Researcher (2023)

Test of normality by the help of the histogram was adopted. As shown in figure 4.1 below, a bell curve was a clear indication of the normal distribution which confirmed further the normal distribution of the error term.

Figure 2: Test for Normality



4.3.2 Heteroscedasticity Test

Heteroscedasticity means unequal scatter of study variables and is as a result of large differences of observation size. Breusch-Pagan test was utilized in testing the presence of heteroscedasticity.

Table 7: Test for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Tobin's Q
chi2(1) = 5.76
Prob> chi2 = 0.0164

Source: Researcher (2023)

The presence of heteroscedasticity was evident and it causes the variance to differ among the results of all the response variables and this leads to violations of the assumptions of classical linear regression. This makes ordinary least square estimator unreliable because of bias and hence

incorrect conclusions. Prais Winsten Panel regression was employed since it corrects the presence of heteroscedasticity.

4.3.3 Multicollinearity Test

This is the state of high interrelationships or correlation existing among predictor variables. Variance inflation factor was utilized in measuring the amount of multicollinearity. When VIF is between 1 and 10, it confirms no correlation and values greater than 10 implies high correlation.

Table 8: Multicollinearity Test

	Collinearity Statistics	
	Tolerance	**VIF**
Equity ratio	0.341281	2.93
Debt ratio	0.384429	2.60
Net profit Margin	0.830936	1.20
Sales	0.178241	5.61
Assets	0.188267	5.31

Source: Researcher (2023)

Based on research findings, equity ratio had a VIF value of 2.93, debt ratio had a VIF value of 2.60, assets had a VIF value of 5.31, sales had a VIF value of 5.61 and net profit margin had a VIF value of 1.20. Results confirmed no multicollinearity problem.

4.3.4 Stationarity Test

Stationarity of data implies that, the statistical properties of data do not change over time. Stationary data is ideal for analysis since it is easily predictable. A unit root is a common trend associated with time series analysis of data and it confirms or shows a pattern that's unpredictable. Augmented Dickey Fuller test was critical in the assessment and analysis of stationarity of data. It assumes that, the time series data that's tested has a unit root which implies non stationary leading to spurious regression.

Table 9: Stationarity Test

	Critical value at 95%	DFT statistic	P-value
Tobin's Q	-2.882	-4.529	0.0002
Equity ratio	-2.882	-5.348	0.0000
Debt ratio	-2.882	-4.718	0.0001
Sales	-2.882	-3.671	0.0045
Assets	-2.882	-3.563	0.0065
Net profit Margin	-2.882	-8.747	0.0000

Source: Researcher (2023)

From the conclusions, the p-values for the indicators were less than 0.05 and the DFT statistic were more negative than their corresponding critical values. This is an indication that, variables did not have unit roots. And therefore null hypothesis was rejected.

4.3.5 Model Specification Test

Hausman test was employed in assessing the effects of the model and to determine the ideal model to employ. Hausman test is grounded on the null hypothesis that, data for analysis fits random effects model as opposed to alternative hypothesis which asserts that data for analysis fits the fixed effects model. Hausman test outcome confirmed that, analyzed data fitted the random effects model (Prob >Chi2>5%).

Table 10: Hausman Test

Test: Ho: difference in coefficients not systematic	
Chi2 (5) = (b-B)'[(V_b-V_B)^(-1)](b-B)	0.59
Prob >Chi2	0.9884

Source: Researcher (2023)

4.3.6 Autocorrelation Test

Autocorrelation implies the extent of similarity of similar variables over successive time intervals. Linear regression analysis calls for data which is not auto correlated. Breusch-Godfrey LM method was employed in testing for autocorrelation.

Table 11: Autocorrelation Test

Breusch-Godfrey LM test for autocorrelation
H0: no serial correlation
lags(p) : 1
chi2 = 145.870
Df= 1
Prob> chi2 = 0.0000

Source: Researcher (2023)

Data exhibited autocorrelation problem from the above table (Prob> chi2 is less than 5%). This implies residuals lack independence due to transfer of error term from one period to another. This makes it critical to take corrective measures to correct autocorrelation. Prais Winsten Panel regression was employed since it corrects the presence of autocorrelation and heteroscedasticity.

4.4 Correlation Analysis

This segment highlights the details on the correlation analysis conducted on the variables. Pearson's product-moment correlation was utilized in this research in the determination of a correlation coefficient which is a way of putting a value to the relationship. Table below provides a detailed information from the correlation analysis performed.

Table 12: Correlation Matrix

	Tobin's Q	Equity ratio	Debt ratio	Assets	Sales	Net Profit Margin
Tobin's Q	1					
Equity ratio	0.1075	1				
Debt ratio	-0.1588*	-0.6379*	1			
Assets	-0.2815*	-0.2433*	0.3472*	1		
Sales	-0.1674*	-0.3653*	0.3218*	0.6291*	1	
Net Profit Margin	0.0645	0.2132*	-0.0897	0.2465*	0.2421*	1

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

Source: Researcher (2023)

4.4.1 Firm Value and Capital Structure

Table above depicts correlation between firm value which is the response variable as indicated by Tobin's Q and the predictor variable which is capital structure which is operationalized by equity ratio and debt ratio. Noted from the correlation analysis performed is that; Tobin's Q and equity ratio were positively correlated and the relationship was weak (r=0.1075). This means that when equity ratio increases, value also increase and vice versa. Debt ratio and Tobin's Q were negatively correlated and the relationship was weak but significant (r=-0.1588). This means that when debt ratio increases, value decreases and vice versa.

4.4.2 Firm Value and Profitability

Table above depicts the correlation between firm value which is the response variable as indicated by Tobin's Q and the intervening variable which was profitability which was operationalized by net profit margin. Noted from the correlation analysis performed is that; Tobin's Q and net profit margin were positively correlated and the relationship was weak (r=0.0645). This means that when the profits of the entities increases, value of the entities increase and vice versa.

4.4.3 Firm Value and Firm Size

Table above depicts the correlation between firm value which is the response variable as indicated by Tobin's Q and the moderating variable which is firm size which is operationalized by the total assets of the firm and its sales. Noted from the correlation analysis performed is that; Tobin's Q and the total assets of the firm were negatively correlated and the relationship was weak but significant (r=-0.2815). Tobin's Q and the sales of the firm were positively correlated and the relationship was weak but significant (r=0.1674). This means that increase in the sales of the entities causes an increase in their values.

4.4.4 Capital Structure and Profitability

Table above depicts correlation between capital structure which is the predictor variable as indicated by equity ratio and debt ratio and the intervening variable which was profitability operationalized by net profit margin. Noted from the correlation analysis performed is that; equity ratio and net profit margin were positively correlated and the relationship was weak but significant (r=0.2132). This means that increase in equity ratio increases profitability and vice versa. Equity ratio and debt ratio were confirmed to be negatively correlated and the relationship was strong and significant (r= -0.6379). This means that an increase in equity ratio leads to a corresponding

decrease in debt ratio and vice versa. A negative correlation was evident between debt ratio and net profit margin and it was a weak relationship (r= -0.0897). This means that high levels of debt potentially reduces profits and vice versa.

4.4.5 Capital Structure and Firm Size

Table above depicts the correlation between capital structure which is the predictor variable as indicated by equity ratio and debt ratio and the moderating variable which was firm size which was operationalized by total assets and sales. Noted from the correlation analysis performed was that; equity ratio and debt ratio were negatively correlated and the relationship was strong and significant (r= -0.6379). Equity ratio and assets were confirmed to be negatively correlated and the relationship was weak but significant (r= -0.2433). Equity ratio and sales were confirmed to be negatively correlated and the relationship was significant (r= -0.3653). Debt ratio and assets were confirmed to be positively linked with moderate and significant impact (r= 0.3472). A positive correlation was evident between debt ratio and sales and it was a moderate and significant relationship (r= 0.3218). Finally a positive correlation was evident between assets and sales and it was a strong and significant relationship (r=0.6291). This means that when assets of an entity increase, they cause an increase in sales and vice versa.

4.4.6 Profitability and Firm Size

Table above depicts the correlation between profitability which is the intervening variable as indicated by net profit margin and the moderating variable which was firm size operationalized by assets of the entities and sales. Noted from the correlation analysis performed is that; net profit margin and the total assets of the firm are positively correlated and the relationship was weak and significant (r=0.2465). This translates to an increase in profitability when assets increase and vice

versa. Net profit margin and sales of the firm were positively linked with a weak relationship. The relationship was further confirmed to be significant (r=0.2421). This translates to an increase in profitability when assets increase and vice versa.

4.5 Chapter Summary

This segment highlights the descriptive outcomes of the research which is critical in describing the analysed data, correlation analysis conducted on the variables were also highlighted. Correlation analysis is critical because it aids in testing the relationships existing among the variables. Research was conducted for 8 year period which covered the period from 2013 to 2020 which resulted to 226 data points of the listed non-financial entities at NSE with the aid of secondary data which was readily available since it was published information.

The summary results confirmed mixed outcomes of capital structure indicators namely; debt ratio and equity ratio. The maximum, the minimum and the variability as indicated by standard deviation of equity ratio were 0.970, -0.780 and 0.236. The negative equity ratio translates to a sign of financial distress. Kurtosis and skewness were -1.096 and 3.980 respectively. The maximum, the minimum and the standard deviation values of debt ratio were 0.560, 0.000 and 0.148. The result of 0.000 was an indication some entities don't borrow to finance their activities. Their corresponding Kurtosis and skewness were -0.403 and 0.403 respectively.

The study also confirmed that the sizes of the entities as indicated by their total assets sent mixed signals with some firms having high number of total assets while others have minimum number of assets as depicted in descriptive statistics. The maximum, the minimum, the standard deviation and the average values of total assets were 8.620, 5.300, 0.759 and 6.934 respectively. Sales also confirmed mixed results. The maximum, the minimum, the standard deviation and the average

values of sales were 8.420, 4.690, 0.841 and 6.717 respectively. Their corresponding Kurtosis and skewness were -0.271 and-0.092 respectively. In terms of profitability, the firms had mixed results with some firms being more profitable while others reported losses in some periods.

The maximum, the minimum, the standard deviation and the average values of net profit margin were, 1.360, -1.590, 0.297 and 0.048. Their corresponding Kurtosis and skewness were 9.927 and -1.655 respectively. In terms of values, mixed outcomes were confirmed. Some firms confirmed high values others low values as indicated by Tobin's Q. The maximum, the minimum, the standard deviation and the average values were, 2.790, -2.180, 0.760 and 0.707. Their corresponding Kurtosis and skewness were 2.590 and -0.681 respectively.

Correlation analysis depicted that, firm value and equity ratio were positively correlated and the relationship was weak. This implies that increase in equity ratio leads to an increase in firm value. Debt ratio and firm value were negatively correlated and the relationship was significant. This implies that increase in debt ratio leads to a decrease in firm value. Firm value and net profit margin reported a positive correlation which was further confirmed to be weak. This implies that increase in net profit leads to an increase in firm value. Non-financial entities must ensure they remain profitable since it will lead to increased values.

Firm value and the total assets of the firm reported a positive correlation which was further confirmed to be weak. This implies that increase in assets leads to an increase in firm value. Equity ratio and profitability reported a positive correlation and the relationship was significant. Equity ratio and debt ratio were confirmed to be negatively correlated and the relationship was significant. This implies that increase in debt financing leads to a corresponding decrease in equity financing.

A negative link was evident between debt ratio and profitability and it was a weak relationship. This implies that increase in debt financing leads to declining profits of the firms.

Equity ratio and debt ratio were negatively correlated and the relationship was significant. This implies that increase in equity ratio leads to a decrease in debt financing. Equity ratio and total assets were confirmed to be negatively correlated and the relationship was significant. This implies that increase in equity ratio leads to decrease in the assets of the entities. Equity ratio and sales were confirmed to be negatively correlated. This implies that increase in equity ratio leads to a decrease in the sales of the entities. A positive correlation was evident between debt ratio and sales and it was a significant relationship. This implies that debt financing by entities leads to a corresponding increase in the sales of the entities.

A positive correlation was evident between assets and sales and it was a significant relationship. This implies that when entities increase their assets base, their sales increase. Profitability and total assets reported a positive correlation and the relationship was significant. This implies that when entities increase their assets base, their profitability increase. Profitability and sales reported a positive correlation and the relationship was significant. This implies that when entities increase their sales, it leads to a corresponding increase in their profitability. Every effort must be made for example adequate marketing of the firm products to ensure sales of the entities remain high. This will translate to high profits.

CHAPTER FIVE

HYPOTHESES TESTING AND DISCUSSION OF FINDINGS

5.1 Introduction

In chapter five of this thesis, the major focus was on hypothesis testing and highlights of the outcomes from the research. The chapter further highlighted the results from the four hypotheses which were conducted, findings from the research were also discussed in this segment and finally a summary of the research findings.

5.2 Hypothesis Testing and Findings

This segment presents various results of the hypothetical relationships from the four main hypotheses. The results are highlighted below.

5.2.1 Relationship between Capital Structure and Firm Value

Objective number one focussed on the determination of the relationship between capital structure and the value of non- financial firms listed at the NSE. The indicators of capital structure were debt ratio and equity ratio. Value was operationalized by Tobin's Q. The hypothesis of the study was;

H_1: *The relationship between capital structure and the value of listed non- financial firms at the Nairobi Securities Exchange is not significant.*

Table 13: Effect of Capital Structure on firm Value

Praise-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	id		Number of obs		=	226
Time variable:	Year		Number of groups		=	29
Panels:	heteroskedastic (unbalanced)		Obs per group: min		=	5
Autocorrelation:	Panel-specific AR (1)			avg	=	8
				max	=	8
Estimated covariances =		29	R- squared		=	0.3590
Estimated autocorrelation =		29	Wald chi2(3)		=	15.47
Estimated coefficient =		3	Prob >chi2		=	0.0004
	Het-corrected					
Tobin's Q	Coef.	Std error	Z	p>(z)	(95 conf. interval)	
Equity ratio	0.30387	0.1350075	2.25	0.024	0.0392601	0.5684798
Debt ratio	-0.4222997	0.2096522	-2.01	0.044	-0.833210	-0.001138
_Cons	0.6176721	0.0919736	6.72	0.000	0.4374072	0.7979371
rhos =	0.8808334	0.7070879	0.4349776	0.913690	0.0071341	0.8776338

Source: Researcher (2023)

Praise-Winsten regression confirmed the following results; prob chi square value was 0.0004, regression coefficient, standard error, z value and the p values for equity ratio were 0.30387, 0.1350075, 2.25 and 0.024 respectively. Regression coefficient, standard error, z value and p values for debt ratio were -0.4222997, 0.2096522, -2.01 and 0.044 respectively. It was confirmed from the research that capital structure indicators had p values of less than 5% meaning their influence was significant (equity ratio p value=0.024 and debt ratio p value=0.044). It was deduced that, a significant relationship between CS and FV of listed non-financial entities at NSE exist. The analysis resulted into the following linear model;

$Y = 0.6176721 + 0.30387X_1 - 0.4222997\ X_2$

Where,

Y = Firm Value

X_1 = Equity ratio

X_2 = Debt ratio

From the equation above, the constant= 0.6176721, gives value of the entities in absence of the two explanatory variables. Further, a unit increase in equity ratio leads to 0.30387 units increase in value and a unit increase in debt ratio leads to 0.4222997 units decrease in value.

5.2.2 The intervening effect of profitability in the relationship between capital structure and value of non-financial firms listed at NSE

Objective number two focussed on the determination of the intervening effect of profitability in the relationship between capital structure and value of non-financial firms listed at NSE. The indicator of profitability was net profit margin. The hypothesis of the study was;

H_2: *The intervening effect of profitability in the relationship between capital structure and value of non-financial firms listed at NSE is not significant*

The intervening effect of profitability on the relationship between capital structure and the value of non- financial entities at NSE was determined by Baron and Kenny (1986) model which involved four steps. Step one focussed on ascertaining the relationship between capital structure which was the predictor variable and firm value which was the response variable not considering profitability which was the intervener. In step two, the focus was to ascertain the relationship between capital structure and profitability not considering firm value. Step three focussed on ascertaining the relationship between profitability and firm value not considering capital structure and finally step four focussed on ascertaining combined effect of capital structure and profitability on firm value.

5.2.2.1 Effect of Capital Structure on firm Value

Step one of the intervening process focussed on ascertaining the relationship between capital structure which was the predictor variable and firm value which was the response variable not considering profitability which was the intervener. This was similar to conducting hypothesis one of this study.

Table 14: Effect of Capital Structure on firm Value

Praise-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	id		Number of obs		=	226
Time variable:	Year		Number of groups		=	29
Panels:	heteroskedastic (unbalanced)		Obs per group: min		=	5
Autocorrelation:	Panel-specific AR (1)			avg	=	8
				max	=	8
Estimated covariances =		29	R- squared		=	0.3590
Estimated autocorrelation =		29	Wald chi2(3)		=	15.47
Estimated coefficient =		3	Prob >chi2		=	0.0004
	Het-corrected					
Tobin's Q	Coef.	Std error	Z	p>(z)	(95 conf. interval)	
Equity ratio	0.30387	0.1350075	2.25	0.024	0.0392601	0.5684798
Debt ratio	-0.4222997	0.2096522	-2.01	0.044	-0.833210	-0.001138
_Cons	0.6176721	0.0919736	6.72	0.000	0.4374072	0.7979371
rhos =	0.8808334	0.7070879	0.4349776	0.913690	0.0071341	0.8776338

Source: Researcher (2023)

Praise-Winsten regression confirmed the following results; prob chi square value was 0.0004, regression coefficient, standard error, z value and the p values for equity ratio were 0.30387, 0.1350075, 2.25 and 0.024 respectively. Regression coefficient, standard error, z value and p

values for debt ratio were -0.4222997, 0.2096522, -2.01 and 0.044 respectively. It was confirmed from the research that capital structure indicators had p values of less than 5% meaning their influence was significant (equity ratio p value=0.024 and debt ratio p value=0.044). It was deduced that, there was a significant relationship between CS and FV of listed non-financial firms at NSE.

5.2.2.2 Effect of Capital Structure on Profitability

In step two, the focus was ascertaining the relationship between capital structure and profitability not considering value. This involved testing the effect of equity ratio and debt ratios on profitability.

Table 15: Intervening effect of Profitability on the Relationship between Capital Structure and Firm Value

Praise-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	id		Number of obs		=	226
Time variable:	Year		Number of groups		=	29
Panels:	heteroskedastic (unbalanced)		Obs per group: min		=	5
Autocorrelation:	Panel-specific AR (1)			avg	=	8
				max	=	8
Estimated covariances =		29	R- squared		=	0.0302
Estimated autocorrelation =		29	Wald chi2(3)		=	5.53
Estimated coefficient =		3	Prob >chi2		=	0.0629
	Het-corrected					
Net profit margin	Coef.	Std error	Z	p>(z)	(95 conf. interval)	
Equity ratio	0.2870378	0 .173095	1.66	0.097	-0.052222	0.6262979
Debt ratio	0.0003531	0.2223111	0.00	0.999	-0.435368	0.4360749
_Cons	-0.1651879	0.1144238	-1.44	0.149	-0.389454	0.0590787
rhos =	0.7222143	0.6300229	0.4706012	0.825856	0.8374209	0.8587883

Source: Researcher (2023)

From the results of analysis, the following outcome was confirmed; the p value was 0.0629 implying the overall model was not significant, the R squared value was 0.0302 which was the amount of variance of profitability explained by capital structure. The coefficient of equity ratio was 0.2870378 and was not statistically significant in explaining profitability (p=0.097). The

coefficient of debt ratio was 0.0003531 and was not statistically significant in explaining profitability (p=0.999). Outcome confirmed no mediation implying profitability does not indirectly connect capital structure to value.

5.2.3 Moderating Effect of Firm Size on the Relationship between Capital Structure and Firm Value

Objective number three focussed on the determination of the moderating effect of size on the relationship between capital structure and the value of non- financial firms at NSE. The indicator of size was total assets and sales. The hypothesis employed in the study was;

H_3: *The moderating effect of firm size in the relationship between capital structure and value of non-financial firms listed at NSE is not significant*

The moderating effect of size on the relationship between capital structure and the value of non-financial entities at NSE was determined by Baron and Kenny (1986) model which involved two steps. Step one focussed on ascertaining the joint effect of capital structure and size on firm value. Second step focussed on ascertaining the joint effect of capital structure, size and the interaction terms on firm value. Moderation is assumed to take place if the interaction terms between capital structure and size were significant.

5.3.3.1 Effect of Capital Structure and size on Firm Value

Step one focussed on ascertaining the joint effect of capital structure and size on firm value. Capital structure was the predictor variable and was indicated by equity ratio and debt ratio. Size was the moderating variable as indicated by total assets and sales. Firm value was the response variable and was indicated by Tobin's Q.

Table 16: Effect of Capital Structure and size on Firm Value

Praise-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	id		Number of obs		=	226
Time variable:	Year		Number of groups		=	29
Panels:	heteroskedastic (unbalanced)		Obs per group: min		=	5
Autocorrelation:	Panel-specific AR (1)			avg	=	8
				max	=	8
Estimated covariances =		29	R- squared		=	0.5099
Estimated autocorrelation =		29	Wald chi2(3)		=	122.85
Estimated coefficient =		5	Prob >chi2		=	0.0000
	Het-corrected					
Tobin's Q	Coef.	Std error	Z	p>(z)	(95 conf. interval)	
Equity ratio	0.3460094	0.119666	2.89	0.004	0.111468	0.5805508
Debt ratio	-0.2115999	0.179749	-1.18	0.239	-0.563901	0.1407019
Assets	-0.5668679	0.063947	-8.86	0.000	-0.692207	-0.441534
Sales	0.2719527	0.0643737	4.22	0.000	0.1457825	0.3981228
_Cons	2.607294	0.3118996	8.36	0.000	1.995982	3.218606
rhos =	0.8783423	0.838591	0.31	0.909	-0.048197	0.8745842

Source: Researcher (2023)

Praise-Winsten regression confirmed that the variance of firm value accounted for by capital structure and size was 50.99% before the interaction terms were included and the model confirmed a statistically significant relationship between capital structure, size and firm value (p=0.0000). After interaction terms were included, R squared increased to 52.48 and was significant but interaction terms were not significant

5.3.3.2 Effect of Capital Structure, Size and Interaction Terms on Firm Value

Second step focussed on ascertaining the joint effect of capital structure, size and the interaction terms on firm value. Moderation is evident if the interaction terms between capital structure and size and also interaction terms between capital structure and sales were significant. The interaction terms employed were four namely: INT1 which was the interaction term between equity ratio and sales, INT2 was the interaction term between debt ratio and sales, INT3 was the interaction term

between equity ratio and assets and INT4 was the interaction term between debt ratio and assets. Multicollinearity was performed with an aim of assessing interrelationships or correlation existing among predictor variables after the inclusion of four interaction terms.

Table 17: Multicollinearity Test

	Collinearity Statistics	
	Tolerance	**VIF**
Debt ratio	0.327	3.06
Equity ratio	0.294	3.40
Sales	0.142	7.03
Assets	0.134	7.46
INT1	0.059	16.88
INT2	0.118	8.44
INT3	0.0617	16.21
INT4	0.119	8.37

Source: Researcher (2023)

Based on research findings, assets had a VIF value of 7.46, debt ratio had a VIF value of 3.06, equity ratio had a VIF value of 3.40, and sales had a VIF value of 7.03. INT1, INT2, INT3 and INT4 had VIF of 16.88, 8.44, 16.21 and 8.37 respectively. Results confirmed multicollinearity problem for INT1 and INT3 since their VIF variables were greater than 10. The problem was solved by dropping them from further analysis. Table 5:24 depicts the outcome of multicollinearity test

Table 18: Multicollinearity Test

	Collinearity Statistics	
	Tolerance	**VIF**
Debt ratio	0.373	2.68
Equity ratio	0.354	2.82
Sales	0.149	6.73
Assets	0.138	7.26
INT2	0.176	5.67
INT4	0.153	6.54

Source: Researcher (2023)

Table 19: Effect of Capital Structure, Size and Interaction Terms on Firm Value

Praise-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	id		Number of obs		=	226
Time variable:	Year		Number of groups		=	29
Panels:	heteroskedastic (unbalanced)		Obs per group: min		=	5
Autocorrelation:	Panel-specific AR (1)			avg	=	8
				max	=	8
Estimated covariances =		29	R- squared		=	0.5248
Estimated autocorrelation =		29	Wald chi2(3)		=	142.34
Estimated coefficient =		7	Prob >chi2		=	0.0000
	Het-corrected					
Tobin's Q	Coef.	Std error	Z	p>(z)	(95 conf. interval)	
Equity ratio	0.3806562	0.120236	3.17	0.002	0.1449975	0.6163148
Debt ratio	-0.1975579	0 .184973	-1.07	0.286	-0.5601	0.1649841
Assets	-0.6060285	0.0717858	-8.44	0.000	-0.746726	-0.465330
Sales	0.2940888	0.065147	4.51	0.000	0.166403	0.4217746
INT2	-0.3562723	0.3694031	-0.96	0.335	-1.080289	0.3677444
INT4	0.4452485	0.3886604	1.15	0.252	-0.316519	1.207009
_Cons	2.701402	0.3275485	8.25	0.000	2.059419	3.343385
rhos =	0.8793998	0.842946	0.21	0.907	-0.083404	0.8736086

Source: Researcher (2023)

Praise-Winsten regression confirmed that the variance of firm value accounted for by capital structure, size and interaction terms was 52.48% after the interaction terms were included which was an increase from before the interaction terms were included and the model confirmed a statistically significant relationship between capital structure, size, interaction terms and firm value (p=0.0000). However, the interaction terms were not statistically significant in moderating the relationship. This implies that, size cannot change, weaken or strengthen the association of capital structure and value.

5.2.4 Effect of Capital Structure, Profitability and Size on Firm Value

Objective number four focussed on the determination of the joint effect of capital structure, profitability and firm size on the value of non-financial firms listed at NSE. The hypothesis was employed in the study is;

H_4: *The joint effect of capital structure, profitability and firm size on the value of non-financial firms listed at NSE is not significant*

Table 20: Effect of Capital Structure, Size and profitability on Firm Value

Praise-Winsten regression, heteroskedastic panels corrected standard errors						
Group variable:	id		Number of obs	=	226	
Time variable:	Year		Number of groups	=	29	
Panels:	heteroskedastic (unbalanced)		Obs per group: min	=	5	
Autocorrelation:	Panel-specific AR (1)		avg	=	8	
			max	=	8	
Estimated covariances =		29	R- squared	=	0.5461	
Estimated autocorrelation =		29	Wald chi2(3)	=	132.44	
Estimated coefficient =		6	Prob >chi2	=	0.0000	
	Het-corrected					
Tobin's Q	Coef.	Std error	Z	p>(z)	(95 conf. interval)	
Equity ratio	0.3280303	0.117051	2.80	0.005	0.0986139	0.557446
Debt ratio	-0.2018015	0.182293	-1.11	0.268	-0.559091	0.155487
Assets	-0.6026128	0.0660791	-9.12	0.000	-0.732125	-0.473100
Sales	0.280205	0.0647121	4.33	0.000	0 .153371	0.4070383
Net profit margin	0.068939	0.0544853	1.27	0.206	-0.037850	0.1757283
_Cons	2.79758	0.3235294	8.65	0.000	2.163474	3.431686
rhos =	0.8796257	0.845527	0.25	0.910	-0.293336	0.8749793

Source: Researcher (2023)

Praise-Winsten regression confirmed that, the variance of firm value accounted for by capital structure, size and profitability was 54.61%. Only two variables were insignificant (debt ratio, p=0.26, net profit margin, p=0.206). Equity ratio, assets and sales were all confirmed to be significant (equity ratio, p=0.005, assets, p=0.000, sales, p=0.000). It was further confirmed that,

jointly all variables were statistically significant (p=0.0000). The analysis resulted into the following linear model;

$Y = 2.79758 + 0.3280303\ X_1 - 0.6026128\ X_2 + 0.280205\ X_3$

Where,

Y = Firm Value

X_1 = Equity ratio

X_2 = Assets

$X_{3=}$ Sales

From the equation above, the constant= 2.79758, gives value of the entities in absence of the three explanatory variables. Further, a unit increase in equity ratio leads to 0.3280303 units increase in value. A unit increase in assets leads to 0.6026128 units decrease in value and a unit increase in sales leads to 0.280205 units increase in value.

Table 21: Summary of Hypothesis Results

Hypothesis	**Study findings**	**Hypothesis test results**	**Interpretation**
H_1:The relationship between capital structure and value of non-financial firms listed at the NSE is not significant	The relationship between capital structure and firm value was statistically significant	Reject null	Capital structure has a significant influence on value of non-financial firms listed at the NSE
H_2:The intervening effect of profitability in the relationship between capital structure and value of non-financial firms listed at NSE is not significant	Profitability does not mediate the relationship between capital structure and value of non-financial firms listed at the NSE.	Fail to reject null	Profitability is not an essential variable that indirectly connects capital structure to value

Hypothesis	Study findings	Hypothesis test results	Interpretation
H_3: The moderating effect of firm size in the relationship between capital structure and value of non-financial firms listed at the NSE is not significant	Size does not moderate the relationship between capital structure and value of non-financial firms listed at the NSE	Fail to reject null	Size does not matter in either strengthening, weakening or changing the relationship between capital structure and value
H_4: The joint effect of capital structure, profitability and firm size on the value of non-financial firms listed at the NSE is not significant	Jointly capital structure, profitability and size influenced the value of non-financial firms listed at the NSE	Reject null	Capital structure, profitability and size have a significant collective influence on value

5.3 Discussion of Findings

Generally this study aimed at determining the link between capital structure, profitability, size and the value of non-financial firms listed at the NSE. This segment presents the discussion of the outcomes of analysis based on the four hypotheses.

5.3.1 Capital Structure and Firm Value

Objective number one focussed on the determination of the relationship between capital structure and the value of non- financial firms at NSE. The indicators of capital structure were debt ratio and equity ratio. Value was operationalized by Tobin's Q. The hypothesis of the study was that the relationship between capital structure and the value of listed non- financial firms at the Nairobi Securities Exchange was not significant. With the linear model; Firm Value = 0.6176721+ 0.30387

equity ratio - 0.4222997 debt ratio+ e, it was concluded that capital structure significantly affects the value of the firms because it influences value. This led to the rejection of the first hypothesis, implying that the mix of equity and debt by the firms has a bearing on their values.

The outcome of this study confirm Bilafif and Ibrahim (2019) findings that, financial leverage positively affects firm value. It further confirmed Chaleeda *et al* (2019) that, the ratio between debt in the short term and long term and the total assets of the entities relates positively with the value of the firm and the association is significant. But this study contradicts the study by Aras (2019) who confirmed no evidence of direct association between debt to equity ratio and the value of the entities.

5.3.2 Capital Structure, profitability and Firm Value

Objective number two focussed on the determination of the intervening effect of profitability in the relationship between capital structure and value of non-financial firms listed at the NSE. The indicator of profitability was net profit margin. The hypothesis of the study was that the intervening effect of profitability on the relationship between capital structure and value of non-financial firms listed at NSE was not significant. The study confirmed that, profitability does not mediate the relationship between capital structure and value of non-financial firms listed at the Nairobi Securities Exchange. Because it cannot indirectly connect capital structure to value.

The outcome of this study was inconsistent with the studies by Ardina and Isnalita (2018) findings that profitability and the growth of the firm have the potential effect of increasing the value of the entities and high levels of leverage were confirmed to reduce the value of the entities. Additionally it contradicts Guler (2018) findings that increase in borrowing has the ultimate effect of reducing

the value of the firms and profitability and finally Ogbulu and Emeni (2015) findings that financial decisions influenced the profitabilty of the firms which in turn increased their values.

5.3.3 Capital Structure, Size and Firm Value

Objective number three focussed on the determination of the moderating effect of size on the relationship between capital structure and the value of non-financial firms at the NSE. The indicator of size was total assets and sales. The hypothesis employed in the study was that the moderating effect of firm size in the relationship between capital structure and value of non-financial firms listed at the NSE was not significant. The study confirmed that, size does not moderate the relationship between capital structure and value of non-financial firms listed at the NSE. This is because size is not a relevant factor that can either strengthen, weaken or change capital structure and value relationship.

The outcome of this study was inconsistent with the studies by Malik (2020) who concluded that there is a positive and significant relationship between firm size and firm value. Additionally, it contradicts Kimathi *et al* (2020) who confirmed that size of an entity aggravates the negative association between managerial ownership and value and finally foreign ownership relates positively with the value of the firms. Finally Basil and Dana (2018) who confirmed positive link between external financing and SMEs value, and also size was confirmed to be positively related to their values.

5.3.5 Capital Structure, Profitability, Size and Firm Value

Objective number four focussed on the determination of the joint effect of capital structure, profitability and firm size on the value of non-financial firms listed at NSE. The hypothesis that was employed in the study was that the joint effect of capital structure, profitability and firm size

on the value of non-financial firms listed at NSE was not significant. With the following linear model; Firm Value =2.79758 + 0.3280303 equity ratio -0.6026128 assets +0.280205 sales+ e, it was concluded that, jointly capital structure, profitability and size influenced the value of non-financial firms listed at NSE.

Conceptually, limited studies have been done incorporating capital structure, profitability, size and value together. Studies have been done but not directly linking the concepts together. For example Setiadharma (2019) studied relationship between capital structure, firm growth and their effects on the value of the insurance firms in Greece and Mule *et al* (2015) assessed the association between corporate size, profitability and how they relate to the value of firms in Kenya. This implies that the gap was addressed.

5.4 Comparison between Expected Relationships and Actual Findings

The expectation grounded on existing literature was that, capital structure of non-financial entities listed at the NSE will have a significant effect on their values. The study outcome correctly supported the expectation. Furthermore, the study outcome was expected to support the positive significant effect of profitability as the mediator on the link between capital structure and value. Additionally, the study outcome was expected to support the positive significant effect of size as the moderator on the link between capital structure and value. The lack of mediating effect of profitability and lack of moderating effect of size from the study outcome is a deviation from the expectation. Inconsistencies resulted from measurement issues because different indicators of size and profitability capture different aspects which directly affects capital structure and value relationships. The joint effect of capital structure, profitability, size and value was expected to be positive and significant. The study correctly supported the expectation.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter starts by giving a summary of the research, it highlights the conclusions of the study, a discussion of the contributions of the study findings, and it further highlights the limitations of research and finally areas to further other studies.

6.2 Summary

This thesis focussed on establishing the link among capital structure, profitability, size and the value of non- financial firms at Nairobi Securities Exchange and was primarily based on four hypotheses. Objective number one focussed on the determination of the link between capital structure and the value of non- financial firms listed at the NSE. The indicators of capital structure were debt ratio and equity ratio. Value was indicated by Tobin's Q. Outcome of this analysis confirmed that, relationship between equity ratio and firm value was positive and statistically significant ($p<5\%$) and the link between debt ratio and firm value was negative and significant ($p<5\%$). This led to the conclusion that, a significant relationship exists between capital structure and firm value. Null hypothesis was rejected.

Objective number two focussed on the determination of the intervening effect of profitability in the link between capital structure and value of non-financial firms listed at Nairobi Securities Exchange. The indicator of profitability was net profit margin. The study confirmed that profitability as operationalized by net profit margin does not predict value implying that profitability has no intervening relationship between capital structure and value of non-financial

firms listed at Nairobi Securities Exchange. Objective number three focussed on the determination of the moderating effect of size on the relationship between capital structure and the value of non-financial firms listed at the Nairobi Securities Exchange. The indicator of size was total assets and sales. The study confirmed that size as operationalized by assets and sales is not a significant moderating variable between capital structure and value of non-financial firms listed at the Nairobi Securities Exchange.

Objective number four focussed on the determination of the combined effect of capital structure, profitability and firm size on value of non-financial firms listed at the Nairobi Securities Exchange. The study confirmed that jointly capital structure, profitability and size influenced the value of non-financial firms listed at Nairobi Securities Exchange. This was grounded on the argument that the overall model of analysis was statistically significant ($p<0.05$). This led to the rejection of the null hypothesis.

6.3 Conclusions

This research drew several conclusions grounded on the four main objectives. The study aimed at confirming the effect of capital structure on firm value of non-financial firms listed at Nairobi Securities Exchange. The findings of the study confirmed that, the relationship between equity ratio and firm value was positive and statistically significant ($p<5\%$) and the link between debt ratio and firm value was negative and significant ($p<5\%$). This led to the conclusion that a significant link exists between capital structure and firm value of non-financial firms listed at the Nairobi Securities Exchange.

On whether profitability has an intervening influence on the relationship between capital structure and value of non-financial firms listed at the Nairobi Securities Exchange, the outcome of the study revealed that, profitability does not mediate the link between capital structure and value of non-financial firms listed at the Nairobi Securities Exchange. On whether size moderates the link between capital structure and value of non-financial firms listed at the Nairobi Securities Exchange, the study confirmed that, size does not moderate the link between capital structure and value of non-financial firms listed at Nairobi Securities Exchange. This is because different indicators of size and profitability capture different aspects which directly affects capital structure and value relationships.

The study also sought to determine the joint effect of capital structure, profitability and firm size on the value of non- financial firms listed at the Nairobi Securities Exchange. The study confirmed that jointly capital structure, profitability and size influenced the value of non-financial firms listed at the Nairobi Securities Exchange. This was based on the fact that the overall model of analysis was statistically significant ($p<0.05$).

6.4 Contributions of the Study Findings

This segment discusses the contributions made by this research to this critical field of capital structure, profitability, size and the value of non- financial firms. Areas highlighted include contributions to theory, contributions to policy, contributions to practice and finally contribution to new knowledge.

6.4.1 Contributions to Theory

This study brings to light pecking order theory which was coined by Myers and Majluf (1985) and it asserts that typical firms normally commence by financing their new investments by use of

retained earnings followed by a debt which is safe, then finance by the debt which is risky and finally finance with outside equity. It is assumed that for the value of the entities to be high, internal sources must be exhausted and this will in turn improve the profitability of the entities in the long run and their corresponding sizes. The study outcome confirmed that the link between debt ratio and value was negative. This corresponds with pecking order hypothesis that discourages the use of debt due to its negative influence.

6.4.2 Contributions to Policy

This study is additionally significant to the government and regulators, for example capital markets authority in formulation of various policies which are aimed at providing guidelines and in defining suitable mix for governing debt levels of non-financial firms aimed at financial stability. Additionally, other institutions tasked with policy making are able to come up with strategies aimed at effective capital structure decisions with the goal of achieving certain firm targets and improving firm values. Study recommends reduction of overall debt levels.

6.4.3 Contributions to Practice

The study findings confirmed that equity ratio and debt ratio were very critical pertaining the decisions on capital structure and how they relate to entity values. Equity ratio is critical because it indicates the extent to which an entity's assets are financed by shareholders' equity. If an entity has high equity ratio, it implies less debt relative to the assets of the company which translates to not relying heavily on debt financing in the business operations. Negative link between debt ratio and value is considered to expose the firm to bankruptcy risk. The link between debt ratio and value was confirmed to be negative.

This study therefore sharpens industry practitioners for example finance managers engaged in setting capital structure choices of their entities which include; all debt, all equity or equity and debt combination. It is helpful in ideal planning of finances of the firms to create high values. Administration of non-financial entities may use the recommendations of this study in developing best capital structure choices which are aimed at improving the value of their entities. Study proposes minimal debt application by the entities. Investors can be enlightened how capital structure affects firm value, this helps them to make investment decisions that guarantees good return on their investment.

6.4.4 Contributions to New Knowledge

This survey aimed at establishing the link among capital structure, profitability, size and value. Research outcome is critical especially in adding knowledge in capital structure, profitability, size and value. This was achieved by confirming that, capital structure significantly impacts value of the firms, size does not moderate the relationship between capital structure and value, profitability does not mediate the link between capital structure and value and finally established that jointly capital structure, profitability and size influenced the value of non-financial entities listed at the NSE. This research acts as a source of literature by contributing to knowledge and research. To the academicians and researchers, this area of capital structure, profitability, size and value is very critical hence more studies are needed and this study will act as empirical reference.

6.5 Recommendations for Policy and Practice

Because debt and value are negatively linked from study outcome, there is need to strengthen corporate governance. This is critical in ensuring organizations are managed in a manner that ensures risk of excessive debt-taking is minimized. There is need for organizations to evaluate

benefits and risks of debt before committing on new debt. Further, development of repayment plan of debt is essential in ensuring achievable and realistic debt levels. Organizations have an obligation of monitoring their debt closely and ensuring necessary steps are in place to facilitate debt reduction when necessary. Finally, organizations should ensure a strong financial position is maintained to mitigate the possibility of financial distress and bankruptcy. Study further recommends that; entities should avoid very high levels of debt since it exposes them to financial distress. This study supports the need for injecting more money inform of equity instead of relying heavily on borrowed funds because of positive link between equity ratio and value.

Non-financial firm's managers should consider the impact capital structure has on value without being concerned on their profitability. The focus should be on other critical factors which can potentially affect value which include; innovation, growth, risk profile and corporate governance. However, profitability should not be ignored in totality during decision making because losses eat into debt and shareholder capital. This can be achieved by the development of sustainable and profitable business model. Further, consider the impact capital structure has on value regardless of the size of the business entities.

6.6 Limitations of the Study

In conducting this research, some drawbacks were encountered. However, they did not significantly impact the study outcomes. Twenty-nine non-financial entities at Nairobi Securities Exchange formed the researcher's sample for analysis. This sample size was relatively small implying limited generalizability of researcher's outcome to entities' wider population. Researcher addressed this limitation by adoption of panel data approach. This approach ensured that, the

researcher's number of observations increased thus allowing for data's analysis over time which ensured robustness.

The researcher used panel data for different firms covering a time span of eight years (8-year data points) from 2013 to 2020. Balanced panel set of data was not adopted because during the period 2013 to 2020 which was the researcher's study period, some years were not considered since some firms were delisted, others were suspended from trading at the Nairobi securities exchange. Therefore, data was not available during that study period. Researcher addressed this limitation by adoption of unbalanced panel set of data. This involved collection of data in different time period from 2013 to 2020.

It was evident that, limited studies have been conducted incorporating the four variables together namely; capital structure, profitability, size and value. This implies that, most studies failed to incorporate moderating and intervening effect in their analysis. Moderating and intervening variables aid in understanding the influence which can be either positive or negative between the variables. Researcher addressed this limitation by conducting extensive empirical review with an objective of identified some past studies.

6.7 Suggestions for Further Research

The current study aimed at establishing the link among capital structure, profitability, size and value of non-financial entities at Nairobi Securities Exchange. Capital structure was operationalized by equity ratio and debt ratio, profitability was operationalized by net profit margin, size was operationalized by sales and total assets. Future studies are suggested for different mediating variable with an aim of comparing the outcomes. A study can be done on the mediating role of corporate governance in the relationship between capital structure and firm value.

Duration of this survey was eight years which was from 2013 to 2020 which targeted enough data points to guarantee the results that were more conclusive. Additionally it relied on the secondary information from published financial reports which were accessed from various websites of the entities. The researcher suggests that, a study can be conducted focusing on different period of study (2015 to 2022) and also combine both qualitative techniques of data analysis and quantitative data techniques.

The focus of this study was non- financial entities, drawn from seven sectors namely; construction, telecommunication, services sector, manufacturing sector, agricultural sector, automobiles sector, energy sector and petroleum. Additionally, it was done in Kenya which is a developing economy. The researcher suggests that, similar research can be done that incorporates the capital markets in the East African Community namely; Dar es Salaam Securities, Rwanda Stock Exchange and Uganda Securities Exchange. Suggested future study is; capital structure, profitability and value of listed firms at East African Securities Exchange.

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APPENDICES

APPENDIX I: LIST OF NON FINANCIAL FIRMS AT NSE AS AT 31ST DEC 2020

1 Safaricom Plc.

2. Bamburi Cement Ltd.

3. B.O.C Kenya Plc.

4 British American Tobacco Kenya Plc.

5 Carbacid Investments Plc.

6 East African Brewaries Ltd.

7 Unga Group Ltd.

8 Flame Tree Group Holdings Ltd.

9 E.A Cables Ltd.

10 Crown Paints Kenya Plc.

11 E.A Portland cement Ltd.

12 Eveready East Africa Ltd.

13 Longhorn Publishers Plc.

14 Nation Media Group Plc.

15 Standard Group Plc.

16 TPS Eastern Africa (Serena) Ltd.

17 Uchumi Supermarkets Plc.

18 WPP Scangroup Plc.

19 KenGen Plc.

20 Kenya Power& Lighting Plc.

21 Total Kenya Ltd.

22 Umeme Ltd.

23 Eaagads Ltd.

24 Kakuzi Plc.

25 Kapchorua Tea Kenya Plc.

26 Limuru Tea Co. Ltd.

27 Sasini Plc.

28 Williamson Tea Kenya Plc.

29 Car &General (K) Ltd.

APPENDIX II: LIST OF EXCLUDED FIRMS

1 Deacons Plc.

2. Nairobi Business Ventures Ltd.

3. Express Kenya Ltd.

4 Sameer Africa Plc.

5 Athi River Mining Ltd.

6 Mumias Sugar Company Ltd.

7 Kenya Orchards Ltd.

8 Atlas Development Services Ltd.

9 Rea Vipingo Ltd.

10 KenolKobil Ltd.

APPENDIX III: ANALYZED DATA

FIRM ID	YEAR	Equity ratio	Debt ratio	NPM	Assets	Sales	Tobin's Q
1	2013	0.623	0.157	0.141	8.110	8.094	1.270
1	2014	0.664	0.080	0.195	8.196	8.213	1.497
1	2015	0.668	0.067	0.370	8.198	8.213	1.617
1	2016	0.734	0.000	0.195	8.205	8.292	1.626
1	2017	0.665	0.102	0.228	8.209	8.328	1.649
1	2018	0.740	0.024	0.230	8.221	8.369	1.728
1	2019	0.748	0.021	0.248	8.281	8.397	1.820
1	2020	0.668	0.038	0.280	8.325	8.417	1.812
2	2013	0.673	0.014	0.108	7.634	7.531	1.248
2	2014	0.653	0.000	0.108	7.613	7.557	1.090
2	2015	0.644	0.000	0.150	7.622	7.593	1.181
2	2016	0.647	0.000	0.154	7.611	7.583	1.153
2	2017	0.642	0.000	0.055	7.660	7.556	1.155
2	2018	0.665	0.000	0.069	7.702	7.348	0.980
2	2019	0.750	0.130	0.046	7.468	7.327	0.995
2	2020	0.773	0.078	0.055	7.476	7.304	0.662
3	2014	0.760	0.000	0.252	6.362	6.113	1.026
3	2015	0.739	0.000	0.249	6.366	6.074	0.934
3	2016	0.763	0.000	0.237	6.345	6.032	0.859
3	2017	0.723	0.344	0.132	6.348	5.986	0.972
3	2018	0.737	0.152	0.077	6.290	5.961	0.875
3	2019	0.745	0.000	0.043	6.267	5.969	0.787
3	2020	0.794	0.000	0.208	6.305	6.039	0.785
4	2013	0.446	0.090	0.190	7.230	7.293	1.544
4	2014	0.445	0.106	0.124	7.261	7.533	1.693
4	2015	0.474	0.159	0.224	7.271	7.347	1.623
4	2016	0.476	0.161	0.213	7.267	7.298	1.691
4	2017	0.440	0.164	0.179	7.251	7.271	1.630
4	2018	0.508	0.067	0.197	7.263	7.317	1.597
4	2019	0.443	0.009	0.162	7.341	7.381	1.358
4	2020	0.546	0.003	0.218	7.337	7.404	1.221
5	2013	0.873	0.000	0.499	6.343	5.979	1.334
5	2014	0.851	0.000	0.594	6.404	5.917	1.301
5	2015	0.844	0.000	0.486	6.473	5.908	0.308
5	2016	0.875	0.000	0.451	6.489	5.920	1.088
5	2017	0.891	0.000	0.598	6.519	5.770	0.971
5	2018	0.903	0.000	0.396	6.528	5.877	0.878
5	2019	0.966	0.000	0.420	6.318	5.800	0.992
5	2020	0.923	0.000	0.475	6.366	5.834	1.124

6	2013	0.119	0.430	0.110	7.761	7.771	1.642
6	2014	0.145	0.554	0.112	7.798	7.787	1.561
6	2015	0.199	0.439	0.148	7.826	7.809	1.533
6	2016	0.176	0.348	0.125	7.791	7.808	1.590
6	2017	0.186	0.405	0.121	7.824	7.847	1.518
6	2018	0.164	0.426	0.099	7.853	7.866	1.288
6	2019	0.186	0.417	0.140	7.940	7.917	1.256
6	2020	0.158	0.463	0.094	7.948	7.875	1.139
7	2013	0.348	0.080	0.017	6.909	7.180	0.570
7	2014	0.380	0.106	0.023	6.905	7.231	0.644
7	2015	0.393	0.077	0.023	6.936	7.272	0.542
7	2016	0.395	0.051	0.026	6.964	7.295	0.585
7	2017	0.534	0.034	0.004	7.011	7.291	0.348
7	2018	0.565	0.090	0.039	6.997	7.301	0.478
7	2019	0.569	0.100	0.030	7.027	7.253	0.383
7	2020	0.505	0.069	0.004	7.081	7.245	0.301
8	2014	0.359	0.250	0.087	6.004	6.247	1.121
8	2015	0.439	0.161	0.078	6.123	6.359	1.016
8	2016	0.473	0.169	0.057	6.182	6.406	0.713
8	2017	0.435	0.252	0.016	6.226	6.385	0.683
8	2018	0.442	0.230	0.014	6.265	6.396	0.384
8	2019	0.463	0.263	0.019	6.358	6.385	0.285
8	2020	0.436	0.182	0.026	6.396	6.464	-0.056
9	2013	0.354	0.271	0.088	6.833	6.653	0.794
9	2014	0.306	0.257	0.067	6.897	6.707	0.716
9	2015	0.293	0.267	-0.199	6.923	6.571	0.505
9	2016	0.265	0.370	-0.160	6.878	6.562	0.273
9	2017	0.203	0.487	-0.283	6.847	6.370	0.292
9	2018	0.227	0.538	-0.348	6.820	6.212	0.018
9	2019	0.339	0.301	0.398	6.798	6.200	0.004
9	2020	0.235	0.319	-0.189	6.773	6.242	-0.230
10	2013	0.462	0.234	0.041	6.469	6.713	0.781
10	2014	0.350	0.205	0.003	6.586	6.781	0.835
10	2015	0.298	0.163	0.005	6.657	6.828	0.981
10	2016	0.309	0.141	0.018	6.704	6.866	0.772
10	2017	0.299	0.120	0.030	6.769	6.866	0.987
10	2018	0.188	0.164	0.022	6.738	6.920	1.017
10	2019	0.237	0.145	0.038	6.742	6.935	0.906
10	2020	0.339	0.123	0.065	6.751	6.963	0.682
11	2013	0.439	0.138	0.190	7.208	6.964	0.506
11	2014	0.427	0.167	-0.044	7.196	6.957	0.661
11	2015	0.597	0.131	0.850	7.364	5.925	-0.002

11	2016	0.645	0.104	0.470	7.445	6.948	0.063
11	2017	0.617	0.096	-0.212	7.437	6.841	-0.349
11	2018	0.660	0.114	1.359	7.575	6.715	-0.417
11	2019	0.589	0.151	-1.181	7.563	6.454	-0.447
11	2020	0.533	0.214	-1.119	7.546	6.394	-0.551
12	2014	0.233	0.099	-0.146	5.969	6.085	0.916
12	2015	0.496	0.238	-0.162	6.138	6.051	0.668
12	2016	0.449	0.409	-0.311	6.035	5.743	0.578
12	2017	0.711	0.006	0.785	5.888	5.530	0.796
12	2018	0.763	0.022	-0.462	5.759	5.401	0.563
12	2019	0.443	0.051	-1.592	5.395	5.280	0.968
12	2020	0.204	0.067	-0.517	5.303	5.126	1.098
13	2013	0.563	0.000	0.091	5.836	6.014	1.062
13	2014	0.581	0.000	0.068	5.874	6.145	0.850
13	2015	0.552	0.060	0.109	5.838	5.920	1.202
13	2016	0.508	0.255	0.071	6.271	6.271	0.797
13	2017	0.509	0.180	0.092	6.269	6.162	0.869
13	2018	0.432	0.243	0.108	6.382	6.230	0.717
13	2019	0.472	0.248	0.116	6.369	6.204	0.896
13	2020	0.300	0.452	-0.212	6.389	6.029	0.734
14	2013	0.715	0.008	0.189	7.059	7.126	1.635
14	2014	0.730	0.006	0.184	7.077	7.126	1.618
14	2015	0.701	0.003	0.180	7.104	7.091	1.453
14	2016	0.726	0.000	0.199	7.085	7.054	1.158
14	2017	0.717	0.000	0.123	7.054	7.026	1.286
14	2018	0.703	0.000	0.116	7.049	6.985	1.062
14	2019	0.645	0.000	0.095	7.083	6.957	0.793
14	2020	0.671	0.000	0.007	7.073	6.833	0.433
15	2013	0.503	0.249	0.039	6.557	6.683	0.770
15	2014	0.555	0.253	0.046	6.553	6.680	0.900
15	2015	0.390	0.280	-0.065	6.639	6.652	0.720
15	2016	0.426	0.275	0.041	6.644	6.683	0.486
15	2017	0.360	0.273	-0.045	6.649	6.668	0.831
15	2018	0.418	0.267	0.054	6.670	6.684	0.712
15	2019	0.399	0.272	-0.114	6.552	6.608	0.800
15	2020	0.318	0.252	-0.122	6.546	6.461	0.719
16	2013	0.593	0.109	0.066	7.208	6.833	0.711
16	2014	0.590	0.125	0.026	7.202	6.802	0.614
16	2015	0.612	0.163	-0.045	7.199	6.792	0.459
16	2016	0.437	0.218	0.020	7.230	6.811	0.342
16	2017	0.524	0.256	0.019	7.243	6.807	0.530
16	2018	0.523	0.271	0.027	7.243	6.819	0.380

16	2019	0.512	0.235	0.027	7.255	6.834	0.250
16	2020	0.477	0.316	-0.595	7.238	6.308	0.226
17	2013	0.525	0.068	0.025	6.746	7.154	0.931
17	2014	0.488	0.118	0.027	6.838	7.160	0.692
17	2015	0.115	0.041	-0.265	6.807	7.110	0.707
17	2016	-0.419	0.072	-0.443	6.699	6.806	0.325
17	2017	-0.782	0.558	-0.650	6.636	6.413	0.005
18	2013	0.633	0.027	0.217	7.105	6.584	1.157
18	2014	0.641	0.022	0.122	7.123	6.710	1.116
18	2015	0.702	0.014	0.095	7.096	6.701	0.960
18	2016	0.666	0.013	0.095	7.130	6.684	0.707
18	2017	0.643	0.025	0.116	7.139	6.615	0.719
18	2018	0.589	0.035	0.136	7.159	6.654	0.623
18	2019	0.562	0.000	0.055	7.107	6.458	0.764
18	2020	0.603	0.000	-0.774	6.942	6.350	0.472
19	2013	0.301	0.429	0.318	8.276	7.216	0.247
19	2014	0.307	0.438	0.162	8.398	7.241	-0.019
19	2015	0.413	0.358	0.450	8.535	7.408	-0.226
19	2016	0.470	0.267	0.228	8.565	7.470	-0.407
19	2017	0.486	0.294	0.308	8.577	7.468	-0.418
19	2018	0.501	0.399	0.174	8.579	7.656	0.086
19	2019	0.486	0.352	0.172	8.604	7.662	-0.027
19	2020	0.512	0.353	0.417	8.616	7.645	-0.124
20	2013	0.432	0.349	0.091	8.166	7.680	0.286
20	2014	0.248	0.317	0.103	8.344	7.797	0.072
20	2015	0.223	0.405	0.070	8.440	8.028	0.114
20	2016	0.221	0.383	0.070	8.474	8.035	-0.190
20	2017	0.263	0.357	0.060	8.534	8.082	-0.343
20	2018	0.182	0.340	0.025	8.521	8.119	-0.622
20	2019	0.171	0.340	0.002	8.516	8.124	-0.777
20	2020	0.169	0.338	-0.007	8.512	8.125	-0.989
21	2013	0.385	0.062	0.008	7.602	8.189	0.028
21	2014	0.505	0.226	0.008	7.512	8.232	0.111
21	2015	0.514	0.119	0.012	7.534	8.140	-0.030
21	2016	0.535	0.105	0.020	7.558	8.044	-0.054
21	2017	0.564	0.136	0.020	7.580	8.137	0.035
21	2018	0.577	0.000	0.021	7.594	8.033	0.089
21	2019	0.649	0.020	0.023	7.575	8.049	0.108
21	2020	0.625	0.000	0.050	7.633	7.816	-0.010
22	2013	0.321	0.102	0.087	5.949	5.985	2.376
22	2014	0.675	0.219	0.104	6.083	5.990	2.241
22	2015	0.440	0.270	0.091	6.249	6.065	2.191

22	2016	0.127	0.320	0.076	6.341	6.118	2.000
22	2017	0.263	0.281	0.024	6.371	6.169	1.967
22	2018	0.330	0.225	0.089	6.370	6.174	1.749
22	2019	0.328	0.219	0.078	6.405	6.250	1.723
22	2020	0.301	0.194	0.026	6.426	6.220	1.647
23	2013	0.805	0.000	-0.870	5.699	4.833	1.215
23	2014	0.809	0.000	-0.436	5.649	4.981	1.321
23	2015	0.894	0.000	0.208	5.865	5.006	1.151
23	2016	0.909	0.000	0.004	5.881	5.100	0.968
23	2017	0.922	0.000	0.129	5.965	5.147	0.885
23	2018	0.736	0.000	-0.747	5.957	4.923	0.862
23	2019	0.899	0.010	0.015	5.974	5.254	0.537
23	2020	0.877	0.036	-1.372	5.977	4.687	0.627
24	2013	0.781	0.000	0.119	6.570	6.141	-2.181
24	2014	0.774	0.000	0.095	6.586	6.228	-2.157
24	2015	0.757	0.000	0.185	6.649	6.395	-1.856
24	2016	0.759	0.000	0.212	6.705	6.423	-1.922
24	2017	0.752	0.000	0.210	6.759	6.451	-1.950
24	2018	0.786	0.000	0.153	6.774	6.499	1.010
24	2019	0.808	0.000	0.247	6.810	6.461	1.013
24	2020	0.806	0.000	0.172	6.839	6.557	1.015
25	2013	0.618	0.000	0.036	6.318	6.543	0.436
25	2014	0.716	0.000	-0.019	6.285	6.076	0.444
25	2015	0.607	0.000	-0.021	6.297	6.031	0.409
25	2016	0.616	0.000	0.088	6.331	6.082	0.460
25	2017	0.609	0.000	-0.040	6.308	6.111	0.483
25	2018	0.672	0.000	0.116	6.396	6.155	0.395
25	2019	0.722	0.000	-0.088	6.308	6.153	0.488
25	2020	0.735	0.000	0.017	6.288	6.055	0.497
26	2013	0.759	0.000	0.274	5.535	5.018	2.370
26	2014	0.743	0.000	-0.004	5.530	4.965	2.564
26	2015	0.889	0.000	0.105	5.456	5.088	2.785
26	2016	0.829	0.000	-0.331	5.395	5.017	2.536
26	2017	0.717	0.000	-0.275	5.418	4.905	1.661
26	2018	0.720	0.000	0.023	5.429	5.037	1.651
26	2019	0.823	0.000	0.021	5.372	4.959	1.661
26	2020	0.831	0.000	-0.038	5.361	4.985	1.575
27	2013	0.694	0.019	0.033	6.957	6.450	0.525
27	2014	0.796	0.000	0.016	7.174	6.441	0.332
27	2015	0.821	0.000	0.395	7.205	6.445	0.366
27	2016	0.808	0.000	0.213	7.226	6.553	0.389
27	2017	0.858	0.008	0.081	7.120	6.623	0.661

27	2018	0.874	0.000	0.084	7.113	6.546	0.544
27	2019	0.879	0.008	-0.121	7.167	6.446	0.419
27	2020	0.895	0.000	0.003	7.164	6.618	0.484
28	2013	0.730	0.001	0.245	6.904	6.543	0.697
28	2014	0.737	0.021	0.211	6.932	6.546	0.774
28	2015	0.609	0.027	-0.088	6.932	6.413	0.769
28	2016	0.600	0.023	-0.135	6.951	6.530	0.555
28	2017	0.580	0.019	0.198	6.922	6.534	0.583
28	2018	0.698	0.010	0.126	6.978	6.600	0.441
28	2019	0.764	0.005	-0.051	6.918	6.528	0.470
28	2020	0.777	0.000	0.045	6.898	6.487	0.460
29	2013	0.363	0.161	0.045	6.839	6.849	0.017
29	2014	0.298	0.061	0.034	6.911	6.919	0.364
29	2015	0.305	0.348	0.001	6.954	8.052	0.252
29	2016	0.292	0.362	0.001	6.987	8.087	0.079
29	2017	0.329	0.383	0.008	6.967	6.984	-0.031
29	2018	0.354	0.337	0.022	7.007	7.003	-0.072
29	2019	0.307	0.396	0.015	7.071	7.076	-0.053
29	2020	0.331	0.310	0.023	7.076	7.083	-0.130

APPENDIX IV: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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