THE MODERATING EFFECT OF OPERATING CASH FLOWS ON THE INFLUENCE OF FIRM FINANCIAL CHARACTERISTICS ON LEVERAGE OF NON-FINANCIAL FIRMS LISTED AT NAIROBI SECURITIES EXCHANGE

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(Finance)

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

2020

The Moderating Effect of Operating Cash Flows on the Influence of Firm Financial Characteristics on Leverage of Non-Financial Firms Listed at Nairobi Securities Exchange

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A Thesis Submitted in Partial Fulfilment for the Degree of Doctor of Philosophy in Finance in the Jomo Kenyatta University of Agriculture and Technology

2020

DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

Signature, …… Date, …….

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This thesis has been submitted for examination with our approval as university supervisors.

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DEDICATION

The research thesis is dedicated to my family. To my late grandfather who spotted the gem in me when I was a little girl.

ACKNOWLEDGEMENT

To my supervisors Prof Willy Muturi and Dr Olouch Olouch thank you for the support you accorded me in the course of the research. To my family members, thank you for moral and financial support in the course of my education. To my fellow class mates thank you for the company. To management of JKUAT thank for providing an environment for research and academic pursuance.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICIES

LIST OF ABBREVIATIONS AND ACRONYMS

ADF	Augmented Dickey Fuller
ANOVA	Analysis of Variance
ASEA	Association of Securities Exchange in Africa
CA	Current Assets
CAP	Market Capitalization
CF	Cash Flow
DTA	Total Debt to Total Assets
EBIT	Earnings before Interest and Taxation
EGLS	Estimated Generalized Least Squares
EPS	Earnings per Share
EVA	Economic Value Added
FFC	Firm Financial Characteristics
FGLS	Feasible Generalized Least Squares
FGLS	Feasible Generalized Least Squares
G	Growth Opportunities
GCF	Growth Opportunities*Cash Flows
GLM	Generalized Least Model
GMM	Generalized Methods Moments
LRT	Likelihood Ratio Test
LTA	Long term Debt to Total Assets
MM	Modigliani and Miller
NCA	Non-Current Assets

NSE	Nairobi Securities Exchange
OCF	Operating Cash Flows
OLS	Ordinary Least Squares
P	Profitability
PCF	Profitability*Cash Flows
ROE	Return on equity
S	Firm Size
SCF	Firm Size*Cash Flows
SMEs	Small and Medium Enterprises
STA	Short term Debt to Total Assets
T	Tangibility
TA	Total Assets
TCF	Tangibility*Cash Flows
TSE	Tehran Securities Exchange
VIF	Variance Inflation Factors
VIFs	Variance Inflation Factors
WACC	Weighted Average Cost of Capital

DEFINITION OF KEY TERMS

Firm size	The total amount of sales volume generated by a business during the calculation period (Mahnazmahdavi, Mokhtarbaseri, Zare & Zare, 2013).
Growth Opportunities	Growth opportunities indicate the firm's ability to develop its business in the future (Thippayana, 2014; Acaravci, 2015).
Leverage	Leverage refers to the proportion of debt to equity in the capital structure of a firm (Harc , 2015; Degryse et al. 2010)
Operating Cash Flows	Operating cash flows is a measure of the amount of cash generated by a company's normal business operations (Mosavi et al., 2014).
Profitability	Refers to the ability of a business entity to generate earnings as compared to its operating expenses and all other relevant costs incurred during a specific time period (Pandey, 2009)
Tangibility of Asset	Tangibility of asset refers to the ratio of non-current assets to total assets (Harc, 2015; Mwangi & Birundu 2015; Olankule & Oni, 2014)

ABSTRACT

Whereas leverage as a source of financing is expected to influence financial management decisions, it is not clear whether and how firm financial characteristics do influence leverage decisions of non-financial firms listed at the Nairobi Securities Exchange. This lack of clarity emanates from confounding theoretical and empirical literature. Even though leverage has been adopted by both listed and non-listed companies, there are disparities in findings of empirical enquires on the interrelationship between firm financial characteristics and leverage. The general objective of this study was to establish of the effect of firm characteristics on leverage of non-financial firms listed at the Nairobi Securities Exchange. Five specific objectives were used as a basis of making conclusions of the study. Firm financial characteristics used in the study are tangibility of assets, profitability, firm size and growth opportunities. Moderating effect of operating cash flows on firm financial characteristics and leverage was evaluated. Theories used in the study include Modigliani and Miller capital structure irrelevance theory, trade-off theory, pecking order theory, market timing theory and free cash flows theory. Causal or explanatory research design was used. Target population consisted of 51 non-financial firms listed at the NSE over the period 2008-2016 and a census of all the 51 listed non-financial companies was used. Data was analyzed by use of descriptive statistics, correlation analysis and multiple regression analysis. The regression coefficients were tested for significance using t-statistics at 5% confidence level. Diagnostic tests conducted included auto correlation, multicollinearity, heteroscedasticity, stationarity, fixed and random effects, granger causality and normality. The study found out that 42.47%, 35.14% and 56.9% of variations in short term debt to total assets, long term debt to total assets and total debt to total assets respectively were accounted for by asset tangibility, profitability, firm size and growth opportunities. The study found that tangibility of assets had significant influence on short term to total assets, long term debt to total assets and total debt to total assets of listed non-financial listed firms at NSE. Further, profitability was found to have significant influence on short term to total assets. There was insignificant influence of profitability on long term to total assets and total debt to total assets respectively. On the influence of firm size on leverage, the study found significant effect on short term debt to total assets, long term debt to total assets and total debt to total assets of listed non-financial companies in NSE respectively. Growth opportunities had insignificant effect on short term debt to total assets, long term debt to total assets and total debt to total assets of listed non-financial companies in NSE. Operating cash flows had insignificant moderating influence on firm financial characteristics and leverage of listed non-financial companies in NSE. The study was limited to listed non-financial companies which may have limited the population. This was mitigated through use of data for nine years amongst the companies that were listed for at least three consecutive years within period under examination.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In financial management, an organization is always concerned about four major issues which are sources of finance, uses of finance, investment decisions and working capital management (Mwangi, 2016). Although all of them are important, leverage decision, which is a subset of sources of finance is more paramount for those companies operating in developing economies due to low levels of listing (Alghusin, 2015). Financial leverage decision is pivoted on stability levels of social, both political and economic environment in which the company operates (Shubita & Alsawalhah, 2012).

Listed and non-listed institutions are always in need of finances geared towards enhancing their firm performance which has a pivotal role on the relationship they will enjoy internally and externally (Ezeoha, 2008; Hasannejadneisi, Mazraeh & Mousavi, 2013). During credit evaluations, financial institutions should endeavor to finance those companies with sufficient collateral security and large firms with huge sales and high profits since they have lower chances of bankruptcy and financial distress and have diversified their investment portfolio as compared to smaller companies (Hasannejadneisi et al., 2013). Empirical examination showed that firm characteristics have positive, negative or no effect on its stakeholders (Hussan, 2016; Ikechukwu & Madubuko, 2016; Kayo & Kimura, 2016). Moreover, with recent globalization, trends both local and multinational companies have continuously expanded their sizes, profitability, operating cash flow and growth opportunities as an indication of corporate roles which they have to play and hence the benefits accrued from increased size and profitability (Ezeoha, 2008).

Although there have been intensified debate in finance theory concerning capital structure among the various stakeholders, there is no universally acceptable optimal level of debt and no solution expected in the near future (Myers, 2001). Theoretically leverage financing can be broadly classified according to static trade off and pecking

order theories (Myres, 2001). Static trade-off argues that firm optimal leverage is influenced by the weighted financial distress costs, tax benefits and adjustment costs associated with use of debt. In contrast, pecking order theory assumes that leverage is associated with levels of information asymmetry and transaction fees (Akhtar, 2005). Internal sources of finance are preferred before seeking external sources. The safest securities are considered first before other debts since they do not distort investment decisions and they have low levels of information asymmetry (Wahome, Memba & Muturi, 2015).

1.1.1 Firm Financial Characteristics

Firm financial characteristics are those unique features which are used to differentiate one firm from another (Wahome et al., 2015). Firm financial characteristics have impacted internal and external stakeholders (Ezeoha, 2008). Indeed, these attributes are the yardstick against which companies are evaluated during credit appraisal. Baloch, Ihsan and Kakakhel (2013) argued that firm size has significant effect on leverage because as firm size increases the level of voluntary disclosure increases, portfolio diversification increases and probability of default and financial distress costs is reduced. In contrast small firms which have higher levels of moral hazard and adverse selection, poorly kept books of accounts and volatile cash flow problems due to conflict of interest with the owners are rarely financed using debt financing (Baloch et al., 2013). As the firm size increases there are more prospects for superior performance due to elaborate mechanisms for working capital management. This ultimately lowers borrowing costs and increases both short- and long-term liabilities (Ikechukwu & Madubuko, 2016).

According to Abbasi and Delghandi (2016), increased asset tangibility amplifies debt uptake due to access to collateral. This is incongruence with static trade off theory which supports decreased likelihood of default with increase in asset tangibility (Frank & Goyal, 2009). Further, Mwangi and Birundu (2015) argued that there is positive and significant effect of asset tangibility and financial distress. This lower borrowing costs due to firm's capacity to dispose of assets and offset any nonperforming debt.

Growth opportunities show the ability of a firm to develop its business in the future (Thippayana, 2014). Moreover, there is positive causality between growth opportunity and demand for more capital to finance competing projects. Consistent with the pecking order theory, Vergas, Cerqueira and Brandao (2015) reported negative causality between growth opportunity and leverage in Portugal.

Profitability indicates the firm's ability to exceed their operational costs as compared to its investment (Sarlija & Harc, 2012). Further, it depicts firm's capacity to survive in turbulent operating environment (Shubita & Alsawalhah, 2012). There are two schools of thoughts in relation to effect of profitability and leverage. The static trade-off theory posits negative causality between financial distress and profitability, hence increased likelihood of financial leverage. Therefore, profitable finance their needs through debt financing to maximize of interest tax shield benefits (Mwangi, 2016). Pecking order theory indicates a negative relation between leverage and profitability (Kayo & Kimura, 2011). On the other hand, profitable firms with large amounts of operating cash flows meet their financial needs from internal sources thus decreased demand for leverage (Tong & Green, 2005).

Moreover, operating cash flow has mimicked similar results with some positive and others negative for example Mosavi, Karimipoua, Zarei and Heidari, (2015) reported positive effect. Abbasi and Delghandi (2016) reported a significant inverse correlation between profitability and leverage while tangibility of asses had a positive significant relationship for the companies listed at the Tehran's Stock Market. Even though, there are many firm financial characteristics this study will be limited to tangibility, growth opportunities, firm size, profitability since there have persistently documented the highest contribution power on examination of their co-movement with leverage (Wahome et al., 2015; Hasannejadneisi et al., 2013; Alghusin, 2015).

1.1.2 Firm Leverage

Leverage is firm financing using borrowed funds which are pegged on its capacity to regularly service it (Harc, 2015). Use of debt financing is anchored on firm's capacity to invest it on projects which will generate returns greater than its interest

charges deduction. Global and local statistics show that debt financing is preferred in different levels. For example in Nigeria listed firms the ratio of total debt to total assets is 71%, short-term debt to total assets is 65% and long-term debt to total assets is 6% (Ezeoha, 2008), in Ghana manufacturing listed firms the leverage ratio is 35% (Acheampong, Agalega & Shibu, 2014), an emerging market case study in Pakistan among non-financial listed firms recorded 56% for small enterprises, 59% for medium enterprises and 56% for large enterprises (Qamar, Farooq & Akhtar, 2016).

Further, listed industrial companies in Jordanian registered 38% debt ratio (Nawaiseh, 2015). A case for manufacturing companies in Dhaka showed that debt to equity ratio was 34%, in Croatia small and medium enterprises have 72% of total liabilities, 14% of long-term liabilities and 58% of short-term liabilities (Harc, 2015). In Kenya the use of debt by financing by SMEs is an average of 46% (Mwangi & Birundu, 2015) and amongst listed companies it accounts for 18% for long term debt and 29% for short term debt (Mwangi, 2016).

1.1.3 Global Perspective of Firm Financial Characteristics and Leverage

Ambivalent studies have documented inconsistent findings on nexus between firm financial characteristics and leverage. Bereznicka (2013) in European countries as well as Vergas, Cerqueira and Brandão (2015) reported positive relationship between tangibility of assets and leverage in Portugal. At Karachi Securities Exchange, Badar and Saeed (2013) and Mahnazmahdavi et al. (2013) reported an insignificant relationship between firm size and leverage. There have been inconsistent findings on the effect of growth opportunities and leverage of listed companies for example Acaravci (2015) reported positive and significant effect while Thippayana (2014) reported no significant relationship. Further, similar trends have been reported on the nexus between profitability and leverage with Kayo and Kimura (2011) registering inverse relationship while Hussain, Shahid and Amkal (2016) found positive relationship.

Moreover, operating cash flows has mimicked similar results with some positive and other negative for example Mosavi et al. (2014) reported positive effect. Abbasi and Relghandi (2016) reported a significant inverse correlation between profitability and

leverage while tangibility of assets had a positive significant relationship for the companies listed at the Tehran's Stock Market. These inconsistencies may be attributed to contextual and theoretical differences which called for localized study to investigate influence of firm financial characteristics on leverage of listed companies in NSE.

1.1.4 Regional Perspective on Firm Financial Characteristics and Leverage

An empirical examination of leverage in developing economies revealed that on average listed companies in Africa had `18% of long-term debt (Chen & Chen, 2014). According to Ezeoha (2008) firm leverage in developing countries is a factor of firm size, tangibility, profitability, growth opportunity and initial leverage. Also, there are external determinants of leverage which include individualism, uncertainty avoidance, no unilateral reorganization, management replacement, corruption, secured first and law enforcement (Acheampong et al., 2014)

Although manufacturing companies listed in Nigeria have adopted use of leverage, there is need to exercise caution since it has negative influence on their financial performance (Ezeoha, 2008). A South African case by Gwatidzo and Ojah (2009) reported inverse relationship between profitability and leverage amongst listed companies in South Africa. An examination of leverage in the insurance sector in Ethiopia brought forth by Getahun (2014) found that 52% of the insurance finance was raised through debt financing. In addition, leverage was negatively influenced by growth opportunities, firm size, operating cash flows and business risk and it had positively impacted by tangibility.

1.1.5 Local Perspective on Firm Financial Characteristics and Leverage

There is extensive empirical literature on capital structure globally, regionally and locally, of which these studies have explored factors affecting capital structure (Mwangi, Makau & Kosimbei, 2014). Notable findings are that there is lack of findings congruence, Mwangi and Birindu (2015) reported inverse and significant influence of asset tangibility on financial leverage. Wahome et al. (2015) found positive and significant relationship between firm size and capital structure among

insurance companies in Kenya. They further reported positive and significant relationship between growth opportunities and leverage.

Chesang and Ayuma (2016) reported inverse and significant relationship between profitability and leverage for listed agricultural companies at the NSE. Findings by Gathogo and Ragui (2014) reported a positive and insignificant relationship between growth opportunities and leverage for non-listed small and microenterprises in Kenya. Githira and Nasieku (2015) reported a positive insignificant relationship between growth, profitability and firm size and capital structure while asset structure was reported to have an inverse relationship for firms quoted in the East African Securities Exchange. Tarus, Chenous and Biwott (2014) reported inverse significant relation between liquidity and leverage for Kenyan listed firms. There are anticipated variations on the effect of firm characteristics on leverage globally and locally owing to financial market development stages.

1.1.6 Nairobi Securities Exchange

Securities exchanges have greater role to play in regard to economic and social development in both developed and developing economies (Padaya, 2016). They are supposed to act as a medium through which both deficit and surplus financial units are able to raise finances to fund their growth opportunities, provide currency market, facilitate public and private investment and provide debt funding platform (Mwangi, 2016). Although African bond and equity markets are still under developed as compared to European, American, Asian and Australian securities markets, there is need to improve securities liquidity which is hindering the development (Association of Securities Exchange in Africa, ASEA, 2014).

There has been a continued metamorphosis from informal, manual to automated trading system at Nairobi Securities Exchange. In 1954 NSE was constituted as a voluntary association of stock brokers under societies Act (NSE, 2016). The bourse has grown in leaps and bounds in its trading volume. The market capitalization has increased to beyond Kshs. 2.2 trillion with 68 firms listed in 12 heterogeneous market segments (NSE, 2016). Further, 20 NSE share index has exceeded 5000

points which can be perceived as huge capital mobilization. The bond market has also been on upward trend at more than Kshs 500 billion (NSE, 2016).

To propel securities trading and promote investors' confidence Capital Market Authority (CMA) was formed in 1990 (NSE, 2017). Its creation has promoted efficiency in trading and development of orderly trading platform. Investors' confidence has been promoted through investors loss cushioning. Information communication and technology has too been incorporated in trading platform through creation of Central Depository System (CDS) and it have improved speed of trading transactions (NSE, 2013).

Nairobi Stock Exchange transitioned to Nairobi Securities Exchange in 2011 as strategic positioning avenue which supported clearing, settlement and trading of financial assets such as equity, bonds and derivatives (NSE, 2016). This market is mainly mandated to promote resources mobilization, provide alternative investment avenues, support real estate investment and promote economic development. Through, it there is sustained financial sector deepening and inclusion, through floatation of public and private entities (NSE, 2016).

1.2 Statement of the Problem

Whereas leverage as a source of financing is expected to influence financial management decisions, it is not clear whether and how firm financial characteristics influence leverage decisions of non-financial firms listed at the Nairobi Securities Exchange. This lack of clarity emanates from confounding theoretical and empirical literature. Even though leverage has been adopted by both listed and non-listed companies, there are disparities in findings of empirical enquiries on the interrelationship between firm financial characteristics and leverage. Empirical findings (Bereznicka, 2013; Olakunle & Oni, 2014; Mahnazmahdavi et al., 2013) found a positive and significant effect of firm size on financial leverage while (Hussan, 2016; Tai, 2017) reported an inverse effect of firm size on leverage. Hussain, Shahid and Amkal (2016) reported positive correlation between profitability and leverage. In contrast, Chesang and Ayuma (2016); Addae, Nyarko-Baasi and Hughes (2013) found significant inverse correlation between profitability

and leverage. On growth opportunities, Acheampong et al. (2014) indicated positive relation with leverage while Abdullah, Parvez, Karim and Tooheen (2015) found inverse significant relationship. Mwangi and Birindu (2015) reported asset turnover and asset tangibility as having an inverse insignificant relationship with leverage while capital structure and profitability had a positive relationship.

Moreover, most of these studies are limited to specific sectors for example Acheampong et al. (2014) studied manufacturing, Badar and Saeed (2013) analyzed food sector while Mwangi and Birundu (2015) studies small and micro enterprises. The applicability of these findings could be limited to their respective sectors since there are unique risks and features which may influence financial decisions. Even though, studies reviewed have adopted the use of panel data analysis technique, some studies did not report diagnostic tests hence there are high chances of drawing biased conclusions (Pandey & Prabhavathi, 2016; Hussain et al., 2016; Mwangi & Birundu, 2015). Further, studies reviewed have not considered the moderating effect of operating cash flows, yet it is anticipated to influence the relationship.

There were notable conceptual, contextual, methodological and timely gaps emanating from past studies. Contextually studies were undertaken in different sector as compared to this study with study that considered listed non-financial companies. Conceptually, most studies considered direct influence of firm financial characteristics on leverage of listed companies this study explored the influence of tangibility, profitability, firm size and growth opportunities on leverage and moderating effect of operating cash flows. Methodologically, past studies had adopted ordinary least squares modelling in absence of examining classical regression assumptions. This study adopted feasible generalized least square models on panel data of listed companies in 2008 to 2016.

1.3 Research Objectives

1.3.1 General Objective

The main objective of the study was to examine the influence of firm financial characteristics on leverage of non-financial firms listed at Nairobi Securities Exchange.

1.3.2 Specific Objectives

Specifically, the study was guided by the following objectives;

i. To determine the influence of tangibility of assets on leverage of non-financial firms listed at Nairobi Securities Exchange.
ii. To examine the influence of profitability on leverage of non-financial firms listed at Nairobi Securities Exchange.
iii. To establish the influence of firm size on leverage of non-financial firms listed at Nairobi Securities Exchange.
iv. To find out the influence of growth opportunities on leverage of non-financial listed firms at Nairobi Securities Exchange.
v. To evaluate the moderating effect of operating cash flows on the influence of firm financial characteristics on leverage of non-financial firms listed at Nairobi Securities Exchange.

1.4 Hypotheses of the Study

The study was guided by the following hypotheses,

H_{01}, There is no significant influence of tangibility of assets on leverage of non-financial firms listed at Nairobi Securities Exchange.

H_{02}, There is no significant influence of profitability on leverage of non-financial firms listed at Nairobi Securities Exchange.

H_{03}, There is no significant influence of firm size on leverage of non-financial firms listed at Nairobi Securities Exchange.

H_{04}, There is no significant influence of growth opportunities on leverage of non-financial firms listed at Nairobi Securities Exchange.

H_{05}, There is no significant moderating influence of operating cash flows on the effect of firm financial characteristics on leverage of non-financial firms listed at Nairobi Securities Exchange.

1.5 Significance of the Study

The study was motivated by the issues raised in the background and problem statement. Therefore, the findings yielded benchmarking information for theorists, empirical scholars, investors, investment advisors and relevant authorities as follows, To theorists and empirical researchers, it provided theoretical and empirical methods which can be applied on a wide variety of financing problems. It is likely to also serve as a basis of further undertaking further studies as well as critique to existing ones. The study bridged theoretical and empirical gaps. This study attempted to not only look at the financing behaviour of the firms given the difference in their size and the level of tangibility of their assets but also attempted to look at the role of profitability and growth opportunities in order to determine the effect of these driving factors in determining the leverage ratio of the firm.

To the management, if positive and significant influence of the determinants of leverage were reported then the management would be encouraged to foster measures towards reaping maximum benefits from borrowed capital. They may also be interested in examining the causal effect of tangibility, profitability, growth opportunities, firm size and leverage so as to optimize allocation of borrowed capital.

To current and potential investors, they are likely to examine the investment combination which would ultimately maximize their returns from borrowed capital. Moreover, it is likely to be used as a yardstick which respective manager's performance can be ranked and corrective measures taken to protect and maximize shareholders returns. To investment advisors they are likely to evaluate the optimal leverage decision which can be used by a firm as influenced by its tangibility, profitability, growth opportunities, firm size as well as moderating effect of operating

cash flows. Moreover, they may acquire new knowledge and understanding that is likely to be of more value when developing investment portfolios, geared towards maximizing returns and minimizing risk to their clients.

Both market regulators and policy analyst are likely to benefit from the study findings since they may understand the granger causality of firm financial characteristics and leverage which is likely to act as a yard stick for developing policy and laws guiding on optimal borrowing policy.

1.6 Scope of the Study

The study focused on listed companies that had traded for at three consecutive years at the NSE for the period 2008- 2016. At the closure of business in December 2016, there were 51 non-financial firms listed firms at the NSE (NSE, 2016). The choice of listed companies was guided by the guarantee which comes with accuracy, reliability and authenticity of audited financial reporting as a statutory requirement (Mwangi, 2016). The study was a census of 51 listed non-financial companies as shown in appendix I. Non-financial listed companies' capital is market driven as they do not have any regulations for their minimum capital requirements hence the findings are likely to have different leverage levels (Mwangi, 2016).

In terms of theoretical scope, the study was be guided by MM dividend irrelevance theory, trade off theory, pecking order theory, market timing theory and free cash flows theory. The study was limited to effect of tangibility, profitability, growth opportunities, firm size and the moderating effect of operating cash flow on leverage. Although, there are other factors which have effect on leverage, the current study was limited to the aforementioned since studied in different combinations, past empirical studies have revealed that these factors have more explanatory power in relation to leverage (Harc, 2015; Olakunle & Oni, 2014; Abdullah, Parvez, Karim & Tooheen, 2015; Mahnazmahdavi et al., 2013).

1.7 Limitations of the Study

Although, there are several firm financial characteristics the current study conceptualized direct influence of asset tangibility, growth opportunities, firm size and profitability on leverage. Further, moderating effect of operating cash flows was explored. Although, there are were other measures of firm financial characteristics the selected attributes had the highest influence as supported by existing empirical literature which was skewed on global and regional economics.

The study was limited to listed non-financial companies which may have limited the population. This was mitigated through use of data for nine years amongst these companies and inclusion of even those companies which were listed for at least three consecutive years within period under examination.

Theoretical the study was limited to Modigliani and Miller capital structure irrelevant theory, trade off theory, pecking order theory, market timing theory and free cash flow theory. Although, each of these theories had weakness, their strengths surpassed owing to continued theoretical development as supported by empirical evidence.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter deals with the review of literature on tangibility, profitability, firm size, growth opportunities, operating cash flows and leverage. From empirical review knowledge gaps from past studies will be identified and approaches on how to bridge them will be discussed. Further, theoretical foundations will be discussed and it will form foundations of the study. Conceptual and operationalization of study will be discussed.

2.2 Theoretical Framework

The study is grounded on relevant theories drawn from corporate finance literature. These include the Modigliani and Miller capital structure irrelevance, trade-off, pecking order, and market timing and free cash flows theories.

2.2.1 Modigliani and Miller Capital Structure Irrelevance Theory

Modigliani and Miller (1958) demonstrated that in a fully efficient market in which there are no taxes, transactions or bankruptcy costs and that there is abundant information at the disposal of all parties. The value of firm is not dependent on leverage because every firm's investment decision is solely dependent in the choice of their asset class. To attain financing optimality then a balance between interest costs and floatation cost associated with issuing new debt. Further, they purported that profitability and risk are firm value determinants and not capital structure. Indeed, investment decision is mainly determined by the arbitrage opportunities which exist in any viable investment opportunity. Therefore, investors will tend to dispose share of highly valued entities and invest in under-priced companies (Mwangi, 2016).

Due to investors' rationality behaviour Modigliani and Miller (1958) purported that there exists an inverse relationship between cost of equity and gearing ratio and the investors are unwilling to take any risk which they cannot be compensated. In case when tax rate is zero, then it will be hard for any firm to obtain optimal capital structure. Further, Alifani and Nugroho (2013) argued that there are high chances of using debt financing because of the advantages associated with corporate taxes.

The theory is not void of criticism more so because of the assumptions in which the theory is based on. In fact, it is so hard to have an operating environment void of transaction costs, bankruptcy costs and agency conflicts (Luigi & Sorin, 2009; Mwangi, 2016). The theory is appropriate for the study because there is need to evaluate the value of firm in regard to financing choice. Indeed, an increase in market to book value ratio of listed companies may trigger increase in firm value and consequently enhance firm's ability to borrow.

2.2.2 Trade-off Theory

According to this theory proposed by Myers and Majluf (1984), there is need to evaluate the balancing point between debt and equity financing as such to benefit from tax shield benefits and eliminate possibilities of bankruptcy and financial distress costs. Indeed, they reported an inverse relationship between debt financing and bankruptcy costs. According to Graham (2003) it was pointed that the motivation behind debt financing is the anticipated benefits to be drawn from interest tax shield.

A study by Bhaduri (2002) reported positive relationship between tax shield benefits and debt financing. Indeed, an increase in asset base increases collateral security which enables an organization to use more debt. Moreover, the study purported that product diversification minimizes the possibilities of debt financing since there are possibilities of increased sales revenue which may signal increased profitability. Brierley and Bunn (2005) refuted this claim and argued that gearing ratio is dependent on anticipated tax shield benefits and the positive relationship between gearing and size can be explained by ability of large firms to generate superior revenues which minimizes earnings volatility.

Empirical proponents of trade-off theory such as Nengjiu, Robert, Allen and Michael (2005) argue that the theory is appropriate in determining a firm's capital structure. They posit that beside tax rate, underlying firm exposure, debt life cycle, debt covenants and type and possibilities of bankruptcy all have to be included when considering the mode of financing.

The major shortcoming of this theory is inability of developing economies capital markets to clearly categorize distressed and non-distressed companies due to limited information access (Mwangi, 2016). The theory is appropriate for the study since there is need for clear understanding of listed company's asset value since this would minimize possibilities of under or over valuation and ultimately optimize organization capacity to borrow.

2.2.3 Pecking Order Theory

This theory was brought forth by Myers (1984) and it stipulates that there is always a financing pattern which is followed commencing from internal financing, debt financing and finally issue of external equity. According to Donaldson (1961) internal equity is more preferred because an organization always wishes to minimize flotation costs which are associated with external financing. The preference for external finance rather than issue new equity is based on the fact that issue of new debt attracts lower flotation costs compared to the later (Myers, 1984; Myers & Majluf, 1984).

A UK case which drew 3500 unquoted SMEs by Hall, Patrick, Hutchinson and Michaelas (2000) reported inverse profitability influence on current liabilities. Moreover, the age of the firm had influence on leverage decision whereby older and young firms had negative influence on financing decision. In a subsequent study by Hall et al. (2004) it was asserted that leverage decision is dependent on firm's ability to generate revenue therefore those which were generating more had lower chances of borrowing. According to Myers (2001) those companies which have potential of making huge revenue will be more likely to rely on internally generated resources to finance their financial needs.

Although, some empirical enquiries had supported superiority of pecking order theory, Fama and French (2002) supported inverse relationship between profitability and leverage but disclaimed the findings because; increased profitability can signal investment opportunities and there are chances of increased fixed cost. Indeed, whenever a firm generates more revenue it is easier to offset debt. In contrast a study by Fama and French (2005) revealed that most of the firms which were listed in 1973-2002 violated the applicability of pecking order financing model and opted for equity financing. In fact, Frank and Goyal (2003) proved that in America it is not possible for listed companies to fully satisfy their financing needs using internally generated funds and they opt for debt financing.

There is preference for equity financing against debt financing, since the level of information asymmetry associated with debt financing are higher as compared to equity financing (Fama & French, 2005). Indeed, firms have recently opted for employees share ownership schemes and right issues. This is to minimize the possible of ownership structure changes. Mwangi (2016) argued that there are low chances of breaching information grip while issuing new shares or rights issues as compared to debt financing which may attract binding covenant. The theory is appropriate for the study since the study seeks to examine the moderating of operating cash flow on the influence of firm financial characteristics on leverage decision.

2.2.4 Market Timing Theory

It was proposed by Baker and Wurgler (2002) and it states that when seeking financing, firms prefer external equity when the cost of equity is low and prefer debt otherwise. The theory support equity issues timing period and it assume that companies will always issue equity in bullish and repurchase in the bearish market (Mwangi, 2016; Mostafa & Boregowda, 2014; Luigi & Sorin, 2009). Leverage decisions are mostly dependent in fluctuations of stock prices. Indeed, most of the firm's issue equity when they perceive it to be cheaper against debt financing.

There are two schools of thought in equity market timing theory (Myers & Majluf, 1984). One is the dynamic version which support rational investment behaviour portrayed by both investors and managers and board of directors and the other that perceives investment decisions as being made irrationally (Myers & Majluf, 1984). Barker and Wurgler (2002) brought forth the argument of rationality by evaluating market to book ratio and they reported significant positive relationship whereby high leverage characterized high market to book ratio. Moreover, equity issue was perceived to signal positive information to members of the public and consequently minimize the level of information asymmetry. According to Luigi and Sorin (2009) there is an inverse significant relationship between information asymmetry and stock price. Moreover, they posited that the timing is customized to every firm, it is not constant and has inverse effect on market to book ratio.

Secondly, the theory perceives investment decision to be made irrationally by both investors and managers. This decision is influenced by timing and is characterized by mispricing of securities (Mwangi, 2016; Luigi & Sorin, 2009; Baker & Wurgler, 2002). In fact, the market is perceived to inefficient and does not detailed stock evaluation in order to make an investment decision (Luigi & Sorin, 2009). Indeed, market to book ratio evaluation approach is just as avenue by managers to misevaluate investment opportunity (Baker & Wurgler, 2002). The theory is appropriate for the study since market capitalization is dependent in the changes in market price per share. Therefore, an increase in stock prices can be perceived as an indicator of superior growth opportunities.

2.4.5 Free Cash Flows Theory

This theory was documented by Jensen (1986). It argues that corporation management portrays behaviours which conflict wealth maximization principle. Managerial objectives may be geared towards satisfaction of their egos, this will conflict profit maximization and escalate agency costs. According to Jensen and Meckling (1992), increased monitoring and agency costs would minimize likelihood of pursuing of spending cash flow to invest in projects aimed at generating positive income. Corporate investment in project in need of huge cash demands postponed or

foregoing opportune investment opportunities (Davis, Schoorman & Donaldson, 1997). These investments opportunities may lead to massive losses if proper due diligence had not been pursued prior to investment.

Titman and Wessels (1988); Murrali and Welch (1989) expressed that growth firms, in comparison with non-growth firms, showed a lower level of debt to decrease their reliance on external financing, which is expensive. The results of this research show that the shareholders of these firms respond negatively to debt announcement and this reaction leads to the negative reaction of the market against debt announcement.

Tsui, Jaggi and Gul (2001) state that in firms with high growth opportunities in which the managers' activities cannot be observed, the possibility of the occurrence of opportunistic behaviors will be more. In this case, the results of the research performed by Ferguson and Taylor (2007) proved that the firms with high free cash flows and high growth opportunities have high auditing fees as well. Pinkowitz, Stulz, and Williams (2006) indicate in a nationwide study that with agency costs of free cash flow present, cash belongings are valued at a discount and value of this firm discount is even more announced in countries having poor investor protection, therefore stockholders own limited power in disciplining management.

The theory is necessary for the study since there is need for adoption of free cash flow strategies aimed at profiting and controlling managerial opportunistic behaviours. Investment in profitable opportunities would maximize shareholder's wealth and nurturing of opportunistic managerial tendencies would eradicate value to be gained from any investment project.

2.3 Conceptual Framework

A schematic framework showing the relationship between study variables is known as conceptual framework (Kothari, 2011). Further, Sekaran and Bougie (2013) argued that a clearly laid down conceptual framework can elaborate the nexus between the study variables. Figure 2.1 shows the conceptual framework in which the effect of firm characteristics on leverage is depicted. In this study, firm characteristics operationalized as tangibility of assets, firm size, growth opportunities

and profitability. This relationship is moderated by individual company's operating cash flow.

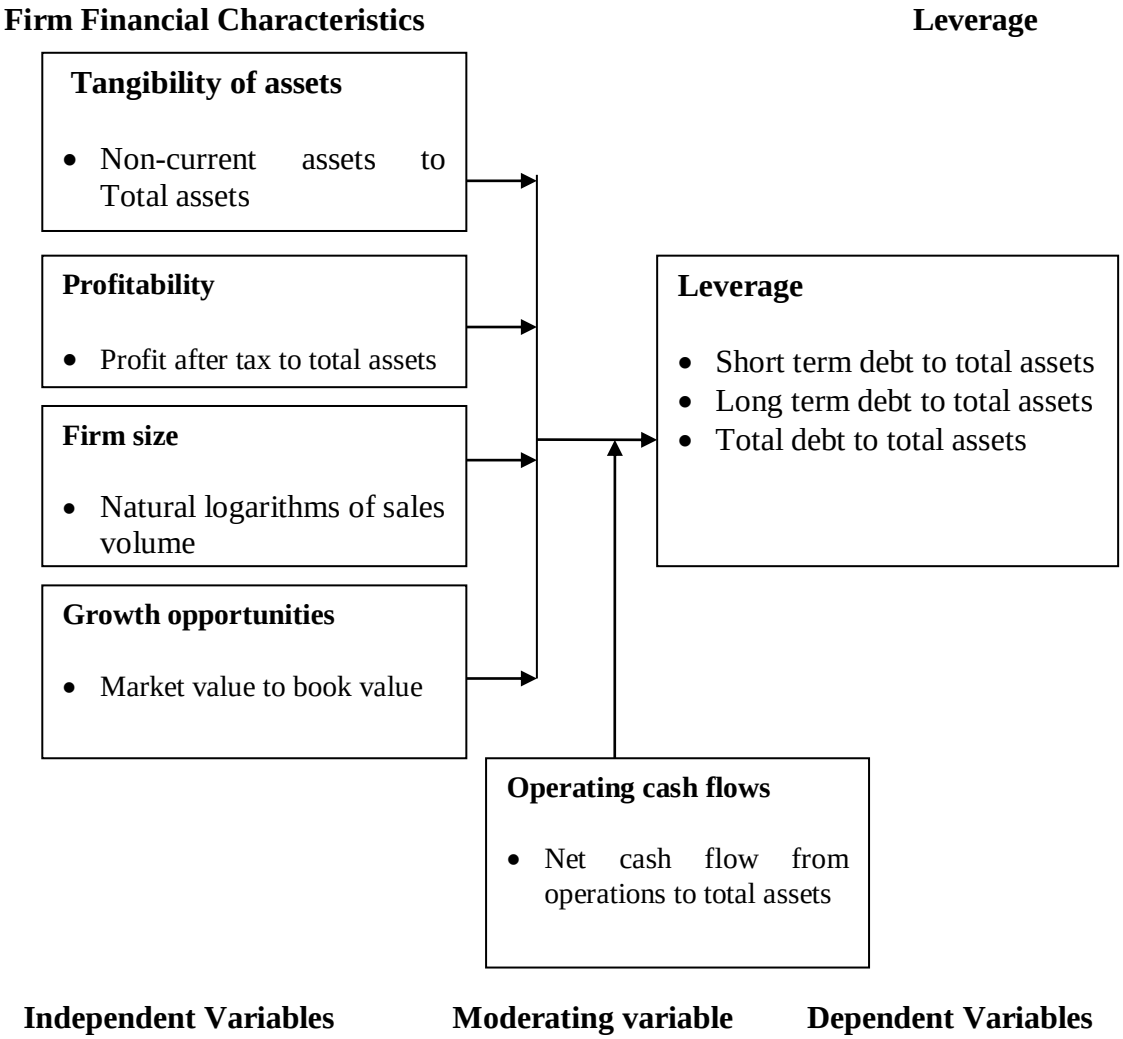

Figure 2.1: Conceptual Framework

2.3.1 Tangibility of Asset

Tangibility of assets is characterized by the effect of the collateral values of assets on a firm's leverage level (Olakunle & Oni, 2014). Also, Daskalakis and Psillaki (2008) posit that the cost of financial distress depends on the types of the asset a firm has, they noted that a firm with large investment in land, equipment and other tangible assets will have lower costs of financial distress compared to one that rely on

intangible assets. Harc (2015) argues that a relationship between asset tangibility exists because they are easier to collateralize and they suffer a smaller loss of value in the event a firm goes into distress. Further, since firms tend to match the maturity of assets with liabilities, then tangibility should be positively related with leverage (Koksal, Orman & Oduncu, 2013).

Following Harc (2015); Mwangi and Birundu (2015); Olankule and Oni (2014), asset tangibility is defined as the ratio of non-current assets to total assets. Koksal et al. (2013) defined tangibility as the ratio of net fixed assets to total assets. Similar definition of asset tangibility has been used by Campello and Giambina (2012); Daskalakis and Thanou (2010) as well as Daskalakis and Psillaki (2008) while Acaravci (2015) measured tangibility as the ratio of net tangible fixed assets to total assets. Assets play an important role in firm's leverage, turnover and ultimately its operating cash flows. Tangible assets are less subject to information asymmetries and tend to have greater value than intangible assets in the event of financial distress and bankruptcy.

2.3.2 Profitability

Profitability is firm's capacity to exceed its operating costs in comparison with revenue (Pandey, 2009). Return on assets (ROA) is the proportion of earnings after tax to total assets. Ability of organization to generate more revenue will maximize shareholders wealth in addition to alter ability of firms' access to capital. Javeda, Raob, Akramc and Nazird (2015) operationalized profitability as profit after deductions of taxes to total assets.

Frank and Goyal (2009) argue that there is an inverse causality between profitability and financial distress. Moreover, increased profitability alters firm's capacity to generate funds internally and externally owing to its ability to offset financial demands periodically. This was in congruence with Modigliani and Miller hypothesis (Kayo & Kimura, 2011).

2.3.3 Firm Size

According to Rajan and Zingales (1995) and Mwangi and Birundu (2015) firm size measured with proxy sales refer to the total amount of revenue generated by a business in a given accounting cycle. This approach aims at tracking trends of both cash and credit sales. This calculation can be broadly classified into regions, quarters, units sold and they exclude gains acquired from financial and other activities. Mahnazmahdavi, Mokhtarbaseri, Zare and Zare (2013) used log of sales as a measure of firm size. Hussan (2016) used sales revenue in their study. Mwangi and Birundu (2015) operationalized firm size as the ratio of sales to total assets, Badar and Saeed (2013) measured sales as the ratio of net sales to total assets. Other researchers have also used total sales as a measure of firm size (Hussan, 2016; Shubita & Alsawalhah, 2012; Akbaş & Karaduman, 2012; Serrasqueiro & Nunes, 2008; Huang & Rutter, 2009; Wiwattanakantang, 1999; Rajan & Zingales, 1995).

The effect of firm size on leverage has registered mixed results with Mwangi and Birundu (2015) reporting inverse relationship between sales and leverage amongst SMEs in Kenya. Badar and Saeed (2013) reported positive and significant relationship between firm size and capital structure on listed companies. Further, Hussan (2016) reported positive and significant relationship between firm size and leverage. The inconsistency of the findings can be attributed to use of alternative measurement of sales whereby some studies adopted asset turnover ratio and others use natural logarithms of annual sales. The study will use natural logarithms of sales volume as the measure of firm size.

2.3.4 Growth Opportunities

Growth opportunities shows a firm's ability to develop its business in the future (Thippayana, 2014). Empirical studies have shown both positive and negative influence of growth opportunities on leverage. Acaravci (2015) for example reported positive and significant relationship between growth opportunities and leverage while Vergas, Cerqueira and Brandão (2015) reported inverse and significant relationship. Following Ranjan and Zingales (1995) and Mwangi (2016), the proxy for growth opportunity is the ratio of market value of shares and book value of shares

2.3.5 Operating Cash Flows

Operating cash flow is the measure of organization capacity to generate cash from their normal business operations. Examination of OCF determines the organization likelihood of generating positive cash flows and the management can easily identify the chances of needing external financing. Operating cash flow (OCF) evaluates corporation capacity to generate cash flows (Mosavi *et al.,* 2014). Empirical investigation on the effect of operating cash flow showed positive relationship with leverage (Kordlouie, et al., 2014; Hong et al., 2012). Operating cash flows was operationalized as proportion of operating cash flows to total assets.

2.3.6 Firm Leverage

Leverage refers to the proportion of debt to equity in the capital structure of a firm. There are two types of leverage; financial leverage which is defined as the use of debt financing by the firms and operational leverage. Following Harc (2015) and Degryse et al. (2010), the operational definition for purposes of measuring leverage in this study is calculated as the ratio of long-term debt to total assets and total debt to total assets. Indeed, (Ezeoha, 2008; Mwangi, 2016) used similar definition. Bandyopadhyay and Barua (2016) used similar measures in India.

Long term debt is portion of debt financed in more than one accounting cycle and short term is paid back within single accounting period (Mwangi, 2016). Long term debt is also referred to as non-current liabilities and is at times preferred by firms since it gives them time to make profits to indemnify it or pay immediate expenses like research and development for start-up businesses. A firm which is highly indebted, whether by short or long term, is likely to suffer distress. Moreover, empirical findings (Strebulaev & Yang, 2006; Shubita & Alsawalhah, 2012) show that firms' exposure to financial risk is linked to their inability to service loans as per their contractual agreement. If this is prolonged, the firm could eventually be faced with financial distress, erosion of the equity and subsequently winding up (Madan, 2007).

2.4 Empirical Review of Literature

Existing empirical showing the link between firm financial characteristics and leverage will be discussed and existing gaps in each study will be highlighted.

2.4.1 Tangibility of Assets and Leverage

An investigation of the determinants of capital structure in Turkey was carried out by Acaravci (2015). By adopting panel data research design a sample of 79 listed companies from 1993 to 2010 were considered. Secondary data was collected from annual financial statements. Panel data analysis procedure was applied. Results of the study revealed that there was significant relationship between growth opportunities, size, profitability, tangibility and leverage. While non-debt tax shield benefits had no significant influence on leverage. Since firm size had negative influence on leverage it was concluded that the Turkish firms supported both pecking order theory and trade off theory.

Handoo and Sharma (2014) investigated the determinants of capital structure an Indian perspective. Through panel research design, a sample of 870 firms listed in India from 2001 to 2010. In the study capital structured was deemed to be determined by profitability, tangibility, growth opportunities, and cost of debt, size, and financial distress, debt servicing capability, tax rate and age of a firm. Multiple regression analysis was used to analyse the data. Results of the study revealed negative and significant relationship between tangibility of assets and both short term debt and total debt while it had negative and insignificant relationship with long term debt.

Harc (2015) investigated the relationship between asset structure and capital structure among small and medium enterprises (SMEs) in Croatia. Sample consisted of 500 Croatian SMEs and secondary data retrieved from their annual financial statements for the period from 2005 to 2010. Correlation analysis was used to examine the strength of the relationship between asset tangibility and both short term and long-term debt. Results of the study revealed an inverse and significant relationship between short term debt and asset tangibility while long term debt had

positive and significant relationship. The findings are consistent with the maturity matching principle. Small and medium enterprises in Croatia could use tangible assets as collateral, either providing more access to creditors or as guarantee in the event of financial distress and bankruptcy.

Bereźnicka (2013) investigated the causal relationship between asset structure and capital structure amongst companies operating in European Union. Through, use of secondary data for periods from 2000 to 2010, correlation analysis revealed negative and significant relationship between current assets ratio and long-term liabilities. However, a positive relation between current asset ratio and total debt was observed. They found a strong positive relationship between the current assets and short-term debt. The findings are consistent with the maturity matching principle.

A Nigerian study investigating the relationship between asset structure and capital structure was carried out by Olakunle and Oni (2014). Purposive sampling technique was used to select 20 companies which were listed from 1997 to 2007. Regression analysis showed positive and significant relationship between asset structure and capital structure. Although the results in different economic set up as compared to Kenya, they negate agency theory and trade off theory.

Baloch, Ihslan, Kakakhel and Sethi (2013) investigated the impact of firm size, asset tangibility and retained earnings on financial leverage on listed companies in Pakistan. Purposive sampling was used to select 22 companies which were listed in the auto sector. Multiple regression analysis revealed a positive effect of firm size and asset tangibility on financial leverage while retained earnings had inverse effect on financial leverage. These results were in support of both agency theory and pecking order theory.

2.4.2 Profitability and Leverage

Hussain, Shahid and Amkal (2016) analyzed the effect of profitability on financial leverage of listed textile firms in Pakistan using panel data of 10 firms listed in periods from 2009 to 2014. Regression and correlation analysis revealed that there was a negative and significant relationship between profitability and financial

structure and a positive relationship between profitability and capital structure. The study findings were in support of pecking order theory since textile firms first raised funds internally prior to external financing.

Investigating the effects of capital structure on profitability in Ghana, Addae, Nyarko-Baasi and Hughes (2013), through panel research design on a five-year period from 2005 to 2009. Results of the study revealed that most of the listed companies relied on short term to finance their enterprises. Thus, conservative working capital was the norm. Although, past studies had registered mixed findings; positive, neutral and negative the current study revealed an inverse relationship between profitability and capital structure and consequently supported pecking order theory. Even though the study adopted panel data it did not carry out stationarity, normality, heteroskedasticity and granger causality tests.

In Kenya Chesang and Ayuma (2016) investigated the effect of profitability on leverage of listed agricultural companies in NSE. The study adopted descriptive research design to examine the effect of long-term debt, short term debt and equity on profitability. Regression analysis revealed an inverse significant relationship between financial leverage and profitability; these results were in support of pecking order theory and static trade off theory.

A study to investigate the determinants of capital structure among non-financial firms listed in Portugal was brought forth by Vergas, Cerqueira and Brandão (2015). Panel research design was adopted and secondary data was collected from listed companies in between 2005 to 2012. In the study capital structure was deemed to be affected by tangibility, profitability, and other sources of tax optimization, growth opportunities, and size and market valuation. Fixed effects regression model was fitted. Results of the study revealed an inverse relationship between profitability, firm size and leverage while growth opportunities, other sources of tax optimization both had positive and significant relationship with leverage. These results were consistent with pecking order theory and trade off theory.

A Thailand case to investigate the determinants of capital structure was carried out by Thippayana (2014). Guided by Modigliani and Miller hypotheses, trade off theory and pecking order theory the study postulated that leverage is determined by firm size, profitability, asset tangibility, growth opportunities and business volatility risk. Panel research design was adopted and a sample of 144 listed companies from 2000 to 2011 was considered. Multiple linear regression analysis was applied to analyse the data. The study revealed positive and significant relationship between firm size, tangibility, business volatility risk and leverage while profitability had inverse and significant relationship.

A study in Jordan to examine the effect of financial leverage, growth, firm size and profitability was carried out by AlGhusin (2015). Purposive sampling approach was adopted to select 10 companies which were actively trading in 1995 to 2005. Through regression and correlation analysis results of the study revealed positive and significant effect between financial leverage, growth and profitability. This implies that for a financial to attain superior growth then it should borrow and invest the funds in most profitable investment opportunities. Although, the data was panel in nature the study did not carry out diagnostic tests such as normality, stationarity and granger causality and these would have guided the choice of the most appropriate model to fit the data.

2.4.3 Firm Size and Leverage

An Indian case to examine the impact of financial leverage on shareholders wealth carried out by Pandey and Prabhavathi (2016), all 12 automobile companies listed in 2004 to 2013 were considered. Multiple regression analysis was used to examine the relationship between operating leverage, financing leverage, combined leverage and shareholders wealth. Results of the study revealed positive and significant relationship between leverage and shareholders wealth and they supported pecking order theory.

Hussan (2016) investigated the relationship between leverage and risk. In the study leverage was operationalized as long-term debt financing while risk was measured as changes in share price, sales revenue, and economic value added (EVA), earnings per

share (EPS) and profitability (EBIT). Multiple regression analysis was revealed positive and insignificant relationship between share price, sales revenue, profitability and leverage while EPS and EVA had negative and non-significant relationship with leverage. These findings disagreed with pecking order theory since an increase in profitability and sales revenues ought to have signaled decreasing in demand for external financing though the change may have led to increased market share which may call the need for more finances.

Badar and Saeed (2013) investigated the impact of capital structure on financial performance of companies listed sugar sector in Pakistan. Purposive sampling was used to select 10 companies which were listed in food sector in 2007 to 2011 at Karachi securities exchange. Multiple regression analysis was used to analyze the data and results of the study revealed positive and insignificant relationship between short term debt and sales turnover. In contrast there was a positive and significant relationship between long term debt and asset turnover. This finding reveals that most of the studies have adopted conservative financing policy and they are mirroring agency theory.

An investigation of the effect of capital structure on the financial performance of SMEs in Thika Sub County was carried out by Mwangi and Birundu (2015). Purposive sampling was used to select 40 SMEs which had been in operation for five years from 2009 to 2013. Multiple regression analysis revealed that capital structure had positive and non-significant effect on financial performance while both asset turnover and asset tangibility had inverse and non-significant effect on financial performance. Since the data was panel in nature it was appropriate to carry out tests such as Hausman, serial autocorrelation test, multicollinearity and stationarity test prior to fitting the regression model.

2.4.4 Growth Opportunities and Leverage

Acheampong, Agalega and Shibu (2014) investigated the impact of financial leverage and market size on stock return in Ghana. Purposive sampling was used to select five companies which were actively trading in the manufacturing sector in 2006 to 2010. Ordinary least squares regression analysis was used to analyse the data

and results of the study positive and significant relationship between stock return and financial leverage.

A study by Mahnazmahdavi et al. (2013) investigated the effect of sales growth on capital structure among companies which were listed in Tehran securities exchange. Judgmental sampling technique was used to select 60 companies and secondary data was collected over a four-year period. Regression analysis revealed a positive relationship between sales growth and leverage. These findings argued that those who were in charge of management had persistently ensured that optimal benefits were gained from borrowed capital. Moreover, there were minimal chances of under capitalization since sales growth rate was catered by changes in the debt ratio and the management seemed to have adopted conservative working capital financing.

Abdullah, Parvez, Karim and Tooheen (2015) investigated the impact of financial leverage and market size on stock return on selected manufacturing companies listed in Dhaka securities exchange. Regression analysis was used to analyze five-year data drawn from annual financial statements in periods from 2008 to 2012. Results of the study revealed an inverse relationship between stock return and financial leverage while market size had positive relationship. There results were in support of signaling and pecking theory since a company utilize borrowed finances to signal low chances of retaining the profit earned.

Padaya (2016) investigated the impact of financial leverage on market value added on a sample of 197 companies which were listed in Bombay stock exchange in a five-year period from 2010 to 2014. Both univariate and multivariate analysis revealed positive and significant relationship between financial leverage and market value added. The study findings mirrored signaling theory since a company attracting debt financing ought to be in a position to service its debts and has low signals of financial distress and bankruptcy.

An investigation on the impact of financial market development on financial leverage on Chinese listed companies was carried out by Tai (2017). Purposive sampling was used to select 116 companies listed in Ho Chi Minh City Stock Exchange in 2009 to 2015. Generalized linear regression modeling revealed a positive and significant

relationship between market capitalization and capital structure but volume of shares traded revealed negative and significant relationship with capital structure. Although, these results mirrored market timing theory they contrasted signaling theory.

2.4.5 Operating Cash Flows and Leverage

A study to investigate the impact of cash flows on capital structure among companies listed in Tehran securities exchange was carried out by Kordlouie, Mosadeg and Rad (2014). Multiple regression was used to analyze secondary data collected from 2006 to 2010. Simple random sampling was used to select 415 listed companies. Results of the study revealed positive and significant relationship between operating cash flow and capital structure.

Mosavi et al. (2015) investigated the relationship between cash flow volatility and capital structure in Tehran securities exchange. Panel research design was adopted and purposive sampling was used to select 137 listed from 2006 to 2013. Operating cash flow was operationalized as natural logarithms of operating cash flow and capital structure was measured as ratio of long-term debt to total debt. Multiple regression analysis was used to analyze secondary data retrieved from annual financial statements. Results of the study revealed negative and significant relationship between operating cash flow and capital structure.

A Chinese case to investigate the relationship between cash flow and financial performance of listed companies was carried out by Hong, Shuting and Meng (2012). Correlation research design was adopted; purposive sampling was used to select real estate companies listed from 2006 to 2010. Data was analyzed using regression analysis. Results of the study revealed inverse and significant relationship between free cash flow and firm performance.

Further, Asghar, Vahid and Asghar (2015) investigated the effect of operating cash flows and capital structure among companies listed in Tehran Securities Exchange (TSE). A sample of 80 companies was considered over a period of 12 years. Both Estimated Generalized Least Squares (EGLS) and Generalized Methods Moments (GMM). Results of the study revealed positive and significant relationship between

operating cash flows and capital structure. Moreover, this study found that domestic cash flows were used as a source of financing.

2.5 Critique of Literature

An investigation of several studies which have endeavored to discuss the effect of firm financial characteristics on leverage has mostly relied on descriptive research design despite of drawing panel data (Tai, 2017; Padaya, 2016; Acheampong et al., 2014). It would have been appropriate to adopt panel research design and investigate the robustness of fitted model through use of diagnostic tests such as normality, granger causality, heteroskedasticity and multicollinearity. This would have minimized the possibilities of yielding biased results.

The applicability of the existing findings in developing economies is limited owing to the fact most of them have been carried in developed economies where legal and technological development may have a role in firm characteristics and demand for leverage. Furthermore, there are possibilities of results drawn from small and medium enterprises differing from listed companies results owing to different regulatory requirements on levels of transparency (Mwangi & Birundu, 2015; Vergas et al., 2015; Abdullah et al., 2015).

Finally, most of the studies had considered a small sample of companies and modal period has been five years which makes them not to a true representative of the study population (Mwangi & Birundu, 2015; Mahnazmahdavi et al., 2013; Acheampong et al., 2014). It would have been appropriate to increase the sample size or consider data over a long period of time.

2.6 Research Gaps

From the foregoing literature review it is evident that although several factors affecting financial leverage have been addressed by several studies, there has been no comprehensive analysis which has been done on the effect of firm characteristics on financial leverage as well moderating effect of operating cashflows concurrently. Internationally, some studies have focused on listed companies from the whole

segment, other on specific industry sector and others on SMEs. In Kenya and East Africa most of the studies reviewed have been narrowed on factors determining capital structure and, in most cases, long term to total capital has taken the elephant share.

Kenya studies that have adopted use of panel data Mwangi and Birundu (2015) and Wahome et al. (2015) and they have fallen short on the evaluation of normality, stationarity, granger causality and linearity prior to regression analysis. Moreover, though Wahome et al. (2015) considered insurance companies annual financial statements, there are statutory requirements which determines the optimal debt to equity ratios of insurance companies. Mwangi and Birundu (2015) source of data may limit the applicability of the findings since most SMEs in developing have poor culture of book keeping.

Even if non-financial listed companies may be in different sectors which would yield heterogeneous financing patterns, it has not attracted empirical enquiry so far, and therefore this study sought understand the hierarchy of financial leverage across different listing sectors at NSE (Wahome et al. 2015; Alghusin, 2015; Baloch et al. 2015; Stewarts, Zacharia & Artis 2012).

From the reviewed literature its evident several studies have been undertaken in developed countries which may be biased and has limited application in developing countries since the level of economic and legal development has implications on liquidity and access to capital markets which may limit the use of debt financing.

2.7 Summary of Literature

A firm with large amount of non-current assets can access debt at relatively lower rate of interest as they offer these assets as collateral; hence such a firm is expected to borrow more as compared to a firm whose cost of borrowing is higher because of having less fixed assets (Mwangi & Birundu, 2015). Moreover, Baker and Zingales (1994) argue that if the relatively more borrowed funds are used efficiently, they will increase the firm's turnover and its financial performance. Olakunle and Oni (2014) found asset tangibility operationalized as total debt to total assets to have a positive

correlation with leverage. Fixed assets generally have a well-defined market value and can be sold in case of default; this provides the basic security for the debt holders.

The foregoing chapter has reviewed both theoretical and empirical literature related to the study variables as well as their causal relationships. From both theoretical and empirical review conceptual framework was drawn which shows the relationship between independent variables, moderating variable and dependent variable. From the conceptualized relationship defensible economic relationships is derived and consequently eliminate possibilities of spurious relationships. Further, a positive critique is identified and possible research gaps have been identified. This study was guided by MM dividend irrelevance, trade-off theory, pecking order theory, market timing theory and free cash flows theory.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter looks at methodological issues relating to research philosophy, design, population, sampling, data collection instrument, analysis and presentation. Methodology is the philosophy or general principle which guides the research (Dawson, 2009). It has also been defined as a systematic analysis of the methods, rules and principles applied to a field of study or a branch of knowledge (Kothari, 2011). Though it does not provide solutions, it offers the theoretical underpinning for understanding which method or set of methods can be applied to specific cases (Kothari, 2011). In sum, it deals with the description of the methods applied in carrying out the research (Kombo & Tromp, 2009). Research method on the other hand refers to a systematic procedure, technique or mode of inquiry for attaining a certain objective (Cooper & Schindler, 2014).

3.2 Research Philosophy

The study was guided by positivism research philosophy. The positivism philosophical approach is mainly related with the observations and experiments which guide the research process (Saunders, Lewis & Thornhill, 2014). Through this positivism research approach, the study set up hypotheses on the basis of existing empirical studies and theories. The theories were examined for approval or disapproval through the use of quantitative statistical methods and consequently both research objectives and purpose were ultimately met.

The principles underlying positivism as a preference for study is based on an observable social reality as well on credible and reliable data (Saunders et al. 2014). In this philosophy, existing theories are used to develop testable hypotheses; the research itself acted as the basis of testing theories which yielded into laws (Cooper & Schindler, 2014). To enhance the acceptability of the results the researcher should execute the research independently and ought not to influence the subject under

examination, since the end results ought to be a law there is need for adoption of quantifiable approach to be analysed through statistical approach and consequently attain results similar to natural approaches (Sekaran & Bougie, 2013).

3.3 Research Design

A research design is a plan used to conduct the research and to obtain answers to research questions or hypotheses being studied (Sekaran & Bougie, 2013). It has also been defined as a blueprint guiding the conduct of a study by Cooper and Schindler (2014). Having controls that may interfere with validity of findings, it therefore facilitates the smooth flow of research process thereby making it efficient as possible while yielding optimal information (Kothari, 2011). The choice of a research design depends on the purpose of the research, skills of the researcher, funds dedicated to the research and nature of the research problem (Bryman & Bell, 2011). In view of the foregoing, a particular design may be good for one problem but not the other (Saunders et al., 2014).

Explanatory research design was used in this study. The choice of the research design was guided by the fact that purpose of this study was not only to describe but also explain the causal effect between the firm financial characteristics and leverage. This is a design that shows the effect and an explanation of causes of such effect between variables (Bryman & Bell, 2011). Moreover, Kothari (2011) further reinforces this front since according to him, explanatory research design aims to establish the causal relationship between variables. Mwangi (2016) asserts that explanatory research is intended to explain, rather than to simply describe the phenomena being studied, as in this study further supporting the choice of the design.

According to Cooper and Schindler (2014), explanatory research design is mostly used where some key information, mostly quantitative, on a study is available and whose independent variables are not subject to manipulation in analyzing. This guideline therefore fit the current study since the data to be used in the variables measuring the firm financial characteristics and also leverage is public and can easily be verified. Locally this research design has previously been used by among others Mwangi (2016) in analyzing the effect of financial structure on financial

performance of firms listed at East Africa Securities Exchanges. Elsewhere Molavi and Jamalzade (2015) used it in analyzing the correlation between financial ratios and capital adequacy across banking network in Iran. This further justifies the application of the design.

3.4 Target Population

According to Cooper and Schindler (2014), a population is the total collection of elements on which inferences are made. It is also defined as a collection of individuals or objects known to have similar characteristics for analysis (Sekaran & Bougie, 2013). Target population is a subset of the population from which the researcher wishes to generalize the results of their research after the analysis (Gall, Gall & Borg, 2007). The study targeted 51 non-financial listed firms over the period 2008-2016. Listed firms are chosen due to the nature of the problem and availability of authentic data. This is so because they are public in nature and are therefore bound by the public deed, through their regulators, to generate information which is accurate, objective, uniform and reliable. Financial institutions are excluded to remove anomalies associated with mandatory regulation which impact on the capital structure of such firms (Mwangi, 2016).

Accessible population refers to all the elements which are realistically included in the study (Woodridge, 2012). Out of the 51 targeted firms, only 42 firms however satisfied the inclusion criteria of having traded for three years consistently during the study period. With data from 42 firms (82.4%) out of the targeted 51, it is adequate for robust analysis. Indeed, Gay, Mills and Airasian (2006) recommend a size of at least 20% of the target population as adequate for small population with less than 1000 units, like in this study. Since the target population was only 51 non-financial listed firms, a census of the same was done. Census is the study of the whole population (Kumar, 2005). By virtue of including all information for all the subjects in the research, it eradicates the sampling error, enhances validity of the data and results (Saunders, et al., 2014).

3.5 Data and Data Collection Procedure

The study used panel data. Panel data is a series of multidimensional data where behaviour of entities are observed over time (Wooldridge, 2012). The key advantage of panel data is the ability to allow the researcher to control for variables that are not observable or measurable like culture and management practices over time but not across entities (Wooldridge, 2012). The data was obtained from the NSE hand books and from specific companies' websites. As shown in the data collection sheet (Appendix II), data on current liabilities, non-current liabilities, total liabilities, total assets, non-current assets, profit after tax, net sales, market prices to book value and operating cash flows was gathered. Secondary data was collected for period 2008-2016. The year 2008 was characterized by post-election violence that characterized business operating and may have operating business cycles.

3.6 Data Analysis, Interpretation and Presentation

The data was analysed using descriptive statistics, correlation analysis and regression with aid of STATA 12. Descriptive statistics adopted included mean, standard deviation, skewness and kurtosis. Regression analysis is valuable for quantifying the simultaneous impact of independent variables on a dependent variable and therefore, like in this study, it is preferred since the number of independent variables are more than one (Faraway, 2002). The regression coefficients were tested for significance using t-statistic at 5% level of significance and inferences drawn. If the P-value, which is the exact probability of rejecting the null when it is true, is less than 5%, then it is concluded that the predictor variable is significant (Gujarati, 2003). The analysis techniques employed have been used in the past by many researchers locally and internationally. For instance, locally they have been used by among others Mwangi, Makau, and Kosimbei (2014), Wahome et al. (2015). The findings of this study were presented by tables.

3.6.1 Research Models

The following regression model without the moderating variable was used for the analysis as proposed by Greene (2008).

$$L_{it}=\beta_0 + \beta_1 T_{i,t} + \beta_2 P_{i,t} + \beta_3 S_{i,t} + \beta_4 G_{i,t} + \varepsilon_j \quad \ldots\ldots 3.1$$

The following regression model with the moderating variable was used for the analysis (Baron & Kenny, 1986).

$$L_{it}=\beta_0 + \beta_1 T_{i,t} + \beta_2 P_{i,t} + \beta_3 S_{i,t} + \beta_4 G_{i,t} + \beta_5 CF_{i,t} + CF_{i,t}(\beta_6 T_{i,t} + \beta_7 P_{i,t} + \beta_8 S_{i,t} + \beta_9 G_{i,t}) + \varepsilon_j \quad \ldots\ldots 3.2$$

Where

L_{it} - long term liabilities/total assets, short term liabilities/total assets and total liabilities/total assets for each firm i at time t

T = Tangibility of assets

P = Profitability

S = Firm size

G = Growth opportunities

CF = Operating cash flows

$\beta_{i\ (i=0,1,2,\ldots,9)}$ are the associated regression coefficients

ε_j is the associated error term. Matrix in Table 3.1 shows the operationalization of study variables.

Table 3.1: Operationalization of Variables

Variable	Proxy	Variable definition
Leverage	$L_{i,t}$	Short term liabilities/Total assets
	$L_{i,t}$	Long term liabilities/Total assets
	$L_{i,t}$	Total liabilities/Total assets
Tangibility of assets	T	Non-current assets/Total assets
Profitability	P	Profit after tax/Total assets
Firm size	S	Natural logarithms of sales volume
Growth opportunities	G	Market value to book value
Operating cash flows	CF	Operating cash flows /Total assets

Source, (Mahnazmahdavi, Mokhtarbaseri, & Thippayana, 2014; Acaravci, 2015; Tarus, Chenous & Biwott, 2014; Sarlija & Harc, 2012; Pandey, 2009; Harc, 2015; Mwangi & Birundu 2015; Olankule & Oni, 2014, Mosavi et al., 2014)

The matrix in Table 3.2 summarizes all models which were adopted in examination of the influence of firm financial characteristics on leverage of listed non-financial companies in Kenya.

Table 3.2: Summary of Proposed Research Objectives, Hypotheses and Analytical Models

Objective	Hypotheses	Analytical Models	Interpretation
To determine the influence of tangibility of assets on leverage of non-financial firms listed at Nairobi Securities Exchange.	H_0, There is no significant influence of tangibility of assets on leverage of non-financial firms listed at Nairobi Securities Exchange.	Simple regression $L_{it} = \beta_0 + \beta_{1i,t}T_{i,t} + \acute{\varepsilon}_{i,t}$	R^2 indicate model explanatory power. Beta coefficient will show the nature of the influence of tangibility on leverage of non-financial listed companies in NSE.
To examine the influence of profitability on leverage of non-financial firms listed at Nairobi Securities Exchange.	H_0, There is no significant influence of profitability on leverage of non-financial firms listed at Nairobi Securities Exchange.	Simple regression $L_{it} = \beta_0 + \beta_{2i,t}P_{i,t} + \acute{\varepsilon}_{i,t}$	R^2 indicate model explanatory power. Beta coefficient will show the nature of the influence of firm size on leverage of non-financial listed companies in NSE.
To establish the influence of firm size on leverage of non-financial firms listed at Nairobi Securities Exchange.	H_0, There is no significant influence of firm size on leverage of non-financial firms listed at Nairobi Securities Exchange.	Simple regression $L_{it} = \beta_0 + \beta_{3i,t}S_{i,t} + \acute{\varepsilon}_{i,t}$	R^2 indicate model explanatory power. Beta coefficient will show the nature of the influence of firm size on leverage of non-financial listed companies in NSE.
To find out the influence of growth opportunities on leverage of non-financial listed firms at Nairobi Securities Exchange.	H_0, There is no significant influence of growth opportunities on leverage of non-financial firms listed at Nairobi Securities Exchange.	Simple regression $L_{it} = \beta_0 + \beta_{4it}G_{i,t} + \acute{\varepsilon}_{i,t}$	R^2 indicate model explanatory power. Beta coefficient will show the nature of the influence of growth opportunities on leverage of non-financial listed companies in NSE.
To evaluate the moderating effect of operating cash flows on the influence of financial characteristics on leverage of non-financial firms listed at Nairobi Securities Exchange.	H_0, There is no significant moderating effect of operating cash flows on the effect of firm characteristics on leverage of non-financial firms listed at Nairobi Securities Exchange.	Multi regression $L_{it}=\beta_0 + \beta_1 T_{i,t} + \beta_2 P_{i,t} + \beta_3 S_{i,t} + \beta_4 G_{i,t} + \varepsilon_j$……1 $L_{it}=\beta_0 + \beta_1 T_{i,t} + \beta_2 P_{i,t} + \beta_3 S_{i,t} + \beta_4 G_{i,t} + \beta_5 CF_{i,t} + CF_{i,t}(\beta_6 T_{i,t} + \beta_7 P_{i,t} + \beta_8 S_{i,t} + \beta_9 G_{i,t}) + \varepsilon_j$……2	This is achieved by differentiating model 2 partially and incorporating the average moderating value as follows.

3.7 Diagnostic Tests

This section discusses the various diagnostics tests carried out in this study.

3.7.1 Auto Correlation

Auto correlation refers to a scenario where the error terms for different time periods in a data set are correlated (Gujarati, 2003). As such, the standard errors are distorted affecting the efficiency of the estimator and as a consequence, the test statistic is affected to invalidate the significance test and inferences (Gujarati, 2003). To detect the problem, Wooldridge F-test was used with the null hypothesis of no serial correlation. A p-value of less than the 5% level of significance indicate presence of auto correlation (Wooldridge, 2002).

3.7.2 Multicollinearity

This is a situation where the independent variables are correlated or influence each other (Gujarati, 2003). This situation poses problems which either inflates or deflate the regression coefficients in turn affecting the test statistic thereby resulting to invalid significance tests (Cooper & Schindler, 2014). To test the existence of the problem, the coefficients were compared with Variance Inflation Factor (VIF) of 5 and presence of multicollinearity concluded for those variables with VIF of at least 5 as recommended by Gujarati (2003). Unless it is so severe that the VIF is greater than 10, multicollinearity is not a bother since it does not result to biased parameter estimates (Gujarati, 2003)

3.7.3 Heteroscedasticity

Regression model assumes that the error term is homoscedastic, that is, error term has a constant variance. If this is violated, then there is heteroscedasticity in the data. The risk of running a regression model without checking for heteroscedasticity is to have biased standard errors hence invalid significance tests and conclusions (Gujarati, 2003). This problem was tested using likelihood ratio test with the null hypothesis of no heteroscedasticity and if the p-value was less than 5%, the null was

rejected to imply presence of heteroscedasticity (Gujarati, 2003). If this problem and or autocorrelation were found to exist, Feasible Generalized Least Squares (FGLS) model was employed to overcome the same.

FGLS is superior to Generalized Least Squares (GLS) since the true values of variances and covariance's for the disturbance terms as used by the GLS estimator are unknown in reality hence its estimator is not a feasible or practicable or realizable estimator (Wooldridge, 2002). FGLS therefore guarantee the efficiency and consistency of the estimators for valid significance tests.

3.7.4 Stationarity

If the mean, variance and autocorrelation of data structure is homoscedastic over time, then the data is said to be stationary (Gujarati, 2003). This test is necessary to ensure that data is stationary, else estimating models without considering the non-stationarity nature of the data may lead to spurious regression results (Wooldridge, 2002). Non-stationarity also distorts the test statistic to yield erroneous results (Gujarati, 2003). The Augmented Dickey Fuller (ADF) unit root test was used with the null hypothesis of non-stationarity. If the null is rejected, this implied stationarity (Gujarati, 2003). If any of the variables was non-stationary, it was differenced and subsequently used in the model (Gujarati, 2003).

3.7.5 Fixed or Random Effects

To determine whether to run a fixed effects model or a random effects model, Hausman specification test was used. This test seeks to determine whether there is correlation between the unobserved firm financial characteristics' random effects and the predictors. If no such correlation exists, then the random effects model is preferred (Greene, 2008).

3.7.6 Granger Causality

This is a way of investigating which one between two variables explains the other one in a better manner (Granger, 1988). Granger causality improves predictability

power if the variables relationships are reversed between independent and dependent variable (Zou, Ladrou, Guo, & Feng, 2010). Granger causality test to assess the reverse effect between firm financial characteristics and leverage at 5% level of significance was carried out. The null hypotheses were that firm financial characteristics do not granger cause leverage. If the null was rejected by p-value being less than 5%, it implied that firm financial characteristics indeed granger cause financial leverage.

3.7.7 Normality

Normality test explains the distribution of variables under examination. Through normality test it is easier to detect noise and outliers in the data (Greene, 2008; Elliott & Woodward, 2007). Shapiro-Wilk test was used to test whether the regression residuals followed a normal distribution with a null hypothesis that residuals are normally distributed at 5% level of significance. Razali and Wah (2011) through Monte Carlo simulation found the Shapiro-Wilk to have the best power for a given significance compared to Kolmogorov-Smirnov, Lillierfors and Anderson-Darling tests.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the research findings and their discussions, primarily focused on the study objects, in the following order; descriptive statistics, diagnostic tests and inferences from regression statistics. The study targeted all the 51 non-financial listed companies for the period 2008-2016. Only 42 firms however satisfied the inclusion criteria with Flame Tree Group Holdings, A. Baumann, Hutchings Biemer, Kurwitu Ventures, StanlibFahari, Atlas Africa Industries, Deacons, NSE and Umeme excluded from the study. A Baumann and Hutchings Biemer were suspended from the market over the period, Kurwitu Ventures, StanlibFahari, Deacons and NSE had under three years trading to 31st December 2016 while Umeme and Atlas African Industries were domiciled in Uganda and United Kingdom respectively and hence their asset base and operations were primarily out of Kenya. With data from 42 firms (82.4%) out of the targeted 51, it is adequate for robust analysis. Indeed, Gay, Mills and Airasian (2006) recommend a size of at least 20% of the target population as adequate for small population with less than 1000 units, like in this study.

4.2 Overall Descriptive Statistics

As shown in Table 4.1, the average tangibility over the period was 58%. The minimum value was 0.05, maximum value of 0.97, standard deviation of 0.23 and coefficient of skewness of -0.36. These statistics imply that of the firms' total assets, more were non-current in nature with only 42% accounting for current assets. The negative skewness further reinforces this fact. This further indicates that were firms required to provide collaterals in terms of non-current assets, they would have been generally sound. These findings corroborate Harc (2015) whose findings indicated increase in tangible assets in Croatia. With a minimal range and standard deviation, the investment in non-current assets looked stable.

The average profit after tax to total assets over the period was -0.35 minimum of -135.98 and maximum of 1.05 with a negative skewness of -18.40. The standard deviation of the profits after tax to assets distribution was 7.39. The findings contradict Nawaiseh (2015) whose findings indicated positive skewness. These results show that majority of firms were not utilizing their assets properly to generate profits after tax therefore leaning on the left tail of the distribution. Comparing the sales and profits statistics, it appears that there was a problem in cost management since revenue generation was okay but profits after tax was dismal. This average negative profit performance is potentially dangerous to firms wishing to borrow for expansion. The average firm size was 15.40 translating into approximately sh. 4.9 billion with a minimum of natural logarithm of 11.13 and a maximum of natural logarithm of 19.22. The skewness was -0.12 and the standard deviation was 1.9. This show that generally firms were doing well in raising revenue with majority raising more than the average reported hence lying on the left tail of the distribution. Again, the fluctuations in revenue were not huge as evidenced by the standard deviation.

The average growth opportunity was 1.58 with a minimum of -16.67, maximum of 55.56 and a positive distribution with a skewness coefficient of 7.88. Standard deviation of the growth opportunity distribution was 4.65. These statistics indicate that although generally firms' market values were better than their book values, in majority of firms, market and book values were close and to the right of the distribution. High market to book value of firms is consistent with the market timing theory dictate. The average operating cash flow to total assets was 16%, minimum being -7.94 and a maximum of 3.46. Skewness measure demonstrated a negative distribution. Standard deviation of the ratio distribution was 0.69. This shows that on average, from every shilling of revenue generated approximately sixteen cents went to cover operating expenses with a huge chunk left to financing and investment activities. Again, as evidenced by the standard deviation, the volatility of the revenue going to operating costs was relatively stable. The negative cash flow is an indicator that many firms were operating at the mercy of suppliers. The findings contradict Kordlouie, Mosadegh and Rad (2014) whose findings indicated positive cash flows for Tehran listed companies.

The average short term and long-term debts to total assets are 30.22% and 18.31% respectively. This shows that a large portion of firms' assets were financed with short term debt. As Mwangi (2016) posit, it could imply that short term debt financing was less costly compared to the long-term debt which is usually associated with high value collateral and at times restrictive covenants to make it unattractive. A positive skewness in both long and short-term debts to total assets show that majority lied on the right tail of the distribution. Mwangi et al. (2014) found positive skewnesss for listed firms at NSE. This could indicate an aggressive strategy in listing by firms possibly due to the ease of listing requirements, tax advantages on listing among other benefits provided by the market regulator over time.

Table 4.1: Overall Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	339	0.05	0.97	0.58	0.23	-0.36
P	339	-135.98	1.05	-0.35	7.39	-18.40
S	339	11.13	19.22	15.40	1.91	-0.12
G	339	-16.67	55.56	1.58	4.65	7.88
CF	339	-7.94	3.46	0.16	0.69	-4.92
LTA	339	0.00	1.13	0.18	0.18	1.78
STA	339	0.01	1.29	0.30	0.19	0.84
DTA	339	0.01	1.45	0.49	0.23	0.91

4.2.1 Agricultural Sector Descriptive Statistics

As shown in Table 4.2, the average tangibility average for agricultural listed companies was 70%. The minimum value was 22% and maximum 93% and coefficient of skewness and -0.68. These negative skewness shows that asset tangibility was not normally distributed. Average profitability for agricultural firms was 8% with standard deviation of 0.10. The minimum profitability was -0.14 and maximum of 0.47. Despite of this wide variation most agricultural firms were profitable within the period under consideration this was cemented by skewness coefficient of 1.01. The findings corroborate study by Chesang and Ayuma (2016) whose findings indicate moderate profitability for firms listed at NSE. Although,

most agricultural quoted companies were profitable, wide variation can be a clear indication of performance instability which can be attributed to climatic changes. The average firm size 13.64, there was no wider variations in firm size as accounted by standard deviation of -0.73 with minimum of 11.13 and maximum of 15.10. The average growth opportunity was 3.65 with a minimum of 0.15 and maximum of 55.65. Growth opportunities was highly varied as accounted for by standard deviation of 10.32. The data was not normally distributed as accounted by skewness coefficient of 3.84. These statistics indicate that although generally firms' market values were better than their book values, in majority of firms, market and book values were close and to the right of the distribution. Huge values of growth opportunities indicate that agricultural listed companies share prices contrasted market timing theory. (what does mt theory state)

The average long-term debt to total assets was 0.22, with a maximum of 0.96 and minimum of 0.05. Skewness coefficient revealed that most of agricultural companies had high amount of long-term debt as accounted by skewness coefficient of 3.75. The average short-term debt was 10% with a maximum of 34%. This shows that agricultural companies had adopted conservative policy in management of its short-term debt. The average ratio of total debt to total assets was 32%. Skewness coefficient revealed that the most listed agricultural companies relied on debt financing as accounted for by skewness coefficient of 2.90 units. The findings are consistent with Mwangi, Muturi and Ngumi (2016) who found positive skewness for both short term and long-term debts for firms listed at NSE.

Table 4.2: Agricultural Sector Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	58	0.22	0.93	0.70	0.15	-0.68
P	58	-0.14	0.47	0.08	0.10	1.01
S	58	11.13	15.10	13.64	1.41	-0.73
G	58	0.15	55.56	3.65	10.32	3.84
CF	58	-0.05	1.25	0.44	0.32	0.87
LTA	58	0.05	0.96	0.22	0.17	3.75
STA	58	0.01	0.34	0.10	0.07	1.34
DTA	58	0.09	1.00	0.32	0.18	2.90

4.2.2 Automobile and Accessories Sector Descriptive Statistics

As shown in Table 4.3, average tangibility for listed automobile and allied companies was 47% with a minimum 16% and 87%. Skewness coefficient 0.32 units revealed that companies quoted in this sector has skewed asset tangibility. Profitability in automobile and allied sector averaged at -0.01, this showed that most of companies were incurring losses within period under investigation. The minimum profitability was -0.31 and maximum of 0.16. Skewness coefficient of -1.45 confirmed that most companies were loss making. Average firm size was 13.72, with minimum 11.30 and maximum of 16.36. There was minimum variation in firm size and all firms had almost similar size. Average firm growth was 0.64, with maximum of 2.29 units and minimum growth of 0.00. Skewness coefficient was 1.66, this implied that the growth opportunities were not normally distributed. Average operating cash flows was 0.13, with maximum of 3.46 and minimum of -2.46. This shows that there was wide variation in operating cash flows. For every shilling generated in auto mobile 13 cents were incurred on operating expenses. Negative skewness indicated that most of quoted companies in auto mobile and accessories were dependent on supplies mercy. This calls for evaluation of quoted companies operating procedures to optimize with operational costs.

The average long-term average was 9%, with maximum of 38% and minimum of 0%. Consistent with Baloch, Ihsan and Kakakhel (2013) findings for automobile companies in Pakistan, the study found positive skewness coefficient for long term debts. This implied that leverage was not normally distributed. The average total debt to total assets was 60%, maximum total debt to total assets was 88% and minimum of 31%. There was minimal variation as accounted for by 11% and skewness coefficient of -0.05.

Table 4.3: Automobile and Accessories Sector Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	22	0.16	0.87	0.47	0.23	0.32
P	22	-0.31	0.16	-0.01	0.12	-1.45
S	22	11.30	16.36	13.72	1.82	0.36
G	22	0.00	2.29	0.64	0.55	1.66
CF	22	-2.28	3.46	0.13	1.19	0.61
LTA	22	0.00	0.38	0.09	0.11	1.97
STA	22	0.31	0.62	0.52	0.07	-1.19
DTA	22	0.31	0.88	0.60	0.11	-0.05

4.2.3 Commercial and Services Sector Descriptive Statistics

As shown in Table 4.4, there was wide variation in commercial and services profitability as accounted 14.67. This was confirmed by Skewness coefficient of -9.27 units. Firm size averaged at 15.36, with maximum of 18.63 and minimum of 12.35. Average growth opportunities for commercial and services sector was 1.16, with a minimum of – 0.74 and 5.92. Growth opportunities were positively skewed as accounted for by 1.78 units. Findings contradict Gathogo and Ragui (2014) whose findings indicate less use of debt to finance growth. Average cash operating cash flows was 0.16, with a minimum of -0.74 and maximum of 1.62. Most companies had positive operating cash flows as accounted for by positive skewness.

Table 4.4: Commercial and Services Sector Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	86	0.05	0.88	0.51	0.26	-0.11
P	86	-135.98	0.27	-1.58	14.67	-9.27
S	86	12.35	18.63	15.36	1.52	0.46
G	86	-0.74	5.92	1.16	1.44	1.78
CF	86	-0.74	1.62	0.16	0.42	1.15
LTA	86	0.00	0.86	0.17	0.19	1.41
STA	86	0.12	1.29	0.37	0.17	2.27
DTA	86	0.27	1.42	0.53	0.22	1.43

4.2.4 Construction and Allied Sector Descriptive Statistics

As shown in Table 4.5, the average tangibility over the period was 0.60. The minimum value was 0.25, maximum value of 0.97, standard deviation of 0.20 and coefficient of skewness of -0.49. These statistics imply that of the firms' in the construction and allied sector's total assets, more were non-current in nature with only 40% accounting for current assets. The negative skewness further reinforces this fact. This further indicates that were firms required to provide collaterals in terms of non-current assets, they would have been generally sound. The average profit after tax to total assets over the period was 0.07, minimum of -0.17 and maximum of 0.31 with a negative skewness of -0.05. The standard deviation of the profits after tax to assets distribution was 0.08. The average firm size 15.96 with a minimum of 14.13 and maximum of 18.10. Standard deviation was 0.90 and skewness coefficient was 0.49. This implies that there was minimal variation in firm revenue generated.

Average growth opportunities averaged at 1.08, with a maximum of 2.87 and minimum of 0.00. Growth opportunities was positively skewed as indicated by skewness coefficient of 0.45. Companies quoted in this sector supported market timing theory since their rate of market value to book value had minimal variations. Operating cash flows averaged at 0.06, with a maximum of 0.36 and minimum of -0.85. This indicates that on average, from every shilling of revenue generated, approximately six cents went to cover operating expenses with huge chunk left to financing and investing activities. From the findings it can be implied that there was high demand of borrowed financing amongst construction and allied sector quoted companies this can be linked with availability of collateral security. Gathogo and Ragui (2014) found high use of debt among the construction companies. Furthermore, these findings supported trade theory since most firm's assets were non-current, hence could provide collateral needed to support long-term borrowing.

Table 4.5: Construction and Allied Sector Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	45	0.25	0.92	0.60	0.20	-0.49
P	45	-0.17	0.31	0.07	0.08	-0.05
S	45	14.13	18.10	15.96	0.90	0.49
G	45	0.00	2.87	1.08	0.75	0.45
CF	45	-0.85	0.36	0.06	0.24	-2.24
LTA	45	0.00	0.51	0.22	0.15	0.50
STA	45	0.13	0.64	0.31	0.15	0.47
DTA	45	0.24	0.74	0.53	0.14	-0.51

4.2.5 Energy and Petroleum Sector Descriptive Statistics

As shown in Table 4.6, average tangibility was 0.54 in energy and petroleum sector. The minimum was 0.13 and maximum 0.94, standard deviation of 0.30 and skewness 0.09. These statistics indicate that majority of the firm's assets were non-current in nature with current assets accounting to 46% of the total assets. Average profitability was 3%, with minimum of -19% and maximum of 19%. On average most companies' profitability was below the mean evidenced by skewness coefficient -1.21. This would maximize chances of borrowing funds due to firm's inability to generate internally generated finances. These findings fail to confirm pecking order theory.

Average growth opportunities recovered by listed energy and petroleum companies was 0.98, with a maximum of 4.82 and minimum of 0.04. The standard deviation was 1.09 and skewness lied to the right. Average operating cash flows was -0.06, with a minimum of -7.94 and maximum of 2.35. This implies for every one shilling generated there was negative six cents of operating cash flow losses. This shows that most companies in energy and petroleum sector mostly financed their operating activities on accrual basis. This may halt their borrowing capacity and impact negatively in access to finance in case of short term or long-term financial need.

The average long-term debt was 0.24, with a maximum of 0.61 and minimum of 0.00. The standard deviation was 0.22 and skewness of 0.32. This implies that there was wide variation in dependence on long term debt financing amongst listed companies in energy and petroleum. Most companies had financed their needs using long term debt as accounted by skewness coefficient of 0.32.The findings corroborate Mwangi, Muturi and Ngumi (2016) whose study indicated that majority of firms at NSE use long term debts. Moreover, the dependency on long term debt differed across firms as indicated by standard deviation of 0.22. Average short-term debt was 0.39 with a maximum of 0.78 and minimum of 0.05. An average standard deviation of 0.26 revealed use of short-term financing differed amongst firms. The average debt to total assets across firms was 0.63 with a maximum of 1.18 and minimum of 0.36. A coefficient of skewness of 1.25 revealed that most companies had financed their assets using debt capital. From the findings it can be inferred that quoted companies in energy and petroleum sector either relied on short term debt or long-term debt to acquire their assets.

Table 4.6: Energy and Petroleum Sector Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	34	0.13	0.94	0.54	0.30	0.09
P	34	-0.19	0.19	0.03	0.05	-1.21
S	34	16.21	19.22	17.85	0.93	-0.56
G	34	0.04	4.82	0.98	1.09	2.04
CF	34	-7.94	2.35	-0.06	1.45	-4.99
LTA	34	0.00	0.61	0.24	0.22	0.32
STA	34	0.05	0.78	0.39	0.26	-0.11
DTA	34	0.36	1.18	0.63	0.15	1.25

4.2.6 Investment Sector Descriptive Statistics

As shown in Table 4.7, the average tangibility for listed companies in investment sector at NSE was 0.65, with a minimum of 0.19 and maximum of 0.97. This implies that the highest portion of asset base was non-current assets as compared to current assets which averaged at 35%. From these findings it can be deduced that these firms

could easily access debt financing owing to their asset base. The average profitability for investment sector was 3% with minimum of -0.12 and maximum of 0.19. Even though, most of these firms lied almost in the same profitability region as accounted for by standard deviation of 0.07 and skewness of -0.19, most of them did not record huge profits within the period under consideration.

The average firm size recorded was 14.53, with a maximum of 17 and minimum of 12.31. Revenues generated differed across firms on average as indicated by standard deviation of 1.44. Average growth opportunities were -0.09, with a maximum of 1.70 and minimum of -16.67. There were wide variations in market to book values supported by standard deviation of 3.28. Most companies growth opportunities was below the mean as indicated by skewness coefficient of -3.49. This shows that these firms disagreed with signalling hypothesis though they supported market timing theory. The average operating cash flows to total assets was 0.00, with a minimum of -3.47 and maximum of 0.67. There were wide variations amongst firms as indicated by standard deviation of 0.77. Most firms registered negative operating cash flows as indicated by skewness coefficient of -3.49. It can be implied that there was huge dependence on supplier's good will to finance operating activities amongst listed firms in investment sector at Nairobi Securities Exchanges.

The average long-term debt to total assets amongst investment listed companies was 0.16, with a maximum of 0.36 and minimum of zero. There was minimal deviation on long term borrowing amongst these firms as indicated by standard deviation of 0.11.

Table 4.7: Investment Sector Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	29	0.19	0.97	0.65	0.23	-0.62
P	29	-0.12	0.19	0.03	0.07	-0.19
S	29	12.31	17.00	14.53	1.44	0.14
G	29	-16.67	1.70	-0.09	3.28	-4.93
CF	29	-3.47	0.67	0.00	0.77	-3.49
LTA	29	0.00	0.36	0.16	0.11	0.41
STA	29	0.01	1.01	0.29	0.25	1.39
DTA	29	0.01	1.05	0.45	0.28	0.65

4.2.7 Manufacturing and Allied Sector Descriptive Statistics

As shown in Table 4.8, the average tangibility amongst listed manufacturing companies in NSE was 0.55, with a minimum of 0.27 and maximum of 0.93. Most companies in manufacturing and allied sector had high portion of non-current assets and 45% in current assets. The findings are consistent with Harc (2015) whose study found increase in tangible assets among Croatian firms. There were minimal variations in asset tangibility as indicated by standard deviation of 0.15. A coefficient of skewness of 0.16 revealed that most companies' non-current assets were close to the mean. This implies that they may have enough collateral security to access debt capital. The average profitability of manufacturing companies was 14%, with a minimum of -50% and maximum of 105%. Most of companies were profitable with the period under consideration as accounted for by coefficient of skewness of 1.86. This implies that there may be minimal reliance on debt capital amongst manufacturing if they were to rely on internally generated finances.

The average growth opportunity amongst manufacturing firms was 1.78, with a minimum of 0.00 and maximum of 8.13. There were wide variations in growth opportunities as indicated by standard deviation of 2. Moreover, most companies were positively skewed as accounted by 1.53. These findings contrasted market timing theory. The average operating cash flows to total assets was 0.21, with a minimum of -2.01 and maximum of 1.31. These findings were negatively skewed as accounted by skewness coefficient of -1.47. There is need for manufacturing companies to evaluate their working capital operating cycle so as to optimize benefits associated with prudent working capital management.

There was high dependency on long term debt as accounted for by an average of 0.18 and maximum of 1.13. Positive coefficient of skewness of 2.59 revealed that most firms highly financed their assets using long term debt. The findings corroborate study by Acaravci (2015) that manufacturing firms in Turkey used long term debts as source of financing. High dependency on long term debt financing can be attributed to availability of collateral security. The average short-term debt to total assets was 0.28, with a maximum of 0.67 and minimum of 0.03. Negative skewness of -0.03

revealed that on average, most companies' use of short term debt was almost equal the average and they had minimal variation as indicated by standard deviation of 0.14. This implies that most manufacturing companies listed in NSE had adopted conservative working capital management. The average reliance of total debt to total assets was 0.46, with a minimum of 0.13 and maximum of 1.45. From the findings it can be deduced that some firms had borrowed debts which exceeded their assets requirements this would pose a threat to their business operations especially in situations when they needed to borrow more capital whose access would be curtailed by lack of collateral security.

Table 4.8: Manufacturing and Allied Sector Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	56	0.27	0.93	0.55	0.15	0.16
P	56	-0.50	1.05	0.14	0.22	1.86
S	56	12.87	17.98	15.94	1.62	-0.46
G	56	0.00	8.13	1.78	2.00	1.53
CF	56	-2.01	1.31	0.21	0.52	-1.47
LTA	56	0.00	1.13	0.18	0.20	2.59
STA	56	0.03	0.67	0.28	0.14	-0.03
DTA	56	0.13	1.45	0.46	0.27	1.28

4.2.8 Telecommunication Sector Descriptive Statistics

As shown in Table 4.9 there was only once company which was listed in telecommunication sector. The average tangibility in this sector was 0.74, with a minimum of 0.58 and maximum of 0.83. Negative skewness coefficient of -0.89 revealed that in the period under investigation tangibility was below the average of 74%. Since this sector is dependent on on technological changes, there is need to evaluate their tangible assets to avoid huge commitment of financial resources on assets which would be phased out within a short period of time. The average profitability within the period under consideration was 15%, with a minimum of 8% and maximum of 24%. There was minimum variation of profitability within the period of operations with a standard deviation of 0.05. The average growth

opportunities were 3.53, with a minimum of 1.52 and maximum of 6.52. These findings conflicted with market timing theory.

Table 4.9: Telecommunication Sector Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
T	9	0.58	0.83	0.74	0.10	-0.89
P	9	0.08	0.24	0.15	0.05	0.77
S	9	17.93	19.09	18.50	0.39	0.01
G	9	1.52	6.52	3.53	1.82	0.71
CF	9	-0.15	0.26	0.00	0.16	0.89
LTA	9	0	0.11	0.06	0.04	-0.25
STA	9	0.25	0.33	0.29	0.02	0.61
DTA	9	0.27	0.41	0.34	0.05	0.24

4.3 Diagnostic Test Results

This section presents the results of the various diagnostic tests that were carried out as earlier alluded to in chapter three. It also presents the appropriate remedies where violations of regression assumptions manifest to make the study results valid.

4.3.1 Auto Correlation for Non-Financial Companies Listed at NSE

As shown in tables 4.10, models with LTA as the response variable had F statistics of 83.276, without cash flow moderation, and 103.976 with moderation. The p values for both were 0, which confirmed significance at 5 percent. For the DTA response variable models, the F statistics were 12.29 and 42.272 with p values of 0.0011 and 0 without and with moderation respectively. This therefore implies presence of serial correlation.

With the exception of one case where there was no auto correlation, feasible generalized least squares (FGLS) method was used to overcome the challenge of serial correlation. FGLS is preferred since it guarantees the efficiency and consistency of the estimators. This guarantee in return ensures that the significance tests carried out are valid. According to Wooldridge (2002) and as cited by Mwangi (2016), FGLS is preferred to GLS since the true values of the variances and

covariances for the error terms as used by the GLS estimator are unknown in reality and therefore the GLS estimator is not a feasible estimator. The following procedure for FGLS technique whose resulting slopes (β_j) is consistent and efficient as provided by Wooldridge (2002) is adopted in the study. Regress Y on X_t and obtain the residuals U_t. Regress the residuals agaist lagged residuals, U_{t-1} to obtain the coefficients (p) of U_{t-1}. Use OLS equation on the following equation. $y_t=\beta_0 x_{to}+ \beta_1 x_{t1} + \beta_2 x_{t2} +\ldots+ \beta_k E\ x_{tk}$ it $+e_t$. Where, $x_{to}=(1-p)$ for $t\geq 2$ and $x_{1o} = (1-p^2)^{1/2}$

Table 4.10: Wooldridge Test for Autocorrelation for Non-Financial Companies Listed at NSE

Dependent variable	Model	F (1, 41)	Prob>F
STA	Without moderator	1.748	0.1934
	With moderator	10.514	0.0024
LTA	Without moderator	83.276	0.0000
	With moderator	103.976	0.0000
DTA	Without moderator	12.29	0.0011
	With moderator	42.272	0.0000

4.3.2 Autocorrelation for Agricultural Companies Listed at NSE

As shown in Table 4.11, models with LTA as the response variable had F statistics of 765.574, without cash flow moderation, and 15500.258 with moderation. The p values for both were 0. Five percent level of significance was adopted. This therefore implies presence of serial correlation. With the presence of first order serial correlation FGLS models were fitted. For STA as response variables there was no first order serial correlation since P values were greater than 0.05. For DTA there was first order serial correlation since p values were less than 0.05.

Table 4.11: Wooldridge Test for Agricultural Companies Listed at NSE

Dependent variable	Model	F (1, 6)	Prob>F
STA	Without moderator	4.191	0.0866
	With moderator	2.065	0.2008
LTA	Without moderator	765.574	0.000
	With moderator	15500.258	0.000
DTA	Without moderator	150.576	0.000
	With moderator	475.524	0.000

4.3.3 Autocorrelation for Automobile and Accessories Companies Listed in NSE

As shown in Table 4.12, models with LTA as the response variable had F statistics of 4.57, without cash flow moderation, and 24.683 with moderation. The p values for both were greater than 0.05. For DTA the p values were less than 0.05, this therefore implies presence of serial correlation. With the presence of first order serial correlation FGLS models were fitted. For STA there is no first order serial correlation since its p values were greater than 0.05.

Table 4.12: Wooldridge Test for Automobile and Accessories Companies Listed in NSE

Dependent variable	Model	F (1, 2)	Prob>F
STA	Without moderator	0.815	0.4620
	With moderator	13.032	0.0689
LTA	Without moderator	4.57	0.166
	With moderator	24.683	0.382
DTA	Without moderator	798.695	0.0012
	With moderator	106.893	0.0092

4.3.4 Autocorrelation Test for Commercial and Services Companies Listed in NSE

As shown in Table 4.13, models with STA as the response they had F statistics of 5.29 and 10.71 with p values less than 0.05. For models with LTA as the response variable had F statistics of 6.425, without cash flow moderation, and 1.334 with moderation. The p values for both were less than 0.05. Since p value was less than

five percent there was first order serial correlation, without and with moderation respectively. This therefore implies absence of serial correlation. For models with DTA as response p values were greater than 0.05, which indicated absence of first order serial correlation.

Table 4.13: Woodridge Test for Commercial and Services Companies Listed in NSE

Dependent variable	Model	F (1, 9)	Prob>F
STA	Without moderator	5.29	0.0442
	With moderator	10.71	0.0084
LTA	Without moderator	6.425	0.0296
	With moderator	1.334	0.0275
DTA	Without moderator	3.363	0.0966
	With moderator	3.18	0.1048

4.3.5 Autocorrelation Test for Construction and Allied Companies Listed in NSE

As shown in Table 4.14, models with LTA as the response variable had F statistics of 1092.643, without cash flow moderation, and 4.665 with moderation. With p value less than 0.05 for model without moderation it indicates presence of first order serial correlation and with moderation there was no first order serial correlation. This therefore implies absence of serial correlation. For DTA as response, models with and without moderation and STA as response model with moderation, p values were greater than 0.05 which indicated absence of first order serial correlation.

Table 4.14: Woodridge Test for Construction and Allied Companies Listed in NSE

Dependent variable	Model	F (1, 4)	P value
STA	Without moderator	10.608	0.0312
	With moderator	7.015	0.571
LTA	Without moderator	1092.643	0.000
	With moderator	4.665	0.0969
DTA	Without moderator	7.478	0.522
	With moderator	8.355	0.445

4.3.6 Autocorrelation Test for Energy and Petroleum Companies Listed in NSE

As shown in Table 4.15, models with LTA as the response variable had F statistics of 61.329, without cash flow moderation, and 37.72 with moderation. The p value for without moderation was less than 0.05 and with moderation was greater than 0.05. The test statistics were therefore significant for without moderation and non-significant for with moderation thus there was presence and absence of first order serial correlation respectively. The model without moderation where STA is the response variable had an F statistic of 3.199 with a p value of 0.1776 and model with moderation had an F statistic of 1.819 and p value of 0.2702 to indicate non-significance at 5% significant level. This implied absence of first order serial correlation. With the presence of first order serial correlation FGLS models were fitted. For the DTA response variable models, the F statistics were 1.783 and 5.493 with p values of 0.2739 and 0.1009 without and with moderation respectively. This therefore implies absence of serial correlation.

Table 4.15: Woodridge Test for Energy and Petroleum Companies Listed in NSE

Dependent variable	Model	F (1, 3)	P value
STA	Without moderator	3.199	0.1716
	With moderator	1.819	0.2702
LTA	Without moderator	61.329	0.0043
	With moderator	37.72	0.87
DTA	Without moderator	1.783	0.2739
	With moderator	5.493	0.1009

4.3.7 Autocorrelation Test for Investment Companies Listed in NSE

As shown in Table 4.16, models with LTA as the response variable had F statistics of 22.556, without cash flow moderation, and 11.436 with moderation. The p values for both were less than 0.05, this confirmed significance at 5 percent level of significance. This therefore implies presence of serial correlation. Hence, the most appropriate model was FGLS.

Table 4.16: Woodridge Test for Investment Companies Listed in NSE

Dependent variable	Model	F (1, 5)	P value
STA	Without moderator	224.004	0.0006
	With moderator	5.233	0.1062
LTA	Without moderator	22.556	0.0177
	With moderator	11.436	0.0430
DTA	Without moderator	15.367	0.0295
	With moderator	41.409	0.0076

4.3.8 Autocorrelation Test for Manufacturing and Allied Companies Listed in NSE

As shown in Table 4.17, models with LTA as the response variable had F statistics of 13.41, without cash flow moderation, and 9.169 with moderation. The p values for both were less than 0.05. The test statistics were therefore significant in all cases at 5% level of significance to indicate presence of first order serial correlation in the data. This therefore implies presence of serial correlation. With the presence of first order serial correlation FGLS models were fitted.

Table 4.17: Woodridge Test for Manufacturing and Allied Companies Listed in NSE

Dependent variable	Model	F (1,6)	P value
STA	Without moderator	67.275	0.0002
	With moderator	9.569	0.0213
LTA	Without moderator	13.41	0.0106
	With moderator	9.169	0.0232
DTA	Without moderator	63.325	0.0002
	With moderator	102.48	0.0001

4.3.9 Multicollinearity Test Statistics for Listed Non-Financial Companies in NSE

Table 4.18 presents the VIFs for the various study variables. The results indicate that the VIFs for all variables were less than 5 implying that the study data did not exhibit

multicollinearity as recommended by Gujarati (2003). This guarantees the stability of the slopes and hence valid and robust significance tests (Schindler, 2008).

Table 4.18: Multicollinearity Test Statistics for Listed Non-Financial Companies in NSE

Variable	VIF	1/VIF
T	1.07	0.934345
P	1.01	0.989481
S	1.07	0.936916
G	1.06	0.941641
CF	1.16	0.864814
Mean VIF	1.07	

4.3.10 Multicollinearity Test Statistics for Agricultural Listed Companies in NSE

Table 4.19 presents the VIFs for the various study variables. The results indicate that the VIFs for all variables were less than 5 implying that the study data did not exhibit multicollinearity as recommended by (Gujarati, 2003).

Table 4.19: Multicollinearity Test Statistics for Agricultural Listed Companies in NSE

Variable	VIF	1/VIF
CF	1.87	0.535613
G	2.26	0.442084
T	1.66	0.602746
P	1.49	0.670851
S	1.31	0.761774
Mean VIF	1.72	

4.3.11 Multicollinearity Test Statistics for Automobile and Accessories Listed Companies in NSE

Table 4.20 presents the VIFs for the various study variables. The results indicate that the VIFs, for T and S are 9.87 and 6.84 respectively. Though the VIFs were greater than 5 the values are less 10, hence they may not result in biased parameter estimates (Gujarati, 2003).

Table 4.20: Multicollinearity Test Statistics for Automobile and Accessories Listed Companies in NSE

Variable	VIF	1/VIF
T	9.87	0.101358
S	6.84	0.14623
CF	3.65	0.273921
G	1.57	0.637146
P	1.31	0.763919
Mean VIF	4.65	

4.3.12 Multicollinearity Test Statistics for Commercial and Services Listed Companies in NSE

As shown in Table 4.21, there was no multicollinearity amongst independent variables since none of VIFs was greater than 5 (Gujarati, 2003).

Table 4.21: Multicollinearity Test Statistics for Commercial and Services Listed Companies in NSE

Variable	VIF	1/VIF
T	2.05	0.488625
CF	1.86	0.53673
G	1.24	0.806509
S	1.21	0.826186
P	1.07	0.935032
Mean VIF	1.49	

4.3.13 Multicollinearity Test Statistics for Construction and Services Listed Companies in NSE

Table 4.22 presents the VIFs for the various study variables. There was no multicollinearity amongst independent variables since VIFs were less than 5 (Gujarati, 2003).

Table 4.22: Multicollinearity Test Statistics for Construction and Services Listed Companies in NSE

Variable	VIF	1/VIF
S	1.94	0.514359
T	1.9	0.526636
P	1.31	0.763359
G	1.61	0.619823
CF	1.59	0.630805
Mean VIF	1.67	

4.3.14 Multicollinearity Test Statistics for Energy and Petroleum Listed Companies in NSE

Table 4.23 presents the VIFs for the various study variables. The results indicate that the VIFs were less than 5, which indicated non multicollinearity amongst independent variables.

Table 4.23: Multicollinearity Test Statistics for Energy and Petroleum Listed Companies in NSE

Variable	VIF	1/VIF
S	4.17	0.239749
T	3.7	0.270486
G	1.44	0.69601
CF	1.1	0.908413
P	1.09	0.916155
Mean VIF	2.3	

4.3.15 Multicollinearity Test Statistics for Investment Services Companies Listed in NSE

Table 4.24 presents the VIFs for the various study variables. The results indicate that the VIFs were less than 5, then there was no multicollinearity (Gujarati, 2003).

Table 4.24: Multicollinearity Test Statistics for Investment Services Companies Listed in NSE

Variable	VIF	1/VIF
G	3.8	0.263245
CF	3.31	0.302092
T	1.95	0.512073
P	1.58	0.631333
S	1.1	0.908775
Mean VIF	2.35	

4.3.16 Multicollinearity Test Statistics for Manufacturing and Allied Listed Companies in NSE

Table 4.25 presents the VIFs for the various study variables. The results indicate that the VIFs were not greater than 5, hence there was no multicollinearity (Gujarati, 2003).

Table 4.25: Multicollinearity Test Statistics for Manufacturing and Allied Listed Companies in NSE

Variable	VIF	1/VIF
CF	2.14	0.466374
S	1.88	0.532819
T	1.52	0.656788
G	1.25	0.799893
P	1.11	0.898716
Mean VIF	1.58	

4.3.17 Heteroscedasticity Test Results for Companies Listed in NSE

Table 4.26 shows the likelihood ratio tests statistics. The null hypotheses of the tests were that the error variance was homoscedastic for each model. The likelihood-ratio tests produced chi-square values of 241.74, 96.44 and 49.95 605.30 with p-values of 0.0000. This implies that the tests were significant at 5% level of significance hence the existence of heteroscedasticity in the study data (Gujarati, 2003). To remedy the problem, FGLS estimation technique was used (Wooldridge, 2012).

Table 4.26: Heteroscedasticity Test Results for Companies Listed in NSE

Response Variable's models	Chi Square	Degree of freedom	p value
STA	241.74	5	0.0000
LTA	96.44	5	0.0000
DTA	49.95	5	0.0000

4.3.18 Heteroskedasticity Test Results for Agricultural Companies Listed in NSE

Table 4.27 shows the likelihood ratio tests statistics for agricultural companies listed in NSE. The null hypotheses of the tests were that the error variance was homoscedastic for each model. The likelihood-ratio tests produced chi-square values of 55.38, 5.91 and 8.59 with p-values of 0.0000, 0.315 and 0.1265. This implies that the test was significant at 5% level of significance hence the existence of heteroscedasticity in the study when the predictor variable was STA. To remedy the problem, FGLS estimation technique was used (Wooldridge, 2002). Moreover, the test was not significant when predictor variable was LTA and DTA respectively indicating absence of heteroskedasticity.

Table 4.27: Heteroskedasticity Test Results for Agricultural Companies Listed in NSE

Response Variable's models	Chi Square	Degree of freedom	P value
STA	55.38	5	0.000
LTA	5.91	5	0.315
DTA	8.59	5	0.1265

4.3.19 Heteroskedasticity Test Results for Automobile and Accessories Listed Companies in NSE

Table 4.28 shows the likelihood ratio tests statistics for automobile and accessories companies listed in NSE. The null hypotheses of the tests were that the error variance was homoscedastic for each model. The likelihood-ratio tests produced chi-square values of 28.3, 5.25 and 6.56 with p-values of 0.0000, 0.3865 and 0.2554. This implies that the test was significant at 5% level of significance hence the existence of heteroscedasticity in the study for STA as response. To remedy the problem, FGLS estimation technique was used (Wooldridge, 2002).

Table 4.28: Heteroskedasticity Test Results for Automobile and Accessories Listed Companies in NSE

Response Variable's models	Chi Square	Degree of freedom	P value
STA	28.3	5	0.000
LTA	5.25	5	0.3865
DTA	6.56	5	0.2554

4.3.20 Heteroskedasticty Test Results for Commercial and Services Companies Listed in NSE

Table 4.29 shows the likelihood ratio tests statistics for commercial and services companies listed in NSE. The null hypotheses of the tests were that the error variance was homoscedastic for each model. The likelihood-ratio tests produced chi-square

values of 59.92, 67.26 and 40.1 with p-values of 0.0000. This implies that the test was significant at 5% level of significance hence the existence of heteroscedasticity in the study. To remedy the problem, FGLS estimation technique was used (Wooldridge, 2002).

Table 4.29: Heteroskedasticty Test Results for Commercial and Services Companies Listed in NSE

Response Variable's models	Chi Square	Degree of freedom	P value
STA	59.92	5	0.000
LTA	67.26	5	0.000
DTA	40.1	5	0.000

4.3.21 Heteroskedasticty Test Results for Construction and Allied Companies Listed in NSE

Table 4.30 shows the likelihood ratio tests statistics for construction and allied companies listed in NSE. The null hypotheses of the tests were that the error variance was homoscedastic for each model. The likelihood-ratio tests produced chi-square values of 120.27, 42.54 and 40.13 with p-values of 0.0000. This implies that the test was significant at 5% level of significance hence the existence of heteroscedasticity in the study. To remedy the problem, FGLS estimation technique was used (Wooldridge, 2002).

Table 4.30: Heteroskedasticty Test Results for Construction and Allied Companies Listed in NSE

Response Variable's models	Chi Square	Degree of freedom	P value
STA	120.27	5	0.00
LTA	42.54	5	0.00
DTA	40.13	5	0.00

4.3.22 Heteroskedasticty Test Results for Energy and Petroleum Companies Listed in NSE

Table 4.31 shows the likelihood ratio tests statistics for energy and petroleum companies listed in NSE. The null hypotheses of the tests were that the error variance was homoscedastic for each model. The likelihood-ratio tests produced chi-square values of 122.31, 81.12 and 22.16 with p-values of 0.0000. This implies that the test was significant at 5% level of significance hence the existence of heteroscedasticity in the study. To remedy the problem, FGLS estimation technique was used (Wooldridge, 2002).

Table 4.31: Heteroskedasticty Test Results for Energy and Allied Companies Listed in NSE

Response Variable's models	Chi Square	Degree of freedom	P value
STA	122.31	5	0.000
LTA	81.12	5	0.000
DTA	22.16	5	0.0005

4.3.23 Heteroskedasticity Test Results for Investment Services Companies Listed in NSE

Table 4.32 shows the likelihood ratio tests statistics for investment services companies listed in NSE. The null hypotheses of the tests were that the error variance was homoscedastic for each model. The likelihood-ratio tests produced chi-square values of 91.82, 15.68 and 68.9 with p-value less than 0.05. This implies that the test was significant at 5% level of significance hence the existence of heteroscedasticity in the study. To remedy the problem, FGLS estimation technique was used (Wooldridge, 2002).

Table 4.32: Heteroskedasticty Test Results for Investment Services Companies Listed in NSE

Response Variable's models	Chi Square	Degree of freedom	P value
STA	91.82	5	0.000
LTA	15.68	5	0.0078
DTA	68.9	5	0.000

4.3.24 Heteroskedasticity Test Results for Manufacturing and Allied Companies Listed in NSE

Table 4.33 shows the likelihood ratio tests statistics for manufacturing and allied companies listed in NSE. The null hypotheses of the tests were that the error variance was homoscedastic for each model. The likelihood-ratio tests produced chi-square values of 46.27, 30.54 and 26.17 with p-value less than 0.05. This implies that the test was significant at 5% level of significance hence the existence of heteroscedasticity in the study. To remedy the problem, FGLS estimation technique was used (Wooldridge, 2012).

Table 4.33: Heteroskedasticty Test Results for Manufacturing and Allied Companies Listed in NSE

Response Variable's models	Chi Square	Degree of freedom	P value
STA	46.27	5	0.000
LTA	30.54	5	0.000
DTA	26.17	5	0.0001

4.3.25 Stationarity Test Results for Companies Listed in NSE

Stationarity is the situation in which statistical properties of the data under consideration does not change time. Unit root tests was used to test for stationarity. The unit root test statistics are presented in Table 4.34. From the table, it is evident that all variables are stationary at level since the null hypothesis that all variables are

not stationary at 5% significant level is rejected. This is further assurance on the robustness of the expected results. Further on, there was no need to difference the data.

Table 4.34: Stationarity Test Results for Companies Listed in NSE

Variable		Statistic	Value	p-value
T	Inverse chi-squared	P	181.1602	0.0000
	Inverse normal	Z	-3.8778	0.0001
	Inverse logit t	L*	-4.9053	0.0000
	Modified inv. chi-squared	Pm	7.4961	0.0000
P	Inverse chi-squared	P	199.0623	0.0000
	Inverse normal	Z	-4.9235	0.0000
	Inverse logit t	L*	-5.9628	0.0000
	Modified inv. chi-squared	Pm	8.8772	0.0000
S	Inverse chi-squared	P	183.9468	0.0000
	Inverse normal	Z	-6.5956	0.0000
	Inverse logit t	L*	-6.815	0.0000
	Modified inv. chi-squared	Pm	8.4825	0.0000
G	Inverse chi-squared	P	268.5958	0.0000
	Inverse normal	Z	-5.592	0.0000
	Inverse logit t	L*	-9.7774	0.0000
	Modified inv. chi-squared	Pm	14.2419	0.0000
CF	Inverse chi-squared	P	164.857	0.0000
	Inverse normal	Z	-6.1083	0.0000
	Inverse logit t	L*	-6.0502	0.0000
	Modified inv. chi-squared	Pm	6.9541	0.0000

4.3.26 Stationarity Test Results for Agricultural Companies Listed in NSE

The unit root test statistics for agricultural companies listed in NSE are presented in Table 4.35. From the table, it is evident that all variables are stationary at level since the null hypothesis that all variables are not stationary at 5% significant level is rejected. This is further assurance on the robustness of the expected results. Further on, there was no need to difference the data.

Table 4.35: Stationarity Test Results for Agricultural Companies Listed in NSE

Variable		Statistic	Value	p-value
T	Inverse chi-squared	P	45.5256	0.000
	Inverse normal	Z	-3.7231	0.000
	Inverse logit t	L*	-4.3464	0.000
	Modified inv. chi-squared	Pm	5.9578	0.000
P	Inverse chi-squared	P	32.8552	0.003
	Inverse normal	Z	-2.4186	0.008
	Inverse logit t	L*	-2.7371	0.005
	Modified inv. chi-squared	Pm	3.5633	0.000
S	Inverse chi-squared	P	33.1666	0.003
	Inverse normal	Z	-2.0168	0.022
	Inverse logit t	L*	-1.984	0.027
	Modified inv. chi-squared	Pm	3.6222	0.000
G	Inverse chi-squared	P	23.9678	0.046
	Inverse normal	Z	-2.5175	0.0065
	Inverse logit t	L*	-3.555	0.0064
	Modified inv. chi-squared	Pm	1.8837	0.030
CF	Inverse chi-squared	P	36.8499	0.000
	Inverse normal	Z	2.3151	0.006
	Inverse logit t	L*	-1.2619	0.003
	Modified inv. chi-squared	Pm	-4.3512	0.000

4.3.27 Stationarity Test Results for Automobile and Accessories Companies Listed in NSE

The unit root test statistics for companies listed in automobile and accessories sector in NSE are presented in Table 4.36. From the table, it is evident that all variables are stationary at level since the null hypothesis that all variables are not stationary at 5% significant level is rejected. This is further assurance on the robustness of the expected results. Further on, there was no need to difference the data.

Table 4.36: Stationarity Test Results for Automobile and Accessories Companies Listed in NSE

Variable		Statistic	Value	p-value
T	Inverse chi-squared	P	26.2445	0.000
	Inverse normal	Z	2.495	0.000
	Inverse logit t	L*	3.7076	0.000
	Modified inv. chi-squared	Pm	6.0706	0.000
P	Inverse chi-squared	P	25.0228	0.000
	Inverse normal	Z	-2.1678	0.015
	Inverse logit t	L*	-3.4269	0.001
	Modified inv. chi-squared	Pm	5.4914	0.000
S	Inverse chi-squared	P	33.687	0.000
	Inverse normal	Z	3.5108	0.000
	Inverse logit t	L*	3.5003	0.000
	Modified inv. chi-squared	Pm	-6.677	0.000
G	Inverse chi-squared	P	75.8478	0.000
	Inverse normal	Z	-4.5884	0.000
	Inverse logit t	L*	-11.6992	0.000
	Modified inv. chi-squared	Pm	20.1633	0.000
CF	Inverse chi-squared	P	33.9642	0.000
	Inverse normal	Z	3.4962	0.000
	Inverse logit t	L*	3.5052	0.000
	Modified inv. chi-squared	Pm	-5.0877	0.000

4.3.28 Stationarity Test Results for Commercial and Services Companies Listed in NSE

The unit root test statistics for companies listed in commercial and service sector in NSE are presented in Table 4.37. From the table, it is evident that all variables are stationary at level since the null hypothesis that all variables are not stationary at 5% significant level is rejected. This is further assurance on the robustness of the expected results. Further on, there was no need to difference the data.

Table 4.37: Stationarity Test Results for Commercial and Services Companies Listed in NSE

Variable		Statistic	Value	p-value
T	Inverse chi-squared	P	59.2793	0.000
	Inverse normal	Z	-3.0394	0.0012
	Inverse logit t	L*	-4.213	0.0001
	Modified inv. chi-squared	Pm	5.6201	0.0000
P	Inverse chi-squared	P	48.1351	0.001
	Inverse normal	Z	-2.3507	0.0094
	Inverse logit t	L*	-3.068	0.0018
	Modified inv. chi-squared	Pm	3.94	0.0000
S	Inverse chi-squared	P	72.9157	0.0000
	Inverse normal	Z	-4.3928	0.000
	Inverse logit t	L*	-3.3729	0.0007
	Modified inv. chi-squared	Pm	7.6758	0.0000
G	Inverse chi-squared	P	30.3112	0.000
	Inverse normal	Z	-3.3257	0.000
	Inverse logit t	L*	-1.8038	0.0391
	Modified inv. chi-squared	Pm	6.253	0.000
CF	Inverse chi-squared	P	37.3502	0.000
	Inverse normal	Z	2.8523	0.000
	Inverse logit t	L*	3.0479	0.000
	Modified inv. chi-squared	Pm	-7.01	0.000

4.3.29 Stationarity Test Results for Construction and Allied Companies Listed in NSE

The unit root test statistics for companies listed in construction and allied sector in NSE are presented in Table 4.38. From the table, it is evident that all variables are stationary at level since the null hypothesis that all variables are not stationary at 5% significant level is rejected. This is further assurance on the robustness of the expected results. Further on, there was no need to difference the data.

Table 4.38: Stationarity Test Results for Construction and Allied Companies Listed in NSE

Variable		Statistic	Value	p-value
T	Inverse chi-squared	P	27.8663	0.000
	Inverse normal	Z	2.9249	0.000
	Inverse logit t	L*	1.0055	0.000
	Modified inv. chi-squared	Pm	-0.4771	0.000
P	Inverse chi-squared	P	20.0815	0.000
	Inverse normal	Z	-3.6915	0.000
	Inverse logit t	L*	-1.7141	0.000
	Modified inv. chi-squared	Pm	2.2543	0.000
S	Inverse chi-squared	P	41.2399	0.000
	Inverse normal	Z	4.164	0.000
	Inverse logit t	L*	5.2212	0.000
	Modified inv. chi-squared	Pm	0.2772	0.000
G	Inverse chi-squared	P	18.7711	0.000
	Inverse normal	Z	-1.5833	0.000
	Inverse logit t	L*	-1.7593	0.000
	Modified inv. chi-squared	Pm	21.9613	0.000
CF	Inverse chi-squared	P	9.2251	0.000
	Inverse normal	Z	3.4145	0.000
	Inverse logit t	L*	1.7452	0.000
	Modified inv. chi-squared	Pm	-0.1733	0.000

4.3.30 Stationarity Test Results for Energy and Petroleum Companies Listed in NSE

The unit root test statistics for companies listed in energy and petroleum sector in NSE are presented in Table 4.39. From the table, it is evident that all variables are stationary at level since the null hypothesis that all variables are not stationary at 5% significant level is rejected. This is further assurance on the robustness of the expected results. Further on, there was no need to difference the data.

Table 4.39: Stationarity Test Results for Energy and Petroleum Companies Listed in NSE

Variable		Statistic	Value	p-value
T	Inverse chi-squared	P	29.9785	0.000
	Inverse normal	Z	-2.7062	0.000
	Inverse logit t	L*	-3.7228	0.000
	Modified inv. chi-squared	Pm	5.4946	0.000
P	Inverse chi-squared	P	25.4808	0.000
	Inverse normal	Z	-2.4136	0.000
	Inverse logit t	L*	-3.1008	0.000
	Modified inv. chi-squared	Pm	4.3702	0.000
S	Inverse chi-squared	P	2.8265	0.000
	Inverse normal	Z	3.7524	0.000
	Inverse logit t	L*	1.7942	0.000
	Modified inv. chi-squared	Pm	-1.2934	0.000
G	Inverse chi-squared	P	13.2399	0.000
	Inverse normal	Z	-1.2536	0.000
	Inverse logit t	L*	-1.3045	0.000
	Modified inv. chi-squared	Pm	1.31	0.000
CF	Inverse chi-squared	P	7.723	0.000
	Inverse normal	Z	5.0029	0.000
	Inverse logit t	L*	0.0056	0.000
	Modified inv. chi-squared	Pm	-0.0693	0.000

4.3.31 Stationarity Test Results for Investment Services Companies Listed in NSE

The unit root test statistics for companies listed in investment services sector in NSE are presented in Table 4.40. From the table, it is evident that all variables are stationary at level since the null hypothesis that all variables are not stationary at 5% significant level is rejected. This is further assurance on the robustness of the expected results. Further on, there was no need to difference the data.

Table 4.40: Stationarity Test Results for Investment Services Companies Listed in NSE

Variable		Statistic	Value	p-value
T	Inverse chi-squared	P	17.4047	0.000
	Inverse normal	Z	-3.9824	0.000
	Inverse logit t	L*	-2.0247	0.000
	Modified inv. chi-squared	Pm	2.3512	0.000
P	Inverse chi-squared	P	14.025	0.000
	Inverse normal	Z	-3.3598	0.000
	Inverse logit t	L*	-1.4097	0.000
	Modified inv. chi-squared	Pm	1.5062	0.000
S	Inverse chi-squared	P	3.519	0.000
	Inverse normal	Z	3.4911	0.000
	Inverse logit t	L*	1.517	0.000
	Modified inv. chi-squared	Pm	-1.1203	0.000
G	Inverse chi-squared	P	19.394	0.000
	Inverse normal	Z	-3.7723	0.000
	Inverse logit t	L*	-2.0122	0.000
	Modified inv. chi-squared	Pm	2.8485	0.000
CF	Inverse chi-squared	P	15.0729	0.000
	Inverse normal	Z	4.4414	0.000
	Inverse logit t	L*	0.4151	0.000
	Modified inv. chi-squared	Pm	1.7682	0.000

4.3.32 Stationarity Test Results for Manufacturing and Allied Companies Listed in NSE

The unit root test statistics for companies listed in manufacturing and allied sector in NSE are presented in Table 4.41. From the table, it is evident that all variables are stationary at level since the null hypothesis that all variables are not stationary at 5% significant level is rejected. This is further assurance on the robustness of the expected results. Further on, there was no need to difference the data.

Table 4.41: Stationarity Test Results for Manufacturing and Allied Companies Listed in NSE

Variable		Statistic	Value	p-value
T	Inverse chi-squared	P	14.0252	0.000
	Inverse normal	Z	5.3247	0.000
	Inverse logit t	L*	0.3231	0.000
	Modified inv. chi-squared	Pm	0.0048	0.000
P	Inverse chi-squared	P	33.3902	0.000
	Inverse normal	Z	-4.6418	0.000
	Inverse logit t	L*	-1.8078	0.000
	Modified inv. chi-squared	Pm	3.6644	0.000
S	Inverse chi-squared	P	10.7145	0.000
	Inverse normal	Z	3.1801	0.000
	Inverse logit t	L*	0.146	0.000
	Modified inv. chi-squared	Pm	-0.6209	0.000
G	Inverse chi-squared	P	86.8161	0.000
	Inverse normal	Z	-4.2291	0.000
	Inverse logit t	L*	-9.1568	0.000
	Modified inv. chi-squared	Pm	13.761	0.000
CF	Inverse chi-squared	P	6.8753	0.000
	Inverse normal	Z	3.9246	0.000
	Inverse logit t	L*	0.896	0.000
	Modified inv. chi-squared	Pm	-1.3464	0.000

4.3.33 Fixed or Random Effects Model Test Results for Companies Listed in NSE

As shown in Tables 4.42 for STA models and for DTA model with the moderator, the nulls were rejected at 5% risk level since the p values were 0.000 and 0.0063 respectively. This implies that fixed effects models were preferred. The LTA models and the DTA model without the moderator whose p values are 0.3265, 0.1085 and .0789 respectively were failed to be rejected since the p values were less than the 5% significance level. This implies that there is no correlation between the unobserved firm financial characteristics specific random effects and the predictors hence random effects model is preferred (Greene, 2008).

Table 4.42: Hausman Test Statistics for Non-Financial Companies Listed in NSE

Dependent variable	Model	Chi Square	D.f	P value
STA	Without moderator	29.25	4	0.0000
	With moderator	50.14	8	0.0000
LTA	Without moderator	4.64	4	0.3265
	With moderator	13.1	8	0.1085
DTA	Without moderator	8.37	4	0.0789
	With moderator	21.34	8	0.0063

4.3.34 Hausman Test Statistics for Agricultural Companies Listed in NSE

As shown in Tables 4.43 for LTA models and for STA model with the moderator, the nulls were rejected at 5% risk level since the p values were 0.00 respectively. This implies that fixed effects models were preferred. The STA models without moderator and the DTA models whose p values are 0.167, 0.555 and 0.455 respectively were failed to be rejected since the p values were greater than the 5% significance level. Hence the most appropriate models for them were random effects (Greene, 2008).

Table 4.43: Hausman Test Statistics for Agricultural Companies Listed in NSE

Dependent variable	Model	Chi Square	df	P value
STA	Without moderator	6.46	4	0.167
	With moderator	277.6	4	0.000
LTA	Without moderator	62.73	4	0.000
	With moderator	22.44	4	0.000
DTA	Without moderator	3.02	4	0.555
	With moderator	3.65	4	0.455

4.3.35 Hausman Test Statistics for Automobile and Allied Companies Listed in NSE

As shown in Tables 4.44 for LTA, STA and DTA models with and without moderation, the nulls were not rejected at 5% risk level since the p values were

greater than 0.05; 0.1645, 0.1552, 0.0972, 0.4791, 0.6942 and 0.3868 respectively. Hence the most appropriate models for them were random effects (Greene, 2008).

Table 4.44: Hausman Test Statistics for Automobile and Allied Companies Listed in NSE

Dependent variable	Model	Chi Square	df	P value
STA	Without moderator	4.66	2	0.0972
	With moderator	1.47	2	0.4791
LTA	Without moderator	3.61	2	0.1645
	With moderator	3.73	2	0.1552
DTA	Without moderator	0.73	2	0.6942
	With moderator	1.9	2	0.3868

4.3.36 Hausman Test Statistics for Commercial and Allied Companies Listed in NSE

As shown in Tables 4.45 for LTA, models with and without moderation and STA for models with moderation the nulls were rejected at 5% risk level since the p values were less than 0.05; 0.0427, 0.0005 respectively. Moreover, there was no enough to warrant rejection of the null hypothesis at 5% since p value is greater than 0.05 for STA without moderation and DTA for models with and without moderation as accounted for by 0.8825, 0.7292 and 0.3627. Hence the most appropriate models for them were random effects (Greene, 2008).

Table 4.45: Hausman Test Statistics for Commercial and Allied Companies Listed in NSE

Dependent variable	Model	Chi Square	df	P value
STA	Without moderator	1.17	4	0.8825
	With moderator	17.22	9	0.0454
LTA	Without moderator	0.987	4	0.0427
	With moderator	0.2965	9	0.0005
DTA	Without moderator	2.04	4	0.7292
	With moderator	10.3	9	0.3627

4.3.37 Hausman Test Statistics for Construction and Allied Companies Listed in NSE

As shown in Tables 4.46 for LTA and DTA models with and without with the moderator and STA without moderation, the nulls were rejected at 5% risk level since the p values were 0.00 respectively. This implies that fixed effects models were preferred. Hence the most appropriate models for them were random effects (Greene, 2008). The STA model without moderator p value was 0.100 thus the null hypothesis failed to be rejected since the p values greater than the 5% significance level.

Table 4.46: Hausman Test Statistics for Construction and Allied Companies Listed in NSE

Dependent variable	Model	Chi Square	df	P value
STA	Without moderator	26.67	4	0.000
	With moderator	7.78	9	0.100
LTA	Without moderator	18.2	4	0.001
	With moderator	16.25	9	0.003
DTA	Without moderator	20.07	4	0.001
	With moderator	14.13	9	0.007

4.3.38 Hausman Test Statistics for Energy and Allied Companies Listed in NSE

As shown in Tables 4.47 for LTA, with moderation the nulls were rejected at 5% risk level since the p values were (less than 0.05) 0.0066. This implies that the most appropriate model to fit was fixed effects. Moreover, there was no enough to warrant rejection of the null hypothesis at 5% since p value is greater than 0.05 for LTA without moderation, STA models and DTA models with and without moderation as accounted for by 0.1601, 0.1548, 0.5614, 0.6112 and 0.4704. Hence the most appropriate models for them were random effects (Greene, 2008).

Table 4.47: Hausman Test Statistics for Energy and Allied Companies Listed in NSE

Dependent variable	Model	Chi Square	df	P value
STA	Without moderator	5.24	3	0.1548
	With moderator	2.05	3	0.5614
LTA	Without moderator	5.17	3	0.1601
	With moderator	12.25	3	0.0066
DTA	Without moderator	1.82	3	0.6112
	With moderator	2.9	3	0.4074

4.3.39 Hausman Test Statistics for Investment Companies Listed in NSE

As shown in Tables 4.48 for LTA, with and without moderation and DTA model with moderation the nulls were not rejected at 5% risk level since the p values were (greater than 0.05) as indicated by 0.3069, 0.4758 and 0.091 respectively. This implies that the most appropriate model to fit was random effects. Moreover, there was no enough to warrant rejection of the null hypothesis at 5% since p value is greater than 0.05 for STA models, with and without moderation, DTA model without moderation as accounted for by 0.0149, 0.003 and 0.0251 respectively. Hence the most appropriate models for them were fixed effects (Greene, 2008).

Table 4.48: Hausman Test Statistics for Investment Companies Listed in NSE

Dependent variable	Model	Chi Square	df	P value
STA	Without moderator	10.48	3	0.0149
	With moderator	13.93	3	0.003
LTA	Without moderator	3.61	3	0.3069
	With moderator	2.5	3	0.4758
DTA	Without moderator	9.34	3	0.0251
	With moderator	6.47	3	0.091

4.3.40 Hausman Test Results for Manufacturing and Allied Companies Listed in NSE

As shown in Table 4.49 there was enough evidence to warrant rejection of the null hypothesis at 5% level of significance for LTA model with moderation, STA models with and without moderation and DTA model with moderation as accounted for by p value of 0.000, 0.0211, 0.0023 and 0.000. Consequently, the appropriate models to fit were fixed effects regression model. There was no enough evidence to warrant rejection of the null hypothesis at 5% for LTA and DTA models without moderation since their p values were greater than 0.05 as accounted for by p values of 0.7596 and 0.0855 respectively. Thus, the most appropriate model to fit was random effects (Greene, 2008).

Table 4.49: Hausman Test Results for Manufacturing and Allied Companies Listed in NSE

Dependent variable	Model	Chi Square	df	P value
STA	Without moderator	11.54	4	0.0211
	With moderator	20.44	6	0.0023
LTA	Without moderator	1.87	4	0.7596
	With moderator	31.65	6	0.000
DTA	Without moderator	8.17	4	0.0855
	With moderator	31.76	6	0.000

4.3.41 Normality Test Results for Companies Listed in NSE

As shown in Table 4.50, the Shapiro-Wilk results for all regression models (moderated or not) had a z of 8.359 and a p value of 0.000. The null hypothesis that residuals are normally distributed was rejected at 5% level of significance. While as earlier alluded in chapter three, this may not be a problem for large data set like in this study, thus robust standard errors were adopted. As Mwangi (2016) posit, robust standard errors generally improve the efficiency of the estimators.

Table 4.50: Shapiro-Wilk Test Statistics for Companies Listed in NSE

Variable	Obs.	W	V	Z	Prob>z
R	339	0.85437	34.494	8.359	0.0000

4.3.42 Normality Test Results for Agricultural Companies Listed in NSE

As shown in Table 4.51, the Shapiro-Wilk results for all regression models (moderated or not) had a z of 1.656 and a p value of 0.04882. The null hypothesis that residuals are normally distributed was rejected at 5% level of significance. Consequently, robust standard errors were adopted while fitting regression models as asserted by (Gujrat, 2003).

Table 4.51: Shapiro-Wilk Test Statistics for Agricultural Companies Listed in NSE

Variable	Obs.	W	V	Z	Prob>z
R	58	0.95918	2.16	1.656	0.04882

4.3.43 Normality Test Results for Automobile and Accessories Companies Listed in NSE

As shown in Table 4.52, the Shapiro-Wilk results for all regression models (moderated or not) had a Z of 1.09 and a p value of 0.13791. The null hypothesis that residuals are normally distributed was not rejected at 5% level of significance. Thus, the data was normally distributed (Elliott & Woodward, 2007).

Table 4.52: Normality Test Results for Automobile and Accessories Companies Listed in NSE

Variable	Obs.	W	V	Z	Prob>z
R	21	0.93004	1.714	1.09	0.13791

4.3.44 Normality Test Results for Commercial and Services Companies Listed in NSE

As shown in Table 4.53, the Shapiro-Wilk results for all regression models (moderated or not) had a Z of 4.63 and a p value of 0.000. The null hypothesis that residuals are normally distributed was rejected at 5% level of significance. Thus, robust standard errors were adopted while fitting regression model (Elliott & Woodward, 2007).

Table 4.53: Normality Test Results for Commercial and Services Companies Listed in NSE

Variable	Obs.	W	V	z	Prob>z
R	86	0.88737	8.205	4.63	0.000

4.3.45 Normality Test Results for Construction and Allied Companies Listed in NSE

As shown in Table 4.54, the Shapiro-Wilk results for all regression models (moderated or not) had a Z of 0.077 and a p value of 0.46943. The null hypothesis that residuals are normally distributed was not rejected at 5% level of significance. Thus, non-robust standard errors were adopted while fitting regression model (Elliott & Woodward, 2007).

Table 4.54: Normality Test Results for Construction and Allied Companies Listed in NSE

Variable	Obs.	W	V	Z	Prob>z
R	45	0.97606	1.037	0.077	0.46943

4.3.46 Normality Test Results for Energy and Petroleum Companies Listed in NSE

As shown in Table 4.55, the Shapiro-Wilk results for all regression models (moderated or not) had a Z of 3.994 and a p value of 0.000. The null hypothesis that residuals are normally distributed was rejected at 5% level of significance. Thus, robust standard errors were adopted while fitting regression model (Elliott & Woodward, 2007).

Table 4.55: Normality Test Results for Energy and Petroleum Companies Listed in NSE

Variable	Obs.	W	V	Z	Prob>z
R	34	0.80527	6.8	3.994	0.00003

4.3.47 Normality Test Results for Investment Services Companies Listed in NSE

As shown in Table 4.56, the Shapiro-Wilk results for all regression models (moderated or not) had a Z of -1.141 and a p value of 0.87314. The null hypothesis that residuals are normally distributed was not rejected at 5% level of significance. Thus, non-robust standard errors were adopted while fitting regression model (Elliott & Woodward, 2007).

Table 4.56: Normality Test Results for Investment Services Companies Listed in NSE

Variable	Obs.	W	V	Z	Prob>z
R	29	0.98144	0.575	-1.141	0.87314

4.3.48 Normality Test Results for Manufacturing and Allied Companies Listed in NSE

As shown in Table 4.57, the Shapiro-Wilk results for all regression models (moderated or not) had a Z of 2.22 and a p value of 0.0132. The null hypothesis that residuals are normally distributed was rejected at 5% level of significance. Thus, robust standard errors were adopted while fitting regression model (Mwangi, 2016).

Table 4.57: Normality Test Results for Manufacturing and Allied Companies Listed in NSE

Variable	Obs.	W	V	Z	Prob>z
R	56	0.94532	2.813	2.22	0.0132

4.3.49 Granger Causality Test Results for Non-Financial Companies Listed in NSE

As earlier observed, granger causality test is necessary to show which one between two variables explains the other one in a better manner (Granger, 1988). As shown in Table 4.58, the p-values for all lagged financial characteristics (in isolation) values and DTA, run against DTA, are greater than 5% level of significance. This implies that the null hypotheses that individual firm financial characteristic does not granger causes leverage is not rejected. When all lagged values of financial characteristics and DTA were run against DTA at the same time, the p value was zero. Being less than 5% level of significance, it means that the null hypothesis that firm financial characteristics does not granger causes leverage is rejected. Put otherwise, it means that firm financial characteristics of a firm, as a combination but not in isolation, can explain its leverage.

When the lagged values of DTA and individual firm financial characteristic were run against individual firm financial characteristics values at the same time, the p value for T and G were less than 5% level of significance. The p values for S and P were

greater than the said significance level. This implies that for T and G, the null hypotheses that leverage does not granger cause tangibility and growth are rejected at 5% significance level. In other words, leverage can explain firms' growth and tangibility but not profitability and size. As cited in Mwangi (2016), the results contradict Dragota, Dragota, Obreja and Semenescu (2008) who concluded that the null hypothesis of capital structure, measured by leverage, does not granger cause profitability, a measure of performance, cannot be rejected.

Table 4.58: Granger Causality Test Statistics for Non-Financial Companies Listed in NSE

Variable Dependent	**Independent (Lagged)**	**F-statistic**	**p- value**
STA	S,STA	1.08	0.1204
	T,STA	2.11	0.1687
	P,STA	2.08	0.1562
	G,STA	1.63	0.1053
	S,T,P,G,STA	60.32	0.0030
S	STA,S	1.04	0.1256
T	STA,T	1.23	0.2365
P	STA,P	1.26	0.5896
G	STA,G	3.56	0.2541
LTA	S,LTA	2.35	0.1504
	T,LTA	2.25	0.2563
	P,LTA	2.28	0.2146
	G,LTA	3.23	0.2546
	S,T,P,G,LTA	49.36	0.0000
S	LTA,S	3.11	0.2708
T	LTA,T	2.45	0.0271
P	LTA,P	2.15	0.2563
G	LTA,G	3.26	0.2456
DTA	S,DTA	1.48	0.2304
	T,DTA	2.21	0.0687
	P,DTA	2.08	0.0563
	G,DTA	1.59	0.1273
	S,T,P,G,DTA	50.81	0.0000
S	DTA,S	1.31	0.2708
T	DTA,T	3.66	0.0271
P	DTA,P	0.21	0.8090
G	DTA,G	4.48	0.0123

4.3.50 Granger Causality Test Results for Agricultural Companies Listed in NSE

As shown in Table 4.59, the p-values for all lagged financial characteristics (in isolation) values and DTA, run against DTA, are greater than 5% level of significance. This implies that the null hypotheses that individual financial characteristic does not granger causes leverage is not rejected for agricultural listed companies in NSE. When all lagged values of firm financial characteristics and DTA were run against DTA at the same time, the p value was 0.002. Being less than 5% level of significance, it means that the null hypothesis that firm financial characteristics does not granger causes leverage is rejected. It means that firm financial characteristics of a firm, as a combination but not in isolation, can explain its leverage.

When the lagged values of DTA and individual firm financial characteristic were run against individual firm financial characteristics values at the same time, the p value for T and G were greater than 5% level of significance. The p values for S and P were greater than the said significance level. This implies that for T, P, G and S, the null hypotheses that leverage does not granger cause tangibility, profitability, growth and size are not rejected at 5% significance level.

Table 4.59: Granger Causality Test Results for Agricultural Companies Listed in NSE

Dependent	Independent (Lagged)	F Statistic	P value
STA	S,STA	1.41	0.2732
	T,STA	1.23	0.2562
	P,STA	1.39	0.2715
	G,STA	1.16	0.4606
	S,T,P,G,STA	1.25	0.2361
S	STA,S	0.13	0.9452
T	STA,T	0.23	0.8956
P	STA,P	0.06	0.9812
G	STA,G	0.09	0.3985
LTA	S,LTA	1.32	0.2569
	T,LTA	1.32	0.2269
	P,LTA	1.45	0.2816
	G,LTA	1.36	0.3615
	S,T,P,G,LTA	3.85	0.004
S	LTA,S	0.89	0.4589
T	LTA,T	0.26	0.3615
P	LTA,P	0.45	0.8516
G	LTA,G	0.26	0.7815
DTA	S,DTA	1.29	0.2896
	T,DTA	1.44	0.2458
	P,DTA	1.36	0.2618
	G,DTA	1.02	0.4404
	S,T,P,G,DTA	3.81	0.002
S	DTA,S	0.16	0.8485
T	DTA,T	0	0.9981
P	DTA,P	0.03	0.9737
G	DTA,G	0.3	0.7397

4.3.51 Granger Causality Test Results for Automobile and Accessories Companies Listed in NSE

As shown in Table 4.60, the p-values for all lagged firm financial characteristics, in isolation, values and DTA, run against DTA, are greater than 5% level of significance. This implies that the null hypotheses that individual financial characteristic does not granger causes leverage is not rejected for automobile and accessories listed companies in NSE. When all lagged values of firm financial characteristics and DTA were run against DTA at the same time, the p value was

zero. Being greater than 5% level of significance, it means that the null hypothesis that firm financial characteristics does not granger causes leverage was not rejected.

When the lagged values of DTA and individual firm financial characteristic were run against individual firm financial characteristics values at the same time, the p value for S, T and G were greater than 5% level of significance. The p value for P was less than the said significance level of 0.05. This implies that for S, T and G, the null hypotheses that leverage does not granger cause tangibility and growth were not rejected at 5% significance level.

Table 4.60: Granger Causality Test Results for Automobile and Accessories Companies Listed in NSE

Dependent	Independent (Lagged)	F Statistic	P value
STA	S,STA	0.66	0.6215
	T,STA	2.12	0.3112
	P,STA	2.36	0.3215
	G,STA	1.68	0.4516
	S,T,P,G,STA	1.66	0.5741
S	STA,S	1.25	0.3615
T	STA,T	0.56	0.3946
P	STA,P	13.26	0.0085
G	STA,G	0.15	0.2596
LTA	S,LTA	0.62	0.2516
	T,LTA	2.26	0.3215
	P,LTA	2.01	0.3615
	G,LTA	1.36	0.3615
	S,T,P,G,LTA	1.36	0.4615
S	LTA,S	1.16	0.2635
T	LTA,T	0.56	0.4218
P	LTA,P	15.3	0.0078
G	LTA,G	0.25	0.8215
DTA	S,DTA	0.64	0.6103
	T,DTA	2.48	0.3071
	P,DTA	2.04	0.3643
	G,DTA	1.55	0.4498
	S,T,P,G,DTA	1.49	0.468
S	DTA,S	1.17	0.3526
T	DTA,T	0.7	0.5239
P	DTA,P	16.9	0.0009
G	DTA,G	0.09	0.9139

4.3.52 Granger Causality Test Results for Commercial and Services Companies Listed in NSE

As shown in Table 4.61, the p-values for all lagged firm financial characteristics, in isolation, values and DTA, run against DTA, were less 5% level of significance. This implies that the null hypotheses that individual firm financial characteristic does not granger causes leverage was rejected for commercial and services listed companies. When all lagged values of financial characteristics and DTA were run against DTA at the same time, the p value was 0.000. Being less than 5% level of significance, it means that the null hypothesis that firm financial characteristics does not granger causes leverage is not rejected. It means that firm financial characteristics, as a combination but not in isolation, can explain its leverage and vice versa. When the lagged values of DTA and individual firm financial characteristic were run against individual financial characteristics values at the same time, the p value for S was less than 5% level of significance.

Table 4.61: Granger Causality Test Results for Commercial and Services Companies Listed in NSE

Dependent	Independent (Lagged)	F Statistic	P value
STA	S,STA	5.52	0.001
	T,STA	10.12	0.000
	P,STA	9.37	0.000
	G,STA	6.23	0.0001
	S,T,P,G,STA	24.32	0.000
S	STA,S	40.32	0.000
T	STA,T	2.15	0.2316
P	STA,P	1.14	0.7703
G	STA,G	1.23	0.2360
LTA	S,LTA	6.52	0.000
	T,LTA	11.23	0.000
	P,LTA	9.25	0.000
	G,LTA	6.32	0.0001
	S,T,P,G,LTA	18.26	0.000
S	LTA,S	35.16	0.000
T	LTA,T	0.26	0.2364
P	LTA,P	0.21	0.3615
G	LTA,G	1.23	0.1253
DTA	S,DTA	4.52	0.0157
	T,DTA	9.1	0.000
	P,DTA	6.73	0.000
	G,DTA	5.15	0.0001
	S,T,P,G,DTA	22.35	0.000
S	DTA,S	45.18	0.000
T	DTA,T	1.79	0.1766
P	DTA,P	0.14	0.8708
G	DTA,G	2.29	0.1102

4.3.53 Granger Causality Test Results for Construction and Allied Companies Listed in NSE

As shown in Table 4.62, the p-values for all lagged firm financial characteristics in isolation values and DTA, run against DTA, are greater than 5% level of significance. This implies that the null hypotheses that individual firm financial characteristic does not granger causes leverage is not rejected for construction and allied listed companies. When all lagged values of financial characteristics and DTA were run against DTA at the same time, the p value was zero. Being less than 5%

level of significance, it means that the null hypothesis that financial characteristics does not granger causes leverage is rejected. It means that financial characteristics of a firm, as a combination but not in isolation, can explain its leverage. When the lagged values of DTA and individual firm financial characteristic were run against individual firm financial characteristics values at the same time, the p value for S, T, P and G were greater than 5% level of significance.

Table 4.62: Granger Causality Test Results for Construction and Allied Companies Listed in NSE

Dependent	Independent (Lagged)	F Statistic	P value
STA	S,STA	2.31	0.2365
	T,STA	1.78	0.1908
	P,STA	1.57	0.3612
	G,STA	2.31	0.2366
	S,T,P,G,STA	18.23	0.0000
S	STA,S	2.1	0.7815
T	STA,T	6.7	0.5613
P	STA,P	1.23	0.3612
G	STA,G	1.36	0.3261
LTA	S,LTA	1.26	0.2631
	T,LTA	1.56	0.2636
	P,LTA	1.45	0.3215
	G,LTA	1.32	0.2541
	S,T,P,G,LTA	16.85	0.0000
S	DTA,S	0.21	0.8156
T	DTA,T	0.67	0.56167
P	DTA,P	1.18	0.0583
G	DTA,G	1.39	0.2654
DTA	S,DTA	1.68	0.2075
	T,DTA	1.68	0.1872
	P,DTA	1.37	0.2649
	G,DTA	1.32	0.2799
	S,T,P,G,DTA	15.68	0.0000
S	DTA,S	0.21	0.8156
T	DTA,T	0.67	0.56167
P	DTA,P	1.18	0.0583
G	DTA,G	1.39	0.2654

4.3.54 Granger Causality Test Results for Energy and Petroleum Companies Listed in NSE

As shown in Table 4.63, the p-values for all lagged firm financial characteristics in isolation values and DTA, run against DTA, are greater than 5% level of significance. This implies that the null hypotheses that individual firm financial characteristic does not granger causes leverage is not rejected for energy and petroleum listed companies in NSE. When all lagged values of firm financial characteristics and DTA were run against DTA at the same time, the p value was 0.941. Being greater than 5% level of significance, it means that the null hypothesis that financial characteristics does not granger causes leverage failed to be rejected. When the lagged values of DTA and individual firm financial characteristic were run against individual financial characteristics values at the same time, the p value for S, T, P and G were greater than 5% level of significance. This implies that all variables the null hypotheses that leverage does not granger cause each other failed to be rejected at 5% significance level.

Table 4.63: Granger Causality Test Results for Energy and Allied Companies Listed in NSE

Dependent	Independent (Lagged)	F Statistic	P value
STA	S,STA	1.52	0.3136
	T,STA	4.51	0.0000
	P,STA	7.82	0.0000
	G,STA	32.12	0.0000
	S,T,P,G,STA	37.13	0.0000
S	STA,S	18.82	0.0000
T	STA,T	11.74	0.0000
P	STA,P	12.35	0.0000
G	STA,G	26.32	0.0000
LTA	S,LTA	15.62	0.0000
	T,LTA	45.02	0.0000
	P,LTA	38.32	0.0000
	G,LTA	32.38	0.0000
	S,T,P,G,LTA	36.52	0.0000
S	LTA,S	17.82	0.0000
T	LTA,T	21.74	0.0000
P	LTA,P	21.79	0.0000
G	LTA,G	12.26	0.0000
DTA	S,DTA	0.51	0.6134
	T,DTA	0.45	0.7693
	P,DTA	0.38	0.8824
	G,DTA	0.32	0.9436
	S,T,P,G,DTA	0.37	0.941
S	DTA,S	0.82	0.4536
T	DTA,T	1.74	0.2017
P	DTA,P	1.79	0.1927
G	DTA,G	0.26	0.7738

4.3.54 Granger Causality Test Results for Investment Services Companies Listed in NSE

As shown in Table 4.64, the p-values for all lagged firm financial characteristics in isolation values and DTA, run against DTA, are greater than 5% level of significance. This implies that the null hypotheses that individual firm financial characteristic does not granger causes leverage failed to be rejected for investment and services listed companies in NSE. When all lagged values of firm financial characteristics and DTA were run against DTA at the same time, the p value was

0.003. Being less than 5% level of significance, it means that the null hypothesis that financial characteristics does not granger causes leverage is rejected. It means that financial characteristics of a firm, as a combination but not in isolation, can explain its leverage. When the lagged values of DTA and individual firm financial characteristic were run against individual financial characteristics values at the same time, the p value for S and G were greater than 5% level of significance. The p values for T and P were greater than the said significance level.

Table 4.64: Granger Causality Test Results for Investment Services Companies Listed in NSE

Dependent	Independent (Lagged)	F Statistic	P value
STA	S,STA	2.79	0.3126
	T,STA	2.36	0.2136
	P,STA	1.08	0.4316
	G,STA	1.26	0.3216
	S,T,P,G, STA	7.85	0.0002
S	STA,S	3.02	0.036
T	STA,T	6.19	0.0025
P	STA,P	7.52	0.000
G	STA,G	22.36	0.000
LTA	S,LTA	23.16	0.0000
	T,LTA	4.43	0.2615
	P,LTA	2.31	0.3615
	G,LTA	1.36	0.2516
	S,T,P,G, LTA	8.92	0.0002
S	LTA,S	8.05	0.000
T	LTA,T	4.26	0.000
P	LTA,P	13.52	0.003
G	LTA,G	23.13	0.000
DTA	S,DTA	1.68	0.2346
	T,DTA	1.34	0.3212
	P,DTA	1.1	0.4264
	G,DTA	1.12	0.4272
	S,T,P,G, DTA	6.64	0.0031
S	DTA,S	6.06	0.011
T	DTA,T	3.19	0.0682
P	DTA,P	1.52	0.248
G	DTA,G	10.39	0.0013

4.3.55 Granger Causality Test Results for Manufacturing and Allied Companies Listed in NSE

As shown in Table 4.65, the p-values for all lagged firm financial characteristics (in isolation) values and DTA, run against DTA, are less than 5% level of significance. This implies that the null hypotheses that individual financial characteristic does not granger causes leverage was rejected for manufacturing and allied listed companies in NSE. When all lagged values of financial characteristics and DTA were run against DTA at the same time, the p value was 0.000. Being less than 5% level of significance, it means that the null hypothesis that financial characteristics does not granger causes leverage is rejected. It means that financial characteristics of a firm, as a combination but not in isolation, can explain its leverage. When the lagged values of DTA and individual financial characteristic were run against individual financial characteristics values at the same time, the p value for S, T, P and G were greater than 5% level of significance.

Table 4.65: Granger Causality Test Results for Manufacturing and Allied Companies Listed in NSE

Dependent	Independent (Lagged)	F Statistic	P value
STA	S, STA	6.36	0.0000
	T, STA	5.81	0.0000
	P, STA	10.23	0.0000
	G, STA	13.48	0.0000
	S, T, P, G, STA	40.12	0.000
S	STA, S	0.26	0.1232
T	STA, T	0.89	0.6146
P	STA, P	1.08	0.9422
G	STA, G	3.01	0.1362
LTA	S, LTA	16.06	0.0000
	T, LTA	18.42	0.0000
	P, LTA	23.30	0.0000
	G, LTA	10.23	0.0003
	S, T, P, G, LTA	20.38	0.0000
S	LTA, S	1.36	0.2719
T	LTA, T	2.31	0.6146
P	LTA, P	1.05	0.2316
G	LTA, G	1.23	0.1312
DTA	S, DTA	6.06	0.0063
	T, DTA	4.81	0.0042
	P, DTA	3.23	0.0149
	G, DTA	2.58	0.0293
	S, T, P, G, DTA	38.02	0.000
S	DTA, S	0.9	0.9172
T	DTA, T	0.9	0.4146
P	DTA, P	1.56	0.2249
G	DTA, G	2.03	0.1467

4.4 Correlation Analysis on Influence of FFC on Leverage of Listed Companies in NSE

Pearson correlation analysis was adopted to show the strength of the influence of firm financial characteristics on leverage of listed companies in Nairobi Securities Exchange. As shown in Table 4.66, there was inverse and non-significant influence of tangibility on total debt (rho = -0.089, p value >0.05), positive and significant

effect of tangibility on long-term debt (rho = 0.327, p value <0.05) and inverse and non-significant influence of tangibility and short term debt (rho = -0.055, p value > 0.05). Secondly, there was positive and non-significant influence of profitability on total debt (rho = 0.014, p value >0.05), negative and significant influence of profitability on long term debt (rho = -0.163, p value <0.05) and there was negative and non-significant influence of profitability and short term debt (rho = -0.036, p value >0.05). Thirdly, there was positive and non-significant influence of firm size on total debt (rho = 0.016, p value >0.05), negative and significant influence of firm size on long term and short-term debt (rho = -0.378, p value <0.05) and (rho = -0.246, p value <0.05) respectively. Further, there was positive and non-significant influence of growth opportunities on total debt (rho = 0.009, p value >0.05), negative and non-significant influence of growth opportunities on long term and short-term debt (rho = -0.344, p value <0.05) and (rho = -0.146, p value <0.05). Free cash flows had no significant influence on leverage of non-financial companies listed in Nairobi securities exchange.

These findings were congruent with Harc (2015), Koksal et al. (2013), who documented significant influence of asset tangibility on financial leverage. Further, they supported Olankule and Oni (2014) reported positive and significant effect on leverage. In contrast, the study refuted Mwangi and Birundu (2015) who reported inverse significant effect, though they supported Badar and Saeed (2013) and Hussan (2016) who found positive effect of growth opportunities on leverage. Also, the study concurred with Mosavi et al. (2014) who found positive effect of operating cash flows on financial leverage.

Table 4.66: Correlation Analysis on Influence of FFC on Leverage of Listed Companies in NSE

		DTA	LTA	STA	T	P	S	G	CF
DTA	Rho	1							
LTA	Rho	-0.065	1						
	P value	0.23							
	N	339	339						
STA	Rho	-0.043	-0.102	1					
	P value	0.43	0.061						
	N	339	339	339					
T	Rho	-0.089	.327**	-0.055	1				
	P value	0.1	0.00	0.312					
	N	339	339	339	339				
P	Rho	0.014	-.163**	-0.036	-.127*	1			
	P value	0.794	0.003	0.51	0.02				
	N	338	339	339	339	339			
S	Rho	0.016	-.378**	-.241**	-.170**	.226**	1		
	P value	0.77	0.00	0.00	0.002	0.00			
	N	339	339	339	339	338	339		
G	Rho	0.009	-.344**	-.146**	-.126*	.139*	.129**	1	
	P value	0.874	0.00	0.007	0.02	0.011	0.00		
	N	339	339	339	339	338	339	339	
CF	Rho	0.026	-0.077	-0.043	-.219**	-0.024	.213**	.207**	1
	P value	0.627	0.159	0.433	0.00	0.658	0.00	0.00	
	N	339	339	339	339	339	339	339	339

4.4.1 Correlation Analysis on Influence of FFC on Leverage of Agricultural Listed Companies in NSE

As shown in Table 4.67, there was negative and non-significant influence of tangibility on total debt of agricultural listed companies in NSE (rho = -0.074, p value >0.05), tangibility had positive and significant influence on long term debt (rho = 0.327, p value <0.05), there was positive and non-significant influence of tangibility on short term debt (rho = 0.216, p value >0.05). There was inverse and non-significant influence of profitability on total debt and long-term debt (rho = -0.16, p value >0.05) and (rho = -0.098, p value >0.05) respectively, profitability had negative and significant influence on short term (rho = -0.339, p value < 0.05). There was positive and non-significant influence of firm size on total debt (rho = 0.082, p value > 0.05), negative and non-significant influence of firm size on long term debt (rho = -0.097, p value >0.05) and firm size had negative and significant influence on short term debt (rho = -0.433, p value <0.05).

Further, there was negative and non-significant influence of growth opportunities on total debt, long term debt and short-term debt (rho = -0.028, p value >0.05), (rho = -0.142, p value >0.05) and (rho = -0.137, p value >0.05) respectively. Operating cash flows had positive and significant influence on total debt (rho = 0.861, p value <0.05) and it had inverse significant influence on short term (rho = -0.376, p value <0.05). These results were in tandem with Hong et al. (2013) who documented positive significant effect of operating cash flows on financial leverage. The findings confirmed Frank and Goyal (2009) and Kayo and Kimura (2011) who found inverse effect of profitability on financial leverage. Theoretically the study supported MM hypothesis.

Table 4.67: Correlation Analysis on Influence of FFC on Leverage of Agricultural Listed Companies in NSE

		DTA	LTA	STA	T	P	S	G	CF
DTA	Rho	1							
LTA	Rho	0.119	1						
	P value	0.374							
	N	58	58						
STA	Rho	-.444**	-0.202	1					
	P value	0.00	0.128						
	N	58	58	58					
T	Rho	-0.074	.327*	0.216	1				
	P value	0.581	0.012	0.103					
	N	58	58	58	58				
P	Rho	-0.16	-0.098	-.339**	-.464**	1			
	P value	0.231	0.465	0.009	0.00				
	N	58	58	58	58	58			
S	Rho	0.082	-0.097	-.433**	-.327*	.637**	1		
	P value	0.541	0.471	0.001	0.012	.000			
	N	58	58	58	58	58	58		
G	Rho	-0.028	-0.142	-0.137	-0.182	.474**	.219**	1	
	P value	0.832	0.288	0.306	0.173	0.00	0.00		
	N	58	58	58	58	58	58	58	
CF	Rho	.861**	0.011	-.376**	-0.239	-0.089	.282*	0.191	1
	P value	0.00	0.932	0.004	0.071	0.508	0.032	0.15	
	N	58	58	58	58	58	58	58	58

4.4.2 Correlation Analysis on Influence of FFC on Leverage of Automobile and Accessories Listed Companies in NSE

As shown in Table 4.68 there was positive and non-significant influence of tangibility on debt of listed automobile and accessories companies in NSE (rho = 0.215, p value > 0.05), tangibility had negative non-significant and significant influence of long term and short term debt (rho = -0.329, p value > 0.05) and (rho = -0.747, p value <0.05). Secondly, there was negative and non-significant influence of profitability on total debt and long-term debt (rho = -0.247, p value > 0.05) and (rho = -0.282, p value >0.05) and it positive and non-significant influence on short term debt (rho = 0.384, p value >0.05). Thirdly, there was positive and negative no

significant influence of firm size on total debt and long-term debt (rho = 0.071, p value >0.05) and (rho = -0.046, p value > 0.05) respectively.

Growth opportunities had negative no significant and significant influence on long-term debt and short-term debt (rho = -0.027, p value > 0.05) and (rho = -0.702, p value < 0.05) respectively. Operating cash flows had no significant influence on total debt, long term debt and short-term debt. These findings concurred with Acaravci (2015) who found positive influence on growth opportunities, profitability, tangibility and leverage. Also, the study confirmed Thippayana (2014) who reported positive contribution of firm size, profitability, growth opportunities and leverage. These results concurred with pecking order theory and trade off theory. The study contrasted Harc (2015) who documented inverse effect of firm size on leverage.

Table 4.68: Correlation Analysis on Influence of FFC on Leverage of Automobile and Accessories Listed Companies in NSE

		DTA	LTA	STA	T	P	S	G	CF
DTA	Rho	1							
LTA	Rho	-0.046	1						
	P value	0.836							
	N	22	22						
STA	Rho	-0.296	0.362	1					
	P value	0.17	0.089						
	N	22	22						
T	Rho	0.215	-0.329	-.747**	1				
	P value	0.323	0.125	0.000					
	N	22	22	22					
P	Rho	-0.247	-0.282	0.384	-0.248	1			
	P value	0.268	0.204	0.078	0.266				
	N	22	22	22	22				
S	Rho	0.071	-0.046	-.655**	0.14	-0.253	1		
	P value	0.749	0.834	0.001	0.524	0.256			
	N	22	22	22	22	22			
G	Rho	0.008	-0.027	-.702**	0.257	-0.313	.063**	1	
	P value	0.971	0.904	0.000	0.236	0.156	0.000		
	N	22	22	22	22	22	22	22	
CF	Rho	-0.265	0.201	-0.027	-0.11	0.049	0.235	0.263	1
	P value	0.222	0.359	0.904	0.618	0.83	0.279	0.225	
	N	22	22	22	22	22	22	22	22

4.4.3 Correlation Analysis on Influence of FFC on Leverage of Commercial and Services Listed Companies in NSE

As shown in Table 4.69, there was positive insignificant and significant influence of tangibility on long-term debt and short-term debt of listed commercial and services listed companies in NSE (Rho = 0.07, p value > 0.05) and (Rho = 0.330, p value < 0.05). Secondly, there was positive and insignificant influence of profitability on total debt and short-term debt (rho = 0.019, p value > 0.05) and (rho = 0.014, p value > 0.05) respectively. Thirdly, there was negative and insignificant influence of firm size on total debt and short term and long term was negatively and significantly influenced (rho = -0.001, p value > 0.05), (rho = -0.117, p value > 0.05) and (rho = -0.450, p value < 0.05) respectively.

Growth opportunities had negative and significant influence on long-term debt and short-term debt (rho = -0.477, p value <0.05) and (rho = -0.269, p value <0.05) respectively. These results contrasted Handoo and Sharma (2014) who documented inverse significant effect of tangibility on leverage. They concurred with Bereznicka (2013) who found inverse effect of working capital management ratios on financial leverage but long-term debt was positively influenced by financial stability. Also, the findings were congruent to Baloch et al. (2013) who reported positive and significant effect of firm size, asset tangibility and financial leverage. The findings supported matching principle.

Table 4.69: Correlation Analysis on Influence of FFC on Leverage of Commercial and Services Listed Companies in NSE

		DTA	LTA	STA	T	P	S	G	CF
DTA	Rho	1							
LTA	Rho	-0.082	1						
	P value	0.51							
	N	86							
STA	Rho	-0.091	0.2	1					
	P value	0.486	0.107						
	N	86	86						
T	Rho	-0.226	0.07	.330**	1				
	P value	0.068	0.579	0.007					
	N	86	86	86					
P	Rho	0.019	-.430**	0.014	.274*	1			
	P value	0.88	0.00	0.913	0.026				
	N	86	86	86	86				
S	Rho	-0.001	-.450**	-0.117	0.102	.292**	1		
	P value	0.997	0.00	0.348	0.415	0.00			
	N	86	86	86	86	86	86		
G	Rho	-0.01	-.477**	-.269*	0.022	.453**	.084**	1	
	P value	0.936	0.00	0.029	0.864	0.00	0.00		
	N	86	86	86	86	86	86	86	
CF	Rho	0.086	.373**	-0.067	-0.128	-0.129	-.351**	-.404**	1
	P value	0.601	0.002	0.593	0.307	0.302	0.004	0.001	
	N	86	86	86	86	86	86	86	86

4.4.4 Correlation Analysis on Influence of FFC on Leverage of Construction and Allied Listed Companies in NSE

As shown in Table 4.70, there was positive and significant influence of tangibility and total debt and short-term debt (rho = 0.325, p value <0.05) and (rho = 0.381, p value <0.05), tangibility had negative and significant influence on long term debt (rho = -0.595, p value <0.05) among construction and allied companies listed in NSE. Secondly, there was positive and significant influence of profitability on total debt (rho = 0.301, p value <0.05), profitability had negative and no significant influence on long term debt and short-term debt (rho = -0.245, p value >0.05) and (rho = -0.145, p value >0.05). Thirdly, there was there was positive and significant

influence of firm size on total debt (rho = 0.355, p value < 0.05), negative and significant influence of firm size on long term debt and short term (rho = -.397, p value < 0.05) and (rho = -0.488, p value < 0.05) respectively.

Growth opportunities had positive significant influence on total debt (rho = 0.347, p value <0.05) and it had negative significant influence on long term debt and short-term debt (rho = -0.364, p value < 0.05) and (rho = -0.370, p value < 0.05) respectively. Operating cash flows had positive and negative insignificant influence on total debt and short-term debt (rho = 0.118, p value > 0.05) and (rho = -0.193, p value > 0.05) respectively. The study confirmed Thippayana (2014) who reported positive contribution of firm size, profitability, growth opportunities and leverage. These results concurred with pecking order theory and trade off theory. The study contrasted Harc (2015) who documented inverse effect of firm size on leverage.

Table 4.70: Correlation Analysis on Influence of FFC on Leverage of Construction and Allied Listed Companies in NSE

		DTA	LTA	STA	T	P	S	G	CF
DTA	Rho	1							
LTA	Rho	-.543**	1						
	P value	0.00							
	N	45	45						
STA	Rho	-0.017	0.051	1					
	P value	0.911	0.739						
	N	45	45	45					
T	Rho	.325*	-.595**	.381**	1				
	P value	0.029	0.000	0.01					
	N	45	45	45	45				
P	Rho	.301*	-0.245	-0.145	.489**	1			
	P value	0.044	0.105	0.343	0.001				
	N	45	45	45	45	45			
S	Rho	.355*	-.397**	-.488**	-0.004	0.159	1		
	P value	0.017	0.007	0.001	0.977	0.297			
	N	45	45	45	45	45	45		
G	Rho	.347*	-.364*	-.370*	0.047	0.157	.182**	1	
	P value	0.02	0.014	0.012	0.761	0.304	0		
	N	45	45	45	45	45	45	45	
CF	Rho	0.118	-.415**	-0.193	.407**	.333*	.321*	0.272	1
	P value	0.442	0.005	0.204	0.006	0.025	0.032	0.071	
	N	45	45	45	45	45	45	45	45

4.4.5 Correlation Analysis on Influence of FFC on Leverage of Energy and Petroleum Listed Companies in NSE

As shown in Table 4.71 there was positive and insignificant influence of tangibility on total debt and long term debt of energy and petroleum listed companies in NSE (rho = 0.011, p value > 0.05) and (rho = 0.273, p value > 0.05) respectively, there was negative and significant influence of tangibility on short term debt (rho = -0.808, p value < 0.05). Secondly, profitability had positive and insignificant influence of total debt and long term though it had inverse and insignificant on short term debt (rho = 0.162, p value > 0.05), (rho = 0.187, p value > 0.05) and (rho = -0.124, p value > 0.05) respectively. Firm size had negative and insignificant influence on total debt and short-term debt (rho = -0.01, p value > 0.05) and (rho = -0.129, p value > 0.05) respectively.

Growth opportunities had negative and significant influence on long term debt (rho = -0.688, p value < 0.05). Free cash flows had negative and significant influence of long-term debt of listed energy and petroleum companies listed in NSE (rho = -0.700, p value < 0.05). The study findings supported Acheampong et al. (2014), who found positive significant effect on asset tangibility and stock performance on financial leverage. Also, they confirmed Pandey and Prabhavathi (2016) who argued that operating leverage, financial leverage, shareholder's wealth and profitability. They refuted Tai (2017) documented inverse effect of trading volume on capital structure. Theoretically the study concurs with market timing theory and refuted signalling theory.

Table 4.71: Correlation Analysis on Influence of FFC on Leverage of Energy and Petroleum Listed Companies in NSE

		DTA	LTA	STA	T	P	S	G	CF
DTA	Rho	1							
LTA	Rho	-0.272	1						
	P value	0.12							
	N	34	34						
STA	Rho	-0.097	-0.092	1					
	P value	0.587	0.607						
	N	34	34	34					
T	Rho	0.011	0.273	-.808**	1				
	P value	0.951	0.118	0.00					
	N	34	34	34	34				
P	Rho	0.162	0.187	-0.124	.376*	1			
	P value	0.36	0.289	0.484	0.028				
	N	34	34	34	34	34			
S	Rho	-0.01	-.686**	-0.129	-0.009	0.078	1		
	P value	0.957	0.00	0.466	0.958	0.662			
	N	34	34	34	34	34	34		
G	Rho	-0.01	-.688**	-0.133	0.003	0.084	.099**	1	
	P value	0.956	0.00	0.454	0.989	0.636	0.00		
	N	34	34	34	34	34	34	34	
CF	Rho	0.024	-.700**	-0.171	0.05	0.111	.092**	.195**	1
	P value	0.893	0.00	0.333	0.778	0.53	0.00	0.00	
	N	34	34	34	34	34	34	34	34

4.4.6 Correlation Analysis on Influence of FFC on Leverage of Investment Listed Companies in NSE

As shown in Table 4.72 there was negative and significant influence of tangibility on long term debt (rho = 0.642, p value < 0.05), negative and insignificant influence of tangibility on total debt and short term debt (rho = -0.086, p value < 0.05) and (rho = -0.215, p value < 0.05) respectively among investment listed companies in NSE. Secondly, profitability had positive and significant influence on total debt and short term (rho = 0.696, p value < 0.05) and (rho = 0.575, p value < 0.05) respectively. Firm size had positive and insignificant influence on total debt (rho = 0.104, p value > 0.05) also it had negative insignificant and significant influence on long-term debt

and short-term debt (rho = -0.247, p value > 0.05) and (rho = -0.409, p value < 0.05) respectively. Growth opportunities had negative and insignificant influence on long-term and short-term debt (rho = -0.129, p value > 0.05) and (rho = -0.371, p value < 0.05) respectively. This study concurred Hussan (2016) who reported positive effect on firm size and long-term debt. The findings refuted Hussain et al. (2016) reported inverse effect of profitability of financial leverage. The study confirmed pecking order theory.

Table 4.72: Correlation Analysis on Influence of FFC on Leverage of Investment Listed Companies in NSE

		DTA	LTA	STA	T	P	S	G	CF
DTA	Rho	1							
LTA	Rho	-.544**	1						
	P value	0.005							
	N	25	25						
STA	Rho	.581**	-.638**	1					
	P value	0.002	0.001						
	N	25	25	25					
T	Rho	-0.086	.642**	-0.215	1				
	P value	0.681	0.001	0.303					
	N	25	25	25					
P	Rho	.696**	-0.247	.575**	-0.097	1			
	P value	0.00	0.234	0.003	0.643				
	N	25	25	25	25				
S	Rho	0.104	-0.171	-.409*	-0.165	-0.288	1		
	P value	0.622	0.413	0.042	0.43	0.163			
	N	25	25	25	25	25			
G	Rho	0.103	-0.129	-0.371	-0.106	-0.234	.182**	1	
	P value	0.623	0.54	0.068	0.616	0.261	0.00		
	N	25	25	25	25	25	25	25	
CF	Rho	0.244	0.211	-0.197	0.15	0.334	0.353	.453*	1
	P value	0.239	0.312	0.346	0.474	0.102	0.083	0.023	
	N	25	25	25	25	25	25	25	25

4.4.7 Correlation Analysis on Influence of FFC on Leverage of Manufacturing and Allied Listed Companies in NSE

As shown in Table 4.73 there was positive and significant influence of tangibility on long term debt of manufacturing and allied companies listed in NSE (rho = 0.511, p value < 0.05), also it had positive and insignificant influence on total debt and long term debt (rho = 0.163, p value > 0.05) and (rho = 0.047, p value > 0.05) respectively. Profitability had positive and insignificant influence on total debt and long term though it had positive significant influence on short term debt (rho = 0.113, p value > 0.05), (rho = 0.035, p value > 0.05) and (rho = 0.252, p value < 0.05) respectively. Firm size had negative and significant influence on long term debt and short-term debt (rho = -0.538, p value < 0.05) and (rho = 0.278, p value < 0.05) respectively.

Growth opportunities had positive and negative significant influence on total debt and long term (rho = 0.293, p value < 0.05) and (rho = -0.494, p value < 0.05) respectively. Operating cash flows had negative and positive significant influence on long term debt and short term (rho = -0.329, p value < 0.05) and (rho = 0.449, p value < 0.05) respectively. The findings study confirmed Thippayana (2014) who reported positive contribution of firm size, profitability, growth opportunities and leverage. These results concurred with pecking order theory and trade off theory. Also, the findings concurred with (Chesang & Ayuma, 2016).

Table 4.73: Correlation Analysis on Influence of FFC on Leverage of Manufacturing and Allied Listed Companies in NSE

		DTA	LTA	STA	T	P	S	G	CF
DTA	Rho	1							
LTA	Rho	-0.17	1						
	P value	0.159							
	N	56	56						
STA	Rho	0.129	-0.081	1					
	P value	0.289	0.506						
	N	56	56	56					
T	Rho	0.163	.511**	0.047	1				
	P value	0.178	.000	0.699					
	N	56	56	56	56				
P	Rho	0.113	0.035	.252*	.256*	1			
	P value	0.351	0.776	0.035	0.032				
	N	56	56	56	56	56			
S	Rho	0.234	-.538**	-.278*	-.400**	0.029	1		
	P value	0.051	.000	0.02	0.001	0.014			
	N	56	56	56	56	56	56		
G	Rho	.293*	-.494**	-0.232	-.311**	0.079	.178**	1	
	P value	0.014	.000	0.053	0.009	0.518	.000		
	N	56	56	56	56	56	56	56	
CF	Rho	-0.021	-.329**	.449**	-.418**	-0.071	-0.076	-0.202	1
	P value	0.866	0.005	0.00	0.000	0.562	0.529	0.093	
	N	56	56	56	56	56	56	56	56

Having conducted carefully all the relevant diagnostic tests and provided remedies to the potential problems that may have arisen, regression results, as guided by the objectives of the study were as follows. FGLS was fitted.

4.5 Influence of Tangibility of Assets on Leverage of Non-Financial Firms Listed at NSE

The first objective of the study determined the influence of tangibility on leverage of non-financial firms listed at Nairobi Securities Exchange. To achieve it, regression analysis was carried for all firms as well as sectoral analysis. Since leverage was

operationalized as short term debt, long term debt and total debt. Three models were run and interpreted.

4.5.1 FGLS Regression Results of STA as Dependent Variable on the Influence of Tangibility on Leverage of Firms Listed at NSE

As shown in Table 4.74 there was a significant influence of tangibility of assets on short term debt of listed non-financial companies in NSE (β= -0.51, p value =0.000). This implies that unit increase in tangibility decreases short term borrowing. Further, an R squared of 29.92% revealed that 29.92% of changes in short term debt amongst non-financial listed companies was explained by tangibility of assets. The results agree with Harc (2015) who revealed an inverse and significant relationship between short term debt and asset tangibility while long term debt had positive and significant relationship. The STA result however contradicts Koksal, Orman and Oduncu (2013) who concluded that tangibility should be positively related with leverage.

STA = 0.5909863 -0.5121456*T……..4.1

Table 4.74: FGLS Regression Results of STA as Dependent Variable on the Influence of Tangibility on Leverage of Firms Listed at Nairobi Securities Exchange

	Coefficient	Std. Err	Z	P>|z|
T	-.5121456	.0253144	-20.23	0.00
Constant	.5909863	.0170195	34.72	0.00
	Wald chi^2 (1) = 409.31	R^2 = 0.2992		Prob > chi^2 = 0.0000

4.5.2 FGLS Regression Results of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Firms Listed at NSE

Table 4.75 show results of the influence of tangibility on leverage amongst non-financial companies listed in NSE. Results of the study revealed significant influence of tangibility on long term debt amongst non-financial firms listed in NSE (β=0.37, p value =0.000). This implies that a unit increase in tangibility of assets increases long

term borrowing. An R squared of 21.44% indicated that 21.44% of changes long term debt amongst non-financial companies can be accounted for by tangibility of assets. These findings concurred with Thippayana (2014) and Acaravci (2015) who concluded a positive and significant relationship between firm tangibility, business volatility risk and leverage.

LTA = -0.0347 + 0.369*T……..……4.2

Table 4.75: FGLS Regression Results of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	0.369	0.0064	57.19	.000
Constant	-0.0347	0.0035	-10.14	.000
	Wald chi^2 (1) = 3270.83	R^2 = 0.2144		Prob > chi^2 = 0.000

4.5.3 FGLS Regression Results of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Firms Listed at NSE

As shown in Table 4.76, 42.86% of changes in debt amongst non-financial listed companies was explained by tangibility of assets. Further, there was a significant influence of tangibility on debt amongst non-financial listed companies in NSE (β = -0.15, p value =0.000). The results were consistent with Baloch, Ihslan, Kakakhel and Sethi (2013) whose study concluded a negative and significant effect of firm size and asset tangibility on financial leverage while retained earnings had inverse effect on financial leverage. However, they are inconsistent with Olankule and Oni (2014) who conclude a positive relationship between tangibility and leverage. Consistent with pecking order, firms with tangible assets can rely on the internal funds generated by these assets.

DTA = 0.57 - 0.15*T……4.3

Table 4.76: FGLS Regression Results of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.15	0.03	-4.61	0.00
Constant	0.57	0.02	29.11	0.00
	Wald $chi^2(1)$ =21.27	R^2 = 0.4286		Prob > chi^2 = 0.00

4.6 Influence of Tangibility on Leverage in Agricultural Listed Companies in NSE

Owing to need for mechanization in the agricultural sector, the study determined the influence of tangibility of assets on leverage amongst agricultural listed companies in NSE. Further, unpredictable changes in weather conditions may influence restructuring of financing arrangements amongst agricultural companies.

4.6.1 FGLS Regression Results of STA as Dependent Variable on the Influence of Tangibility on Leverage of Agricultural Firms Listed at NSE

As shown in Table 4.77 there was a significant influence of tangibility of assets and short-term debt amongst agricultural listed firms in NSE. Further, 43.44% of changes in short term amongst agricultural firms was accounted for by tangibility of assets. These findings in concurrence with Harc (2015) who found negetive influence of tangibility on short term debt for small and medium enterprises among them companies dealing in agriculture, hunting and related services in Croatia. Further, these results concur with pecking order theory. Agricultural firms in Kenya seem to rely more on internal generated funds generated by the intangible assets to finance their operations.

STA = 0.2 - 0.17*T……4.4

Table 4.77: FGLS Regression Results of STA as Dependent Variable on the Influence of Tangibility on Leverage of Agricultural Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.17	0.04	-3.96	0.00
Constant	0.2	0.03	5.91	0.00
	Wald $chi^2(1) = 15.67$	$R^2 = 0.4344$		Prob > $chi^2 = 0.00$

4.6.2 FGLS Regression Results of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Agricultural Firms Listed at NSE

As shown in Table 4.78 there was non-significant influence of tangibility of assets on long term debt of agricultural listed companies in NSE ($\beta = 0.05$, p value = 0.28). An R squared of 0.0995, revealed that 9.95% of changes in long term debt can be accounted for by tangibility of assets amongst agricultural listed firms in NSE. These results disagreed with Handoo and Sharma (2014) who reported inverse and significant effect of tangibility on leverage. These findings contradicted pecking order theory since those firms with tangible assets are more likely to access long term debt capital.

LTA = 0.17 + 0.05*T……4.5

Table 4.78: FGLS Regression Results of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Agricultural Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	0.05	0.04	1.08	0.28
Constant	0.17	0.03	5.43	0.000
	Wald $chi^2(1) = 1.17$	$R^2 = 0.0995$		Prob > $chi^2 = .28$

4.6.3 FGLS Regression Results of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Agricultural Firms Listed at NSE

As shown in Table 4.79 70.43% of changes in debt amongst agricultural listed companies was associated with tangibility of assets. Further, there was significant effect of tangibility of assets on debt financing amongst agricultural listed companies in NSE (β=-0.25, p value <0.05). This implies that an increase in asset tangibility decreased reliance on debt financing amongst agricultural companies in Kenya. These findings refuted pecking order theory and Olankule and Oni (2014) who reported positive effect of asset structure on debt financing. In contrast, the findings were consistent with Harc (2015) who reported inverse effect of asset structure on long term debt financing in Croatia.

DTA = 0.48 - 0.25*T……4.6

Table 4.79: FGLS Regression Results of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Agricultural Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.25	0.07	-3.32	0.00
Constant	0.48	0.05	8.72	0.00
	Wald $chi^2(1)$ = 11	R^2=0.7043		Prob > chi^2 = 0.00

4.7 Influence of Tangibility on Leverage in Automobile and Accessories Companies Listed in Nairobi Securities Exchange

Automobile and accessories related companies are capital intensive. Owing to dynamic technological changes there is need adopting of financing option which will optimize cost of financing approach adopted. Therefore, the study investigated the influence of asset tangibility on leverage of automobile and accessories companies listed in NSE.

4.7.1 FGLS Regression Results of STA as Dependent Variable on the Influence of Tangibility on Leverage of Automobile and Accessories Firms Listed at NSE

As shown in Table in Table 4.80 there was a significant influence of tangibility of assets on short term debt amongst automobile and accessories listed firms in NSE (β=-0.16, p value = 0.01). Further, an R squared of 0.0866, revealed that 8.66% of variations in short term debt was explained by tangibility of assets amongst automobile and accessories listed companies in NSE. These findings refuted trade-off theory. Empirically the study contradicted Acaravi (2015) who reported positive and significant influence of asset tangibility on leverage of listed companies in Turkey. These differences can be attributed to different stages of economic development and innovation which guide in estimation of specific asset economic life.

STA = 0.6 - 0.16*T……4.7

Table 4.80: FGLS Regression Results of STA as Dependent Variable on the Influence of Tangibility on Leverage of Automobile and Accessories Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.16	0.06	-2.68	0.01
Constant	-0.6	0.02	26.06	0.00
	Wald $chi^2(1) = 7.17$	$R^2 = 0.0866$		Prob > chi^2 = 0.01

4.7.2 FGLS Regression Results of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Automobile and Accessories Firms Listed at NSE

As shown in Table 4.81 21.44% of changes in long term debt was explained by tangibility of assets amongst automobile and accessories companies listed in NSE. Further, there was a significant influence of tangibility of assets on long term debt amongst automobile and accessories listed firms in NSE (β =0.17, p value = 0.05). This implies that an increase in tangibility of assets is associated with increase in

long term debt. These findings agreed with pecking order theory and Vergas et al. (2015) whose study reported positive relationship between asset structure and debt.

LTA = 0.018 + 0.17*T……4.8

Table 4.81: FGLS Regression Results of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Automobile and Accessories Firms Listed at NSE

	Coefficient	**Std. Err**	**Z**	**P>|z|**
T	0.17	0.08	1.99	0.05
Constant	0.018	0.029	0.58	0.562
	Wald $chi^2(1)$ = 3.97	R^2= 0.2144		Prob > chi^2 = 0.05

4.7.3 FGLS Regression Results of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Automobile and Accessories Firms Listed at Nairobi Securities Exchange

As shown in Table 4.82 an R squared of 0.07003, revealed that 7.003% of changes in total debt of automobile and accessories was explained by tangibility of assets. Secondly, there wa a non-significant influence of tangibility of assets on leverage of listed automobile and accessories firms listed at Nairobi securities exchange (β = 0.01, p value =0.93). These findings were in contrast with pecking order theory. Empirically, the study refuted Baloch et al. (2013) who reported negative and significant influence of tangibility of assets on leverage of auto listed companies in Pakistan.

DTA = 0.61 + 0.01*T……4.9

Table 4.82: FGLS Regression Results of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Automobile and Accessories Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	0.01	0.08	0.08	0.93
Constant	0.61	0.02	22.6	.000
	Wald chi ^{2} (1) = .01	R^2 = 0.07003		Prob > chi ^{2} =.93

4.8 Influence of Tangibility on Leverage of Commercial and Services Listed Companies in NSE

Companies listed in commercial and services segment of NSE operate different businesses for example Nation Media group and standard group are media and printing companies their industry is characterized by drastic changes owing to technological advancement. Uchumi supermarkets operates business dealing with fast moving consumer goods and is exposed to stiff competition from other supermarkets which are multinationals and non-listed. Owing to business environment differentiations these firms may require different degrees of assets tangibility, working capital financing strategy and long-term financing options.

4.8.1 FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Commercial and Services Firms Listed at NSE

As shown in Table 4.83, an R squared of 0.4344, revealed that 43.44% of changes in short term debt was explained by tangibility of assets amongst commercial and services listed firms in NSE. Secondly, there was a significant influence of asset tangibility on short term debt amongst commercial and services listed companies in NSE. This implies that an increase in tangibility of assets decreased reliance on short term debt. It can be deduced that commercial and services listed companies adopted matching principle to manage their working capital needs. These results contrasted Olankule and Oni (2014) who reported positive and significant influence of asset structure on capital structure of listed companies in Nigeria.

STA = 0.407 – 0.1134*T……4.10

Table 4.83: FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Commercial and Services Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-.1134	.0380	-2.99	.003
Constant	.407	.021	19.75	.000
	Wald $chi^2(1)$ = 8.92	R^2 = 0.4344		Prob > chi^2 =.0028

4.8.2 FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Commercial and Services Firms Listed at Nairobi Securities Exchange

As shown in Table 4.84, an R squared of 0.4166 revealed that 41.66% variations in long term debt of commercial and services companies listed in NSE was attributed to tangibility of assets. Secondly, there was a significant relationship between tangibility of assets and long-term debt of listed commercial and services companies in NSE (β =0.427, p value = 0.000). This implies that a unit increase in tangibility of assets increases long term.

LTA = -0.0751 + 0.427*T……4.11

Table 4.84: FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Commercial and Services Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	.427	.035	12.05	0.00
Constant	-.0751	.013	-5.96	0.00
	Wald $chi^2(1)$ = 145.13	R^2 = 0.4166		Prob > chi^2 =.000

4.8.3 FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Commercial and Services Firms Listed at NSE

As shown in Table 4.85 an R squared of 0.463, revealed that 46.3% of changes in total debt of listed commercial and services firms at NSE was explained by tangibility of assets. Secondly, there was a significant influence of tangibility on total debt of listed commercial and services companies in NSE (β = 0.358, P value = 0.00). This implies that an increase in tangibility of commercial and services companies increases total debt.

DTA = 0.332 + 0.358*T……4.12

Table 4.85: FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Commercial and Services Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	0.358	0.052	6.87	0.000
Constant	0.332	0.026	13	0.000
	Wald $Chi^2(1)$ = 47.22	R^2 = 0.463		Prob > Chi^2 =.0000

4.9 Influence of Tangibility on Leverage of Construction and Allied Listed Companies in NSE

Further, the study determined the influence of tangibility on leverage of construction and allied companies listed in NSE. These companies such as Bamburi limited are capital intensive and require mechanization to aid in their operations. In addition, there is need to optimize their working capital needs owing to their working capital operating cycle.

4.9.1 FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Construction and Allied Firms Listed at NSE

As shown in Table 4.86 an R squared of 0.7291, revealed that 72.91% of changes in short term debt can be accounted for by tangibility of assets. Further, there was a significant influence of tangibility on short term debt among construction and allied companies listed in NSE (β =-0.622, p value = 0.000). This implies that an increase in tangibility decreases reliance on short term debt financing. It can be concluded that most construction and allied companies in Kenya have adopted conservative financing principle. These results agreed with pecking order theory.

STA = 0.688 -0.622*T……4.13

Table 4.86: FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Construction and Allied Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.622	0.0514	-12.11	0.000
Constant	0.687	0.0311	22.09	0.00
	Wald $chi^2(1)$ = 146.54	R^2 = 0.7291		Prob > Chi^2 =.0000

4.9.2 FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Construction and Allied Firms Listed at NSE

As shown in Table 4.87, there was a significant influence of tangibility of assets on long term debt amongst construction and allied companies listed in NSE (β = 0.520, p value =0.000). This implies that a unit increase in tangibility increases long term debt of listed construction and allied companies in NSE. These results agreed with pecking order theory. Further, an R squared of 0.5813, revealed that 58.13% of changes in long term debt of construction and allied companies was explained by tangibility of assets.

LTA = -0.108 + 0.520*T……4.14

Table 4.87: FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Construction and Allied Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	0.520	0.0397	13.11	0.000
Constant	-0.108	0.152	-7.10	0.000
	Wald $chi^2(1)$ = 171.99	R^2 = 0.5813		Prob > chi^2 = .0000

4.9.3 FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Construction and Allied Firms Listed at Nairobi Securities Exchange

As shown in Table 4.88 an R squared of 0.8321, revealed that 83.21% of changes in total debt can be accounted for by tangibility of assets. Further, there was an insignificant influence of tangibility on total debt among construction and allied companies listed in NSE (β =-0.0273, p value = 0.679). These results agreed with pecking order theory.

STA = 0.5683 -0.0273*T……4.15

Table 4.88: FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Construction and Allied Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.0273	0.0657	-.41	.679
Constant	.5683	.0372	15.27	.000
	Wald $chi^2(1)$ = .17	R2 = 0.8321		Prob > chi^2 =.6786

4.10 Influence of Tangibility on Leverage of Energy and Petroleum Firms Listed in NSE

Further, the study determined the effect of tangibility on energy and petroleum companies listed in NSE. Simple linear regression analysis was carried out with ratio long term debt, short term and total debt to total assets as dependent variables.

4.10.1 FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Energy and Petroleum Firms Listed in NSE

As shown in Table 4.89, an R squared of 0.2732, revealed that 27.32% of changes in short term amongst energy and petroleum companies was explained by tangibility. Secondly, there was a significant influence of tangibility on short term debt of energy and petroleum companies listed in NSE (β =-0.7622, p value = 0.000). This implies that an increase in tangibility decreased reliance on short term debt these results contrasted (Badar & Saeed, 2013) who reported inverse and non-significant influence of tangibility on leverage in Karachi securities exchange.

LTA = 0.7928 – 0.7622*T……4.16

Table 4.89: FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Energy and Petroleum Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-.7622	0.0454	-16.78	0.000
Constant	0.7928	0.0304	26.00	0.000
	Wald $chi^2(1)$ = 281.69	R^2= 0.2732		Prob > chi^2 = 0.000

4.10.2 FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Energy and Petroleum Firms Listed at NSE

Results in Table 4.90, shows the influence of tangibility on leverage of energy and petroleum companies listed in NSE. An R squared of 0.8195 revealed that 81.95% of changes in long term debt of listed energy and petroleum companies was explained by tangibility. There was a significant influence of tangibility on long term debt of listed energy and petroleum companies listed in NSE (β = 0.6817, p value =0.00). This shows that increased tangibility increased long term debt. These results concurred with pecking order theory and Acaravci (2015) who reported positive and significant effect of tangibility on leverage of listed companies in Turkey. It can be

deduced energy and petroleum companies have access to long term loan facilities owing to their collateral security capacity.

LTA = -0.1403 + 0.6817*T……4.17

Table 4.90: FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Energy and Petroleum Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	.6817	0.0453	15.05	0.000
Constant	-0.1403	0.0178	-7.86	0.000
	Wald $chi^2(1)$ = 226.43	R^2= 0.8195		Prob > chi^2 = 0.000

4.10.3 FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Energy and Petroleum Firms Listed at NSE

As shown in Table 4.91 an r squared of 52.7% indicated that 52.7% of variation in total debt of energy and petroleum companies was accounted for by tangibility. Secondly, there was a non-significant influence of tangibility on long term debt of listed energy and petroleum companies in NSE (β = -0.0614, p value = 0.433). These findings agreed with Mwangi and Birundu (2015) who reported inverse and non-significant effect of tangibility on leverage amongst small and medium enterprises in Kenya.

DTA = 0.6609 -0.0614*T……4.18

Table 4.91: FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Energy and Petroleum Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.0614	0.0784	-.78	.433
Constant	.6609	0.0372	17.77	0.000
	Wald $chi^2(1)$ = 0.61	R^2= 0.527		Prob > chi^2 = 0.4333

4.11 Influence of Tangibility on Leverage of Investment and Services Listed Firms in NSE

The study determined the influence tangibility on leverage of investment and services listed firms in NSE. Although, there are only four companies listed in investment segment nature of their investment portfolios calls for alternative financing.

4.11.1 FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Investment and Services Firms Listed at NSE

As shown in Table 4.92 an R squared of 0.3262 indicated that 32.62% of changes in short term of investment and services firms listed in NSE was explained by tangibility. Further, there was a significant influence of tangibility on short term debt of investment and services listed companies (β = -0.8282, p value = 0.000). This implies that an increase in tangibility decreased reliance on short term debt financing a clear indication of conservative working capital management strategy.

STA = -0.8314 - 0.8282*T……4.19

Table 4.92: FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Investment and Services Firms Listed in NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.8282	0.0894	-9.27	0.000
Constant	-8314	.0729	11.40	0.000
	Wald $chi^2(1)$ = 85.89	R^2= 0.3262		Prob > chi^2 = 0.0000

4.11.2 FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Investment and Services Firms Listed at NSE

As shown in Table 4.93, an R squared of 0.1007 indicated that 10.07% of changes in long term debt amongst investment and services listed companies in NSE was explained by tangibility. Secondly, there was a non-significant influence of

tangibility on long term debt of investment and services listed companies in NSE. These findings agreed with Handoo and Sharma (2014) who reported inverse and non-significant influence of tangibility and long-term debt.

LTA = 0.2004 - 0.0714*T……4.20

Table 4.93: FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Investment and Services Firms Listed at NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.0714	0.0785	-0.91	0.363
Constant	0.2004	0.0495	4.05	0.000
	Wald $chi^2(1)$ = 0.83	R^2= 0.1007		Prob > chi^2 = 0.3635

4.11.3 FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Investment and Services Firms Listed in NSE

As shown in Table 4.94, an R squared of 0.7654 indicated that 76.54% of changes in total debt of listed investment and services firms is accounted for by tangibility. Further, there was a significant influence of tangibility on total debt of investment and services companies listed in NSE (β =-1.1003, p value = 0.000). This implies that a decrease in tangibility leads to increase in total debt of investment and services firms. There is need to devise alternative collateralization of loan borrowed by investment and services companies. These findings contradicted agency and pecking theories and Baloch et al. (2013) who reported positive and significant effect of asset tangibility on leverage.

DTA = 1.1672 -1.1003*T……4.21

Table 4.94: FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Investment and Services Firms Listed in NSE

	Coefficient	Std. Err	Z	P>|z|
T	-1.1003	0.0837	-13.15	0.0000
Constant	1.1672	0.051	23.00	0.0000
	Wald $chi^2(1)$ = 172.99	R^2= 0.7654		Prob > chi^2 = 0.0000

4.12 Influence of Tangibility on Leverage of Manufacturing and Allied Listed Firms in NSE

Further, the study determined the influence of tangibility on leverage of manufacturing and allied companies listed in NSE. Recently, there have been persistent reporting of profit warnings and massive losses by some manufacturing and allied companies listed. In contrast, other have consistently reported profits. Historical performance of listed companies may influence their reliance on borrowed as stipulated by pecking order theory.

4.12.1 FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Manufacturing and Allied Firms Listed in NSE

As shown in Table 4.95 there was a non-significant influence of tangibility on short term debt of listed manufacturing companies in NSE (β = -0.0601, p value = 0.5523). Further, an R squared of 0.5279, indicated that 52.79% of short-term debt in manufacturing and allied companies in NSE was accounted by tangibility. These results refuted pecking order theory and it portrayed manufacturing companies to have adopted either matching or conservative working capital management.

STA = 0.3085-0.0601*T……4.22

Table 4.95: FGLS Regression of STA as Dependent Variable on the Influence of Tangibility on Leverage of Manufacturing and Allied Firms Listed in NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.0601	0.1011	-0.59	0.5523
Constant	0.3085	0.0502	6.14	0.000
	Wald $chi^2(1)$ = 0.35	R^2= 0.5279		Prob > chi^2 = 0.5523

4.12.2 FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Manufacturing and Allied Firms Listed in NSE

As shown in Table 4.96 an R squared of 0.3211 revealed that 32.11% of changes in long term debt of listed manufacturing and allied companies in NSE is explained by tangibility of assets. Further, there was a significant influence of tangibility on long term debt of listed manufacturing and allied companies in NSE ($\beta = 0.2183$, p value = 0.002). This implies that an increase in tangibility of assets increases reliance on long term debt. These findings agreed with Baloch et al. (2013) and Olankule and Oni (2014) who reported positive and significant influence of asset structure on leverage of listed companies.

LTA = 0.0119 + 0.2183*T……4.23

Table 4.96: FGLS Regression of LTA as Dependent Variable on the Influence of Tangibility on Leverage of Manufacturing and Allied Firms Listed in NSE

	Coefficient	Std. Err	Z	P>|z|
T	0.2183	0.0693	3.15	0.002
Constant	0.0119	0.0370	0.32	0.748
	Wald $chi^2(1)$ = 9.92	R^2= 0.3211		Prob > chi^2 = 0.0016

4.12.3 FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Manufacturing and Allied Firms Listed in NSE

As shown in Table 4.97, an R squared of 0.5488 indicated that 54.88% of changes in total debt of listed manufacturing and allied companies is associated with tangibility. Further, there was a significant influence of tangibility on total debt of manufacturing and allied companies listed in NSE (β =0.2376, p value = 0.010). This implies that an increase in tangibility increase access to debt. These results agreed with trade off theory and Thippayana (2014) who reported significant influence of tangibility on leverage of listed companies.

DTA = 0.3202 + 0.2376*T……4.24

Table 4.97: FGLS Regression of DTA as Dependent Variable on the Influence of Tangibility on Leverage of Manufacturing and Allied Firms Listed in NSE

	Coefficient	Std. Err	Z	P>|z|
T	0.2376	0.0918	2.59	0.010
Constant	0.3202	0.0499	7.12	0.00
	Wald $chi^2(1)$ = 6.70	R^2= 0.5488		Prob > chi^2 = 0.0096

4.13 Influence of Profitability on Leverage of Non-Financial Firms Listed at NSE

The second objective of the study sought to establish the influence of profitability on leverage of listed non-financial firms in Nairobi securities exchange.

4.13.1 FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Non-Financial Listed Firms in NSE

Results in Table 4.98 revealed shows the influence of profitability on short term debt of non-financial listed firms in NSE. An R squared of 0.003, indicated that 0.3% of changes in short term debt in non-financial listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on short

term debt of them (β = 0.0005, p value = 0.462). These results are inconsistent with Hussain, et al., (2016) who found that there was a negative and significant relationship between profitability and financial structure and a positive relationship between profitability and capital structure leverage of listed textile firms in Pakistan. The results are also consistent with Abor (2005) who observed a positive and significant relationship between short term debt financing and profitable companies listed in Ghana between 1998 and 2002.

STA = 0.2946 + 0.0005*P……4.25

Table 4.98: FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Non-Financial Listed Firms in NSE

	Coefficient	**Std. Err**	**Z**	**P>|z|**
P	0.0005	0.0007	0.73	0.462
Constant	0.2946	0.0045	65.18	0.0000
	Wald $chi^2(1) = 0.54$	$R^2 = 0.0003$		Prob > $chi^2 = 0.4624$

4.13.2 FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Non-Financial Listed Firms in NSE

Results in Table 4.99 revealed shows the influence of profitability on long term debt of listed non-financial firms listed in NSE. An R squared of 0.0104, indicated that 1.04% of changes in long term debt in non-financial listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on long term debt of them (β = -0.0025, p value = 0.059). These findings concurred with pecking order theory which found inverse influence of profitability on leverage. Further, the study refuted Hussain et al. (2016) who reported positive influence of profitability on leverage.

LTA = 0.1775 - 0.0025*P……4.26

Table 4.99: FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Non-Financial Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.0025	0.0013	-1.89	0.059
Constant	0.1775	0.0039	46.04	0.000
	Wald $chi^2(1) = 3.56$	$R^2 = 0.0104$		Prob > $chi^2 = 0.0591$

4.13.3 FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Non-Financial Listed Firms in NSE

Results in Table 4.100 revealed shows the influence of profitability on total debt of non-financial listed firms in NSE. An R squared of 0.0043, indicated that 0.43% of changes in total debt in non-financial listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on total debt of them (β = -0.002, p value = 0.229). The results favor the dictate of pecking order theory which favor an inverse relationship between profitability and leverage.

DTA = 0.4798 - 0.002*P……4.27

Table 4.100: FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Non-Financial Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.002	0.0027	-1.20	0.229
Constant	0.4798	0.0081	59.51	0.0000
	Wald $chi^2(1) = 1.44$	$R^2 = 0.0043$		Prob > $chi^2 = 0.2293$

4.14 Influence of Profitability on Leverage of Agricultural Firms Listed in NSE

The study also sought to establish the influence of profitability on leverage of agricultural firms listed in Nairobi securities exchange.

4.14.1 FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Agricultural Listed Firms in NSE

Results in Table 4.101 revealed shows the influence of profitability on short term debt of agricultural listed firms in NSE. An R squared of 0.2126, indicated that 21.26% of changes in short term debt in agricultural listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on total debt of them (β = 0.1009, p value = 0.182). The results contrasted pecking order theory which favor an inverse relationship between profitability and leverage and Chesanga and Ayuma (2016) who reported inverse and significant influence of profitability on leverage of agricultural listed companies in NSE.

STA = 0.0758 +0.1009*P……4.28

Table 4.101: FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Agricultural Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	0.1009	0.0756	1.33	0.182
Constant	0.0758	0.0088	8.58	0.000
	Wald $chi^2(1) = 1.78$	$R^2 = 0.2126$		Prob > $chi^2 = 0.1820$

4.14.2 FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Agricultural Listed Firms in NSE

Results in Table 4.102 revealed shows the influence of profitability on long term debt of agricultural listed firms in NSE. An R squared of 0.147, indicated that 14.7% of changes in long term debt in agricultural listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on total debt of them (β = -0.0705, p value = 0.317). The results favor the dictate of pecking order theory which favor an inverse relationship between profitability and leverage and Addae et al. (2013) who reported inverse and significant influence of profitability on leverage of listed firms in Ghana.

LTA = 0.1775 -0.0025*P……4.29

Table 4.102: FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Agricultural Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.0705	0.0705	-1.00	0.317
Constant	0.2035	0.008	25.42	0.000
	Wald $chi^2(1) = 1.00$	$R^2 = 0.147$		Prob > $chi^2 = 0.3175$

4.14.3 FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Agricultural Listed Firms in NSE

Results in Table 4.103 revealed shows the influence of profitability on total debt of agricultural listed firms in NSE. An R squared of 0.39, indicated that 39% of changes in term debt in agricultural listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on total debt of them (β = 0.0372, p value = 0.760). The findings contrasted pecking order theory and AlGhusin (2015) who reported positive influence of leverage on profitability.

LTA = 0.2964 +0.0372*P……4.30

Table 4.103: FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Agricultural Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	0.0372	0.1217	0.31	0.760
Constant	0.2964	0.0160	18.50	0.0000
	Wald $chi^2(1) = 0.09$	$R^2 = 0.39$		Prob > $chi^2 = 0.7599$

4.15 Influence of Profitability on Leverage of Automobile and Accessories Firms Listed in NSE

Further, the study sought to examine the influence of profitability on leverage of automobile and accessories firms listed in Nairobi Securities exchange.

4.15.1 FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Automobile and Accessories Listed Firms in NSE

Results in Table 4.104 revealed shows the influence of profitability on short term debt of automobile and accessories listed firms in NSE. An R squared of 0.7228, indicated that 72.28% of changes in short term debt in automobile and accessories listed firms was accounted for by profitability. Further, there was a significant influence of profitability on total debt of them ($\beta = 0.3384$, p value = 0.002). These findings contradicted pecking order theory which supports inverse influence of profitability on leverage. This shows that most automobile and accessories listed in NSE has adopted aggressive working capital management.

STA = 0.5243 + 0.3384*P……4.31

Table 4.104: FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Automobile and Accessories Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	0.3384	0.1079	3.14	0.002
Constant	0.5243	0.0094	55.85	0.0000
	Wald $chi^2(1) = 9.84$	$R^2 = 0.7228$		Prob > $chi^2 = 0.0017$

4.15.2 FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Automobile and Accessories Listed Firms in NSE

Results in Table 4.105 revealed shows the influence of profitability on long term debt of automobile and accessories listed firms in NSE. An R squared of 0.0104, indicated that 1.04% of changes in long term debt in automobile and accessories

listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on total debt of them (β = -0.1919, p value = 0.372). The results favor the dictate of pecking order theory which favor an inverse relationship between profitability and leverage and differed with Addae et al. (2013) who reported inverse and significant influence of profitability on leverage of listed firms in Ghana.

LTA = 0.0754 - 0.0025*P……4.32

Table 4.105: FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Automobile and Accessories Listed Firms in NSE

	Coefficient	**Std. Err**	**Z**	**P>|z|**
P	-0.1919	0.2150	-0.89	0.372
Constant	0.0754	0.0131	5.78	0.000
	Wald $chi^2(1) = 0.80$	$R^2 = 0.0104$		Prob > $chi^2 = 0.3721$

4.15.3 FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Automobile and Accessories Listed Firms in NSE

Results in Table 4.106 revealed shows the influence of profitability on total debt of automobile and accessories listed firms in NSE. An R squared of 0.7444, indicated that 74.44% of changes in total debt in automobile and accessories listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on total debt of them (β = -0.0462, p value = 0.834). This shows that the findings were inconformity with pecking order theory and agreed with Addae et al. (2013) and contradicted (Chesang & Ayuma, 2016).

DTA = 0.6162 -0.0462*P……4.33

Table 4.106: FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Automobile and Accessories Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.0462	0.2210	-0.21	0.834
Constant	0.6162	0.0196	51.54	0.0000
	Wald $chi^2(1)$ = 0.04	R^2= 0.7444		Prob > chi^2 = 0.8343

4.16 Influence of Profitability on Leverage of Commercial and Services Firms Listed in NSE

The study sought to establish the influence of profitability on commercial and services firms listed in Nairobi securities exchange.

4.16.1 FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.107 revealed shows the influence of profitability on short term debt of commercial and services listed firms in NSE. An R squared of 0.1533, indicated that 15.33% of changes in to short term debt in commercial and services listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on long term debt of them (β = 0.00096, p value = 0.075). These findings contradicted pecking order theory and (Pandey & Prabhavathi, 2016) who reported positive and significant influence on profitability and financial leverage.

STA = 0.3509 - 0.00096*P……4.34

Table 4.107: FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	0.00096	0.00054	1.78	0.075
Constant	0.3509	0.0093	37.53	0.000
	Wald $chi^2(1)$ = 3.17	R^2 =0.1533		Prob > chi^2 = 0.0751

4.16.2 FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.108 revealed shows the influence of profitability on long term debt of commercial and services listed firms in NSE. An R squared of 0.2888, indicated that 28.88% of changes in to long term debt in commercial and services listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on long term debt of them (β = -0.0026, p value = 0.068). These findings agreed with pecking order theory. In addition, the findings disagreed with (Padaya, 2016).

LTA = 0.1604 -0.0026*P……4.35

Table 4.108: FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.0026	0.0014	-1.82	0.068
Constant	0.1604	0.0137	11.72	0.000
	Wald $chi^2(1) = 3.32$	$R^2 = 0.2888$		Prob > $chi^2 = 0.0682$

4.16.3 FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.109 revealed shows the influence of profitability on total debt of commercial and services listed firms in NSE. An R squared of 0.5784, indicated that 57.84% of changes in to total debt in commercial and services listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on long term debt of them (β = -0.0017, p value = 0.232). These findings agreed with pecking order theory and contradicted (Padaya, 2016).

DTA = 0.5103 -0.0017*P……4.36

Table 4.109: FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.0017	0.0014	-1.20	0.232
Constant	0.5103	0.0131	38.93	0.000
	Wald $chi^2(1) = 1.43$	R^2=0.5784		Prob > chi^2 = 0.2319

4.17 Influence of Profitability on Leverage of Construction and Allied Firms Listed in NSE

The study sought to examine the influence of profitability on leverage of construction and allied firms listed in Nairobi securities exchange.

4.17.1 FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Construction and Allied Listed Firms in NSE

Results in Table 4.110 revealed shows the influence of profitability on short term debt of construction and allied listed firms in NSE. An R squared of 0.7129, indicated that 71.29% of changes in to short term debt in construction and allied listed firms was accounted for by profitability. Further, there was a significant influence of profitability on short term debt of them (β = -0.5425, p value = 0.012). This implies that an increase in profitability led to decrease in profitability. These results agreed with pecking order theory.

STA = 0.3235 -0.5425*P……4.37

Table 4.110: FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Construction and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.5425	0.2155	-2.52	0.012
Constant	0.3235	0.0224	14.43	0.000
	Wald $chi^2(1)$ = 6.34	R^2= 0.7129		Prob > chi^2 = 0.0118

4.17.2 FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Construction and Allied Listed Firms in NSE

Results in Table 4.111 revealed shows the influence of profitability on long term debt of construction and allied listed firms in NSE. An R squared of 0.352, indicated that 35.2% of changes in to long term debt in construction and allied listed firms was accounted for by profitability. Further, there was a significant influence of profitability on long term debt of them (β = -0.3294, p value = 0.043). This implies that an increase in profitability led to decrease in long term debt. These findings concurred with pecking order theory and they contradicted Tai (2017) who reported positive influence of leverage on profitability.

LTA = 0.2053 -0.3294*P……4.38

Table 4.111: FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Construction and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.3294	0.1631	-2.02	0.043
Constant	0.2053	0.0186	11.03	0.000
	Wald $chi^2(1) = 4.08$	$R^2 = 0.352$		Prob > $chi^2 = 0.0434$

4.17.3 FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.112 revealed shows the influence of profitability on total debt of construction and allied listed firms in NSE. An R squared of 0.9626, indicated that 96.26% of changes in to total debt in construction and allied listed firms was accounted for by profitability. Further, there was a significant influence of profitability on long term debt of them (β = -0.7015, p value = 0.000). This implies that an increase in profitability led to decrease in debt financing. This was in congruence with pecking order theory.

DTA = 0.5883 -0.7015*P……4.39

Table 4.112: FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.7015	0.1504	-4.66	0.000
Constant	0.5883	0.01461	40.27	0.000
	Wald $chi^2(1) = 21.74$	$R^2 = 0.9626$		Prob > $chi^2 = 0.000$

4.18 Influence of Profitability on Leverage of Energy and Petroleum Firms Listed in NSE

Further, the study examined the influence of profitability on leverage of energy and petroleum firms listed in Nairobi securities exchange.

4.18.1 FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Energy and Petroleum Listed Firms in NSE

Results in Table 4.113 revealed shows the influence of profitability on short term debt of energy and petroleum listed firms in NSE. An R squared of 0.2, indicated that 0.2% of changes in to short term debt in energy and petroleum listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on long term debt of them (β = -0.3280, p value = 0.697).

STA = 0.4378 -0.3280*P……4.40

Table 4.113: FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Energy and Petroleum Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.3280	0.8419	-0.39	0.697
Constant	0.4378	0.0477	9.18	0.000
	Wald chi2(1) = 0.15	R2= 0.002		Prob > chi2 = 0.6969

4.18.2 FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Energy and Petroleum Listed Firms in NSE

Results in Table 4.114 revealed shows the influence of profitability on long term debt of energy and petroleum listed firms in NSE. An R squared of 0.2609, indicated that 26.09% of changes in to long term debt in energy and petroleum listed firms was accounted for by profitability. There was an insignificant influence of profitability on long term debt of them (β = -0.6274, p value = 0.365).

LTA = 0.2253 -0.6274*P……4.41

Table 4.114: FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Energy and Petroleum Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-.6274	0.6922	-.91	0.365
Constant	0.2253	0.0433	5.20	0.000
	Wald chi^2 (1) = 0.82	R^2 = 0.2609		Prob > chi^2 = 0.3647

4.18.3 FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.115 revealed shows the influence of profitability on total debt of energy and petroleum listed firms in NSE. An R squared of 0.399, indicated that 39.9% of changes in to total debt in energy and petroleum listed firms was accounted for by profitability. There was a significant influence of profitability on total debt of them (β = -0.6933, p value = 0.007). This implies that an increase in profitability is associated with decrease in total debt. The results agreed with pecking order theory though they differed with Modigliani and Miller hypothesis.

LTA = 0.6640 -0.6933*P……4.42

Table 4.115: FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.6933	0.2564	-2.70	0.007
Constant	0.6640	0.0201	33.01	0.000
	Wald $chi^2(1) = 7.31$	$R^2 = 0.399$		Prob > $chi^2 = 0.0069$

4.19 Influence of Profitability on Leverage of Investment and Services Firms Listed in NSE

In addition, the study sought to establish the influence of profitability on leverage of investment and services firms listed in Nairobi securities exchange.

4.19.1 FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.116 revealed shows the influence of profitability on short term debt of investment and services listed firms in NSE. An R squared of 0.3262, indicated that 32.62% of changes in to short term debt in investment and services listed firms was accounted for by profitability. Further, there was a significant influence of profitability on short term debt of them (β = -1.5059, p value = 0.0000). This shows that an increase in profitability decreased reliance on short term borrowing. The findings agreed with pecking order theory.

STA = 0.2931 -1.5059*P……4.43

Table 4.116: FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-1.5059	0.3519	-4.28	0.000
Constant	0.2931	0.0319	9.19	0.000
	Wald chi^2 (1) = 18.31	$R^2 = 0.3262$		Prob > $chi^2 = 0.0000$

4.19.2 FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.117 revealed shows the influence of profitability on long term debt of investment and services listed firms in NSE. An R squared of 0.0882, indicated that 8.82% of changes in to long term debt in investment and services listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on long term debt of them (β = -0.1023, p value = 0.706). These results refuted Gathogo and Ragui (2014) who reported positive and significant effect of profitability and short term of food and beverage companies. The two sectors may have variations in need for short term financing, where food and beverage companies may have to use short term debt to finance their raw materials.

LTA = 0.1590 -0.1023*P……4.44

Table 4.117: FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.1023	0.2714	-0.38	0.706
Constant	0.1590	0.0176	9.04	0.000
	Wald chi^2 (1) = 0.14	R2 = 0.0882		Prob > chi^2 = 0.7062

4.19.3 FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.118 revealed shows the influence of profitability on total debt of investment and services listed firms in NSE. An R squared of 0.5339, indicated that 53.39% of changes in to total debt in investment and services listed firms was accounted for by profitability. Further, there was a significant influence of profitability on total debt of them (β = -1.17826, p value = 0.000). This implies that an increase in profitability led to decrease in total debt.

LTA = 0.4703 – 1.7826*P……4.45

Table 4.118: FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-1.7826	0.5086	-3.51	0.0000
Constant	0.4703	0.0411	11.46	0.000
	Wald $chi^2(1) = 12.29$	$R^2 = 0.5339$		Prob > $chi^2 = 0.0005$

4.20 Influence of Profitability on Leverage of Manufacturing and Allied Firms Listed in NSE

Further, the study examined the influence of profitability on leverage of manufacturing and allied firms listed in Nairobi securities exchange.

4.20.1 FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Manufacturing and Allied Listed Firms in NSE

Results in Table 4.119 revealed shows the influence of profitability on short term debt of manufacturing and allied listed firms in NSE. An R squared of 0.513, indicated that 51.3% of changes in to short term debt in manufacturing and allied listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on short term debt of them (β = -0.0356, p value = 0.489). These results confirmed pecking order theory.

LTA = 0.2808 -0.0356*P……4.45

Table 4.119: FGLS Regression of STA as Dependent Variable on Influence of Profitability on Leverage of Manufacturing and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.0356	0.0514	-0.69	0.489
Constant	0.2808	0.0120	23.38	0.000
	Wald $chi^2(1) = 0.48$	$R^2 = 0.513$		Prob > $chi^2 = 0.4886$

4.20.2 FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Manufacturing and Allied Listed Firms in NSE

Results in Table 4.120 revealed shows the influence of profitability on long term debt of manufacturing and allied listed firms in NSE. An R squared of 0.3318, indicated that 33.18% of changes in to long term debt in manufacturing and allied listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on long term debt of them (β = 0.0825, p value = 0.343). These results contradicted pecking order theory.

LTA = 0.12618 + 0.0825*P……4.46

Table 4.120: FGLS Regression of LTA as Dependent Variable on Influence of Profitability on Leverage of Manufacturing and Allied Listed Firms in NSE

	Coefficient	**Std. Err**	**Z**	**P>|z|**
P	0.0825	0.08706	0.95	0.343
Constant	0.12618	0.01764	7.15	0.000
	Wald chi^2 (1) = 0.90	R2= 0.3318		Prob > chi^2 = 0.3435

4.20.3 FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Manufacturing and Allied Listed Firms in NSE

Results in Table 4.121 revealed shows the influence of profitability on total debt of manufacturing and allied listed firms in NSE. An R squared of 0.5511, indicated that 55.11% of changes in to total debt in manufacturing and allied listed firms was accounted for by profitability. Further, there was an insignificant influence of profitability on long term debt of them (β = -0.0534, p value = 0.693). These results confirmed pecking order theory.

DTA = 0.4331 -0.0534*P……4.47

Table 4.121: FGLS Regression of DTA as Dependent Variable on Influence of Profitability on Leverage of Manufacturing and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
P	-0.0534	0.1354	-0.39	0.693
Constant	0.4331	0.0222	19.48	0.000
	Wald $chi^2(1) = .16$	$R^2=0.5511$		Prob > $chi^2 = 0.6934$

4.21 Influence of Firm Size on Leverage of Non-Financial Firms Listed in NSE

The third objective of the study sought to establish the influence of firm size on leverage of non-financial firms listed in NSE.

4.21.1 FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Non-Financial Listed Firms in NSE

Results in Table 4.122, shows the influence of firm size on short term debt of listed non-financial firms in NSE. An R squared of 0.045, indicated that 4.5% of changes in short term debt in non-financial listed companies was accounted for by firm size. Further, there was a significant influence of firm size on short term debt of them (β = 0.0252, p value = 0.000). These results agreed with Vergas et al. (2015) who reported positive and significant influence of firm size on leverage.

STA = -0.0999 +0.0252*S……4.48

Table 4.122: FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Non-Financial Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.0252	0.0035	7.10	0.000
Constant	-0.0999	0.0559	-1.79	0.074
	Wald chi^2 (1) = 50.47	R^2= 0.045		Prob > chi^2 = 0.0000

4.21.2 FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Non-Financial Listed Firms in NSE

Results in Table 4.123, shows the influence of firm size on long term debt of listed non-financial firms in NSE. An R squared of 0.0326, indicated that 3.26% of changes in long term debt in non-financial listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them (β = 0.0085, p value = 0.008). These findings contrasted trade off theory which supported inverse relationship between debt and growth opportunities.

LTA = 0.0143 + 0.0085*S……4.49

Table 4.123: FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Non-Financial Listed Firms in Nairobi Securities Exchange

	Coefficient	Std. Err	Z	P>|z|
S	0.0085	0.0032	2.66	0.008
Constant	0.0143	0.0467	0.88	0.377
	Wald $chi^2(1) = 7.05$	$R^2 = 0.0326$		Prob > chi^2 = .0079

4.21.3 FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Non-Financial Listed Firms in NSE

Results in Table 4.124, shows the influence of firm size on total debt of listed non-financial firms in NSE. An R squared of 0.0104, indicated that 1.04% of changes in total debt in non-financial listed companies was accounted for by firm size. Further, there was a significant influence of firm size on total debt of them (β = 0.0502, p value = 0.000). These findings were in tandem with pecking order theory though they contrasted (Mwangi & Birundu, 2015) who found positive influence of firm size.

DTA = -0.2942 +0.0502*S……4.48

Table 4.124: FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Non-Financial Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.0502	0.0039	13.02	0.000
Constant	-0.2942	0.0590	-4.99	0.000
	Wald $chi^2(1) = 169.60$	R2= 0.0104		Prob > chi^2= 0.0000

4.22 Influence of Firm Size on Leverage of Agricultural Companies Listed in NSE

Further, the study sought to establish the influence of firm size on leverage of agricultural companies listed in NSE. Simple linear regression was adopted.

4.22.1 FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Agricultural Listed Firms in NSE

Results in Table 4.125, shows the influence of firm size on short term debt of listed agricultural firms in NSE. An R squared of 0.2528, indicated that 25.28% of changes in short term debt in agricultural listed companies was accounted for by firm size. Further, there was an insignificant influence of firm size on long term debt of them (β = 0.00624, p value = 0.198). These findings contrasted Hussan (2016) who reported significant influence of firm size. Moreover, the findings contrasted pecking order theory.

STA = -0.0022 +0.00624*S……4.50

Table 4.125: FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Agricultural Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.00624	0.00484	1.29	0.198
Constant	-0.0022	0.06626	-0.03	0.973
	Wald chi^2 (1) = 1.66	R^2= 0.2528		Prob > chi^2 = 0.1979

4.22.2 FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Agricultural Firms in NSE

Results in Table 4.126, shows the influence of firm size on long term debt of listed agricultural firms in NSE. An R squared of 0.1257, indicated that 12.57% of changes in long term debt in agricultural listed companies was accounted for by firm size. Further, there was an insignificant influence of firm size on long term debt of them (β = 0.0065, p value = 0.262). These findings refuted Handoo and Sharma (2014) who reported and inverse relationship between firm size and leverage. Positive relationship was in conformity with pecking order theory.

LTA = 0.1054 +0.0065*S……4.51

Table 4.126: FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Agricultural Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|	
S	0.0065	0.0058	1.12	0.262	
Constant	0.1054	0.0765	1.38	0.168	
	Wald $chi^2(1) = 1.26$	$R^2 = 0.1257$		Prob > chi^2 =	.2619

4.22.3 FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Agricultural Listed Firms in NSE

Results in Table 4.127, shows the influence of firm size on total debt of listed agricultural firms in NSE. An R squared of 0.4305, indicated that 43.05% of changes in total debt in agricultural listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them (β = 0.0272, p value = 0.001). These findings were in congruence with pecking order theory and Mwangi and Birundu (2015) who reported positive and significant influence of firm size.

DTA = -0.0590 +0.0272*S……4.52

Table 4.127: FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Agricultural Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.0272	0.0081	3.34	0.001
Constant	-0.0590	0.1076	-0.55	0.583
	Wald $chi^2(1) = 169.60$	$R^2 = 0.4305$		Prob > chi^2= 0.0000

4.23 Influence of Firm Size on Leverage of Automobile and Accessories Companies Listed in NSE

The study also sought to establish the influence of firm size on leverage of automobile and accessories companies listed in Nairobi securities exchange.

4.23.1 FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Automobile and Accessories Listed Firms in NSE

Results in Table 4.128, shows the influence of firm size on short term debt of listed automobile and accessories firms in NSE. An R squared of 0.7262, indicated that 72.62% of changes in short term debt in automobile and accessories listed companies was accounted for by firm size. Further, there was a significant influence of firm size on short term debt of them ($\beta = 0.012$, p value = 0.04). These results corroborated with Acaravci (2015) who found positive and significant influence of firm size on leverage.

STA = 0.36 + 0.012*S……4.53

Table 4.128: FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Automobile and Accessories Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.012	0.01	2.03	0.04
Constant	0.36	0.09	4.01	0.00
	Wald $chi^2(1) = 4.13$	R^2= 0.7262		Prob > chi^2 = 0.04

4.23.2 FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Automobile and Accessories Listed Firms in NSE

Results in Table 4.129, shows the influence of firm size on long term debt of listed automobile and accessories firms in NSE. An R squared of 0.0326, indicated that 3.26% of changes in long term debt in automobile and accessories listed companies was accounted for by firm size. Further, there was an insignificant influence of firm size on long term debt of them (β = -0.004, p value = 0.450). The findings contrasted pecking order theory and Acarcvi (2015) who found positive and significant influence of firm size on leverage of listed companies.

LTA = 0.14 -0.004*S……4.54

Table 4.129: FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Automobile and Accessories Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	-0.004	0.006	-0.75	0.45
Constant	0.14	0.09	1.62	0.11
	Wald chi2(1) = .57	R^2= 0.0326		Prob > chi^2 = .45

4.23.3 FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Automobile and Accessories Listed Firms in NSE

Results in Table 4.130, shows the influence of firm size on total debt of listed automobile and accessories firms in NSE. An R squared of 0.5281, indicated that 52.81% of changes in total debt in automobile and accessories listed companies was accounted for by firm size. Further, there was an insignificant influence of firm size on total debt of them (β = -0.001, p value = 0.91). These findings contrasted Thippayana (2014) who found positive influence of firm size on leverage.

DTA = 0.63 -0.001*S……4.55

Table 4.130: FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Automobile and Accessories Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	-0.001	0.01	-0.12	0.91
Constant	0.63	0.1	6.35	0.00
	Wald $chi^2(1) = .01$	$R^2 = 0.5281$		Prob > $chi^2 = .91$

4.24 Influence of Firm Size on Leverage of Commercial and Services Companies Listed in NSE

Further, the study sought to establish the influence of firm size on leverage of listed commercial and services companies in NSE.

4.24.1 FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.131, shows the influence of firm size on short term debt of listed commercial and services firms in NSE. An R squared of 0.094, indicated that 9.4% of changes in short term debt in commercial and services listed companies was accounted for by firm size. Further, there was a significant influence of firm size on short term debt of them (β = -0.0168, p value = 0.012). This implies that an increase in firm size is associated with decreased use of short-term debt. Consequently, it can be implied that firm size changes led to conservative working capital management.

STA = 0.6055 -0.0168*S……4.56

Table 4.131: FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	-0.0168	0.0067	-2.52	0.012
Constant	0.6055	0.1030	5.88	0.000
	Wald $chi^2(1) = 6.34$	R^2= 0.094		Prob > $chi^2 = 0.0118$

4.24.2 FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.132, shows the influence of firm size on long term debt of listed commercial and services firms in NSE. An R squared of 0.2133, indicated that 21.33% of changes in long term debt in commercial and services listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them (β = 0.0539, p value = 0.00). This implies that an increase in firm size is associated with increased use of long-term debt. These results corroborated with Acaravci (2015) who found positive and significant influence of firm size on leverage. Further, the study agreed with pecking order theory and disagreed with MM hypothesis.

LTA = -0.6583 +0.0539*S……4.57

Table 4.132: FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.0539	0.0129	4.18	0.000
Constant	-0.6583	0.1941	-3.39	0.001
	Wald chi2(1) = 17.51	R^2= 0.2133		Prob > chi^2 = 0.000

4.24.3 FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.133, shows the influence of firm size on total debt of listed commercial and services firms in NSE. An R squared of 0.5142, indicated that 51.42% of changes in total debt in commercial and services listed companies was accounted for by firm size. Further, there was an insignificant influence of firm size on total debt of them (β = 0.0217, p value = 0.128). This implies that an increase in firm size is associated with increased use of long-term debt.

DTA = 0.1803 + 0.0217*S……4.58

Table 4.133: FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.0217	0.0143	1.52	0.128
Constant	0.1803	0.2143	0.84	0.400
	Wald $chi^2(1)$ = 2.32	R^2 =0.5142		Prob > chi^2 = 0.1279

4.25 Influence of Firm Size on Leverage of Construction and Allied Firms Listed in NSE

Further, the study sought to establish the influence of firm size on leverage of construction and allied firms listed in Nairobi securities exchange.

4.25.1 FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Construction and Allied Listed Firms in NSE

Results in Table 4.134, shows the influence of firm size on short term debt of listed construction and allied firms in NSE. An R squared of 0.6456, indicated that 64.56% of changes in short term debt in construction and allied listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them (β = -0.0937, p value = 0.000). These findings were in contrast of pecking order theory.

STA = 1.8039 - 0.0937*S……4.59

Table 4.134: FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Construction and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	-0.0937	0.0086	-10.82	0.0000
Constant	1.8039	0.1440	12.53	0.0000
	Wald $chi^2(1)$ = 117.02	R^2=0.6456		Prob > chi^2 = 0.000

4.25.2 FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Construction and Allied Listed Firms in NSE

Results in Table 4.135, shows the influence of firm size on long term debt of listed construction and allied firms in NSE. An R squared of 0.3014, indicated that 30.14% of changes in long term debt in construction and allied listed companies was accounted for by firm size. Further, there was an insignificant influence of firm size on long term debt of them (β = -0.0056, p value = 0.737). These findings refuted Vergas et al. (2015) who found positive and significant influence of firm size on leverage. Moreover, the findings concurred with MM hypothesis and contrasted pecking order theory.

LTA = 0.2711 – 0.0056*S……4.60

Table 4.135: FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Construction and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	-0.0056	0.0167	-0.34	0.737
Constant	0.2711	0.2612	1.04	0.299
	Wald $chi^2(1)$ = 0.11	R^2 = 0.3014		Prob > Chi^2 = 0.7374

4.25.3 FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Construction and Allied Listed Firms in NSE

Results in Table 4.136, shows the influence of firm size on total debt of listed construction and allied firms in NSE. An R squared of 0.8166, indicated that 81.66% of changes in total debt in construction and allied listed companies was accounted for by firm size. Further, there was a significant influence of firm size on total debt of them (β = -0.0976, p value = 0.737). These findings contrasted (Badar & Saeed, 2013; Mwangi & Birundu, 2015) who found positive and significant influence of firm size on leverage. Moreover, the findings revealed that most construction and allied firms had limited reliance on short term financing as their size increased which may indicate on adoption of conservative working capital financing policy.

DTA = 2.0562 -0.0976*S……4.61

Table 4.136: FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Construction and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	-0.0976	0.0148	-6.60	0.0000
Constant	2.0562	0.2341	8.78	0.0000
	Wald $chi^2(1)$ = 43.52	R^2=0.8166		Prob > chi^2 = 0.0000

4.26 Influence of Firm Size on Leverage of Energy and Petroleum Firms Listed in NSE

Further, the study sought to establish the influence of firm size on leverage of energy and petroleum firms listed in Nairobi securities exchange.

4.26.1 FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Energy and Petroleum Listed Firms in NSE

Results in Table 4.137, shows the influence of firm size on short term debt of listed energy and petroleum firms in NSE. An R squared of 0.4031, indicated that 40.31% of changes in short term debt in energy and petroleum listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them ($\beta = 0.2187$, p value = 0.000). This implies that an increase in firm size increased short-term debt amongst listed energy and petroleum firms in NSE. These findings depicted adoption of matching working capital financing approach. Moreover, the findings contrasted pecking order theory.

STA = -3.4809 +0.2187*S……4.62

Table 4.137: FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Energy and Petroleum Listed Firms in Nairobi Securities Exchange

	Coefficient	Std. Err	Z	P>|z|
S	0.2187	0.0291	7.51	0.0000
Constant	-3.4809	0.5245	-6.64	0.000
	Wald $chi^2(1) = 56.42$	$R^2 = 0.4031$		Prob > $chi^2 = 0.000$

4.26.2 FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Energy and Petroleum Listed Firms in NSE

Results in Table 4.138, shows the influence of firm size on long term debt of listed energy and petroleum firms in NSE. An R squared of 0.222, indicated that 22.2% of changes in long term debt in energy and petroleum listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them (β = -0.1857, p value = 0.000). This implies that an increase in firm size decreased use of long-term debt amongst energy and petroleum listed firms. These findings mirrored pecking order theory though they contrasted (MM hypothesis, 1958). Further, the study findings disagreed with Acaravci (2015).

LTA = 3.5083 -0.1857*S……4.63

Table 4.138: FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Energy and Petroleum Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	-0.1857	0.0229	-8.10	0.0000
Constant	3.5083	0.4120	8.52	0.0000
	Wald chi2(1) = 65.55	R^2 =0.222		Prob > $chi^2 = 0.0000$

4.26.3 FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Energy and Petroleum Listed Firms in NSE

Results in Table 4.139, shows the influence of firm size on total debt of listed energy and petroleum firms in NSE. An R squared of 0.527, indicated that 52.7% of changes in total debt in energy and petroleum listed companies was accounted for by firm size. Further, there was a significant influence of firm size on total debt of them (β = 0.067, p value = 0.009). This shows an increase in firm size is associated with increase in total debt. This calls for prudent financial management since an increased may be attributed to excessive expansion which may constrain working capital needs within listed energy and petroleum companies. Further, the study findings refuted pecking order theory since increased sales ought to have increased revenues.

DTA = -0.5785 + 0.067*S……4.64

Table 4.139: FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Energy and Petroleum Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.067	0.0256	2.62	0.009
Constant	-0.5785	0.4654	-1.24	0.214
	Wald $chi^2(1) = 6.88$	$R^2 = 0.527$		Prob > $chi^2 = 0.0087$

4.27 Influence of Firm Size on Leverage of Investment and Services Firms Listed in NSE

The study also sought to establish the influence of leverage on leverage of investment and services listed firms in Nairobi securities exchange.

4.27.1 FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.140, shows the influence of firm size on short term total debt of listed investment and services firms in NSE. An R squared of 0.2400, indicated that

24% of changes in short debt in investment and services listed companies was accounted for by firm size. There was an insignificant influence of firm size on short term debt of them (β = 0.03110, p value = 0.234). These findings contrasted Baloch et al. (2013) who reported positive and significant influence of firm size on leverage.

STA = -0.219 + 0.03110*S……4.65

Table 4.140: FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.03110	0.0261	1.19	0.234
Constant	-0.219	0.384	-0.57	0.569
	Wald $chi^2(1) = 1.42$	$R^2 = 0.2400$		Prob > $chi^2 = 0.2341$

4.27.2 FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.141, shows the influence of firm size on long term total debt of listed investment and services firms in NSE. An R squared of 0.2756, indicated that 27.56% of changes in short debt in investment and services listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them (β = 0.0352, p value = 0.003). This shows that an increase in firms' size is associated with increase in leverage. The findings were in congruence with Mwangi and Birundu (2015) though they different with pecking order theory but supported Modigliani and Miller hypothesis.

LTA = -0.3507 + 0.0352*S……4.66

Table 4.141: FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.0352	0.0117	3.00	0.003
Constant	-0.3507	0.1691	-2.07	0.038
	Wald $chi^2(1) = 8.98$	$R^2 = 0.2756$		Prob > $chi^2 = 0.0027$

4.27.3 FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.142, shows the influence of firm size on total debt of listed investment and services firms in NSE. An R squared of 0.4342, indicated that 43.42% of changes in total debt in investment and services listed companies was accounted for by firm size. Further, there was a significant influence of firm size on total debt of them (β = 0.0716, p value = 0.009). These findings agreed with Baloch et al. (2013) who reported positive influence of firm size on leverage in Pakistan. Moreover, these findings concurred with Modigliani and Miller hypothesis.

DTA = -0.6372 +0.0716*S……4.67

Table 4.142: FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.0716	0.0273	2.63	0.009
Constant	-0.6372	0.3961	-1.61	0.108
	Wald $chi^2(1) = 6.89$	$R^2=0.4342$		Prob > $chi^2 = 0.0087$

4.28 Influence of Firm Size on Leverage of Manufacturing and Allied Companies Listed in Firms NSE

The study sought to establish the influence of firm size on leverage of listed manufacturing and allied firms listed in Nairobi Securities Exchange.

4.28.1 FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Manufacturing and Allied Listed Firms in NSE

Results in Table 4.143, shows the influence of firm size on short term debt of listed manufacturing and allied firms in NSE. An R squared of 0.5639, indicated that 56.39% of changes in short term debt in manufacturing and allied listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them (β = 0.0582, p value = 0.000). This implies that an increase in firm size was associated with increase in short term debt. Thus, it can be implied that listed manufacturing and allied companies has adopted aggressive working capital financing strategy.

STA = -0.6381 + 0.0582*S……4.68

Table 4.143: FGLS Regression of STA as Dependent Variable on Influence of Firm Size on Leverage of Manufacturing and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.0582	0.0065	8.94	0.0000
Constant	-0.6381	0.1049	-6.08	0.0000
	Wald $chi^2(1) = 79.95$	$R^2 = 0.5639$		Prob > $chi^2 = 0.000$

4.28.2 FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Manufacturing and Allied Listed Firms in NSE

Results in Table 4.144, shows the influence of firm size on long term debt of listed manufacturing and allied firms in NSE. An R squared of 0.4063, indicated that 40.63% of changes in long term debt in manufacturing and allied listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them (β = 0.0490, p value = 0.000). This implies that an increase in firm size lead to an increase in long term debt. These findings agreed with Modigliani and Miller hypothesis and Acaracvi (2015).

STA = -0.6415 + 0.0490*S……4.69

Table 4.144: FGLS Regression of LTA as Dependent Variable on Influence of Firm Size on Leverage of Manufacturing and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.0490	0.0085	5.75	0.0000
Constant	-0.6415	0.1278	-5.02	0.000
	Wald $chi^2(1) = 33.10$	$R^2 = 0.4063$		Prob > $chi^2 = 0.0000$

4.28.3 FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Manufacturing and Allied Listed Firms in NSE

Results in Table 4.145, shows the influence of firm size on total debt of listed manufacturing and allied firms in NSE. An R squared of 0.6021, indicated that 60.21% of changes in total debt in manufacturing and allied listed companies was accounted for by firm size. Further, there was a significant influence of firm size on long term debt of them ($\beta = 0.1019$, p value = 0.000). This implies that an increase in firm size lead to an increase in total debt. These findings disagreed with Modigliani and Miller hypothesis though they agreed with Abdullah et al. (2015) who found positive influence of firm size on financial leverage.

STA = -1.2081 + 0.1019*S……4.70

Table 4.145: FGLS Regression of DTA as Dependent Variable on Influence of Firm Size on Leverage of Manufacturing and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
S	0.1019	0.0088	11.63	0.0000
Constant	-1.2081	0.1235	-9.78	0.0000
	Wald chi2(1) = 135.16	$R^2 = 0.6021$		Prob > $chi^2 = 0.0000$

4.29 Influence of Growth Opportunities on Leverage of Non-Financial Firms Listed at NSE

The fourth objective of the study sought to find out the influence of growth opportunities on leverage of listed non-financial companies in NSE. To achieve this simple regression analysis was carried and influence of growth opportunities examined on short term debt, long term debt and total debt. Further, sectoral influence of growth opportunities on leverage was examined.

4.29.1 FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Non-Financial Firms in NSE

Results of the influence of growth opportunities on short term debt are shown in Table 4.146. From the Table there was a significant influence of growth opportunities on short term debt of listed non-financial companies in NSE (β =-0.0046715, p value =0.002). The results agreed with Goyal, Lehn and Racic (2002) who found that growth opportunities of firm's decline with increased use of debt financing.

STA = 0.3067737 - 0.0046715*G……4.71

Table 4.146: FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Non-Financial Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.0046715	0.0014745	-3.17	0.002
Constant	0.3067737	0.006804	52.53	0.000
	Wald $Chi^2(1)$ = 10.04	R^2= 0.0263		Prob > Chi^2 = 0.0015

4.29.2 FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Non-Financial Firms in NSE

Results of the influence of growth opportunities on long term debt are shown in Table 4.99. From the Table there was an insignificant influence of growth

opportunities on long term debt of listed non-financial companies in NSE (β =0.0002808, p value =0.632). The results refuted Goyal et al. (2002) who found that growth opportunities of firm's decline with increased use of debt financing.

LTA = 0.1759048 + 0.0002808*G……4.72

Table 4.147: FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Non-Financial Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	0.0002808	0.0005866	0.48	0.632
Constant	0.1759048	0.0043495	40.44	0.00
	Wald $chi^2(1)$ = 0.23	R^2= 0.11		Prob > chi^2 = 0.6322

4.29.3 FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Non-Financial Firms in NSE

Results of the study in Table 4.148 revealed a significant influence of growth opportunities on total debt of listed non-financial companies in NSE (β = -0.0068, p value = 0.0000). This implies an increase in growth opportunities decreased reliance on debt financing. The results also demonstrate that highly growing firms may not necessarily need debt financing since they are able to generate own funds for expansion hence pecking order theory propositions. Indeed, Hall et al. (2004) asserted that leverage decision is dependent on firm's ability to generate more revenue therefore those which generate more have lower chances of borrowing. In agreement with the study results too is trade-off theory since it predicts a negative relationship between leverage and growth opportunities. This is because growth firms could face high costs of financial distress to lose their value (Fama & French, 2002).

DTA = 0.4920 -0.0068*G……4.73

Table 4.147: FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Non-Financial Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.0068	0.0019	-3.49	0.0000
Constant	0.4920	0.0085	58.03	0.0000
	Wald $chi^2(1)$ = 12.16	R 2= 0.0266		Prob > chi^2 = 0.0005

4.30 Influence of Growth Opportunities on Leverage of Agricultural Listed Firms in NSE

The study also sought the influence of growth opportunities on leverage of listed agricultural companies in Nairobi securities exchange.

4.30.1 FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Agricultural Listed Firms in NSE

Results in Table 4.148, shows the influence of growth opportunities on leverage of listed agricultural companies in NSE. An R squared of 0.2123, indicated that 21.23% of changes in variations of short-term debt in agricultural listed companies was accounted for by growth opportunities. Further, there was a non-significant influence of growth opportunities on short term debt of listed agricultural companies in NSE (β = -0.0003325, p value = 0.667). These results supported trade off theory which predicts negative reliance on debt though it supported MM hypothesis (1958). Moreover, this can reflect conservative financing policy which would be attributable to seasonality of agriculturally based firm revenue generation.

STA = 0.0852304 – 0.0003325*G……4.74

Table 4.148: FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Agricultural Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.0003325	0.0007731	-0.43	0.667
Constant	0.0852304	0.0075237	11.33	0.000
	Wald $chi^2(1)$ = 0.18	R^2 = 0.2123		Prob > chi^2 = 0.6672

4.30.2 FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Agricultural Listed Firms in NSE

Results in Table 4.149, shows the influence of growth opportunities on leverage of listed agricultural companies in NSE. An R squared of 0.094, indicated that 9.4% of changes in variations of long-term debt in agricultural listed companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of listed agricultural companies in NSE (β = -0.00016, p value = 0.722). These results are inconsistent with Acaravci (2015) and Vergas, Cerqueira and Brandão (2015) who concluded a positive and significant relationship between growth opportunities and leverage. The results further contradict Modigliani and Miller (1958) assertion that there exists a positive relation between growth opportunities and a firm's preference for the debt.

STA = 0.1993 -0.00016*G……4.75

Table 4.149: FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Agricultural Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.00016	0.0005	-0.36	0.722
Constant	0.1993	0.0062	32.39	0.0000
	Wald $chi^2(1)$ = 0.13	R^2= 0.094		Prob > chi^2 = 0.7223

4.30.3 FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Agricultural Listed Firms in NSE

Results in Table 4.150, shows the influence of growth opportunities on leverage of listed agricultural companies in NSE. An R squared of 0.3533, indicated that 35.33% of changes in variations of total debt in agricultural listed companies was accounted for by growth opportunities. Further, there was a non-significant influence of growth opportunities on total debt of listed agricultural companies in NSE (β = -0.0009833, p value = 0.200). This shows non-reliance with debt capital amongst agricultural listed companies and the findings are in congruence with trade off theory.

STA = 0.307057 -0.0009833*G……4.76

Table 4.150: FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Agricultural Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.0009833	0.000767	-1.28	0.200
Constant	0.307057	0.0122591	25.05	0.000
	Wald $chi^2(1)$ = 1.64	R^2 = 0.3533		Prob > chi^2 = 0.1998

4.31 Influence of Growth Opportunities on Leverage of Listed Automobile and Accessories Firms Listed in NSE

Further, the study sought to find out the influence of growth opportunities on leverage of listed automobile and accessories companies in Nairobi securities exchange.

4.31.1 FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Automobile and Accessories Listed Firms in NSE

Results in Table 4.151, shows the influence of growth opportunities on leverage of listed automobile and accessories companies in NSE. An R squared of 0.4114, indicated that 41.14% of changes in variations of short-term debt in automobile and

accessories listed companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on short term debt of listed automobile and accessories companies in NSE (β = 0.03, p value = 0.07). These findings refuted trade off theory.

STA = 0.52 + 0.03*G…….……4.77

Table 4.151: FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Automobile and Accessories Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|	
G	0.03	0.02	1.78	0.07	
Constant	0.52	0.02	29.03	0.00	
	Wald chi^2 (1) = 3.16	R^2 = 0.4114		Prob > chi^2 =	0.07

4.31.2 FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Automobile and Accessories Listed Firms in NSE

Results in Table 4.152, shows the influence of growth opportunities on leverage of listed automobile and accessories companies in NSE. An R squared of 0.0104, indicated that 1.04% of changes in variations of long-term debt in automobile and accessories listed companies was accounted for by growth opportunities. Further, there was a significant influence of growth opportunities on long term debt of listed automobile and accessories companies in NSE (β = -0.04, p value = 0.000). This shows that an increase in growth opportunities decreases reliance on long term debt amongst automobile and accessories listed companies. These findings supported trade off theory and contradicted (Harc, 2015).

LTA = 0.09 – 0.04*G…….……4.78

Table 4.152: FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Automobile and Accessories Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.04	0.013	-2.85	0.000
Constant	0.09	0.02	5.38	0.000
	Wald $chi^2(1)$ = 8.15	R^2 = 0.0104		Prob > chi^2 = 0.00

4.31.3 FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Automobile and Accessories Listed Firms in NSE

Results in Table 4.153, shows the influence of growth opportunities on leverage of listed automobile and accessories companies in NSE. An R squared of 0.7386, indicated that 73.86% of changes in variations of total debt in automobile and accessories listed companies was accounted for by growth opportunities. There was an insignificant influence of growth opportunities on total debt of listed automobile and accessories companies in NSE ($\beta = 0.03$, p value = 0.07). These findings refuted trade off theory.

DTA = 0.62 -0.01*G……..……4.79

Table 4.153: FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Automobile and Accessories Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.01	0.01	-0.4	0.69
Constant	0.62	0.01	42.3	0.00
	Wald $chi^2(1)$ = .16	R^2 = 0.7386		Prob > chi^2= .69

4.32 Influence of Growth Opportunities on Leverage of Listed Commercial and Services Companies Listed in NSE

The study sought to find out the influence of growth opportunities on leverage of listed commercial and listed firms in Nairobi securities exchange.

4.32.1 FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.154, shows the influence of growth opportunities on short term debt of listed commercial and services firms in NSE. An R squared of 0.0211, indicated that 2.11% of changes in variations of short-term debt in commercial and services listed companies was accounted for by growth opportunities. Further, there was a significant influence of growth opportunities on long term debt of listed commercial and services companies in NSE (β = -0.0117, p value = 0.02). This implies that an increase in growth opportunities decreased reliance on short term borrowing. This showed that commercial and services companies had adopted conservative working capital management. These findings corroborated trade off theory.

STA = 0.3591 – 0.0117*G…….……4.80

Table 4.154: FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|	
T	-0.0117	0.0051	-2.32	0.020	
Constant	0.3591	0.0127	28.43	0.000	
	Wald chi^2 (1) = 5.38	R^2 = 0.0211		Prob > chi^2 =	0.0204

4.32.2 FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.155, shows the influence of growth opportunities on long term debt of listed commercial and services firms in NSE. An R squared of 0.2061, indicated that 20.61% of changes in variations of long-term debt in commercial and services listed companies was accounted for by growth opportunities. Further, there was a significant influence of growth opportunities on long term debt of listed commercial and services companies in NSE (β = -0.0449, p value = 0.00). These findings corroborated trade off theory.

LTA = 0.2182 - 0.0449*G…….……4.81

Table 4.155: FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
T	-0.0449	0.0066	-6.78	0.0000
Constant	0.2182	0.0170	12.84	0.0000
	Wald $chi^2(1)$ = 45.94	R^2 = 0.2061		Prob > chi^2 = 0.00

4.32.3 FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Commercial and Services Listed Firms in NSE

Results in Table 4.156, shows the influence of growth opportunities on total debt of listed commercial and services firms in NSE. An R squared of 0.4907, indicated that 40.97% of changes in variations of total debt in commercial and services listed companies was accounted for by growth opportunities. Further, there was a significant influence of growth opportunities on long term debt of listed commercial and services companies in NSE (β = -0.0512, p value = 0.00). This implies an increase in growth opportunities decreased reliance on debt financing amongst commercial and services companies listed in NSE. These findings corroborated trade off theory.

DTA = 0.5667 – 0.0512*G…….……4.82

Table 4.156: FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Commercial and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.0512	0.0090	-5.68	0.000
Constant	0.5667	0.0212	26.74	0.000
	Wald $chi^2(1) = 32.30$	$R^2 = 0.4907$		Prob > $chi^2 = 0.0000$

4.33 Influence of Growth Opportunities on Leverage of Construction and Allied Firms Listed in NSE

The influence of growth opportunities on leverage of construction and allied companies was sought. Simple regression analysis was applied and study findings presented as shown below.

4.33.1 FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Construction and Allied Listed Firms in NSE

Results in Table 4.157, shows the influence of growth opportunities on short term debt of listed construction and allied firms in NSE. An R squared of 0.5351, indicated that 53.51% of changes in variations of short-term debt in construction and allied listed companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = -0.0185, p value = 0.437). These findings corroborated trade off theory.

STA = 0.3247 - 0.0185*G…….……4.83

Table 4.157: FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Construction and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.0185	0.0237	-0.78	0.437
Constant	0.3247	0.0333	9.73	0.000
	Wald chi^2 (1) = 0.60	R^2= 0.5351		Prob > chi^2 = 0.4368

4.33.2 FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Construction and Allied Listed Firms in NSE

Results in Table 4.158, shows the influence of growth opportunities on long term debt of listed construction and allied firms in NSE. An R squared of 0.3264, indicated that 32.64% of changes in variations of long-term debt in construction and allied listed companies was accounted for by growth opportunities. Further, there was a significant influence of growth opportunities on long term debt of them (β = -0.0394, p value = 0.022). This implies an increase in growth opportunities decreased reliance on debt financing. These findings corroborated trade off theory.

STA = 0.2296 - 0.0394*G…….……4.84

Table 4.158: FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Construction and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.0394	0.0172	-2.29	0.022
Constant	0.2296	0.0259	8.85	0.000
	Wald chi^2(1) = 5.24	R^2 = 0.3264		Prob > chi^2 = 0.0221

4.33.3 FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Construction and Allied Listed Firms in Nairobi Securities Exchange

Results in Table 4.159, shows the influence of growth opportunities on total debt of listed construction and allied firms in NSE. An R squared of 0.851, indicated that 85.1% of changes in variations of total debt in construction and allied listed companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = -0.011, p value = 0.567). These findings corroborated trade off theory.

STA = 0.5609 – 0.0111*G…….……4.85

Table 4.159: FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Construction and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.0111	0.0195	-0.57	0.567
Constant	0.5609	0.0225	24.97	0.000
	Wald $chi^2(1) = 0.33$	$R^2 = 0.851$		Prob > chi^2= 0.5666

4.34 Influence of Growth Opportunities on Leverage of Listed Energy and Petroleum Companies Listed in NSE

The study further sought to find out the influence of growth opportunities on leverage of listed energy and petroleum firms in Nairobi Securities Exchange.

4.34.1 FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Energy and Petroleum Listed Firms in NSE

Results in Table 4.160, shows the influence of growth opportunities on short term debt of listed energy and petroleum firms in NSE. An R squared of 0.03, indicated that 3% of changes in short term debt in energy and petroleum listed companies was

accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = 0.0035, p value = 0.9394). These findings contrasted trade off theory.

STA = 0.4309 + 0.0035*G…….……4.86

Table 4.160: FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Energy and Petroleum Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|	
G	0.0035	0.0393	0.09	0.930	
Constant	0.4309	0.0548	7.86	0.000	
	Wald chi^2 (1) = 0.01			Prob > chi^2 =	0.9297

4.34.2 FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Energy and Petroleum Listed Firms in NSE

Results in Table 4.161, shows the influence of growth opportunities on long term debt of listed energy and petroleum firms in NSE. An R squared of 0.2327, indicated that 23.27% of changes in long term debt in energy and petroleum listed companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = 0.0028, p value = 0.9394). These findings contrasted trade off theory.

LTA = 0.1951 + 0.03*G…….……4.87

Table 4.161: FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Energy and Petroleum Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|	
G	0.0028	0.0369	0.08	0.9394	
Constant	0.1951	0.0511	3.82	0.000	
	Wald chi^2(1) = 0.01	R^2 = 0.2327		Prob > chi^2 =	0.9394

4.34.3 FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Energy and Petroleum Listed Firms in NSE

Results in Table 4.162, shows the influence of growth opportunities on total debt of listed energy and petroleum firms in NSE. An R squared of 0.5619, indicated that 56.19% of changes in total debt in energy and petroleum listed companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = 0.0281, p value = 0.9394). These findings contrasted trade off theory.

DTA = 0.6020 + 0.0281*G…….4.88

Table 4.162: FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Energy and Petroleum Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	0.0281	0.0182	1.54	0.124
Constant	0.6020	0.0284	21.13	0.000
	Wald $chi^2(1) = 2.37$	$R^2 = 0.5619$		Prob > $chi^2 = 0.1239$

4.35 Influence of Growth Opportunities on Leverage of Listed Investment and Services Firms Listed in NSE

The study sought to find out the influence of growth opportunities on leverage of listed investment and services firms listed in Nairobi securities exchange. Simple linear regression was adopted to analyse the data.

4.35.1 FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.163, shows the influence of growth opportunities on short term debt of listed investment and services firms in NSE. An R squared of 0.3137, indicated that 31.37% of changes in short term debt in investment and services listed

companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = -0.0414, p value = 0.056). These findings concurred with trade off theory which supported inverse relationship between debt and growth opportunities.

STA = 0.2287 - 0.0414*G……4.89

Table 4.163: FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|	
G	-0.0414	0.0217	-1.91	0.056	
Constant	0.2287	0.0297	7.71	0.000	
	Wald chi^2 (1) = 3.64	R^2 = 0.3137		Prob > chi^2 =	0.0563

4.35.2 FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.164, shows the influence of growth opportunities on long term debt of listed investment and services firms in NSE. An R squared of 0.1332, indicated that 13.32% of changes in long term debt in investment and services listed companies was accounted for by growth opportunities. Further, there was a significant influence of growth opportunities on long term debt of them (β = 0.0075, p value = 0.001). These findings contrasted trade off theory which supported inverse relationship between debt and growth opportunities.

LTA = 0.1713 + 0.0075*G……4.90

Table 4.164: FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	0.0075	0.0023	3.18	0.001
Constant	0.1713	0.0143	11.96	0.000
	Wald $chi^2(1) = 10.09$	$R^2 = 0.1332$		Prob > chi^2 = 0.0015

4.35.3 FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.165, shows the influence of growth opportunities on total debt of listed investment and services firms in NSE. An R squared of 0.4684, indicated that 46.84% of changes in total debt in investment and services listed companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = -0.0354, p value = 0.145). These findings corroborated trade off theory which supported inverse relationship between debt and growth opportunities.

DTA = 0.3933 -0.0354*G…….4.91

Table 4.165: FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	-0.0354	0.0243	-1.46	0.145
Constant	0.3933	0.0377	10.42	0.000
	Wald $chi^2(1) = 2.12$	$R^2 = 0.4684$		Prob > chi^2= 0.1453

4.36 Influence of Growth Opportunities on Leverage of Listed Manufacturing and Allied Firms Listed in NSE

The study sought to find out the influence of growth opportunities on leverage of manufacturing and allied listed companies in Nairobi securities exchange.

4.36.1 FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Manufacturing and Allied Listed Firms in NSE

Results in Table 4.166, shows the influence of growth opportunities on short term debt of listed manufacturing and allied firms in NSE. An R squared of 0.5366, indicated that 53.66% of changes in long term debt in manufacturing and allied listed companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = 0.0121, p value = 0.06). These findings contrasted trade off theory which supported inverse relationship between debt and growth opportunities.

STA = 0.261 + 0.0121*G…….……4.92

Table 4.166: FGLS Regression of STA as Dependent Variable on Influence of Growth Opportunities on Leverage of Manufacturing and Allied Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|	
G	0.0121	0.0064	1.88	0.060	
Constant	0.261	0.015	17.68	0.000	
	Wald chi^2 (1) = 3.53	R^2 = 0.5366		Prob > chi^2 =	0.0604

4.36.2 FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Manufacturing and Allied Listed Firms in NSE

Results in Table 4.167, shows the influence of growth opportunities on long term debt of listed manufacturing and allied firms in NSE. An R squared of 0.3363, indicated that 33.63% of changes in long term debt in manufacturing and allied listed

companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = 0.0129, p value = 0.86). These findings contrasted trade off theory which supported inverse relationship between debt and growth opportunities.

LTA = 0.1172 + 0.0129*G…….……4.93

Table 4.167: FGLS Regression of LTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Manufacturing and Allied Listed Firms in NSE

	Coefficient	**Std. Err**	**Z**	**P>|z|**
G	0.0129	0.0097	1.32	0.186
Constant	0.1172	0.0199	5.88	0.00
	Wald $chi^2(1) = 1.75$	$R^2 = 0.3363$		Prob > chi^2 = .1859

4.36.3 FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Investment and Services Listed Firms in NSE

Results in Table 4.168, shows the influence of growth opportunities on total debt of listed manufacturing and allied firms in NSE. An R squared of 0.533, indicated that 53.3% of changes in total debt in manufacturing and allied listed companies was accounted for by growth opportunities. Further, there was an insignificant influence of growth opportunities on long term debt of them (β = 0.0213, p value = 0.152). These findings contrasted trade off theory which supported inverse relationship between debt and growth opportunities.

DTA = 0.4045 + 0.0213*G…….……..……4.94

Table 4.168: FGLS Regression of DTA as Dependent Variable on Influence of Growth Opportunities on Leverage of Investment and Services Listed Firms in NSE

	Coefficient	Std. Err	Z	P>|z|
G	0.0213	0.0149	1.43	0.152
Constant	0.4045	0.0229	17.66	0.00
	Wald $chi^2(1) = 2.05$	$R^2 = 0.533$		Prob > $chi^2 = 0.1520$

4.37 Influence of FFC on Leverage of Non-Financial Companies Listed in NSE

The fifth objective of the study sought to establish moderating influence of operating cash flows on the influence of financial characteristics on leverage of non-financial firms listed at Nairobi Securities Exchange.

4.37.1 FGLS Regression Results of STA as Dependent Variable with and without Moderator on the Influence of FFC on Leverage of Non-Financial Firms Listed in NSE

As shown in Table 4.69, results on the effect of financial characteristics on short term debt financing while operating cash flow was incorporated in the model show that the coefficient of TCF was 0.050 hence tangibility had a positive effect on short term debt as operating cash flow increased. The p value was 0.14 which is greater than 5% level of significance. This indicates that the moderating effect of operating cash flow on tangibility was statistically insignificant on debt financing. The study findings supported Acheampong et al. (2014), who found positive significant effect on asset tangibility and stock performance on financial leverage. Also, they confirmed Pandey and Prabhavathi (2016) who argued that operating leverage, financial leverage, shareholder's wealth and profitability. They refuted Tai (2017) documented inverse effect of trading volume on capital structure. Theoretically the study concurs with market timing theory and refuted signaling theory. The coefficient of SCF was -0.005 hence firm size had a negative impact on short term debt financing when the operating cash flow was incorporated. The p value was 0.11

which is greater than 5% level of significance. This shows that the moderating effect of operating cash flow on firm size was statistically insignificant on short term debt financing.

The coefficients of PCF and GCF were 0.15 and 0.145 respectively. This indicates that profitability and growth opportunities had a positive effect on short debt respectively when operating cash flow increased. The p values were 0.01 and 0.25 respectively to imply that the moderating effect of operating cash flow on profitability and growth opportunities were significant and insignificant respectively on short debt financing at 5% level of significance. The overall moderating effect of operating cash flow on financial characteristics towards short term debt financing was 23.81% since the proportion of variation of short-term debt financing due to the variation in financing characteristics when the moderator was incorporated was 66.28%, compared with 42.47% without cash flow moderation.

To further confirm the effect of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on short term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.521+0.054*0.16= -0.512$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = 0.0004-0.15*0.16= 0.0001$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = 0.0034-0.006*0.16= 0.002$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.002+0.145*0.16= 0.0253$$

When the above coefficients are compared with those of model without moderation, they are different which implies that the operating cash flow has a moderating effect on the relationship between financial characteristics and short-term leverage. Many studies have concluded a relationship between cash flow and the various financial characteristics used in this study, although cash flow has not been used as a moderator. For instance, Kordlouie, Mosadeg and Rad (2014) and Hong, Shuting and Meng (2012) observed that cash flows have an effect on performance/profitability. In his work on firm size, age and operating cash flow of Nigeria banks, Osagie (2016) concluded that firm size has an insignificant positive impact on operating cash flow. Almeida and Campello (2007) in their work on financial constraints, asset tangibility, and corporate investment strongly support the hypothesis about the role of asset tangibility on the sensitivity of investment to cash flow. Schoubben and Van (2007) also concluded a relationship between cash flow sensitivity and growth opportunities. Resultant model without and moderation are as follows,

STA = 0.22- 0.43*T + 0.001*P + 0.02*S + 0.0007*G……4.95

STA = 0.55 -0.52*T + 0.0003*P + 0.003*S+0.002*G -0.05*CF+ 0.05*TCF+0.15*PCF-0.01*SCF + 0.145*GCF…….4.96.

Table 4.169: FGLS Regression Results of STA as Dependent Variable with and without Moderator on the Influence of FFC on Leverage of Listed Non-Financial Companies

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
Cons	0.22	0.08	2.60	0.01	0.55	0.07	7.66	0.00
T	-0.43	0.04	-11.17	0.00	-0.52	0.03	-16.12	0.00
P	0.001	0.0004	2.31	0.02	0.0003	.0003	1.00	0.32
S	0.02	0.01	3.81	0.00	0.003	0.004	0.77	0.44
G	0.0007	0.002	-0.41	0.68	0.002	0.002	1.	0.32
CF					-0.05	0.04	-1.11	0.27
TCF					0.05	0.04	1.49	0.14
PCF					0.15	0.06	2.45	0.01
SCF					-0.01	0.00	-1.59	0.11
GCF					0.145	0.00	-1.16	0.25
	Wald chi^2 (4) =135.17	R2 = 0.4247		P > Chi2 0.00	Wald chi^2 (9) =454.64	R^2 = 0.6628		P > Chi^2 .0000

4.37.2 FGLS Regression Results of STA as Dependent Variable with and without Moderator for Agricultural Listed Firms in NSE

As shown in Table 4.170, results on the effect of financial characteristics on short term debt financing for agricultural listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.013 hence firm size had a negative impact on short term debt financing when the operating cash flow was incorporated. The p value was 0.343 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on short term debt financing. The coefficient of TCF was 0.425 hence tangibility had a positive effect on short term debt as operating cash flow increased. The p value was 0.001 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on debt financing.

The coefficients of PCF and GCF were 0.005 and 0.004 respectively. This indicates that profitability and growth opportunities had a positive influence on short debt respectively when operating cash flow was incorporated. The p values were 0.972 and 0.483 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on short debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on short term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.571+0.042*0.44= -0.553$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = -0.116+0.0051*0.44= -0.113$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = 0.008-0.0012*0.44= 0.0079$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.003+0.004*0.44= -0.0010$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating effect on the influence of financial characteristics on short-term leverage of listed agricultural companies in NSE. Resultant model without and moderation are as follows,

STA = 0.241 -0.252*T - 0.151*P + 0.003*S - 0.002*G ……4.97

STA = 0.490 – 0.571*T - 0.116*P + 0.008*S - 0.003*G - 0.337*CF + 0.0425*TCF + 0.05*PCF- 0.013*SCF + 0.004*GCF……..4.98

Table 4.170: FGLS Regression Results of STA as Dependent Variable with Moderator for Agricultural Listed Firms in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
Cons	.241	.067	3.61	.000	.490	.129	3.79	.000
T	-.252	.048	-5.26	.000	-.571	.064	-8.96	.000
P	-.151	.069	-2.18	.029	-.116	.101	-1.15	.252
S	.003	.004	.68	.497	.008	.008	1.07	.283
G	-.002	.0007	-2.35	.019	-.003	.007	-.43	.67
CF					-.337	.206	-1.63	.103
TCF					.0425	.123	3.46	.001
PCF					.005	.148	.03	.972
SCF					-.013	.013	-.95	.343
GCF					.004	.006	.7	.483
	Wald chi2 (4) =28.83	R2 = 0.2959		P > Chi2 0.00	Wald chi^2 (9) =225.97	R^2 = 0.8224		P > Chi^2 .0000

4.37.3 FGLS Regression Results of STA as Dependent Variable with and Without Moderator for Automobile and Accessories Listed Firms in NSE

As shown in Table 4.171, results on the effect of financial characteristics on short term debt financing for automobile and accessories listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.061 hence firm size had a negative impact on short term debt financing when the operating cash flow was incorporated. The p value was 0.000 which is less 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on short term debt financing. The coefficient of TCF was -0.484 hence tangibility had a negative influence on short term debt as operating cash flow increased. The p value was 0.000 which is less than

5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on debt financing.

The coefficients of PCF and GCF were 0.703 and 0.355 respectively. This indicates that profitability and growth opportunities had a positive influence on short debt respectively when operating cash flow was incorporated. The p values were 0.000 and 0.008 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were significant respectively on short debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on short term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.589 - 0.484 * 0.13 = -0.652$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = 0.178 + 0.704 * 0.13 = 0.270$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = -0.022 - 0.061 * 0.13 = -0.030$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.098 + 0.355 * 0.13 = -0.052$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had moderating influence on the influence of financial characteristics and short-term leverage of listed automobile and accessories companies. Resultant models without and with moderation are,

STA = -0.643 - 0.117*T + 0.273*P -0.006*S +0025*G ……4.99

STA = 1.118 – 0.589*T + 0.178*P - 0.022*S - 0.098*G + 0.750*CF - 0.484*TCF - 0.161*PCF + 0.703*SCF + 0.355*GCF……..4.100

Table 4.171: FGLS Regression Results of STA as Dependent Variable with and without Moderator for Automobile and Accessories Listed Companies in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
Cons	-.643	.125	5.13	.000	1.118	.221	5.05	.000
T	-.117	.087	-1.36	.175	-.589	.123	-4.81	.000
P	.273	.125	2.19	.028	.178	.076	2.34	.019
S	-.006	.007	-.79	.432	-.022	.012	-1.88	.059
G	.025	.020	1.25	.211	-.098	.036	-2.72	.006
CF					.750	.131	5.74	.000
TCF					-.484	.085	-5.68	.000
SCF					-.061	.013	5.74	.000
PCF					.703	.125	5.64	.000
GCF					.355	.133	2.66	.008
	Wald chi2 (4) =15.02	R2 = 0.5058		P > Chi2 0.0047	Wald chi^2 (9) =161.96	R^2 = 0.9583		P > Chi^2 .0000

4.37.4 FGLS Regression Results of STA as Dependent Variable with and without Moderator for Commercial and Services Listed Companies in NSE

As shown in Table 4.172, results on the effect of financial characteristics on short term debt financing for commercial and services listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.091 hence firm size had a negative influence on short term debt financing when the operating cash flow was incorporated. The p value was 0.00 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on short term debt financing. The coefficient of TCF was -0.527 hence tangibility had a negative influence on short

term debt as operating cash flow increased. The p value was 0.000 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on short debt financing. These results contrasted Handoo and Sharma (2014) who documented inverse significant effect of tangibility on leverage. They concurred with Bereznicka (2013) who found inverse effect of working capital management ratios on financial leverage but long-term debt was positively influenced by financial stability. Also, the findings were congruent to Baloch et al., (2013) who reported positive and significant effect of firm size, asset tangibility and financial leverage. The findings supported matching principle.

The coefficients of PCF and GCF were 0.546 and 0.002 respectively. This indicates that profitability and growth opportunities had a positive influence on short debt respectively when operating cash flow was incorporated. The p values were 0.002 and 0.923 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were significant and insignificant respectively on short debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on short term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.429-0.527*0.16= -0.513$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF =-0.00016+0.546*0.16= 0.087$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = -0.016 - 0.091*0.16 = -0.030$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.0010 + 0.0021*0.16 = 0.0013$$

Comparison between moderated and non-moderated variables revealed difference, this indicated that operating cash flow has a moderating influence on the influence of firm financial characteristics on short leverage of listed commercial and services firms in Nairobi securities exchange. Resultant models without and with moderation is as follows,

STA = 0.627 - 0.132*T + 0.0005*P -0.121*S -0.019*G ……4.101

STA = 0.791 – 0.429*T -0.0002*P - 0.016*S + 0.001*G + 1.317*CF - 0.527*TCF - 0.091*PCF + 0.546*SCF + 0.002*GCF…….4.102

Table 4.172: FGLS Regression Results of STA as Dependent Variable with and without Moderator for Commercial and Services Listed Companies in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
Cons	.627	.106	5.91	0.000	.791	.136	5.84	.000
T	-.132	.044	-3.04	.002	-.429	.058	-7.35	.000
P	.0005	.001	.87	.386	-.0002	.0005	-.31	.754
S	-0.121	.007	-1.69	.090	-.016	.009	-1.82	.068
G	-.019	.006	-3.35	.001	.001	.0123	.07	.941
CF					1.317	.406	3.25	.001
TCF					-.527	.105	-5.04	.000
SCF					-.091	.026	-3.57	0.000
PCF					.546	.179	3.05	.002
GCF					.002	.021	.1	.923
	Wald chi2 (4) =26.64	R2 = 0.079		P > Chi2 0.00	Wald chi^2 (9) =172.14	R^2 = 0.7651		P > Chi^2 .0000

4.37.5 FGLS Regression Results of STA as Dependent Variable with and Without Moderator for Construction and Allied Listed Companies in NSE

As shown in Table 4.173, results on the effect of financial characteristics on short term debt financing for construction and allied listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was 0.033 hence firm size had a positive influence on short term debt financing when the operating cash flow was incorporated. The p value was 0.499 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on short term debt financing. The coefficient of TCF was 0.281 hence tangibility had a positive effect on short term debt as operating cash flow increased. The p value was 0.311 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on debt financing.

The coefficients of PCF and GCF were -0.268 and -0.027 respectively. This indicates that profitability and growth opportunities had a negative influence on short debt respectively when operating cash flow was incorporated. The p values were 0.34 and 0.319 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on short debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on short term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.718+0.281*0.06= -0.702$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = -0.03261-0.26763*0.06= -0.049$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = -0.050-0.033*0.06= -0.052$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.005723-0.02711*0.06= 0.0041$$

Comparison between moderated and non-moderated variables revealed difference, this indicated that operating cash flow has a moderating influence on the influence of firm financial characteristics and short-term leverage of listed construction and allied companies in Nairobi securities exchange. Resultant models with and without moderation will be as follows,

STA = 1.744 - 0.462*T - 0.345*P - 0.072*S +0.106*G ……4.103

STA = 1.559 – 0.718*T - 0.033*P - 0.050*S + 0.006*G – 1.062*CF + 0.281*TCF - 0.268*PCF + 0.033*SCF - 0.027*GCF…….4.104

Table 4.173: FGLS Regression Results of STA as Dependent Variable with and without Moderator for Construction and Allied Listed Companies in NSE

	Without Moderation				**With Moderation**			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
Cons	1.744	.203	8.60	.000	1.559	.171	9.14	.000
T	-.462	.066	-6.99	0.000	-.718	0.056	-13.03	.00
P	-.345	.145	-2.38	.017	-.033	.050	-.65	-.515
S	-.072	.015	-4.93	.000	-.050	.012	-4.17	.00
G	0.106	.019	.57	.571	.006	.008	.73	.464
CF					-1.062	.682	-1.56	.119
TCF					.281	.277	1.01	.311
PCF					-.268	.281	-.95	.34
SCF					.033	.048	.68	.499
GCF					-.027	.027	-1	.319
	Wald chi2 (4) =224.54	R2 = 0.7962		P > Chi2 0.00	Wald chi^2 (9) =760.99	R^2 = 0.9576		P > Chi^2 .0000

4.37.6 FGLS Regression Results of STA as Dependent Variable with and without Moderator for Energy and Petroleum Listed Companies in NSE

As shown in Table 4.174, results on the effect of financial characteristics on short term debt financing for energy and petroleum listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.340 hence firm size had a negative impact on short term debt financing when the operating cash flow was incorporated. The p value was 0.000 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on short term debt financing. The coefficient of TCF was 1.95 hence tangibility had a positive influence on short term debt as operating cash flow increased. The p value was 0.000 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on long-debt financing. These results contrasted Handoo and Sharma (2014) who documented inverse significant effect of tangibility on leverage. They concurred with Bereznicka (2013) who found inverse effect of working capital management ratios on financial leverage but long-term debt was positively influenced by financial stability.

The coefficients of PCF and GCF were -2.453 and 0.080 respectively. This indicates that profitability and growth opportunities had a positive influence on short debt respectively when operating cash flow was incorporated. The p values were 0.198 and 0.029 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant and significant respectively on short debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on short term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by

differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.922+1.945*-0.06= -1.038$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = -0.250-2.453*-0.06= -0.103$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF =0.008-0.340*-0.06= 0.028$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.023 + 0.080*-0.06= -0.028$$

Comparison between moderated and non-moderated variables revealed difference, this indicated that operating cash flow has a moderating influence on the influence of firm financial characteristics on short term leverage of listed energy and petroleum companies listed in Nairobi Securities Exchange. Resultant model with and without moderation is as follows,

STA = 0.822 - 0.772*T – 0.538*P + 0.0001*S - 0.002*G ……4.105

STA = 0.760 – 0.922*T - 0.250*P + 0.008*S + 0.023*G + 3.97*CF + 1.95*TCF – 2.45*PCF – 0.340*SCF +0.080*GCF…….……4.106

Table 4.174: FGLS Regression Results of STA as Dependent Variable with and without Moderator for Energy and Petroleum Listed Companies in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
Cons	.822	.526	1.57	.118	.760	.300	2.53	.011
T	-.772	.073	-10.63	0.000	-.922	.043	-21.29	.000
P	-.538	.283	-1.90	.057	-.250	.141	-1.78	.075
S	0.0001	.028	.00	.996	.008	.016	.48	.635
G	-.002	.011	-.19	.846	.023	.007	3.16	.002
CF					3.97	.766	5.18	.000
TCF					1.95	.403	4.82	.000
PCF					-2.45	1.907	-1.29	.198
SCF					-.340	.063	-5.37	0.000
GCF					.080	.037	2.19	.029
	Wald chi2 (4) =260.98	R2 = 0.9255		P > Chi2 0.00	Wald chi^2 (9) =1940.23	R^2 = 0.9791		P > Chi^2 .0000

4.37.7 FGLS Regression Results of STA as Dependent Variable with and without Moderator for Investment and Services Listed Companies in NSE

As shown in Table 4.175, results on the effect of financial characteristics on short term debt financing for energy and petroleum listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.067 hence firm size had a negative impact on short term debt financing when the operating cash flow was incorporated. The p value was 0.000 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on short term debt financing. The coefficient of TCF was -0.083 hence tangibility had a negative influence on short term debt as operating cash flow increased. The p value was 0.395 which is greater than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on long-debt financing. The findings were congruent to Baloch et al. (2013) who reported positive

and significant effect of firm size, asset tangibility and financial leverage. The findings supported matching principle.

The coefficients of PCF and GCF were 1.347 and -0.001 respectively. This indicates that profitability and growth opportunities had a positive and a negative influence on short debt respectively when operating cash flow was incorporated. The p values were 0.000 and 0.814 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were significant and insignificant respectively on short debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on short term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.881 - 0.083*0.00 = -0.881$$

$$\frac{\partial STAit}{\partial Sit} = \beta_2 + \beta_7 CF = -0.191+1.347*0.00 = -0.191$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = 0.009 -0.067*0.00 = 0.009$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.008 -0.001*0.00 = 0.008$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on short term leverage of investment and services listed

firms in Nairobi Securities Exchange. Resultant model with and without moderation is as follows,

STA = 0.752 - 0.758*T – 0.367*P + 0.005*S - 0.016*G ……4.105

STA = 0.754 – 0.881*T - 0.191*P + 0.009*S + 0.008*G + 0.763*CF -0.083*TCF +1.347*PCF – 0.067*SCF -0.001*GCF…….4.106

Table 4.175: FGLS Regression Results of STA as Dependent Variable with Moderator for Investment and Services Listed Companies in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	0.752	0.200	3.75	0.00	.754	.099	7.65	.000
T	-.758	.098	-7.72	0.00	-.881	.064	-13.86	0.00
P	-.367	.323	-1.14	.256	-.191	.173	-1.11	.267
S	0.005	0.014	0.33	0.738	.009	.005	1.67	.095
G	-.016	.007	-2.45	.014	.008	.013	.58	.56
CF					.763	.196	3.9	.000
TCF					-.083	.097	-.85	.395
PCF					1.347	.312	4.32	0.000
SCF					-.067	.012	-5.41	0.000
GCF					-0.001	.005	-.23	.814
	Wald chi2 (4) =163.85	R2 = 0.9053		P > Chi2 0.00	Wald chi^2 (9) =910	R^2 = 0.9593		P > Chi^2 .0000

4.37.8 FGLS Regression Results of STA as Dependent Variable with Moderator for Manufacturing and Allied Listed Companies in NSE

As shown in Table 4.176, results on the effect of financial characteristics on short term debt financing for energy and petroleum listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.078 hence firm size had a negative impact on short term debt financing when the operating cash flow was incorporated. The p value was 0.000 which is less than

5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on short term debt financing. The coefficient of TCF was -0.039 hence tangibility had a negative influence on short term debt as operating cash flow increased. The p value was 0.822 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on long-debt financing. This study concurred Hussan (2016) who reported positive effect on firm size and long-term debt. The findings refuted Hussain et al. (2016) reported inverse effect of profitability of financial leverage. The study confirmed pecking order theory.

The coefficients of PCF and GCF were -0.173 and -0.06 respectively. This indicates that profitability and growth opportunities had a negative influence on short debt respectively when operating cash flow was incorporated. The p values were 0.173 and 0.000 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant and significant respectively on short debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on short term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.386-0.039*0.21= -0.467$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF =0.054-0.173*0.21= 0.018$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF =0.0178-0.074*0.21= 0.0015$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.006\text{-}0.0598*0.21 = -0.0067$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on short term leverage of manufacturing and allied companies listed at NSE. Resultant model with and without moderation is as follows,

STA = 0.752 - 0.758*T – 0.367*P + 0.005*S - 0.016*G ……4.105

STA = 0.754 – 0.881*T - 0.191*P + 0.009*S + 0.008*G + 0.763*CF -0.083*TCF +1.347*PCF – 0.067*SCF -0.001*GCF…….4.106

Table 4.176: FGLS Regression Results of STA as Dependent Variable with and without Moderator for Manufacturing and Allied Listed Companies in NSE

	Without Moderation				**With Moderation**			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	-.643	.134	-4.80	0.000	.240	.109	2.21	.027
T	-.075	.102	-.74	.461	-.386	.092	-4.17	.000
S	.061	.007	8.25	.000	.018	.006	2.77	.006
P	.011	.056	.20	.845	.0540	0.029	1.88	0.06
G	-.004	.006	-.67	.502	.006	.003	1.75	.08
CF					.995	.224	4.45	.000
TCF					-.038	.172	-.22	.822
SCF					-.078	.018	-4.33	0.000
PCF					-.173	.127	-1.39	.173
GCF					-.060	.013	-4.44	.000
	Wald chi2 (4) =86.88	R^2 = 0.5150		P > Chi2 0.00	Wald chi^2 (9) =634.5	R^2 = 0.9211		P > Chi^2 .0000

4.37.9 FGLS Regression Results of LTA as Dependent Variable with and without Moderator on the Influence of Firm Financial Characteristics on Leverage of Non-Financial Firms Listed at NSE

Table 4.177 shows results on the influence of financial characteristics on long term debt financing while operating cash flow was incorporated in the model. The coefficient of SCF was 0.05 hence firm size had a positive impact on long term debt financing as operating cash flow increased. The p value was 0.43 which is greater than 5% level of significance. This shows that the moderating effect of operating cash flow on firm size was statistically insignificant on long term debt financing. The coefficient of TCF was -0.01 hence tangibility had a negative effect on long term debt as operating cash flow increased. The p value was 0.15 which is greater than 5% level of significance. This indicates that the moderating effect of operating cash flow on tangibility was statistically insignificant on debt financing.

The coefficients of PCF and GCF were -0.006 and 0.0001 respectively. This indicates that profitability and growth opportunities had a negative and positive effect on long term debt respectively when operating cash flow increased. The p values were 0.95 and 0.947 respectively to imply that the moderating effect of operating cash flow on profitability and growth opportunities were insignificant on long term debt financing at 5% level of significance. The overall moderating effect of operating cash flow on financial characteristics towards long term debt financing was negative 1.18% since the proportion of variation of long-term debt financing due to the variation in financing characteristics when the moderator was incorporated was 33.96%, compared with 35.14% without the moderator.

In an attempt to further confirm the effect of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on long term debt financing i.e.

$$\frac{\partial LTAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.025\text{-}0.009*0.16 = 0.0198$$

$$\frac{\partial LTAit}{\partial Pit} = \beta_2 + \beta_7 CF = 0.0004\text{-}0.01001*0.16=0.00166$$

$$\frac{\partial LTAit}{\partial Sit} = \beta_3 + \beta_8 CF = 0.0244+0.051*0.16= 0.2559$$

$$\frac{\partial LTAit}{\partial Git} = \beta_3 + \beta_8 CF = 0.00013\text{-}0.0001*0.16= -0.00095$$

When the above coefficients are compared with those of model 5, they are different which implies that the operating cash flow has a moderating effect on the relationship between financial characteristics and long-term leverage. As earlier alluded to, studies by Mutende et al. (2017), Kordlouie et. al. (2014), Hong et al. (2012), Osagie (2016), Almeida and Campello (2007) and Schoubben and Van (2007) have concluded interaction effect of cash flow with at least one of the variables under consideration in this study further supporting the study results.

LTA = -0.26 +0.26*T – 0.0004*P + 0.02*S + 0.0003*G ……4.107

LTA = -0.27 + 0.25*T +0.001*P + 0.02*S + 0.001*G + 0.12*CF - 0.01*TCF - 0.01*PCF +0.05*SCF +0.0001*GCF……..….4.108

Table 4.177: FGLS Regression Results of LTA as Dependent Variable with and without Moderator on the Influence of FFC on Leverage of Listed Non-Financial Firms in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	-0.26	0.1	-2.58	0.00	-0.27	0.11	-2.43	0.02
T	0.26	0.05	5.67	0.00	0.25	0.05	4.63	.000
P	0.0004	0.0007	-0.57	0.57	0.00	0.00	0.00	1
S	0.02	0.01	3.05	0.00	0.02	0.01	3.08	.000
G	0.0003	0.002	-0.13	0.89	0.00	0.00	-0.42	0.68
CF					0.12	0.07	1.69	0.09
TCF					-0.01	0.01	-1.44	0.15
PCF					-0.01	0.1	-0.06	0.95
SCF					0.05	0.06	0.79	0.43
GCF					0.0001	0.002	0.07	0.95
	Wald chi^2 (4) =44.17	R^2 = 0.3514		P > Chi^2 0.00	Wald chi^2(9) = 38.27	R^2 = 0.3396		p>Chi^2 .0000

4.37.10 FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Agricultural Firms Listed in NSE

As shown in Table 4.178, results on the effect of financial characteristics on short term debt financing for agricultural listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.003 hence firm size had a negative impact on long term debt financing when the operating cash flow was incorporated. The p value was 0.961 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on long term debt financing. The coefficient of TCF was -0.348 hence tangibility had a negative influence on long term debt as operating cash flow increased. The p value was 0.503 which is greater than 5% level of significance. This indicates that the moderating influence of

operating cash flow on tangibility was statistically insignificant on long-debt financing.

The coefficients of PCF and GCF were 0.109 and 0.013 respectively. This indicates that profitability and growth opportunities had a positive influence on long debt respectively when operating cash flow was incorporated. The p values were 0.855 and 0.597 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on long debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on long term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.284\text{-}0.348*0.44 = 0.131$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = 0.311+0.109*44 = 0.3591$$

$$\frac{\partial STAit}{\partial Sit} = \beta_2 + \beta_7 CF = 0.048\text{-}0.00340*0.44 = -0.102$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.013+0.0131*0.44 = -0.0074$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating effect on the relationship between financial characteristics and long-term leverage.

LTA = 0.055 – 0.02*T +0.03*P + 0.0108*S + 0.006*G ……4.109

LTA = -0.623 +0.284*T+0.31*P + 0.048*S -0.013*G + 0.248*CF - 0.348*TCF +0.109*PCF -0.003*SCF +0.013*GCF……..….4.110

Table 4.178: FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Agricultural Companies Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	.055	.098	.55	.579	-.623	.609	-1.02	.306
T	-0.02	.060	-.33	.743	.284	.296	.96	.338
P	.030	.081	.37	.715	.311	.395	.79	.43
S	.0108	.007	1.57	.116	.0481	.037	1.29	.197
G	.006	.0007	.82	.409	-.013	.028	-.47	.637
CF					.248	.888	.28	.78
TCF					-.348	.520	-.67	.503
SCF					-.003	.059	-.05	.961
PCF					.109	.596	.18	.855
GCF					.013	.024	.53	.597
	Wald chi^2 (4) =25.55	R^2 = 0.0977		P > Chi^2 0.00	Wald chi^2(9) = 38.27	R^2 = 0.3396		p>Chi^2 .0000

4.37.11 FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Automobile and Accessories Companies Listed in NSE

As shown in Table 4.179, results on the effect of financial characteristics on short term debt financing for automobile and accessories listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.016 hence firm size had a negative impact on long term debt financing when the operating cash flow was incorporated. The p value was 0.513 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on long term debt financing. The coefficient of TCF was -0.260 hence tangibility had a negative influence on long term debt as operating cash flow increased. The p value was 0.276 which is greater than 5% level of significance. This indicates that the moderating influence of

operating cash flow on tangibility was statistically insignificant on long-debt financing.

The coefficients of PCF and GCF were 0.624 and 0.505 respectively. This indicates that profitability and growth opportunities had a positive influence on long debt respectively when operating cash flow was incorporated. The p values were 0.163 and 0.075 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on long debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on long term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.012-0.260*0.13= -0.046$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = -0.233+0.624*13= 0.315$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = -0.0014-0.016*0.13= -0.004$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.183+0.505*0.13= -0.118$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on long term leverage of agricultural listed firms in NSE. Resultant models with and without moderation are as follows,

LTA = -0.004 +0.072*T - 0.193*P + 0.006*S -0.037*G …….……4.111

LTA = 0.191 -0.12*T -0.233*P -0.001*S - 0.183*G + 0.94*CF - 0.260*TCF + 0.624*PCF -0.016*SCF + 0.505*GCF……..….4.112

Table 4.179: FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Automobile and Accessories Firms Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	-.004	.191	-.02	.983	.191	.332	.57	.566
T	0.072	0.146	0.49	0.623	-.012	.294	-.04	.966
P	-0.193	.224	-.86	.390	-.233	.233	-1	.316
S	0.006	0.0109	0.51	0.608	-.001	.016	-.08	.932
G	-.037	.025	-1.47	.142	-.183	.079	-2.32	.02
CF					.094	.277	.34	.731
TCF					-.260	.239	-1.09	.276
PCF					.624	.447	1.39	.163
SCF					-.016	.025	-.65	.513
GCF					.505	.284	1.78	.075
	Wald chi^2 (4) =6.03	R^2 = 0.2316		P > Chi^2 0.1968	Wald chi^2(9) = 31.44	R^2 = 0.5671		p>Chi^2 .0000

4.37.12 FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Commercial and Services Firms Listed in NSE

As shown in Table 4.180, results on the effect of financial characteristics on short term debt financing for commercial and services listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.151 hence firm size had a negative influence on long term debt financing when the operating cash flow was incorporated. The p value was 0.00 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on long term debt financing. The coefficient of TCF was 0.062 hence tangibility had a positive influence on long term

debt as operating cash flow increased. The p value was 0.71 which is greater than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on long-debt financing.

The coefficients of PCF and GCF were 0.079 and 0.020 respectively. This indicates that profitability and growth opportunities had a positive influence on short debt respectively when operating cash flow was incorporated. The p values were 0.721 and 0.479 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on long debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on long term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much short-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.451+0.062*0.16=0.4613$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = -0.0015+0.0792*0.16=0.0112$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = -0.009-0.151*0.16= -0.0323$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.017+0.0203*0.16=-0.0136$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on long term leverage of listed commercial and services

firms in Nairobi securities exchange. Resultant models with and without moderation for the study are,

LTA = 0.471+0.432*T - 0.001*P + 0.027*S -0.019*G ……4.113

LTA = 0.092 +0.451*T -0.001*P -0.009*S - 0.017*G + 2.253*CF + 0.062*TCF + 0.079*PCF -0.151*SCF + 0.020*GCF……4.114

Table 4.180: FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Commercial and Services Companies Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	-.471	.127	-3.71	.000	.092	.197	.47	.64
T	.432	.038	11.35	.000	.451	.074	6.06	.000
P	-.001	.0008	-1.52	0.130	-.001	.0008	-1.92	.055
S	.027	.009	3.11	.002	-.009	.013	-.62	.537
G	-.019	.006	-3.27	.001	-.017	.017	-1	.323
CF					2.253	.678	3.32	.001
TCF					.062	.168	.37	.71
PCF					.079	.222	.36	.721
SCF					-.151	.043	-3.51	.00
GCF					.020	.029	.71	.479
	Wald chi^2 (4) =191.43	R^2 = 0.5658		P > Chi^2 0.00	Wald chi^2(9) = 126.74	R^2 = 0.6682		p>Chi^2 .0000

4.37.13 FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Construction and Allied Companies Listed in NSE

As shown in Table 4.181, results on the effect of financial characteristics on short term debt financing for construction and allied listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.292 hence firm size had a negative influence on long term debt financing when the operating cash flow was incorporated. The p value was 0.00 which is less than 5% level of significance. This shows that the moderating influence of operating

cash flow on firm size was statistically significant on long term debt financing. The coefficient of TCF was 1.99 hence tangibility had a positive influence on long term debt as operating cash flow increased. The p value was 0.00 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on long-debt financing.

The coefficients of PCF and GCF were 0.942 and 0.030 respectively. This indicates that profitability and growth opportunities had a positive influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.096 and 0.677 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on long debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on long term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much long-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.586+1.986*0.06=0.7050$$

$$\frac{\partial STAit}{\partial Sit} = \beta_2 + \beta_7 CF = 0.198+0.942*0.06= -0.1412$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = --0.03-0.292*0.06= -0.047$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.022+0.030*0.06= 0.0235$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on long term leverage of listed construction and allied companies in Nairobi securities exchange. Resultant models with and without moderation will be as follows,

LTA = 0.495 + 0.600*T - 0.145*P -0.042*S + 0.021*G …….……4.115

LTA = 0.375 + 0.586*T -0.198*P - 0.03*S + 0.022*G + 3.329*CF + 1.99*TCF + 0.942*PCF -0.292*SCF + 0.03*GCF……..….4.116

Table 4.181: FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Construction and Allied Firms Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	.495	.179	2.76	.006	.375	.355	1.06	.29
T	.600	.053	11.34	.000	.586	.071	8.28	.000
P	-.145	.148	-.98	.328	-.198	.105	-1.88	.06
S	-.042	.013	-3.22	.001	-.03	.024	-1.23	.219
G	.021	.016	1.28	.202	.022	.019	1.17	.24
CF					3.329	1.34	2.49	.013
TCF					1.99	.367	5.41	.000
PCF					.942	.566	1.66	.096
SCF					-.292	.093	-3.13	.000
GCF					.03	.071	.42	.677
	Wald chi^2 (4) =151.46	R^2 = 0.6872		P > Chi^2 0.00	Wald chi^2(9) = 232.69	R^2 = 0.8209		p>Chi^2 .0000

4.37.14 FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Energy and Petroleum Companies Listed in NSE

As shown in Table 4.182, results on the effect of financial characteristics on short term debt financing for energy and petroleum listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF

was 0.417 hence firm size had a positive influence on long term debt financing when the operating cash flow was incorporated. The p value was 0.00 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on long term debt financing. The coefficient of TCF was -2.178 hence tangibility had a negative influence on long term debt as operating cash flow increased. The p value was 0.00 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on long-debt financing.

The coefficients of PCF and GCF were -6.945 and 0.13 respectively. This indicates that profitability and growth opportunities had a negative and a positive influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.014 and 0.273 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were significant and insignificant respectively on long debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on long term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much long-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.938\text{-}2.178\text{*-}0.06 = 1.0681$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = \text{-}0.467\text{-}0.694\text{*-}0.06 = \text{-}0.0450$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = 0.0510+0.417\text{*-}0.06 = 0.0260$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.013\text{-}0.154\text{*-}0.06=0.0218$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on long term leverage of energy and petroleum firms listed in Nairobi Securities Exchange. Resultant models with and without moderation will be as follows,

LTA = -0.162 + 0.696*T - 0.368*P -0.0008*S + 0.020*G …….……4.117

LTA = -1.212 + 0.938*T – 0.467*P + 0.051*S + 0.013*G - 4.808*CF -2.178*TCF - 0.694*PCF + 0.417*SCF + 0.013*GCF……..….4.118

Table 4.182: FGLS Regression Results of LTA as Dependent Variable with Moderator in Energy and Petroleum Firms Listed in NSE

	Without Moderation				**With Moderation**			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	-.162	.429	-.38	.707	-1.212	.399	-3.04	.002
T	.696	.068	10.17	.000	.938	.053	17.68	.000
P	-.368	.236	-1.56	.119	-.467	.164	-2.84	.005
S	.0008	.023	.04	.972	.051	.021	2.38	.017
G	.020	.014	1.45	.148	.013	.011	1.1	.273
CF					-4.808	1.013	-4.74	.000
TCF					-2.178	.479	-4.55	.000
PCF					-.694	2.562	-2.45	.014
SCF					.417	.080	5.19	.000
GCF					.013	.011	1.1	.273
	Wald chi^2 (4) =267.19	R^2 = 0.8862		P > Chi^2 0.00	Wald $chi^2(9)$ = 911.11	R^2 = 0.9678		p>Chi^2 .0000

4.37.15 FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Investment and Services Firms Listed in NSE

As shown in Table 4.183, results on the effect of financial characteristics on short term debt financing investment and services listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was 0.027 hence firm size had a positive influence on long term debt financing when the operating cash flow was incorporated. The p value was 0.316 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on long term debt financing. The coefficient of TCF was 0.096 hence tangibility had a positive influence on long term debt as operating cash flow increased. The p value was 0.539 which is greater than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on long-debt financing.

The coefficients of PCF and GCF were -0.861 and 0.012 respectively. This indicates that profitability and growth opportunities had a negative and a positive influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.302 and 0.071 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on long debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on long term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much long-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.149+0.096*0.00 = -0.149$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = -0.440-0.861*0.00 = -0.439$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = 0.058+0.027*0.00 = 0.058$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.046+0.0120*0.00 = 0.046$$

Comparison between moderated and non-moderated variables revealed difference, this indicated that operating cash flow has a moderating influence on the influence of firm financial characteristics on long term leverage of listed investment and services companies in NSE. Resultant models with and without moderation will be as follows,

LTA = -0.291 -0.172*T - 0.176*P +0.039*S + 0.007*G ……..…..……4.119

LTA = -0.572 -0.149*T – 0.439*P + 0.058*S + 0.046*G – 0.389*CF + 0.096*TCF - 0.861*PCF + 0.0277*SCF + 0.012*GCF…….….4.120

Table 4.183: FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Investment and Services Firms Listed in NSE

	Without Moderation				**With Moderation**			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	-.291	.145	-2.00	.045	-.572	.197	-2.91	.004
T	-.172	.011	-3.04	.002	-.149	.098	-1.52	.13
P	-.176	.208	-.85	.396	-.439	-1.18	.239	.239
S	.039	.011	3.51	.000	.058	.014	3.97	0.00
G	.007	.002	3.71	.000	.046	.021	2.14	.033
CF					-.389	.371	-1.05	.295
TCF					.096	.155	.61	.539
PCF					-.861	.834	-1.03	.302
SCF					.027	.027	1	.316
GCF					.012	.007	1.81	.071
	Wald chi^2 (4) =35.86	R^2 = 0.4161		P > Chi^2 0.00	Wald chi^2(9) = 58.58	R^2 = 0.4775		p>Chi^2 .0000

4.37.16 FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Manufacturing and Allied Firms Listed in NSE

As shown in Table 4.184, results on the effect of financial characteristics on short term debt financing for construction and allied listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was 0.087 hence firm size had a positive influence on long term debt financing when the operating cash flow was incorporated. The p value was 0.42 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on long term debt financing. The coefficient of TCF was -1.808 hence tangibility had a negative influence on long term debt as operating cash flow decreased. The p value was 0.013 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on long-debt financing.

The coefficients of PCF and GCF were -0.943 and -0.078 respectively. This indicates that profitability and growth opportunities had a negative influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.055 and 0.217 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were negative and insignificant respectively on long debt financing at 5% level of significance. This study concurred Hussan (2016) who reported positive effect on firm size and long-term debt. The findings refuted Hussain et al. (2016) reported inverse effect of profitability of financial leverage. The study confirmed pecking order theory.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on long term debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much long-term debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.863\text{-}1.808*0.21 = 0.484$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = \text{-}0.035\text{-}0.944*0.21 = \text{-}0.23$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = 0.089+0.087*0.21 = 0.107$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = \text{-}0.014\text{-}0.078*0.21 = \text{-}0.030$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on long term leverage of listed manufacturing and allied firms in NSE. Resultant models with and without moderation will be as follows,

LTA = -0.740 +0.310*T +0.146*P +0.042*S + 0.010*G ……4.123

LTA = -1.749 +0.863*T -0.035*P + 0.089*S -0.014*G + 0.228*CF - 1.808*TCF - 0.943*PCF + 0.087*S..CF - 0.078*GCF……4.124

Table 4.184: FGLS Regression Results of LTA as Dependent Variable with and without Moderator in Manufacturing and Allied Firms Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	-.740	.133	-5.55	.000	-1.749	.521	-3.36	.001
T	.310	.096	3.23	.001	.863	.305	2.83	.005
P	.146	.098	1.50	.133	-.035	.137	-.26	.798
S	.042	.008	5.03	.000	.089	.029	3.1	.002
G	.010	.010	1	.328	-.014	.014	-1	.327
CF					.228	1.119	.2	.839
TCF					-1.808	.730	-2.48	.013
PCF					-.943	.491	-1.92	.055
SCF					.087	.107	.81	.42
GCF					-.078	0.06	-1.24	.217
	Wald chi^2 (4) =46.45	R^2 = 0.3256		P > Chi^2 0.00	Wald $chi^2(9)$ = 30.16	R^2 = 0.5233		p>Chi^2 .0004

4.37.18 FGLS Regression Results of DTA as Dependent Variable with and without Moderator on the Influence of FFC on Leverage of Listed Non-financial Firms in NSE

As shown in Table 4.185, results on the effect of financial characteristics on total debt financing while operating cash flow was incorporated in the model show that the coefficient of TCF was 0.02 hence tangibility of assets had a positive impact on total debt financing as operating cash flow increased. The p value was 0.01 which is less than 5% level of significance. This shows that the moderating effect of operating cash flow on tangibility was statistically significant on total leverage. The coefficient of SCF was 0.12 hence firm size had a positive effect on total leverage as operating cash flow increased. The p value was 0.08 which is greater than 5% level of significance. This indicates that the moderating effect of operating cash flow on firm size was statistically insignificant on debt financing.

The coefficients of PCF and GCF were 0.4 and 0.00 respectively. These indicate that profitability and growth opportunities had a positive and no effect on total debt respectively when operating cash flow increased. The p values were 0.00 and 0.34 respectively to imply that the moderating effect of operating cash flow on profitability and growth opportunities were significant and insignificant respectively on total leverage at 5% level of significance. Overall, the moderating effect of operating cash flow on financial characteristics towards total leverage was 8.81% since the proportion of variation of total debt financing due to the variation in financing characteristics when the moderator was incorporated was 65.71%, compared with 56.9% without the moderator.

To further confirm the effect of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on total leverage i.e.

$$\frac{\partial DTAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.0245\text{-}0.16*0.017 = 0.022$$

$$\frac{\partial DTAit}{\partial Pit} = \beta_2 + \beta_7 CF = 0.0011\text{-}0.16*0.40 = 0.0106$$

$$\frac{\partial DTAit}{\partial Sit} = \beta_3 + \beta_8 CF = -0.1362+0.16*0.122= -0.116$$

$$\frac{\partial DTAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.0004+0.16*0.398= 0.064$$

When the above coefficients are compared with those of model 6, they are different implying that the operating cash flow has a moderating effect on the influence of firm financial characteristics and firms' total leverage. An interesting observation is that the models with and without the moderator was significant at 5% level of significance. This shows that the financial characteristics as well as a combination of the same with operating cash flow are all good predictors of firm's leverage. Resultant models with and without moderation will be as follows,

DTA = 0.02 -0.05*T +0.001*P + 0.04*S – 0.0009*G ……4.125

DTA = 0.27 + 0.02*T -0.001*P -0.14*S -0.14*G + 0.09*CF – 0.02*TCF + 0.40*PCF + 0.12*SCF + 0.001*GCF……4.126

Table 4.185: FGLS Regression Results of DTA as Dependent Variable with and Without Moderator on the Influence of FFC on Leverage of Listed Non-Financial Firms in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	0.02	0.15	0.17	0.87	0.27	0.15	1.81	0.07
T	-0.05	0.07	-0.68	0.5	0.02	0.01	2.80	0.01
P	0.001	0	1.55	0.12	0.001	0.00	0.50	0.62
S	0.04	0.01	3.89	0	-0.14	0.06	-2.26	0.02
G	-0.0009	0	-0.27	0.78	0.001	0.00	0.32	0.75
CF					0.09	0.08	1.15	0.25
TCF					-0.02	0.01	-2.52	0.01
PCF					0.40	0.11	3.49	0.00
SCF					0.12	0.07	1.73	0.08
GCF					0.001	0.00	-0.96	0.34
	Wald chi^2 (4) =0.0029	R^2 = 0.569		P > Chi^2 0.00	Wald chi^2 (9) =75.68	R^2 = 0.6571		p>Chi^2 .0000

4.37.19 FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Agricultural Firms Listed in NSE

As shown in Table 4.186, results on the effect of financial characteristics on debt financing for agricultural listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.021 hence firm size had a negative influence on debt financing when the operating cash flow was incorporated. The p value was 0.726 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on debt financing. The coefficient of TCF was -0.098 hence tangibility had a negative influence on debt as operating cash flow increased. The p value was 0.772 which is greater than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on debt financing.

The coefficients of PCF and GCF were 0.062 and 0.017 respectively. This indicates that profitability and growth opportunities had a positive influence on debt respectively when operating cash flow was incorporated. The p values were 0.895 and 0.212 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.162-0.098*0.44 = -0.205$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = 0.280+0.062*0.44= 0.307$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = 0.046-0.021*0.44 = 0.036$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.016+0.0172*0.44= -0.009.$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on leverage of listed agricultural firms in NSE. Resultant models with and without moderation will be as follows,

DTA = 0.141 -0.339*T -0.176*P + 0.0302*S – 0.001*G …….……4.127

DTA = -0.126 -0.162*T +0.280*P +0.046*S -0.016*G + 0.138*CF – 0.098*TCF + 0.062*PCF - 0.021*SCF + 0.017*GCF…….….4.128

Table 4.186: FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Agricultural Firms Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	.141	.112	1.26	.208	-.126	.356	-.35	.724
T	-.339	.066	-5.11	.000	-.162	.212	-.76	.447
P	-.176	.088	-1.98	.047	.280	.416	.67	.501
S	.0302	.008	3.82	.000	.046	.022	2.06	.039
G	-.001	.008	-1.32	.187	-.016	.015	-1.08	.279
CF					.138	.670	.21	.837
TCF					-.098	.340	-.29	.772
PCF					.062	.471	.13	.895
SCF					-.021	.061	-.35	.726
GCF					.017	.014	1.25	.212
	Wald chi^2 (4) =37.35	R^2 = 0.1860		P > Chi^2 0.00	Wald chi^2(9) =24.85	R^2 = 0.3993		p>Chi^2 .0000

4.37.20 FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Automobile and Accessories Firms Listed in NSE

As shown in Table 4.187, results on the effect of financial characteristics on debt financing for automobile and accessories listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.005 hence firm size had a negative influence on debt financing when the operating cash flow was incorporated. The p value was 0.847 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on debt financing. The coefficient of TCF was -0.015 hence tangibility had a negative influence on debt as operating cash flow increased. The p value was 0.935 which is greater than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on debt financing. The study findings concurred with Hall et al. (2004) who asserted that leverage decision is dependent on firm's ability to generate more revenue therefore those which generate more have lower chances of borrowing. In agreement with the study results too is trade-off theory since it predicts a negative relationship between leverage and growth opportunities. This is because growth firms could face high costs of financial distress to lose their value (Fama & French, 2002).

The coefficients of PCF and GCF were 0.357 and -0.054 respectively. This indicates that profitability and growth opportunities had a positive and an inverse influence on debt respectively when operating cash flow was incorporated. The p values were 0.473 and 0.748 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant on debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much debt changes by with an increase in one unit of the relevant financial characteristic when the

average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.259-0.015*0.13=-0.261$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = 0.0180-0.357 *0.13= 0.355$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF =-0.013 -0.005*0.13 = -0.014$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.007-0.054*0.13= 0.054$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on leverage of automobile and accessories listed firm in NSE. Resultant models with and without moderation will be as follows,

DTA = 0.725 - 0.112*T - 0.052*P -0.004*S – 0.013*G ……..……4.129

DTA = 0.905 - 0.259*T -0.018*P - 0.013*S - 0.007*G + 0.059*CF – 0.015*TCF + 0.357*PCF -0.005*SCF - 0.054*GCF……..….4.130

Table 4.187: FGLS Regression Results of DTA as Dependent Variable with Moderator in Automobile and Accessories Companies Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	0.725	0.216	3.35	.001	.905	.464	1.95	.051
T	-.112	.164	-.68	.496	-.259	.309	-.84	.402
P	-.052	.247	-.21	.833	-.018	.258	-.07	.944
S	-.004	.012	-.37	.714	-.013	0.025	-.52	.604
G	-.013	.026	-.49	.626	-.007	.043	-.16	.874
CF					.059	.320	.180	.855
TCF					-.015	.188	-.08	.935
PCF					.357	.497	.72	.473
SCF					-.005	.026	-.18	.857
GCF					-.054	.167	-.32	.748
	Wald chi^2 (4) =0.53	R^2 = 0.0839		P > Chi^2 0.9701	Wald chi^2(9) = 1.63	R^2 =.166 4		p>Chi^2 .966

4.37.21 FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Commercial and Services Companies Listed in NSE

As shown in Table 4.188, results on the effect of financial characteristics on short term debt financing for commercial and services listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.255 hence firm size had a negative influence on debt financing when the operating cash flow was incorporated. The p value was 0.00 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on debt financing. The coefficient of TCF was -0.471 hence tangibility had a negative influence on long term debt as operating cash flow increased. The p value was 0.018 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on long-debt financing.

The coefficients of PCF and GCF were 0.840 and 0.008 respectively. This indicates that profitability and growth opportunities had a positive influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.000 and 0.809 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were significant and insignificant respectively on debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -0.020-0.472*0.16= -0.095$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = -0.002+0.840*0.16= 0.137$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = -0.023-0.254*0.16= -0.064$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = -0.008+0.008*0.16= -0.007$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the influence of firm financial characteristics on leverage of commercial and services listed firms in NSE. Resultant models with and without moderation will be as follows,

DTA = 0.058 +0.355*T - 0.0002*P +0.210*S – 0.0383*G …….……4.131

DTA = -0.023 - 0.020*T - 0.002*P - 0.023*S - 0.008*G + 3.742*CF – 0.471*TCF + 0.840*PCF -0.255*SCF + 0.008*GCF……..….4.132

Table 4.188: FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Commercial and Services Firms Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	.058	.172	.34	.735	-0.023	0.015	-1.53	.127
T	.355	.064	5.58	.000	-.020	.101	-.2	.845
P	-.0002	.0009	-.30	.764	-.002	.0008	-2.61	.009
S	.210	.012	1.77	.077	-.023	.015	-1.53	.127
G	-.0383	.010	-3.80	.000	-.008	.021	-.39	.698
CF					3.742	.761	4.92	.000
TCF					-.471	.198	-2.38	.018
PCF					.840	.233	3.6	.000
SCF					-.255	.047	-5.36	.000
GCF					.008	.032	.24	.809
	Wald chi^2 (4) =73.45	R^2 = 0.2724		P > Chi^2 0.00	Wald $chi^2(9)$ = 122.15	R^2 = 0.7435		p>Chi^2 .0000

4.37.22 FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Construction and Allied Companies Listed in NSE

As shown in Table 4.189, results on the effect of financial characteristics on debt financing for construction and allied listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.231 hence firm size had a negative influence on debt financing when the operating cash flow was incorporated. The p value was 0.030 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically significant on debt financing. The coefficient of TCF was 1.854 hence tangibility had a positive influence on term debt as operating cash flow increased. The p value was 0.000 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on debt financing.

The coefficients of PCF and GCF were 0.539 and -0.014 respectively. This indicates that profitability and growth opportunities had a positive and a negative influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.374 and 0.863 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows.

$$\frac{\partial STAit}{\partial Sit} = \beta_1 + \beta_6 CF = -0.080 - 0.231*0.06 = 0.066$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = -0.277 + 0.539*0.06 = -0.2445$$

$$\frac{\partial STAit}{\partial Tit} = \beta_2 + \beta_7 CF = -0.085 + 1.854*06 = 0.026$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.028 - 0.014*0.06 = 0.0274$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating effect on the influence of firm financial characteristics on leverage of listed construction and allied firms in NSE. Resultant models with and without moderation will be as follows,

DTA = 2.278 + 0.206*T - 0.644*P - 0.118*S +0.038*G ……4.133

DTA = 1.895 - 0.085*T - 0.277*P - 0.08*S + 0.028*G + 2.163*CF +1.854*TCF +0.539*PCF - 0.231*SCF -0.014*GCF……4.134

Table 4.189: FGLS Regression Results of DTA as Dependent Variable with Moderator in Construction and Allied Firms Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	2.278	.275	8.29	.000	1.895	.383	4.95	.000
T	.206	.078	2.63	.009	-.085	.10	-.86	.39
P	-.644	.137	-4.69	0.00	-.277	.101	-2.72	.007
S	-.118	.020	-6.02	.000	-.08	.027	-3	.003
G	.038	.022	1.73	8.29	.028	.021	1.34	.179
CF					2.163	1.506	1.44	.151
TCF					1.854	.453	4.09	.000
PCF					.539	.607	.89	.374
SCF					-.231	.106	-2.18	.030
GCF					-.014	.082	-.17	.863
	Wald chi^2 (4) =100.45	R^2 = 0.6038		P > Chi^2 0.00	Wald $chi^2(9)$ = 196.19	R^2 = 0.5579		p>Chi^2 .0000

4.37.23 FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Energy and Petroleum Companies Listed in NSE

As shown in Table 4.190, results on the effect of financial characteristics on debt financing for construction and allied listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was 0.069 hence firm size had a positive influence on debt financing when the operating cash flow was incorporated. The p value was 0.479 which is less than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on debt financing. The coefficient of TCF was -0.147 hence tangibility had a positive influence on term debt as operating cash flow increased. The p value was 0.820 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on debt financing. The findings confirmed Frank and Goyal (2009) and Kayo and Kimura (2011) who found inverse effect of profitability on financial leverage. Theoretically the study supported MM hypothesis.

The coefficients of PCF and GCF were -9.661 and -0.544 respectively. This indicates that profitability and growth opportunities had a negative influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.008 and 0.328 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were significant and insignificant respectively on debt financing at 5% level of significance.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.032\text{-}0.147\text{*-}0.06\text{=}0.0410$$

$$\frac{\partial STAit}{\partial Pit} = \beta_3 + \beta_8 CF = \text{-}.729\text{-}9.662\text{*-}0.06 = \text{-}0.1495$$

$$\frac{\partial STAit}{\partial Sit} = \beta_2 + \beta_7 CF = 0.066\text{+}0.069\text{*-}0.06\text{= }0.0617$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.035\text{-}0.544\text{*-}0.06 = 0.0679$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the relationship between financial characteristics and leverage. Resultant models with and without moderation will be as follows,

DTA = -0.826 + 0.052*T -0.624*P + 0.079*S + 0.021*G ……4.135

DTA = -0.584 + 0.032*T +0.066*P – 0.729*S -0.782*G - 0783*CF - 0.147*TCF - 9.962*PCF +0.069*SCF -0.079*GCF…….4.136

Table 4.190: FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Energy and Petroleum Companies Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	-.826	.695	-1.19	.234	-.584	.556	-1.05	.293
T	.052	.092	.56	.573	.032	.071	.45	.651
P	-.624	.222	-2.82	.005	-.729	.200	-3.65	.000
S	.079	.037	2.16	.031	.066	.030	2.2	.028
G	.021	.015	1.39	.164	-.782	1.201	-.65	.515
CF					-.783	1.201	-.65	.515
TCF					-.147	.644	-.23	.82
PCF					-9.662	3.628	-2.66	.008
SCF					.069	.098	.71	.479
GCF					-.079	.081	-.98	.328
	Wald chi^2 (4) =25.68	R^2 = 0.1893		P > Chi^2 0.00	Wald chi^2(9) = 221.8	R^2 = 0.96		p>Chi^2 .0000

4.37.24 FGLS Regression Results of DTA as Dependent Variable with Moderator in Investment and Services Firms Listed in NSE

As shown in Table 4.191, results on the effect of financial characteristics on debt financing for investment and services listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.046 hence firm size had a negative influence on debt financing when the operating cash flow was incorporated. The p value was 0.09 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on firm size was statistically insignificant on debt financing. The coefficient of TCF was 0.128 hence tangibility had a positive influence on term debt as operating cash flow increased. The p value was 0.441 which is greater than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically insignificant on debt financing.

The coefficients of PCF and GCF were 0.078 and 0.011 respectively. This indicates that profitability and growth opportunities had a positive influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.921 and 0.102 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were insignificant respectively on debt financing at 5% level of significance. These findings concurred with Acaravci (2015) who found positive influence on growth opportunities, profitability, tangibility and leverage. Also, the study confirmed Thippayana (2014) who reported positive contribution of firm size, profitability, growth opportunities and leverage. These results concurred with pecking order theory and trade off theory. The study contrasted Harc (2015) who documented inverse effect of firm size on leverage.

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = -1.072+0.128*0.00 = -1.071$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = -0.536-0.078*0.00 = -0.536$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = 0.074 -0.046*0.00 = 0.074$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = 0.058+0.0106*0.00 = 0.0582$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had no moderating influence on the influence of financial

characteristics on leverage amongst listed investment and services companies listed in NSE. Resultant models with and without moderation will be as follows,

DTA = 0.059 -0.988*T -0.459*P + 0.0729*S -0.012*G …….……4.139

DTA = 0.082 -1.071*T + -0.536*P + 0.074*S + 0.058*G + 0.388*CF + 0.128*TCF - 0.078*PCF - 0.046*SCF +0.011*GCF…….….4.140

Table 4.191: FGLS Regression Results of DTA as Dependent Variable with Moderator in Investment and Services Companies Listed in NSE

	Without Moderation				With Moderation			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	.059	.242	.25	.806	.082	.190	.43	.665
T	-.988	.118	-8.37	.000	-1.071	.118	-9.07	.000
P	-.459	.397	-1.15	.249	-.536	.352	-1.52	.129
S	.0729	.0169	4.29	0.00	.074	.013	5.71	0.000
G	-.012	.007	-1.66	.097	.058	.022	2.61	.009
CF					.388	.382	1.01	.311
TCF					.128	.165	.77	.441
PCF					-.078	.809	.1	.921
SCF					-.046	.027	-1.69	.09
GCF					.011	.007	1.63	.102
	Wald chi^2 (4) =155.85	R^2 = 0.7943		P > Chi^2 0.00	Wald chi^2(9) = 281.06	R^2 = 0.8631		p>Chi^2 .0000

4.37.25 FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Manufacturing and Allied Companies Listed in NSE

As shown in Table 4.192, results on the effect of financial characteristics on debt financing for construction and allied listed companies in NSE while operating cash flow was incorporated in the model show that the coefficient of SCF was -0.036 hence firm size had a negative influence on debt financing when the operating cash flow was incorporated. The p value was 0.737 which is greater than 5% level of significance. This shows that the moderating influence of operating cash flow on

firm size was statistically insignificant on debt financing. The coefficient of TCF was -1.519 hence tangibility had a positive influence on term debt as operating cash flow increased. The p value was 0.034 which is less than 5% level of significance. This indicates that the moderating influence of operating cash flow on tangibility was statistically significant on debt financing.

The coefficients of PCF and GCF were -1.037 and -0.089 respectively. This indicates that profitability and growth opportunities had a negative influence on long term debt respectively when operating cash flow was incorporated. The p values were 0.031 and 0.158 respectively to imply that the moderating influence of operating cash flow on profitability and growth opportunities were significant and insignificant respectively on debt financing at 5% level of significance. This shows that the findings were inconformity with pecking order theory and agreed with Addae et al. (2013) and contradicted (Chesang & Ayuma, 2016).

To further confirm the influence of the moderator, the coefficients of the model without the moderator are compared with the average marginal effect or change of financial characteristics on debt financing. If the two are different then there is moderation else no moderation. The marginal change show how much debt changes by with an increase in one unit of the relevant financial characteristic when the average moderator value is incorporated. This is achieved by differentiating model 2 in chapter three partially and incorporating the average moderating value as follows

$$\frac{\partial STAit}{\partial Tit} = \beta_1 + \beta_6 CF = 0.444\text{-}1.519*0.21 = 0.170$$

$$\frac{\partial STAit}{\partial Pit} = \beta_2 + \beta_7 CF = 0.0291\text{-}1.037*0.21 = \text{-}0.158$$

$$\frac{\partial STAit}{\partial Sit} = \beta_3 + \beta_8 CF = 0.125\text{-}0.036*0.21 = 0.118$$

$$\frac{\partial STAit}{\partial Git} = \beta_4 + \beta_9 CF = \text{-}0.014\ \text{-}0.078*0.21 = \text{-}0.027$$

Comparison between moderated and non-moderated variables with the operating cash flow revealed that it had a moderating influence on the firm financial characteristics on leverage of listed manufacturing and allied firms in Nairobi Securities exchange. Resultant models with and without moderation will be as follows,

DTA = -1.286 + 0.133*T -0.093*P + 0.103*S - 0.002*G …….……4.141

DTA = 1.756 + 0.444*T + 0.029*P + 0.125*S -0.014*G + 1.1625*CF -1.519*TCF - 1.037*PCF - 0.036*SCF -0.078*GCF…….….4.142

Table 4.192: FGLS Regression Results of DTA as Dependent Variable with and without Moderator in Manufacturing and Allied Companies Listed in NSE

	Without Moderation				**With Moderation**			
Variable	**Coefficient**	**Std. Error**	**Z**	**p>z**	**Coefficient**	**Std. Error**	**Z**	**p>z**
cons	-1.286	.163	-7.92	.000	-1.756	.494	-3.56	0.000
T	.133	.102	1.30	.193	.444	.345	1.29	.198
P	-.093	.114	-.81	.417	0.029	0.139	0.21	0.834
S	.103	.009	11.05	0.00	.125	.025	5.03	0.000
G	-.002	.012	-.14	.885	-.014	0.014	1	.327
CF					1.625	1.145	1.42	.156
TCF					-1.519	.718	-2.12	.034
PCF					-1.037	.482	-2.15	.031
SCF					-0.036	.108	-.34	.737
GCF					-.078	0.06	-1.24	.217
	Wald chi^2 (4) =137.60	R^2 = 0.5917		P > Chi^2 0.00	Wald chi^2(9) = 98.86	R^2 = 0.7184		p>Chi^2 .0000

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study and draw conclusions which form the basis of recommendations. It further provides suggestions for further study in line with the shortcomings identified in the study. The conclusions as discussed are aligned to the five study objectives with their corresponding hypotheses.

5.2 Summary of Findings

The overall objective was to study the influence of firm financial characteristics on leverage of non-financial firms listed at the Nairobi Securities Exchange. Firm financial characteristics were operationalized as tangibility of assets, profitability, firm size and growth opportunities. Moreover, moderating effect of operating cash flows was examined. The study adopted causal also called explanatory research design. Secondary data was collected from annual financial statements of listed companies in NSE from 2008 to 2016 accounting periods. Census was adopted for all 51 non-financial listed companies. Leverage was operationalized as ratio of short-term debt to total assets, long term debt to total assets and total debt to total assets. On overall 42.47% of variations in short term debt to total assets was accounted for by asset tangibility, profitability, firm size and growth opportunities while the remaining percentage can be accounted for by other factors excluded in the model. Further, 35.14% of the variations in long term debt to total assets was accounted for by asset tangibility, profitability, firm size and growth opportunities while 56.9% of changes in total debt to total assets was explained by asset tangibility, profitability, firm size and growth opportunities.

5.2.1 To Determine the Influence of Tangibility of Assets on Leverage of Non-financial Firms listed at NSE

The first objective of the study determined the influence of tangibility of assets on leverage of non-financial firms listed at Nairobi Securities Exchange. The study found a significant effect of tangibility of asset on short term debts to total assets and on long-term debts to total assets of listed non-financial listed companies. There was a significant influence of tangibility of assets on total debt to total assets of listed non-financial firms listed at NSE.

5.2.2 To Examine the Influence of Profitability on Leverage of Non-financial Firms Listed at NSE

The second objective of the study sought to find out the influence of profitability on leverage of non-financial listed companies at Nairobi Securities Exchange. The study revealed a significant influence of profitability on short term to total assets. This implies that an increase in profitability was associated with an increase in short term debt. This depicts that most of non-financial listed companies increases their current liabilities with increase in profitability. There was insignificant influence of profitability on long term to total assets. Further, there was an insignificant influence of profitability on total debt to total assets. These findings agreed with pecking order theory whereby huge profits increases retained earnings.

5.2.3 To Establish the Influence of Firm Size on Leverage of Non-financial Firms Listed at NSE

The third objective of the study established the influence of firm size on leverage of non-financial firms listed in Nairobi Securities Exchange. The study found a significant relationship between firm size and short-term debt to total assets. This implies that an increase in firm size (sales growth) increases current liabilities within an accounting cycle. This is a clear indication of an adoption of aggressive working capital strategy. There was a significant influence of firm size on long-term debt to total assets. There was a significant influence of firm size on total debt to total assets.

These findings mirrored pecking order theory which purports that there is a significant relationship between firm size and use of leverage.

5.2.4 To Find out the influence of Growth Opportunities on Leverage of Non-financial Listed firms at Nairobi Securities Exchange

The fourth objective of the study examined the influence of growth opportunities on leverage of non-financial firms listed at Nairobi Securities Exchange. The study found that growth opportunities had an insignificant influence on short term debt to total assets. There was an insignificant effect of growth opportunities on long term debt to total assets. There was an insignificant effect of growth opportunities on total debt to total assets of listed non-financial companies in NSE. These findings were in conformity with pecking order theory implying that listed companies in aggressive expansion phase are not dependent on borrowed capital. Moreover, the findings cemented trade off theory which supported inverse relationship between leverage and growth opportunities.

5.2.5 To Evaluate the Moderating Influence of Operating Cash flows on the Influence of Financial Characteristics on Leverage of Non-financial Firms Listed at Nairobi Securities Exchange

The fifth objective of the study evaluated the moderating influence of operating cash flows on the effect of firm financial characteristics on leverage of financial firms of listed companies at NSE. Results of the study revealed that operating cash flows had an insignificant moderating effect on short term debt of listed non-financial firms in NSE. There an insignificant moderating effect of operating cash flows on long term debt to total assets. Operating cash flows had an insignificant moderating effect on leverage of listed non-financial companies in NSE.

Operating cash flows had an insignificant moderating effect on the effect of profitability on short term debt of listed non-financial companies. It had an insignificant moderating effect on the effect of tangibility of assets and long-term debt of listed non-financial listed companies in NSE. Operating cash flows had an insignificant moderating on the effect of growth opportunities on long term debt of

non-financial listed companies in NSE. It had an insignificant moderating effect on the influence of firm size on leverage of listed non-financial companies in NSE.

5.3 Conclusions

Based on the study findings it is paramount to note that firm financial characteristics have significant influence on leverage of non-financial listed companies in NSE. The study concludes that increased long term borrowing is associated with increased tangibility amongst listed non-financial companies in NSE. In contrast increased tangibility had decreased effect on non-financial listed companies' borrowing capacity. Consequently, listed non-financial companies should continuously evaluate leverage covenants prior to acquisition of new loans so as to maximize on debt covenants which they enter into.

The listed non-financial companies at NSE ought to evaluate their working capital management strategies since an increase in profitability was associated with increased short-term debt. This consistency was not retained throughout the period under investigation. This implies that though companies were profitable in single accounting cycle similar trends were not sustainable in subsequent accounting periods. This call for forensic examination of accounting records to minimize possibilities of window dressing their accounting records. It was paramount to note that even though profitability had positive effect on leverage it was not significant. This calls for an examination of leverage policy by listed non-financial companies to ensure that leverage financing matches profitability targets.

It was evident that an increase in growth opportunities impacted short term, long term and total leverage capacity of listed non-financial companies listed in NSE. This implies that increased market value of listed companies' enhanced reliance on internally generated finances rather than borrowing from external sources. This was in congruence with pecking order theory.

There is need to evaluate customer development strategies and the nature of customer who are seeking goods and services from listed non-financial companies. Since debt capital is dependent on ability of firm to repay back there is need for

listed non-financial companies to venture into markets which are not only profitable but also sustainable. This can only be achieved through adoption of real time data management strategies amongst all non-financial listed companies.

Finally, operating cash flows had an insignificant moderating effect on firm financial characteristics and leverage of non-financial listed companies in NSE. The study concluded that operating cash flows had a positive moderating effect. This is a realistic expectation since operating cash flows dictates not only investment decision but also financing decision consequently ability of non-financial listed companies to manage its operating cash flows signals will improve their credit rating.

5.4 Recommendations

From the conclusion the following recommendations can be drawn. There is need for listed non-financial companies in NSE to be cautious on their financing decisions. There is need to minimize reliance of borrowed funds in both short and long run. Reliance on debt financing does not only demand regular interest payments but also have restrictive debt covenants which can easily trigger financial distress and jeopardize survival of listed non-financial companies in NSE. Adherence to pecking order while seeking financial of listed companies will not only protect asset tangibility of listed companies but also boost investors' confidence since they have more control on their investment. Management and professional bodies ought to develop manuals and financial simulation models which are geared towards educating and sensitizing management of listed companies on most viable financing alternative.

To this far there is need for capital market regulators to create more short-term financing debt instruments since it has high potential of enhancing profitability of listed companies. In addition, the short-term instruments could not only minimize borrowing cost but also reduce competition from alternative debt providers. Furthermore, capital market regulators should enhance the uptake of derivative financial through use of futures and forwards this will reduce borrowing cost and enhance stakeholders' participation. Furthermore, creative financing would trigger adoption of innovative financing products which would encourage reduction of

borrowing costs without triggering control of demand and supply. Execution of such strategies would enhance non-listed financial company's debt planning and spread of financial risk and consequently minimize financial shocks emanating from debt financing.

The study established isolation on choice of leverage due to firm characteristics. In some instances, some characteristics had significant influence on either short-term debt, long term debt and or total debt. Consequently, non-financial listed companies in NSE should combine both short term and long-term debt. In addition, debt convents ought to be negotiated after collective consideration of firm characteristics and none ought to be considered in isolation. It is thus paramount for both financial managers and financial analysts to continuously monitor firm financial characteristics through use of requisite data science tools and evaluate the robustness of alternative financing option in regard to specific firm financial characteristics. This way firm's survivability will be enhanced since chances of bad debt can easily be mitigated.

To NSE management and CMA, they ought to aggressively recruit more companies to be listed in Nairobi Securities Exchange. Through increased sensitization, awareness creation that influence on non-listed companies to list will be achieved. All protocols, barriers and legal frameworks hindering listing of small and medium enterprises in Kenya ought to be investigated and promoting measures adopted. Moreover, NSE should work to strengthen and breach financial gaps between deficit saving units and surplus saving units. Furthermore, debt financing dispute resolution mechanisms should be brought in place as this will create a pool of financial resources which can be deployed inform of venture capital, business angels, debt financing and equity financing.

5.5 Suggestions for Further Study

The study investigated the influence of firm financial characteristics and leverage of non-financial listed companies in NSE. Future studies may focus on incorporation of industry specific characteristics influencing leverage decision of listed companies. This may not only increase explanatory power but also aid in evaluation in industry

unique characteristics influencing leverage decision. The current study was limited to sample size since it considered short panel and number of listed companies in Kenya are fewer as compared to other developed stock markets. Future studies may concentrate on wider period and regions such as East Africa or African Securities Exchanges. Longer period would help in evaluation of causality relationship between firm financial characteristics and leverage of listed companies. This would help in mitigation of challenges associated with mix of debt and equity finances. Finally, there is need to examine the effect of firm financial characteristics on leverage in other sectors such as insurance companies and commercial banks even they have statutory regulations on capital requirements.

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APPENDICIES

Appendix I: Listed Non-Financial Companies at Nairobi Securities Exchange

Agricultural	**Telecommunication and Technology**
Eaagads Ltd	
Kapchorua Tea Co. Ltd	Access Kenya Group Ltd
Kakuzi	Safaricom Ltd
Limuru Tea Co. Ltd	**Automobiles and Accessories**
Rea Vipingo Plantations Ltd	Car and General (K) Ltd
Sasini Ltd	Sameer Africa Ltd
Williamson Tea Kenya Ltd	Marshalls (E.A.) Ltd
Commercial and Services	**Manufacturing and Allied**
Express Ltd	B.O.C Kenya Ltd
Kenya Airways Ltd	British American Tobacco Kenya Ltd
Nation Media Group	Carbacid Investments Ltd
Standard Group Ltd	East African Breweries Ltd
TPS Eastern Africa (Serena) Ltd	Mumias Sugar Co. Ltd
Scangroup Ltd	Unga Group Ltd
Uchumi Supermarket Ltd	Eveready East Africa Ltd
Hutchings Biemer Ltd	Kenya Orchards Ltd
Longhorn Kenya Ltd	A.Baumann CO Ltd
Umeme ltd	
Nairobi securities exchange	
Deacons	
Flame Tree	
Investment	**Energy and Petroleum**
City Trust Ltd	KenolKobil Ltd
Olympia Capital Holdings ltd	Total Kenya Ltd
Centum Investment Co Ltd	KenGen Ltd
Trans-Century Ltd	Kenya Power & Lighting Co Ltd
Home Africa Ltd	
Kurwitu ventures	
StanlibFahari	
Atlas Africa Industries	
Construction and Allied	
Athi River Mining	
Bamburi Cement Ltd	
Crown Berger Ltd	
E.A. Cables Ltd	
E.A.Portland Cement Ltd	

Source; *www.nse.co.ke*

Appendix II: Data Collection Sheet

Year	Firm	Current Liabilities	Non-current liabilities	Total assets	Non-current assets	Profit after tax	Net sales	Market value to book value	Operating cash flows
2008									
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									