

**EFFECT OF FINANCIAL STRUCTURE ON  
PROFITABILITY OF PETROLEUM FIRMS IN KENYA**

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## DECLARATION

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

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## **DEDICATION**

I dedicate this PhD thesis to my wife Lydiah Nyaboke, my son Joel, daughter Jael and mother Kwamboka Motanya for their unconditional support during the entire study.

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## **ABBREVIATIONS AND ACRONYMS**

<b>ANOVA</b>	Analysis Of variance
<b>APA</b>	American Psychological Association
<b>ERC</b>	Energy regulatory commission Kenya
<b>EBIT</b>	Earnings Before Interest and Tax
<b>EPS</b>	Earnings Per Share
<b>GoK</b>	Government of Kenya
<b>HPK</b>	Hash Petroleum (K) Limited
<b>JKUAT</b>	Jomo Kenyatta University of Agriculture and Technology
<b>KPLC</b>	Kenya Power and Lighting Company
<b>KPC</b>	Kenya Pipeline Company
<b>KPRL</b>	Kenya Petroleum Refineries Ltd
<b>KKL</b>	Kenol Kobil
<b>MOE</b>	Ministry of energy Kenya
<b>NSE</b>	Nairobi Securities Exchange
<b>NOCK</b>	National Oil Corporation of Kenya
<b>PCM</b>	Performance Component Matrix
<b>PLC</b>	Public Listed Firms

<b>PM</b>	Profit Margin
<b>PMC</b>	Petroleum Firms
<b>PIEA</b>	Petroleum Institute of East Africa
<b>TKL</b>	Total Kenya
<b>US</b>	United States
<b>POT</b>	Pecking order theory
<b>R&amp;D</b>	Research and development
<b>RD&amp;D</b>	Research development and dissemination
<b>ROA</b>	Return on Assets
<b>ROCE</b>	Return on Capital Employed
<b>ROE</b>	Return on Equity
<b>ROI</b>	Return on Investment
<b>SMEs</b>	Small micro enterprises
<b>TOT</b>	Trade off Theory
<b>VAT</b>	Value added tax

## DEFINITION OF TERMS

- Debt finance:** Type of finance employed as part of equity but is externally acquired hence attracts some form of interest based on agreement with the obligation to repay at a particular time. Debt finance is popularly given by commercial banks and other financial institutions based on collateral provided by firms in need (Averkamp, 2016).
- Financial structure:** Financial structure is the composition of both the short term and long term instruments concerned with how a petroleum firm sources its finances to meet its obligations and finance its operations (Crouzet, 2014).
- Government regulation:** Government regulation refers to the control by the state on an individual firm or industry using mechanisms of setting the prices or controlling the quantity and quality of goods and services produced and sold for example setting rates for electricity service, setting petroleum prices among others (Opoku *et al.*, 2014).
- Profitability:** This refers to operating efficiency of a business organization or an ability of a firm to generate returns on the capital employed, meaning that the firm's revenues are usually higher than costs of the firm (Riaz, 2015).
- Share capital finance:** Share capital refers to finances raised from the owners of the firm through sale of equity shares, this type of financing gives rights to holders to vote at annual general meetings and hence holders can directly influence decisions of the firm (Gompers & Lerner, 2000).

**Trade Credit:** A type of financing that involves a firm immediately acquiring goods and services without spot payment but with an agreement of later payment. Trade credit usually forms part of accounts payable among firms that receiving firms (Myers & Brealey, 2013).

**Return on Assets (ROA):** It refers to proportion of profits in relation to assets that are employed by an organization, return on assets is hence of a measure of corporate profits based on efficiency of assets employed by petroleum firms (Dew, 2007).

## ABSTRACT

The petroleum sector in Kenya is highly regulated by the government such that, the government sets prices for most of the energy products. This study was to determine how the financial structure is critical to the profitability of Kenya's petroleum firms. Petroleum being an essential commodity in global business development and particularly in developing economies, it is expected that increasing number of petroleum firms over time is as a result of good returns that in the sector hence attraction of more investors. To the contrary, competition has been eating up the profits, thus something needs to be done by the firms concerned to ensure profits are boosted. The study's main objective was to assess the effect financial structure on profitability of petroleum firms in Kenya. Other objectives included the evaluation of the effects of debt finance on profitability, to establish the effect of share capital finance on profitability, to examine the effect of trade credit finance on profitability, to assess the effect retained earnings on profitability besides the moderating effect of firm size on profitability of petroleum firms in Kenya. Besides. A positivist philosophy was adopted with the research design that included a thematic analysis. The results helped finalize the conceptual framework of the primary study, which was in form of a secondary data collection sheet. The study adopted descriptive research design. Census technique was used to arrive at 35 firms drawn from petroleum firms in Kenya. Primary data was collected by use of Questionnaires while in the collection of secondary data secondary collection sheet was used. Using collected data, then univariate tests were carried out to provide a deep insight for both parametric (t-test) and non-parametric test (Pearson correlation coefficient). In multivariate analysis, hierarchical multiple regression analysis models were used to determine the type of the relationship that existed between the independent and dependent variables. Data was edited, cleaned, coded and categorized. Quantitative analysis featuring the inferential and descriptive statistics was applied in analyzing data and thereafter, interpretation was done followed by data presentation using graphs and tables with relevant inferences, frequencies and percentages being used to describe and summarize relevant findings. On the other hand inferential statistics used included a regression model, correlation analysis, Anova and chi square respectively. The study findings indicated that all the components of the financial structure had a significant negative influence on petroleum firm's profitability. For share capital it's backed by the fact that it dilutes decision making and ownership of the firm as when shares are sold it presents an opportunity to own shares of the firm, a freehand for management exercise decision making professional judgment without undue influence from shareholders. Trade credit has a positive influence has it is cheaper and there is a closer relationship that boosts confidence between suppliers and the relevant enterprises. Therefore it can be concluded that each element of the financial structure adopted by the firm has a significant contribution on firm's profitability. Firms should endeavor to employ more equity and less of debt to finance their operations as this is based on the revelation that employment of debts is a major recipe for reducing profitability. Management must consider using trade credit finance as apriority ahead of debt as debt reduces



profitability. The study further recommends the need to institute appropriate regulatory mechanisms meant to cushion investors from loss of their hard earned wealth and hence restore confidence in their investments. At policy level, the study recommends that the government should introduce initiatives aimed at lowering the high interest rates associated with borrowed capital (debt finance). The applicability of the study results may therefore be restrictive. And thus in that regard, the study recommends a similar study be carried out within larger jurisdictions that could present unique economic and regulatory dynamics.

## CHAPTER ONE

### INTRODUCTION

This chapter which is the first in this study comprised of the background of the study, overview of relevant study variables the current trend of the variables, problem statement, and research general and specific objectives, scope of the study besides the study significance as explained below.

#### 1.1 Background of the study

Globally over 1000 firms report losses of up to \$2 billion annually attributed to inappropriate financial structure a fact that has made such firms to be potentially illiquid and bankrupt (Ball, 2013). The leading global petroleum producers that are more involved in upstream activities include nations like Saudi Arabia, Russia, the United States of America, Iran, Mexico, China, Canada, United Arab Emirates, Venezuela, Norway, Kuwait, Nigeria, Brazil, Kazakhstan and Iraq. Which countries are members of the Organization of the Petroleum Exporting Countries (OPEC) which is charged with controls of the major crude products through quotas (Barua, 2010). Thus an appropriate financial structure (FS) is a key prerequisite for profitability of firms that are keen on returns. Bhutta and Hasan (2013) contends that a financial structure is an instrument that concerns itself on decision making about components of both capital and short-term financing.

According the IEA (2016), global financing of firms increased by a five percent factor to result in \$285.9 billion by the end of 2015. This increase was way above the initial record of around \$278.5 billion in 2014 with serious energy projects coming up in German and Italy. A suitable financial structure goes a long way in ensuring a firm has adequate cash flows to meet its financial current and long term obligations (Akoto *et al.*, 2013). Generally all the above scholars agree that, firms across different industries are involved in investments in pursuit for profits, with capital investments financed by long term finances and short term investments funded by short term funds thus a need for a suitable financial structure that enhances returns.

A keen assessment in the African market has indicated that many firms continue struggling with the inappropriate financial structures, which is also a reality in the even locally, it is such findings that dampen the vibrant and promising sector otherwise making it less attractive (Mathuva, 2012). Based on studies done, it is clear that with proper financing decisions, petroleum firms have a huge potential of making enormous profits that can reward all stakeholders in the industry (Oladipupo & Okafor, 2014).

On the other hand, Omesa *et al.* (2013) separately argues that the financial structure is a basic firm's finance, as it has far-reaching implications on the firm's profits. Thus, it clearly demonstrates the reason why most business organizations that prioritize maximization of their value must maintain optimum cash levels to enhance profitability (Raheman *et al.*, 2010). Conversely, Sharma and Kumar (2014) posit that there is limited knowledge on desirable liquidity in most firms as finance both an art and a science.

In Sub-Saharan Africa financial structure of most oil firms has progressively been considered as an obstacle to human and economic development organizations profits have been compromised greatly in the sector over time with the financing of energy investments being limited to traditional methods of equity and debt (Nyaoro *et al.*, 2013). Africa as a consequence continues to face critical challenges in the energy sector characterized by inadequate finances and limited access to modern energy services, low purchasing power, poor infrastructure and low investments hence minimal profits. This explain why the African continent firms have been performing dismally maybe due to overdependence on debt and share capital financing with other emerging financing methods being used in short scale (Ongore, 2011).

Wan *et al.* (2014) argues that usually there is positive relationship between financial structure and firm profitability a study that is supported by Ofori *et al.*, (2014) of who carried a study on the relationship between financial structure of Banks and their returns in Ghana, the study found out that financial structure is strategic tool which has a bearing in overall performance of the banks as far as profits are concerned.

Mokaya *et al.* (2015) recommends that there is need for an elaborate overlap between financial structures and profits hence need to implement controls aimed at reducing conflicts between management and shareholder which end up curtailing performance of the company as far as profitability is concerned.

There is a growing interest witnessed in different financial institutions mainly banks on funding promising energy investments particularly in the sub-Saharan Africa. This has been evidenced by large amounts of investments directed to not only the petroleum sub-sector but also in gas investments especially in West Africa with particular interest in Ghana and Nigeria (Azura Power project). It is such trends that have attracted the component of potential debt from the World Bank and the African Development Bank which, both assumed a leading role in providing retained earnings and debt respectively, another critical source was public and private share capital (Oloo, 2013).

In Kenya financing to a large extent has been reliant on debt and share capital with trade credit, reserves and retained earnings directed to the support of green energy projects (Pathirawasam, 2013). Ranking at fourth place, after the agricultural sector in Kenya, is the sector of industries. The other two sectors within are the services sector as per the Nairobi Securities exchange are the petroleum market firms and the Industrial segment had 17 firms by 2011. Afterwards, it was divided into quadruple sectors (the construction, locomotive and accessories, energy and the petroleum industries (NSE Handbook, 2013).

The uniqueness of the energy petroleum sector arises from the fact that it is very significant as it a strong pillar to economic performance in Kenya, due to the fact that, the sector drives other industries by providing energy without which other industries can't operate (IEA, 2014). In Kenya, the energy sector is highly regulated characterized by price caps, bond payment at point of entry to ensure energy imports reach desired destinations and through other social-economic mechanisms that are meant to be strictly adhered to.

Kenya as a country is aspiring to become energy secure state. This has called for decentralization within the sector based on the fact that the energy sector has

enormous potential in maximization of profits (Wanjiru & Ochieng, 2013). Prohibitively high connection costs petroleum products coupled with low incomes among majority households calls for a concerted effort in determination of the most suitable financial structure that maximizes profits (Love, 2012). On the other hand, Jape and Korde (2013) contend that corporate finance focuses on the main decisions about financial investment, issuance of dividends and financing which, has resulted into greater attention being put on long term investment (capital structure) than on financial structure which addresses both current and long term aspects of corporate finance. However, it is evident that a company that is adequately liquid has greater ability to quickly invest in profitable opportunities hence, generate more cash flows for its future and hence tend to have low risk, which enhances higher profits (Ray, 2012).

Additionally, the sector depends on raw materials like; crude oil, natural gas and other specialized equipment that are all imported and are significantly affected by international price fluctuations making profitability in the sector almost a pipe dream in a competitive and demanding sector. Besides the above, the sector being regulated by the powerful Energy Regulatory Commission (ERC) a body that regulates all imports to the energy sector. The commission also regulates the generation and supply of electricity. This excess regulation has led to an immense exodus of energy corporations from the Kenyan market due to low yields in the sector. The above argument is supported by Raheman and Nasr, (2010) who also point out the significance of a suitable financial structure by contending that it is critical in addressing such underlying imbalances.

Wamugo *et al.* (2014) observed that balancing between liquidity and profitability is a major dilemma for most managers. Explaining why most firms have not found or formulated an appropriate financial structure that could maximize their profits. Thus, surviving in such highly-regulated market requires management to concentrate in activities that enhance profits explaining why the financial structure is critical and paramount for the sector.

The largest energy investments in 2015 were majorly funded by debt financing at \$199 billion, compared to some 6% in 2014 (Sarmiento & Martin, 2016). New energy sources including small hydro, modern biogas, solar, wind, geothermal, and bio-fuels contribute about 2.8% (UNEP, 2015). With many more countries considering adoption of green energy systems as an alternative to custom (crude oil), there is need to determine the financial structure that can enable firms to construct energy plants, develop systems like biomass, windmills and small hydro energy, which has a potential of mass-production to meet ever increasing energy needs in the country (Goli *et al.*, 2013).

Previously, mixed results have been found for studies that were conducted in the first world countries of Europe and America. Referring to the tread-off theory, a few writers suggest that the best way to optimize the shareholder's investment returns is by the use of the best financial structures. Conversely, there is another group of published writers opposing the idea of best financial structures. They claim that the firm's performance is not affected by the financing structures. In an attitude survey of the enterprises, Firms were found to intensify their borrowing after being listed (Wagacha, 2001).

A desirable structure of financing is an important aspect of a business performance (Shoab, 2011). Firms may occasionally need to float a number or a combination of stocks and securities in a mixture of debts, property, credit finance and retained earnings. If a firm succeeds in making this combination, it maximizes its value and achieve the best capital structure ever. This position is agreed by Graham and Harvey (2001); Ebaid (2009). It is obvious that, the decisions on finance that lead to a certain suboptimal financial structure decisions can result in firm failure or successes (Mwangi, Makau, & Kosimbei, 2014). Theories lined up in support of this study include; pecking order theory (POT), agency cost theory, liquidity theory, Trade off theory (TOT) and Public interest theory with all supporting the study's concept of the financial structure effects on the profitability.

### 1.1.1 Financial Structure

Financial structure comprises of both debt and share capital besides any other source of finance for the firm. Financial structure basically involves how a firm finances its assets either by combining different sources or through a single source (Saad, 2010). Financial structure is a manner in which a business allocates its finances to its assets using the available resources (Ishaya & Abduljeleel, 2014). The scholar's further note that the financial structure decision is thus a very key and fundamental decision in the life of any business enterprise as it is critical in determining achievement of different stakeholder objectives.

Usually, enterprises finance their assets with share capital (ordinary, preference). Other parts of the firm can be funded by debts or liabilities. These sources include long-term bank loans, bonds or through any other means of borrowing available. Consequently, financing can be done with short-term liabilities such as the accounts payable besides retained earnings (Oriakhi, & Iyoha, 2013). According to Titman, Keown and Martin (2011), financial structure is capital structure that includes liabilities that do not attract an interest like the accounts payables and accruals. Therefore, Onaolapo and Kajola (2010) agrees with Titman *et al.* (2011) definition of financial structure that it comprises of both all short term and long term debts.

Conversely, capital structure is the means through which a company funds its production facilities with either a long-term debt or short-term debt or even through share capital (Moyer *et al.*, 1999). Titman *et al.* (2011) defines capital structure as the interest bearing debt including short-term bank loans. Both definitions therefore excludes debts that have an accruing interest, combined with the owner's investments.

According to Abor (2005), capital structure refers to a combination of equity and debts used in a firm's operation that also couples different types of securities put together. Dare and Sola (2010) argues that the structure of capital is a debt-equity combination of a company's finance, which applies in representing a commensurable debt effect of the equity and finances of the corporate firms. In their view, they said that capital has three alternative forms: first is the 100% equity: 0% debt, second is

the inverse of the first option (0% equity: 100% debt) and thirdly, is the mixture of X% equity: Y% debt.

On the other hand, Jape and Korde (2013) contend that corporate finance focuses on the main decisions about financial investment, issuance of dividends and financing which, has resulted into greater attention being put on long term investment (capital structure) than on financial structure which addresses both current and long term aspects of corporate finance. However, it is evident that a company that is adequately liquid has greater ability to quickly invest in profitable opportunities hence, generate more cash flows for its future and hence tend to have low risk, which enhances higher profits (Ray, 2012).

### **1.1.2 Profitability of Petroleum Firms**

According to Nyaoro *et al.* (2014) Profitability refers to returns generated from investments. The author also argues that Profitability is an objective indicator on the general performance and financial health of an organization, Profitability can also be used to compare an industry performance. The Kenyan Government having employed several policy tools to monitor and regulate the energy sector. These tools include feed-in tariffs, 0% import duties, and VAT exemption, price caps among others, with studies blaming such tools for low profits in the industry. Firms must earn a good return from their investments that enables the board of directors make a good dividend payout (Wild *et al.*, 2012).

Profitability is also known as the financial performance of a firm which is measured by different ratios ranging from; return on assets or investment, return on equity, earning per share and even net profit margin (Ngigi, 2012). Profitability proportions are usually separated into two folds based on margin and returns (Petersen and Kumar, 2010). These proportions usually display margins that signify ability and capability of the firms in question. Since proportions are vital exemplifying capability a firm must make adequate profits or even ensure adequate returns (Khan & Jain, 2013).



### **1.1.3 Kenyan Petroleum Firms Overview**

Just like elsewhere globally the petroleum sector in Kenya is always faced with numerous challenges. The hostile business environment has been made worse by the introduction very strict and tough tax regime. Usually KRA imposes an upfront payment of 50% taxes on imported petroleum products. Besides the above there is the requirement that imported crude oil must be supplied by a petroleum firms so as to minimize related costs. This meant that the PMCs must have good cash flow to enable them buy the petroleum products and pay the upfront taxes as per the Petroleum Amendment Act, 2016.

The petroleum sector in Kenya is comprised of both the local firms and the multinational corporations. The industry is regulated by the Energy Regulatory Commission (ERC) a body that is tasked with ensuring fairness and quality within the industry. The sector is mainly an oligopolistic structure with a few key players. For example in the petroleum sector in Kenya the market is dominated by Total Kenya, Vivo energy and Kenol Kobil at 21.7%, 18.9% and 13.9% respectively (PIEA, 2014). The energy sector is very competitive and mainly characterized by controlled prices done by ERC, strict taxation frame work besides products that are more of the same which is compounded by a less controlled economy that all calls for serious strategies other than pricing to enhance profits (NSE, 2014).

By the fact that Kenya still imports all petroleum products, profits in the energy sector depend on identification of relevant factors that influence returns like the financial structure, capital structure and working capital. As the failure of firms to be profitable may contribute to disruption of their and distribution consequently leading to industrial actions, blacklisting by suppliers and even bankruptcy of the petroleum firms. Important to note is that the main challenges facing the energy sector range from high operations cots, poor infrastructure, excess regulation, volatility in exchange rates, tax administration and burden of government which all have made profitability an uphill task in the industry (Baffes *et al.*, 2015).

#### **1.1.4 Financial Structure and Profitability**

Financial structure has an effect not only the financial return a firm but also what the company earns for its shareholders. Financial structure being the percentage of both short term and long term assets employed in a business based on types and it can either take the form of Equity Capital or Debt capital (Joshua, 2017). The success of energy and petroleum companies in Kenya for the last decade has been attributed to sound and effective governance. The firms that have registered improved profits were able to achieve such heights due to good financing methods that ensured growth and expansion. Of these companies, the most improved are those that are listed in the securities exchange operating under stringent rules from the Capital Markets Authority.

However continued good financial performance of the individual petroleum firms that is evident from the increased expansion across Kenya and the neighboring countries has pointed out that financial structure employed might have facilitated the results of good profits of leading firms. The argument is also supported by Stern Stewart (2016) who notes that a Company with high level of debt increases its probability as compared to one facing financial distress related to over borrowing that can lead to bankruptcy and financial ruin. On the other hand the use of other financing methods like retained earnings, trade credit and other cheaper sources can enable organizations to undertake and invest in more rewarding opportunities that in the long run will make the petroleum firms able to attract cheaper debt from financial institutions for expansion and growth.

#### **1.2 Statement of the Problem**

Recent studies on financial structure and profitability have shown that firms operating in a highly competitive environment and oligopolistic industries like the petroleum industry have over time found themselves operating under circumstances where their profits are guaranteed (Sheik & Wang, 2013). However, not all findings agree with this argument as other researchers have not found a correlation between the financial structure and profits of the (Muchiri, 2014).

Similar findings have been reported by researchers in the African continent, particularly West Africa where studies done concentrated in both Ghana and Nigeria (Wen, 2013). With findings showing that financial structure affects profits differently depending on the industry under study. Regionally, studies conducted have shown a significant difference in the relationship between financial structure and firm profitability with findings varying depending on the industry and country of the study (Khan *et al.*, 2012).

Related Studies by; Mathuva (2010), looked at the influence of the capital structures on the returns of 30 NSE's listed firms. The research focused on firms that are from the non-service industry, like the insurance, financial, and commercial sectors were excluded, the findings showed a significant correlation between Capital structure and returns. A research carried out by Makori and Jagongo (2013) focused on the long-term effect of financial structure on profits of ten manufacturing firms which found out that the financial structure had a remarkable correlation with the profits.

Other studies by Gakure *et al.* (2012) investigating the significance of the financial structure on performance of manufacturing firms at the NSE; Omesa *et al.* (2013) on the role of financial structure on financial performance among 20 manufacturing firms and Nyabwanga *et al.* (2012) on the relationship of financial structure on performance of SMEs in Kisii county. Despite the carrying out of the research on the effects of financial structure and profitability no documented study has been carried out in the petroleum industry. However, a study by Wamugo *et al.* (2014) that focussed profitability of the 64 listed firms in Kenya, it only included three petroleum firms, a negligible percentage to represent the petroleum industry as much of the results were dominated by results from non-petroleum firms which therefore cannot be generalized whatsoever.

With numerous studies having been conducted both in Kenya and beyond, not much has been done in terms of the effect of the financial structure on profitability of petroleum firms in Kenya. Aspects like to what extent does debt financing affects profits, what is the contribution of share capital to profits, what is the role of trade credit within the industry, what is the contribution of retained earnings in boosting

firm profits are aspects that must be addressed in this study to ensure that the problem at hand is addressed.

Thus the gap that exists is that even though Kenya as a country is keen on becoming an industrialized economy by 2030, petroleum firms which are expected to play a key role in the realization of this vision are struggling with profitability hence the industry role as a fundamental pillar in the growth of other sectors remains in doubt (Ngniatedema & Li, 2014). Maybe the above situation might explain the mass exodus of leading multinational firms in the 10 years ranging from; AGIP, Royal Dutch, Chevron and Exxon Mobil from the Kenyan market a situation is not addressed may lead to further increased overheads and thus increased losses that may not be sustainable (Kimeli, 2012). Therefore it was rational and timely to conduct a study that was aimed at reversing the trend by through promoting sustainable profits within the industry.

### **1.3 Study Objectives**

This study will have both general and specific objectives as indicated below:

#### **1.3.1 General Study Objective**

The general objective was to determine the effect of financial structure on profitability of Kenyan petroleum firms.

#### **1.3.2 Specific Study Objectives**

- 1) To examine the effect of debt finance on profitability of petroleum firms in Kenya.
- 2) To assess the effect of share capital finance on profitability of Kenyan petroleum firms.
- 3) To examine the effect of trade credit finance on the profitability of Kenyan petroleum firms.
- 4) To establish the effect of retained earnings finance on profitability of Kenyan petroleum firms.

- 5) To assess the moderating effect of firm size on financial structure and profitability of petroleum firms in Kenya.

#### **1.4 Research Hypothesis**

The following hypothesis was tested in this research:

**H<sub>01</sub>:** Debt finance has no significant effect on profitability of petroleum firms in Kenya.

**H<sub>02</sub>:** Share capital finance has no significant effect on profitability of petroleum firms in Kenya.

**H<sub>03</sub>:** Trade credit financing has no significant effect on profitability of petroleum firms in Kenya.

**H<sub>04</sub>:** Retained earning finance has no significant effect on the profitability of petroleum Firms in Kenya.

**H<sub>05</sub>:** Firm size has no significant moderating effect on the financial structure and profitability of petroleum firms in Kenya.

#### **1.5 Significance of the Study**

This research immensely contributed to the existing knowledge individual researchers, scholars and research organizations who may want to carry out further research in this area. Kothari, (2004) pointed out that a study population must have common characteristics that conform to a particular specification hence in this study the period of 10 years of between 2007-2016 was selected as it was considered adequate enough in establish profitability patterns and was considered an adequate period for generalization purposes.

##### **1.5.1 Policy Makers of Kenya**

The study on effect financial structure on profitability of petroleum firms was necessary because the sector has a huge potential in facilitating the achievement of

the Kenya's vision 2030. Thus it is expected to facilitate the development a policy frame work that guides the sector that is seen as critical to the Kenyan economy due to its spiral effect. The study is expected to enable policy makers to come up with public interest polices as the industry is oligopolistic in nature and the stiff competition may lead to consumer exploitation.

Thus the findings of this study are expected to be very critical informants of policy makers particularly government of the relevant policies in the industry aimed at ensuring that petroleum firms are able to minimize losses that are prompted by suboptimal financial structures. The Institutionalization of these policies is expected ensure that petroleum firms operate within the law but also are able to enjoy reasonable profits through making necessary adjustments in their financial structure in a desired way (Benes et al, 2015).

### **1.5.2 Regulatory Agencies**

The study will also be critical for the regulatory agencies like; the energy Regulatory Agency, Capital Markets Authority (CMA), and the Kenya Revenue Authority since it will act as a stepping stone in improving the regulatory framework and as a platform to address statutory issues in the sector. The Nairobi Securities Exchange (NSE) and Capital Market Authority (CMA) may use the research findings to strengthen and regulate the operations of petroleum firms listed through the adoption of relevant policies aimed at enhancing and boosting equity and stability in the sector. Financial advisors are expected to use the findings to advice their clientele both the direct and the indirect on how to boost profitability of their firms through adjusting the financial structure of those firms.

### **1.5.3 Energy Sector in Kenya**

Since the study was basically done among the petroleum firms in Kenya, a developing nation, it is expected that the study was to promote and enhance available knowledge by presenting information concerning how financial structure relates to profit in the petroleum sector hence go a long way in creating employment and

reducing poverty for both poor rural families which constitute 80% women and youth (Benes *et al.*, 2015).

#### **1.5.4 Scholars and Researchers**

This study is significantly expected to complement and facilitate value addition to the scholarly world due to improved firm profitability by adoption of an inclusive study that fosters empowering of scholars and researchers to influence policy as a result of additional knowledge to the existing studies. The research gaps to be pointed out are likely to trigger more research by scholars as this study is expected to be published in renowned and peer reviewed research journals. Nevertheless, this study will go a long way in acting as a stepping stone for more research on effect of financial structure on profitability of petroleum firms.

#### **1.5.5 The Petroleum firms**

This study is expected to be of great help to the entire Kenyan petroleum firms since it sought to explain the relationship existing between optimal financial structure and profitability. By the fact that this study described the role of the financial structure on firm profitability in Kenya, the findings are meant to shape the future of petroleum firms and their future operation in maximization of profits. The findings of the study are likely to benefit the entire petroleum industry and related establishments by providing them with in-depth understanding of the effect between individual financial structure components and how each related to profitability.

#### **1.6 Scope of the Study**

This research was limited to only petroleum firms in Kenya as listed by Energy Regulatory Commission (ERC) as more reliable and consistent source of information for comparison purposes in the study. This research was carried out among all the 35 firms as listed by ERC capturing the various financial structures components adopted and their individual effect on profitability, a census covering all the 35 petroleum firms was done since the targeted population was relatively low to enhance reliability

and accuracy of data collected and promote generalization (Mugenda & Mugenda, 2013).

The data collected covered a period of 10 years (2007-2016) a period adequate to conduct conclusive studies able to establish financial patterns and trends as upheld by Ishaya and Abduljeleel (2014), similar studies by Ongore (2011), Letting *et al.* (2012); Irungu (2007); Machuki (2011); Gachunga (2010); Awino (2011); Awino, Okiro, Iraya and Mutua (2014) The 10 year period of study has been employed studies listed above in similar studies. The research involved a descriptive analysis of audited financial statements of the petroleum firms in Kenya. The petroleum firms that qualified for the study were all listed by ERC as petroleum firm in Kenya between 2007 and 2016 and must have compiled and submitted their financial reports to ERC as required in the relevant period of the study to enable the researcher to establish relevant trends, patterns besides different relationships as conceptualized in the study variables.

Contextually the study covered the major financial structure components of debt finance, share capital, trade credit and also retained earning which represent both short term and long term aspects of the financial structure. The financial structure components explored were considered as the most traditionally popular and practical in the industry. Other potential financial structure components not taken into consideration are bonds, debentures which are long term in nature but were ignored as the local petroleum industry has not developed to man extent

### **1.7 Limitations and Delimitations of the Study**

The results of this study largely depended on secondary information analysis, thus the study results were subjected to the limitations of the firm's financial statements as reported to the ERC and general public which were under ERC Supervision Department. The data used was limited to the period of 2007 to 2016 to enable both generalization of findings and in support of descriptive research design comparison over time.



The study had a limitation of failure to have uniform perceptions from those interviewed thus at times the perceptions conflicted with findings from panel data. This was overcome by way of generalization of the results to cover the whole petroleum sector hence all that formed these perceptions were aggregated and generalized as they were gathered from relevant target population.

Since part of the research data adopted was self-administered questionnaires which was considered cost-effective and time-saving, the study automatically became subject to potential bias (Polit & Beck, 2008). This bias was countered through adoption and use of tested and validated instruments like the validity test as advocated by (McMahon, 2010) and reliability test as supported by (Cronbach, 2001).

This research was done in petroleum firms which are mostly private and thus it presented a challenge of obtaining relevant information needed for the study as the employees were keen to maintain confidentiality. This was addressed through obtaining introduction letters from both the University and the National Commission for Science and Technology (see Appendix) and thus with these permission the respondents were able to provide relevant information.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter collated literature from studies done in the past on the effect of financial structure on firm profitability. The chapter examined theories as guided by relevant variables as build in the conceptual frame work particularly in relation to the effects of debt finance, share capital, trade credit and retained earnings on firm profitability besides the moderating effect of firm size. While considering a diverse manner the work of past authors shaped both the theoretical and the conceptual framework among different petroleum firms. The chapter, further provided an empirical connection of the existing studies on financing of petroleum firms and profitability.

#### **2.2 Theoretical Review**

Finance managers usually make decisions on either longterm or short-term financing depending on the industry (Lincoln, 2014). This study was anchored on six major theories with each theory explaining an individual variable namely the pecking order theory (POT), Agency theory, liquidity theory, trade-off theory, resource dependence theory and innovation theory as explained in a manner pointing to the relationship between financial structure and firm profitability.

##### **2.2.1 Trade-off Theory**

This theory upholds the assertion that, the organization is a setting where there is a target in debt and capital share ratios. Further it seeks to point out that when decisions on investments of the firm are constant, it encourages an optimal financial structure which is thus achieved at the point where benefit of tax is equal to leverage costs associated with financial distress and bankruptcy (Myers, 2001). Further still it argues that enterprises seek to use debt more often as it is an objective way of guarding against bankruptcy besides management effectiveness and efficiency (Sheikh & Wang, 2011).

This theory postulates that more profitable firms are associated with lower bankruptcy costs. Thus, such firms are also able to maintain a higher debt level. Thus, a firm should maintain an optimal debt–equity ratio (Al-Tally, 2014). The theory of trade-off states that an optimal debt amount is determined by a comparison of the costs related to debt financing against the benefits that will be obtained if debt financing is used by a firm. Therefore, a great leverage can be taken by a more profitable firm to finance its investments or operations. According to the theory of trade off, most firms try to balance between the tax advantages on the use of leverage against the costs associated with utilization of leverage as a financing means of investments in a firm (Aliu, 2010).

Thus, generating higher operating profit would support company's decision to reduce its debt financing. Furthermore, recent researches discuss the negative correlation between profitability and debt levels, pointing out that if a company becomes more profitable and thus, more valuable, while still maintaining fixed debt level, its debt ratios would become lower (Titman & Tsyplakov, 2007). Subsequent empirical studies on this theory have found concrete evidence that is in support of the trade-off theory (Frank & Goyal, 2008). Besides the above, Deesomsak *et al.* (2004) found out that there is evidence which confirms the assumptions of this theory and can thus influence the financial structure of the concerned firms.

De-Haan and Hinloopen (2003) examined the different assertions as provided by the trade-off theory, it was argued that there is an empirical support which underscore the importance of this theory as it is a key determinant in the financial structure of choice. Karadeniz *et al.* (2009), and Huson *et al.* (2009) have all argued in favor of this model besides concluding that the model possess more explanatory power when compared to other models. Javed *et al.* (2012) in their study to unearth the various determinants of both long-term and short-term debt, they found a remarkable difference between the assumed determinants and the components of the issued debts.

Theory of trade-off holds that firms only borrow to an extent where tax shield on debt financing immediately offset total cost that is usually associated

with debt financing (Itiri, 2014). Trade off theory also explains that companies usually borrow from financial institutions in a gradually manner so as to reach its optimal level of debt-equity ratio. However, there is a gap in the explanation the conservative business nature by this theory, more especially when the business is using funds from debt(s). There is no explanation of why taxation system is affected by the leverage. At this point of exchange, the present marginal tax value on the extra debt is equivalent to the additional costs of the present value of the financial distress (Owalobi & Anyang, 2013).

Further this theory notes that time has a role that it plays in aspects that typically that are assumed in a single-period model, this is clear particularly in the roles and functions expected besides the related costs (Luigi & Sorin, 2009). In this model, suitable finance decision depends on the finance margin anticipated in future periods. Some firms are expected to pay funds in the next financial year, as other firms keep on expecting to raise finances they can raise such from either debt or even share capital (Luigi & Sorin, 2009).

This theory therefore proposes that at times a firm may use alternative sources of financing to build an optimum structure due to managerial characteristic and behaviour (Abdeljawad, Nor, Ibrahim & Rahim, 2013). Such presumed targets exists as a requirement to address deviations form set targets of debt. This deviation could be due to a number of reasons for instance time value which may create uncertainty. Prudently, adjustments should be done when the deviation cost exceeds or is more than relevant cost of making adjustments (Fischer, Heinkel & Zechner, 1989).

Such deviations are slowly eliminated gradually with time so as to ensure that the firm converges to the targeted financial structure for that time as appropriate. But what is clear is that the magnitude of such actions is very different for different firms (Frank & Goyal, 2007). Abdeljawad *et al.* (2013) argues that the percentage deviation in terms of the preferred financial structure can deal with deviations in cash for that period. This theory however assumes that there exist an observable target which in practice is difficult to determine.

Dynamic trade-off models is very useful when considering other available options found and reflected in the decisions made as compared to decisions made. Goldstein, Ju and Leland (2001) observed that a business entity with low debt levels currently enjoys a privilege of increasing the debt over time. Thus it is assumed that earning before tax is irrelevant as changes in the financial structure are influenced by the prevailing financing policy of the firm, an alternative to increase debt in the coming days is purely dependent on future whether such a move will serve the interest of the firm.

This assumption that the earnings before interest and tax can be a source that generates funds to the firm hence increased firm value. It usually runs independent of the EBIT flow as expressed and distributed among those that claim such a practice. An assumption that any cash payout either in terms of taxes, interest paid or even dividends paid usually affects the firm just like the in common reality. According to Luigi and Sorin (2009), there comes out is that the dynamic model adopted considers tax savings expected as compared to bankruptcy costs (Brennan and Schwartz (1984). Both analyzed the continuous time-model with which was uncertain.

They observed that since firms had different reactions to the shocks that were adverse in nature hence need to rebalance without incurring costs, hence they concluded that to maintain desirable level of debt one has to take advantage savings from taxes. This view however may not hold in practice since firms will always incur transaction costs which were ignored in their model. It is clear that the theory thus predicts that tangible assets can shield a firm from more taxation burden hence need to accumulate reasonable if not high leverage debt ratios. Firm that have more intangible assets and whose value is likely to disappear if liquidation takes place, must ensure that they depend more on share capital. For the case of profits it is clear that, trade-off theory will be critical in predicting the returns in terms of profits so as to shield the firm against the tax burden. Under trade-off theory it should be understood that firms that have higher growth opportunities should endeavor to borrow less to lessen chances of more losses in case of distress.

The theory thus proposes that business enterprises may at times deviate and fail to raise targeted capital structure and hence exhibit an adjustment on their behavior (Abdeljawad, Nor, Ibrahim & Rahim, 2013). This theory of trade-off suggest that debt finance is mostly used when a firm has a great level of tangible assets while equity finance is mostly used when a firm has a great portion or level of intangible assets.

### **2.2.2 The Pecking Order Theory**

Myers and Majluf (1984) noted that, when supporting new investments firms favor internal funds as compared to external funds. If a case arises where the internal funds are not enough for a particular investment opportunity, a firm may seek other alternatives like the external fund. If it does, they will pick among the numerous outside funds in such a way as to ensure that they don't incur any additional costs regarding asymmetric information. Castro, Tascón and Tapia (2011) not only agreed with the above position but also contend a firm's order of priority is critical in the minimization of the adverse selection costs that are necessitated by the information asymmetry. Accordingly an organization may go for example go for internal financing with a preference on debt as compared to equity or at worst resorting for share capital as a last resort. The above means that, that firms may not necessarily stick to predetermined positions when it comes to financing as long as the source proves optimal (Myers & Majluf, 1984).

It was concluded that the share capital may be desirable because debt always comes with other binding obligations. Jalal (2007) noted that the aspect of adverse selection compounded by asymmetry of information has for long informed financing decision. Preference for share capital over debt contrary to this theory has also been supported by Fama and French (2005). All the same this theory has enjoyed approval and opposition in equal measure. De Jong *et al.* (2011) found out that firms should formulate their financial structure in line with their preferred financing hierarchy. In Europe, Brounen *et al.* (2006) carried out a detailed study that concluded that the pecking order theory is an important element in determination of a financial structure which in turn greatly affects profits of the firm.

However, other researchers failed to find relevancy of this theory, Frank & Goyal (2008) in their study noted that in case an organization has a financial deficit, share capital may be handy in case debt is not possible which means that different financing methods complement one another and hence cannot be hierarchized. Several researchers have used profits while investigating this theory (de Bie & de Haan, 2007).

The major significance of this theory therefore lies prediction of the maturity and priority of projects being funded. As much as debt capacity is a very critical and important aspect when considering borrowing as an option of raising funds, this theory fails to explicitly address the findings of Fama and French (2004) which argued that share capital option is a common phenomenon even in large business enterprises that are not under duress. This therefore is a clear indication that capacity to service debt is inadequate as an explanation given in the pecking order theory. Although it should be noted that a multi-period pecking order has shown that share capital issuance can be made to be optimal even when firm in question have limited or even insufficient internal funds to service debt. Thus it is clear that the conflicting empirical findings can be harmonized to favor and explain the POT especially where the empirical explanation explicitly allows variation of time and related costs (Banchuenvijit, 2012).

According to this theory, it is expected that management invests the extra cash that is usually uncommitted to projects that are capable of maximizing the available cash for projects that may be having negative NPV as they seek the prestige and fame that comes with big firms capable of making profits in a balanced manner which behavior is usually known as the over-investment problem (Khan, Kaleem, & Nazir, 2012). Other scholars argued on the same line include Harvey *et al.*, (2004) who pointed out that management is more likely to invest excess cash on what they consider to be a priority or based on their discretion and objective. The firm owners who have more cash flow that is considered free usually monitor the firm activities and management with an aim of avoiding unnecessary or even wasteful expenditure by management. It is further argued that management is likely when there is monitoring costs are likely to increase thus higher agency costs which in turn decreases the firm value.

Thus it is important to note that the creation of debt without an objective of retention of revenues from the proceeds is what will enable managers to be not only effective but also be able to achieve their objectives and promise of making payments for future cash flows. Hence, debt is considered an effective tool is a substitute for dividends, this for a long time has not been appreciated as a fact in the corporate world. Through the issue of debt for shares, management tend to be bonding what they promised to pay and the extra future cash flows in a manner that is not accomplished through increased dividends. By doing so, shareholders are given an opportunity avoid the firm bankruptcy that is now a reality in case they rely on debts in case they are not able to service the debts and interest (Jensen & Michael, 1996).

Other relevant developments in this cash flow theory is that the available cash for shareholders particularly the ordinary shareholders after all costs have been incurred, and all interests besides the principal has been paid which is usually after relevant investments on working capital has been achieved (Stowe, Robinson, Pinto, & McLeavey, 2002). Thus for one to evaluate how much is available to the ordinary shares holders then what is considered is the net profit margin that is adjusted for the firm investments that have been made. Thus it is clear that in future any increase in the cash flow is expected based on the investment (Zakić, 2011).

This theory has some limitations in terms of limitations and due to failure to explain the role and influence of taxation, financially distressed firms, costs related to issuance of shares besides agency costs, or even opportunity costs for the investments done. Further still, it fails to address problems that arise due to accumulation of risk associated with management indiscipline due to slackness of management when the markets are not stable. It is important to note that this theory ignores the challenges that arise when management of the firm accumulate more finances and hence making them immune as far as market discipline is concerned (Kishore, 2009).

Upneja and Dalbor (2001) argued that it is only profitable firms that generate adequate finances meaning they can employ internal finances making the theory less practical. Viviani (2008) noted that opting for loans reflects not only past



profitability but also for opportunities in the investment made by the firm, meaning that a firm may lack capacity to take advantage of the available opportunities hence preference for equity as compared to debt as opposed to the pecking order dictate.

### **2.2.3 Agency Theory and Share Capital**

This theory was proposed by Jensen and Meckling (1976) who held that structure of capital can be attainable through reducing different costs that result from conflicts that arise between the management and shareholders. What this means is that optimum financial structure can lead to a compromise between different financing alternatives either external or internal which allows or facilitates a reconciliation of different conflicts of interests mainly between finance suppliers and management (Grigore & Stefan-Duicu, 2013).

This theory further focuses on how the relevant principal and respective agent are related. Hence it notes that such relationships are brought forth when one or even more stakeholders hire other individuals otherwise with an aim of ensuring performance of particular obligations as per agreement hence giving birth to delegation of decision making authority to the said agents (Lawal *et al.*, 2014). On the other hand Jensen and Meckling (1976) argued that a firm's financial structure is influenced by agency costs involved, these may include but are not limited to both debt and share capital issue.

The costs involved when issuing share capital usually includes: principal monitoring costs (share capital holders), bond cost for the agent/manager, and decreased welfare as a result of divergent agent decisions among others. The costs incurred by a firm comprises of opportunity cost as a consequence of debt that is incurred while investing in different projects. Arthurs and Busenitz (2003) points out that both share capital and debt attract costs hence need for optimization and consequent the trade-off between the emerging costs.

The theory has witnessed numerous studies and evaluations from scholars and professionals. Most studies have sought to establish how the goals and objectives of the principal and agent are not in conflict (agency problem) through reconciliation of

the agent and principal's different tolerance to risk (Kathleen, 1989). Namazi (2013) postulates that the optimal solution lies between the extremes of where executive compensation is tied to performance, but some monitoring is essential. In addition to monitoring, Pepper and Gore (2013) adds that mechanisms that encourage managers to act in shareholders' interests such as: performance-based incentive plans, direct intervention by shareholders, threat of firing, and the threat of takeover can be a plus.

It is critical to note that this has two key assumptions as pertains finance managers in any firm, foremost is that there is likelihood that current management understands and appreciates the firm's financial situation in terms of earnings and expenditure and hence can with preciseness predict future prospects of the firm. This therefore explains why there exists a need and desire to as much as possible make that information secret. While using the funds generated from within the firm managers seem willing and ready to make publicly disclose the firm's potential investment opportunities and benefits associated with it respectively. Secondly is the assumption that management always acts to protect and preserve the interests of the firm's stakeholders particularly the current shareholders (Myers & Majluf, 1984).

Numerous studies done have proved that there exists a relationship between firm's profits and its debts (Kester, 1986; Titman & Wessels, 1988; Fama & French, 2002). Similarly, Hovakimian *et al.* (2001), argues that firms with high profits are most likely those with low levels of debt. In case firms use debt financing then it implies that any growing company capable of higher leverage must always consider its financial structure (Alhaji & Yuseff, 2012). As profits soar it is expected that leverage must be on the decrease as profits are a form of revenue. Although a study by Bhaduri (2012) found out that a firm must manage debts towards a given desirable ratio. Over time, research conducted in developing countries has supported the agency theory as pointed out by Bancel *et al.* (2004) who evaluated Brazil where the notion was not only held but also came out clearly in that a firm must always develop a desired priority list when it comes to financing.

Donaldson and Davis (1991) pointed out that managers naturally act to maximize returns and revenues of the shareholders except in cases where the firm is

experiencing inappropriate governance structures. Wheelen and Hunger (2002) argue that most of the firm problems exist due to the fact that managers fail to act professionally and even fail to bear responsibility for decisions they make as may not be appreciating why they have not been allowed to own a stock in terms of shares in the firm.

Namazi, (2013) advocates for the top management owning shares so as to ensure a deep concern on the part of manager when critical decisions are being made due to the fact that they will feel obliged to also cater for their own welfare hence significantly reducing recklessness in making of decisions. It is important that while justifying the significance of understanding how the financial structure affects performance of the concerned firms which is a priority, we consider views of Jensen and Meckling (1976) who points out that the modern firms' financial structure as reflected on management actions.

This theory it is argued seeks to identify and gauge any situation as per the agreement that exists between the principal and the steward respectively. It is important that all utilities used must be maximized especially when the agent's objectives are coordinated with the proper principles (Arthurs & Busenitz, 2003). This theory further accepts the fact that agents are looking for opportunities that consider human that are more than what can be actualized. Therefore it must be clear that all agents must be driven by a firms collective motives hence need for a higher utility value though focusing on the major objectives for the relevant goals and objectives that are considered good as far as the business is concerned which can be aligned to the best interest of the business (Bender, 2011). This is usually attained more readily in cases where the management is involved in the day to day running of the firm's operations

Other studies done have indicated that, indebtedness allows shareholders and managers to adhere to same objective of maximizing financial performance and hence shareholders wealth (Luigi & Sorin, 2009). This is considered to be a sufficient threat in coercing them to down their inefficient management styles and in return yield maximum cash inflow to reward the debt (Grigore & Stefan-Duicu,

2013). As far the shareholder are concerned, debt affects over the financial return due to interest tax shield coupled with the advantage of non-dilution of the share capital (Zhang & Li, 2008).

Donaldson and Davis (1991) advanced a theory that managerial motivation has an important bearing on the management as far as being an opportunistic is concerned, essentially when one does a good job, thus for one to be a good steward or agent managing organizational assets. The whole idea lies behind is that the Agency theory note that one of the human resources needs to be greater as compared to neo-classical view. Therefore, it is critical that a manager's behaviour is the firm must be like that of an agent working on behalf of the firm owners but not self-centered. Arthurs and Busenitz, (2003), argues that the main objective must improve the firm performance that meets the principles.

Further it is also clear that the theory can be used in the monitoring and instilling relevant controls that are aimed at promoting the agency relationship and thus motivating the agent. This is likely to boost high productivity by making all those involved to have a tendency of looking for opportunities. Usually in this case there is no clear conflict of interest between the principal and the agent thus this theory argues that all agents receive an empowerment relevant autonomy from their respective principals. The above is likely to lead to increased efficiency and productivity, and it is from this form that they we can create an environment where the agents must proceed in being as effective as possible (Bender, 2011). If both the agent and the principal make a decision that the agency relationship would be based on honest and be made to look like a true stewardship then there is hope of success as compared where there is no commitment.

Agency cost usually occur because the agents acts in the best interest of the relevant principal (Bender, 2011) Thus, the theory focuses on how best to facilitate and build besides empower the agents by working on structures in place, the above leads to the fusion of the how the incumbency of the chair and managing director which will lead to an effective and productive results, superior performance to the shareholders and respective agents. In this, the underlying assumption is that there is a commonality

between management and the firm owners that runs to counter to other assumptions that are more individualistic, this is usually self-serving and short lived as opportunities offer to explain a model that economists use to explain the market system on regular basis (Handoo & Sharma, 2014). Agency theory also argues that individuals must abandon what serves them as individuals for the greater good. In case, management is not motivated by individual goals but rather on company interests (Wesley, 2010).

Agency theory further contends that private shareholders have the ability to influence profitability of the firm as when management is monitored investment can be protected besides various investments made by shareholders. On the other hand, shareholders always invest resources which must be managed by the expertise of management and hence there is need for the firm to work towards improving corporate governance which will in turn lead to improved profits. Namusonge (2011) argues that the agency theory focuses on the financial structure aimed at improving managerial compensation contracts that can mitigate agency problems. Besides the above good compensation of managers can go a long way in improving their overall performance and profits at large (Sang *et al.*, 2013).

Allayannis *et al.* (2012) concentrated on the effect of agency theory in monitoring managers who act on behalf of shareholders and its impact on profits and noted that in case managers lack freedom to make important decisions then profits are compromised as performance is affected. Ongore (2011) supports the above assertion, the researcher notes that managers usually perform better in cases where they have an opportunity to own shares in the firm they manage without undue interference and influence from shareholders. However, Hill and McDonnell (2015) points out that relevant controls need to be exercised to ensure such power is not abused in a manner that will compromise profits

#### **2.2.4 Liquidity Theory**

This theory proposed by Emery (1984) and held that business firms experiencing financing challenges can still operate due to favorable credit policy from suppliers. With the main and central point being that firms constrained financially and hence

have limited financial resources can invest in accounts payable and receivable to stay afloat. This theory is a theory that is founded on buyer opportunism as proposed by Petersen and Rajan (1997): Wilner (2000). The scholars argued that there exists an opportunistic behavior that is manifested when the buyer is not in position to make cash payment hence opting for late payment. Thus this theory holds that in case the supplier of goods has better access to finance as compared to his client or even when the buyer hesitates to use the available monies to access goods needed then credit is encouraged (Emery, 1987). Hence it can be concluded that, inadequate funds enhances the need for trade credit as an alternative financing source.

Following Cuñat's (2007) reasoning, clients may experience liquidity shocks temporally, which calls for the need of the liquidity to ensure survival. This can help maintain the relationship between the supplier and the consumer. Recent studies by (Kestens et al., 2011) found out that financial crisis may reduce firm profitability. Thus, the trade credit is facilitated by the liquidity theory and is viewed as a strategic choice especially on the need of customer retention. In this sense, trading on credit is a tool that signals how customers can and suppliers can mutually benefit from a longer-term relationship (Cheng & Pike, 2003).

The theory further holds that there is suppliers cannot simply do away without such trade arrangements as customers always delay in payments hence there need to seek liquidity using other methods. This is not only realistic in developing economies where firms may fail to invest due to lack of funds but also in developed economies where simple operations may not take place in the absence of money thus need to have finances at hand to ensure continuity which can be possible in the absence of financial distress as per liquidity theory.

Henman, (2013) in a study on the effect of liquidity between supplier and clients noted that clients usually get concessions while negotiating credit terms. Thus the supplier must always have an incentive to promote payments made in a timely manner to avoid liquidity problems. Petersen and Rajan (1997) demonstrated in their study that suppliers are bound to aid smaller firms by offering credit facilities with a hope that these businesses matures and becomes stronger and the relationship later

on can ensure that the supplier is liquid and hence able to meet all financial obligations.

The application of this theory lies in the fact that smaller firms depend on relationships created to ensure that they are liquid. In the long run it is assumed that each debtor however small can finally grow and based on the relationship created such prompt future payment that can enable the supplier to take off and avoid potential financial risks of distress and bankruptcy caused by delayed payment or none payments which could have been avoided had there been practical ways of avoiding the same hence need to maintain liquidity (Petersen & Rajan, 1997).

### **2.2.5 Resource Dependence Theory**

Resource dependence theory (RDT) argues that enterprises must learn to exchange with their environments if they can be able to gain resources (Scott 1987). The theory centres on the role of resources and how they are acquired externally or from any other sources and their role making the firm to survive or thrive (Barringer & Harrison 2000). Further, it is noted that external resources can make firms depend on vital resources to help reduce reliance on others firms which means that firms must increase their ability to use their environment for their benefit (Pfeffer & Nowak 1996; Harrison, 2000). It is argued that strategic factor markets are imperfectly competitive, because of different expectations, information asymmetries and even luck, regarding the future value of a strategic resource.

However, a serious resource-based approach omission is that there is not a comprehensive framework that shows how various parts within the organization interact with each other over time to create something new and unique (Nonaka & Takeuchi, 1995). The resource based view (RBV) suggests that competitive advantage and performance results are a consequence of firm-specific resources and capabilities that are costly to copy by other competitors (Barney, 1986a, 1986b, 1991; Wernerfelt, 1984, Rumelt 1987). These resources and capabilities can be important factors of sustainable competitive advantage and superior firm performance if they possess certain special characteristics. They should be valuable,

increasing efficiency and effectiveness, rare, imperfectly imitable and non-substitutable (VRIN) (Barney 1991).

Resource dependence theory by Barney (1986), holds that based on the premises that a firm's board of mismanagement has a constitution that guides and informs every course of action, thus particularly the guiding constitution is very critical in management of financial resources owned by the firm. Resource dependence notes that a firm is predominantly run by boards which board has directors whose main objective in to influence allocation of financial resources and making relevant decisions including the financial structure of the firm (Zahra & Pearce, 1992), this is the foundation of resource based theory that has got the greatest research influence.

Thus RBT is commonly relevant in development of a deep understanding on the role of the board in the determination of how the available resources are owned and even used (Zahra & Pearce, 1992). The scholar further argues that the directors are beneficial and hence important in the firm day to day running as they not only advise based on available information but also ensure that the available channels of communication are utilized in addressing environmental contingencies by calling for and encouraging preferential access to resources, and thus legitimacy of resources in question. Significantly there is empirical evidence that supports the above proposed roles played by the directors as far as determination of the role of directors is concerned in influencing the financial structure of the firm.

Hence what comes out clear is that the number of directors may not be critical at this point but their role is really important as early studies that adopted RDT in examining the boards functions focused the sizer of the board at the expense of composition as to proof and indicate how board's ability in the provision of critical resources to the firm has been affected. Pearce and Zahra (1992) advocated the fact that the board composition besides its size are very critical in not only the aspects of outside environment but also on the company's present resource mobilization strategy and by extension its financial performance. Eisenhardt (1989) found out that there is a positive correlation between the size of the board and profitability of the



firm. However, what comes out clearly is the fact that more scholars suggest that the relationship is more complex than it looks from the face value.

There are two hypothesis as explained by Ross (1977) these explanations argue that, first is a firm will always give signals when there is an increase in asset and asset value respectively. This is made possible by increased debt as it enjoys an increased the chances of meeting obligation that comes with debt. Secondly Leland and Pyle (1977) pointed out that a company will always give a signal in circumstances where an increase in value of the firm through reduction of debt as there is enough retention of finances for a firm's future growth.

In practice however especially in fierce competition market, signals may not be reliable due to the fact it may give the impression that there is quality when it can't be achieved (Smith & Harper, 2003). Smith and Harper (2003) analogizes such firms to an unmarried woman who may choose to wear a ring to signal that she is married to forestall unwanted attention. The theory does not cater for such events. Empirically too, using data for 1419 farms in Illinois Zhao, Katchova and Barry (2004) found that unlike corporate firms which use high leverage as signals, farming concerns mainly depend on their large size and good historical operation records, invalidating the generalization by Ross (1977).

This theory argues that firms usually apply various types of financial structure at different stages of life cycle. According to Anil and Zenner (2005), it is assumed that firms when incorporated can mature and then fade away. Further it is clear that few providers of debt are keen on lending to firms without collateral security. The theory further posits that enterprises can adopt different types of financial structure depending on the stage of life cycle of the business. Thus as a firm grows the preference for debt as a source of raising finances increases since it becomes a tool for monitoring management besides the fact that at this stage there is adequate collateral security. However, this theory is criticized on the premises that there is no clear criterion used in the classification of respective life cycle hence explaining different explanation advanced (Castro, Tascón, & Amor, 2011)

Different growth stages have been similar respective characteristics for example the introduction stage where it is not easy for firm to borrow significantly as it is not only lacks track record but also lacks collateral to secure loans thus this would fact is capable of affecting project flexibility. At the maturity stage of any business it is however easy to borrow as significant firms have a substantial assets that act as collateral security (Anil & Zenner, 2005) The scholar further noted that firms with stable cash flows and profits usually make more use of debt as they enjoy tax shields associated with interest. Empirical evidence has shown that bigger and more liquid firms enjoy more profits are less likely to be financially distressed since they use debt in a conservative manner, on the other hand firms that have unique products but with low asset base for collateral are likely to enjoy more future opportunities for growth hence may use debt in future more (Castro *et al.*, 2011). At decline stage, firms usually lack much investment appetite as compared to where they began thus their needs therefore tend to prefer retained earnings financing as compared to debt or any other financing method.

In addition, firms are likely to experience a decrease in revenues and thus a decreased tax shield making it unviable to employ debt hence the support for lower use of debt (Castro *et al.*, 2011). While works have been done in this area, the process of classifying different stages of the lifecycle must be made as clear as possible (Castro *et al.*, 2011). This varied number of stages is one of the reasons due to inconsistency in findings of different studies. In addition, there is limited explanation that explains the existing differences when financing choices are made in all the respective stages (Fluck, 2000). For this reasons, empirical evidence has demonstrated that different debt patterns when firms are not fully matured since the effect has been found to be related capacity of any firm or even affordability of the said loan (Bulan & Yan, 2010).

Easterbrook (1984) and Jensen (1986) pointed out that firms with substantially surplus cash tend to be faced with a conflict of interest between shareholders and management. It is argued that Managers after satisfying all financial obligations as stated in their contracts use the finances generated from operations for the benefit their own benefit as compared to the interest of the shareholder. Thus this is what

makes shareholders to prefer managers who cash invest their extra cash flow on projects capable of maximizing their stock value as compared to the comfort managers or even their management's own interests. Naizuli (2011) postulated that the free cash flow theory encourages dangerous and unnecessarily high levels of debt levels that may increase the value of the firm value without addressing the risk of financial distress due to low operating cash when serving where it exceeds profitability of the investment opportunities available.

In summary, Resource dependence theory is therefore adopted in this study to create a background used as basis for analysing and giving an insight on how different ownership structures create governance structures that enable their management to provide a firm with critical and essential resources in terms of the relevant information on access to different channels must use such information to enable the firm be more advantaged than those that lack this information and hence influence financial performance and profitability positively.

### **2.2.6 Innovation Theory**

Innovation was proposed and advanced by Davila, (2006) who noted that there is need to develop a new device, method and thus modify firm products and processes in a way that promotes progressive. The scholar further alluded to the fact that it is firms that are able to innovate on continuous basis who will enjoy profits. As much as the line between creativity and innovation is thin, Davila (2006) goes ahead argues management should thus invest in both as this is what will make a difference between performing firms and those that are underperforming given that profitability is an objective measure. The said innovations can be a source of inspiration at all levels since all resources including financial must be wisely invested in promotion of firm goals and objectives.

It is further noted that innovation flourishes when employees and management emphasize the need in the investment of doing things differently in such a way that the revenues of the firm are enhanced and thus profitability is also achieved. It is critical that while pursuing profits firms must deliberately work towards sustaining innovations and thus pursue higher tiers of the markets with the highest number of

customers who are willing to pay for quality of innovation (Christensen, 1997). Businesses must be run in a disruptive manner through introduction of new products and services which must be brought to the market on regular basis (Poole & Van de Ven, 2000).

Despite the fact that innovation is normally considered a positive endeavor, it may at times have negative consequences as it may render the traditional practices obsolete thus disadvantaging some stakeholders (Schumpeter, 1934). The scholar further argues that firms that innovate are creative and these leads to creative destruction thus opening up of new markets and opportunities which can be taken advantage of. Firms can achieve and sustain a competitive advantage in case they are able to innovate continuously (Porter, 1990).

Thus incase firms invest in new technology supported innovation the sequence now changes to that of discovery of new ideas based on research and development, and with time the application of the new ideas leads to development of new products which can later be marketed and thus high profits (Niosi, 1999). Business enterprises must thus pursue new ways of standing out tall by differentiating themselves through creativity and innovation. The above implies that profitability is a consequence creativity and innovation than short term activities carried out in a business enterprise. In brief, innovation has a potential of transforming the firm from loss making entity to a progressive entity and profitable business organization.

### **2.2.7 Relevance of Theoretical Review to the Study**

Since this study focuses on the establishment of the effect of financial structure on profitability of petroleum firms in Kenya. According to the discussed theories, pecking order theory (POT), Agency theory, liquidity theory, trade-off theory and resource dependence theories. Firms in consider financial needs at the moment before opting for any of the sources of their finances and thus end up raising funds that meet their current objectives. Interest in the Agency theory view that has continued to grow in terms of business policy and business strategy. (Barney, 2010) argues that trade off theory notes and uphold s the perspective that always firms go

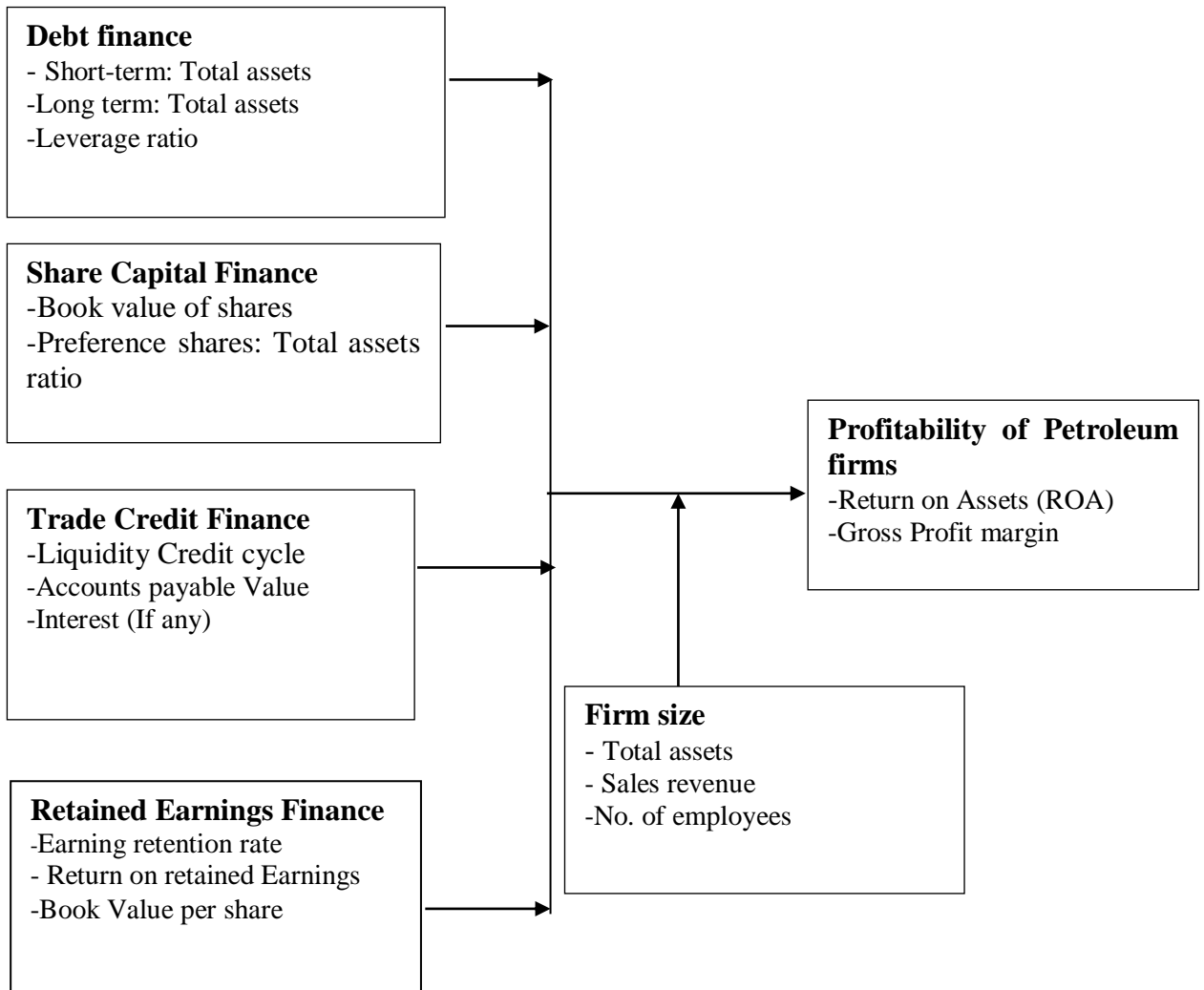
for what fits them when it comes to financing that is the chief determinant has always been the firm's current.

It must be noted that, there exists a general agreement that the theories associated with financial structure continue to be critical in financing decision making despite the fact that they have conveniently not taken into consideration the critical importance of management in deciding the financial structure of any given firm. With management scholars now than ever working towards developing alternative theories and frameworks that are based on future paradigms that are dynamic in nature such that they are also strategic in explaining how different finance structures (Naizuli, 2011).

### **2.3 Conceptual Frame Work**

The conceptual framework depicted in Figure 2.1, shows the effect financing method adopted on the profitability of petroleum firms in Kenya. The financing methods are; debt finance, share capital finance, trade credit finance, and retained earning financing methods. The framework postulates that the financing methods used by petroleum firms and their relationship with profitability.

## Financial structure



**Independent variables**

**Moderating variable**

**Dependent variable**

**Figure 2.1: Conceptual framework**

### 2.3.1 Debt Finance

Debt financing involves instruments that attract interest in the funds made available besides the above it also comprises numerous sources like bank loans, loans from family and friend besides other secured (Rosli *et al.*, 2010). Additionally, other

researchers have noted that in debt a special relationship is developed that advocates for advancing of debt that is based on available collateral security which must always be superior as compared to structure advanced loan (Maina & Ishmail, 2014; Mule, Mukras & Nzioka, 2015).

Baimwera and Muriuki (2014) pointed out that wherever debt is increased the concerned firms are exposed to high levels liquidity risk due to the fact that failure to service debts may lead to the said firms being exposed to higher levels of risk associated with bankruptcy (Muigai *et al.*, 2016). The scholars in their study on the moderating effect of Firm Size on the Relationship between Capital Structure and Financial Distress of Non-Financial Firms Listed in Kenya, they found out that financial risk can lead to financial distress in the concerned firms. Further, Muigai (2016) observed that whenever there is excessive use of debt by any firm as far as financing the corporate operations it usually results to a significantly negative effect. Similarly other studies undertaken before in the Asian continent have found parallel conclusions in support of the above assertions (Gupta, Srivastava, & Sharma, 2014).

Empirical studies have conducted have also indicated that debt and business profitability have a relationship. For example, while investigating the effect of financial structure and firm profits in conglomerate that deals with fast moving goods it was found out that there is a positive relationship between the two variables (Babatunde, Akinwunmi, Khadijah & Yusuf, 2014) the study further indicated that financial structure can reduce or increase return on investments significantly. Further, it has been shown from numerous studies that there exists a significant relationship between debt and return on equity. Thus it can be concluded that those firms that are highly financed by debt have a higher chance of profitability depending on the nature of industry.

Different ratios that measuring debt as compared to total assets of the firm can be used to communicate the level debt. The higher ratio signifies that the firm is financed by high debt (Stephen, 2010). It is given as the balance sheet gives the total liability and assets that is used to calculate Debt Ratio. The high value of DR indicates that the firm is highly leveraged (Myers, 2003) since the firm has large

amount of debt in the total assets used to finance the business and the low value DR means that assets in question were financed by shareholder's money.

While investigating the relationship between debt finance and the profitability of listed firms in NSE- Kenya, Maina and Kondongo (2013) pointed out that there is a negative relationship between debt and firm profitability. On the other hand, leverage ratio as used mean checks and balances are properly implemented in the process of debt management of the business organization. Such a ratio demonstrates that the company's relative position in comparison to assets. Such measures provide a glimpse on the extent of debt level of the enterprise in question and can also be used to detect any risks anticipated (Fabozzi & Peterson, 2013). Since short-term loans usually comprises of the good chunk of the organizations total debt. An evaluation of the factors influencing debt were based on total debt ratios which may cover significant differences on their effect on profitability.

Harris and Raviv (1991), agree with the above position but also contend that usually debt has two components namely short and long term aspects. A study on the effect of financial structure on returns and performance of industrial firms listed at the Pakistan Stock Exchange between 2004 and 2009, Shubita and Alsawalhah (2012) it was discovered that there is a significant negative relationship between debt and company profitability. The above suggests that firms that profitable firms have used more share capital as compared to debt. The study sampled 39 firms which were randomly selected, the findings contravened what Myres and Majluf (1984) had come up with about the pecking order hypothesis where debt is preferred to share capital. To analyze the impact of financial structure on profitability of listed firms in India, Chisti *et al.* (2013) found that capital structure have a statistically significant impact on the profitability of firms. This invalidates the MM (1958) theory of capital irrelevance. The study used secondary data of ten automobile firms for the 2007-2012 and used ratios analysis. GP margin, NP margin ROCE, return on investments were used as profit proxies while debt to equity, debt to assets and interest cover were used as capital structure proxies.



Like Shubita and Alsawalhah (2012) study, the study failed to separate the role of retained earnings from the return on equity and assess its impact on profitability and span beyond automobile industry for generalizations of the results since 10 firms are too few to make sound generalized conclusions. Research has indicated existence of a significant relationship between debt and firm profitability thus indicating that debt positively influences returns of firms (Vijayakumar & Karunaiathal, 2014) who found out that there is a relationship between debt and return on equity. However, Mahmoudi (2014); Vural *et al.* (2012) on the other hand found out that there is a negative and significant relationship between debt and returns.

In order to determine the role of capital structure on financial performance among the industrial firms in the NSE between 2004 and 2008, Kaumbuthu (2011) discovered that there is a negative effect when a firm depends on debt as it reduces the return on assets. Further, it was suggested that industrial firms usually prefer share capital as compared to debt thus making the pecking order theory invalid. The proxies used for financial structure and financial performance respectively involved both debt and equity ratio besides return on equity. It is critical to note that it would very good for other studies to cover a span that is beyond one sector so as to enable generalization of the study findings.

In investigating the influence of working capital on the performance of small medium enterprises in Pakistan, Khan and Khan (2013) found out that debt ratio had an inverse relation with profitability. Data used in the study was taken from SME data base, Karachi Stock Exchange, tax offices and firms themselves over the period 2006 to 2012. The proxy for the dependent variable (profitability) was ROA and Short term debt to total debt among others as independent variables. Regression analysis was used. While the study is informative, of concern is the validity of data since most SMEs are not listed and hence not obligated by law to provide audited information which is more realistic due to public scrutiny. The study did not address long term debt and retained earnings to on their relationship with performance which is key in the current study. The study however had a strong support for pecking order theory.

### 2.3.2 Share Capital Finance

Equity capital is that part of capital which is free of debt and represents ownership interest in a firm (Moyer *et al.*, 1999). It is therefore that amount contributed by the owners and normally includes ordinary share capital, preferential capital, retained earnings and reserves. Like debt providers, equity providers also earn returns in form of dividends from the profits generated by the firm (Titman *et al.*, 2011). Preference shareholders receive their dividends at an agreed rate before the ordinary shareholders and any unappropriated profit is retained for firm's expansion programs (Titman *et al.*, 2011).

Irwin & Scott (2010) in a study on the sources of financing for business enterprises notes that finances can be classified based on different sources ranging from share capital, savings, bank loans, credit finance among others. Deakins *et al.* (2010) while carrying out a study on sources of finances noted that it can generally be classified as internal (from within the organization) and external (usually from outside the business enterprise). In order to examine the effect of financial structure on organizational profitability among listed firms in Nigeria, Ishaya and Abduljeleel (2014) found that debt is usually negatively correlated with firm profits besides the fact that share capital is directly related with profits of the firm. Secondary data was used which showed the findings were consistent with Shubita and Alsawalhal (2012) survey and also provide evidence against the Agency theory.

Share capital is commonly measured by the Book value which compares market of the shares as compared to firm value all as indicated in the financial reports (Phylaktis *et al.*, 2010). The above is done in ratio form by calculating price per share over share capital value. The value of capital refers to the difference between assets book value and total value to all financial obligations commonly known as liabilities and then it is divided over the outstanding share capital shares as indicated by the statement of the financial position (Sullivan & Steven, 2003). Thus from the above argument, the share capital net book value is equated to the equivalent value of remaining assets; this goes a long way in giving the net worth of the enterprise in case there is need for liquidation (Oladeji *et al.*, 2015).

Thus the net book value is a very critical component in the measurement of investor share in the firm. Mostly a consideration is made on the number of shares to portray the net value in terms of investment per share. This value is then divided over the share price. Saeedi and Mahmoodi (2011) further noted that book ratio is commonly associated with the value of investment. When such a ration is low then it is considered that there is undervaluation of the stock. Equally, it could also imply that there is a fundamental issue that needs to be addressed in the organization. Usually since ratios vary depending on industry such a ration could also call for questioning if investors are paying unwarranted attention for an organization that is potentially bankrupt as up to this point, net book value can greatly influence decision of the investors in terms of buying shares of the firm under consideration.

Additionally, the value of the book as compared to the shares can be a very critical baseline for valuation of stock under consideration. Although it must be at technical levels not be based on the need for liquidation since it may proof to be not only misleading but also it may not be the best reflection of the situation at hand (Abdul, 2012). In most cases shares have traded below such value only to be end up being a not a true value due to other market factors. Notably, the book value may not be the best consideration incase future is being evaluated as firm prospects usually change depending on market conditions – which not only shape an organization’s equity but also trends in terms of interest of investors. An ongoing concern should be if the organization can always trade at a book value ratio while assuming other factors in the market (Iqbal *et al.*, 2014).

### **2.3.3 Trade Credit Finance**

Trade credit finance (TC) usually is applicable where there exists a lapse in time between good supply and complete payment for the same. Trade credit acts as a short-term loan advanced towards buyers by the respective. TC is a very popular financing tool globally especially when it in business activities and is also a very critical short term loan based on the fact that it is built on existing relationships between clients and suppliers who advance the facility based on their understanding of the client being given (Theyel, 2013).

It is critical to note that petroleum products take a lion's share of inventory of MCs as the large size of all the inventory that is maintained by these firms is made up of such products, a considerable amount of funds is required to be committed to them. The maintenance of 'adequate' inventories carries a favorable impact on company's financial performance (Pandey, 2010). According to Salawati (2012) study on relationship between inventory turnover and financial performance it was found to be significantly positive. Hence, trade credit is viewed as an alternative that finance different firms. Since suppliers enjoy various advantages as compared to institutional financing when it comes to trade credit advanced to buyers, with some of the merits including the close relationship with buyers thus a better understanding when it comes to assessment of credit worthiness of the clients and also ability to monitor continuously thus reducing chances of default.

Trade credit financing is usually pegged on merits accrued from not only the operational but also the financial and commercial aspects of the business. Meltzer (1960) notes that trade credit is applicable and relevant mitigating frictions in finance as it helps reduce the cost of transaction (Austine, 2014). It has also been attributed increased sales during slack periods when demand is relatively low a situation associated with unfavorable business circles (Emery, 1984); Trade credit has a natural way of dealing with information asymmetry between relevant parties (Long *et al.*, 1993; Pike *et al.*, 2005), this is so because trade credit finance signals the product quality aspects (Emery & Nayar, 1998).

Trade credit has indicators that measure debtors in number and total value that is expected from the accounts receivable which is extracted from the statement of financial position. Such an arrangement (Trade credit financing) allows the firm to buy goods and services without making prompt payment. Past research by Kestens, Van Cauwenberge and Bauwhede (2011) found out that in case of a financial crisis firm's profitability may be significantly reduced as accounts receivable are affected in the period of the crisis. The above assertion supports the idea that trade credit has the ability to mitigate client financial frictions besides being a strategic investment in customer retention and by the fact that trade credit promotes mutual benefit between customers and suppliers (Cheng & Pike, 2003)

Trade credit thus comprises of all accounts receivable which any of the firms in question can get in coming days (Kungu, Wanjau, Waititu & Gekara, 2014). What comes out clear is that an incompetent trade can be quite problematic as it can lead to huge losses. It is not clear though why vendors and suppliers can make up for the losses incurred due to poor management of the same (Ojenike *et al.*, 2013). On the same wavelength it is also good to point out that when credit terms are relaxed, suppliers tend to reduce costs that are associated with the storage of merchandises besides the costs production levels as the demand keeps on varying over time (García-Teruel & Martínez-Solano, 2010).

Trade credit can be more accessible, especially over the period of a tight monetary policy. It is critical to note that the relationship between trade credit and profitability basically originates from the main reason for granting trade credit (Martínez *et al.*, 2014) the reasons can range from; financial motives, commercial motives, and operational motives. Further still it has been noted that a tight monetary policy is usually unfavorable as customers tend to switch towards loans if trade credit terms are unreasonable. Hence, enterprises have a commercial motive in the application of and use of trade credit as an instrument aimed at increasing their sales (Hill *et al.*, (2012) this study further demonstrate that firms that have a low market share benefit more from the use of trade credit as it signals quality decision making and buying process convenient for their customers.

The above situation is due to the fact that it compromises stability and thus sacrifices the predictability that could have come with it as a package meaning attraction of implicit interests. In the meantime the bank interest rates keep on increasing over time making banks more expensive thus preference is given to trade credit as such terms are predictable over time. Lawal *et al.* (2014) holds that firms that are seeking to reduce costs by saving are thus very keen on methods they can employ to raise finances besides the capital required as they are keen on unnecessary costs that can be done away with. This calls for the need to work towards reducing information asymmetry between firms and potential creditors as it makes it now easier when dealing with customers makes it difficult for firms to raise capital. On the other hand trade partners must work towards reducing the access of customers' private

information as that may compromise firm operations due to many other firms' managers fearing the aspect of risk (Lawton & Marom, 2013).

#### **2.3.4 Retained Earnings Finance**

As far as this study is concerned, retained earning refers to the part of trading profits which is advanced as dividends but is retained by directors for future expansion of the firm (Dinayak, 2014). Campbell (2012), argues that main reason behind retained earnings is more to do with the increasing the chances of growth. Retained earnings are usually recorded under shareholders' equity on the balance sheet (Dinayak, 2014). Also related with periodically retained earnings is the accumulated retained earnings, which are computed by adding net income to (or subtracting any net losses from) beginning retained earnings and subtracting any dividends paid to shareholders (Dinayak, 2014).

Retained earnings is the injection back to the firm for reinvestment from previous financial years (Poker, 2011). Retained earnings is usually expressed in percentage form. When the percentage is high it shows that the firm can perform better and the vice versa is true. Business enterprises exist for the purpose of creating value different stakeholders ranging from; shareholders, those with investments in the firm, clients both internal and external, employees, among others (Ball, 2013).

All revenue that have been retained from profits generated from previous years and thus re invested into the firms operations (Chasan, 2012). The source has also been considered preferable financing option numerous countries. Using the net book value as an objective measure, debt is divided over the capital value. Thus the net book value of loans is calculated as total loan adding interest accrued. The other ratio used is called capital ratio which is calculated using financial debt which is the total leverage to total assets also, such is calculated as the net book value ratio to total leverage compared to assets to total assets. Retained earnings have also been explained as a ratio, commonly known as retention ratio of plowback ratio. The retention ratio is also known as the retention rate of an organization (Orwel, 2010). While supporting the same notion Chasan (2012), states that there is management has not agreed on what needs to be retained in relation to firm earnings.

Gul (2012) carried out a study in Pakistan on the effect of retained earnings on shareholders' wealth. The study sampled 72 firms listed on the Karachi Stock Exchange from 2005-2010. The study employed multiple regression and stepwise regression method respectively to study the impact of dividend policy on shareholders' wealth. It was found out that there is a significant difference between shareholders' wealth for firm that pay dividends as compared with those that don't. Besides the above, findings also indicated that the wealth of the firm can significantly increase when comparing to those firms that don't pay.

Timothy and Peter (2012) in their study on the relationship between dividend payout and profitability in listed firms at NSE between 2002 - 2010. The scholars using regression analysis established that there is a significant relationship between dividends payment and firm profitability. The findings also indicated that dividends payment was a major factor that influenced return on assets. It is normal that managers prefer the firm to retain more to ensure growth as current potential opportunities as perceived by management can be taken advantage of through utilization of what has been given back to the business. On the other hand shareholders would prefer lower retentions as it affects them in terms of dividends paid to them hence for them whenever there is a retention there is a sacrifice that is always made.

Orwel (2010) acknowledges as much as retained earnings is a cheap and convenient way of addressing the existing financial gaps which comes with numerous advantages ranging from ensuring internal ownership is diluted through share capital issue and even that a firm is not exposed to bankruptcy challenges that the company may be exposed to in case of external borrowing especially if the firm is unable to service the loan. However, it must be clear that retained earning denies the investors an opportunity to earn what fairly they are entitled to besides the fact that when a firm uses retained earning it fails to consider opportunity cost aspects (Chasan, 2012).

### **2.3.5 Firm Size as a Moderating Variable**

Firm's size is one of the determinants of the extent in which a firm can enjoy economies of scale or advantages of large scale production. In case the firm is too small and hence fails to enjoy the advantages of large scale production then it is expected that its profits will go down as the costs of production and other operations remain while if a firm enjoys economies of scale then it is expected to make more profits which due to relative low costs of operation (Chandrapala & Knápková, 2013). It is further argued that bigger firms are more diversified their operations are more likely to be smooth hence increased revenues as compared to smaller firms whose dependence on few products and services limits their revenue base hence explaining why their profits are usually lower as compared to their counterparts (Omondi & Muturi, 2013).

In measuring the size of the firm, number of employees, sales volume besides and values of assets are factors that are put into consideration (Salman & Yazdanfar, 2012). However, it is critical to note that past studies have indicated that financial structure can influence the firm size just like firm size influences firm profitability. Specifically, the size of the firm reflects its operations volumes and is the production abilities, turnover capacities among others (Kinyua & Ali, 2016). In different but related studies, it is clear that the natural logarithm in terms of revenues from sales as an indicator of the size of the firm. Studies done have clearly connected and attributed this existing relationship to a fact that most lenders usually assume that large firms have got a low risk due to availability of collateral as compared to small firms (Mule, Mukras & Nzioka, 2015).

On the other hand firms that are small in size suffer while attempting to secure loans due to their asset base and inferior tangible collateral thus making commercial credit a remote option. In considering the advantages that are enjoyed large enterprises in access of debt, these firms are likely to perform better as their financial distress levels are practically low when put in comparison to smaller firm in size (Maina & Ishmail, 2014). Hence the scholars pointed out that while considering this trend, this research investigated the moderating effect of firm size between financial structure of



a firm and its profitability. Further the scholars attributed the relationship to the fact that big firms employ more capital and finances in their operations while smaller firms employ more of debt in financing their assets and operations respectively.

With numerous studies indicating that when measuring the size of the firm profitability can also be used as an objective indicator of profitability with findings indicating that there is a positive relationship between firm size and firm profitability which is a reflection of the financial structure adopted by respective firms (Vijayakumar & Tamizhselvan, 2010). The scholars used different parameters to measure size of the firm like revenues from sales and aggregate assets value) for profitability they used net profit margin and profit ration to assets ratio while using a different model in a sample of 15 firms with operations in South India. Further still it is important to note that the study was done using a simple semi-logarithmic model. Findings indicated that firm size plays a critical role in determination of profits that are earned (Wakiaga, 2016) the scholar used a fixed model where dynamic panel data was used to perform the relevant analysis for a sample of about 7000 US publicly-listed firms in operation. What comes out clear is that fact that absolutely firm size plays a critical and remarkable role in determination of firm profits.

Ananthkrishnan, (2013) Carried out a study on the effect of firm size on determination of financial structure of firms and financial performance firms listed in Istanbul Stock Exchange between 2000 to 2005. This study found out that large firms with large scale firms operations have got a higher chance of performing better as compared to smaller firms operating in the same business environment since their financial structure suits them well and their operations. In a similar manner, Jonsson (2007) also carried out a study on the relationship that exists between financial structure, profits and firm size among firms in Iceland. Findings indicated that larger firms enjoy more profits as compared to smaller firms in terms of size based on market share besides their financial structure favoring them respectively. Thus it is clear that form numerous studies done firm size and profit earned are highly related and thus cannot be separated (Amato & Burson, 2007). The above scholars tested the linear relationship and cubical existing relationship. The results of the study showed

a negative influence existing between firm size profitability based on a methodology that was linear.

Becker *et al.* (2010) did conduct a study on the effects of the financial structure and firm size on profitability among manufacturing firms in the USA, data from between 1987 to 2002 indicated that there is a firm size plays a moderating effect relationship between firm size in terms of profitability as reflected in sales besides the number of employees in the firms as compared to the profits. Velnampy (2005) argued that while making investments and evaluating their feasibility appraisal it is critical.

Other scholar who found a positive relationship between firm size and financial structure include Saliha and Abdessatar (2011), Akbaş and Karaduman (2012), Shubita and Alsawalhah (2012) who in their findings agreed that there exists a positive relationship between firm size and profits respectively. However, Shepherd (1972), Becker *et al.*, (2010), Banchuenvijit (2012) all found that there is a negative relationship between firm size and profit of the firm depending on the business cycle. Other alternative studies done by, Simon (1962), Whittington (1980), Khatap *et al.* (2011) have all indicated that the size of the firm doesn't in really sense affect profitability of the firm.

Further, Karadeniz and İskenderoğlu (2011) did an analysis different variables that affect the profits among the tourism businesses that were listed in ISE. Findings indicated that there exists a positive correlation between assets and firm size as indicated by ROA. In a similar manner, Saliha and Abdessatar (2011) did a study on the determinants of profitability in 40 firms that were operating in Tunisia, it was realized that between 1998-2006, there was a positive relationship. Between profitability and firm size thus an agreement that firm size influences both profitability of the firm and the financial structure of the firm.

### **2.3.6 Profitability of Petroleum Firms in Kenya**

Firm profitability refers to the ability of a firm to generate more incomes as compared to expenses using the available resources. The goal of most organizations being maximization of profits (Niresh & Velnampy, 2014). Profitability involves the

capacity to make benefits from all the business operations of an organization, firm or company (Muya & Gathogo, 2016). Since profit is what motivates business owners to invest, it is critical to note that it is not something that can be wished away as businesses exist to make generate revenue profitably. Profits thus motivate not only the investors but also the other parties in a business enterprise. Profits are used as an objective indicator of business performance as businesses that are not generating profits are seen as less desirable and in the long run they are likely to be abandoned altogether (Ogbadu, 2009).

Hence it is clear that the profit is the positive difference between revenues and total business expenses, and that whenever the costs are high than revenue that business becomes less desirable as compared to when the revenues are high than the costs (Stierwald, 2010). Firm profitability is usually expressed in terms of either the accounting profits or economic profits and both are critical for any business enterprise (Anene, 2014). Thus over time firm profitability has been used as a measure of firm management efficiency as management is under normal circumstances concerned with converting the firm's resources to profits (Muya & Gathogo, 2016). Thus, firms are likely to gain a lot of benefits related increased profitability (Niresh & Velnampy, 2014). One important precondition for any long-term survival and success of a firm is profitability. It is profitability that attracts investors and the business is likely to survive for a long period of time (Farah & Nina, 2016).

As per Gates, (2010), who notes that in an industrialist business setting, an enterprise aims at profits. This creator proceeds with a view that diminishes the morale to optimize profits. The desire to work remains confined to an individual, and maybe with the family members. When a business is properly maintained, the owners get good profits and this makes them happy (Aubuchon, 2010). Profitability as a concept is founded on objective comparison of the cash outflows and cash inflows of any firm as far as implementation of strategic objectives is concerned (Ahmad, 2011).

Profitability is one of main aspects of financial reporting for many firms (Farah & Nina, 2016). Profitability is vital to the firm's manager as well as the owners and

other stakeholders that are involved or associated to the firm since profitability gives a clear indication of business performance. Profitability ratios are normally used to measure revenues over a given period of time usually a financial year numerous scales are used as indicators ranging from sales level, employed capital and earnings per share (EPS) among others. There exists other profitability ratios that measure the earning capacity of the firm which once positive and favorable are normally considered as success indicators (Majed, Said & Firas, 2012).

Different accounting ratios have also been used to measure profits of the firm depending on what is under consideration for example when returns on assets are being considered or even return on investment are under consideration both have been used to indicate the level of efficiency of management as far as generation of income is concerned (Sehrish, Irshad & Khalid, 2010). Return on assets which measures the level of efficiency of the firm management besides showing how effective and practical the firm management is under the prevailing circumstances thus an increasing ROA ratio indicates that the firm is more profitable as compared to the past (Bentum, 2012).

On the other hand return on assets (ROA) has over time been used to show the firm profits are doing in relation to the amount invested in terms of capital thus it is in comparison to what the investors have invested in the firm. ROA being what the firm shareholders focus on as their return for investing in the organization. Thus a firm with low ROA is seen as more risky as compared with a firm whose ROA is higher. Thus the higher the ROA the better the firm in profit generation (Khrawish, 2011) further still a good ROA in terms of ratio Net profit especially after Taxation is divided by Total firm assets. Which now represents the rate of return on the invested funds. Thus it is clear that ROA reflects the effectiveness of firm management in utilization of invested funds in an organization. Hence it can be concluded that higher ROA is an indicator of good management while the opposite is true as far as management of investments is concerned.

According to Goessl (2010), the focal point of most business enterprises and operations is the quest for higher income and consequently profits. Firms work in

such a way as to expand their essential mission of generating profits as incentives for shareholders and other stakeholders. Thus when there is need to make a decision on how well an enterprise is doing monitoring is important on how objectives have been accomplished especially the one on profitability. Objectives are communicated as far as both monetary and non-budgetary measures. Monetary objectives allude to the financial execution of the venture, which is connected with survival and development. These objectives in the corporate world act as the solely to enhance profitability.

Return on asset (ROA) which explains how an efficient firm utilizes the assets it owns to create profit is considered an objective measure and indicator of success of any organization. In this study it was used to calculate the revenue and profit a particular firm whose earning compared to assets invested (Weston & Brigham, 2007). The higher value of ROA is a demonstration that the performance of the firm is good and vice versa is true. As upheld by Fabozzi and Peterson (20013). The measure of profitability by the Return on Assets (ROA) is characterized as the proportion of income before tax and expense to aggregate assets. Garcia-Teruel and Martinez-Solano (2007); Samiloglu and Demirgunes (2008) states that ROA is applied as a vital variable in the ROA measure of profitability. The availability of assets is what generates more revenues. Therefore, this method is the best in relating the profitability of the organization to its incomes (Padachi, 2006).

ROE is an indicator of net revenue as compared to the firm's average share capital in a given financial year (Williams, 2010). The higher the ROA the higher the profit to the shareholders. Traditionally ROA refers to an annually return of around twelve percent or more from the investments of the equity on large and firms that are stable financially. In fast developing economies, a 30% or more of ROE is common mostly for firms that are growing rapidly and those firms with products whose demand is high (Williams, 2010). From the financial statements, analysts usually observe the profit generated whether in the short run, the financial position is good, if only it is a good position, financial, for the long-term growth.

Besides the above net profit margin can be used as indicator to measure of the difference between the interests that has been generated over time as compared to interest that has been paid for loans that the firm has borrowed. Relatively, it is critical to note that the interest earned on assets especially on deposited cash assets contributes profitability of the firm as it is a source of earning for the firm. The net profit margin is usually a variable defined on the basis of its contribution on the dividend to the total earnings (Gul *et al.*, 2011). Hence net profit margin can be used to measure the gap that exists between interest income on deposited funds and borrowed funds respectively. Thus it reflects interest income from both money borrowed and money that has been lent out in case the organization is a financial institutions thus explaining how interest is usually is a two double source of income hence more profits (Khrawish, 2011)

Financial ratios come in handy when measuring profitability as per Jacobs, (2001), who notes that, a ratio being a simple mathematical expression of two values that are related in a meaningfully manner of course expressed in terms of how they relate with one another (Liepert, 2012) On the other hand, Lioui and Sharma (2012) upheld the idea that financial ratios can be good indicators on the capacity of a firm when measuring its current financial obligations as and of when they fall due. It is the total profitability and the business' financial position solvency: to measure profit, it looks at the earnings in relation the sales made, the owner's equity, assets and the value of the company shares (Kaumbuthu, 2011).

## **2.4 Empirical Review of the Study**

This section reviewed relevant literature on the four parent variables and disciplines of the financial structure namely debt finance, share capital finance, trade credit finance and retained earnings finance besides the moderating effect of firm size and their effect on the profitability of petroleum firms. The section provided a detailed description of various studies done and as guided by different theories as per the study variables and objectives. The empirical review was significant as it ensured that the study appreciated what other scholars have done in this particular area of study as described below.

### **2.4.1 Debt Finance**

Firms utilize debt for financing operations since it that particular source of finance offers them a potential in building the volume of operations and increment the normal profit for their share capital assets. The utilization of debt has an impact just if the rate of profit for the venture is more noteworthy than the rate of profit for the debt. The benefiting firm usually takes a risk to utilize debt with the expectation that it lifts the firm to a more significant level, by expanding the turnover and in this way increment the benefits. (Watkins, 2012).

Debt may likewise be a long-term where by the cash that is owed is paid for said period which may be more than one financial year since acquisition. Burgstra (2012) in a study carried out in Netherlands on the effect of capital structure on profitability found that existence of a correlation between long term loans and firm profitability due to regular resource commitment directed towards servicing the loan. The study adopted descriptive design methodology. It was found out that long term commercial loans is the most ideal where financing which is settled by a corporate establishment which is advantaged by its asset base and security which is for such loans.

An annual Report by Central bank of Kenya (2014) showed that expansive money related banks have impressively diminished loaning to SMEs in this way repressing their potential for development and budgetary execution. Tale, (2014) contended that long term debt furnished little firms with an upper hand when it comes to business operations and extensive firms. As per the outcomes, an immediate positive relationship was discovered. Moreover, the relationship was found to be a critical aspect between the private businesses' long-term credit and the budgetary execution.

Peavler, (2014) carried out a study on the role of long term financing on business growth for financing in south savannah university. The study used a case study as a methodology where the university was taken as a business venture as it is a prerequisite means a firm meets its requirements for capital notes that working capital administration is the fleeting money of the business which is a firmly identified with exchange amongst benefit and liquidity. It was found out that for an effective administration of a working capital, a transient liquidity is met through the

enhancement of the working execution of the concerns of a business. Henceforth, the investigation on administration of the working capital forms an essential piece of money related administration as well as a general administration of a business concern.

In a study that covered different firms in Europe, where survey methodology was adopted, It was found out that financing of energy projects attracts an average of 3.5% interest per annum. For instance, France, Germany and the UK attract percentages of 3%, 3.5%, and 4.5% respectively. Further results indicated that financing has been caused by the diminishments of the edge banks charge and the swaps of loan costs (thusly reflecting decreases in government's long-term security yields). During the season of sovereign debt emergency in Europe, the comparable data hovered around 5%, 4.5% and 5.5% for France, Germany and the UK respectively (Marrey & Bellanca, 2012).

A study on the role of debt on trade performance of listed firms in India. The study adopted a descriptive design makes up most of the venture going into numerous utility-scale authorized petroleum vitality ventures, either at the venture level as non-plan of action credits, securities or renting; or at the corporate level as loans by the utility or a specific company that builds up the venture. Other findings indicated that India effected a cut of 50% on the rate of benchmark repurchase, which was effected by the Reserve Bank, This cut decreased the cost of India's currency debt to a low of between 11-13% range (Demirguc, 2014)

In China, there was a fall in the lending rates in a year of the benchmarking. In other markets such as that of South Arica, a remarkable increase in the rates of interest was registered for both the long-term and short-term loan facilities. Nevertheless, the country is yet to experience remarkable changes on the supply, demand and the debt of petroleum products. Commercial banks led in the provision of the loans to these projects last year. The focus was given to the solar parks and windmill projects in the established markets (Marrey & Bellanca, 2012). Project bonds were overwhelmed in the year 2015. The outweighing was in volume of other categories of bonds such as those that are issued by supranational (climate-friendly), independent and, or



agencies (including development banks), and those from corporates that are issued by banks, industrial firms and utilities.

To attain this objective, the Canadian bankers association has come up with the following three measures to govern their lending activities. First, they develop procedures for all transactions that have an implication in diversity of their forests, second is the minimizing of the effects of climate change through the engagement of stakeholders, and lastly is the establishment of partnerships with the green economy sector to enhance Canada's energy efficiency (CBA, 2014). The Land Bank and the Development Bank of the Philippines have also come up with a unit to help in analyzing environmental aspects of the financing of the projects. This measure aims at financing waste and water projects. It also aims at incorporating the environmental factors in determination of its lending operations (Henman, 2013).

Banafa (2015) conducted a study on manufacturing sector in Kenya focusing on capital structure effects and profitability. Convenience sampling was adopted in the study and the conclusion was that financial structure has positive significance effect on firms' profitability. Amenity (2015) did a study on capital structure and firms performance in financial perspective in Kenya so as to determine their relationship for a six years period between. The study population was 61 firms all listed in the NSE but the study narrowed to a 13 sample of 26 firms using the random selection sampling technique. The conclusion from the study was that when debt is increased, there exist a negative effect profits.

#### **2.4.2 Share Capital Finance**

Yabs (2015) did a study on capital structure and performance in financial perspective for Kenyan real estate firms so as to determine their relationship. The focus of the study was on a sample size of 28 real estate firms for a period of five years. Regression analysis was used and the findings from the study was a positive effect between capital structure and firm's performance in financial perspective. Migiro and Abata (2016) did a study on financial structure and firm performance of the Nigerian firms with an aim of ascertaining if there was any relationship between them. A sample of 30 listed firms was examined between 2005 and 2014 and multiple

regression was used. A significantly negative relation between debt/equity mix and ROE was concluded as the study findings.

Ouma (2012) in a study on the effect of payment of dividends on firm's financial performance expressed in terms of profits particular for firms listed in NSE in Kenya. The study covered about 8 years between the period of 2002-2010 at the Nairobi security Exchange hence a cross sectional design used with a regression analysis in seeking to express the existing relationship between the study variables. Various evidence gathered from the study clearly demonstrated the fact that there is a considerable positive correlation between dividend payment and firm profitability. The research also showed that the agreed with the liquidity theory which appreciates the fact that dividends payments are likely to reduce available cash hence reducing future profit due to the fact that such cash is not re invested hence not likely to generate profits.

A study on the effect of equity financing on business operations in Kenya as done by Akoto *et al.* (2013). The study adopted a descriptive design and it was found out that businesses usually engage in two main types of investments which are long-term investments that require long term financing and short-term investment that require short term loans. The long term projects employ fixed capital, while short term projects use short term finances or even working capital. Thus, firm management must work towards striking a balance to ensure available funds are marched with current projects. Empirically proven facts have been formulated by been found by researchers who have worked on the debt and profitability course.

Babatunde, *et al.* (2014) in a study done in Nigeria on the effect of capital structure on profitability of quoted firms in Nigeria Stock Exchange. The study adopted a descriptive design methodology focusing on a 5 year period. The study looked at a combination of the consumer goods, and the financial services of these firms. It was discovered that capital structure had an insignificant effect of financial structure on ROA for the two firms under the study. It was found out profitability has an insignificant effect on returns and profits of the firm based on asset ratio analyzed. On the other hand, a significant relationship was found between ROE and debt in

nearly all firms. A conclusion made suggested that for high-end firms, there is a significant between debt and ROE while in ROA and profitability, the correlation is insignificant. Also, well established firms are inclined towards a high profitability.

Al Troudi (2013) did a study on the relationship between leverage, dividend payment and firm profitability. The studies applied regression analysis, which indicated in findings that the study variables are related even as it is also revealed on other studies. The results further indicated that another factor that influences is the stock prices which has also a positive relationship with profits. The study further indicates that there are some other factors which are insignificant but still robust in terms of their contribution to the firm profitability. The study further noted and acknowledged that listed industrial firms have got a relationship between the profitability and financial structure.

Share capital is that part of capital, which is free of debt and represents ownership interest in a Chughtai and Ali (2014) examined the effect of share capital controls and thus by extension the impact of controlling shares on firm profitability in Thailand and the study pointed out that firms that control shares held had a tendency of performing better than those firms without such controls. Daskalakis *et al.* (2014) studied 175 firms in Greece, the firms under consideration had similar financial structures as guided by the country's corporate principles it was found out that concentrated financial structures positively contributed to higher returns in the firms concerned.

Ersoy (2015) held that a good financial structure allows institutional investors' more space and freedom in terms of stock ownership of firms with good governance structures which are likely to be stronger as compared to individual shareholders as corporates have a stronger fiduciary duty and thus more preference given. However, Ezeoha (2013) in a different study where panel data was used for firms in South Korea between 2008 – 2014, it was found out that firms with better financial performance had serious and keen consideration in their financial structures hence better profits in the long run (Al-Najjar, 2010).

In terms of measurement of share capital (preference stock, ordinary stock and retained earnings), Bierman, (1999) proposed that the use of book values is adopted, that each component's proportion to total debt and share capital can be determined henceforth. According to Rossi (2013), share capital is the contribution of the shareholders that starts up a firm and enables it to be in operation. In other words, it is the component of financial derived by total financial minus debt.

Ezazi et al. (2011) posits that financial structure is a core component when pursuing profits and thus there is a positive relationship between financial structure and firm profitability. Gursoy and Aydogan (2002) in their earlier study emphasized the role of financial structure in two dimensions: financial concentration and finance mix. Financial concentration meaning that source of finance that takes giant share in the firm while finance mix being the distribution of firm's financial sources. Gonzalez and Molina (2010) observed later on that a higher financial -concentration can improve profits and thus financial structure has a strong influence on firm profits.

However, Chen *et al.* (2013), Zahoor (2014) and Iqbal *et al.* (2014) disagreed with the above argument and rather pointed out that different key factors that influence a company profit range from other auxiliary activities like CSR, activities besides strategies put in place by concerned firms. A number of scholars such as Hasan (2005) Holderness and Sheehan (2009), Mang'unyi (2011), Miring'u and Muoria (2011), Wanyama (2012), Peters and Bagshaw (2014) relate firm profitability with governance structure adopted as it can influence the financial structure of the firm and thus profitability.

### **2.4.3 Trade Credit Finance**

Nyawera, (2013) in a study on the effect of trade credit on the financial performance of microfinance institutions in Kenya. It was found out that there was strong a relationship between trade credit and financial performance although the effect was minimal. Empirical evidence suggested that the relationship was negative relationship although credit terms and conditions influenced financial performance. This is the owners of the firm's financial contribution. It is the ownership interest of shareholders that is the common and preferred stockholders. More share capital is

required in starting up a firm but as the business is growing ability to access debt financing also increases. This is consistent with Kimki (2014) study on the effect of intergenerational succession in small family business.

A study by Goilet, Biger and Mathur (2014) on the role of share capital on firm returns in Holand showed that firms usually increase their share capital depending on profitability. Here, the profitable firms have high share capital, without the inclusion of the debts. Conversely, firms that have high stock prices relative to their past stock price, they are more likely to seek more share capital than debt and may even end up repurchasing debt. Firms have different growth patterns, there are those that have high growth opportunities, others have low or no growth opportunities at all.

IEA (2014) in a study on the role of Trade credit among energy service firms in the Caribbean and Latin America. The study adopted a survey design where different firms were taken into consideration. Owing to the scarcity of MFIs in these two regions, the firms in the energy industry formed their credit programs to aid their financial needs in the rural areas where they carried their operations.

Patsula (2001) suggests three categories into which organizations can classify the trade credit. This classification is based on the firm's characteristics and properties. An open credit or rather a regular credit, or an open account is the first category. In this category, organizations customers get the services of short-term credit from organizations without a deposit or an interest charged on the loan. There are also no carrying charges applied on the loan. In this type of a credit, goods and services are supplied by distributors who collect payments later after the retailer has sold the stick, or at an agreed time

For instance, Soluz, an energy company subsidiary in the Republic of Dominican and Honduras, focuses on offering micro-lending services to rural clients (Larralde & Schwienbacher, 2010). The above situation is likely to lead to reduced trade credit as firms now demand cash on delivery, increased lead time, besides reluctance to engage in trade credit (Deloitte, 2015). In in line with the above, some studies have shown that businesses that fail to take advantage of the credit terms given by

suppliers have low volumes of trade credit finance a position shared by Tuffour *et al.* (2012). As a consequence, suppliers become less inclined to grant credit to these entities, and their records become questionable, an aspect that impairs their creditworthiness and access to borrowings from financial institutions (Amoako, 2013).

A study done by (Kim, Seo & Sohn, 2011) in Korea explored the impact of trade credit, the study focused on the relationship between cash holdings and profitability. On the other hand Kim. *et al.* (2011) acknowledged the role of trade credit on financial performance and asserted that firms that have increased their trade credit develop their ability to issue debt. However, they noted that firms that have a steady cash flow are less likely to be affected by adverse effects of financial distress that comes with failure to service trade credit like costly bankruptcies and even the threat of default.

#### **2.4.4 Retained Earnings Finance**

Dinayak, (2014) In a study on the effect of retained earnings on increasing profits ploughed back into the firm's investment capital carried out a study and noted that notes the main idea that backs the retention of profits is that fast growth rate experienced through this practice. It was discovered that the recording of these retained earnings is done in the balance sheets of the shareholders' equity Accumulated retention of profits is determined by either adding the net income to, or the subtraction of net losses from the initial retentions. Ratios can of an organization can also be used to express retained earnings. These ratios are called retention or plowback ratio. This ratio of retention can also be referred to as the rate of retention of an organization (Orwel, 2010). As far as earnings are concerned, it is good to note that they can be influenced by the financial performance of the firm besides any future dealings and also prospects held by the firm under consideration.

Chasan (2012), noted that there is an unending conflict between firm earnings and their financial structures when it comes to the determination of retention ratio. This conflicts rise due to the conflicting interests of managers and the shareholders. The manager prefer a larger ratio of the retention of earnings while the shareholders feel

that this large retention takes control of shares away. It must be noted that financial retention as done by the firm are always serious sacrifices made by shareholders. Further it was found out that there are internal sources that can be part of the financial structure in an organization, retained earnings, debt and trade credit can be very easy to obtain hence are more viable as compared to share capital which comes with reasonable consideration and is always influenced by factors way beyond the firm. However, they have it is appreciated that all the different financial structure elements have got demerits and merits which must be taken into consideration when sourcing for finance.

ASECU (2013) provides that the account payables are simply a measure of the unpaid claims that a firm has an obligation for its past customers at a point given time mainly within a period of one year. Normally the volume of account payable shows firms supply of trade credit, and account payable shows firms demand for trade credit. According to Pindado and Bastos, (2012) suppliers may be a good source of trade credit depending on how their payments are managed of course without constraining the supply chain. Management of account accounts payables is significant field of corporate finance due to its direct effect on firms' profitability and the risk exposure (ASECU, 2013).

The main of purpose on management of account payables is to maximize stakeholders' wealth. Most current liabilities are measured in terms of their net present value. Normally account payables have three core characteristics: economic value, risk, and futurity, which point the need for efficient payables management (Emery *et al*, 2004). Berry and Jarvis (2006) acknowledge that , firm management needs to take into account factors such as investment in trade credit risk management, the level of risk firm is prepared to take and costs associated with account payables such as administrative costs and opportunity cost while determining the optimal amount of account payables. According to Kontus (2012), the management of trade credit should entail establishing credit policy. Normally, a good credit policy should have four variables. These include credit period, the expected discount component (usually agreed upon) credit settlement, and credits principles.

Patsula (2001) says that the primary gain of trade credit is its attraction of extra customers, which in return increases the sales volume. Myers and Brealey (2003) make a suggestion on the need of all businesses to establish credit facilities irrespective of their market of operation. Credit offers by business hence enable them to thrive in the market. However, they also note the intense and tedious work involved in bookkeeping, plus the hidden costs that come with intense entry of records in bookkeeping. The costs of invoicing and collection also adds to disadvantage of open credit. Nevertheless, the effect caused by these costs is negligible.

A study by Kanwal (2012) found out that there is a positive correlation significant relationship between the stock dividends and the prices of the stock market. This relationship elucidates the stock prices variation in the chemicals industry in Pakistan. Nevertheless, in the case of equity retention ratio and Share prices, there is a negative negligible effect noted. In his study on Impact of Retained Earnings on Share Price, Beisland (2014) discovered a positive relationship in the retained profits and the stock prices. However, as per Khan and Zulfiqar (2012), there exists non-significant relationship between the variables of earnings and financial structure.

Although, Edmans *et al.* (2007) notes that shareholders who have invested in stocks have expectation which are most likely high which alone is enough to drive the value of the shares thus leading to firm growth. In other words demand for shares can make a firms value to rise leading to a significant change in terms of the financial structure due to increased value. In case revenues fail to increase as expected then investors usually react by focusing on potential demand thus making the demand for firm shares less desirable thuds other financing option becomes potential (Ball, 2013). On the other hand, Khan and Zulfiqar (2012) states acknowledges the fact that growth of a firm is influenced by many other factors rather than earnings has most firm s have diversified. Furthermore, it is clear that dividends are irrelevant in terms of influencing the financial structure of any firm (Choi & Lee, 2011).

Investors are in this case essential, particularly investors who are willing to accept a lower Return on investment from the long-term perspective (BNEF, 2014). In his



book on how to crowdsource finances he explores several alternatives of how to go about it. However, it gives an explanation on how to finance or develop an appropriate financial structure that can meet the needs of the firm besides the long term and short term targets (Yegon *et al.*, 2014). Thus by using a relevant model to raise finances it important to ensure that takes advantage of its opportunities so as to accomplish their own objectives (Zhao, 2014). Before the introduction of the internet financial structures were a bit limited in comparison from what used to exist all which affected how the profits that were achieved (Yergin, 2013).

Foundations often express criteria retained earning based on the development that are specific which are crucial in determination of financial structure which leads to higher profits (Riaz, 2015). In fact, most firms hire professionals to enhance their financial structure. Instituting environmental cautious practices can help organizations reduce the consumption rate of energy, waste emission, pollution and the costs of operation. These efforts yield to a clean environment where farmers can operate effectively and grow. Also, organizations become stronger with a high probability of generating high profits and spending less (Misha, 2014).

Despite the many benefits of now there is increased activities with green businesses which have adopted green practices comes with a challenge to some organizations as raising finances is complicated. The ease with which firms can adopt the green economy initiative depends on numerous environmental and organizational structures (Bose & Luo, 2012). There are barriers that face the firms that are geared towards the adoption of the green initiative. These barriers block the approval and implementation of these measures. These barriers include: limited funding; lack of well experienced skill sets to help in implementing the initiatives; bogus objectives, failure to harmonize the initiative objectives to the business objective, failure to prospect the possible impact of the initiative on the business and the lack of suitable infrastructure to oversee the technical requirements of the initiative (Kaserer & Kraft, 2014).

A model for retained earning financing used combines the offered subsidies together with the clients' microfinance. These subsidies come inform of retained profits or a

subsidy fund of the MFIs. These funds act as a loan that can be utilized in technical times. Projects like electrification and constructions are financed by the combination of community contributions, grants, retained profits from the overseeing firms and the loans that are acquired from banks. In this aspect, the gap between the cost of the project and the subsidies available is bridged by the financial intermediaries like the commercial banks and MFIs (Crooks, 2015).

It is assumed that the costs are impacted when an incorporation of variables of the environment into the firms' operations is done. This is due to the rise of new costs that have to be covered for this course to be achieved. This results to the disruption of the levels of profitability of the firm (Nelson *et al.*, 2014). Other studies hold that the attempts to increase the environmental profitability, risks drawing their management efforts and the resources away from the areas supposed to receive focus of the business. This diversion causes decreased levels of profits. Therefore, this theory assumes that managers cannot effectively operate towards meeting the business objective and implement the environmental initiatives at the same time.

Senelwa (2012) asserts that, the industry has recently been subjected to regulations and control of pump prices and standardization of gas cylinder valves by Energy Regulatory Commission (ERC) under the ministry of energy. Among the regulations proposed it is the pump prices formula. This formula includes the prices for crude and refined oil products, freight charges, financing, the local transportation, and insurance. It also has refinery fees, taxation, and the profit margins. However, oil marketers have refused to acknowledge the policy saying that they need the market to regulate itself through its own forces and competition. This move has been termed by economists as a move meant to curtail the liberalization of the market that was achieved after the year 1994.

Besides the above initiatives, it should be noted that the Kenyan tax law was amended and it requires pre-paid tax system when a product enters into the market. This policy helps to regulate the dumping effect in the market (Petroleum Amendment Act, August 2005). In view of the slow process of VAT refund and the custom duties, the groups of consumer protection and the Parliamentary Energy

Committee began to lobby for the amendment of the Petroleum laws that could later see the regulation of the petroleum price in Kenya through the Energy Regulation Commission (ERC). There are studies that showed weak or no relationship between leverage and profitability of firms, this include. Fama and French (1998). In another study by Zurita and Alejandro (2013) about the effects of leverage performance of Jordan firms found that debt level is negatively related with profitability.

#### **2.4.5 Firm Profitability**

The profitability of a firm is highly dependent on the financial structure; the financial structure is of great importance to both the managers of the firms and the providers of financial funds. This is because if a wrong mix of financial structure components that is debt and share capital then the profitability and survival of the firm may be seriously affected (Maina & Ishmail, 2014). Financial structure relationship with profitability is on the hands of the managers of a firm. The firm manager's primary duty is to manage the firm in a way that maximizes shareholder's wealth which has to be reflected by increased profits and cash flows (Ezeoha, 2013).

The profitability of a firm is what enables the shareholders and managers to pay the debt plus interest but if the profitability is bad it's the lenders of the funds who incur the highest loss. Profitability of a firm is as a result of the financial structure decisions that a firm comes up, this decisions whether short term or long term affect the profitability of a firm while at the same time increase the risk of the firm investment ventures.

On the other hand, a study by EIA, (2013a) on the performance of non-financial Egyptian petroleum firms from 2002 to 2012 indicated that financial structure choice has a weak-to-no impact on a firm's profitability. However, according to Chen & Ritter (2014) financial structure cannot be used as the only measure of financial profitability and financial decisions by a firm. Other factors to be considered may include competition by similar businesses, business strategy amongst other factors as also advanced by (Lay *et.al.*, 2012) who also came up with

various conditions that make a financial structure relevant or irrelevant to profitability of firms. Some of the conditions include taxes, interest rates and are used in decisions related to financial structure and more so when it comes to financial leverage by firms.

This is due to the fact that financial structure comprises of debt and share capital, debt increases the risk of future earnings while enabling a firm to expect high Returns (Kimuyu *et al.*, 2012) Managers of a firm prefer to use more debt to fund the business operations, according to (Modigliani & Miller, (1963) tax shield due to interest expense is considered to be one of the most important determinant of financial structure decision and is thought to motivate firms to use more debt. Firms Return's may be low since there are firms that prefer to keep their leverage ratios low so as to safeguard their profits from being used to pay interest payments associated with debt. Size of the financial structure determines Returns in terms of profits since a firm with less financial structure cannot venture into high risk businesses that have high Returns (Belleflamme *et al.*, 2010).

The firm's profitability is pegged onto the actions of the managers running the firm, if they are efficient then they are able to minimize on the cost of financial and maximize the firm's profitability. This depends on the interest rate thus the managers always tend to pursue own interests by spending the free cash flows available rather than Return it to the shareholders through dividend payments (Nykvist & Nilsson, 2015). According to Bundhun (2013) the principal- agency conflict can be resolved without increasing agency costs but by having a trade-off between share capital and debt.

The management of a firm prefers to invest profits in projects than pay out dividends to the shareholders; this was advanced by Okoola *et al.* (2012). Further, the scholars argue that, managers tend to invest in endeavors that have a negative Net Present value when they have a free cash flow. This can be evidenced with the trend of manger's salary increase with the increase of turnover rates. This aspects makes the managers to want to expand the size of the firm even when the expansion is bound to cost the firm (KIPPRA, 2010).

#### **2.4.6 Firm Size**

Studies done on the relationship the relationship between firm size and performance of the firm is inconclusive (Elbanna, 2010). Namada *et al.* (2014) having done a study on the cotton industry in the Kenyan's Export Processing Zone (EPZ) suggested that the relationship has a strategic effect on performance. A number of studies have suggested a positive relationship between a debt and firm size (Fama & French, 2002 stressed that when the size of firm is big it is likely to be advanced loans increases as compared to smaller firms as the smaller firms have no collateral for loans. (Rajan & Zingales, 2005).

Niresh and Velnampy (2014) argues that the size of the firm is a primary factor in the determination of how profitable the firm is as the economies of scale as explained in the neo classical view of the firm holds. Akinyomi and Olagunju (2013) in their study demonstrated that a firm that is large is likely to perform better if well managed thus concluding that firm size is a critical component as far as performance is concerned. Thus this as explained in the context of large manufacturing firms means higher profits. The size of the firm is every essential as it can provide a sustainable and competitive advantage as far as profits and access to market are concerned.

Ramasamy, Ong and Yeung (2015) opined that the relationship between firm performance and size of the firm was ambiguous and thus called for caution when considering this factor need for industry specific consideration while, advising researchers to proceed on a case-by-case basis of analysis and avoid the tendency to generalize. Oladele *et al.* (2013) on their part argued that the nature of the relationship that exists between firm size and profitability is an essential matter that may shed some light on the factors that enhance profits in firms.

Thus the link between firm size and firm performance has been argued contentious since the days of Gibrat (1931) hypothesis, described the growth rate of the firm as independent of its size. Palangkaraya, Stierwald and Yong (2015) in their study argued that large firms are more active hence likely to be profitable as compared to

small and new firms. Akinyomi *et al.* (2013) held that the size of the firm in terms of assets and sales can positively affect profitability.

Also held that Prasetyantoko and Parmonon (2012) found out that big firms are competitively stronger and thus more capable than smaller firms hence more profits as they have access to more resources. In most studies it has been acknowledged that firm size plays a central role. Later on (Daskalakis & Psollaki, 2010) found three reasons to confirm the positive relationship between level of debt and the firm size. They found that there is a strong relationship between the size of the firms and the risk of bankruptcy. This means a large company has a lower risk of default than small firms.

They also found that listed firms might be able to incur lower transaction costs associated with debt. They also found out that due to transparency and accuracy in a large company the cost of information asymmetry is lower than in SMEs. It is assumed that large firms are less likely to default because they are more diversified than smaller firms; therefore, large firms should have a greater debt capacity (Titman & Wessels, 2008).

## **2.5 Critique of existing literature**

Empirical studies and findings from different studies have shown a mixed trend on the effect of financial structure on profitability of different firms. There is overwhelming evidence that from the literature reviewed touching on different indicators of profitability and financial structure respectively has provided different results have been provided. With some studies having provided a significant or even an insignificant positive relationship have shown a significant or even an insignificant negative relationship between the study variables. Other studies have even shown an extreme relationship between the study variables. The above lack of convergence on findings imply that the studies have so far not established a clear cause effect relationship between financial structure and firm profitability a clear indication that the relationship is inconclusive.

It is apparent from the existing literature that many surveys are either deficient of adequate variables or the scope of study is wanting. For instance Chisti *et al.*, (2013), Kaumburhu (2011) and Shubita and Alsawalhal (2012) used one sector of the capital market which therefore limits generalization of their findings to cater for other sectors. Other surveys like Anil and Zenner (2005), Kaumbuthu (2011), Shubita and Alsawalhal (2012), Babatunde *et al.* (2014), Chisti *et al.* (2013), Zurigat (2009), Maina and Kodongo (2013); Ishaya and Abduljeleel (2014) noted that debt ratios are good for long term in their analysis. It would have been imperative to split debt since there is a possibility that the two contributes differently to their response variable proxies.

Literature review has indicated that more of the studies done in the past have more of analyzed the effect of capital structure on the financial performance while considering different indicators and measures. The indicator used have either employed ROI or ROE as the measure of profitability. As much as a many researches have interrogated the impact of capital structure on financial performance of different firms, most of studies done locally have been biased towards different elements of capital structure and capital structure management practices in different industries (Wanjira, 2010 & Ochola, 2009).

Again, in almost all the studies, no attempt has been made to split financial structure into its constituents and analyze them differently. Rachdi, (2013) too in testing for autocorrelation lagged the data once and question arises on the validity of the test suppose one was to have more than one lag. Methodological gaps are evident in Sheik and Wang, (2013) whose study on was on how to identify and Manage the Market Barriers to petroleum energy in Kenya. Kumari, (2015) a study on how capital structure impacted profitability in the Eurozone debt crisis. Studies with contextual gaps include, Nawi (2015) who found out that capital structure determines firm performance in Malaysia.

However, there are conflicting views when it comes to relating liquidity and leverage. According to trade off theory, firms that have proper liquidity prefer using external financing since they have the ability to repay the debt and also benefit from

tax shields, hence leading to a clear indication that liquidity and debt are related. Conversely, pecking order theory suggests that when financing new investments, the more liquid firms prefer to use the internal funds as compared to external funds, resulting in negative relationship between liquidity and leverage. However, there are not many studies done on the effect of cash availability based on choice of financial structure. Mazur (2007) and Ahmad *et al.* (2011) current assets to current liabilities ratio as the liquidity measure. According to Singh and Mohinder (2016) who carried out a study in India, found that capital structure and profitability relate in a positive way. However, the contexts of this research was outside Kenya and in a different sector and environmental settings. Therefore, the results cannot be generalized to the whole industry as the Kenyan petroleum firms still lack a uniform agreement on which financing portfolio is most ideal since they have not adopted a single or similar financial components



	<b>Focus of the Study</b>	<b>Methodology</b>	<b>Main Findings</b>	<b>Knowledge Gaps</b>	<b>How Current Study Addressed the Gaps</b>
Babatunde <i>et al.</i> (2013)	Effects of financial Structure on Firm's performance:- Manufacturing Firms in Nigeria.	Descriptive and regression research technique was employed.	Relationship between total debt, debt ratio and a firm's age is negative while the debt and share capital ratio and the performance of a firm is positive.	Did not address retained earnings financing and end user financing and the effect on profits.	This study focused on both the traditional components debt and share capital but also consider other components like retained earnings financing and end user financing.
Sheik & Wang, (2013)	Identifying and Managing the Market Barriers to petroleum Energy in Kenya	Qualitative research design that focused on petroleum firms.	High initial capital cost-of wind, solar small hydro, geothermal have delayed adoption. There still exists challenges in attaining profitability.	The study focused on the market challenges and obstacles of adopting petroleum energy in Kenya financing being one among them.	This study focused on the appropriate approaches of financing petroleum firms to increase profitability.

Vijayakumar & Karunaiathal, 2014	The Effect of Working Capital Management on Profitability of Cement Manufacturing Firms in Kenya	The study used secondary data from the cement manufacturing firms' audited financial statements	Inventory conversion period (ICP) positively influences profitability  Average receivables period (ACP) had a positive insignificant relationship with profitability	The study considered working capital elements of accounts receivable and payable while the current study  The study focused on cement manufacturing firms in Kenya	This current study particularly considered a broader aspects of the financial statements both short terms and long term in nature .
Tailab, (2014).	The Effect of Capital Structure on Profitability of Energy - American firms.	Non-probability Sampling of 30 American firms.	Total debt has a significant negative impact on ROE and ROA.  However, a short debt significantly has a positive influence on ROE.	Study conducted was in America. Retained earnings financing not considered in this study.  A few firms in a big country USA considered.	The current study sought to establish the combined influence of debt, venture capital, retained earnings financing and end user financing in a developing country context.  Relatively all registered petroleum firms were be taken into consideration.

Mohamed, (2014)	The Determinants of Capital Structure in Energy Sector -A case study of Pakistani petroleum firms	Focused survey of 22 petroleum firms in Karachi stock exchange.	The size and profitability of the firms influences its capital structure. Costs of raising capital also influence capital structure of the firm.	Fossil firms were considered.  Only determinants of capital structure were taken into consideration.	35 petroleum firms were taken into consideration.  Effects of financial structure of petroleum firms were be taken into consideration.
Tharmila & Arulvel (2014)	The impact of the capital structure and financial performance. (Colombo stock exchange)	Quantitative research approach was employed.	There is a negative relationship between the capital structure and financial performance.	The study was centered on the general view of the capital structure and the financial performance relationship in Colombo.	The study sought to the impact of financial structure on firm profitability in Kenya.
Nawi, (2015)	Determinants of financial structure in (SMEs) Malaysia and their effect on firms performance	An introductory study was composed of interviews of 25 owners and managers of SMEs, which was analyzed using a structured analysis.	CS determinants are related to owner-managers, firms, culture & environment.	The study focused on; retained earnings, funds from friends and families, debt and external share capital.	The current study considered debt, venture capital, end user financing and retained earning financing.

Kumari, (2015)	Capital structure impact on profitability in Portugal and Spain during the Eurozone debt crisis.	A preliminary study of petroleum firms in Portugal and Spain, Cross-sectional descriptive design	There is no significant change in financing decisions of the firms due to Eurozone Debt crisis.	Study was limited to Portugal and Spain. The study was limited to only two variables which debt and share capital.	The current study took into consideration other two variables of financing in and end user financing in Kenya.
Oladeji <i>et al.</i> , 2015	The influence of Capital Structure on Performance of Firms in the Petroleum Industry in Nigeria.	A study of that surveyed six petroleum firms in Nigeria.	There is a negative relationship between leverage and firm performance. There is that a positive a relationship between firm's size, tax and firm performance	The study only employed the MM theorem, capital structure theory but this current study employed pecking order theory, agency theory trade off theory among others	The current study considered 35 petroleum firm in Kenya besides adding two more variables of trade credit and retained earnings on equity and debt financing
Ishaya and Abduljeleel (2014)	Determinants of consumption of petroleum among Kenyans.	Conceptual discussion of the relationship between petroleum energy adoption and end user financing.	Education and household size negatively influenced adoption.  There is need to create awareness and sensitize people on benefits of adopting	The role of different factors like; income, government policy were not examined.  The arguments advanced were not backed by empirical evidence.	The current study sought to introduce empirical evidence and consider all financial components applicable in petroleum energy sector.

			petroleum.		
Nyakundi, (2015)	Effect of financing green manufacturing By food processing firms in Mombasa-Kenya	Descriptive research design was adopted which targeted a population of food processing firms in Mombasa County (KAM)-66 firms	The study established that financed firms enjoyed the benefits of adopting green manufacturing like; reduction of waste water, reduction of frequency among others	The context was in manufacturing firms In Mombasa county. The role of financing was important as it benefit firms adopting green manufacturing by increasing profitability and being in line with environmental concerns.	The current study sought to establish the effects of specific methods of financing of petroleum energy and its effect on profitability of petroleum firms in Kenya.
Singh and Mohinder. (2016)	Impact of financial Structure on Firm's Profitability: A Study of selected petroleum Cement Firms in India	A cross sectional survey of cement firms using factor analysis.	Cement firms can increase debt level in their exiting CS to leverage. The fluctuation in profitability can be reduced.	The impact of CS has not been carried out in India cement firms. Considered only debt and share capital as the main components of the capital structure.	The current study sought to establish the effect of financial structure on profitability of petroleum firms in Kenya. Other components of financial structure was taken into consideration.

## 2.6 Research Gaps

Although globally numerous studies have been carried out in the petroleum sector on the relationship of financial structure and profitability, only a number few have been done in Kenya but again definitely not in the energy sector. Henman (2013) admits that the previous studies made had different variables related to financial structure of the firm and financial performance. However, Booth *et al.* (2009) in a study attempted to find an association in ten developing countries between financial structure and profitability by adding some other variables like age of the firm, management risk taking behaviour, economic conditions, business cycle among others and it was found out that such factors can influence profitability of a firm.

Dimitris and Maria (2010) carried a study that focused on the debt and the sum of available business funds. Sometime relationships like those of ownership structure, financial structure were found to cause low profit levels due to an increased indirect expenses. So when a comparison was made with the French financial sample of manufacturing firms, the results that came out showed low profitability is caused by the inefficient structures. This is a negative correlation between the leverage and profitability. The literature review, clearly demonstrates that much has been done from different perspectives globally in the adoption of petroleum energy.

From the empirical literature available, the effect of financial structure on profits of petroleum firms has not been sufficiently done as more studies have emphasized capital structure and financial performance and under such studies only long term sources of finance like share capital and debt finance have been considered at the expense of other long term sources like bonds and debentures besides other short term sources like overdrafts and short term finance which have not been taken into consideration. This study addressed this gap focussing on addressing how the adverse effect inappropriate financial structure can kill profits of petroleum firms and ultimately lead to financial distress and failure of the firms. Moreover, the public's perceptions that only traditional financing can address financing challenges makes sustainability of the sector a pipe dream. Different related studies have been done

and are analysed below touching on scholar, title of the study, methodology used, findings, the gaps in the study and how the current study addresses such gaps.

However, there exists knowledge gaps that this study sought to address. These gaps also include conceptual, contextual and methodological spheres. From past studies on financial structures' influence on profitability of petroleum energy firm's debate is inconclusive. Conceptually, the relationship found in financial frameworks, profitability, the firm size and performance have been studied. There still remains unresolved issues; first, while some researchers reported that financial structure enhances a firm's performance (Tharmila & Arulvel, 2014) others found that capital structure affects both overall performance and profitability to the growth (Babatunde *et al.*, 2013). Thus there is need to establish if the components of the financial structures adopted by most firms locally affect the financial structure actually affects profitability of petroleum firms.

Studies like Shah and Sana (2006); Padachi (2006) found a negative relationship existing between financial structure components and firms' profitability. Raheman and Nasr (2007) found a negative relationship between financial structure components like debt, share capital, reserves and profitability. Other studies (like Garcia-Teruel & Martinez-Solano, 2007; Akoto *et al.*, 2013) found positive relationship among components of financial structure and profitability. As such, different cases present different results, hence, the need to study the Kenyan energy industry as a case to establish the kinds of relationships different factors of financial structure have over profits.

Similarly, Wamugo *et al.* (2014) study investigated the capital structure relationship to ROE and ROA among 42 non-financial firms of petroleum in the NSE for the timeline ranging from 2006-2012. Though this study included petroleum energy firms, the uniqueness of the energy industry was not considered as the assumption was that all firms were affected by similar variables. Additionally, given that only four firms participated in this study, their influence on the whole results is likely small, as four is just a small fraction of the 42 listed at the NSE.

Literature is not complete as far as the Kenyan firms are affected by the financial and by extension ownership structures as explained by World Bank's (2014) the report indicated that that Kenya restricts foreign ownership using different mechanisms depending on the sector in question as compared to other economies found in the in sub-Saharan Africa. The above tendency has been considered more critical due to the fact that financial structures adopted are expected impact expected returns and profits of the firms concerned (Heubischl, 2016).

From the foregoing discussion, it is evident that a number of studies done previously have largely focused on the effect of capital structure on the financial performance. The question to pose is; what is the role of financial structure on profitability of petroleum firms? The studies that have been conducted in Kenya have centered on different sectors and have used different methodologies, even those that were done focused on different variables.

Particularly Nyakundi (2015) carried out a study on the effect of financing green manufacturing on food processing firms in Mombasa-Kenya, the study established that adoption of green energy comes with numerous benefits hence a firm is likely to enjoy economies of scale and hence better profits. In a related study, conceptual gaps are evident in Gitone (2010) a study on determinants of adopting petroleum energy among Kenyans, it was found out that education, income, and household size key factors in adoption of petroleum energy. From the studies above it is clear that, a study on the effects of financial structure on profitability has not been done in Kenya (Loghojofor, 2014).

## **2.7 Chapter Summary**

The literature concerning the financial structure effect on the petroleum firms' in Kenya was limited to and or paint a pessimistic picture on the fact that most researches have been done on the structure of capital, financial performance, profitability or even on determinants of capital structure. The study was critical has it is considered as a sector critical to the needs of the Kenyan economy particularly for the achievement of vision 2030. In summary, debt finance, share capital, trade credit and retained earnings were considered as financial structure components and how



their effect on firm profitability. The main theories taken into consideration were pecking order theory, agency theory, trade off theory, liquidity theory and resource based theory.

As the search for an appropriate and optimal financial structure continues, a lot needs to be taken into consideration by the fact that Kenya is a developing country with weak financial and capital markets yet the petroleum firms have not only to survive but also make profits. This justified empirical studies to that effect which have touched and justified the adoption of the four main and most common components of the financial structure used locally.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter was comprised of the different procedures that were necessary for the achievement of the study objectives and that address the research hypothesis are discussed answering. The chapter included the research philosophy, the design used in the research, the study population and relevant sample, sampling technique, data collection methods and procedures besides data analysis method employed.

Van Rensburg and Smit, (2004) describes research methodology as a combination of a coherent methods used to complement one another with the ability to deliver research findings in such a manner that it reflects the study objectives and overall purpose of the study. Polit and Hungler (2004) note that research methodology involves the process of obtaining, organizing and analysis of available data to bring out findings that are logical and conclusive in nature.

#### **3.2 Research Design**

Beck (2003) describes that a research design is a plan that has details on how to find answers of the research objectives and research hypothesis respectively besides addressing any other challenges that were encountered during the study. Lavrakas (2008) notes that a research design is usually made up of the research structure, study frame work besides a study blueprint that guides the formulation of the research at different stages, as from the hypotheses up to findings and conclusion before a report is made. Therefore what comes out clear is that a good research design is logical in nature and flows a particular sequence when conducting data collection and data analysis so as to ensure that proper procedure is followed (Kothari, 2004).

Descriptive research design is adopted when describing the given situation a phenomena, it takes into consideration current believes customs and also tradions in data collection (Baumgartner, Strong & Hensley 2002). Further, descriptive research also includes surveys and different enquiries with the main reason being that while

conducting a descriptive research design to describe the state current state of affairs objectively (Kothari, 2004).

This study employed a descriptive cross-sectional research design that used audited financial statements of petroleum firms in Kenya. These statements covered a period between 2007-2016 respectively hence a timeline of ten years. The descriptive cross-sectional research design was appropriate as it ensured the study data covered all the 10 years while comparing relevant performance of the petroleum firms under observation for the whole research period (10 years). Besides the above the period under consideration was a very objective period and was able to clearly shed some light on reality on the effect of financial structure(s) on firm profitability of the targeted firms. Once secondary data was collected inferences were made about the effect of financial structure on petroleum firm's profits. (Ongore, 2011; Letting *et al.*, 2012; Irungu, 2007; Machuki, 2011; Gachunga, 2010; Awino, 2011; Awino, Okiro, Iraya & Mutua, 2014) have all successfully employed the same design for similar studies.

The data collected had a longitudinal element thus it had a time series attribute which covered a ten years starting from 2006 to 2015, a period in which all the firms targeted had been in operation and which was long enough to address long term long term debt and even retained earning finance. This method used allowed the analysis of the interrelationship between the variables that have been identified in this study. It also facilitate the analysis of 6 how several independent variables (debt financing, share capital financing, trade credit and retained earning financing, trade credit and firm size as a moderating variable) either singly or in jointly affect the profitability of petroleum firms in Kenya.

Descriptive research design has in the past been employed in other studies including one by Clarence (2010) which was analysing the sociological analysis of youth and inactivity in the Philippines. Equally Saeed (2010) adopted it while studying the relationship between supply chain and risk management in the oil industry. Moodley (2007) examined the effect of employee satisfaction on the quality of customer

service among Telkom firms in South Africa which just like the rather had a positive relationship.

This study employed the positivist philosophy drawn from the natural sciences was applied. The philosophy comprises of the research hypothesis test. The hypothesis is developed from the theories and it is deductive. The testing is was done through the observation and the measurement of the social realities (Saunders *et al.*, 2009). Positivism is founded and has a foundation build on values of reason, truth and validity besides being based on purely on data that is collected and measured in an empirical manner through use of quantitative and qualitative methods respectively (Wooldridge, 2012).

Positivism is built on the foundation of an assumption that an observer will remain as objective and independent as possible while carrying out research thus it encourages the use of an objective criterion as compared to a subjective one (Mugenda & Mugenda, 2003). Hence this philosophy is anchored on facts that are really, neutrality in measurements used and valid results respectively.

Positivists use theories that exist to develop and test hypotheses and then confirmation is done or refuted, thus becoming an informing and guide on further development of theories which can be applied through further research. This position assumes that the knowledge of social world is valid when only built on external reality and observations, or on a general law that exists, or on the assumption that theories can be generalizable (Hatch & Cunliffe, 2006). Moreover, the generalizing theories can be used to explain the relationships of cause and effect, thus a philosophy of predicting study outcomes (Eriksson & Kovalainen, 2008).

This study adopted a positivist philosophy due to the fact that this type of philosophy is a highly structured methodology that not only facilitates but also ensures generalization of study findings. Positivist philosophy emphasizes that quantifiable observations are employed in order to enhance statistical analysis. The above position is supported by the fact that secondary data on profitability and financial structure over the years has been employed in form of audited financial statements from petroleum firms in Kenya. Besides the fact that use of positivist philosophy was

essential for use panel data on the effect of the financial structure on profitability of the petroleum firms in Kenya.

### **3.3 Population of the Study**

Mugenda and Mugenda (1999) defines study population as the total elements in the universe that is being considered in the study that have observable common features. Similarly, it can be said that population is the group of all elements that conform to the defined characteristics in a research (Kothari, 2004). Further the scholar points out that study population should have observable features which will ensure that the findings of the study can be generalized (Ahmad *et al.*, 2012).

This study had a target population that comprised of two levels namely; the institutional level population that was made up of 35 Kenyan petroleum firms that have been consistently operational between 2007 and 2016. The other second level was the finance managers or their respective designees. Finance managers were selected since they are directly responsible in the formulation, adoption and implementation of different financial structures that any firm adopts at a given time besides being responsible for managing finances and other relevant action plans. It is also paramount to appreciate the fact that, the firms under consideration in this study were categorized in the same industry, where by the petroleum firms had also similar reporting patterns, design and the bare minimum disclosures expected of them by the ERC -their regulator.

Energy Regulatory Commission being a major licensing and regulatory institution in the energy and petroleum sector was thus an authoritative source that was relied on provision of petroleum sector related information. Kothari, (2004) pointed out that a study population must have common characteristics that conform to a particular specification. For this particular study, the population of the study comprised of 35 petroleum firms that have been consistently in operation between 2007 and 2016 respectively as listed by the ERC in Kenya.

### **3.4 Sampling Frame**

Sampling frame is a technical term used to describe a list of the elements that forms the sample population (Mugenda & Mugenda, 2003; Kothari, 2004) the scholars further point out that the sampling frame consists of all the study elements in the selected study universe (Cooper & Schindler, 2006). The petroleum firms and their respective finance managers were the units of analysis while the financial statement were the units of observation, it is therefore clear that descriptive research design was adopted because it enabled the researcher to gather sufficient data for the study.

All firms targeted in this study that made up of 35 petroleum firms that have been in operation between January 2007 and December 2016 as listed in the Energy Regulatory Commission database besides as laid out in appendix II. The ERC supervision report of 2016 also outlines the finance managers and other top management in the energy sector as of 31/12/2016. The employment data is as per different departments and cadres in the sector was also provided hence making it easier to identify the relevant financial managers or their respective designees, the report further provided a list of petroleum firms, their physical address besides other contact details for the petroleum firms thus it was easier to collect the relevant data.

### **3.5 Sample and Sampling Technique**

Lavrakas (2008) postulates that a sample technique is the method used to identify a subset of relevant elements from the target population. Kombo and Tromp (2009) support the above position but further point out that a sample describes different units that selected for the study Gerstman (2003) acknowledges the essence of a sample as being enhancing a sufficient and precise way of either accepting or rejecting a false null hypothesis and thus avoids wastage of resources.

Thus in a case where the study collects too much data, it is considered as being wasteful. Thus, it is imperative that when collecting, a sample size requirements of a study must be identified and met. Kumar (2005) agrees with the above studies in addition notes that, a good sample must always be logical and practical besides meeting the requirement of adequacy in terms of representation and timeliness, cost

effectiveness validity and accurate among others. This study adopted a census technique. Census being where a study involves selection of all the samples that meet some predetermined criterion considered importance to the study. This sampling design was used because as per Patton (1990) who uphold the argument that one may learn a great deal when focusing on a reasonably smaller population that is considered representative hence can be generalized.

This study adopted census by focusing on all 35 petroleum firms that were consistently operational between the years 2007-2016. The basis of this context was because of the need to increase chances of generalization and comparison of the financial structure adopted and profitability within the years under consideration. The main objective why census was used was to enable collection of data from all the firms as they were relatively few. This was achieved by application of expert knowledge during the selection process that was deliberate but based on the firm being operational between 2007 and 2016 respectively.

Past studies that have employed this method include one by Burns and Grove (2003), the scholars acknowledged that there is need to emphasize on census as it ensures that specific information for comparison purposes over time was possible besides enabling the research establish independent relationships among the study variables. The 35 petroleum firms sampled were all chosen selected since they had ready and available data due to periodic financial disclosures and due to the fact that all the firms had been operational over a period of 10 years under consideration.

It is also important to note that the sample of petroleum firms was selected due to the fact that it was easy access their financial information from either ERC where they make return to or even from their audited statements which they disclose as per the requirements of the sector. The 35 sampled petroleum firms in Kenya, accounted for over 90% of the Kenyan petroleum firms besides their huge market share, net assets index, total revenues and shareholders' funds (ERC, 2015).

### **3.6 Data Collection Instrument**

Clearance was sought and given in form of a research introductory letter from the university, and the National Commission for Science, Technology and Innovation (NACOSTI) respectively, both primary and panel data was gathered from the hand books of petroleum firms and finance managers/their designees besides from specific firm websites. Panel data being a series of multidimensional data that allows behaviours of different entities to be observed over time. Panel data besides the above allows the researcher some control on different variables that may not be observable or measurable like culture, fiscal policies besides management practices over time across entities (Wooldridge, 2002).

Primary and secondary data was collected because the two sources of data are meant to reinforce each other (Stiles & Taylor, 2001). The data was largely quantitative in nature. Primary data were collected using a semi structured questionnaire. The questionnaire comprised of closed ended questionnaires as well as a few open ended ones guided by the concepts of the study, theory and other previous studies. A five point Likert scale ranging from not at all (1) to (5) a very large extent was used to construct some of the items. Likert scale questions are the most frequently used variation of the summated rating scale. It is used to test a respondent's perception or attitude. On one extreme is favorable while the other is unfavorable perception towards an aspect of interest. Other items were open ended and required respondents to fill in for clarification and enhancement of the quantitative data. This tool was developed through in referencing studies similar to this such as Letting (2011), IDRC (1999), GoK (2013) as well as other literature on the study concepts and context.

The study used a structured questionnaire to collect primary data. As questionnaire, when structured, offers high validity, is cheap to administer particularly when the researcher does not have to be present for the respondents to answer the questions, and can be used to collect data from a large number of respondents effectively (Brown & Suiter, 2012; Rubin & Babbie, 2009). Since the researcher targeted all petroleum firms in Kenya with significant number of financial



managers or their designates being sampled, the questionnaire was most appropriate way of collecting the relevant primary data.

However, since questionnaires were limited in the sense that respondents didn't readily avail factual information required. This study overcame the above limitation by targeting respondents from the finance department/ designates thus the research was able to address the study's questionnaire. Additionally, the questionnaire had options where respondents would offer additional explanations. The researcher delivered the questionnaires physically and respondents were allowed to choose the best method they may use to return the answered questionnaire; this enhanced the return rate, as the respondents used their most convenient and flexible method. Newbert (2007) postulates that key informants should be knowledgeable about issues being studied.

Secondary data was collected by panel method where a series of data from the annual audited financial statements of the target firms were reviewed. The time series observed was from 2007 to 2016 while the sources of data were the targeted petroleum firms. Of interest to the researcher was the annual income statement and the statement of financial position besides the statements of equity of the targeted firms. In this study, assets, total liabilities, short term/current liabilities, retained earnings besides other shareholders' funds and profits after tax were obtained through use of the data collection sheet in the annexure.

By the fact that panel data formed the main tool of data collection for this study as primary data was secondary since it only supported by providing responses that were not available from financial statements, the researcher considered and adopted a census by taking all the 35 petroleum firms in Kenya. The petroleum firms were preferred due to availability of secondary data since they are required to publish their audited financial reports regularly to the energy regulatory commission (ERC). The above sample size of 35 petroleum firms is over 85% of all the firms in the industry and forms over 35% of the sample representation of senior management as selected from finance department is acceptable based on research carried out by Gall

and Borg (2007), Cohen, Manion and Morrison (2000) and Best (1996) who all agree that a ten per cent sample or more is adequate for descriptive studies.

### **3.7 Data Collection Procedure**

Primary data was collected by administering questionnaires to the petroleum firms finance managers in each of the 35 firms. Two research assistants were engaged for the purpose of assisting the researcher to carry out self-administration of the questionnaires. In cases where the assistant researchers were faced with challenges the main researcher addressed this by making personal follow through telephone contacts as provided in the appendix. The entry points used for the firms in question was majorly through the public relation officer the customer service departments of the targeted firms. Louis, Lawrence and Morrison (2007) acknowledges that primary data helps address the original study problem as it gives firsthand information on the study variables (Ember & Ember, 2009).

This study used self-administered questionnaires to collect qualitative data which was validated by panel data that was quantitative in nature (Schwab, 2005) further the scholar notes that questionnaires can be used as instruments that can measure besides collect individual answers by use of a set of questions or even respondent statements.

Panel data for this study was obtained from the 35 petroleum firms' annual reports which are regularly submitted to the ERC. Dawson (2009) notes that secondary data collection may also involve collection and use of information other past studies on the subject matter. Khan (2012), Saaedi and Mahmoodi (2011) concurred that the use panel data especially when investigating financial structure and profitability or even capital structure and firm financial performance. Khan (2012) applied an ordinary least square regression on 45 listed firm in Kenya. Based on the scope of this study (petroleum firms), the researcher found it sound to analyze statements from 2007 to 2016 using panel method.

According to Akoto *et al.* (2013), when using panel data methods to find relationship of variables, a researcher must adopt data from a series of years. They argue that

when the data are spread to a large period, they offer better results that can be used to predict future happenings to great certainty. Researchers Bartlett *et al.* (2001) recommend that at least 10 observations should be used particularly when doing a regression analysis, this study used 10 observations spread between 2007-2016.

Further secondary data from the petroleum firms that was collected included data on; value of total revenues, total profit before tax, value of firm assets, value of total loans, total value of trade credit extended to the firm, total retained earning injected back to the business, earnings after taxation and the volume of turnover periodically. This secondary data was collected from the ERC-Kenya and annual reports of the firms. Thus study was made up of all 35 petroleum firms which represented all the petroleum firms in Kenya (shown on Appendix I).

### **3.8 Data Analysis and Presentation**

After data collection, both qualitative analysis done based questionnaires given out and quantitative analysis was done multiple regression was given preference as explained in detail below. All the statistical tests were conducted at 95 percent confidence level. Hypothesis, the researcher used simple linear regression to establish the nature of the relationship between debt and firm profitability in Kenya and also tested the hypothesized relationships. The research hypothesis tested using linear and multiple regression analysis. The correlation matrix was constructed to investigate the effect of all the study variables.

#### **3.8.1 Data Analysis**

Primary data was corrected through questionnaires thus providing the main source of qualitative data in this study, questionnaires were first edited and response rate calculated then it was categorized into different themes as per the study variables to produce descriptive statistics such as mean, standard deviation and frequency distribution (Kothari, 2012). For this study, qualitative data for the study was derived from the questionnaires and the purpose for analyzing them was to describe, explain

and establish the effects of financial structure on profitability of petroleum firms in Kenya.

The regression coefficients were tested for significance using t-statistic at 5% level of significance and conclusions drawn. Multiple regression was given preference whereas the number of independent variables is more than one (Faraway, 2002). Both descriptive (mean scores, standard deviations, coefficients of variance, skewness and kurtosis percentages) and inferential statistics was used.

Quantitative data was analyzed by use of inferential statistics which had both parametric (Chi-Square test) and non- parametric (Pearson correlation coefficient) tests which were used respectively. Chi-square test was critical in testing statistically significant differences between large and mutually unrelated parametric samples. The aim was to determine if the means of two unrelated samples differ.

Pearson correlation test was conducted to test level of significance between all independent variables and the dependent variable. The Pearson's correlation coefficient was used as a measure of linear correlation. The measure is symbolized by letter (r) and varies between -1 and +1, with 0 indicating no linear relationship while Coefficient of determination ( $R^2$ ) which measured the variation among the study variables. The closer the  $R^2$  is to 1 the better the regression line to the actual data (Sekaran, 2000).

Chi-square was used to test null hypothesis ( $H_0$ ) at statistic of 0.05 level of significance. The decision rule was that the null hypothesis ( $H_0$ ) was to be rejected if the calculated value in each hypothesis is greater than the critical value which implies existence of a significant positive relationship. The statistical test on all the hypotheses of the study were cross- examined against a threshold of alpha is equal to 0.05.

Factor analysis was used to group together variables which have something in common. In factor analysis; the goal of extraction is to remove as much common variance in the first factor as possible (child, 2006). Anova was used to test whether the regression analysis model used is fit or the relationship of the variables just

occurred by chance. Significance of F ratio was used to determine whether model used was fit or not. When the F ratio is significant the model used is considered fit and vice versa (weeks & Namusonge, 2016). A P value of less than 0.05 indicates that the F statistics is high and that the null hypothesis of independent needs to be rejected since it's not true.

The coefficient of determination ( $R^2$ ) was used to rank the study variables' response rate while attempting to validate or invalidate the pecking order theory.  $R^2$  is the proportion of variation of the response variable that is explained by the variation of the predictor variable(s) and as such the higher it is the better (Kumar, 2005). In addition, different regression methods were adopted in order to describe the effect of a response variable and one or more explanatory variables (Hosmer & Stanley, 2000). Various studies that have adopted this method include; Maina and Kondongo (2013), Chisti *et al.* (2013); Abor (2007) hence an adequate benchmark.

### **3.8.2 Data Presentation**

The results were presented in form of frequency tables and charts. Kruskal- wallis mean rank technique was used to assess the effect financial structure on the profitability of petroleum firms in Kenya. A thematic approach was adopted in organizing the data for presentation. Six major themes were drawn as per the study variables ranging from debt, share capital, trade credit, retained earnings and profitability respectively. The data was organized and coded in the context before it was demarcated into segments within it. Each segment was labelled with a particular code with a relevant phrase suggesting how the associated data segments were able to inform the researcher different research objectives (Denzin, 2000). The results were then presented using tables, graphs and charts to enable easy understanding with the tables charts and graphs ensuring orderly arrangement of data

### **3.9 Study Model Specification**

By using panel data, it is possible to include time effects as well as to control for individual heterogeneity, which is captured by firm specific fixed or random effects components, that leads to biased results when neglected in cross section or time

series estimations (Baltagi, 1995). To estimate the results of the effect of the financial structure and profitability of petroleum firms in Kenya, the study applied the long run (static) and short run (dynamic) panel models. The long run models assumed that previous period's performance did not affect present period's profitability and therefore, no persistence (no lagged dependent explanatory variables) in the model. The short run models assumed that immediate previous period performance, lagged dependent explanatory variable, influences present period's performance.

Therefore, the short run models assumed persistence due to incomplete adjustment in the performance process. For instance, in the short run petroleum firms used their previous period's profitability to protect their present period performance, hence partial adjustment in the short run model. Following these assumptions the long run and the short run models for the various study objectives are: Thus this study used both simple regression models and multiple regression model for objective 1,2,3,4 and 5 and moderated regression models for objective 6.

### 3.9.1 Simple Regression Models

#### a) Panel Model 1

Objective one was to establish effect of debt on profitability of commercial firms in Kenya. Return on assets was considered as a measure of profitability and therefore, was used as the dependent variable whereas debt, share capital trade credit and retained earnings were considered as independent variables. The study assumed that the independent variables and the dependent variable had a general multiplicative Cobb Douglas functional relationship shown in equation 3.1.

$$ROA = f(CD_{i,t}) \dots \dots \dots 3.1$$

$$ROA = \beta_0 + \beta_1 CD_{i,t} + \varepsilon \dots \dots \dots 3.1a$$

Where  $i = 1, \dots, 35$      $t = 2007 \dots 2016$

**b) Panel model 2**

The second objective was to establish the effect of share capital on performance of petroleum firms in Kenya. The study assumed that the independent variables and the dependent variable have a general multiplicative Cobb Douglas functional relationship shown in equation below.

$$ROA = f(SC_{i,t}) \dots\dots\dots 3.2$$

$$ROA = \beta_0 + \beta_2 SC_{i,t} + \varepsilon \dots\dots\dots 3.2a$$

SC represented share capital variable and ROA stood for profitability and was measured by dividing the net income firm total assets and then multiplied by 100% to get a percentage return on assets. The linearization process involved logging the variables. Therefore, all the variables were to enter models 3.2 and 3.2a in log form. This inherently made the  $\beta$  and the  $\alpha_i$ 's elasticities.

Where  $i = 1, \dots, 35$   $t = 2007 \dots 2016$

**c) Panel model 3**

Objective three was to determine the effect of trade credit on profitability of petroleum firms in Kenya. The study assumed that the independent variables and the dependent variable have a general multiplicative Cobb Douglas functional relationship shown in equation upon linearization and parametrization the long run model for functional form 3.3 was specified as:

$$ROA = f(TC_{i,t}) \dots\dots\dots 3.3$$

$$ROA = \beta_0 + \beta_3 TC_{i,t} + \varepsilon \dots\dots\dots 3.3a$$

Where  $i = 1, \dots, 35$   $t = 2007 \dots 2016$

TC represented trade credit, upon linearization the variables as the study assumed that independent variable and the dependent variable have a general multiplicative Cobb Douglas functional relationship shown in equation 3.5b

**d) Panel model 4**

Objective four was to evaluate the effect of retained earnings on profitability of petroleum firms in Kenya. The linearization process involved logging the variables as the study assumed that independent variable and the dependent variable had a general multiplicative Cobb Douglas functional relationship shown in equation 3.4 b

$$ROA = f(RE_{i,t}) \dots \dots \dots 3.4$$

$$ROA = \beta_0 + \beta_4 RE_{i,t} + \varepsilon \dots \dots \dots 3.4a$$

Where  $i = 1, \dots, 35$   $t = 2007 \dots 2016$

Upon linearization and parametrization the long run and short run model for functional form, the study assumed that the independent variables and the dependent variable have a general multiplicative Cobb Douglas functional relationship shown in equation 3.5b

Profitability was measured in Kenya shilling as return on assets of the petroleum firms. The independent variables were; Debt, share capital, trade credit and retained earnings. They were represented by  $CD_{i,t}$ ,  $SC_{i,t}$ ,  $TC_{i,t}$ ,  $RE_{i,t}$  respectively while the moderating variable of firm size was represented by  $\beta_0$ .  $\lambda_0$  represented a constant or an intercept while  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  and  $\beta_4$ , are the corresponding coefficients for different independent variables and moderating the variable.  $\varepsilon$  is the error term represented a residual or disturbance value that was not captured in the model.  $X$ ,  $\beta$  and  $\varepsilon$  are interpreted the same way for the subsequent equations for testing the other study objectives. Interpretations are as stated above. The linearization process involved logging the variables.



### 3.9.2 Multiple Regression Model -Unmoderated Effect

#### e) Panel Model 5

Objective five was to establish the moderating effect of bank size on the relationship between the financial risk and financial performance of commercial banks in Kenya. The study used Keppel and Zedeck (1989) analysis procedure to test whether bank size moderated the relationship between the financial risk and financial performance of commercial banks in Kenya.

$$ROA = f(CD_{i,t}, SC_{i,t}, TC_{i,t}, RE_{i,t}) \dots \dots \dots 3.5$$

$$ROA = \beta_0 + \beta_1 CD_{i,t} + \beta_2 SC_{i,t} + \beta_3 TC_{i,t} + \beta_4 RE_{i,t} + \varepsilon \dots \dots \dots 3.5a$$

Where  $i = 1, \dots, 35$      $t = 2007, \dots, 2016$

Assuming a multiplicative Cobb Douglas functional form between the dependent and the independent variables before introducing firm size as a moderating variable in the long run and in short run, the linearized and parametrized models were specified as shown in 3.4 and 3.4a respectively.

### 3.9.3 Multiple Regression Model-Moderated Effect

A moderator is a variable that affects both the direction and the strength of relationship that exists between an independent/predictor variable and a dependent/predicted variable (Baron & Kenny, 1986). A moderator may either reduce or increase the direction and strength of the relationship between an independent variable and a dependent variable respectively, equally a moderator can change the direction of the relationship between the two variables from positive to negative (Baron & Kenny, 1986; Lindley & Walker, 1993).

This study adopted multiple regressions analysis (stepwise method) so as to establish the moderating effect of firm size (Z) on relationship between financial structure and firm profitability. In the determination of the effect of the moderating variable on

each of the independent variables and the total effect on the dependent variable models were specified as shown in 3.6 and 3.6b respectively.

**f) Panel Model 6**

$$ROA = f(CD_{i,t}, SC_{i,t}, TC_{i,t}, RE_{i,t}) + Size(CD.SC.TC.RE) + \epsilon \dots \dots \dots 3.6$$

$$ROA = \beta_0 + \beta_1 CD_{i,t} + \beta_2 SC_{i,t} + \beta_3 TC_{i,t} + \beta_4 RE_{i,t} + size(CD.SC.TC.RE) + \epsilon \dots \dots \dots 6a$$

Where  $i = 1, \dots, 35$      $t = 2007, \dots, 2016$

Where;

Y is Profitability (Dependent variable), X1 was Debt, X2 was share capital, X3 – trade credit, X4 was retained earnings and Z is the hypothesized moderator (firm size) X size was the interaction term of the firm size with each of the independent variables ( 1, 2, 3, 4 X , X , X , X , X )  $\beta_Z$  was the coefficient of X\*Z the interaction term between firm size and each of the independent variables for  $i = 1, 2, 3, 4$   $\beta_0$  is constant (Y- intercept) which represent the value of Y when X =0.

**3.10 Estimation of Panel Data Regression Model**

In the estimation of panel data, both static and dynamic specifications were checked using both fixed effect and random effects estimators. Other types of panel data analytic models of interest were fixed/constant coefficients models and dynamic panel models. These models are explained as follows:

**3.10.1 The Fixed Effects Model**

This type of panel model had constant slopes but intercepts that differed according to the descriptive research designing meaning there are no temporal effects. In this study there were significant differences among petroleum firms in this type of model. While the intercept of cross-section (group) may differ from firm to firm, it may or may not differ over time.

### **3.10.2 Random Effect Model**

Random effects model are used to handle ignorance or error by assuming that the intercept is a random outcome variable (Greene, 2008). This model assumes neither heteroscedasticity nor autocorrelation within the panels to avoid complicating the covariance matrix.

### **3.10.3 Dynamic Panel Models**

Dynamic or lagged regression models are regression models that take into account time lags. Panel specific autocorrelation or autocorrelation across all panels may exist. An auto regression on lags of the residuals may indicate the presence or absence of autocorrelation and the need for dynamic panel analysis (Wooldridge, 2002). Ordinary Least Squares is not appropriate in the case there is the problem of multicollinearity meaning successive lagged values of a regressor are correlated.

The study estimated both the long run and the short run specified in equations 3.1, 3.2a, 3.2, 3.2a, 3.3, 3.3b, 3.4, 3.4a and 3.5. The long run specifications were estimated using the fixed effects or random effects models while the short run model was to be estimated using system GMM estimator as put forward by (Verbeek, 2004). The generalized method of moments (GMM) is a statistical method that combines observed data with the information in population moment conditions to produce estimates of the unknown parameters of this economic model.

The Estimation of the short run model were preceded by the estimation of the naïve OLS and fixed effects models to establish the required bound for coefficient of lagged bank performance as put forth by (Roodman, 2006). To establish the satisfaction of pre-estimation assumptions of tolerable multicollinearity and normality of the one way error component models, correlation analysis and extended Bera-Jarque normality test by Galvao, Montes-Rojas, Sosa-Escudero and Wang, (2013) were to be used. Multicollinearity is a typical phenomenon in time-series data that refers to the tendency of the explanatory variables to co-vary and hence making it difficult to determine the statistical significance of each independent variable.

To establish the reliability of the estimates a number of post estimation diagnostics were interpreted. The fixed and random effect model involved interpretation of the F statistic, interclass correlation ( $\rho$ ), within and between R-square, chow test statistics, LM test statistic and Hausman test. The short run GMM specification involved the interpretation of Hansen J statistic and the Arrelano and Bond autocorrelation tests. These pre and post estimation diagnostic tests are discussed in the succeeding paragraphs.

#### **3.10.4 Correlation Analysis**

Correlation analysis were to be used as a pre estimation diagnostic test for multicollinearity and association between the dependent and independent variables. Correlation coefficients range between negative one and positive one and may be significantly different from zero or not. A significant positive correlation coefficient shows that the variables commove in the same direction and the signange of regression coefficients should be positive. A significant negative correlation coefficient shows that the variables commove in different directions and the signage of the regression coefficients is negative. A coefficient of zero shows no association between any two variables.

If the correlation coefficients are significant and near perfect (positive one) the data regression estimates are affected by multicollinearity. The variables with the near perfect correlation coefficient give the same information and one of the variables should be dropped in favor of the other to avoid multicollinearity. According to Guajarati, (2003) pair-wise correlation coefficients less than 0.8 indicates that the problem of multicollinearity is not severe and is normally ignored. However, correlation coefficients in excess of 0.8 points to existence high degree of multicollinearity among the regressors and warrants a remedial action.

This study used a multivariate analysis and a multi-linear regression model in describing profitability by testing independent variables of the study. The idea was to identify meaningful, stable relationship among the sets of data. Multiple regressions was therefore adopted to measure the effects of multiple independent variables on the dependent variable (Okello *et al.*, 2015)

The study built on the models developed by Kajola (2008) and advanced by Okougbo (2011) in his study of corporate governance and firm performance: empirical evidence from selected listed firms in Nigeria which specifies the model given below: The study used hierarchical panel regression analysis that includes a set of different variables in the regression equation that determine the extent that the set of the phenomenon variables can predict the dependent variable beyond the Contribution of subsequently included independent variables. Simple regression, step wise regression, hierarchical panel regression and multiple linear regression analysis were used to in modeling the study variables.

### **3.11 Research Quality**

To ensure the panel data that was collected various quality test were conducted as explained below besides using only audited accounts since these accounts are verified and counterchecked by a credible internationally recognized audit firm. Additionally, closed ended questions were adopted to enhance content validity and research permission letters and company logos used to enhance face validity.

#### **3.11.1 Pilot Test**

Various authors have described a pilot study as a practice that aims at minimizing errors in the research and that they are corrected at low cost. Kothari, (2004) says that a pilot study is a duplicate of or the main study rehearsed. Newing (2011) notes the importance of pilot studies. He says that the practice helps the research identify flaws and strong point of the questionnaire formed. Through this information, the research can adjust their questionnaire to meet their set standards.

To establish validity, the research instrument was given to experienced experts who evaluated the relevance of each variable compared to the instrument in relation to the objectives. The same were rated on the scale of 1 (very relevant) to 4 (not very relevant). Validity was determined by use of content validity index (CVI). CVI was obtained by adding up the items rated 3 and 4 by the experts and dividing this sum by the total number of items in the questionnaire. A CVI of 0.864 was obtained. Oso and Onen (2009) stated that a validity coefficient of at least 0.70 is

acceptable as a valid research hence the adoption of the research instrument as valid for this study.

For the highly accurate studies, one percent to around 10% of the sample can comprise of the size of a pilot test (Lancaster *et al.*, 2010). In this study the pilot test covered 10% of the population size, the pilot test ensured that the measurement instrument-a secondary data sheet addressed the hypothesis of the study adequately. In this case the final study included firms that were in pilot study since the firms in question were few. The pilot test also confirmed that the secondary data sheet was comprehensive and sufficient in terms of the study variables and their respective parameters.

### **3.11.2 Reliability Test**

Reliability is the accuracy and exactness of the measurement tools used (Cronbach, 2001). The measurements done are expected to be consistent. Also, the measurement tools should be able to produce the same results if used in the same manner for several times, and on the same subject; it is the ability to get same results with give subjects, over and over again. If a score obtained in more than two attempts is approximate or same, the measurement is said to be reliable. However, researchers only estimate the reliability of their studies but they cannot measure it.

### **3.11.3 Validity Test**

Validity of the study refers to the accuracy, meaningfulness and truthfulness of the study based on the obtained data by using of a tool or a scale for each variable in the study (Hyndman & McMahon, 2010). Validity is thus the degree to which results can be obtained from the analysis done and then actual data on the study phenomenon made. It is thus important that there is accuracy on the data obtained from relevant study variables. If the collected data truly reflects the study variables, then inferences can be made based on data hence making it meaningful and accurate (Hardy & Ballis, 2013). Mugenda and Mugenda (1999) says that validity is the exactness and accuracy of the figures obtained in a research and the meanings made out of the figures. Consequently, validity is achieved to the extent of how the phenomenon under study

has been done and relevant results obtained. Validity can therefore be said to exist when obtained data is from the exact, needed variable.

For the purpose of this study, both construct and content validity were used in the adoption of study variable parameters in this study. The questionnaires were pre-tested to ensure and ascertain that they were relevant to the study as far as production of accurate results was concerned. In terms of content validity tests done were retested to ensure the questionnaire adequately covered the five main study areas. On the other hand, construct validity was attained by use operationalizing the study variables to reflect the theoretical assumptions underpinning the conceptual framework of this study.

#### **3.11.4 Panel Multi-Collinearity Test**

Variance inflation factors (VIFs) coefficients were employed while testing existence of multi-collinearity. In case of a multi collinearity independent variables have a high correlation degree (Kothari, 2004). Hence the above situation can distort the regression coefficients to an extent of making them unstable thus difficult to interpretation (Cooper & Schindler, 2006).

For the purpose of this study a test of multicollinearity was done at the pilot stage to ensure that only the accepted independent variables exhibited collinearity amongst themselves. In case there is a high degree of association between the independent variables, then it is concluded that there exists a problem of multi-collinearity which results into large standard errors associated with the affected variables. According to Mugenda and Mugenda (2012), multi-collinearity can occur in multiple regression models in which some of the independent variables are significantly correlated among themselves.

Pair-wise correlation was used to examine the level of collinearity present between explanatory variables used in the study. Table 4.17 shows the correlation coefficient matrix of the study variables. The correlation coefficients for the variables, being well below 0.8 did not signify severe multicollinearity

### **3.11.5 Panel-Level Heteroscedasticity Test**

Heteroscedasticity is a situation where the variance of the residual-term is not constant but varies with changes in the variables under explanation (Gujarati, 2003). It is important to note that the use of heteroscedastic data can provide unbiased OLS estimators, which may not give minimum variance in the class of all unbiased estimators. Heteroscedasticity can make the standard errors biased thus an invalid test statistics and confidence intervals (Wooldridge, 2002). To test for panel level heteroscedasticity, the study adopted the Breusch-Pagan/Cook-Welsberg test method. This involved first estimating the specified empirical models for fixed effects with robust-standard errors and then running the Pagan/Cook-Welsberg test against the null hypothesis of homoscedastic.

The test results for the two models provided chi-square distribution values of 854.37 and 1184.65 with corresponding  $p$ -values of 0.0000 in each case. The results show that the chi-square statistics were all significant at 5 percent level and hence the null hypothesis of constant variance was rejected. This signified existence of panel-level heteroscedasticity in the panel data

### **3.11.6 Serial Correlation**

Serial correlation occurs when the error terms are correlated against one another thus causing a disturbance of an observation influenced by the disturbance term that relates to another observation (Gujarati, 2003). Such results are in such a way that the OLS estimators are determined in presence of autocorrelation that normally provides smaller standard errors hence misleading results when carrying out hypothesis testing. Also, the R squared (coefficient of determination) value is deceptively large (Torres-Reyna, 2007). Since this problem affects the efficiency of estimators like the standard errors which are distorted hence making the test statistic and invalid in terms of testing significance and study conclusions (Gujarati, 2003).

The F-test statistics for models 1 and 2 were 21.020 and 10.765 respectively with corresponding  $p$ -values equivalent to 0.0000, 0.0000 and respectively. The results indicate that the F-test were statistically significant at 5 percent significance level.



The finding therefore signifies a problem of first order autocorrelation in the panel data. The study dealt with this violation of classical linear regression model assumption by either employing FGLS estimation or used robust standard errors approach depending on the nature of the estimated effects.

In this study to detect presence of autocorrelation in panel data, the study employed the Wooldridge test for autocorrelation against the null hypothesis that there was no first order autocorrelation. Serial correlation was tested using Wooldridge F-statistic. Serial or auto correlation is a situation where the error terms for different time periods are correlated (Gujarati, 2003).

### **3.11.7 The Hausman Test for Model Effects Estimation**

In order to establish which estimation effects (between fixed and random) provided superior results for the study, Hausman test was carried out for each of the specified panel regression models. The test was conducted against the null hypothesis that random effect model was the preferred model. The test was conducted against the null hypothesis that random effect model was the preferred model. The test results show that the chi-square statistics for panel equation 2 was statistically insignificant at 5% level as supported by the p-values of 0.7116. The study therefore failed to reject the null hypothesis that the random effects estimation was appropriate for equation 1 at 0.05 significance level. Effectively, the study estimated the panel equation 1 for random effect.

### **3.11.8 F test and Wald Test**

The F test and Wald test are post estimation diagnostic tests that are used to test whether the coefficients of independent variables are jointly significant in explaining variations in the dependent variables in the fixed effects and random effects model. The tests have a null hypothesis that all the coefficients are jointly equal to zero and an alternative that at least one of the coefficient is none zero. Rejection of the null hypothesis implies that the independent variables are jointly significant explaining variations in the dependent variable.

### **3.11.9 Hausman Test**

Hausman test is used to discriminate between the random effects and fixed effects specification of the long run model. The test had a null hypothesis that regressors and individual heterogeneity are strictly exogenous. Based on the assumptions of the random and fixed effects model on the distribution and behavior of individual specific effects (heterogeneity) the null hypothesis implies consistency of fixed effects specification over random effects specification and vice versa.

### **3.11.10 Arrelano and Bond Autocorrelation Test**

Arrelano and Bond autocorrelation diagnostic test tests the presence of autocorrelation in the error term to inform the selection of instruments. Arrelano and Bond autocorrelation test assumes stationarity The test reports the AR(1) , first order autocorrelation, test statistic and the AR(2), second order, autocorrelation test. The test has null hypothesis of no serial correlation in both cases. A rejection of the null hypothesis therefore implies presence of the given order of serial correlation while the failure to reject the null hypothesis implies absence of serial order correlation. Depending on the finding appropriate selection of instruments from the second or first lag and differences is made (Roodman, 2006).

### **3.12 Measurement of Study Variables**

The study adopted profitability as the dependent variable. Debt, share capital, trade credit and retained earning constituted the explanatory variables for this study.

**Table 3.1: Summary measurement of independent variables**

<b>Variables</b>	<b>Measurement</b>	<b>Notation</b>	<b>Expected sign</b>
<b>Independent variables</b>			
Retained earnings	Total internal equity/total equity	RE	+ve
Trade credit Finance	Total current liabilities/Total debt	TCF	-ve
Debt Finance	Non-current liabilities/Total debt	CDF	+ve
Share capital finance	Price per share/share capital value	SCF	+ve
<b>Moderating variable</b>			
Firm size	Natural logarithm of total assets	SZ	+ve
<b>Control variable</b>			
Total Assets growth	$[T. A_{t} - T. A_{t-1}] \div T. A_{t-1}$	SG	+ve
<b>Dependent variable</b>			
Profitability (ROA)	Annual earnings $\div$ Total assets	ROA	+ve

### 3.12.1 Measure of Profitability

Financial performance was measured using return on equity (ROE) which value the overall profitability of the fixed income per dollar of equity (Saunders & Marcia, 2011). The efficiency of the firms can be evaluated by applying ROE, since it shows that a firm reinvests its earnings to generate future profit. The growth of ROE may also depend on the capitalization of the banks and operating profit margin. If a firm is highly capitalized through the risk weighted capital adequacy ratio (RWCAR) capital adequacy ratio (CAR), the expansion of ROE will be retarded. However, the increase of the operating margin can smoothly enhance the ROE. ROE also hinges on the capital management activities. If the banks use capital more efficiently, they will have a better financial leverage and consequently a higher ROE.

A ratio called return on retained earnings (RORE) shows how well the profits of the previous year were reinvested (Poker, 2011). It is expressed as a percentage. A high percentage would indicate that a company would be better off reinvesting into the business, whereas a low one would show that paying out dividends may be in the best interests of the company. Profitability can be expressed either accounting profits or economic profits and it is the main goal of a business venture (Anene, 2014).

Profitability portrays the efficiency of the management in converting the firm's resources to profits (Muya & Gathogo, 2016). Thus, firms are likely to gain a lot of benefits related increased profitability (Niresh & Velnampy, 2014). One important precondition for any long-term survival and success of a firm is profitability. It is profitability that attracts investors and the business is likely to survive for a long period of time (Farah & Nina, 2016). Many firms strive to improve their profitability and they do spend countless hours on meetings trying to come up with a way of reducing operating costs as well as on how to increase their sales (Schreibfeder, 2006).

Profitability also shows the association between the absolute amount of income that indicates the capability of the bank to advance loans to its customers and enhance its profit. In today's competitive environment, profitability is a key factor for smooth the running of the business and has a significant effect on a firms' performance and economic development as well (Tariq *et al.*, 2014). Profitability is also crucial for a banking institution to maintain its ongoing activities and for shareholders to generate fair returns (Ponce, 2011).

Profitability ratios are normally used to measure earnings generated by a firm for a certain period of time based on the firm's sales level, capital employed, assets and earnings per share (EPS). Profitability ratios are also used to measure the firm's earning capacity and considered as a firm's growth and success indicator (Majed, Said & Firas, 2012).

### **3.12.2 Measure of Debt**

As an independent variable debt has been operationalized as both long term loans and short term loans advanced to petroleum firms by De Haas, Ferreira & Taci (2010) who notes that debt is the sum of all the loans issued to a firm. Debt is therefore any loan issued out to petroleum firms in Kenya. Loans were measured by assets held as collateral, value of short term loans and value of short term loans among others (Wainaina, 2014).

Leverage ratio was used to measure the relative amount of funds held equity providers and debt holders. The focus was on the long-term solvency of the petroleum firms. In general, the higher the amount of debt relative to share capital finance the more leveraged the firm was considered thus a higher risk shareholders. On the other hand, higher leverage was associated with higher expected returns.

The long term debt ratio was used as an indicator of the proportion of long-term financial obligations as compared to total net assets, thus it was an objective indicator and measure of indebtedness, or leverage, of the petroleum firms. The longterm debt to net asset was also a clear indicator on how much money the concerned firms must safely borrow over long periods of time. Quality credit risk assessment, risk management and creation of adequate provisions for bad and doubtful debts can increase the firms credit risk. When the level of non-performing assets is high, the assets provisions made are not adequate protection against default risk (Kwambai & Wandera, 2013).

Because a higher financial leverage multiplier indicates that firms can leverage on a smaller base of stakeholder's fund and produce higher interest bearing assets leading to the optimization of the earnings. On the contrary, a rise in ROE can also reflect increased risks because high risk might bring more profits. This means ROE does not only go up by increasing returns or profit but also grows by taking more debt which brings more risk. Risk management becomes more and more significant in order to ensure sustainable profits in petroleum firms (Hosna, 2009).

The debt to equity ratio was also used to measure and compare the finance invested in the business by creditors in terms of those that are not shareholders. What came out clear in the study is that a high the ratio indicated that the creditor investment in firm assets was high hence possibly an indicator that debt beyond a firm's ability to repay is dangerous as it increases the risk of the bankruptcy.

Loan and advance ratio (LAR) is a ratio between the firm's total assets and liabilities. If the ratio is lower than one, the firm relied on its own assets to make loans to its customers, without any outside borrowing. If, on the other hand, the ratio is greater than one, the firm borrowed money which it relined at higher rates, rather than relying entirely on its own deposits. Firms may not be earning an optimal return if the ratio is too low. If the ratio is too high, the firm might not have enough liquidity to meet the unforeseen financing requirements or economic crises.

To measure a firm's credit risk this study employed current ratio. This ratio indicates the ability of a firm to withstand payment of liabilities and ability of the firm to meet obligations as and of when they fall due. When the firms are more liquid, they can reduce risk of insolvency.

### **3.12.3 Measure of Share Capital**

In other words, book value of equity is the equivalent value of the leftover assets; the worth of the firm belonging to equity holders after paying off all the debts if the company is liquidated (Murray & Block, 1989). Book value is an important measurement as it measures what the investors really own in the company. When divided by the number of shares gives the value of the ownership per share. It is this value that is divided by the price per share.

According to Murray and Block (1989) the price per book ratio is frequently associated with value investing. A low Price to Book ratio could mean that the stock is undervalued. However, it could also mean that something is fundamentally wrong with the company. As with most ratios, this ratio varies by industry. This ratio also gives some idea of whether an investor paying too much for what would be left if the company went bankrupt immediately. To this end, price to book value could

influence investors' decision to buy stocks of a company. Furthermore Book Value per Share is a good baseline value for a stock

Dividend yield is a financial ratio that shows how much a company pays out in dividends each year relative to its share price. It is measured by dividing the dividend amount issued for the period over the stock price; preferably the price at the beginning of the period (Cohen, 2002). It is a way to measure how much cash flow shareholders do get for each dollar invested in an equity position. Investors who require a minimum stream of cash flow from their investment portfolio can secure this cash flow by investing in stocks paying relatively high, stable dividend yields to supplement their income (Cohen, 2002). A dividend is a payment made by an organization to shareholders out of their excess earnings (Hackbarth & Johnson, 2011). It's usually expressed as a per-share amount. When one compares firms' dividends, dividend yield or simply the yield is used. Dividend yield is the dividend amount divided by the stock price. It shows the percentage of the share purchaser's purchase price the investment in the company; the return obtained as dividends. In the absence of any capital gains, the dividend yield is the return on investment for a stock (Cohen, 2002).

#### **3.12.4 Measure of Trade Credit**

According to Mbroh and Attom (2012) accounts payable are a major source of short-term financing for businesses provided that they delay payment as long as possible without damaging their credit rating or pay on the last day when payment is due to take advantage of cash discounts. Liquidity credit ratio (LCR) requires that firms with a need for high liquidity hold high quality liquid assets to meet liquidity needs over a 30-day time horizon under an acute liquidity stress scenario. The LCR is thus a constraint on how much short-run liquidity risk a firm may hold. Singh,(2014) stated that the liquidity of petitionary firm mainly depends upon accounts receivable and payable deferred policy as well as inventories conversion period of firm. Creditor is a vital part of effective cash position.

Accounts payable are suppliers whose invoices for goods or services have processed but who have not yet been paid. Organizations often regard the amount owing to

creditors as a source of free credit. As a consequence, strong alliance between company and its suppliers will strategically improve production lines and strengthen credit record for future expansion. Purchasing initiates outflows of cash and overzealous purchasing function may create hence need to regulate and maintain the number of suppliers.

### **3.12.5 Measure of Retained Earning**

The retained earnings was measured using the dividends paid by petroleum firms as for firms that pay more dividends their retained earnings reduce significantly and vice versa. The variable profitability is in line with the results of this study. A ratio called return on retained earnings (RORE) shows how well the profits of the previous year were reinvested (Poker, 2011). It is expressed as a percentage. A high percentage would indicate that a company would be better off reinvesting into the business, whereas a low one would show that paying out dividends may be in the best interests of the company.

The Price to Book ratio compares the market's valuation of a company to the value of that company as indicated on its financial statements (Murray & Block, 1989). The ratio is calculated by dividing price per share by the book value of equity. Book value of equity is the difference between the book value of assets (such as cash, accounts receivable, inventory, equipment, etc.) and the book value of liabilities (such as loans, accounts payable, mortgages, etc.) divided by the number of outstanding equity shares as per the balance sheet (Sullivan & Steven, 2003). In other words, book value of equity is the equivalent value of the leftover assets; the worth of the firm belonging to equity holders after paying off all the debts if the company is liquidated (Murray & Block, 1989). Book value is an important measurement as it measures what the investors really own in the company. When divided by the number of shares gives the value of the ownership per share. It is this value that is divided by the price per share.

Assets can affect the level of retained earnings as accumulation of assets reduces retained earnings as available cash is converted into those assets cash or can be used to generate cash or used to meet debts and the related commitments (Sullivan &



Steven, 2003). Assets include; cash and cash equivalents, real property, personal property, and investments such as stocks securities, annuities, bonds, as well as cash value of life insurance policies, mutual funds, pensions, and retirement plans.

Net assets value of an organization can be expressed as net assets per unit. Net asset value (NAV) is the value of a fund's asset less the value of its liabilities per unit. Also, retained earnings can be expressed as a ratio, commonly known as retention ratio or plowback ratio. The retention ratio is also known as the retention rate of an organization (Orwel, 2010). Regarding earnings retentions Chasan (2012), stated that there is always a conflict in determining the ratio or earning to be retained.

#### **3.12.6 Measurement of Firm Size**

Firm size as measured by total assets Smirlock (1985). It is one of the moderating variable used in analyzing performance of the firm system. Firm size is represented by natural logarithm of total asset (LN<sub>TA</sub>). While Vijn and Yang (2013) suggest that firm size measures should receive more attention, they do not compare the results based on the same regression or conduct a broader assessment of firm size measures in the finance literature.

## CHAPTER FOUR

### RESEARCH FINDINGS

#### 4.1 Introduction

The study focused on finding out the effect of financial structure on profitability of Kenyan petroleum firms. The financial structure variables included: Debt finance; share capital finance; trade credit finance; retained earning finance. The moderating variable was size of the firm. The data collected was cleaned, edited and organized in readiness for analysis and presentation. For the purposes of description of the data, descriptive statistics of the key variables were computed.

#### 4.2 Response Rate

Response rate is usually of great concern to any researcher due to the risk of nonresponse bias. Non-response bias is the error resulting from distinct differences between the people who responded to a survey versus those who did not respond.

Response rate is used as one way to gauge the potential for non-response bias. The higher the response rate of a survey, the lower the risk of non-response bias. Of the distributed 35 questionnaires, 29 were received back as completed questionnaires with relevant and useful information for the study. The 29 completed questionnaires constituted an 82.85% response rate which was considered an excellent response rate (Mugenda & Mugenda, 2003) with a minimized risk for non-response bias. To this extent, the randomly collected primary sample data was considered adequate and sufficiently representative. To ensure adequate representation of each petroleum company, proportional random sampling was used. Table 4.1 shows the distribution of the questionnaires collected from the sampled officers across the thirty five petroleum firms.

**Table 4.1: Response Rate**

	<b>Frequency</b>	<b>Percentage</b>
Questionnaires Issued	35	100.0%
Questionnaires Returned	29	
Response Rate (%)		82.85%

The response rate is considered adequate since Mugenda and Mugenda (2003) advise on response rates exceeding 50% and Hager, Wilson, Pollak and Rooney (2003) recommend 50%. Saunders, Lewis and Thornhill (2009) suggest a 30-40% per cent response rate.

#### **4.2.1 Reliability Results**

The term reliability generally refers to the consistency of a measure. The construct being measured using a questionnaire is however, expected to vary from one respondent to another. A high coefficient indicates that the items are consistently measuring the same underlying construct. George and Mallery (2003) provide the following rules of thumb: “ $\alpha > 0.9$  – Excellent,  $\alpha > 0.8$  – Good,  $\alpha > 0.7$  – Acceptable,  $\alpha > 0.6$  – Questionable,  $\alpha > 0.5$  – Poor, and  $\alpha < 0.5$  – Unacceptable”. As such, having yielded all coefficients greater than 0.8 and greater than 0.9 for some sections, the questionnaires were accepted as consistent and reliable for the study.

The study used the Cronbach’s coefficient alpha to estimate the consistency of Likert-items included in the questionnaires, and table 4.2 shows the results.

**Table 4.2: Reliability Results**

<b>Variable</b>	<b>Cronbach’s alpha</b>	<b>No of items</b>
Debt finance	0.8221	3
Share Capital finance	0.8145	3
Trade credit finance	0.8021	3
Retained Earnings	0.8123	3
Firm size	0.8243	

The rule of the thumb states that 5% -10% of the sample should comprise the pilot test (Cooper & Schilder, 2011; Creswell, 2003; Gall & Borg, 2007). For this study, the pilot test was done within this recommendation. The thirty five questionnaires were all coded and then their inputs done into Stata version 14, software for the purpose of running the Cronbach reliability test. Respectively the questionnaire reliability was tested using the Cronbach's alpha correlation coefficient with the aid of Statistical Package for Social Sciences (SPSS) software.

The findings of the reliability test produced an overall Cronbach Alpha correlation coefficient of 0.887 normally the closer the Cronbach's alpha coefficient is to 1, then the higher the internal consistency reliability (Sekara 2003). A coefficient of 0.7 is recommended for a newly developed questionnaire and therefore 0.887 was adequate for this study.

#### **4.2.2 Validity Results**

Validity of the study refers to the accuracy, meaningfulness and truthfulness of the study based on the obtained data by using of a tool or a scale for each variable in the study (Hyndman & McMahon, 2010). Validity is thus the degree to which results can be obtained from the analysis done and then actual data on the study phenomenon made. It is thus important that there is accuracy on the data obtained from relevant study variables.

If the collected data truly reflects the study variables, then inferences can be made based on data hence making it meaningful and accurate (Hardy & Ballis, 2013). Mugenda and Mugenda (1999) says that validity is the exactness and accuracy of the figures obtained in a research and the meanings made out of the figures. Consequently, validity is achieved to the extent of how the phenomenon under study has been done and relevant results obtained. Validity can therefore be said to exist when obtained data is from the exact, needed variable.

For this study content validity was achieved through careful and repeated examination of content to ensure it was in line with the objectives. Equally the researcher also worked to ensure that construct validity was achieved through the

validation not only of tests and interpretations but also through use of different diagnostic tests that were aimed at ensuring relevance and appropriateness of content through both inferential and descriptive results.

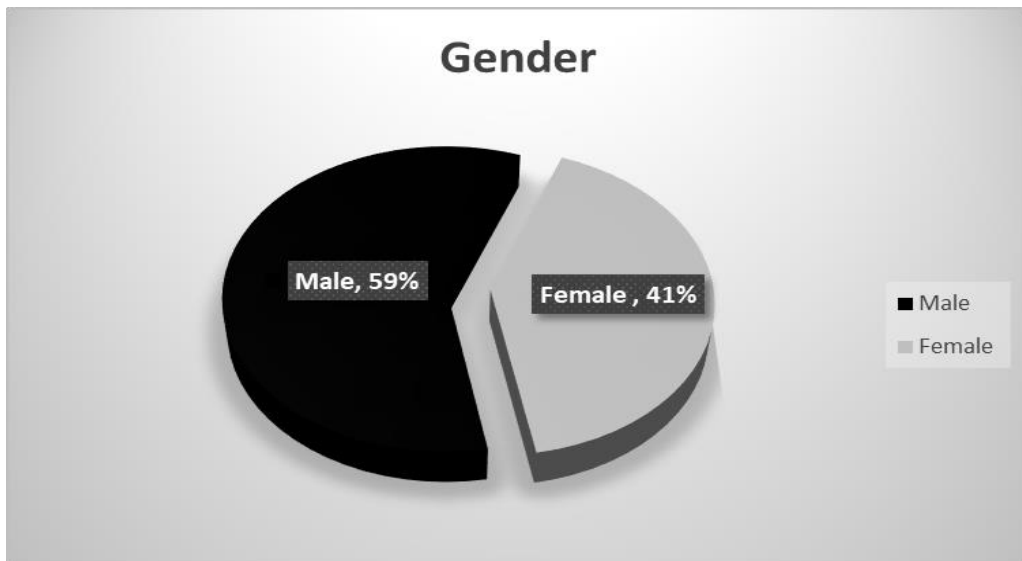
The outcome of the pilot test was better review of the instrument, clear instructions and clarification on the measures to be captured that avoided unreliable results. The researcher used expert judgment from a few lecturers of the School of Business, Jomo Kenyatta University of Agriculture and Technology, the supervisors and other researcher's cohort in the School of Business. Ambiguous, double edged and sensitive questions were cleaned, sorted or dropped.

#### **4.2.3 Demographic Data**

Among the primary data collected were the demographic profiles of the respondents. The objective was to get a brief insight into their backgrounds. The demographic details examined were; gender, highest education level, and position in job. The response constituted of 63.7% male respondents and 36.3% female respondents. The highest education level of the respondents was masters' degree qualification, while the lowest was the Diploma. Figure 4.1 shows the distribution of the respondents across the education levels.

##### **4.2.3.1 Gender**

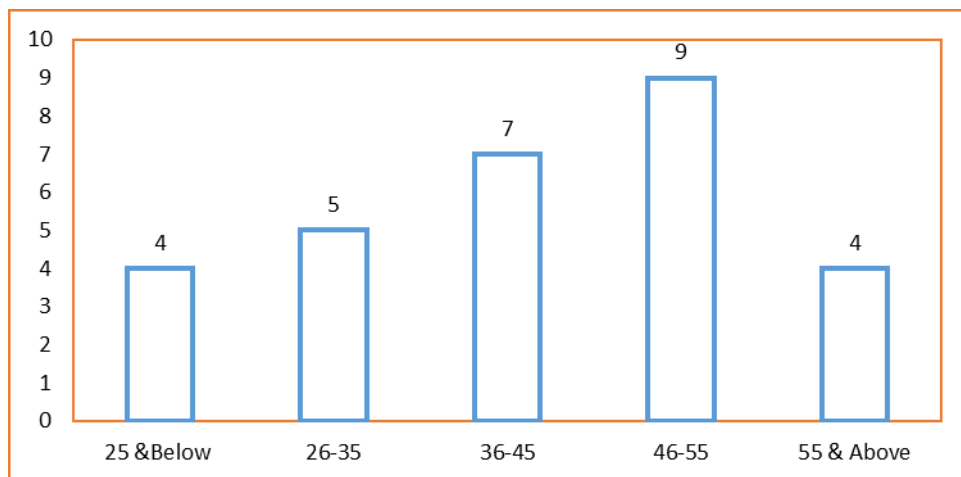
Majority of the respondents were men at 59% while the female were 41 % as shown in figure 4.1 above. The above findings were in line with a study done by Flabbi *et al.* (2014) who was found out that gender composition of management as an impact on profitability. The study further held that equity in gender in management ladder has a significantly effect as they acknowledged that firms that have employed more women in management are likely to perform better based risk averse of women as compared to male counterparts. Ekadah and Mboya, (2011) also found out that majority of the firms in Kenyan firms had more men than women than in their ranks as seen in this particular study where there were more men accountants 59% than female who counterparts at 41% .



**Figure 4.1: Gender**

#### 4.2.3.2 Age of the respondents

The sampled officers were classified into as their respective age majority of those interviewed were between 45 and 55 years bracket- 9, between the ages of 36-45 they were 7, 26-35 were 5 while those below 25 years of age and those above 55 years old were 4 respectively.



**Figure 4.2: Age**

The above is in agreement with a study by Aduda *et al.*, (2013) who argued that diversity in age characteristics has an influence on firm profitability as a combination of different characteristics is critical in firms.

#### 4.2.3.3 Academic Qualification and respondents

A total of 35 officers were sampled in the rank of chief accountants/financial managers or their designees. It must be noted that all the officers in rank 1 perform the same duties, but their job titles differ depending on the petroleum company in which they work. A total of 15 accountants had bachelor degree qualifications, 12 managers had CPA (K) or its equivalent while 5 had master’s degree and CPA (K). Table 4.3 shows the Chi-square test results to investigate whether job rank depended on the education level at 5% significance level

**Table 4.3: Cross tabulation of job rank against academic levels**

	Masters	CPA(K)	Bachelors	Diploma	Total
N	5	10	12	2	29
%	16.1%	34.2%	42.8%	0.6%	100.0%

The above findings corroborated with the findings of Allen, Gail and Wheatley (2008) who found out that workplace diversity in terms of skills diversity can lead to a positive performance in those firms that are more diverse.

Fan, (2012) also concurs with the above findings that there is a positive correlation between professional diversity and profitability. Likewise, Allen (2008) established that firm performance is related to diversity within senior management and non-managerial levels of the firm which is in agreement with Prihatiningtias (2012) who called for affirmative action to promote diversity in workplace if profitability can be increased. Table 4.4 shows.

**Table 4.4: Diversity versus education level**

	<b>Value</b>	<b>df</b>	<b>Asymp. Sig. (2-sided)</b>
Pearson Chi-Square	11.297(a)	3	.010
Likelihood Ratio	12.742	3	.005
Linear-by-Linear Association	10.224	1	.001
N of Valid Cases	29		

The table above agrees with the findings of (Tricker, 2009) who argued that the importance of diversity in management provides a critical pillar on which the financial structure can influence profitability owing to the different orientations as also upheld by (Letting, Aosa & Machuki, 2012).

#### **4.2.4 Debt Finance**

The study sought to examine the effect of debt finance on profitability of petroleum firms in Kenya. These ranged from long- term debt as preferable to short term debt, debt financing and internal sources of finance and debt financing interest rates in comparison with other sources. The following series of tables show the results of the Likerts scale on various debt finance characteristics.

It is observed that 38.0% of the respondents strongly agree that their firm preferred long term debt to short term debt as source of finance, while 20.7% agree to it. This yields a cumulative 58.7.0% of the respondents agreeing to the use of debts as a source of finance. However, 36.7% of the respondent disagreed, while 3.4% were neutral.



**Table 4.5: Long- term debt preferable to short term debt**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly agree	11	38.0	38.0
Disagree	9	31	69.0
Neutral	1	3.4	72.4
Agree	6	20.7	93.1
Strongly Disagree	2	6.9	100.0
<b>Total</b>	<b>29</b>	<b>100.0</b>	

The findings were different from a study done by Vijayakumar and Karunaiathal, (2014) which indicated that short-term loans usually comprise a good chunk of the organizations total debt as compared to long term debt. But it is also significant to note that high long term leverage ratio an indicator of preference of long term loans is an indicator of a company's relative position in comparison to assets thus established firms prefer more long term debt than short term (Fabozzi & Peterson, 2013).

**Table 4.6: Debt Financing and Internal Sources of Finance**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly disagree	4	13.8	13.8
Disagree	3	10.3	24
Neutral	2	6.9	30.3
Agree	16	55.2	86.2
Strongly Agree	4	13.8	100.0
<b>Total</b>	<b>29</b>	<b>100.0</b>	

From the findings 55.2 % of the respondents agreed while a few (13.8%) strongly agreed that debt financing is usually sought after exhausting internal sources of finance. This yields a cumulative 69% of the respondents agreeing to the statement. 6.9% of the respondents were neutral about the statement, while 24 % disagreed.

The findings are in agreement with studies by (Titman *et al.*, 2011, Irwin & Scott (2010) who all appreciated the fact that firms prefer internal sources of financing like share capital, savings and retained earnings to bank loans, credit finance among others. With Deakins *et al.* (2010) appreciating that internal sources are usually from within the organization are usually cheaper as compared with external that are usually from outside the business enterprise.

### **Debt financing has high interest rates comparatively**

From the findings 44.8 % of the respondents agree while 24.1% strongly agree that debt financing has high interest rates as compared to other sources. This yields a cumulative 68.9% of the respondents agreeing to the statement, 10.3% of the respondents were neutral about the statement, while 20.7% disagreed.

**Table 4.7: Levels of Debt Finance**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagree	4	13.8	13.8
Disagree	2	6.9	20.7
Neutral	3	10.3	31
Agree	13	44.8	75.8
Strongly Agree	7	24.1	100.0
<b>Total</b>	<b>29</b>	<b>100.0</b>	

The above findings are in line with Baimwera and Muriuki, (2014) who argued that high levels of debt are likely to expose the concerned firms to risk due to the fact that interest rates may be high hence failure to service such debts may lead to the risk of bankruptcy. On the other hand, the findings differed from a study by Babatunde, Akinwunmi, Khadijah and Yusuf, (2014) which indicated that firms that are highly financed by long term debt have a higher chance of profitability depending on the nature of industry as debt is a test of managerial prowess thus with good managers firms can be profitable still with high debts. The findings also supported an assertion by Peavler, (2014) which found out that long term finance is critical a source of business funds as it is a prerequisite in raising capital.

#### 4.2.5 Share Capital Finance

The study sought to examine the effect of share capital finance on profitability of petroleum firms in Kenya. These ranged from firm's floating of shares through security exchange markets and private placements, share capital and decision making to share capital financing and stakeholders' support. The following series of tables show the results of the Likerts scale on various debt finance characteristics.

**Table 4.8: Firms' floating of shares through security exchange markets and private placements**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagree	9	31	31
Disagree	6	20.8	51.8
Neutral	4	13.8	65.6
Agree	9	31	96.6
Strongly Agree	1	3.4	100.0
<b>Total</b>	<b>29</b>	<b>100.0</b>	

From the findings 31% of the respondents agree while a few (3.4%) strongly agree that their firms usually float shares through security exchange markets and private placements. This yields a cumulative 34.4% of the respondents agreeing to the statement, 13.8% of the respondents were neutral about the statement, while 51.8% cumulatively disagreed.

The proportions yield a mean of 2.633 indicating "disagree" with majority disagreeing to it (mode = 4). The above findings were in line with Ouma (2012) who found out that most firms in Kenya do not raise their capital from NSE.

**Table 4.9: Share capital and decision making**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	7	24.1	24.1
Disagree	4	13.8	37.9
Neutral	2	6.9	51.7
Agree	13	44.8	89.7
Strongly Agree	3	10.3	100.0
<b>Total</b>	<b>29</b>	<b>100.0</b>	

From the findings 44.8% of the respondents agreed while a few (3.4%) strongly agreed that share capital dilutes ownership and consequently decision making. This yields a cumulative 48.2% of the respondents agreeing to the statement, 6.9% of the respondents were neutral about the statement, while 37.9% cumulatively disagreed. The above findings contradicted findings by Goessl (2010) who noted that the merits of it as a source of finance are far much better as compared to their effect on decision making and consequently the firm profits.

**Table 4.10: Share capital financing and stakeholders' support**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	9	31	31
Disagree	3	10.3	41.3
Neutral	5	17.2	58.5
Agree	10	34.9	93.1
Strongly Agree	2	6.9	100.0
<b>Total</b>	<b>29</b>	<b>100.0</b>	

The above findings are different from those of Abduljeleel, (2014) who disagreed by noting that stakeholders have different interests hence their support may not be unanimous. On the other hand Alsawalhal, (2012) supported the above position that by pointing out that in line with Agency theory management acts on behalf of

shareholders hence there is need for decisions that are supported by other stakeholders.

#### 4.2.6 Trade Credit Finance

The study sought to examine the effect of trade credit finance on profitability of petroleum firms in Kenya. These ranged from increase in accounts payable over the years and trade credit is a reliable source of financing. The following series of tables show the results of the likert scale on various trade credit finance characteristics.

From the findings 31% of the respondents agree while 24.2% strongly agree that accounts payable have been on the increase over the years. This yields a cumulative 54.2% of the respondents agreeing to the statement, 13.8% of the respondents were neutral about the statement, while 31% cumulatively disagreed. The proportions yield a mean of 3.783 indicating “agree” with majority agreeing.

**Table 4.11: Accounts payable have been on the increase over the years**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	5	17.2	17.2
Disagree	4	13.8	31
Neutral	4	13.8	44.8
Agree	9	31	75.8
Strongly Agree	7	24.2	100.0
<b>Total</b>	<b>29</b>	<b>100.0</b>	

The above findings concur with findings by Kungu, Wanjau, Waititu & Gekara, (2014) that over the years businesses enterprises need manage accounts payable properly to ensure suppliers provide inventory without fail. Further the findings were supported by Ojenike *et al.*, (2013) who argued that on the same wavelength when credit terms are relaxed, suppliers tend to reduce costs that are associated with the storage of merchandises besides the costs production levels thus explaining why accounts payable have been on the increase.

#### 4.2.6.1 Trade credit is a reliable source of finance

From the findings 31% of the respondents disagree while 24.1% strongly disagree that trade credit is a reliable source of financing. This yields a cumulative 55.1% of the respondents disagreeing to the statement, 20.7% of the respondents were neutral about the statement, while 6.9% cumulatively agreed.

**Table 4.12: Trade credit is a reliable source of financing**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagree	9	31	16.7
Disagree	7	24.1	55.1
Neutral	5	17.2	72.3
Agree	6	20.7	93.1
Strongly Agree	2	6.9	100.0
<b>Total</b>	<b>29</b>	<b>100.0</b>	

These findings are in line with Silva, (2012), who noted that there is a non-linear relationship between trade credit balance and profit maximization thus both high and low credit levels respectively can be associated with a lower profitability.

#### 4.2.7 Retained Earnings

The study sought to examine the effect of retained earnings finance on profitability of petroleum firms in Kenya. These ranged from the firm preference for long term debt to debt financing and interest rates. The following series of tables show the results of the Likerts scale on various debt finance characteristics.

**Table 4.13: Shareholders preference for employment of retained earnings**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagree	8	27.6	27.6
Disagree	7	24.1	51.7
Neutral	6	20.7	72.4
Agree	8	27.6	100.0
Strongly Agree	0	0.0	
<b>Total</b>	<b>29</b>	<b>100.0</b>	

From the findings 27.6% of the respondents agree most shareholders prefer employment of retained earnings, 27.6% and 24.1% of the respondents strongly disagreed and disagreed respectively. This yields a cumulative 51.7% of the respondents disagreeing to the statement, 20.7% of the respondents were neutral about the statement.

This above position however contradicts a view by Chasan, (2012) and Orwel, (2010) who acknowledged that there is a positive relationship between retained and firm earnings hence the high preference of its employment as it doesn't attract interest and its related risks. Further still these findings fail to explain the argument that enterprises exist for the purpose of creating value different stakeholders ranging from; shareholders, those with investments in the firm, clients both internal and external, employees, among others (Ball, 2013).

**Table 4.14: Retained earnings a reliable source of finance on regular basis**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagree	3	10.3	10.3
Disagree	4	13.8	24.1
Neutral	3	10.3	34.4
Agree	19	65.6	100.0
Strongly Agree	0	0.0	
<b>Total</b>	<b>29</b>	<b>100.0</b>	

From the findings 65.6% of the respondents agree that retained earnings are reliable source of finance as the firm retains on regular basis. Thirteen point three (13.8%) and 10.3% of the respondents disagree over the same statement. This yields a cumulative 24.1% of the respondents disagreeing to the statement however, 10.3% did not give any opinion.

These findings uphold the notion that manager's preference that the firm should retain more funds to ensure growth and address gaps in the current potential opportunities as perceived by management through utilization of what has been given back to the business (Orwel, 2010)

**Table 4.15: All retained earnings have been reinvested back to the business - last 10 years**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagree	6	20.7	20.7
Disagree	8	27.6	48.3
Neutral	8	27.6	75.9
Agree	7	24.1	100.0
Strongly Agree	0	0.0	
<b>Total</b>	<b>29</b>	<b>100.0</b>	



From the findings 27.6% of the respondents were neutral that all retained earnings have been reinvested back to the business over the last 10 years, 27.6% and 20.7% of the respondents disagreed with the same statement. This yielded a cumulative 48.3% of the respondents disagreeing to the statement. The findings above uphold and concur with findings by Dinayak, (2014), Campbell (2012) who acknowledged that the main idea behind retention of profits is that, it facilitates fast growth rate in among firms that have embraced this practice.

#### 4.2.8 Firm's Profitability

Firms' profitability was the study's dependent variable. It is anticipated that variation in some or all aspect of the previously discussed determinants would result to some variation in the financial performance of petroleum firms in Kenya. In order to be able to relate this variable to the determinants (independent variables), the study sought to delve into the characteristics of this variable, for a better insight. The following series of tables show the results of the Likert-scale on the various aspects of profitability.

**Table 4.16: The firm has had an increase in ROA for the last 10 years**

	Frequency	Percent	Cumulative Percent
Strongly Disagree	7	24.1	24.1
Disagree	8	27.6	51.7
Neutral	7	24.1	75.8
Agree	7	24.1	100.0
Strongly Agree	0	0.0	
<b>Total</b>	<b>29</b>	<b>100.0</b>	

From the findings 24.1% of the respondents strongly disagree that the firm has had an increase in ROA for the last 5 years, 27.6 disagreed thus cumulatively 51.7% disagreed. On the other hand, 24.1% of the respondents did not give any opinion while 23.0% agreed over the same statement. The above findings contradicted what

Fabozzi and Peterson (2013) found out as the scholar found both an increase and decrease in profitability over years depending on the prevailing market conditions.

**Table 4.17: Firm has better ROA than industry average for the last 10 years**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagree	7	24.1	24.1
Disagree	7	24.1	48.2
Neutral	8	27.7	75.9
Agree	7	24.1	100.0
Strongly Agree	0	0.0	
<b>Total</b>	<b>29</b>	<b>100.0</b>	

From the findings 27.7 % of the respondents were indifferent about petroleum firms having had better ROA than industry average for the last 10 years, 24.1% of the respondents strongly disagreed, while 24.1% agreed over the same statement.

These findings were mixed as over time, ROA as an indicator of net revenue in comparison with the industry average assets in a given financial year has been both good and bad (Williams, 2010) has been going up and down hence the difference in the findings.

**Table 4.18: Petroleum firms have had an increase in ROE for the last 10 years**

	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagree	7	24.1	24.1
Disagree	7	24.1	48.2
Neutral	7	24.1	72.3
Agree	8	27.7	100.0
Strongly Agree	0	0.0	
<b>Total</b>	<b>29</b>	<b>100.0</b>	

According to Table 4.18, 27.7% of the respondents were in agreement with the statement that the firm has had an increase in ROE for the last 10 years while 24.1% were neutral. 24.1% of the respondents strongly disagreed; another 24.1% disagreed with the statement thus cumulatively 48.2%. The proportions yield a mean of 2.583 indicating “neutral” with majority not giving any opinion to it (mode = 3). The findings in table 4.17 above contradicted the findings of Gul *et al.*, (2011) and Khrawish, (2011) which had noted that net profit margin as compared to equity has been unstable over time due to unstable market conditions.

### 4.3 Findings of Descriptive Statistics

This section presents the descriptive statistical analysis of the collected data based on the results of the entire sample. Summary statistics that encapsulate the measures of central tendency such as the mean, the measures of dispersion such as standard deviation, minimum and maximum observations were used.

Balanced panel of 35 petroleum firms observed for 10 years, Size (log of total assets), all other variables are in ratios. Table 4.13 show the summary statistics for the secondary data observations of the original population consisting of 35 petroleum firms over the period of analysis (2007-2016).

**Table 4.19: Panel Variables Summary Statistics (overall)**

Variables	Obs	Mean	Std. dev.	Min	Max
Trade Credit Finance	350	0.285	0.226	-0.032	0.951
Debt Finance	350	0.453	0.262	0.007	1.000
Size	350	0.165	2.024	0.215	2.706
Retained Earnings	350	0.442	0.416	-1.728	5.986
Share Capital Finance	350	7.005	40.239	-24.140	582.060
Profitability (ROA)	350	0.521	4.165	0.000	56.930

The results indicate that the average value of the profitability ratio measured by ROA, sample petroleum firms in Kenya is 52.1 percent (0.521) this implies petroleum firms on average earned a net income of 52.1 percent of total asset with a maximum and minimum value of 56.930 and 0.000. The standard deviation is 4.165 percent from the average value, which reflects the presence of moderate variation across the sampled petroleum firms. These findings concurred with Banafa (2015) and Amenya (2015) who acknowledged existence of other moderating variables thus can lead to a negative or positive effect on profit.

The average trade credit finance and debt finance to total debts was 28.5% and 45.3% respectively. This demonstrates that a large portion of firms' assets was financed with debt. The maximum borrowings also reaffirm this position as shown in table 4.20 with debt finance being 1.000 and trade credit finance being 0.951. This could imply that debt financing was easily available compared to the trade credit finance which is usually associated with high value collateral and at times restrictive covenants to make it unattractive. This finding contradicts Mwangi *et al.* (2014) who concluded that majority of petroleum firms use trade credit finance to finance their assets.

The average retained earnings to total asset over the period were 44.2%, minimum of -1.728 and maximum of 5.986. This implies that fewer firms were utilizing their retained earnings above average usage. The mean share capital to total assets ratio is 7.005% with a minimum of -24.140, maximum of 582. This shows that majority of the petroleum firms raised capital through shares. The results further showed that the firm size (average assets-holding) by petroleum firms during the period of study was Kshs 16.5 billion with a standard deviation of Kshs 2025. The maximum observation was Kshs 2.706 billion while the minimum value was Kshs 215 million. The above position is upheld by Migiro and Abata (2016) who agreed that the retained earnings can influence firm performance and profitability.

To determine the suitability of the panel data for statistical analysis, various tests were carried out. The tests aimed at establishing whether the panel data met the cardinal requirements of classical linear regression analysis included: normality test,

panel unit root test, multi-collinearity test, panel-level heteroscedasticity test as well as serial correlation test. This section therefore presents the results of various diagnostic tests carried out on the data.

### 4.3.1 Panel Data Normality Test

**Table 4.20: Panel Variables Skewedness/Kurtosis tests for Normality**

Variable	Obs	Pr (Skewdness)	Pr(Kurtosis)	Joint	
				Adj chi2(2)	Prob>chi2
Trade Credit Finance	350	0.0000	0.0000	.	0.0000
Debt Finance	350	0.3145	0.0000	.	0.0000
Size	350	0.0000	0.0000	29.95	0.0000
Retained Earnings finance	350	0.0000	0.0000	.	0.0000
Share Capital Finance	350	0.0000	0.0000	.	0.0000
Profitability (ROA)	350	0.0000	0.2781	15.60	0.0004

$H_0$ : Panel data is normally distributed; Significance level: 5%

Table 4.21 illustrates the results of Skewedness/Kurtosis test on the panel data. The objective of the test is to find out whether or not the data is normally distributed. The test statistic is a chi-square distribution for both individual and joint measures of skewedness and kurtosis. The test was carried out against the null hypothesis of normal distribution. The results indicate that the chi-square statistic for all variables except size and profitability had corresponding  $p$ -values equal to 0.0000. This means that the alternative hypothesis of normality is rejected at 5% significance level; implying that the data was normally distributed.

### **4.3.2 Panel Root Test**

Panel unit root test was applied on all variables used in the analysis in order to determine whether or not the panel data was stationary. Specifically, Augmented Dickey Fuller (ADF) test was conducted for this purpose through Stata version 14, software. The result of the panel unit root test for all variables is presented in Table 4.20. Given the test results, it indicates that all the variables were stationary and significant at 1%, 5% and 10% since the  $p$ -values associated with the respective test statistics were less than 0.01, 0.05 and 0.1.

Rejection of the null hypothesis implied that the variables were used in levels instead of their first difference. The above findings contrasted what Kanwal (2012) and Beisland (2014) found out as they argued that there is a positive correlation and hence a significant relationship between relevant statistics. However, Khan and Zulfiqar (2012) argues that there exists non-significant relationship between the variables hence rejection of Null hypothesis.

**Table 4.21: Panel Unit Root Test Results**

			<b>Time trend included</b>	
<b>Variable</b>			<b>Statistic</b>	<b>p-value</b>
CDF	Inverse chi-squared(142)	P	251.7770	0.0000
	Inverse normal	Z	-1.0476	0.1474
	Inverse logit t(349)	L*	-2.4478	0.0074
	Modified inv. chi-squared	Pm	6.5141	0.0000
SC	Inverse chi-squared(142)	P	438.0271	0.0000
	Inverse normal	Z	-3.0619	0.0011
	Inverse logit t(349)	L*	-8.4996	0.0000
	Modified inv. chi-squared	Pm	17.5660	0.0000
TCF	Inverse chi-squared(142)	P	230.5787	0.0000
	Inverse normal	Z	-0.9396	0.1737
	Inverse logit t(349)	L*	-2.1379	0.0166
	Modified inv. chi-squared	Pm	5.2562	0.0000
RE	Inverse chi-squared(142)	P	171.3070	0.0474
	Inverse normal	Z	0.6756	0.7503
	Inverse logit t(349)	L*	0.3935	0.6529
	Modified inv. chi-squared	Pm	1.7391	0.0410
	Inverse logit t(349)	L*	-13.6532	0.0000
	Modified inv. chi-squared	Pm	23.0205	0.0000

The  $p$ -values for the Augmented Dickey Fuller (ADF) test were based on asymptotic Chi-square distribution.

### 4.3.3 Multi-collinearity Test

Pair-wise correlation was used to examine the level of collinearity present between explanatory variables used in the study. Table 4.23 shows the correlation coefficient matrix of the study variables. As shown in Table 4.23 all the VIFs were less than 5 and Tolerance values were less than 0.2.

**Table 4.22: Variation Inflation Factor**

Variable	Tolerance	VIF
CDF	0.288	3.47
LogS	0.308	3.25
TCF	0.327	3.05
RE	0.537	1.86
SCF	0.947	1.06
Mean		2.54

The correlation coefficients for the variables, being well below 0.8 did not signify severe multicollinearity as recommended by Gujarati (2003) and Cooper and Schindler (2008).

**Table 4.23: Pearson Correlation Coefficient Matrix**

	TCF	CDF	RE	SCF	logS	ROA
TCF	1					
	350					
CDF	-0.462	1				
	0.000					
	350	350				
RE	0.436	0.211	1			
	0.000	0.000				
	350	350				
SCF	-0.196	0.028	-0.169	1		
	0.000	0.462	0.000			
	350	350	350			
logS	0.303	0.530	0.616	-0.084	1	
	0.000	0.000	0.000	0.028		
	350	350	350	350		
ROA	-0.051	-0.265	-0.134	-0.016	-0.172	1
	0.184	0.000	0.000	0.685	0.000	
	350	350	350	350	350	350

**Key:** TCF = trade credit finance; CDF = debt finance; LogS = Size of the firm; RE = Retained earnings; SCF= share capital and ROA= profitability (Return on Asset)



The results indicated existence a significant relationship between return on assets and all the financial structure components with debt and share capital having a negative correlation while trade credit, firm size and retained earnings posted a positive correlation. These findings were at variance with those of Nyakundi, (2015) who found positive relationship between profitability and retained earnings. However, from correlation analysis the study could not tell whether or not the coefficients of debt were adequately significant.

Retained earnings posted a significantly positively correlated results at with return on equity with correlation coefficient of 0.436 with a corresponding p-value of 0.000. A positive correlation coefficient between retained earnings and return on assets was expected due to the fact that whenever a firm employs retained earnings profits are likely to be higher due to absence of interest rate expenses or any other associated risks. Retained earnings is expressed as a ration of retained earnings ratio to equity hence net profit margin as a proxy of ROE. The findings concur with a study done by Gitone, (2010) which indicated that retained earnings as a source of finance can significantly reduce operating costs particularly in petroleum firms.

Share capital finance had a negative correlation coefficient of 0.196 when compared with return on assets with a corresponding p-value of 0.000. The value/number of ordinary share and preference shares held was used as a measures of share capital finance. The indicator showed that whenever the ordinary and preference share ratio as compared to total assets was high then it was an indication the firm had to pay more dividends hence significantly funds for any profitable investment opportunity thus explaining the low profits as firms would engage in profitable investments. The above findings were in line with a study by Nawi (2015) which indicated that increased share capital is likely to affect profits in the long run.

Results above also indicated that firm size is significantly and positively correlated with core return on assets. The association has a positive correlation of 0.303 with a corresponding p-value of 0.000. These results are supported by findings of Babatunde *et al.*, (2013) who indicated that holding other factors constant large firms are likely to be more profitable as compared to smaller firms due to economies of

scale and other favorable factors like a large pool of assets that can be used profitably.

It is critical to note that, the correlation coefficient is significantly different from zero at one per cent level of significance. The findings concur with results Tharmila and Arulvel, (2014) in which it was found out that the financial structure can significantly and positively influence firm profitability. Thus when variables are correlated highly they express same information that there is collinearity meaning existence of dependence of one variable to other.

#### 4.3.4 Panel-level Heteroscedasticity Test

Heteroscedasticity refers to a situation where the variance of the residual-term is not constant but varies with changes in explanatory variables (Gujarati, 2003). Although use of heteroscedastic data still provide unbiased OLS estimators, they are not efficient i.e. they do not have minimum variance in the class of all unbiased estimators. This results to smaller t-statistic value leading to inaccurate test of hypothesis. The assumption of classical linear regression model is therefore that the error-term variance should be constant.

To test for panel level heteroscedasticity, the study adopted the Breusch-Pagan/Cook-Welsberg test method. This involved first estimating the specified empirical models for fixed effects with robust-standard errors and then running the Pagan/Cook-Welsberg test against the null hypothesis of homoscedastic (constant) error variance (Torres-Reyna, 2007). The results are presented in Table 4.24.

**Table 4.24: Breusch-Pagan/Cook-Welsberg test Results for Panel-level Heteroscedasticity**

<b>Fixed effects</b>	<b>Chi2</b>	<b>Prob &gt; chi2</b>
Panel model 1	854.37	0.000
Panel model 2	1184.65	0.000

H0: Constant error variance (homoscedasticity)

The test results for the two models provided chi-square distribution values of 854.37 and 1184.65 with corresponding  $p$ -values of 0.0000 in each case. The results show that the chi-square statistics were all significant at 5 percent level and hence the null hypothesis of constant variance was rejected. This signified existence of panel-level heteroscedasticity in the panel data as recommended by (Wiggins & Poi, 2001).

#### 4.3.5 Serial Correlation Test

Serial correlation refers to a situation where the error terms are correlated with each other, i.e. the disturbance term of one observation is influenced by the disturbance term relating to another observation (Gujarati, 2003). The result is that the OLS estimators determined in presence of autocorrelation normally provide smaller standard errors than what is appropriate leading to misleading results of hypothesis testing. Also, the R squared (coefficient of determination) value is deceptively large (Torres-Reyna, 2007).

To detect presence of autocorrelation in panel data, the study employed the Wooldridge test for autocorrelation against the null hypothesis that there was no first order autocorrelation.

**Table 4.25: Wooldridge test Results for Panel-level Heteroscedasticity**

<b>Fixed effects</b>	<b>F-test statistics (1,30)</b>	<b>p-value</b>
Panel model 1	21.020	0.000
Panel model 2	10.765	0.000

Ho: No first order autocorrelation; Tests carried out at 5% significance level

As illustrated on Table 4.26, the results provided an F-test statistic with one and thirty five degrees of freedom. The F-test statistics for models 1 and 2 were 21.020 and 10.765 respectively with corresponding  $p$ -values equivalent to 0.0000, 0.0000 and respectively. The results indicate that the F-test were statistically significant at 5 percent significance level. The finding therefore signifies a problem of first order autocorrelation in the panel data. The study dealt with this violation of classical

linear regression model assumption by either employing FGLS estimation or used robust standard errors approach depending on the nature of the estimated effects.

#### 4.3.6 The Hausman Test for Model Effects Estimation

In order to establish which estimation effects (between fixed and random) provided superior results for the study, Hausman test was carried out for each of the specified panel regression models. The test was conducted against the null hypothesis that random effect model was the preferred model. The test results rejected the null if the chi-square statistic was significant at 5% significance level; otherwise, the null was accepted.

**Table 4.26: Hausman Test Results without moderation**

---- Coefficients ----				
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed	Random	Difference	S.E.
TCF	-9.015135	-5.033769	-3.981366	1.717748
CDF	-11.45678	-6.405489	-5.051296	1.478138
RE	-.0179918	.6211491	-.6391409	.3294597
SCF	-.0063345	-.0048797	-.0014548	.0026592

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(4) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 12.94$$

$$\text{Prob}>\text{chi2} = 0.0116$$

**Model 2 including moderation**

---- Coefficients ----

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))	
	Fixed	Random	Difference	S.E.	
TCF	-8.361032	-7.721907	-.6391256	2.180293	
CDF	-11.00975	-9.520101	-1.489647	1.652613	
RE	.0050048	.0052152	-.0002104	.3099192	
SCF	-.0065291	-.0060226	-.0005065	.0027582	
logS	.1909574	.5480067	-.3570493	.4221812	

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\text{chi2}(5) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 2.92$$

$$\text{Prob}>\text{chi2} = 0.7116$$

Table 4.27 display the Hausman specification test results for panel regression equations 1 and 2. The test results show that the chi-square statistics for panel

equation 1 was statistically significant at 5% level as supported by the p-values of 0.0116. The study therefore failed to reject the null hypothesis that the fixed effects estimation was appropriate for equation 1 at 0.05 significance level. Effectively, the study estimated the panel equation 1 for fixed effect.

The test results show that the chi-square statistics for panel equation 2 was statistically insignificant at 5% level as supported by the p-values of 0.7116. The study therefore failed to reject the null hypothesis that the random effects estimation was appropriate for equation 1 at 0.05 significance level. Effectively, the study estimated the panel equation 1 for random effect.

#### **4.4 Panel Data Analysis**

Analysis of secondary data was done by undertaking a descriptive analysis of the study variables aimed at obtaining the general profile of the data. In addition, appropriate regression diagnostic checks were undertaken on the data so as to determine its suitability for further statistical analysis. Further, an estimation of the panel regression models specified in section 3.12.4 was undertaken and interpretation of the results performed using the inferential statistics; F-test (Wald-test) and t-test.

Primary data was collected using questionnaires from the sampled respondents comprising finance and operation managers from each of the petroleum firms. The questionnaires contained questions on Likert-type items and were uniformly administered using the drop-and-pick approach to ensure reliability, accuracy, follow-up and maximized response rate

##### **4.4.1 Correlation Analysis**

The researcher used correlation technique to analyze the degree of relationship between two variables with the Pearson correlation coefficient ( $r$ ), which yields a statistic that ranges from -1 to 1. Correlations show the strength of the association between the variables involved. According to Warokka and Gallato (2012), the correlation coefficient ( $r$ ) ranging from 0.10 to 0.29 may be regarded as indicating a low degree of correlation,  $r$  ranging from 0.30 to 0.49 may be considered as a

moderate degree of correlation, and  $r$  ranging from 0.50 to 1.00 may be regarded as a high degree of correlation.

The pairwise correlation Coefficient was used to test whether there existed interdependency between the variables used in this study. It also helps in determining the strength and direction of the association between two variables in a linear relationship, thus forming the basis for selecting variables for further statistical analysis such as regression analysis.

#### 4.4.2 Correlation Analysis for Variable Trade Credit Finance with Profitability

Pairwise correlation coefficient was used to gauge the relationship between trade credit finance and profitability. The results indicated that trade credit finance have an insignificant inverse relationship with ROA.

**Table 4.27: Correlation Analysis for variable trade credit finance**

	ROA	TCF
ROA	1.0000	
	350	
TCF	-0.0676	1.0000
	0.1843	
	350	350

This was indicated by Table 4.28, which show that the p-value was at  $p = 0.1843$  and this met the threshold since  $p > 0.05$ . The inverse relationship was represented by correlation coefficient of 0.0676. The results corroborates with the findings of Salawati (2012) who carried out a study on relationship between trade credit and firm profitability and found out that it was significantly positive thus making trade credit finance as an alternative of financing different firms. However, Hill *et al.*, (2012) disagrees with the above study and demonstrates that as per the findings that firms

with a low market share may not necessary benefit by using trade credit as it is inconvenient since it comes at the supplier's terms.

#### 4.4.3 Correlation Analysis for Variable Debt Finance

**Table 4.28: Correlation Analysis for variable commercial loans**

	ROA	CDF
ROA	1.0000	
	350	
CDF	-0.2652	1.0000
	0.1843	
	350	350

Pairwise correlation coefficient was used to gauge the relationship between debt finance and profitability. The results indicated that debt finance has a significant inverse relationship with ROA. This was indicated by Table 4.29, which show that the p-value was at  $p = 0.000$  and this met the threshold since  $p < 0.05$ . The inverse relationship was represented by correlation coefficient of 0.2652. The results corroborates with the findings of by Zurita and Alejandro, (2013) about the effects of commercial leverage on performance of firms in Jordan who found out that debt level is negatively related with profitability. The findings also collaborated with findings of EIA, (2013a) that debt of petroleum negatively impacts firm profitability.



#### 4.4.4 Correlation Analysis for Profitability and Retained Earnings

**Table 4.29: Correlation Analysis for variable commercial loans**

	ROA	RE
ROA	1.0000	
	350	
RE	-0.1336	1.0000
	0.0004	
	350	350

Pairwise correlation coefficient was used to gauge the relationship between retained earnings and profitability. The results indicated that retained earning finance has a significant inverse relationship with ROA. This was indicated by Table 4.30, which show that the p-value was at  $p = 0.000$  and this met the threshold since  $p < 0.05$ . The inverse relationship was represented by correlation coefficient of 0.2652. The results corroborates with the findings by Maina and Kodongo (2013); Ishaya and Abduljeleel (2014) who agreed that equity dividend ratio can be imperative when measured by variable proxies.

#### 4.4.5 Correlation Analysis for Variable Share Capital Finance

Pairwise correlation coefficient was used to gauge the relationship between share capital finance and profitability. The results indicated that share capital finance have an insignificant inverse relationship with ROA. This was indicated by Table 4.31, which show that the p-value was at  $p = 0.1843$  and this met the threshold since  $p > 0.05$ . The inverse relationship was represented by correlation coefficient of 0.0676. The results corroborates with the findings of

**Table 4.30: Correlation Analysis for variable Share capital finance**

	ROA	SCF
ROA	1.0000	
	350	
SCF	-0.0155	1.0000
	0.6845	
	350	350

Pairwise correlation coefficient was used to gauge the relationship between retained earnings and profitability. The results indicated that retained earnings have significant inverse relationship with ROA. This was indicated by Table 4.29, which show that the p-value was at  $p = 0.0004$  and this met the threshold since  $p < 0.05$ . The inverse relationship was represented by correlation coefficient of 0.1336. The results fails to corroborate with the findings of Singh and Mohinder, (2016) who argued that retained earnings has an inverse relationship with profitability as measured by ROA.

#### **4.5 Panel Regression Analysis**

The first stage involved regressing the panel ROA for profitability against the primary financial structure variables as specified under panel model 1. To determine the moderating effect of firm size on the relationship between financial structure and profitability, an estimation of panel model 2 was undertaken. A comparative analysis of the panel model regression results was then conducted to determine the direction, magnitude and significance of moderation.

#### 4.5.1 Effect of Financial Structure on Profitability

The overall objective of the study was to establish the effect of financial structure on profitability of petroleum firms in Kenya. To achieve this objective, the study estimated panel regression Equation 1 for fixed effects as supported by the Hausman test. The results of panel regression analysis are laid out in Table 4.32.

**Table 4.31: Un-moderated Panel Regression Results – Fixed Effect**

ROA	Coefficient	Std. Errors	T	P> t
TCF	9.015	1.966	-4.58	0.000
CDF	-11.457	1.659	-6.91	0.000
RE	-0.018	0.573	-0.03	0.975
SCF	-0.006	0.005	-1.36	0.174
_cons	9.336	1.280	7.29	0.000
Model 1				
Statistics	Model 1			
R squared	0.716			
Rho	0.304			
Prob > F	0.000			
F(4,601)	13.120			

Table 4.32 indicate the panel regression results of panel model 1 estimated with the Null hypothesis that; financial structure does not have influence on profitability of petroleum firms in Kenya. Panel model 1 show the regression results with only the financial structure variables with an  $R^2$  of 0.7157 in model 1. This meant that financial structure variable under study explained 71.57% of variation in profitability of petroleum firms in Kenya during the period under study.

The F-statistic was 13.12 with the corresponding  $p$ -value of 0.0000 signify that the coefficients of the four variables are jointly statistically different from zero at 99%,

95% and 90% confidence levels. Based on these results, the null hypothesis that financial structure did not affect profitability of petroleum firms in Kenya was rejected at 5% level of confidence. The above findings were supported by a study carried out by Nelson *et al.* (2014) who agreed that more than one variables and coefficients can influence profitability of the firm besides risks drawn from areas that are supposed to get focus from the business enterprise.

The implication of the above is that whenever a firm is entirely financed by equity, all its cash flows will benefit the equity holders as compared to when it is financed with debt where by it ends up benefiting external stakeholders like the financial institutions. However, debt holders will earn a fixed amount of return in form of interest or dividend, while equity holders will get a residual amount of return depending the business's profits.

#### **4.5.2 Effect of Share Capital Finance on Profitability**

The study sought to establish the effect of share capital finance on profitability of petroleum firms in Kenya. The regression results presented in Table 4.25 show that share capital finance has coefficients of -0.006. The coefficients are negative and statistically insignificant at 5%, 1% and 10% percent level as signified by *p*-values of 0.174. The results indicate that during the period of study, use or lack of use of share capital finance did not affect firm profitability. The above findings agree with the findings of Titman *et al.*, (2011) who notes that increased use of equity can adversely affect returns of the firm as dividends must be paid to different shareholders.

What the above implies is that since equity finance has got the risk bearing component, the finance provided by the owners of the business will always affect shareholders' in terms of a percentage of equity shares held by the equity holders and dividends paid out hence may not necessary negatively affect profits.

#### **4.5.3 Effect of Trade Credit Finance on Profitability**

The study sought to establish the effect of trade credit finance on profitability of petroleum firms in Kenya. The results indicate a negative and significant relationship

between trade credit finance and profitability at 1% significance level. This is evidenced by the beta coefficient of -9.015 and a corresponding  $p$ -value of 0.000. The results signify that during the period of study, increasing trade credit finance reduced the profitability of petroleum firms in Kenya; implying a decline in profitability. The above findings corroborate with a study done by Hill *et al.* (2012) who indicated that the increased use of trade credit for firms with low market share may adversely affect firm profitability. As also argued by Lawal *et al.* (2014) who acknowledged that it may compromise firm stability and thus sacrifice reduce profits significantly in the predictable future.

#### **4.5.4 Effect of Retained Earning Finance on Profitability**

The study sought to establish the effect of retained earnings finance on profitability of petroleum firms in Kenya. The results indicate an inverse and insignificant relationship between retained earnings finance and profitability at 1% significance level. This is evidenced by the beta coefficient of -0.018 and a corresponding  $p$ -value of 0.975 under equations 1. The results signify that during the period of study, increasing use of retained earnings finance did not increase or reduce the profitability of petroleum firms in Kenya; implying an improvement in their financial status.

The implication in terms of retained earnings is that as firm in the petroleum and industry and beyond retains a considerable amount of profits by somehow not paying all dividends it increases the potential of the firm to grow thus stock price also increases and in the long run it increases profits.

#### **4.5.5 Effect of Debt Finance on Profitability**

The study sought to establish the effect of debt finance on profitability of petroleum firms in Kenya. The results indicate a negative and significant relationship between debt finance and profitability at 1% significance level. This is evidenced by the beta coefficient of 11.457 as shown in equations 1 and a corresponding  $p$ -value of 0.000 and 0.000 under equations 1.

The results signify supported for the assertion that increased use of debt can increase profitability as also explained by Ezazi *et al.* (2011) argued that profitability can still be achieved with debt on condition of good management. Gonzalez and Molina (2010) also upheld the above position that a higher financial concentration can improve profits and thus financial structure has a strong influence on firm profits. On other studies it was found out that management's expectations are aroused in case the firm's debt ratios are higher and could be used to gauge future cash flows and hence, may result in shifts in a firm's share prices and general influence on a firm's financial performance (Siro, 2013).

The above findings imply that adoption of debt finance in a financial structure of the firm is a signal of higher cash flows in the future. Thus management of these firms use it as signal to the market that their firms are progressive as far future performance is concerned therefore indication of ability to offset both existing and additional debt.

#### **4.5.6 Moderating effect of Firm Size on relationship between Financial Structure and Firm Profitability**

A Moderator variable is the variable that potentially influences the nature of the relationship between dependent variable and independent variables in empirical research. The study tested for moderating effect of firm size on the established relationship between financial structure variables and profitability by estimating panel equation 2 for random effects as supported by the Hausman's test results.

The study then estimated Panel equation 2 for random effects and compared the panel regression results of the model with the result of model 1 to determine whether moderation occurred. As recommended by Fairchild and MacKinnon (2009), moderating effect is deemed significant if the coefficients of the moderated variables are statistically significant and the predictive power ( $R^2$ ) of the moderated regression Equation is higher than that of the initial model.

According to Saunders *et al.* (2009), moderation refers to interaction effect, where introducing a moderating variable changes the direction or magnitude of the

relationship between the dependent and independent variables. Fairchild and MacKinnon (2009) wrote that moderation could either be enhancing, buffering or antagonistic. Enhancing moderation relates to a situation where increasing the moderator also increases the primary effect of the predictor variable on the outcome variable. Buffering moderation effect is where increasing the moderator decreases the primary relationship between the explanatory variable and the explained variable. The above explanation provides the rationale for carrying out un-moderated panel regression test so as to find out the results of moderated effect and compare them with the non-moderated model.

**Table 4.32: Panel Regression results for the un-moderated and moderated model**

<b>Model 1</b>	<b>Coefficient</b>	<b>Std. Errors</b>	<b>Z</b>	<b>P&gt; t </b>
TCF	-9.015	1.966	-4.58	0.000
CDF	-11.457	1.659	-6.91	0.000
RE	-0.018	0.573	-0.03	0.975
SCF	-0.006	0.005	-1.36	0.174
_cons	9.336	1.280	7.29	0.000
<b>Statistics</b>				
R squared	0.716			
Rho	0.304			
Prob > F	0.000			
F(4,601)	13.120			
<b>Model 2</b>	<b>Coefficient</b>	<b>Std. Errors</b>	<b>Z</b>	<b>P&gt; z </b>
TCF	-7.722	1.149	-6.72	0.000
CDF	-9.520	1.058	-9.00	0.000
RE	0.005	0.487	0.01	0.991
SCF	-0.006	0.004	-1.59	0.112
LogS	0.548	0.132	4.14	0.000
_cons	7.986	0.747	10.69	0.000
<b>Statistics</b>				
R squared	0.7335			
Rho	0			
Prob > F	0.0000			
Wald chi2(5)	10.31			

The results presented in show a comparative analysis of the regression results of both the primary (un-moderated) model and the model upon moderation by firm size. The objective of the study was to determine whether the effect of different proxies of financial structure on profitability changes with introduction of interaction between financial structure and firm size variables. A comparison of panel regression results of the moderated equation against those of the model without moderation reveal that introduction of moderation result in improvement of the model's predictive power as evidenced by increase in the adjusted R-values.

In addition, the Wald statistic and p value for both equations is statistically significant; indicating that the variables used are jointly statistically significant. The results also indicate that firm size has a positive and significant effect on profitability of petroleum firms in Kenya during the period of study. This finding collaborated with previous studies by (Wakiaga, 2016) who appreciated that the size of the firm affects profitability and hence critical.

#### **4.6 Hypothesis Testing Results**

Hypothesis testing is a process by which the researcher infers the result of sample data on the larger population based on a presupposition made prior to commencement of research (Gujarati, 2003 cited in Agrawal, Catalini, & Goldfarb, 2011). The study performed hypothesis testing by determining statistical significance of the coefficients of explanatory variables. Test-of-significance method is meant to verify the truth or falsity of a null hypothesis by using sample results, showing that the means of two normally distributed populations are equal. This was done by using the two-tailed t-test statistic and the corresponding *p*-values at 1%, 5% and 10% levels.

The decision to use a two-tailed test was based on the fact that the alternative hypothesis of the study is composite rather than directional (Gujarati, 2003). This procedure was carried out against the null hypotheses enumerated in section 1.4 of chapter one. In all the tests, the decision rule was that: if the *p*-value observed is less than the set alpha (significance level), then reject the null hypothesis and if the observed *p*-value is greater than the set alpha, do not reject the null hypothesis.



**H<sub>0</sub>1: Debt finance has no significant effect on profitability of petroleum firms in Kenya.**

The analysis results show that debt financing has significant effect on profitability at 1% level. This is based on the *p*-values corresponding to the coefficients equivalent to 0.0000. This finding led the study to reject the stated null hypothesis with 99% confidence level. By rejecting the null hypothesis, the study accepted the alternative hypothesis and concluded that debt finance has significant effect on profitability of petroleum firms in Kenya.

The above findings are in line with Pouraghajan and Malekian (2012) who conducted a study to establish the impact of financial structure on financial performance of companies listed in. The results suggest that there is a significant negative relationship between debt ratio and financial performance of companies. And also Dube (2013) did a study who acknowledged that level of debt financing as an impact on profitability.

**H<sub>0</sub>2: Share capital finance has no significant effect on profitability of petroleum firms in Kenya.**

The analysis results show that share capital has insignificant effect on profitability at 1% level. This is based on the *p*-values corresponding to the coefficients equivalent to 0.174. This finding led the study to reject the stated alternative hypothesis with 95% confidence level. By rejecting the alternative hypothesis, the study accepted the null hypothesis and concluded that share capital finance has no significant effect on profitability of petroleum firms in Kenya. The above was in line with Buigut et al., (2013) who found out that equity prices and stock prices of energy sector firms are aversely influenced by debt and inversely influenced by equity.

**H<sub>03</sub>: Trade Credit financing has no significant effect on profitability of petroleum firms in Kenya.**

The analysis results show that trade credit financing has significant negative effect on profitability at 1% level. This is based on the *p*-values corresponding to the coefficients equivalent to 0.000. This finding led the study to reject the stated null hypothesis with 99% confidence level. By rejecting the null hypothesis, the study accepted the alternative hypothesis and concluded that trade credit finance has significant effect on profitability of petroleum firms in Kenya. The above results are in line with those of (Muscettola, 2014) who found out that trade credit helps accumulate assets critical in achieving optimal profits.

**H<sub>04</sub>: Retained earning finance has no significant effect on the profitability of petroleum firms in Kenya.**

The analysis results show that retained earnings financing has insignificant negative effect on profitability at 1% level. This is based on the *p*-values corresponding to the coefficients equivalent to 0.975. This finding led the study to reject the stated alternative hypothesis with 95% confidence level. By rejecting the alternative hypothesis, the study accepted the null hypothesis and concluded that retained earnings finance has no significant effect on profitability of petroleum firms in Kenya. The findings were different with findings that pointed out that retained earnings belong to the stockholders and the discretion to pay them out as dividends squarely lies with the firm's board of directors (Bhat and Zaelit, 2014).

**H<sub>05</sub>: Firm size has no significant intervening effect on the financial structure and profitability of petroleum firms in Kenya.**

The analysis results show that firm size has significant moderating effect on the relationship between financial structure and profitability at 5% level. This is evidenced by the *p*-values corresponding to the coefficients of the product terms between financial structure variables and size variable that were all less than 0.05. This finding led the study to reject the stated null hypothesis with 95% confidence level. By rejecting the null hypothesis, the study accepted the alternative hypothesis

and concluded that firm size has a significant moderating effect on the relationship between financial structure and profitability of petroleum firms in Kenya. The findings were in line with findings that the effect of firm size on profitability is positive when firm managers have no discretion over a firm's assets (Lim *et al.*, 2014).

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the summary of the empirical findings derived from the study, conclusions and the relevant policy recommendations. The overall objective of the study was to establish the effect of financial structure on profitability of petroleum firms in Kenya. Presentation of the chapter was organized around the specific objectives and hypotheses enumerated in sections 1.3 and 1.4.

The conclusions are also aligned with the specific objectives with a particular focus on whether the research hypotheses were accepted or rejected by the study. The recommendations encapsulate suggestions meant to add value at both managerial and regulatory policy levels in accordance with the study findings. Finally, the chapter proposes areas for further research to address the gaps that could not be filled by the study due to time and cost constraints.

#### 5.2 Summary of Findings

The study sought to establish the effect of financial structure on profitability of petroleum firms in Kenya. This involved investigating the effect of debt finance, share capital finance, trade credit finance and retained earning finance. In addition, the study sought to determine how firm size moderated the relationship between financial structure and profitability. The summary and discussion followed the study hypothesis formulated in chapter one.

**Table 5.1: Summary of Test of Hypotheses**

<b>Research Objective</b>	<b>Research Hypothesis</b>	<b>Decision</b>
<b>Objective One:</b> Determine the effect of debt on profitability of petroleum firms in Kenya.	<b>H<sub>01</sub>:</b> Debt has no significant effect on profitability of petroleum firms.	<b>Accept</b>
<b>Objective Two:</b> Establish the effect of share capital on performance of petroleum firms in Kenya.	<b>H<sub>02</sub>:</b> share capital has no significant effect on profitability of petroleum firms in Kenya.	<b>Accept</b>
<b>Objective Three:</b> Assess the effect of trade credit on profitability of petroleum firms in Kenya.	<b>H<sub>03</sub>:</b> Trade credit has no significant effect on profitability of petroleum making firms in Kenya	<b>Accept</b>
<b>Objective Four:</b> Examine the effect of retained earnings on the profitability of petroleum firms in Kenya.	<b>H<sub>04</sub>:</b> Retained earnings have no significant effect on the profitability of petroleum firms.	<b>Accept</b>
<b>Objective Five:</b> Firm size has no moderating effect between financial structure and profitability of petroleum firms in Kenya.	<b>H<sub>05</sub>:</b> Firm size has no significant moderating effect between financial structure and profitability of petroleum firms in Kenya.	<b>Accept</b>

**Source: Data Analysis (2017)**

### **5.2.1 Effect of debt on profitability**

The first specific objective of the study was to establish the effect of debt finance on profitability of petroleum firms in Kenya. This was achieved by analyzing how employment of debt affected the ROA of the firms under study. The study found that during the analysis period, debt had a negative and significant effect on profitability of petroleum firms in Kenya.

### **5.2.2 Effect of share capital finance on Profitability**

The second specific objective was to investigate the effect of share capital finance on profitability of Kenyan petroleum firms. This was achieved by analyzing how employment of share capital finance affected the ROA of the firms under study. The study found that during the analysis period, share capital finance had a negative and insignificant effect on profitability of petroleum firms in Kenya.

### **5.2.3 Effect of trade credit finance on profitability**

The third objective was to investigate the effect of trade credit finance on profitability of Kenyan petroleum firms. This was achieved by analyzing how employment of trade credit finance affected the ROA of the firms under study. The study found that during the analysis period, trade credit finance had a negative and significant effect on profitability of petroleum firms in Kenya.

### **5.2.4 Effect of retained earning finance on profitability**

The fourth specific objective of the study was to establish the effect of retained earning finance on profitability of petroleum firms in Kenya. This was achieved by analyzing how employment of retained earnings finance affected the ROA of the firms under study. The study found that during the analysis period, retained earnings finance had an inverse and insignificant effect on profitability of petroleum firms in Kenya.

### **5.2.5 Moderating Effect of Firm Size on profitability**

The study further sought to determine how firm size moderated the relationship established between financial structure and profitability of petroleum firms in Kenya. The effect of moderation was observed by testing the direction, magnitude and significance of the product terms between individual capital structure variables and firm size variable (natural log of total assets). The study found that the size of the firm had a significant moderating effect on the relationship between financial structure and firm profitability.

### **5.3 Research Conclusions**

Based on the findings of the study, it is worth concluding that financial structure indeed affects the profitability of petroleum firms in Kenya, though differently based on the source. Overall, there exist a strong effect of financial structure on ROA. These effect is also significant at 5% level of significance.

In addition, results on the effect of trade credit finance on ROA suggest that agency theory is applicable based on the investors return on investment. The huge proportion of asset financing through debt could imply that debt financing was less costly and therefore available compared to the trade credit finance which is usually associated with high value collateral and at times restrictive covenants making it unattractive. Generally on debt financing, it is prudent to conclude that firms should borrow to finance their growth even though it has a negative effect on profitability.

It is also evident from the findings that share capital financing seem to be the preferred choice by majority of firms. Firms are therefore at liberty to raise capital through equities since they have marginal negative impact on returns. In addition, the general preference of external equity over retained earnings and debt clearly negates the provision of the pecking order theory implying that it may not be applicable in practice.

## **5.4 Study Recommendations**

Finally, the study focused on only the profitability of firms and ignored the non-financial goals which can be of equal importance for managers and owners. Therefore, future studies should take into account both financial and non-financial goals and assess them in firms having different ownership structures. Further the study only collected information and views from the company's financial statements and their employees and ignored other interested stakeholders and therefore there is need to bring on board views of other outside stakeholders and investors. Following the findings and conclusions made by the study, several recommendations are proposed. These recommendations are made both in managerial and policy perspectives.

Research indicates that financial leverage effect on profitability is mainly due to the high cost of borrowed funds. Therefore, the researcher recommended that firms source for less costly sources of finance which don't exhaust the earnings of the firms. Firms should also negotiate for better and longer credit terms in relation to repayment terms and interest rates.

There is need for firms aiming at optimizing their financial structure adopting effective management team that is able to turn around the firm's fortunes in terms of improved profitability using both the traditional methods like equity share, debt finance, trade credit besides retained earnings and conventional/emerging ones like bonds, overdrafts, short term debt, debt factoring, and even debentures which are both long term and short term in nature while at the same time minimizing the firm's risk like bankruptcy and insolvency.

### **5.4.1 Managerial Implication**

At managerial level, the recommendations provide guidelines to managers of petroleum firms on how corporations ought to configure their financial structures so as to mitigate instances of reduced profits and subsequent bankruptcy.



### **5.4.2 Policy Implication**

At policy level, the recommendations are aimed at bringing to light the need to institute appropriate regulatory mechanisms meant to cushion investors from loss of their hard earned wealth and hence restore confidence in their investments.

First, firms should endeavor to employ more equity and less debt capital to finance their operations. This recommendation is based on the revelation that employment of debts is a major recipe for reducing profitability. Secondly, the study recommends that where firms must consider using debt in their financial structure, trade credit finance should be prioritized ahead of debt. This recommendation is based on the finding that debt reduces profitability.

Thirdly, the study recommends that in configuring their financial structure, financing managers of petroleum firms should prioritize the use of internally generated capital such as retained earnings and reserves ahead of externally issued equity. This recommendation derives from the observation that retained earning improves profitability.

At policy level, the study recommends that the government should introduce initiatives that are aimed at lowering the high interest rates associated with borrowed capital (debt financing). Such initiatives that involves proper management of monetary and fiscal environment would go a long way in alleviating the high cost of capital among petroleum firms and hence mitigate the incidence of losses associated with debt financing.

### **5.5. New knowledge Gained**

The study was critical in demonstrating that an optimal financial structure has ability to facilitate optimizing prices of petroleum prices as the financial structure is capable of significantly reducing costs and thus prices charged by the petroleum firms can be brought down for the benefit of consumers which is a tool that can be used by ERC in its policy guideline in addition to price caps.

Besides the above, a fund contributed by the petroleum firms at the disposal of petroleum firms can be established which to be managed by petroleum firms in conjunction with the ERC as a stop gap measure for firms in urgent financial need to avoid obtaining finances from expensive sources that end up raising the costs of operations. This fund can be used as an alternative and affordable source of funds hence need to create a policy frame work to guide such an undertaking.

In case of need for new research it can be carried out but this time incorporate more independent variables in the study and the period of the study may be varied in terms of length for better and clear results and findings.

Further petroleum firms can also be encouraged to diversify so as to enjoy reap benefits of the economies of scale with an aim of minimizing the costs of operation so as to increase profitability as an alternative of only making adjustments to traditional components of the financial structure .

## **5.6 Areas for Further Research**

Firms need to balance the composition of their financial structure to exceed the traditional debt and equity as expressed in most capital structures in such a way that they become cost effective and not detrimental to future growth of firms. Hence business organizations need to therefore apply the ore relevant financial structure theories besides those like the pecking order theory, trade-off theory.

This study sought to provide empirical understanding on the effect of financial structure on profitability of petroleum firms in Kenya. Further, this study was undertaken within the Kenyan context and represents the background of an emerging market with unique characteristics in economic, regulatory and political fronts. In addition, the 35 petroleum firms in Kenya could be considered few and hence less representative in wider jurisdictions. The choice of this geographical scope was informed by time and budgetary constraints facing the researcher. The applicability of the study results may therefore be restrictive. In that regard, the study recommends a similar study be carried out within larger jurisdictions that could present unique economic and regulatory dynamics.

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## APPENDICES

### Appendix I: questionnaire

#### Section I: Background Information

1. Gender Male [ 1 ]      Female [ 2 ]

2. Cumulative experience working in their departments

Less than 5 years [1]    5-10 years [2] 11-20 years [3]    Over 20 years [4]

3. How many years have you worked as a senior level staff?

Less than one [1]    1-2 [2] 2-4 [3]    >5 [4]

4. What is your highest education level?

O-levels [1]    Diploma [2] Higher diploma [3]    Degree [4]    Masters and above [7]

#### SECTION TWO –Debt financing (Tick (√) or fill appropriately)

1	Debt is critical in financing company operations	Yes	No			
2	The firm prefers long term debt to short term debt as source of finance.	1	2	3	4	5
3	Debt financing is usually sought after exhausting internal sources of finance.	1	2	3	4	5
4	Debt financing has high interest rates as compared to other sources.	1	2	3	4	5

**SECTION THREE- Share Capital finance** (Tick (√) or fill appropriately)

1	The firms usually floats shares through security exchange markets and private placements.	1	2	3	4	5
2	Share capital dilutes ownership and consequently decision making.	1	2	3	4	5
3	Share capital financing enjoys the support of all stakeholders.	1	2	3	4	5

**SECTION FOUR Trade credit finance** (Tick (√) or fill appropriately)

1	Most suppliers are willing to supply goods and are then paid later as per the agreement.	1	2	3	4	5
2	Accounts payable have been on the increase over the years.	1	2	3	4	5
3	Trade credit is a reliable source of financing.	1	2	3	4	5
4	The firm pays accounts payable in good time.	1	2	3	4	5

**SECTION FIVE –Retained earnings finance** (Tick (√) or fill appropriately)

1	Most shareholders don't prefer employment of retained earnings.	1	2	3	4	5
2	Retained earnings are reliable source of finance as the firm retains on regular basis.	1	2	3	4	5
3	All retained earnings have been reinvested back to the business over the last 10 years.	1	2	3	4	5

**SECTION SIX- Firm size** (Tick (√) or fill appropriately)

1	The number of total assets has been on the increase Total assets.	1	2	3	4	5
2	Number of employees has been on the increase in the last 10 years.	1	2	3	4	5
3	The market share of the firm has increased over the last 10 years	1	2	3	4	5
4	Number of branches country wide have increased in the last 10 years	1	2	3	4	5

10. Please make any other relevant comments.....

**SECTION SEVEN- Profitability of Petroleum firms** (Tick (√) or fill appropriately)

1	Profits made by the industry have been consistent over time.	1	2	3	4	5
2	All profits are shared with all stakeholders regularly	1	2	3	4	5
3	The return on investment (ROI) is the best measure of firm profitability	1	2	3	4	5

## Appendix II: Petroleum Firms in Kenya

	Company		Company
1.	Total Kenya	22	Banoda Oil Limited
2.	Vivo Energy	23	City-oil Kenya Petroleum Limited
3.	Kenol/Kobil Limited	24	Royal petroleum Limited
4.	Libya Oil Kenya Limited	25	Futures Energy Co. Limited
5.	Hashi Energy Ltd	26	Tiba Oil Company Limited
6.	National Oil K. Ltd.	27	MGS International Limited
7.	Engen Ltd	28	Ramji Hiribhai Devani
6.	Gapco Kenya	29	Oryx Energies Kenya Limited
9.	Petro oil Kenya	30	Ranway Traders Limited
10.	Gulf energy	31	Olympic Petroleum Limited
11.	Hash Petroleum	32	Trojan International Limited
12.	Fossil fuels Ltd	33	Axon Energy Limited



13.	Regnol Oil Kenya	34	Tradiverse Kenya Limited
14.	Bakri Inter. Energy limited	35	Fast Energy Limited
15.	Galana oil Kenya		
16.	Essar Petroleum		
17	East African Gas Oil Limited		
18	Global Petroleum Products		
19	Dalbit Petroleum Limited		
20	Tosha Petroleum Kenya Limited		
21	Ainushamsi Energy Limited		

Source: **Source:** ERC 2017 ([www.erc.go.ke](http://www.erc.go.ke))



**Appendix IV: ROE and short Term Loans**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>ROE</b>										
<b>TOTAL DEBT RATIO</b>										
<b>LIQUIDITY</b>										
<b>SHORT TERM LOANS</b>										
<b>LONG TERM LOANS</b>										
<b>TRADE CREDIT</b>										
<b>ACCOUNTS PAYABLE</b>										
<b>ROA</b>										
<b>EQUITY</b>										
<b>TAX PAID</b>										
<b>TOTAL ASSETS</b>										









