EFFECT OF FIRM CHARACTERISTICS ON THE FINANCIAL PERFORMANCE OF ENERGY AND PETROLEUM FIRMS LISTED IN THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

I hereby declare that this research is my written work and has not been submitted to any other college or institution of higher learning for academic credit.

Signature ………………………………. Date…………………………………

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This research project has been submitted for examination with my approval as the Candidate's university supervisor.

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DEDICATION

This work is dedicated to Esther Akuno who is my mother, Brian Batimus my brother who have demonstrated exceptional tenacity, unconditional love and unwavering encouragement. They have been my cheerleaders from the onset!

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LIST OF ABBRIVATIONS

COC	Cost of Capital
CS	Capital Structure
ERC	Energy Regulatory Commission
GOK	Government of Kenya
KENGEN	Kenya Electricity Generating Company Limited
KNBS	Kenya National Bureau Of Statistics
KPLC	Kenya Power & Lighting Company Ltd
MOE	Ministry of Energy
NOCK	National Oil Corporation of Kenya
NPV	Net Present Value
NSE	National Securities Market
OPEC	Organization of the Petroleum Companies
ROA	Return On Assets
ROE	Return On Equity
TCA	Transport Co-ordination Authority
WACC	Weighted Average Cost of Capital

LIST OF FIGURES

LIST OF TABLES

TABLE OF CONTENTS

ABSRACT

This study sought to examine the effect of firms traits namely board size, liquidity, firm size, age and leverage on the financial performance .Financial performance is measured by ROA and ROE. Correlation research design is used to find out the effects of firm characteristics on performance of the firm. The study was carried out for all petroleum and energy firms listed at the NSE as from 2010 to 2017.It was evidenced in the study that leverage and board size were statistically significant. The remaining variables were not statistically significant. These were firm size, liquidity and firm age. Firm size and leverage were positively related to firm financial performance. Board size, firm age and liquidity were the only variables that were negatively related to firm financial performance. The study had limitation in terms of scope because it only concentrated on energy and petroleum firms listed in NSE. The study focused only on five traits namely, age, size, leverage, liquidity and board size in establishing performance of the firms at NSE. The study only concentrated on a specific sector of the economy i.e. energy and petroleum. The study recommends the use of proportionate debt financing in relation to total capital financing is profitable, therefore the firms should use debt financing up to a point where any extra debt financing causes net cost to the firms. It should also increase its assets to influence its competitive power.

CHAPTER ONE

INTRODUCTION

1.1   Background of the study

Numerous researches have been conducted to investigate the effect of various firm characteristics on financial performance of firms operating in different industries. Most of the researchers have concentrated on only a few if not one firm characteristic and have used others as control variables even though results of their findings show that the "other firm characteristic" actually have a significant effect on financial performance (Nunes, Serrasqueiro & Sequeira, 2009; Dogan, 2013). It is beneficial to grasp the effects of firm characteristics on firm performance like profitability or returns on investment, returns on assets or returns on equity. Financial performance may be impacted by operating decisions whenever company's resources are used effectively to increase the profitability of the firm. Use of debt is one type of decisions that a company might make to increase its assets in order to generate more profits (Kimani, 2012). Much as the managers of these corporations attempt to influence performance at their functional levels be it either in marketing, finance or operations; there still remains a gap in understanding the combined effects of these firm–level characteristics in a more holistic view (Jensen & Meckling, 1976).

Goddard, Tavakoli and Wilson (2005) based on accountancy and finance, industrial economics and strategic management approaches used firm characteristics for example firm leverage, market power, size and liquidity in an attempt to investigate their effect on firm performance. The study will be anchored on the agency theory, capital structure

theory and pecking order theory to understand firm characteristics to the performance of petroleum firmslisted at the NSE. Jensen and Meckling (1976) noted that managers, directors and owners of any firm have different interests as indicated in agency theory. According to Baker and Anderson (2010), for firms to escape from agency conflicts, ownership and management functions should be separated at any given time in order to avoid residual losses.

Kenya in 2015 spent a total of Kshs.333.1 billion in importation of petroleum products by various Oil and Petroleum companies (KNBS, 2015). Being able to have reliable, safe, quality, competitive priced and steady supply of energy is fundamental for achievement of the Kenya Vision 2030 and thus energy security remains a national priority (MOE, 2013).The research will focus on the effects of firm characteristics and how they affect performance of petroleum firms which are listed at NSE.

1.1.1 Firm Characteristics

Most firm characteristics are interconnected to firm financial performance. Non-financial characteristics and financial characteristics like size of the firm (Dogan, 2013), leverage (Dogan, 2013), firm age (Yazdanfar, 2013) and liquidity (Dogan, 2013) normally influence organizational growth positively or negatively. The firms' data is normally used to measure the firms' characteristics and performance, Galbreath & Galvins (2008).
Age indicates length of years of operations since the firm was (Pollet, 2009).Age is being computed by using the duration in years the firm has been operating. Older firms have

established themselves in the environment and as such, they are active in market as compared to new firms in the market. Firm size can be measured in terms of asset base, number of employees, sales volumes, and capital investments values. Big firms enjoy economies of scale that accrue due to their size and enhance their financial performance as compared to small firms (O'sullivan, Abela & Hutchison, 2009).

Liquidity is all about the company being able to pay its current liabilities (Renato, 2010). Bhunia, Bagach and Khamrui (2012) indicated in their research that, absolute liquid ratio is the most accurate test of liquidity as compared to current ratio and liquid ratio. Preferred equity and debt financing is normally used by firms to finance their operations, this is known as Financial leverage (Muhammed, 2014). Some firms use over three thirds debt thus becoming highly levered. It also results to high financial costs like interest hence negatively affects share prices at long run (Dogan, 2013).

1.1.2 Financial Performance

Financial performance is measuring of how a firm can use its assets to generate revenue (Mbugua, 2013). Different stakeholders have an interest of firm's health at any given time; this is done through measuring financial performance (Leah, 2008). Hongren, Harrison and Oliver (2009) did a research which was against measuring financial performance. Their research paper argued that financial performance are historical (lag indicators) rather than being futuristic (lead indicators). Additionally, they are subjective in that they are influenced by the choice of accounting policies adopted, they only

provide a summary of firm's information and also affected by difference in accounting period.

Measuring financial performance is beneficial as they serve as motivation mechanism, serve as key objectives for business strategies and are tools for financial management (Nelly, 2010). The data used to measure financial position and financial performance is normally extracted from annual financial reports like cash flows statements and balance sheets (Burja, 2011). Some of the measures of financial performance are; Cash flow based measures, stock based measures and accounting based measures (Leah, 2008). Various ratios are used to measure profitability, liquidity and solvency. Measures of profitability are employed which include; gross profit margin, return on equity/assets and earnings before Interest and tax (Mwangi & Murigu, 2015).

1.1.3 Characteristics of the firm and its financial performance

Larger companies are performing better than smaller companies. This is because larger firms enjoy control of the market thus making them access to financial opportunities at a lower cost than the small firms (Pandey, 2015). This as a result means that firm size will experience impact on the results influenced by the firm's size (Nyabwaga, Lumumba, Odondo & Simeyo, 2013). Findings by; Nunes et al (2008); Dogan (2013), leverage has a negative relationship on financial performance to occur. By learning curve effect, large firms are able to lower their average total fixed costs per unit and also they are positioned at the upper part of the life cycle curve having positive cash flows as well as profits (Liargovas and Scandalis, 2010).

Liquid firms take advantage of availability of investments opportunities, cash discounts and reduced interest rates offered by the banks. This enables the firm to grow and optimize its operations. Dogan (2013) did a research which argued that liquidity normally affects financial performance positively. It mainly consists of operating assets that generate revenues and cash flows for the firm. Profitability is vied as being relevant to liquidity (Nyabwaga et al, 2013).

1.1.4 Energy and Petroleum Industry in Kenya

The Kenyan Energy and Petroleum industry is given much consideration due to the fact that it is one of the key segments players of the economy. The main sources of energy in Kenya are electricity, petroleum and wood fuel. The sources are accounting for 9%, 22% and 69% of the total consumable energy respectively (MOE, 2013). Large portion of energy products consumed in Kenya is imported. With the discovery of some crude oil in it is foreseen that in the near future Kenya will be a primary producer of crude oil. The current increase of annual demand for electricity in Kenya is 13.5%. All these are as a result of the rapid expansion of economic, population and industrial growth rate. The demand is expected to reach 15 GW in year 2030 (MOE, 2013). Energy is vital for socio-economic development and improvement of life of the residents (MOE, 2013).

Petroleum is a vital source of energy and has for a considerably long period of time formed about 80% of Kenya's requirements of energy for commercial use (Wanjiku,

2011).The liberalization of the oil sector happened in 1994. Prior to this, the sector had faced various challenges including increase shoddy storage sites and sale of inferior petroleum products which predisposed the population to safety and health risks in regard to the environment, market dominance by a small number of companies, business people engaging in underhand dealings meant to evade tax by diverting products meant for the export market into the domestic market, among others. General growth and enhancement in service level and quality is what resulted with the regulation of the sector. This was against the backdrop of surging petroleum prices from 2003. This policy was meant to be a mechanism to abate price increases and to reduce the likelihood for firms to collude in price gouging (Kwame, 2014). The price of petroleum products is regulated by the Energy regulatory Commission (ERC) that set the prices for various petroleum products. Globally Oil and Gas sectors has experienced price fall attributed to sharp growth in Non-Organization of the Petroleum Exporting Companies (OPEC) oil suppliers, sluggish oil demand brought about by 2008-9 financial crisis and subsequent global recession (OPEC, 2015).

The petroleum sector has many players involved in importation, transportation and marketing of energy and petroleum products namely; KenolKobil, GABCO, Total Kenya, Oil Libya, National Oil Corporation of Kenya (NOCK), Chevron and Shell. At Nairobi Securities Exchange (NSE) only four Energy and Petroleum companies have been listed and they include:KenyKenGen),Total Kenya, (KPLC) and Kenol Kobil(Ministry of Energy, 2017). Ministry of Planning and National Development (2007) identified energy sector as one of the infrastructural pillars supporting long term development. Economic, Social and political growth is based on the business and trade strategies employed by

energy and petroleum industry. This is to create a nationwide competitive high quality life by 2030 (MOE, 2013).

1.2 Research Problem

Energy and petroleum industry requires massive financing in all the energy consumption stages. This is the major reason why understanding how different firm characteristics effects financial performance of the firms in this industry is very important. Financial performance is the most vital factor in determining financial strength; earnings capacity and assessing potential growth of any firm (Richardson, 2002).Some of firms' characteristics that affect financial performance are firm size, age, leverage, size of the board and liquidity. Firm size is all about vertical integration, already incurred costs and firm profitability in general (Leibenstein, 1976). Leverage enhanced earnings for the firm.. Age leads to efficiency in operations. Over time, firms discover their competitive strength and learn how to do things better. This brings about specialization which has got positive results on financial performance (Arrow, 1962). Current asset ratios provide insight into a firm's health, the ability for the firm to pay its current liabilities. Firms with high liquid ratios are in a better position of meeting short-term obligations (Dang, 2011).

Since 1903 energy and petroleum business has attracted many participants. Increase in independent transportation and marketing petroleum companies in Kenya came as a result of liberalization of the industry in the year. In order to have financial and operations advantage, energy and petroleum companies have channeled their strategies and mode of operations to mergers and acquisitions, (Beena 2011). Recently, all assets of

Chevron in Kenya (Kenya Oil Company Limited, 2008) were acquired by Total Kenya. Raytec Metals Corporation in September 2009 merged with Lion Petroleum Inc (Beena 2011). Kenya Oil Company Limited (Kenol) which was inexistence for many years merged with Kobil to form Kenol/Kobil Ltd. In 2000, Kenol acquired Galana Oil, petrol and oil vendor(Njoroge, 2008 & PWC, 2010).Despite all the mergers and acquisitions only four companies' remains listed in NSE, Total Kenya, KenolKobil Ltd, KPLC & KENGEN.

The field of petroleum industry in Kenya has been widely studied. Mwangi (2012) researched on factors that influence relocation of Multinational Oil companies based in Kenya to other countries and found that major reasons that led to the exit was shrinking profit margins. Chege (2012) researched on challenges facing implementation of strategies for petroleum firms in Kenya. The study found that the major challenges were technology, resource allocation, job responsibilities, prioritization, organization structure, values and resistance to change. Kieyah (2011) carried out a study on the petroleum industry in Kenya while Deloitte (2013) researched on the oil and gas potential in East Africa. The Institute of Economic Affairs (2000) researched on the state of Petroleum Industry in Kenya since Liberalization. There had been no research yet on the effects of firm characteristics and how they affect performance of finance in energy sector. Rise in competition experienced in the energy and petroleum industry in Kenya that has contributed to increase in acquisitions and mergers for the firms to have financial and operations advantage. This research desired to fill the empirical gap identified above.

This is done by answering the following research question how do firm characteristics affect the performance of petroleum firms listed at the financial market.

1.3 Research objective

Determining the kind of relationship that exists between firm characteristics; age, liquidity, leverage, size and board size and performance of petroleum firms registered in National Security Exchange.

1.4 Value of the Study

The study is beneficial to energy and petroleum marketers in Kenya, the government of which is responsible for directing, policy formulation and regulating the petroleum sector, as well as to the academic community. The government will be in a better position to put better policies and regulations that shall safeguard investors in the energy and petroleum sector through compliance to standard and ethics. This will allow investors to earn a fair value of returns on their investment. Further, the government will have insight on the reasons multinationals in the petroleum industry have in the recent past relocated from the country and hence will be in good position to draw and effect measures that will improve the market practices and hence aid in stemming further exit by the remaining multinationals in Kenya.

The energy and petroleum firms will learn financial strategies applied by the market leaders and this will assist them advance their competitive strategies for better financial performances. New investors interested in energy and petroleum marketing will also be

provided with best firm characteristics and this will benefit them to gauge their financial performance. The academic community will also benefit through added knowledge usable for training and further research. The study will provide literature usable for broadening knowledge in firm characteristics on financial performances. Scholars' pursuing research on energy and petroleum industry in Kenya and especially in firm characteristics on financial performances will have an added literature to review.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter gives a summary of the relevant information resources documented about firm's characteristics i.e. age, liquidity, leverage, size and board size on the performance of petroleum companies registered in NSE. This section will also focus on developing conceptual framework, theoretical framework, and empirical review that will be used in regard to each variable in the study. Lastly, it will draw a critique analysis the literature which is existing and identify the research gap.

2.2 Theoretical Review

The study is going to focus on capital structure theory, agency theory and pecking order theory as its theoretical basis for the study.

2.2.1 Capital Structure Theory

This theory was introduced by Modigliani and Miller in the year 1958. It is a capital structure theory with three propositions. It is stated in the first proposition (1958) that under certain conditions, companies' debt-equity ratio does not at any given time affect its market value. The second proposition came in place in the year 1961. It states that a company's leverage has got no effect on the company WACC. The third proposition came in place in 1965. It states that the market value of a firm is independent of the dividend policy of the same firm. Capital structure theory has got many assumptions like

taxes don't exist, there is no cost to any transaction and there is no bankruptcy cost. It further assumes that there is information symmetry of the market. Marietta (2012) was of the view that, the choice of capital structure and cost of capital are important determining factors once all these assumptions of perfect capital markets are relaxed.

Chen, Jung, and Chen (2011) in their research argued that firms are always going to be indifferent to the capital structure they employ. As indicated in the assumption of the first proposition, businessmen always value their firms based on the cash flows the firm is able to generate. They don't consider how the firm is financed. It is assumed under the second proposition that, equity cost of a firm has got a linear function of its debt to equity ratio. The company's cost of capital is independent of the firm's financial leverage. Creditors normally have preferential claim when it comes to liquidation as compared to equity holders. Firms' assets and income are preferentially claimed by the creditors making the cost of debt to be cheaper as compared to cost of equity. Normally, WACC remains constant whenever a firm increases is debt capital thus increasing cost of equity. Luigi and Sorin (2012) did a research and it was of the view that the dividend pay-out resulting from any given investment the company opts to use doesn't affect current shares prices or the return to the owners. This is illustrated in the third proposition where the value of the company is independent of the company's capital structure.

The assumption made under from this theory in capital structure is irrelevant in the real world. There are taxes to be paid on daily basis, information asymmetry, bankruptcy

costs and also transaction costs. Modigliani-Miller theory of capital structure is therefore not practical and only exists in theory.

2.2.2 Agency Cost Theory

Agency theory was developed in 1976 by Jensen and Meckling. It contends that when ownership and control in an organization is separate, the managers may act out of self-interest and are self-centered, thereby, giving less attention to shareholders' interests. Jensen (1986) also argues that availability of free cash flow makes managers to be attracted to investing in projects which will eventually have negative NPVs due to conflict of interest. Decisions on non-financial variables may affect the operations of the firm heavily after a given period of and if no interventions are made, this may lead to financial distress.

This theory affects leverage decisions that need to be taken to address agency conflict arising. Agency cost theory also helps in explaining the corporate governance responsibility of the board of directors to oversee functions of agents (managers) of the firm. The board of directors helps in keeping on toes the managers who pursue personal gain at the expense of shareholder's wealth maximization objective (Fama & Jensen, 1983). The board of director will effectively provide an oversight authority by ensuring that the interests of the owners are not infringed by managers who are internal players in the firm they are serving. Growth of any firm brings about diversification leading to higher debt capacity, less prone to bankruptcy and less agency cost (Wanyonyi, 2010).

Various methods have been suggested to mitigate agency problems; the managers are being allocated additional ownership of the firm in order to align their interests to the directors and owners, compensation contracts, bonding and monitoring activities within the firm (Jensen 1986). Similarly, Baker and Anderson (2010) suggest that firms should at all times be able to draw a line between directors, owners and managers in order to avoid agency conflicts which might lead to residual losses. In every organization, the problems can never be perfectly solved as perfect control is very expensive. Always managers don't act totally in fulfilling the wish of the directors and owners (Bhimani, 2008). Hence the bigger the board sizes the effective the monitoring role it is having over the agents.

2.2.3 Pecking Order Theory

The model was developed in 1961 by Donaldson. Myers and Majluf later modified the theory as Myers and Majluf (1984) argued that businesses adhere to a hierarchy of settling their finances. It refers to a hierarchy of financing sources of any company. Retained earnings are the first in the hierarchy, debt financing and lastly there is external equity source of finance in accordance to the theory. Companies which normally records profit might use less debt than other companies. The main reason is that they should avoid external debt although it is the best cheap alternative when compared to other methods of raising capital. Pecking order theory implies that firms fund project activities in a specific order that consider cost of capital (Welch, 2009).

Pandey (2010) presented a practical approach to pecking order theory. The theory is focusing on assertion that managers and supervisors have advantage to information than the directors and owners of the business which they use to their advantage. Managers will only use debt when they are positive about future prospects, use capital when they are not sure or in doubt. According to this theory, the managers of firms make financial decisions that cause them the least difficulties. This theory takes behavioral approach in explaining capital structure (Abdikadir, 2015). Chen, Jung and Chen (2011) suggest that a dividend is the most preferred funding is preferred by firms as the core source of funding. This is followed by debt and last comes equity financing recognizing pecking order theory.

Finance managers may make adverse decision which would affect the firm performance. Example, Managerial decisions on new equity may lead to overvaluation of the firm hence drop in share price. Too much leverage in a firm is dangerous to a firm. Debt finance has a tax shield advantage. However in the long-term, increase in cost of debt may lead the firm to be financially overstretched leading financial distress crisis, (Mania and Ishmael, 2014). Thus, the leverage choice on the form debt a firm decides to have can act as a signal to outside investors for external finance. It is also used as a deliberate strategy by managers of firms to mitigate the inefficiencies of investments decision they undertake that are caused by information asymmetry (Issa, 2012).

2.3 Empirical Review

Malik (2011) conducted a study to examine Pakistan's insurance companies' Profitability and their effects. Data for all insurance firms were collected. Profitability was determined by ROA. The independent variables used for the research were; size of the firm, volume of capital and loss ratio the firm. The finding of the study was that loss and leverage ratios normally give negative results in terms of profit reporting by insurance companies in Pakistan. The study also founded that there existed a significant and positive relationship between size of the firm and profitability. However, there didn't exist relationship in firm age and profitability of the firm.

Agnes (2013) conducted a research to examine the relationship that exist among the following firm characteristics; claim experience, leverage of insurance company, liquidity of the organization, premium growth of insurance industry, age and diversification. The variables were to be analyzed in regards to performance of insurance companies. Financial performance was obtained in terms of audited financial reports for 2008-2012 for seventeen registered insurance firms. Data was analyzed by use of SPSS. There were positive and strong Pearson correlation coefficients.

Issa (2013) did a study on the financial performance of firms listed in the agricultural sector at the NSE. The selected characteristics used were board size, age of the firm, size of the firm, leverage and, liquidity on firm financial performance. Financial performance was measured using returns on assets. The study's population of the study was seven agricultural firms listed at the NSE from the year 2007 to 2012. The findings of the study

were that liquidity and board size are statistically significant while firm size, leverage and firm age were not. The study founded out that a positive relation between firm sizes; leverage, firm age, and liquidity to firm financial performance exist. The study also noted a negative relationship between board sizes to firm financial performance of the firm.

Nzioka (2013) examined the relationship in firm size and financial performance of commercial banks in Kenya. Its population was 43 banks for the year between 1998-2012 and used correlational design. Secondary data used was extracted from Central Bank of Kenya. The researcher measured firm size by number of employees, net assets, total deposits and total loans. Return on assets was used to measure financial performance. Analysis of data was by the use of correlation and regression methods finally drew tables. The research gave a conclusion of negative correlation meaning there is no significant relationship that existed between number of employees and financial performance for commercial banks. The research also concluded that there is a significant relationship existing between total assets, total loans and bank deposits.

Muhammed (2014) did a study in Japan. The study was to examine factors affecting financial performance of energy and electricity companies. The study covered 46 companies for a period running from 2001-2010 and collected the data from S&P Capital IQ. The independent variables used for the study were location, ownership, age and size. Profitability was measured using return on equity, share prices and return on sales. The study concluded that, size of the firms' leads to economies of scale advantages thus assist in lowering operational costs. It also concluded that the higher the debt finances, the

higher the interests payment thus affecting financial performance. Lastly, firms with high liquidity ratios enjoy profits in a short run.

Abdulkadir (2016) researched on impact of leverage, Liquidity and Firm Size of non-financial companies .Yearly data covering the entire research period was extracted from the NSE hand books. The study used data for five year period (2009 -2013) to examine the effect of firm size, liquidity and leverage. Day's accounts receivables and accounts payables on Returns on Assets and on Return on Equity on financial performance of listed non-financial firms. Regression coefficients were interpreted using the E-views software output. Results show that liquidity and firm size influence the both financial and non-financial firms in their performance. Secondly, factors such as amount of debt, the risks associated with indebtedness, interest rates and debt equity combination and the management of accounts receivables and accounts payables could affect the financial performance of firms.

2.4 Determinants of Financial Performance

There are various determinants of financial performance of any income generating endeavor within any business domain, but for the subjected area the determinants include; firm age, firm size, leverage and liquidity.

2.4.1 Firm Age

Firm age is an absolute measure showing the time period of operations .Age leads to efficiency of any given industry. Over time, energy and petroleum firms discover their competitive strength and specialized their mode of operations (Arrow, 1962; Ericson and Pakes, 1995; Jovanoic, 1982). In order to capitalize on economies of scale, energy and petroleum firms specialize their operations and service delivery. They also concentrate on costs reduction and quality improvement. Older firms normally benefit from their large customer base and reputation effects thus high sales margins. However another opposing view is that as energy and petroleum firms grows older they tend to develop structural inflexibility created by bureaucracy and inertia; they might have developed routines and procedures, which are out dated in the industry, newer firms will develop new ideas and technologies for the new market (Liargovas, & Skandalis, 2008).

2.4.2 Firm Size

Firm size is firm characteristic is normally determined by natural logarithm of assets, or net sales or employees. As indicated by (Mintzberg, 1979) the size of the firm matters and can influence performance. It is related to overall profitability and incurred cost for the industry. According to Daft (1995), larger energy and petroleum firms are more likely to have numerous department managed by line managers, who are more qualified in term of skills and knowledge thus have much bureaucracy and greater centralization than the new energy and petroleum firms. This will significantly lead to the firm performance, (Leibenstein, 1976).

2.4.3 Firm Leverage

Leverage is defined as the extent to which a firm put to use its accrued income opportunities, i.e. preferred equity and debt (Scharfstein, 1996). Preferred equity and debt financing is normally used by firms to finance their operations, this is known as Financial leverage (Muhammed, 2014). Some firms use over three thirds debt thus becoming highly levered. It also results to high financial costs like interest hence negatively affects share prices at long run (Dogan, 2013). Findings by; Nunes et al (2008); Dogan (2013), leverage has a negative relationship on financial performance to occur. By learning curve effect, large firms are able to lower their average total fixed costs per unit and also they are positioned at the upper part of the life cycle curve having positive cash flows as well as profits (Liargovas and Scandalis, 2010).

2.4.4 Liquidity

Liquidity is a ratio between current assets of the firm and the current liabilities within a given financial or operating year the firm. Crutzen and Van Caillie (2007), the firm takes a downward spiral trend due to inadequate resource in sales, poor profitability and decline in cash flow and liquidity levels. According to Dang (2011) sufficient level of liquidity and bank profitability are positively related. Firms hold fixed assets with purpose of enhancing productivity or provision of the goods and services. Any firm which wants to survive must have a positive working capital. However, very low liquidity ratio means the firm may struggle to meet its obligations in a short run. Ilhomovich (2009) conducted a study where cash was applied to deposit ratio to evaluate

the liquidity ranks of banking firms in Malaysia. On the other hand, a research in China and Malaysia concluded that liquidity status of banking institutions do not correlate with the profitability of the banking firms (Said &Tumin, 2011).

2.5 Conceptual Framework

The framework comprises of independent and dependent variables. The independent variable is presumed to be the cause of the changes and it influences the dependent variable. According to Kothari (2004) the dependent variable is referred to as the criterion and it's the one the researcher endeavors to explain.

Independent Variables   **Dependent Variable**

```
┌─────────────────────────────┐
│         Firm size           │
│                             │
│   • No of employees         │ ──────────────┐
│   • Revenue                 │               │
└─────────────────────────────┘               │
                                              │
┌─────────────────────────────┐               │
│         Leverage            │               │        ┌──────────────────────┐
│                             │ ──────────┐   │        │                      │
│   • debts                   │           └───┤        │     Financial        │
└─────────────────────────────┘               ├───────▶│    Performance       │
                                              │        │   • ROE              │
┌─────────────────────────────┐               │        │   • ROA              │
│ Liquidity                   │               │        │                      │
│                             │ ──────────┐   │        └──────────────────────┘
│   • Current ratio           │           └───┤
└─────────────────────────────┘               │
                                              │
┌─────────────────────────────┐               │
│ Firm age                    │               │
│                             │ ──────────────┘
│   • Years in operation      │
└─────────────────────────────┘
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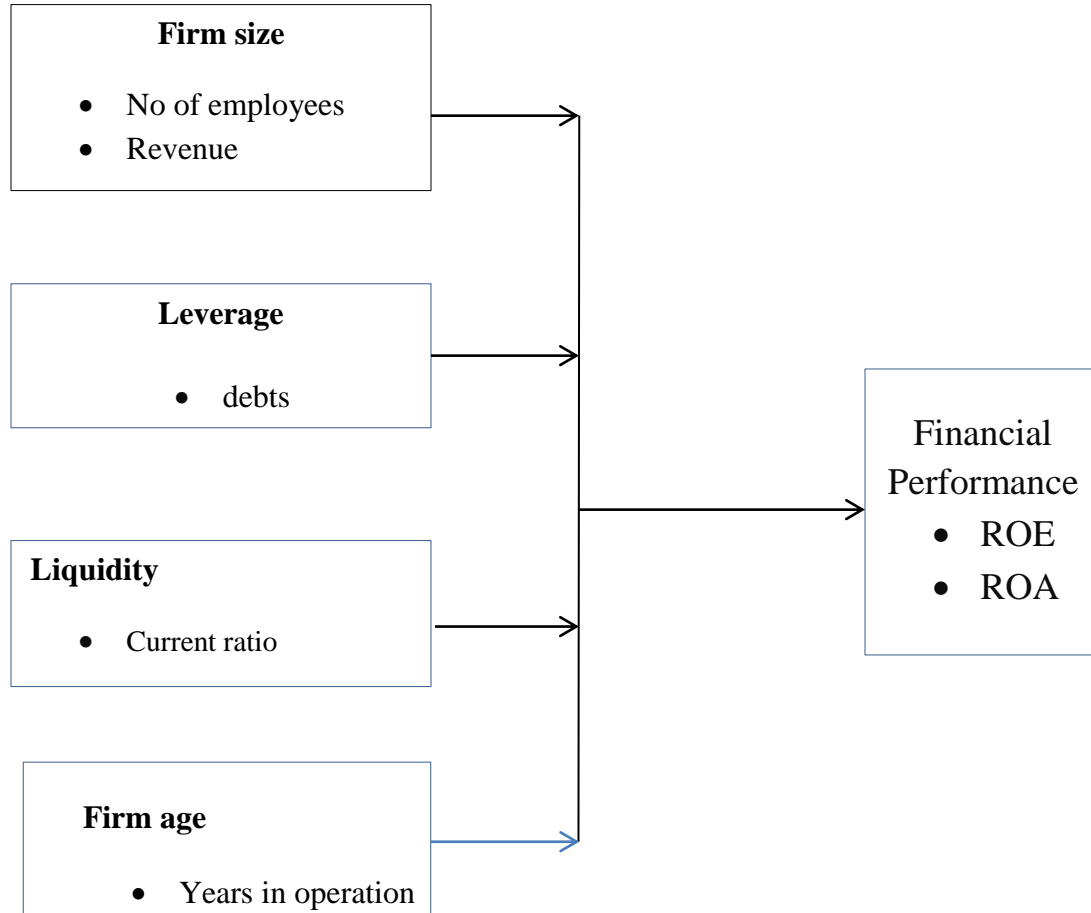
Figure 2.1: Conceptual Framework

Financial Performance (dependent variable) is influenced directly by firm age, size, liquidity and leverage (independent variables). If energy and petroleum firms listed in NSE wants to perform well financially, all independent factors should be well planned and considered.

2.6 Summary of Literature

Three theories considered in this study are; capital structure, agency theory and pecking order theory. Precisely, literature review has covered the impact of leverage, age of the firm, liquidity levels and firm size on performance of petroleum firms registered with NSE.

From a scan of the above studies it has been found that the term financial performance was measured using ROE and ROA by all authors. Firm age was measured using the numbers of years in operations. Firm size was determined in terms of annual revenue divided by total assets. Board size was determined by taking the number of board of directors as per the yearly audited reports. Leverage was determined by total debts while liquidity was measured by current assets compared current liabilities. All the above authors found out relevant relationship existing among liquidity, age, leverage and size to performance in financial terms. There was a negative relation established for board size to financial performance by the authors.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The chapter represents the design and methodology that was adopted for this research. It describes research design, sample procedures, target population, data collection, sample size and data analysis. It describes the model used as well as the variables of interest.

3.2 Research Design

Design is normally a blue print through which research sails smoothly. It makes the research to be efficient in terms of resources, effort and at the same time reaping out maximum information possible (Kothari, 2004). This study used correlation research design. Correlation research design is used to examine the relationship existing between variables.

3.3 Target Population

The population of this study consisted of all listed energy and petroleum firms at the NSE. Census population was used by the study consisting of all the four listed Energy and petroleum firms at the NSE (refer to appendix 1).

3.4 Data collection

Data was sourced from annual financials and notes i.e. audited financial statements at Nairobi security exchange website and library. Collected data enabled the researcher to compute the relevant ratios like ROA, ROE and current ratio among others. Information for firm age and number of board of directors was sourced from the notes provided in the financial reports. As for the year of incorporation, the research made use of websites to check for each of the individual energy and petroleum firms. The period of study covered the years 2010 to 2017 for all energy and petroleum firms listed at the NSE.

3.5 Data Analysis and Presentation

Descriptive statistics for example means and standard deviations among others was used. Multi-variate regression analysis was done to the variables of the study firm age, size, liquidity, leverage and board size.

Correlational analysis was employed in the research. It was meant to determine the direction and effect of firm characteristics on firm financial performance of energy and petroleum firms listed in NSE. Further the researcher analyzed the data using multi-variate for example ANOVA, R squared, and beta coefficients for the model to explain the changes in the dependent variable, which is ROA.

3.5.1 Operationalization of the study variables

Statistical package for social sciences software (SPSS) was used to analyze secondary data. To test the effects of firm characteristics on financial performance, a multiple regression analysis was used to study the relationship existing between the dependent and independent variables.

The regression equation is as illustrated below;

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

ROA = f (Firm Size, Leverage, Firm Age, Liquidity)

The definition of the variables in the research model is as follows:

Y is the ROA as the measure of firm performance computed as ROA $= \dfrac{\text{Net Income}}{\text{Total Assets}}$

X1 is Firm Size = Natural Log of Assets.

X2 is Firm Leverage computed as Firm Leverage $= \dfrac{\text{Total Debt}}{\text{Total Assets}}$

X3 is Firm Age = Number of years in operation.

X4 is Liquidity computed as Liquidity $= \dfrac{\text{Total Current Assets}}{\text{Total Current Liabilities}}$

X5 is Board Size = Number of board members.

B (0, 1, 2, 3, & 4) are the beta coefficients for the respective independent variables

μ is the error term in the model

3.6 Test of Significance

The regression analysis is normally supposed to yield coefficient of determinant (R2), multiple R .The is also some analysis being carried out like; f-tests, analysis of variance (ANOVA),p values and relevant t-tests. Descriptive statistics were used to summarize qualitative data the results presented in tables. Inferential statistics was used to draw conclusions at 95% confidence level (α=0.05).

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The chapter covers data analysis and gives out the interpretation of study findings. It presents the mean, standard deviations, maximum and minimum scores of the study and the regression co-efficient. It gives the relationships that exist between the study variables through regression, correlinearity and ANOVA analysis.

4.2 Descriptive statistics analysis

These statistics represent the relationships between firm characteristics i.e. firm age, firm size, firm leverage, liquidity and performance of petroleum firms registered with the NSE i.e. Total Kenya Limited, Kobil Limited, Kengen Company Limited and Kenya Power and Lightning. The data is extracted from the company's financial statements that cover a period of 8 years, ranging from 2010 to 2017.

4.2.1 Firm age

Table 4.1: Descriptive statistics based on natural logarithm of years in operations

Firm	Minimum	Maximum	Mean	Std. Deviation
Total Kenya	3.094	4.143	3.096	0.109
Kenol Kobil	3.951	4.078	4.016	0.117
KPLC	4.489	4.564	4.527	0.070
KenGen	4.043	4.159	4.102	0.107
Average	3.894	4.236	3.935	0.101

Source: Researcher (2018)

Table 4.1 shows that the mean proportion of firm age based on the natural logarithm of years in operations is 3.935.This means that firm age is a significant component of financial performance of the firm and the number of years in operations must be taken into consideration. KenolKobil, KPLC and Kengen have natural logarithm of years in operations greater than average while Total Kenya has age proportion below average. KPLC is the oldest company with the highest mean age proportion of 4.527 while Total Kenya is the youngest company with the lowest age proportion of 3.096.

4.2.2 Firm size

Table 4.2: Descriptive statistics based on natural logarithm of total assets

Company	Minimum	Maximum	Mean	Std. Deviation
Total Kenya	24.137	24.412	24.273	0.234
Kenol Kobil	23.578	24.551	24.039	0.764
KPLC	24.254	26.419	25.661	1.901
KenGen	25.690	26.656	26.171	1.065
Average	24.415	25.510	25.036	0.991

Source: Researcher (2018)

Table 4.2 shows that the mean proportion of firm size based on the natural logarithm of total assets is 25.036.This means that firm size is a significant component of financial performance of the firm and total assets possessed by the firm must be taken into

consideration. KPLC and Kengen have proportion of firm size greater than average while Total Kenya and KenoKobil havesize proportion below average. Kengen is the largest firm with the highest mean size proportion of 26.171 while KenolKobil is the smallest firm which has lowest mean size proportion of 24.039.

4.2.3 Firm Leverage

Table 4.3: Descriptive statistics based on total debts compared to total assets

Firm	Minimum	Maximum	Mean	Std. Deviation
Total Kenya	0.062	1.311	0.164	0.285
Kenol Kobil	0.268	0.547	0.403	0.269
KPLC	0.185	0.405	0.291	0.230
KenGen	0.368	0.544	0.427	0.142
Average	0.221	0.702	0.321	0.232

Source: Researcher (2018)

Table 4.3 shows that the mean proportion of firm leverage based on total debts compared to total assets is 0.321.Ideal ratio should be 0.5 or less .All the firms have mean ratios above 0.5, an indication that not more than half of individuals' firms' assets in the industry are financed by debt. This means that firm leverage is a significant component of financial performance of the firm and firms should depend on lesser borrowings for their operations. KenolKobil and Kengen have proportion of firm leverage greater than average while Total Kenya and KPLC have leverage proportion below average. Kengen has the highest mean leverage proportion of 0.427 while Total Kenya has the lowest leverage proportion of 0.164.

4.2.4 Firm Liquidity

Table 4.4 Descriptive statistics based on current assets compared to current liabilities

Firm	Minimum	Maximum	Mean	Std. Deviation
Total Kenya	1.103	1.736	1.407	0.600
Kenol Kobil	0.935	1.440	1.174	0.526
KPLC	0.867	0.982	1.081	0.680
KenGen	0.951	4.677	1.756	3.191
Average	0.964	2.209	1.355	1.250

Source: Author (2018)

Table 4.4 shows that the mean proportion of firm liquidity based on current assets compared to current liabilities is 1.355. A liquidity ratio of 1.0 or greater is an indication that the industry is well positioned. All mean ratios are above 1.0, implying that all the firms in the industry are in a position to cover their current or short term liabilities. This means that firm liquidity is a significant component of financial performance of the firm and positive working capital should be maintained. Total Kenya and Kengen have proportion of firm liquidity greater than average while KenolKobil and KPLC have liquidity proportion below average. Kengen has the highest liquidity proportion of 1.756 while KPLC has the lowest liquidity proportion of 1.081.

4.2.5 Financial performance

Table 4.5: Descriptive statistics based on net income compared to the total value of assets

Firm	Minimum	Maximum	Mean	Std. Deviation
Total Kenya	-0.006	0.072	0.035	0.074
Kenol Kobil	-0.192	0.116	0.040	0.262
KPLC	0.019	0.046	0.031	0.022
KenGen	0.008	0.033	0.020	0.022
Average	-0.043	0.067	0.032	0.095

Source: Researcher (2018)

Table 4.5 shows that the mean proportion of financial performance calculated in the ratio of Return on Assets (ROA) based on net income compared to total assets is 0.032.The recommended ROA is 0.05.All the four firms have ROA means which are below 0.05.This means that firm size, age, liquidity and leverage are significant components of financial performance. Total Kenya and KenolKobil have proportion of financial greater than average while KPLC and Kengen have financial performance proportion below average. Kenkobil has the highest financial performance proportion of 0.040 while Kengen has the lowest financial performance proportion of 0.020.

4.3 Correlation Analysis

Correlation analysis was conducted in establishing the existence of relationship between the variables of the research. Correlation analysis is normally used to measure the strength and direction of relationships between the variables of the research. Normally, for a weak correlation, "r" ranges from ±0.10 to ±0.29; a moderate correlation, "r" ranges from ±0.30 and ±0.49; while in a strong correlation,"r" ranges from ±0.50 and ±0.90. Correlation ranges from -1 to +1.It checks on the strength of the relationship between variables under study (Schumacher & Boland, 2009).

Table 4.6: Full correlation matrix

	ROA	Firm size	Leverage	Firm age	Liquidity	Board size
ROA Pearson Correlation Sig. (1-tailed) N	1.000 32					
Firm size Pearson Correlation Sig. (1-tailed) N	.175 .169 32	1.000 32				
Leverage Pearson Correlation Sig. (1-tailed) N	.337 .030 32	-.423 .008 32	1.000 32			
Firm age Pearson Correlation Sig. (1-tailed) N	-.005 .488 32	-.488 .002 32	-.054 .385 32	1.000 32		
Liquidity Pearson Correlation Sig. (1-tailed) N	-.414 .009 32	-.187 .153 32	.353 .024 32	.217 .116 32	1.000 32	
Board size Pearson Correlation Sig. (1-tailed) N	-.009 .482 32	-.267 .070 32	.181 .161 32	.040 .414 32	.299 .048 32	1.000 32

Source: Researcher (2018)

Table 4.6 shows a weak but positive association existing among return on assets and firm size (r=0.175, P=0.169), indicating that the relationship is weak and not significant. According to Issa (2013), larger organizations in terms of assets controlled stood higher

chances of recording higher financial outcomes as compared to their competitors with fewer assets. There is appositive but moderate association among return on assets and leverage(r=0.337, P=0.030).Firm age had weak but negative relationship with return on assets(r=-0.005, P=0.488); implying that the relationship is weak and not significant. Liquidity had weak but negative relationship with return on assets(r=-0414, P=0.009); which can be interpreted that the association among the ROA and liquidity is non-existent. Table4.6 shows a weak but negative relationship between ROA and the board size of firms(r=-0.009, P=0.482).

4.4 Regression analysis

The researcher ran a multi variate linear regression for five variables in relation to data from the year 2010 to 2017 for four listed companies illustrated in appendix 1.

Table 4.7: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.617[a]	.381	.262	.0427719

a. Predictors: (Constant), Firm size, Board size, Firm age, Leverage and Liquidity

b. Dependent Variable: ROA

Source: Researcher (2018)

Table 4.7 shows that R^2 is 38.1% meaning that the predictors in the model (firm size, leverage, liquidity, firm age and board size) can only explain the variation of ROA by only 38.1%. The model cannot explain a variation of 61.7% because there are other variables which affect firms ROA not considered in this study. The adjusted R square explains what will happen to the co-efficient of determination (R^2) if other variables were to be included or excluded as it will result in loss or increase of degrees of freedom in the model.

Table 4.8ANOVAAnalysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.029	5	.006	3.201	.022[b]
	Residual	.048	26	.002		
	Total	.077	31			

a. Predictors: (Constant), Firm size, Board size, Firm age, Leverage and Liquidity

b. Dependent Variable: ROA

Source: Researcher (2018)

Table 4.8 shows that the model is valid but the significance is less than 0.05(F=3.201; P=0.022).

Table 4.9: Co-efficient & Collinearity tests

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.276	.161		1.716	.098		
Firm size	.002	.001	.532	-2.468	.020	.513	1.951
Leverage	.172	.071	.472	-2.414	.023	.623	1.605
Firm age	-3.949	3.472	-.225	-1.137	.266	.610	1.638
Liquidity	-.042	.025	-.309	-1.723	.097	.740	1.351
Board size	.019	.090	.036	.216	.831	.840	1.190

a. Dependent Variable: Y

Predictors: (Constant), Firm size, Firm age, Liquidity, Leverage and Board size

Source: Researcher (2018)

Table 4.9 shows that the co-efficient of firm size is 0.532 which means that a one unit change in firm size would lead to an increase of ROA by 0.532; leverage had a co-efficient of 0.472 which means one unit variation of leverage normally results to increase of return on assets by 0.472. Firm age had a negative co-efficient with a co-efficient of – 0.225 which means that a one unit increase in firm age leads to a decrease of ROA by – 0. 225. A similar negative finding was recorded for liquidity which had a co-efficient of – 0.309 which means that a one unit increase in liquidity leads to decrease of ROA by –

0.309. And lastly, the co-efficient of board size was 0.036which means that a one unit increase in board size leads to an increase of ROA by 0.036.

The resulting multi-variate linear regression model is as follows;

Y= 0.532 firm size + 0.472 leverage

However, the variables are insignificant.

The table further shows the findings of multi-Co linearity test for determination of high correlation of variables in the model. Tolerance and variance inflation factor (VIF) values for the predictors were used to check for multi-Co linearity. Table 4.9 shows that; Tolerance values ranged between 0.513 and 0.840, VIF ranged between 1.351 and 1.951. Since tolerance values were above 0.1 and VIF below 10, and then there was no evidence multicolinearity in the multiple regression models.

4.5 Discussion of findings

Regression analysis reveals a positive association between firm characteristics and firm financial performance. The study shows firm size has a positive relation (r=0.175, P=0.169) and statistical significance with a p-value of 0.020. The findings are similar to the study done by Agnes (2013); r=0.945,P=0.177, that observed that larger insurance firms are more likely to have numerous department managed by line managers, who are more qualified in terms of skills and knowledge. This will significantly lead to the firm performance, (Leibenstein, 1976).

Firm leverage is positively related (r=0.337, P=0.030) to firm performance. The findings are in conformity to a study by Agnes (2013); r=0.166, P=0.458, who found out that

leverage will normally increase competitions in the market. Insurance firms need to regulate their leverage ratios as it affects degree of financial performance. Firms facing high degree of financial leverage are normally faced with high interest payments.

The study established a negative relationship existing between firm age and firm performance(r=-0.005, P=0.488). The findings are in conformity to a study by Malik (2011); r=-0.035, P=0.734 who observed that, as insurance firms grows older they tend to develop structural inflexibility created by bureaucracy and inertia, which are out dated in the industry. In the early ages, there is positive relationship existing between age and profitability.

The study established that liquidity has a negative relationship with firm performance (r=-0.414, P=0.009); the findings of the study are in conformity to the findings of Nzioka (2013). The research concluded that liquidity status of banking institutions do not correlate with the profitability of the banking companies.

Lastly, the study established a positive but insignificant relationship between board size and firm performance (r=0.009, P=0.482). These findings are in conformity with the findings of Issa (2013) who found insignificant relationship. This means that board size does not correlate with the profitability.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The chapter covers study summary, conclusion, recommendation. It also covers area of further studies and limitations.

5.2 Summary of the findings

The research sought to investigate the effects of firm characteristics on financial performance of firms listed under energy and petroleum industry at the NSE. The research covered four firms from the year 2010 to 2017. Firm characteristics studied were; liquidity, board size, leverage and firm age on firm performance which was measured return on assets. Descriptive and inferential statistics were employed for data analysis and presentation. Regression analysis, ANOVA and Correlation analysis were used to determine variables relationships. Means was calculated for all the financial variables; liquidity, age, size, board size and leverage.

Firm age showed an average mean of 3.935 and standard deviation of 0.101, firm size had a mean average of 25.036 and standard deviation of 0.991, leverage had mean average of 0.321 and standard deviation of 0.232, liquidity had average mean of 1.355 and standard deviation of 1.250. Financial performance had average mean of 0.032 and

standard deviation of 0.095.when all the variables were compared, all the variables were positive thus making significant for the study.

Full correlation analysis was done by finding out if there were changes in independent variables used in the study. Firm size and leverage are positively correlated with return on assets (ROA), while firm age, liquidity and board size are negatively correlated with return on assets of the firms. There was no association among profitability and board size of the firm. There was degree of positive among profitability and size and leverage. There is 95% degree of significant.

The coefficient of determination as measured by R^2 was 38.1 % in explaining the variations of ROA by the five independent variables (firm size, leverage, firm age, liquidity and board size) and also the model was overally fit for having an F statistic of 3.201 against the critical F of 2.59. Multicollinearity tests were conducted and were measured by VIF and tolerance statistics which revealed no significant evidence of multicollinearity in the predictors.

5.3 Conclusion

The research considered all the variables which were used to derive financial performance model. All the companies registered positive values implying that all the variables were significant. A correlation was used to analyses all the independent variables of the study and ROA was used to measure performance. The model resulted to 95% level of significant of coefficient.

Results from Pearson correlation registered a strong and positive result. Performance as per ROA calculations was 0.276.This implies that liquidity, age, leverage, board size and firm size influences performance financially of petroleum firms registered with NSE. Regression analysis proved firm size and leverage to have significant relationships with firm financial performance. The other variables i.e. firm age; board size and liquidity are insignificant to the study.

5.4 Recommendation

The research study recommends that firms should increase their assets. Size is measured by total assets which increases the competitiveness of the firm. The study recommends the use of proportionate debt financing in relation to total capital financing. All the firms are profitable, therefore the firms should use debt financing up to a point where any extra debt financing causes net cost to the firms.

The firms should ensure that they keep their working capital positive. Recommended ratio should be 2:1.Finally, large boards are wastage of resources and incurrence of avoidable expenses which fleece the company revenues to support lavish life styles of directors, it's therefore recommended small and efficient board sizes.

5.5 Limitations of the study

The research study had some few challenges and it is acknowledged that this may have significantly affected the study findings. Scope was a major limitation the study only

concentrated on petroleum firms registered with NSE. Most of private energy and petroleum firms in Kenya are not listed in NSE hence the study didn't cover them; the research only covered a specific sector of the economy i.e. energy and petroleum. Better findings are gotten if a bigger numbers of observations are analyzed.

The research only focused on five firm traits i.e. liquidity, firm age, board size, leverage and firm size in establishing performance of the petroleum firms registered with NSE. There are other firm characteristics which normally affect financial performance i.e. depreciation, ownership structure, investments and locality of the firm.

5.6 Suggestions for Further Research

The study covered listed energy and petroleum firms at the NSE from the year 2010 to 2017 were studied. Further research should be done using case studies for a longer period of time. This will assist in finding critically individual activities. Additional explanatory variables may be included for future studies carried on financial performance.

A further study is supposed to be conducted having a similar topic of discussion but covering different sectors. The duration of the study should also be extended to cover a period of over ten years. It should also take into account the situations among variables due to macroeconomic changes.

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APPENDICES

Appendix 1: Listed Energy and Petroleum firms at the Nairobi securities Exchange

1. Total Kenya Limited
2. Kenolkobil Limited
3. Kenya Power & Lighting Company Limited
4. Kenya Electricity Generating Company Limited

Appendix 2: Data for listed Energy and petroleum firms at the Nairobi securities Exchange

YEAR OF FINCLS	COMPANY	AFTER TAX PROFIT FOR THE YEAR	TOTAL CURRENT ASSETS	TOTAL ASSETS	TOTAL DEBTS	TOTAL CURRENT LIABILITIES	YEAR INCORPORATED	BOARD SIZE
		KSH'000'	KSH'000'	KSH'000'	KSH'000'	KSH'000'	KSH'000'	KSH'000'
2010	Total Kenya Ltd	916,205.00	20,114,577.00	30,375,677.00	3,978,000.00	17,090,899.00	1955	10
2011	Total Kenya Ltd	(71,436.00)	25,338,951.00	35,198,166.00	14,275,166.00	22,982,764.00	1955	8
2012	Total Kenya Ltd	(202,142.00)	23,348,459.00	32,980,604.00	4,160,654.00	17,933,163.00	1955	10
2013	Total Kenya Ltd	1,312,277.00	30,037,264.00	39,984,165.00	2,494,630.00	23,488,077.00	1955	11
2014	Total Kenya Ltd	1,424,088.00	22,240,137.00	32,541,800.00	7,340,418.00	14,924,210.00	1955	8
2015	Total Kenya Ltd	1,615,003.00	23,458,191.00	34,225,035.00	4,069,010.00	15,380,662.00	1955	10
2016	Total Kenya Ltd	2,234,292.00	25,379,450.00	36,185,372.00	3,804,232.00	15,409,648.00	1955	12
2017	Total Kenya Ltd	2,738,216.00	26,478,526.00	38,012,115.00	5,168,353.00	15,255,690.00	1955	10
2010	KenolKobil Ltd	1,776,640.00	26,062,068.00	32,216,630.00	14,214,412.00	18,879,407.00	1959	7
2011	KenolKobil Ltd	3,273,831.00	40,145,862.00	45,974,304.00	18,904,904.00	32,794,177.00	1959	7
2012	KenolKobil Ltd	(6,284,575.00)	24,540,381.00	32,684,166.00	16,614,771.00	25,340,816.00	1959	7
2013	KenolKobil Ltd	558,419.00	19,381,669.00	28,121,673.00	15,376,826.00	20,738,754.00	1959	8
2014	KenolKobil Ltd	1,091,284.00	15,488,019.00	23,915,166.00	10,498,228.00	16,298,922.00	1959	6
2015	KenolKobil Ltd	2,014,974.00	10,654,809.00	17,377,103.00	4,662,431.00	8,610,667.00	1959	6
2016	KenolKobil Ltd	2,413,207.00	17,637,220.00	24,201,705.00	7,366,559.00	14,024,300.00	1959	4
2017	KenolKobil Ltd	2,464,703.00	18,167,834.00	24,099,030.00	7,304,920.00	12,613,183.00	1959	5
2010	KPLC	3,716,370.00	19,610,149.00	80,213,470.00	14,857,723.00	18,715,276.00	1922	15
2011	KPLC	4,219,566.00	35,150,676.00	121,171,515.00	24,521,303.00	28,130,511.00	1922	13
2012	KPLC	4,489,719.00	28,159,384.00	134,131,983.00	27,762,313.00	31,383,138.00	1922	12
2013	KPLC	4,712,475.00	36,577,986.00	177,157,755.00	47,887,734.00	39,646,409.00	1922	12
2014	KPLC	7,446,055.00	50,518,769.00	220,926,514.00	70,109,721.00	48,847,728.00	1922	12
2015	KPLC	7,680,939.00	66,062,475.00	275,493,150.00	111,600,384.00	40,197,934.00	1922	11
2016	KPLC	7,027,890.00	50,009,817.00	297,542,180.00	113,868,712.00	50,914,903.00	1922	11
2017	KPLC	6,525,282.00	65,286,094.00	341,653,227.00	122,016,122.00	75,257,967.00	1922	10
2010	KENGEN	3,320,812.00	32,599,036.00	143,611,431.00	61,512,910.00	6,969,815.00	1954	14
2011	KENGEN	1,446,623.00	19,539,034.00	160,993,290.00	68,647,008.00	11,256,593.00	1954	13
2012	KENGEN	1,860,148.00	22,288,066.00	163,144,873.00	69,115,724.00	15,000,957.00	1954	13
2013	KENGEN	5,207,982.00	25,127,810.00	188,673,282.00	80,934,700.00	17,672,629.00	1954	16
2014	KENGEN	4,070,174.00	27,630,643.00	250,205,524.00	136,114,890.00	25,196,229.00	1954	17
2015	KENGEN	11,517,327.00	21,368,973.00	342,519,995.00	146,618,534.00	22,479,973.00	1954	15
2016	KENGEN	6,447,223.00	21,916,420.00	367,248,796.00	136,906,012.00	18,190,059.00	1954	16
2017	KENGEN	8,447,287.00	29,639,369.00	377,196,543.00	138,714,088.00	20,093,197.00	1954	16

Appendix 3: Data for the variables

NO	COMPANY	YEAR	ROA	FIRM SIZE	LEVERAGE	FIRM AGE	LIQUIDITY	BOARD SIZE
		Ti	Net Income/	Natural Log of	T.Debts/	Year Incorp	T.Current Assets	No. of Directors
			T.Assets	T.Assets	T.Assets	Natural Log	T.Current Liabs	
			Y	X1	X2	X3	X4	X5
1	Total Kenya Ltd	2010	0.03016246	24.13690803	0.13096	4.0253517	1.176917434	10
2	Total Kenya Ltd	2011	-0.0020295	24.28425982	0.4055656	4.0430513	1.10251974	8
3	Total Kenya Ltd	2012	-0.0061291	24.21918547	0.1261546	4.060443	1.301971047	10
4	Total Kenya Ltd	2013	0.03281992	24.41174934	0.0623904	4.0775374	1.278830276	11
5	Total Kenya Ltd	2014	0.04376181	24.20579125	0.2255689	3.0943446	1.490205311	8
6	Total Kenya Ltd	2015	0.04718777	24.25622323	0.1188899	4.1108739	1.525174339	10
7	Total Kenya Ltd	2016	0.06174572	24.31192079	0.1051318	4.1271344	1.646984409	12
8	Total Kenya Ltd	2017	0.07203535	24.36117076	0.1359659	4.1431347	1.735649191	10
9	KenolKobil Ltd	2010	0.05514667	24.19574862	0.4412135	3.9512437	1.380449502	7
10	KenolKobil Ltd	2011	0.07121002	24.55134847	0.4112059	3.9702919	1.224176536	7
11	KenolKobil Ltd	2012	-0.1922819	24.21015658	0.5083431	3.988984	0.968413211	7
12	KenolKobil Ltd	2013	0.01985725	24.0598064	0.5467963	4.0073332	0.934562848	8
13	KenolKobil Ltd	2014	0.04563146	23.89777866	0.4389778	4.0253517	0.950248059	6
14	KenolKobil Ltd	2015	0.11595569	23.57841926	0.2683089	4.0430513	1.237396476	6
15	KenolKobil Ltd	2016	0.09971227	23.90968892	0.3043818	4.060443	1.257618562	4
16	KenolKobil Ltd	2017	0.10227395	23.90543743	0.3031209	4.0775374	1.440384556	5
17	KPLC	2010	0.046331	25.10795729	0.1852273	4.4886364	1.047815111	15
18	KPLC	2011	0.03482309	25.52047286	0.2023685	4.4998097	1.249556967	13
19	KPLC	2012	0.0334724	25.6220901	0.2069776	4.5108595	0.897277513	12
20	KPLC	2013	0.02660044	25.90030644	0.2703112	4.5217886	0.922605273	12
21	KPLC	2014	0.03370376	26.12109597	0.3173441	4.5325995	1.034209186	12
22	KPLC	2015	0.02788069	26.3418286	0.4050931	4.5432948	1.64342961	11
23	KPLC	2016	0.02361981	26.41882183	0.3826977	4.5538769	0.982223554	11
24	KPLC	2017	0.01909914	24.25447714	0.3571344	4.5643482	0.867497444	10
25	KENGEN	2010	0.02312359	25.69037709	0.4283288	4.0430513	4.677173784	14
26	KENGEN	2011	0.00898561	25.80462852	0.4263967	4.060443	1.735785775	13
27	KENGEN	2012	0.01140182	25.81790443	0.4236463	4.0775374	1.485776274	13
28	KENGEN	2013	0.02760318	25.96328269	0.4289675	4.0943446	1.421849007	16
29	KENGEN	2014	0.01626732	26.24554851	0.5440123	4.1108739	1.096618188	17
30	KENGEN	2015	0.03362527	26.55959587	0.4280583	4.1271344	0.950578232	15
31	KENGEN	2016	0.01755546	26.62930537	0.3727882	4.1431347	1.204857005	16
32	KENGEN	2017	0.02239492	26.65603222	0.3677502	4.1588831	1.47509473	16