

**THE EFFECT OF CAPITAL STRUCTURE DECISIONS ON
FINANCIAL PERFORMANCE OF FIRMS LISTED UNDER ENERGY
AND PETROLEUM SECTOR AT THE NAIROBI SECURITIES
EXCHANGE**

BY

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DECLARATION

This is my original work and has not been submitted for examination in any other university.

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Supervisors' Approval

This research project has been submitted with my approval as the university supervisor.

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DEDICATION

This project is dedicated to my dear parents Mr. and Mrs. Peter for their tireless support. My brother Godfrey, and my two loving sisters Mary and Gladys for their continued support and encouragement throughout the process.

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ABBREVIATIONS

| | |
|--------------|--|
| AIMS | Alternative Investments Market Segment), |
| CBK | Central Bank of Kenya |
| CMA | Capital Markets Authority |
| CS | Capital Structure |
| EBIT | Earnings before Interest and Taxes |
| ERC | Energy Regulatory Commission |
| FISMS | Fixed Income Securities Market Segment |
| FOMS | Futures and Options Market Segment |
| IFC | International Finance Corporation |
| LDA | Long-term debt/total assets |
| MFI s | Micro Finance Institutions |
| MIMS | Main Investments Market Segment |
| MM | Modigliani-Miller |
| NSE | Nairobi Securities Exchange |
| NPV | Net Present Value |
| PIEA | Petroleum Institute of East Africa |
| POT | Pecking Order Theory |
| ROA | Return on Total Assets |
| ROE | Return on Equity |
| SDA | Short-term debt/total assets |
| TOT | Trade-off Theory |

ABSTRACT

Prudent capital structure is important to firms in an endeavor to promote profitability. Managers have a binding obligation to balance the amount of debt to equity in firms so as to set firms on a sound financial standing. The research objective of this study was to establish the effect of capital structure decisions on the financial performance of firms in the Energy and petroleum sectors listed in the NSE. The study used a descriptive survey design. Energy and petroleum firms listed in the NSE formed the population of this study and was considered as a representative of other firms in Kenya. The study population consisted of five firms listed in the NSE. The whole population of firms listed on the Energy and petroleum sector was considered for the study. This was informed by the fact that the population was small hence there was no need for sampling. Secondary data on capital structure decisions on financial performance of firms listed under energy and petroleum sector at the Nairobi securities exchange was collected for the study period of 2004 to 2014. Data was analyzed using regression analysis. Analyzed data was presented using tables. Confidence interval of 95% was used by the researcher. The findings indicate that the independent variables Debt ratio, Liquidity and firm size had an effect on the financial performance of the firms in the Energy and petroleum sector. Their effect was up to 81%. Debt ratio and firm size had a positive relationship whereas liquidity had a negative relationship to the firms in the Energy and petroleum sector listed in the NSE. Since the study findings on returns of firms in the Energy and petroleum sector listed at the NSE contradicts some of those done by earlier researchers who had established that liquidity does have a significant positive association with financial performance of firms. They also found that commercial banks that are more capital-intensive have lower financial performance. Further studies should be done to establish the cause of such discrepancy.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Capital structure is one of the most puzzling issues in corporate finance literature (Barine, 2012). Capital structure is the combination of debt and equity that make the total capital of firms. The proportion of debt to equity is a strategic choice for corporate managers. Capital structure decisions are vital since they directly affect the performance of firms. Hence, proper care and attention need to be given while determining capital structure decisions. In the statement of affairs of an enterprise, the overall position of the enterprise regarding all kinds of assets and liabilities are shown (Velnampy and Niresh, 2012). The term capital structure of an enterprise is actually a combination of equity shares, preference shares and long-term debts. Attention has to be paid as far as the optimum capital structure is concerned. With unplanned capital structure, companies may fail to economize the use of their funds. Consequently, it is being increasingly realized that a company should plan its capital structure to maximize the use of funds and to be able to adapt more easily to the changing conditions (Pandey, 2009).

An institutions performance is a subjective measure of how well a firm can use its assets from its primary business to generate revenues. Pandey (2009), noted that financial performance measures of institutions which include profitability and liquidity among others provided a valuable tool to stakeholders to evaluate the past company performance and the current position of a firm. Brigham and Gapenski (1996) argued that in theory, the Modigliani and Miller model was valid. However, in practice bankruptcy costs did exist and that these costs were directly proportional to the debt of a firm. This conclusion implied a direct relationship

between capital structure and financial performance of listed institutions (Brigham and Gapenski 1996).

The motivation for targeting the energy and petroleum segment is due to the impact it has on other industries and economy as a whole. Most countries are significantly affected by developments in the oil and energy market, either as producers, consumers, or both. In 2008, oil provided about 34% of the world's energy needs, and in the future, oil is expected to continue to provide a leading component of the world's energy mix. Since now energy plays an essential role in industrial societies, the ownership and control of energy resources plays an increasing role in politics. At the national level, governments seek to influence the sharing (distribution) of energy resources among various sections of the society through pricing mechanisms; or even who owns resources within their borders. They may also seek to influence the use of energy by individuals and business in an attempt to tackle environmental issues. When the costs of energy increase this subsequently leads to a considerable impact on other industries in terms on their operating costs, performance and also profits. This makes the segment very unique and to carry the most influence on performance of the rest of the industries (ERC).

1.1.1 Capital Structure

The capital structure a firm opts for is a choice between debt and equity in financing long term investments. The amount of debt a firm uses for finance depends on the interest on debt, corporate income taxes, withholding taxes, personal income taxes, costs of financial distress, covenant restrictions in other financing agreements, and other market imperfections Hovakimian, A., Opler, T. & Titman, S. (2002). The lower the rate of interest on long term debts, the higher the desire of a firm to opt for it will be; but higher

leverage increases the risk of financial distress. In the extreme, a firm maybe unable to meet its service obligations, and forced into bankruptcy by disappointed creditors (Hovakimian et al, 2002).

This normally leads to substantial legal and administrative expenses and in addition, costs implicit in selling assets at distress prices if not forced into bankruptcy, high leverage can make the firm's stock less attractive to investors as the probability of financial distress increases (Flannery and Rangan, 2004). By implication, the firm will be in difficulty of raising further funds quickly on favorable terms; lenders will require higher interest rate; trade creditors will transact business with the firm on more stringent terms in addition to competitors' aggressiveness to exploit the firm's perceived financial weaknesses (Barine, 2012).

For any particular company, there is an optimal capital structure that is determined by the trade-off between the net tax advantage of additional corporate leverage and the costs associated with increased likelihood of financial distress (Barine, 2012). This is also influenced by reduced marketability of corporate debt that is a function of its corporate tax shields, investment tax shields, bankruptcy costs, cost of finance and agency cost. Increasing the proportion of debt in a firm's capital structure increases the firm's value up to a point. Beyond that point, further increases in leverage augments the average company cost of capital and decreases the total market value of the firm. Firms lie at different points on this trade-off line (Barine, 2012).

1.1.2 Financial Performance

Financial Performance is a subjective measure of how well an enterprise uses assets from its primary mode of business and generates revenues. This term is used as a general measure of a

firm's overall financial health over a given period of time and can be used to compare similar firms across the same industry or to compare industries in aggregation. Financial Performance can also be viewed as the level of performance of a business over a specified period of time, expressed in terms of overall profits and losses (Stanwick, 2002).

The financial performance evaluation of a business allows the decision makers to judge the results of business strategies and activities in objective and monetary terms. This shows whether the management and the BODs continue to contribute effectively and if they are really committed to the role assigned to them. Good corporate governance provides improving efficiency and establishes an interactive investment climate. Among the most important benefits of implementing high standards of company's management are: resource efficiency, lower cost of capital, increase investor confidence due to the reduction of sensitive discretionary attitude of managers and reducing corruption (Stanwick, 2002).

Pandey (2010) provided financial measures in terms of return on assets (ROA). The study uses ROA as a key performance indicator for state owned commercial enterprise's in Kenya. This measure is an indicator of how profitable an enterprise is relative to its total assets. The ROA portrays how efficient management is at utilizing its asset to generate earnings. It is calculated by dividing net income by the average total asset. The result is then converted to percentage. The higher this percentage the more an enterprise has generated from smaller investment. On the other hand, a smaller ROA indicates that despite a higher investment of resources, an enterprise's profit generated is low.

1.1.3 Capital Structure and Financial performance

Due to the interconnectivity of capital structure and financial performance, company managers put all their efforts on reaching a suitable form of the combination between financial resources and the proper capital structure (Mohammadzadeh et al., 2013). In reality, capital structure of a firm is difficult to determine. Financial managers do experience difficulty determining the optimal capital structure of a firm. Optimal capital structure is the minimum weighted-average cost of capital which maximizes the value of the firm (Myers, 2001). San and Heng (2011) note that companies have to issue various securities in a countless mixture to come across particular combinations that can maximize its overall value which means optimal capital structure.

The ultimate goal of a firm is maximization of market value of the firm (Modigliani and Miller, 1958, 1963; Miller, 1977). The relationship between capital structure and financial performance has been the subject of remarkable milestones over the past decade through the irrelevance theory. Modigliani and Miller's (1958) irrelevance theory, states that capital structure is unrelated to the firm's value. In the presence of corporate income tax and the cost of capital in Modigliani and Miller (1963) they argued that, the market value of the firm is positively related to the amount of long term debt used in its capital structure (Tudose, 2012).

The static trade-off theory formulated in the 1960s-1970s, proposed that firms set a target debt ratio which they attempt to reach. There is a positive relationship between the firm's leverage and financial performance (Boodhoo, 2009). In the mid-1970s, research turned to agency costs, focusing on two categories of conflicts of interest between managers and shareholders, on the one hand, and between creditors and shareholders, on the other (Jensen

and Meckling, 1976; Myers, 2001). This led to the agency cost theory which is based on the assumption that the optimal capital structure represents a compromise between the effects of interest tax shield, financial distress costs and agency costs (Boodhoo, 2009).

1.1.4 Energy and Petroleum Firms Listed in Nairobi Securities Exchange

The energy and petroleum industry in Kenya represents the firms that are involved in marketing and distribution of petroleum products and also sale of other forms of energy in Kenya. They comprise of both the local and the multinational companies. The industry is mainly regulated by the Energy Regulatory Commission (ERC).

The oil industry in Kenya is characterized by about 75 oil marketers. It is governed by the Kenyan law which covers operations from crude importation, refining and retailing. It is an oligopolistic structure dominated by about 3 major players. The three players control over half of the market share with 54.9% of the total market share as at March 2014 (Total Kenya controlling 21.7%, Vivo Kenya 18.9% and KenolKobil 13.9%) according to PIEA (2014). The other forms of energy like electricity are distributed by KPLC and produced by KenGen which operates largely as a monopoly. The sector is very competitive characterized by price controls, common non-differentiable products and strict taxation structure within a liberalized economy therefore requiring adoption of other strategies besides price and its related derivatives as a competitive strategy (NSE 2014).

The Kenyan Energy and Petroleum sector is considered as one of the key segments of the economy. Petroleum fuel constitutes the main source of commercial energy in Kenya. Kenya is a net importer of petroleum products. Growth in the profits of the energy sector will depend upon identifying all the variables that can influence profit of a firm including the

management of working capital. The inability of a firm to meet its obligations will lead to the disruption of its marketing and distribution process by actions such as labor strikes and blacklisting by suppliers. Key challenges facing the energy and petroleum sector includes high cost of operations which is ever increasing due to poor infrastructure, regulation, volatility in exchange rates, tax administration and burden of government. Other challenges include security issues with recent cases of terror attacks (ERC).

1.2 Research Problem

Determination of optimal capital structure is an important task in financial management (Pandey, 2009). Capital structure decisions are important to maximize the earnings of companies. Capital structure decisions are taken by considering factors like financial performance, solvency and control. The relationship between debt, equity and financial performance is examined and an attempt is made to understand this relationship among them (Reddy, 2012).

Capital structure decisions in energy and petroleum firms is vital since it ensures that a company has sufficient cash flow in order to meet its short-term debt obligations and operating expenses. These involve managing the relationship between a firm's short-term assets and its short-term liabilities. The goal of capital structure is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses (Ganesan, 2007).

A study that was done by Claessens, Djankov and Xu, (2000), comparing growth and financing patterns of East Asian corporations for the year before crisis with corporations in other countries. The results showed that firm specific weaknesses which already existed

before the crisis were essential factors in the failing financial performance of the corporate sector. Gill (2011), in his study on the impact of economic crisis on the capital structure, found that by having a low leverage, Turkish firms immunized themselves against the economic crisis. The results further indicated that profits of high leverage firms can be significantly increased by issue of equity or decrease of debt. Most studies found a negative relationship between financial performance and leverage (Titman and Wessels, 1988; Kester, 1986; Rajan and Zingales, 1995). Some authors observed a positive relationship between financial performance and debt levels in their studies (Taub, 1975; Abor, 2005). The inconclusive results from the above studies on capital structure and its effect on financial performance showed a gap that led to the need to conduct further research on the topic.

Gachoki (2003) in his study on capital structure for 1997 crisis stated that the key factor which accelerated economic distress was the increased dependency on debt financing. The dependency had led to excess investment before the crisis and also instability in the Kenyan economy. Matibe (2005) did a study on the Relationship between Ownership Structure and Capital Structure for the Firms Listed at the NSE and concluded that no relationship exists between the capital structure and ownership policy on financial performance. Mose (2011), in his study of the relationship between capital structure and financial performance of microfinance institutions in Kenya found that outreach and portfolio size had a positive effect on financial and also financial performance of MFIs in Kenya. Mburu (2005) in his study on the Relationship between Assets Structure and the Debt Policy for Companies listed at the Nairobi Stock Exchange concluded that capital structure affects financial performance of the company and if the firm can effectively manage its debt policy, it can lead to increase in financial performance.

From the foregoing discussions based on the available empirical literature it is crystal clear that results from investigations into the relationship between capital structure and financial performance are inconclusive and requires more empirical work. No study known to the researcher has been done per se to determine the effect of capital structure decisions on financial performance of firms listed under energy and petroleum at the NSE. This research project was therefore motivated by this gap in finance knowledge and sought to answer the question: What is the effect of capital structure decisions on financial performance of firms listed under energy and petroleum sector at the NSE?

1.3 Objective of the Study

The objective of this study is to establish the effect of capital structure decisions on financial performance of firms listed under energy and petroleum sector at the NSE.

1.4 Importance of the Study

The relationship between capital structure and financial performance is one that has received considerable attention in the finance literature. The study regarding the effects of capital structure on financial performance will help to identify the potential problems in performance and capital structure. The modern industrial firm must conduct its business in a highly complex and competitive business environment. Therefore, the research findings will be beneficial in selecting the capital structure to achieve the optimum level of firm's financial performance. This research study will contribute valuable knowledge to the field of corporate financial policy in general. The study will be beneficial to corporate managers as its focus is on capital structure which is core to operations of corporate firms and business as a whole. The firms will be able to know how to effectively handle the issues of financial policy. The managers will be furnished with relevant information regarding capital structure and its

impact on financial performance. The research study will aid the firms in identifying the factors that influence their financing choices so as to achieve an optimal capital structure that will meet needs of diverse stakeholders and influence how the firm is governed. Finally, the study will contribute to the broader area of capital structure, corporate financing and financial performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, previous studies related to the topic are reviewed. The chapter begins with theoretical review on capital structure and theories regarding the study. In addition, the chapter looks into the determinants of capital structure and financial performance and studies that have been done on the two concepts. It will further look at empirical review on capital structure and financial performance with conceptual gaps and methodological gaps that will be identified, and a summary of the literature review.

2.2 Theoretical Review

This section reviews the theoretical models relevant to this study. The primary focus of the study is capital structure. Theories of capital structure try to explain what happens to the overall cost of capital and value of the firm when the proportions of the funds that make up the capital are varied. They try to guide the corporate finance managers in choosing the optimal proportion of debt and equity for their firm.

2.2.1 Pecking Order Theory

The pecking order theory is based on the assertion that managers have more information about their firms than investors. This disparity of information is referred to as information asymmetry. According to Myers and Majluf (1984), if investors are less informed than the firm insiders about the value of the firm, then equity may be mispriced by the market. When firms need to finance new investments, underpricing may be so severe that new investors capture more than the net present value (NPV) of the project resulting in a dilution of value to the existing investors. This can lead to under-investment result, that is, the project will be

rejected. To avoid this, firms establish a preference conditions; firms prefer internal finance over external finance, safe debt over risky debt and convertibles and finally common stocks (Donaldson, 1961; Myers & Majluf, 1984).

This theory is based upon costs derived from asymmetric information between managers and the market and the assumption trade-off theory costs and benefits of debt financing are of second order importance when compared to the costs of issuing new securities in the presence of asymmetric information. Tangible assets are less subject to information asymmetries and usually have a greater value than intangible assets in the event of bankruptcy. This therefore means that tangibility of assets should be a factor to consider in the choice of capital structure. Myers (1984), states that an optimal capital structure is difficult to define as equity appears at the top and at the bottom of the ‘pecking order’. Internal funds incur no flotation costs and require no disclosure of the firm’s proprietary financial information that may include the firm’s potential investment opportunities and gains that are expected to accrue as a result of undertaking such investment. This brings into perspective the issue of growth as a determinant of capital structure. According to pecking order theory hypothesis, a firm will use first internally generated funds which may not be sufficient for a growing firm so the next option is for the growing firms to use debt financing which implies that a growing firm will have a high leverage (Drobetic & Fix 2003). Hence firm growth should be considered as a determinant of capital structure.

2.2.2 Agency Cost Theory

Agency cost theory proposes that leverage disciplines managers, as the debt level may be used to monitor managers (Boodhoo, 2009). Thus, it is to be expected that increased leverage in the context of low agency costs may raise the level of efficiency and thereby contribute to

upgrading financial performance (Akintoye, 2008). Jensen and Meckling (1976), put forward the concept of agency costs. There is an agency relationship between the shareholders and creditors of firms that have substantial amounts of debt. In such firms, shareholders have little incentive to limit losses in the event of a bankruptcy. Agency theory recognizes that the interests of managers and shareholders may conflict and that, left on their own, managers may make major financial policy decisions, such as the choice of a capital structure, that are suboptimal from the shareholders' standpoint. The theory also suggests, however, that compensation contracts, managerial equity investment, and monitoring by the board of directors and major shareholders can reduce conflicts of interest between managers and shareholders (Mehran, 1992).

It is also suggested that capital structure models that ignore agency costs are incomplete. Debt financing is another crucial factor that limits the free cash flow available to managers and thereby helps to control this agency problem (Jensen and Meckling, 1976). Myers (1984) put forth another type of agency cost of debt which arises from the underinvestment problem. When a firm has debt which matures after an investment option expires, shareholders have the incentive to reject projects that have positive net present values because the benefits from accepting the projects accrues to the bondholders without increasing the shareholders' wealth. The issuance of debt therefore leads to suboptimal investment for the firm, requiring this type of agency cost to be traded off against the tax savings of debt financing to determine the optimal capital structure. Grossman and Hart (1982) argue that short-term debt can serve as a mechanism to align managerial incentive with that of shareholders since bankruptcy is costly for management. This implies that liquidity is an important determinant of capital structure. An agency cost of managers consuming high

perquisites is higher for firms with lower levels of assets that can be used as collateral. Hence tangibility of assets should be considered as a determinant of capital structure.

2.2.3 Trade of Theory

The term trade-off theory is used by different authors to describe a family of related theories. Management running a firm evaluates the various costs and benefits of alternative leverage plans and strives to bring a trade-off between them. Often it is assumed that an interior solution is obtained so that marginal costs and marginal benefits are balanced. Thus, trade-off theory implies that a company's capital structure decision involves a trade-off between the tax benefits of debt financing and the costs of financial distress. When firms adjust their capital structure, they tend to move toward a target debt ratio that is consistent with theories based on tradeoffs between the costs and benefits of debt. Hovakimian, Opler, and Titman (2002) empirical work, explicitly account for the fact that firms may face impediments to movements toward their target ratio, and that the target ratio may change over time as the firm's performance and stock price change. In a static trade-off framework the firm is viewed as setting a target debt to value ratio and gradually moving towards it.

The theory says that every firm has an optimal debt-equity ratio that maximizes its value. The theory affirms that firms have optimal capital structures, which they determine by trading off the costs against the benefits of the use of debt and equity. The benefits from debt tax shield are thus adjusted against cost of financial distress. Agency cost, information asymmetry and transaction cost are some of the other costs to be mitigated. The optimal point can be attained when the marginal value of the benefits associated with debt issues exactly offsets the increase in the present value of the costs associated with issuing more debt (Myers, 2001).

2.3 Determinants of Financial performance

Many researchers have studied firm specific and macro-economic determinants from different visions and in different ways. Studies that deal with internal determinants exploit variables such as size, tangibility, growth and debt to equity ratio. There is a positive significant relationship between size and financial performance (Akhavain, Berger, and Humphrey, 1997; Smirlock, 1985). Leverage is positively correlated with firm size (Rajan and Zingales, 1995; John, 1999; Booth et al., 2001).

2.3.1 Firm Specific factors

The degree of which various financial, legal and other factors such as corruption affect financial performance is strongly related to firm size (Bhutta and Hasan, 2013). Firm size is positively related to capital ratios (Goddard, Molyneux, and Wilson, 2004; Bikker and Hu, 2002). The growth opportunities are measured in terms of the fraction of a firm's value represented for by assets in place; the smaller the proportion of a firm's value narrated by assets-in-place, the larger are the firm's growth opportunities (Myers, 1977). The firms with growth opportunities have moderately more development projects, new product lines, acquisitions of other companies and repair and replacement of existing assets. Moreover, growth opportunities and firm size are positively related to financial performance (Abor, 2005). Those firms with low growth opportunities lean to show high financial performance and firms in the middle of the growth opportunities incline to confirm small financial performance (Myers 1977).

There are two conflicting viewpoints about the relationship of size to leverage of a firm. According to trade off theory, larger firms are well diversified, having stable cash flows and

their chances of bankruptcy are less as compared to small firms. Therefore, large firms prefer leverage and are having high level of leverage (Myers & Majluf, 1984). Due to the large size, high level of fixed assets, economies of scale, stable cash flow and creditworthiness larger firms have the bargaining power over lender and can borrow at relatively lower rate (Hart 1982). Thus, large firms are expected to hold more debt in their capital structure than small firms. Following this, one may expect a positive relationship between size and leverage of a firm.

2.3.2 Macroeconomic factors

The other group of financial performance determinants deals with macroeconomic variables. There is a relationship between financial performance and inflation. Inflation and actual inflation are significantly positively related to financial performance (Athanasoglou, et al., 2005). Perry (1992), comments that the effect of inflation on financial performance depends on whether firms' operating expenses and its wages increase at a more rapid rate than inflation. The degree of which inflation affects financial performance depends on whether inflation prospect are wholly estimated.

There are two opposite views relating the relationship between liquidity and leverage. According to trade off theory, the more liquid firm would use external financing due to their ability of paying back liabilities and to get benefit of tax shields, resulting in positive relationship between liquidity and leverage. Pecking order theory assumes that the more liquid firm could use first its internal funds and would decrease level of external financing, resulting in negative relationship between liquidity and leverage. In this study negative relationship between liquidity and leverage is expected. Not many studies have tested the effect of liquidity on the choice of capital structure. Mazur (2007) and Ahmad et. al., (2011)

measured liquidity as the ratio of current assets to current liabilities. In this study, Liquidity will also be measured as the ratio of current assets to current liabilities.

2.4 Empirical review

A review of empirical works reveals that there exists conflicting results about the relationship between capital structure and financial performance of companies. This indicates that firms which earn a lot are depending on debt as their key financing option. Kester (1986) had conducted a comparison study between U.S. and Japanese firms; he showed that profitability is significantly negatively related to leverage. Allen and Mizuno (1989) by using book and market value of Japanese companies found a negative association between leverage and profitability. Rajan and Zingales (1995) conducted research by using G7 countries data for comparing the capital structure and its factors. They concluded that results of some were different due to some other factors like taxation policies and insolvency or bankruptcy. They also observed that determinants of capital structure for U.S. (tangible assets, size, profitability and growth) were of same importance for the rest of other developing countries. Kunt and Maksimovic (1994) used ten developing countries sample and found that liquidity, assets and industry effects were more significantly related than firm size, firm growth and tax effects. These results also proved that leverage is negatively related to net fixed assets, suggesting inefficiency in long term debt market working in developing countries.

A study that was done by San and Heng (2000) on the influence of capital structure on financial performance of listed companies on the Ghana Stock Exchange during a five-year period, found out that there is significant positively interrelated SDA and ROE and shows that firms which earn a lot use more short-term debt to finance their business. In other words, short-term debt is an essential source of financing in favor of Ghanaian companies, by

representing 85 percent of total debt financing. Yet, the results showed the adverse relation between LDA and ROE. The regression output showed that there is positive relationship between LDA and ROE which measure the liaison between total debt and financial performance (Abor 2000).

Chiang et al. (1999), undertook a study and the findings of the research put forth that financial performance and capital structure were interrelated; the study sample included 35 companies listed in Hong Kong Stock Exchange. Gill, et al., (1999), sought to extend Abor's (2000), findings regarding the effect of capital structure on financial performance by examining the effect of capital structure on financial performance of the American service and manufacturing firms. The empirical results of the study show a positive relationship between short-term debt to total assets and financial performance and between total debt to total assets and financial performance in the service industry. Matibe (2000) used correlation analysis to study the relationship between ownership structure and capital structure for firms listed at NSE (excluding financial institutions and alternative investment markets segment) for an unspecified period. The study found a negative correlation between individual, institutional and foreign ownership and capital structure while state ownership was positively correlated with capital structure. However, theory predicts positive correlation between foreign ownership and capital structure. Mburu (2000), used regression analysis to study the relationship between the asset structure and the debt structure among firms listed at NSE for the period 1996-2000. The study found that corporate debts increased as the levels of tangible assets increased. This outcome is in line with theoretical prediction that assets with value would escape damage of financial distress.

Musili (2000), used descriptive statistics to survey the capital structure among industrial firms listed at the NSE (which are also members of Kenya Association of Manufacturers) for unspecified period using a sample of fifty firms. The study found out that industrial firms followed hierarchy in financing decisions than target debt ratios. Also, since financing reveals aspects of asset performance, studies based on corporate and personal taxes, bankruptcy and leverage related costs are not important in determining capital structure. This study revealed that financial planning principles are more critical in financing decisions than any capital structure theory. However, the study is consistent with pecking order regarding choice of finances by industrial firms. Kuria (2004) set out to analyze the determinants of capital structure of firms listed in the NSE. In her findings, she concluded that larger and highly profitable firms maintain high debt ratio while high growth firms use less debt financing. She also found that firms with high non-debt tax shields use more debt than equity.

Gachoki (2005) tested the relationship between internal funds deficits and the amount of new debt issued using regression model. The study did not find any relationship between financing deficit and new debt issued. The outcome of the study was not in line with the POT predictions. Mutsotso (2005), used regression analysis to study the influence of corporate tax rate on the capital structure of companies quoted on the NSE. The study found that corporate tax rate was positively related to capital structure in line with the theory. This study thus seeks to evaluate the effect of capital structure decisions on performance of firms listed under energy and petroleum segment at the NSE.

2.5 Summary of Literature Review.

From the foregoing literature, it is evident that empirical evidences on the various determinants of capital structure give conflicting results. For instance, Titman and Wessels

(1988) provided empirical proof that there is a positive relationship between firm size and leverage of a firm while Rajan and Zingales (1995) concluded that there is a negative relationship between size and leverage of the firm. Despite extensive financial structure research since Modigliani and Miller (1958) surveyed the literature, important questions remain about what determines the choice of capital structure for firms within the same industry.

Although it is widely held that industry factors are important to firm financial structure, empirical evidence shows that there is wide variation in capital structure. Previous studies have focused on either the determinants of capital structure of all listed firms or a particular sector only. For instance, Musili (2003) studied determinants of capital structure of public sector enterprises in Kenya. Matibe (2005) studied the determinants of capital structure of small and medium-sized enterprises in Kenya. Kuria (2010) analyzed the determinants of capital structure of all firms listed in the NSE. Turere (2012) investigated the determinants of capital structure in the energy and petroleum sector. This study is to the best of this researcher's knowledge, the first in exploring the effects of capital structure on financial performance of firms listed under energy and petroleum segment in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains research methodology that was used for the study. Research methodology gives details regarding the procedures that will be used in conducting the study. The chapter discusses the research design, target population, sampling procedure and design, data collection instrument and procedures and data analysis.

3.2 Research Design

According to Kerlinger (1986), research design is the plan and structure of investigation so conceived so as to obtain answers to research questions. The plan is the overall program of the research and includes an outline of what the investigator will do from writing of the hypothesis and their operational implications for the final analysis of data. Cooper and Schindler (2003) summarize the essentials of research design as an activity and time based plan which is based on the research questions, a guided selection of sources and types of information, a frame work for specifying the relationships among the study variables and outlines the procedure for every research activity.

Mugenda and Mugenda (1999) also say that research design is the outline plan or scheme that is used to generate answers to the research problems. It is basically the structure and plan of investigation. The study will be carried out through a cross-sectional survey. The choice of this research approach is based on the advantages and reliability of results associated with it. It suffices to say that the descriptive research emphasize accurate measurement of phenomena and require unbiased and reliable observations. This research design will be of empirical

nature because of the nature of data collected. Empirical research methods bridge the gap between the theoretical foundations of models and its practical application (Kerlinger 1986).

3.3 Target Population

Kerlinger (1986) states that generalization about the population from data collected using any sample is based on probability. In order to be able to generalize about the research finding to the population, it is necessary to select samples of sufficient size. A large sample size will in general improve the quality of the research. A large sample size is always better than a small one. Kerlinger (1986), also point out that the larger the sample size, the lower the likely error in generalizing the population. Therefore the research will comprise of all the firms listed under energy and petroleum in Kenya as at 31st December 2014, for the 10-year period 2004 to 2014. A census will be carried out due to the small number of energy and petroleum firms in Kenya. There are five firms that are listed under energy and petroleum and all these companies will be included in the study (NSE 2014).

3.4 Data Collection

A data collection sheet was used to capture the data from the firms which was extracted from the annual financial reports of the listed firms in energy and petroleum for the period 2004 to 2014. The financial reports were obtained from the Nairobi Securities Exchange, firm's publications and websites. The end result was information detailing capital structure and financial performance. Return on equity was computed from net income (earnings after interest and tax) and Long-Term Debt to Total Equity was computed from total equity, total short term liabilities, total long-term liabilities, and total liabilities at the end of each year.

3.5 Data Analysis

Statistical package for social sciences (SPSS) software version 17 was used to analyze the data. Quantitatively, the researcher presented the information by use of tables and line graphs. Various financial ratios were used to analyze the data since financial ratios summarize large quantities of data and can be used to perform a comparison of performance over time. Financial performance ratios were used. Correlation Coefficient (r) was determined and used to measure the strength and direction of the relationship between the dependent variable (Financial performance) and each of the Independent variables. Coefficient of determination (R²) was used to measure the proportion of variance in the dependent variable that can be explained by independent variables. T-test was used to test for the significance of the relationship between financial performance and each of the independent variables. The following hypothesis was tested: The following regression model will be used:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon.$$

Where: Y = Financial performance measured By Return on Assets, ROE

α = y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3$ = are the slope of the regression

X_1 = Debt ratio given as long term debt / (shareholders equity + long term debt)

X_2 = Liquidity, as given by Current Assets divided by Current Liabilities

X_3 = Size, as given by; Natural logarithm of sales

ε = error term

3.5.1 Tests Of significance

Correlation Coefficient (r) was determined and used to measure the strength and direction of the relationship between the dependent variable (Financial performance) and each of the

Independent variables. Coefficient of determination (R^2) was used to measure the proportion of variance in the dependent variable that can be explained by independent variables. If F calculated will be less than the table value then the decision will be there will be no statistical evidence of significance correlation at 5% level of significance. T test was used to test for the significance of the relationship between financial performance and each of the independent variables.

CHAPTER FOUR

DATA ANALYSIS, RESULT AND DISCUSSION

4.1 Introduction

This chapter covers data analysis, results and discussions. The data is summarized and presented in table form. The research design adopted was cross-sectional study in which data was gathered over the period 2004 to 2014. The study was carried out through the use of secondary data as detailed in oil industry in Kenya annual reports. The researcher obtained the data from the financial statements in their annual report. The population of the research consisted of five energy and petroleum firms listed in Nairobi stock exchange for a period of 10 years. The data collected was analyzed by use of Statistical Package for Social Sciences (SPSS). Regression analysis was used to determine the relationship between capital structure decisions and financial performance of firms listed under Energy and petroleum sector at the NSE.

4.2 Descriptive statistics

Table 4.1 the average return on equity

| | N | Minimum | Maximum | Mean | Median | Std deviation | Variance |
|-----------------------|-----|--------------|--------------|-----------------|---------------|------------------|----------------|
| Return on Equity as % | 150 | 0.08 0.72 | 0.42 0.92 | 0.2327 0.847 | 10.716 0.2 | 0.0934 0.0467 | 0.009 0.002 |
| Debt Ratio | 150 | 0.12 | 0.58 | 0.2440 | 0.46 | .1167 | 0.015 |
| Liquidity | 150 | 0.02 | 0.54 | 0.2203 | 0.53 | 0.1086 | 0.13 |
| Size | 150 | | | | | | |

Table 4.1 above shows that the average return on equity for the 150 observations made from five companies for the years 2004-2014 is 23.27% a standard deviation of 9.34% with minimum at .08% and maximum at .42 % and a median of 0.2%. The average Debt ratio is 0.847 a standard deviation of 0.0467 with a minimum of 0.72 and a maximum of 0.92 days the mean is 0.847, the average liquidity is 0.2440 days with a standard deviation of .1167 , a minimum of 0.12 and a maximum of 0.58 , average size is period is 0.2203 with a standard deviation of 0.1086.

Table 4.2 a): Model Summary

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .902 ^a | .8100 | .7500 | .76036 |

The correlation and the coefficient of determination of the dependent variables (Returns of listed Energy and oil firms when all the three independent variables Debt ratio, Liquidity and firm size combined was measured and tested. From the findings 81.00% of variations in firm financial performance in the Energy and petroleum sector returns at the NSE were attributed to the independent variables investigated in this study. This indicates that about 81% of variations in financial performance are explained by variations in liquidity, firm size and Debt ratio, the other 19% is not explained by the model. This indicates that financial performance is very much affected by these factors.

Table 4.2 b) Anova**ANOVA**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | .178 | 4 | .059 | 11.160 | .005 ^a |
| | Residual | .036 | 145 | .0048 | | |
| | Total | .215 | 149 | | | |

a. Predictors: (Constant), Liquidity, Debt ratio, Firm size

Source: Research Findings

From the data findings in table 4.2b above, the sum of squares due to regression is 0.178 while the mean sum of squares is 0.059 with 3 degrees of freedom. The sum of squares due to residual is 0.036 while the mean sum of squares due to regression is 0.0048 with 7 degrees of freedom. The value of F calculated is 11.160 and the significance value is 0.005. The p value is 0.005. Since the p value is less than 0.05 implies that the relationship is significant at 95% level of significance; the model is therefore significant for the study and prediction.

Table 4.2 (c): Coefficients of Determination**Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.990 | .420 | | 4.736 | .002 |
| | Debt ratio | .345 | .060 | -1.325 | -4.935 | .002 |
| | Liquidity | -.025 | .013 | -.415 | -1.136 | .291 |
| | Size | .050 | .020 | 1.040 | 2.330 | .051 |

a. Dependent Variable: ROA

Source: Research Findings

According to the model the Debt ratio variable was significant as its significance value was less than 0.05. The other variables (Liquidity and firm size) were negatively correlated. The Debt ratio and firm size were positively correlated with financial performance while Liquidity was negatively correlated with financial performance. From the model, taking all factors (Firm size, Debt ratio, and liquidity) constant at zero, returns had an autonomous value of 1.990. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in Debt will lead to a 0.345 increase in financial performance. A unit increase in liquidity will lead to a 0.025 decrease in returns. A unit increase in firm size will lead to a 0.050 increase in financial performance. This indicates that Debt ratio and firm size had a positive effect to the financial performance of the listed Energy and petroleum firms at the NSE while the Liquidity had a negative contribution on the financial performance on the Energy and petroleum firms listed on the NSE. The coefficient table above was used in coming up with the model shown below.

$$\text{Financial performance} = 1.960 + 0.344X_1 - 0.025X_2 + 0.05X_3 + 0.420$$

4.3 Diagnostic tests

Durbin Watson test for auto correlation as a statistical test used to detect the presence of autocorrelation in the residuals. Let e_i be residual sorted into time order then the Durbin Watson test statistic is

$$d = \frac{\sum_{i=2}^n (e_i - e_{i-1})^2}{\sum_{i=1}^n e_i^2}$$

It is critical If d is less than 2, then there is a positive serial correlation, if d is 2 then there is no serial correlation. If d is more than 2 then there is a negative serial correlation. Because of the dependence of any computed Durbin Watson value on the associated values of Durbin

Watson statistic are not tabulated for all possible cases. The conventional Durbin Watson tables are not applicable when you do not have constant term in the equation.

According to our model $d=1.5515$, $p \text{ value}=0.008841$ Where d represents Durbin Watson. Since d is less than 2 then there is evidence of positive serial autocorrelation in the residual.

Pearson correlation was used to examine if there was correlation or degree of association between the firms performance.

4.4 Correlation analysis

Table 4.3 Correlation analysis

| | ROE | DR | LQR | SIZE |
|------------|-------|------|------|------|
| ROE | 1 | | | |
| Debt ratio | 0.590 | 1 | | |
| Liquidity | .839 | .146 | 1 | |
| SIZE | .614 | .317 | .282 | 1 |

The findings show positive correlation between Return on Equity and Debt ratio with a correlation coefficient of 0.590. This implies that the firms listed under energy and petroleum sector at the Nairobi securities exchange can improve their Return on Equity by Improving on their Debt ratio. The findings also show a positive correlation between ROE with liquidity with a correlation of 0.839. This implies a very high correlation between ROE and liquidity this can improve financial performance.

The study shows a positive correlation between Return on Equity and Size of the firm with correlation of 0.614. This implies that increasing the firm size can significantly increase the financial performance of the firms listed under energy and petroleum sector at the Nairobi

securities exchange. Firm's liquidity is important for the financial performance of the firm and it's therefore important for firms to maintain the ratio high in order to ensure high performance. These findings illustrate the results obtained from correlation analysis for the sampled firms for the period of study at 0.05 percent level of significance.

4.5 Capital structure and financial performance

From the findings of the study the regression equations for the period 2004 to 2014 related financial performance of the Energy and petroleum firms listed at the NSE to their Debt ratio, Liquidity and Firm size. From the findings of the model summary from 2004 to 2014, 81% of returns of the Energy and petroleum firms at the NSE were explained by the independent variables (Debt ratio, Firm size and liquidity) investigated in the study while other factors not studied in this research contributed 19%. Since the significance level of 0.005 is less than 0.5 therefore the study was significant at 0.05 level of significance. From the coefficient table of 2004 to 2014, taking all factors (Debt ratio, firm size and liquidity) constant at zero, Returns will be 1.960. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in Debt ratio will lead to a 34.5 increase in financial performance. A unit increase in liquidity will lead to a 0.025 decrease in financial performance while a unit increase in firm size will lead to a 0.050 Increase in financial performance of the Energy and petroleum firms listed in the NSE.

From the summary of findings, it is clearly evident that the Debt ratio and firm size had an effect on the financial performance of the Energy and petroleum firms listed at the NSE as indicated by the coefficients of determination of year 2004 to 2014. The study found that the three independent variables in the study (Debt ratio and Firm size) influenced the financial performance of the Energy and petroleum firms in Kenya for the period under study.

Liquidity negatively influenced the financial performance for the period of study. These findings are in line with that of Kuria (2010) who in studying the effect of capital structure on the financial performance of commercial Banks in Kenya established that various capital structure decisions undertaken by firms in the country over the years have directly and indirectly affected financial performance of the various firms in the NSE in a number of ways. He further confirmed that efficiency of bank's performances depends on the instruments used by a firm in undertaking sound capital structure decisions to help put firms in the path to profitability.

These findings agree with the position held by Kiprop (2013) who established that capital structure decisions largely affects firms' profitability thus influencing firms to change their investment decisions. He further indicated that when firms change their investment decisions based on their capital structure, their financial performance is also likely to change or be affected due to the changes in capital structure. His study concluded that sound capital structure decisions should be undertaken to managers to help put firms on the path to profitability and efficient use of capital.

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusions and recommendations derived from the findings of the study. The chapter also introduces the limitations that were encountered in the study with suggestions for further research. It is divided into section 5.2 on summary of the study, section 5.3 on conclusion, section 5.4 on policy recommendation, section 5.5 on limitations of the study and section 5.6 on recommendation for further research.

5.2 Summary of Findings

The dependent variable financial performance of the Energy and petroleum firms listed at the NSE (when all the three independent variables (firm size, Debt ratio and liquidity) are combined) was measured. The study found out that 82.7% of the financial performance of the Energy and petroleum firms listed at the NSE in the study period of 2004 to 2014 was attributed to the three independent variables investigated in this study. The value of F calculated is 11.161 and the significance value is 0.005.

The p value is 0.005. Since the p value is less than 0.05, it implies that the relationship is significant at 95% level of significance. The variable was significant as its significance value was less than 0.05. However, Liquidity and firm size were not significant as their significance value was greater than 0.05. Debt ratio and liquidity were positively correlated with financial performance while debt ratio was negatively correlated with financial performance of the Energy and petroleum firms listed at the NSE.

Taking all factors (Firm size, Debt ratio and Liquidity) constant at zero, returns had an autonomous value of 1.965. The data findings analyzed also showed that taking all other independent variables at zero, a unit increase in liquidity will lead to a 0.026 increase in financial performance the Energy and petroleum firms listed at the NSE. A unit increase in Debt ratio will lead to a 0.344 decrease in financial performance of the firms in the Energy and petroleum firms listed at the NSE. A unit increase in firm size will lead to a 0.05 increase in financial performance.

5.3 Conclusions

From the analysis, it can be noted that the three independent variables (Debt ratio, Liquidity and firm size) had varying degrees of influence on the Return of Equity ROE of firms in the Energy and petroleum sector listed on the NSE. The study concludes that Debt ratio and Firm size influence the returns of the Energy and petroleum firms listed at the NSE positively.

The study also deduced that Liquidity negatively influenced the financial performance of firms in the Energy and petroleum sector listed at the NSE. The results are similar to the work of studies in the past, which suggests a relationship between capital structure decisions and financial performance of firms. Kiprop (2013) suggested that firms use sound capital structure set firms on sound financial standing hence promoting the profitability of those firms

The study also revealed that capital structure generally influences financial performance of the listed Energy and petroleum firms listed at the NSE. These findings are consistent with the works of Muema (2013) who stated that capital structure decisions are useful to firms both as an instrument to promote sound capital structure and as a means of promoting

profitability. Muema (2013) further stated that capital structure decisions are attractive instruments firms use as a means of enhancing financial performance of firms.

The study therefore concludes that capital structure is a very sensitive area in the field of financial management which involves the decision of the amount and composition of Debt ratio, Size of the firm and other factors such as current ratio and the financing of these assets. Current assets include all those assets that in the normal course of business return to the form of cash within a short period of time, ordinary within a year and such temporary investment as may be readily converted into cash when need arises.

5.4 Recommendations for Policy and Practice

There is need for a more comprehensive sector wise study on the relationship between Capital structure and financial performance the Energy and petroleum firms listed at the NSE. This could be necessary since the various sectors are uniquely constituted. Another study is also recommended taking into account macroeconomic factors such as inflation and prevailing interest rates which would be more representative of the real business environment.

This study established that Debt ratio, firm size and liquidity play a key role on the financial performance of the Energy and petroleum firms listed at the NSE. This study therefore recommends that the firms handles its capital structure decisions prudently as the changes in the factors like Debt ratio, firm size and enhance profitability of firms when prudently employed and hence affect the performance of Energy and petroleum firms listed at the Nairobi Securities Exchange.

This will ensure stability at the NSE which promotes fair trade. This study also established that Debt ratio and Firm size were positively correlated with the financial performance of the Energy and petroleum firms listed at the NSE while liquidity negatively influenced financial performance. This study therefore recommends that firms control the amount of liquidity at a given period since liquidity does have an effect on the financial performance of firms in the Energy and petroleum sector listed at the NSE.

5.5 Limitations of the Study

During the period of study, there was a change in the capital structure of the firms which may have influenced the relationship among the study variables. However, to overcome this challenge, the researcher standardized study variables. The study also faced the challenge of Unstandardized accounting practices among financial institutions especially in as far as policies and guidelines on capital structure are concerned. The policy applied in the preparation of financial statements and in the computation of returns on Equity ROE was not uniform across all the firms. This made it difficult to do comparison across the firms.

The study was limited to ten years. The period of study was too short to observe changes in variables overtime. Some of changes could not be observed then. Time provided for the study was small that could not allow extensive analysis of the relationship between capital structure decisions and financial performance of the firms listed in the Energy and petroleum sector at the NSE. It was difficult for the study to get some data from the Energy and petroleum firms since some of the firms regarded the information as confidential. The information provided was exact and that made the researcher not determine whether it was distorted hence a limitation.

Capital structure keeps on changing from period to period depending on prevailing economic conditions and products demand in market. The findings may therefore not reflect the true effect of capital structure on financial performance of firms in the Energy and petroleum firms listed at the NSE for the period considered. The findings of this study may not also be generalized to all other firms but can be used for Energy and petroleum firms as a reference to such firms in developing countries since they face similar challenges. This due to the same prevailing economic situations as opposed to manufacturing companies in developed countries

5.6 Suggestions for Further Research

This paper examines the effects of capital structure decisions on the financial performance of firms in the Energy and petroleum sector listed at the Nairobi Securities Exchange. Because of data unavailability, it was not possible to include unlisted firms in our sample. Therefore I suggest further research on the effects of capital structure decisions on the financial performance of firms in the Energy and petroleum sectors that are not listed in the Nairobi Securities Exchange.

The study showed that the Debt ratio and Firm size influences the financial performance of firms in the Energy and petroleum sectors listed at the NSE. The analytical model may be incomplete. For example, the extent of those firms' foreign operations and ownership structure might impact on financial performance. The study excluded these variables due to data and cost constraints. Future research should consider these issues.

Since the study findings on returns of firms in the Energy and petroleum sector listed at the NSE contradicts some of those done by earlier researchers who had established that liquidity

does have a significant positive association with financial performance of firms and such that firms that are more capital-intensive have lower financial performance. Further studies should be done to establish the cause of such discrepancy.

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APPENDICES

Appendix 1: Listed Firms in the Energy and Petroleum Sector in Kenya

1. Kenol Kobil
2. Total Kenya Ltd
3. Kengen Ltd
4. Kenya power and Lighting company Ltd
5. Umeme Ltd ord

Source: Nairobi Securities Exchange

Website: *www.nse.co.ke*

Appendix II: Mean Data collection sheet for the year 2004 to 2014

(Amount in Millions of Ksh)

| Data collection for year (2004 TO 2014) | | | | | |
|--|-------------------|-------------------------------|------------------------------|--------------------------|---------------|
| Name Of Firm | Net Income | short term liabilities | Long term liabilities | Total liabilities | Equity |
| KenolKobil | 725.182 | 232 | 136 | 368 | 2370 |
| Total Kenya ltd | 1 312 277 | 127 | 249 | 376 | 3640 |
| KenGen ltd | 402500 | 1212 | 3121 | 4333 | 45235 |
| Kenya Power & Lighting Co ltd | 33655.32 | 1412 | 1463 | 2875 | 32643 |
| Umeme Ltd | 471.10 | 432 | 326 | 758 | 5663 |

Net income for firms in the year 2004 to 2014(Amount in Millions of Ksh)

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|------------------------|---------|-------|-------|--------|---------|---------|---------|---------|---------|-------|-------|
| Kenkobil | 537 | 578 | 896 | 796 | 538 | 997 | 537 | 784 | 689 | 900 | 800 |
| Total Kenya Ltd | 1145.70 | 1305 | 1301 | 1314.5 | 1345.45 | 1296.12 | 1322.45 | 1417.11 | 1322.45 | 1412 | 13.25 |
| Kengen | 37655 | 39655 | 41667 | 43644 | 39664 | 38777 | 40779 | 41677 | 40673 | 40578 | 42122 |
| Kplc | 27655 | 29655 | 31667 | 33644 | 36664 | 38777 | 40779 | 42677 | 44673 | 36785 | 30125 |
| Umeme | 425 | 411 | 421 | 455 | 489 | 477 | 499 | 487 | 452 | 457 | 478 |

Short term liabilities in the year 2004 to 2014(Amount in millions o Ksh)

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-------------------------|------|-------|------|------|------|------|------|------|------|------|------|
| KENKOBIL | 230 | 231 | 231 | 232 | 233 | 234 | 236 | 237 | 227 | 236 | 233 |
| TOTAL; KENYA LTD | 124 | 123 | 122 | 125 | 126 | 126 | 127 | 123 | 128 | 122 | 125 |
| KENGEN | 1210 | 1211 | 1212 | 1213 | 1114 | 1342 | 1345 | 1421 | 1423 | 1456 | 1459 |
| KPLC | 1410 | 14222 | 1423 | 1426 | 1523 | 1525 | 1527 | 1528 | 1539 | 1622 | 1623 |
| UMEME | 330 | 370 | 380 | 430 | 440 | 450 | 460 | 465 | 469 | 490 | 495 |

Total liabilities in the year 2004 to 2014(Amount in millions of Ksh)

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|----------------------------|------|------|------|------|------|-------|------|------|------|------|------|
| KENKOBIL | 364 | 365 | 366 | 377 | 355 | 346 | 344 | 379 | 389 | 375 | 369 |
| TOTAL KENYA LTD | 376 | 374 | 375 | 378 | 379 | 375 | 345 | 356 | 358 | 378 | 369 |
| KENGEN | 4323 | 3896 | 3889 | 3989 | 4012 | 47256 | 4122 | 4512 | 4541 | 4612 | 4578 |
| KPLC | 2874 | 2823 | 2879 | 2876 | 2890 | 2892 | 2893 | 2897 | 2899 | 2890 | 2856 |
| UMEME | 745 | 742 | 745 | 746 | 747 | 748 | 749 | 751 | 741 | 740 | 745 |

Equity in the year 2004 to 2014(Amount in millions of Ksh)

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| KENKOBIL | 2369 | 2368 | 2366 | 2365 | 2364 | 2366 | 2371 | 2370 | 2372 | 2371 | 2372 |
| TOTAL KENYA LTD | 3610 | 3621 | 3619 | 3625 | 3636 | 3630 | 3640 | 3650 | 3660 | 3655 | 3670 |
| KENGEN | 45235 | 45230 | 45231 | 45235 | 45237 | 45278 | 45256 | 46231 | 46289 | 46256 | 46258 |
| KPLC | 32640 | 32641 | 32641 | 32642 | 32455 | 32647 | 3245 | 32648 | 32748 | 32458 | 32789 |
| UMEME | 5660 | 5625 | 5661 | 5669 | 5687 | 5678 | 5685 | 5687 | 5685 | 5878 | 5698 |

Appendix III .Data on the dependent and independent variables

KENKOBIL

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|
| ROE | 0.29 | 0.31 | 0.39 | 0.27 | 0.41 | 0.23 | 0.28 | 0.33 | 0.32 | 0.30 | 0.29 |
| DEBT RATIO | 0.21 | .02 | 0.16 | 0.43 | 0.25 | 0.20 | 0.08 | 0.25 | 0.26 | 0.06 | 0.25 |
| LIQUIDITY | 0.44 | 0.25 | 0.54 | 0.28 | 0.28 | 0.23 | 0.19 | 0.15 | 0.28 | 0.24 | 0.16 |
| SIZE | 0.24 | 0.33 | 0.11 | 0.22 | 0.28 | 0.13 | 0.20 | 0.39 | 0.29 | 0.11 | 0.14 |

TOTAL KENYA LTD

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------|------|------|------|------|-------|------|------|------|------|------|------|
| ROE | 0.24 | 0.33 | 0.11 | 0.22 | 0.28 | 0.13 | 0.20 | 0.39 | 0.29 | 0.11 | 0.14 |
| DEBT RATIO | 0.44 | 0.25 | 0.54 | 0.28 | 0.28 | 0.23 | 0.19 | 0.15 | 0.28 | 0.24 | 0.16 |
| LIQUIDITY | 0.85 | 0.78 | 0.04 | 0.06 | 0.007 | 0.91 | 0.82 | 0.89 | 0.79 | 0.86 | 0.86 |
| SIZE | 0.28 | 0.22 | 0.21 | 0.09 | 0.13 | 0.20 | 0.12 | 0.22 | 0.13 | 0.13 | 0.13 |

KENGEN

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010- | 2011 | 2011 | 2012 | 2013 | 2014 |
|-----------------------|------|------|------|------|------|------|-------|------|------|------|------|------|
| ROE | 0.26 | 0.24 | 0.23 | 0.12 | 0.12 | 0.26 | 0.25 | 0.27 | 0.12 | 0.10 | 0.08 | 0.06 |
| DEBT RATIO | 0.28 | 0.22 | 0.21 | 0.09 | 0.13 | 0.20 | 0.12 | 0.22 | 0.13 | 0.13 | 0.13 | 0.09 |
| LIQUIDITY | 0.85 | 0.88 | 0.88 | 0.91 | 0.83 | 0.86 | 0.86 | 0.89 | 0.88 | 0.87 | 0.87 | 0.05 |
| SIZE | 0.71 | 0.86 | 0.88 | 0.82 | 0.83 | 0.73 | 0.81 | 0.86 | 0.87 | 0.33 | 0.10 | 0.06 |

KPLC

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|
| ROE | 0.05 | 0.08 | 0.10 | 0.13 | 0.20 | 0.39 | 0.29 | 0.11 | 0.14 | 0.12 | 0.09 |
| DEBT RATIO | 0.90 | 0.05 | 0.71 | 0.86 | 0.88 | 0.82 | 0.83 | 0.73 | 0.81 | 0.86 | 0.87 |
| LIQUIDITY | 0.71 | 0.86 | 0.88 | 0.82 | 0.83 | 0.73 | 0.81 | 0.86 | 0.87 | 0.42 | 0.56 |
| SIZE | 0.90 | 0.05 | 0.71 | 0.86 | 0.88 | 0.82 | 0.83 | 0.73 | 0.81 | 0.86 | 0.87 |

UMEME LTD ORD

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|
| ROE | 0.29 | 0.31 | 0.39 | 0.27 | 0.41 | 0.23 | 0.28 | 0.33 | 0.32 | 0.30 | 0.29 |
| DEBT RATIO | 0.88 | 0.91 | 0.83 | 0.86 | 0.86 | 0.89 | 0.83 | 0.86 | 0.86 | 0.89 | 0.85 |
| LIQUIDITY | 0.28 | 0.28 | 0.23 | 0.19 | 0.15 | 0.28 | 0.24 | 0.16 | 0.56 | 0.78 | 0.75 |
| SIZE | 0.90 | 0.05 | 0.71 | 0.86 | 0.88 | 0.82 | 0.83 | 0.73 | 0.81 | 0.86 | 0.87 |