

**THE IMPACT OF PRICE REGULATION ON THE PROFITABILITY
OF OIL MARKETING COMPANIES IN KENYA**

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DECLARATION

I declare that this research project is my original work and has not been submitted in any other University.

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This research project has been submitted for examination with my approval as University supervisor.

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DEDICATION

I dedicate this research project to my family, friends and colleagues.

ACKNOWLEDGEMENT

This research project would not have been possible without the cooperation and support from a number of people, whose contributions facilitated the completion of this project.

I thank God for giving me the wisdom, knowledge, strength and good health throughout my life for without Him I would not have achieved this much.

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To all I remain forever grateful

ABSTRACT

Kenya experienced sharp increase in prices of petroleum products between 2007 and 2010. It was observed that oil firms were taking advantage of international price changes to exploit the public. Due to the public outcry and the need to protect consumers the government through its agency the Energy Regulatory Commission came up with a way of regulating pump prices by setting the maximum prices that oil marketers are to charge.

The study sought to establish the impact of regulation of oil pump prices on the profitability of oil marketing companies in Kenya. The study used causal research design and gross margin as set by the Energy Regulatory Commission was used as the control factor. The study used secondary sources of data from audited financial statements and management reports. The performance of companies before and after introduction of price control was analyzed using profitability ratios. Gross profit margin and return on capital employed were calculated to establish the profitability of oil companies. Data collected was analyzed using Microsoft Excel 2007 and presented in tables and line graph. Regression analysis on ROCE and gross profit margin was done, trend analysis of gross profit margin before and after introduction of price regulation was also done.

From the regression analysis, a comparison of (R^2) showed 49% of ROCE for Total Kenya was explained by changes in gross profit margin in 2010 and 60% in 2011 and 2012, 49% in 2010 and 74% in 2011 and 2012 for Kenol Kobil. Hass Petroleum recorded (R^2) of 97% in 2010 and 91% in 2011 and 2012. There was however a decrease in (R^2) for NOCK after introduction of price regulation, 23% was recorded in 2010 and 2% in 2011 and 2012. An analysis of the movement of annual gross margin ratio before and after price regulation showed decline in gross profit margin from the year 2010 to 2013 for Kenol Kobil, National Oil Corporation of Kenya and Hass Petroleum. Total Kenya gross profit margin reduced to 5.1% in 2011 from 8.3% recorded in 2010 and improved marginally in 2012 to 5.5%.

The study results showed that regulation on oil pump prices had a negative impact on the profitability of oil marketing companies. The study recommended the Energy Regulatory Commission and Oil Marketing Companies to consult further to improve suitability and applicability of the formula in order to protect the profitability of the sector.

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ABBREVIATIONS

ERC	-	Energy Regulatory Commission
EU	-	European Union
GM	-	Gross Margin
GOK	-	Government of Kenya
HPK	-	Hass Petroleum (K) Limited
KKL	-	Kenol Kobil
KPC	-	Kenya Pipeline Company
KPRL	-	Kenya Petroleum Refineries Ltd
NOCK	-	National Oil Corporation of Kenya
OMC	-	Oil Marketing Companies
PIEA	-	Petroleum Institute of East Africa
TKL	-	Total Kenya
US	-	United States

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Price regulation is the practice of governments dictating how much certain commodities or products may be sold for both retail marketplace and at other stages in the production process. Price regulation is most common when monopolies or oligopolies are involved. Capitalist systems generally let the market set the price of any product, with sellers setting a price that consumers are willing to pay, but which provides them enough volume to generate the profit they need.

Kenya heavily depends on imported petroleum products to meet its energy needs and is therefore viewed as an important source of energy. Since 2005, petroleum pump prices have been surging at relatively higher rate than crude oil, implying a cartel-like pricing approach by the major oil companies. In a study conducted from July 2003 and May 2004, the Monopolies Prices Commission investigated pricing of some petroleum products and found no explicit coordination among oil companies (UNCTD, 2005). However, based on anecdotal evidence, the inter-ministerial task force found cartel-like behavior by the major oil companies.

Notwithstanding the 1992 deregulation initiative, the market structure of oil industry remains oligopolistic both in wholesale and retail level. Approximately 85.3 per cent of market share control is by major oil companies, that is Total, Kenol/Kobil, (Government of Kenya, 2005). The major oil companies are vertically integrated with a stake of 51.4 per cent of the 1,153 retail outlets, the remaining are controlled by new entrants and independent owners (Government of Kenya, 2005).

The Energy Act established the Energy Regulatory Commission (ERC) as the regulator of the Kenya energy sector. The ERC, which was established in 2007, has several functions as set out in the Act which includes among others setting, enforcing and reviewing tariffs, licensing, protecting consumer, investor and other stakeholder interests and monitoring fair competition in the energy sector (The Energy Act 2006). The purpose of fuel pricing regulations is to cap the pump prices of the product, which are already in the country such that the importation and

other prudently incurred costs are recovered while ensuring fair prices to customers (June 2013 ERC press release)

The Energy Act requires all proposed regulations to be recommended by the ERC to the Minister for Energy after consultations with the public. Accordingly the ERC in line with its function of protecting consumer and stakeholder interests recommends regulations that control pump prices. In these regulations, the prices are reviewed on a monthly basis by the Energy Regulatory Commission (ERC).

1.1.1 Profitability

The Economic Glossary (2012) defines price regulation as government oversight over the price charged in the market especially by a firm with market control. Price cap regulation adjusts the operator's price according to the price cap index that reflects the overall rate of inflation in the economy, the ability of the operator to gain efficiencies relative to the average firm in the economy and the inflation in the operator's input prices relative to the average firm in the economy.

Profitability is the primary goal of all business ventures. Without profitability the business will not survive in the long run. Measuring current and past profitability and projecting future profitability is very important. Profitability is measured with income and expenses (Hofstrand, 2009). Income is money generated from the activities of the business and expenses are the cost of resources used up or consumed by the activities of the business. Companies must manage efficiently the financial aspect of its activities.

Measuring firm's profitability is a strategic part of any successful business entity because the long term survival depends on its performance. Profitability is measured with a statement of comprehensive income. Some of the financial measures of profitability include: net income, sales volume, return on capital employed (ROCE), return on investment (ROI), operating margins, net profit etc. Financial analysts consider the measurement of return on capital employed as a more comprehensive profitability indicator because it gauges management's ability to generate earnings from a company's total pool of capital. ROCE shows the efficiency and profitability of a company's capital investments.

1.1.2 Price Regulation

Petroleum fuels constitute the main source of commercial energy in Kenya. Kenya is a net importer of petroleum products and has a refinery owned and managed by the Kenya

Petroleum Refineries Ltd (KPRL), an 800 km cross country oil pipeline from Mombasa to Nairobi and Western Kenya with terminals in Nairobi, Nakuru, Eldoret and Kisumu, run by the Kenya Pipeline Company (KPC). The sector has over 30 oil importing and marketing companies comprising of five major companies namely Shell, Total, Kenol/Kobil, Oil Libya, Chevron, and other emerging oil companies which include the Government owned National Oil Corporation of Kenya (www.erc.com).

Necessary regulatory measures should be put in place to ensure operational efficiency and competitive provision of services within the sectors. Competition is accentuated to play a major role in ensuring that firms produce and distribute products at the lowest cost. This protects the consumer's welfare by ensuring that the products are available at the market at the lowest prices and affordable prices. Competition in the market economy facilitates the introduction of new products or processes and new markets. This helps in enhancing technological advancement and high quality products.

The petroleum sector was liberalized in 1994 and has since seen a lot of growth and improvements in quality and level of service. In 2006, the Energy Act No. 12 of 2006 was enacted after concerns about over-charging by oil companies had been voiced in several quarters. This led to the transformation of the then Electricity Regulatory Board to the ERC to also regulate petroleum and renewable energy sectors in addition to electricity.

Price cap essentially consists of setting an upper limit to the average price for a service or the revenue that can be generated by that service. This is done at the beginning of period. The main idea is to provide an incentive to the firm to cut costs and improve productive efficiency above the levels set by the regulator when calculating the cap.

There was a continued rise in the price of petroleum products from year 2004 to 2012(Petroleum Insight, 2012). A survey carried out by Pipecor shows an increase in sales volumes even with introduction of price regulation.

1.1.3 Price Regulation and Profitability

Economists believe that market prices should, as a general rule, be left alone by government. Prices in market economies are established by the interplay of supply and demand. Goods and services are allocated to those who value them most, but competition ensures that consumers face the lowest possible prices. Information regarding relative scarcity or plenty is

communicated quickly and unambiguously to both buyers and sellers. High prices encourage conservation and new supply (Krueger, 2005).

Government intervention, however, might improve overall economic efficiency if prices do not reflect total costs. Government intervention poses its own set of problems. Frequent interventions to correct “imperfect” markets do more economic harm than good (Wolf, 1991).

1.2 Research Problem

Increasing price levels, high price volatility and the suspicion of collusive behavior are important topics of public debates on competition in retail gasoline markets in many countries. Several governments and competition authorities introduced fuel price regulations in form of restrictions on the frequencies of fuel price changes per month.

The Kenyan downstream industry operates on “razor like” profit margins which leaves little room for errors (Mika, 2013). Oil Marketing Companies (OMC’s) have been critical of the ERC’s pricing formula since it does not cover financing costs and the rising cost of doing business due to inflationary pressures. Margins in the sector are also negatively impacted by low margins and high finance costs due to the capital intensive nature of the business.

The ERC sets the price using a formula that takes into consideration the cost of crude or refined product prices, freight, local transportation costs, insurance, the refinery processing fees, taxes and a profit margin. Previously, the marketers would simply total their costs and take care of such market realities by segmenting their market. This has worked on limiting the maximum pump prices that oil marketers can charge (ERC, 2011)

The introduction of price regulation received strong resistance from the oil marketing companies who felt that retail prices of petroleum will not reflect changes in the international oil prices thereby affecting their profitability (Lardic, 2008). Thereafter, a protest ensued that disrupted supply of petroleum products in the country in December 2010. He argued that in liberalized economy, prices were to be determined by market forces of demand and supply. Another unwanted result of the price regulation move is that petroleum product prices in rural areas now cost more. Before capping petrol prices were based on demand with prices being higher in major towns. The pump price regulations have attracted resistance from oil marketers who would prefer to have the market forces of supply and demand determine fuel pricing.

Several other countries have introduced price regulation on gasoline products. Malawi introduced price regulation to minimize the impact of frequent fuel price fluctuations on the international market, the automatic pricing mechanism is set to operate within a threshold of 5% (Malawi Energy Regulatory Authority, 2005).

Few researches have been conducted on the impact of price regulation on profitability of companies in general and more specifically on the oil sector. Past academic studies in this area have focused on the profitability of an individual company at a time and not the industry as a whole. There exists an unfilled knowledge gap in the current research literature on the impact of price regulation on the profitability of OMCs in Kenya leading to the need of carrying out research on the impact of price regulation on the profitability of oil marketing companies in Kenya.

This research is aimed at answering the question; what is the impact of price regulation on the profitability of oil marketing companies in Kenya. The expected result of the study is that price regulations have a negative impact on the profitability of oil marketing companies due to the set maximum gross profit margins.

1.3 Research Objective

The objective of the study is to establish the impact of price regulation on the profitability of oil marketing companies in Kenya.

1.4 Importance of the Study

To academics, the research will contribute immensely to the existing literature on price regulation and will form a basis for further future research. The findings of this study will go towards filling an existing information gap in regard to price control, profitability and economic growth.

To the government through ERC and other regulatory bodies can use the findings of this study to see how price regulations affect firm profitability. The findings can be used to improve the current regulatory framework as well as formulate and implement new price regulation policies

To the general Kenyan investor, findings of this study will be used to evaluate the feasibility of investing in the oil sector with the ongoing price regulations. The findings of this research will also give strategic insights to players in oil industry in Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents literature review. Section 2.2 discusses the theoretical literature. Section 2.3 presents the empirical literature. Section 2.4 presents measures of profitability. Section 2.5 presents the summary.

2.2 Theoretical Literature

This section presents a theoretical review of the study. The section reviews how different theories address the effects of price regulation on profitability of firms. The theories discussed here are the efficient structure theory, the resource based view theory, the Bertrand's model and the Cournot competition

2.2.1 Efficient Structure Theory

The efficient structure hypothesis, states that firms earn high profits because they are more efficient than others. There are two distinct approaches within the efficient hypothesis; the X-efficiency and Scale – efficiency hypothesis. According to the X-efficiency approach, more efficient firms are more profitable because of their lower costs. Such firms tend to gain larger market shares, which may manifest in higher levels of market concentration, but without any causal relationship from concentration to profitability (Anthanasoglou et al., 2006). The Scale – efficiency approach emphasizes economies of scale rather than differences in management. Larger firms can obtain lower unit cost and higher profits through economies of scale. This enables larger firms to acquire market shares, which may manifest in higher concentration and then profitability.

Demsetz (1973) was the first to formulate an alternative explanation on market structure-performance relationship and proposes the Efficiency Hypothesis. Applied to banking sector, this hypothesis stipulates that a bank which operates more efficiently than its competitors gains higher profits resulting from low operational costs. The same bank holds an important share of the market. Consequently, differences at the level of efficiency create an unequal distribution of positions within the market and an intense concentration. Since efficiency

determines market structure and performance, the positive relationship between these two seems superficial.

Shepherd (1986) criticizes this method by considering that the direct source of market power is the domination of participants over the individual market, independently of the ultimate sources of such domination.

2.2.2 Resource Based View Theory

The pursuit of competitive advantage is indeed an idea that is at the heart of strategic management literature (Porter and Kramer, 2006). The resource based view stipulates that in strategic management the fundamental sources of superior performance are mainly associated with the attributes of their resources and capabilities which are vulnerable and costly to copy (Peteraf and Bergen, 2003). This theory builds on the assumptions that strategic resources are heterogeneously distributed across firms and that these differences are stable over time.

The resources and the competitive environment condition firms' strategy. The firm strategy and performance in turn affect the competitive environment and resources, and all these changes generate new information which in turn creates new learning opportunities and may lead to the creation and development of new resources. In her 1993's paper, Peteraf presents four conditions underlying sustained competitive advantage; superior resources (heterogeneity within an industry), ex post limit to competition, imperfect resource mobility and ex ante limits to competition.

Scrutiny and assessment have pointed to a number of unresolved problems in the resource based approach. These criticisms relate to the unit of analysis, the circularity or tautological nature of the resource-based theory, the exogenous nature of value, the neglect of the environment, the condition of heterogeneity, and the behavioral assumption underlying the condition of non-imitability.

Foss (1998) stated that the resource-based perspective does not escape the general problem of finding the appropriate unit of analysis. Most contributions within the RBV take the individual resource as the relevant unit of analysis to study competitive advantage.

2.2.3 Bertrand's Model

Bertrand competition is a model of competition used in economics, named after Joseph Louis François Bertrand (1822-1900). It describes interaction among firms that set prices and their

customers that choose quantities at that price. The model rests on very specific assumptions. There are at least two firms producing a homogeneous (undifferentiated) product and cannot cooperate in any way. Firms compete by setting prices simultaneously and consumers want to buy everything from a firm with a lower price since the product is homogeneous and there are no consumer search costs. If two firms charge the same price, consumers demand is split evenly between them (Mehta, 2012).

The classic Bertrand model assumes firms purely compete purely on price, ignoring non-price competition. The model can be extended to include products or location differentiation but then the main result, that price is driven down to marginal cost, no longer holds. The model ignores capacity constraints. If a single firm does not have the capacity to supply the whole market then the “price equals marginal cost” results may not hold. This theory has been criticized for its unrealistic approach. Even though this model cannot be applied to real life models, it still holds an important place in economics, as they explain how firms can compete (Mehta, 2012).

2.2.4 Cournot Competition

Cournot competition is an economic model used to describe an industry structure in which companies compete on the amount of output they will produce, which they decide on independently of each other and at the same time. It is named after Antoine Augustin Cournot (1801–1877) who was inspired by observing competition in a spring water duopoly.

The model has the following features; There is more than one firm and all firms produce a homogeneous product, i.e. there is no product differentiation; Firms do not cooperate, i.e. there is no collusion; Firms have market power, i.e. each firm's output decision affects the product's price; The number of firms is fixed; Firms compete in quantities, and choose quantities simultaneously; The firms are economically rational and act strategically, usually seeking to maximize profit given their competitors' decisions (Wikipedia, 2008). Bertrand (1883) criticized Cournot's model (1838) on the grounds that firms compete by setting prices and not by setting quantities.

2.3 Empirical Literature

Golec et al., (2010) studied the effects of European pharmaceutical price regulation to firm profitability and spending on research and development. This was a comparative study between a price regulated market and a non-regulated market. The research used geographical

sales data as contained in the financial statements for 19 years up to the year 2004. They carried out a cross-sectional relation between EU price regulations and R&D spending at the firm-level. Real pharmaceutical prices were used as a proxy for the effects of price regulations and political pressure in the U.S. and EU over time. Regression analysis was used to measure the sensitivity of a firm's sales to U.S. and EU price indices, respectively. Compared to EU firms, U.S. firms were more profitable, earned higher stock returns, and spent more on research and development (R&D). The study showed how tight EU pharmaceutical price controls led to lower profitability, lower stock returns, and reduced spending on research and development by EU firms compared to U.S. firms. The study concluded that firms whose sales are more closely related to EU real pharmaceutical prices spent less on research and development, were less profitable and earned smaller stock returns. Some of the limitations to the study were; data used included only publicly reported data, firms reported total R&D spending, not spending by geographic area and total R&D spending could include R&D spent by non-pharmaceutical divisions of the firm.

Carranza et al., (2009) studied the effect of price regulations on the organization and performance of gasoline market in Quebec and other parts of Canada. The goal of the research was to demonstrate that price regulations can have important unintended consequences on prices and productivity in the longer run by distorting the structure of markets. They argued in particular that price control policies crowded markets hence creating an endogenous barrier to entry for low-cost retailers. The survey offered accurate measures of sales and station characteristics, since each site was physically visited at the end of the survey period, and volume sold was measured by reading the pumps' meters. The period studied spanned eleven years between 1991 and 2001 and included all 1601 stations in fourteen selected cities of Quebec and three other Canadian provinces. The data contained detailed information on individual stations' sales volume, posted price, and characteristics and allowed them to study the effect of price control on station behavior at the local-market level. The study was based on a sample of gasoline stations before and after the implementation of price control policy. For analysis they took the sales volume data collected during the third quarter of each year, and price and station characteristics collected at the end of the same quarter each year. They run regression analysis on a set of variables that measure the endogenous structure of the market, before and after the introduction of the policy. They showed that as a result of the price regulation policy, prices were lower and competition was higher. The results therefore highlighted that price regulation affects market structure and can therefore

have unintended consequences on profitability. While this analysis may be correct in the short-run, it did not consider the dynamic equilibrium consequences of price controls.

Dalen et al., (2006) studied the effects of price regulation on generic competition in pharmaceutical market in Norway. The dataset was provided by the Norwegian Social Insurance Agency, and covered monthly observation of the six chemical substances included in the index price system. The data was collected at 22 pharmacies in Norway in the period 1998-2004. The study established a structural model that enabled examination of the impact of the price regulation on both demand and market power. The sample of pharmacies was considered to be representative for the sale of drugs in Norway. The main variables reported by the pharmacies were volume of sale, both in retail value and number of defined daily doses (DDD) for each product. These were used to calculate the prices per DDD and market shares of each product within the submarket (chemical substance). The results suggested that the price caps helped to increase the market shares of generic drugs and succeeded in triggering profitability.

Seo and Shin (2010) studied the impact of price cap regulation on productivity growth in the US telecommunications industry. A stochastic frontier approach was employed to compute the efficiency change, technological progress, and productivity growth for 25 LECs over the 1988-1998 time periods. They found pronounced positive effect of price cap regulation on productivity growth. By examining the relationship between the change in productivity growth and regulatory regime variables and other control variables, they found that price cap regulation has a significant and positive effect, both in contemporaneous and lagged specifications. They found that 24 of the 25 firms in the sample experienced an increase in mean technological change and that 23 of the 25 firms experienced an increase in annual productivity growth following the implementation of incentive regulation.

Danzon and Epstein (2008) examined the effect of price regulation and competition on launch timing and pricing of new drugs. They used a Cox proportional hazard model to analyze the launch experience in 25 major markets of 85 new chemical entities (NCEs) launched in the UK or US between 1994 and 1998. There were 1,167 observed launches, or about 55% of the maximum. The data covered launch experience in 15 countries for drugs in 12 therapeutic classes that experienced significant innovation over the decade 1992-2003. The study used prices of established products as a measure of direct effect of a country's own regulatory system and found that launch timing and timing of innovative drugs were

influenced by prices of established products. The limitation of the study was the lack of data to separate out the authorization delay from the price/reimbursement delay and, within the price/reimbursement delay, the component that is due strictly to the administrative process versus the component that is related to disagreement over the price.

Knittel and Stango (2003) tested whether a nonbinding price ceiling may serve as a focal point for tacit collusion in the United States. They used data from the credit card market during the 1980's. During the sample period, most credit card issuers faced state-level price ceilings that could plausibly serve as focal points. These price ceilings varied across and within states; there was also a group of states with no ceiling. More importantly, many issuers matched their ceiling—particularly in the early years of the sample. Finally, states and issuers vary in characteristics thought to affect the sustainability of tacit collusion. The data therefore display heterogeneity in firm behavior, focal points, and market characteristics. This allows us to conduct a variety of tests related to the focal point hypothesis. The study used an empirical model which could distinguish instances when firms match a bidding ceiling for instance when firms tacitly collude at a non-bidding ceiling. The results suggested that tacit collusion at non bidding state level ceilings was prevalent during the early 1980's, but that national integration of the market reduced the sustainability of tacit collusion by the end of the decade. The results thus highlighted the perverse effect of price regulation.

Earle et al., (2007) explored the issue of price caps under uncertainty. The purpose of the study was to focus on the theoretical properties of price caps that underlie the justification of the use of price caps in a variety of contexts. They showed predictions of the deterministic theory change drastically if the demand is uncertain. In particular, though in the deterministic case, the introduction or lowering of a price cap results in increased production, increase in total welfare, and decrease in prices and increase in consumer welfare. The study showed that all the above comparative statics predictions fail for generic uncertain demand function. Their findings gave some weight to the argument that a regulatory price-setting process that balances the risk of regulatory failure against the greater incentives for efficient behavior that pure price-cap plans might be better suited for industries with significant investment needs and subject to important demand or technological progress uncertainty

Africanglobe (2011) conducted a research in Kenya in the year 2011. Data was collected from the major oil marketing companies in Kenya. The study showed a reduction in profit margins, increased competition as a result of the official price caps. This resulted to big oil

marketing firms out of Africa as they shift focus to the more lucrative exploration and production activities. Anglo-Dutch giant Shell early in the year concluded a \$1 billion divestiture deal from its 21 markets in Africa, becoming the latest oil marketer to exit Kenya, following in the footsteps of five international majors that have left the country in the past decade over dwindling margins. Other companies that have exit Kenya oil market are Caltex (Chevron), Beyond Petroleum plc. (BP), Mobil, Agip and Esso. Shell withdrew from all African operating markets except Egypt and South Africa.

Wabobwa (2011) studied on the impact of oil price regulation on financial performance of National Oil Corporation of Kenya (NOCK) .The research covered a period of twelve months between the year July 2010 and June 2012.The study used data from published audited semiannual reports. The performance of the company was analyzed using ratios for the period before and after introduction of price regulation. Data was analyzed using Microsoft excel and presented using tables and graphs. He found that gross profit margin reduced tremendously thus shrinking the company's gross profit after introduction of oil price regulation. The main limitation of the study was that data was historical and therefore the findings could not be fully applicable at the time of the study due to the dynamic operating environment in the Kenyan market. The study was also limited to one oil marketing company and could fail to give a true representation of other companies.

Kusewa (2007) studied the impact of regulation of retirement benefit sector on the financial performance of occupational pension schemes in Kenya and found that there was a significant positive impact in the financial performance of the population of occupational retirement benefit schemes in the period in which the regulations were in place. The period of the study was between 1995 and 2005 being five years before and after the establishment of the Retirement Benefit Act (RBA). From the registered pension schemes in the year 2005, a sample of nine schemes was selected. Financial performance of the scheme was analyzed through ratios for the period under review. The results indicated consistent improvement in the financial performance of the pension schemes after the implementation of the regulatory guidelines by the (RBA). In his conclusion, he noted that introduction of the regulatory guidelines for the pension industry increased the credibility of the insurance players.

2.4 Summary

Various mechanisms are in place to protect the Kenyan populace from the sway of global fuel prices and supply problems. The depressed international crude oil prices are expected to have

an impact on supply. The energy sector is crucial to the development of the country and continued protection however unfashionable may be required particularly during these difficult times.

Much of the debate on industry economics focuses on the gross margins earned by wholesalers and retailers. This is understandable, since the gross margin represents a key determinant of the viability of an enterprise, and is generally the only “visible” or readily measurable aspect of the relationship between buyers and sellers. But it is not the only factor. Less obvious are other elements of the relationship that can have a direct bearing on gross revenues (e.g., crosslease payments, rebates and other incentives linked to gasoline sales volumes), and on net revenues (e.g. how various station expenses are shared between wholesaler and retailer).

Various researches indicate that there is a relationship between price regulation and industry profitability, competition, research and development and productivity. This research aims at establishing the relationship between price regulations of white oils in Kenya as guided by ERC and the OMCs profitability.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology. Section 3.2 discusses the research design. Section 3.3 presents the population and sample. Section 3.4 presents the data and data collection instruments. Section 3.5 presents the data analysis.

3.2 Research Design

This was a causal study that relied on control factors. Causal studies are concerned with learning how one variable produces change in another (Cooper and Schindler, 2003). They noted that in causal research design, the emphasis is on specific objectives about the effect of changes in one variable on another variable. It involves an experiment where an independent variable is changed or manipulated to see how it affects a dependent variable. The study sought to establish and explain the relationships among variables, in this case, price regulation on petroleum products and the profitability of oil marketing companies in Kenya.

3.3 Population and Sample

The petroleum sector has over 30 oil importing and marketing companies (www.erc.go.ke). The research targeted all oil marketing companies that were in existence in January 2010. The researcher analyzed financial performance of the oil companies for a period of three years from January 2010 to December 2012. This covered period before and after the introduction of price regulation.

3.4 Data and Data Collection Instruments

The study used secondary sources of data from published financial statements, Ministry of Energy statistics, published sources such as company websites and newspaper and industry report from institutions like Petroleum Institute of East Africa. Financial data from statement of comprehensive income, statement of financial position and statements of cash flow from January 2010 to December 2012 for the selected oil companies was used. Published journals by various stakeholders were also be used.

3.5 Data Analysis

This section presents the data analysis. Section 3.5.1 presents the conceptual model. Section 3.5.2 presents the analytical model.

3.5.1 Conceptual Model

Profitability of oil marketing companies in Kenya was analyzed for a period of three years before and after the introduction of price controls.

$$Y = f(X_1, X_2, X_3) \quad (1)$$

Where:

Y=Return on capital employed

X_1 =Gross profit margin per unit

X_2 =Turnover

X_3 =Capital employed

Return on capital employed indicates the efficiency and profitability of a company's capital investments. It was calculated by dividing earnings before interest and tax (EBIT) by the capital employed. Gross profit margin is a ratio used to assess a firm's financial health by revealing the proportion of money left over from revenues after accounting for the cost of goods sold. This was calculated by dividing gross profit by total revenue.

The expected relationship in the variables considered in this study was that the higher the gross profit margin holding capital employed constant, the higher the return on capital employed.

3.5.2 Analytical Model

An analysis of the effects of price regulation and profitability was done using trend analysis and regression model.

The regression model took the form of

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon_1 \quad (2)$$

Where:

Y=Return on capital employed

β_0 =Constant term

β_1 =Beta coefficient

X_1 =Gross margin ratio

ε_1 =Error term

Return on Capital employed was the dependent variable and gross margin ratio the independent variable. The information was analyzed using Microsoft Excel 2007 and presented in figures and line graph.

The strength of the relationship between return on capital employed and gross margin was measured using correlation coefficient. This is a measure that determines the degree to which two variable's movements are associated. Correlation coefficients generally take values between -1 and $+1$. A positive value implies a positive association between variables (i.e., high values of one variable are associated with high values of the other), while a negative value implies a negative association between variables (i.e., high values of one variable are associated with low values of the other). Thus, a coefficient of -1 means the variables are perfectly negatively related; while $+1$ means a perfect positive relation. A coefficient of zero means the variables are not related.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data analysis, results and discussion. Section 4.2 discusses summary statistics. Section 4.3 presents estimated or empirical model. Section 4.4 presents discussion. Section 4.5 presents the summary.

4.2 Summary Statistics

The research targeted all oil marketing companies in Kenya. However, data used in this research composed of 4 oil companies which control over 80% of retail network market share. The researcher obtained data from the following companies; Total Kenya Limited, Kenol Kobil, National Oil Corporation of Kenya and Hass Petroleum Kenya Limited. The researcher was unable to obtain information from other oil marketing companies due to their restrictive information sharing policies.

4.2.1 Gross Profit Margin (%)

The study sought to establish the movement in the gross profit margin of the company between the year 2010 and 2012. The findings were as shown in table 4.1 below:

Table 4.1: Annual Gross Profit Margin (%) for TKL, KKL, NOCK and HPK

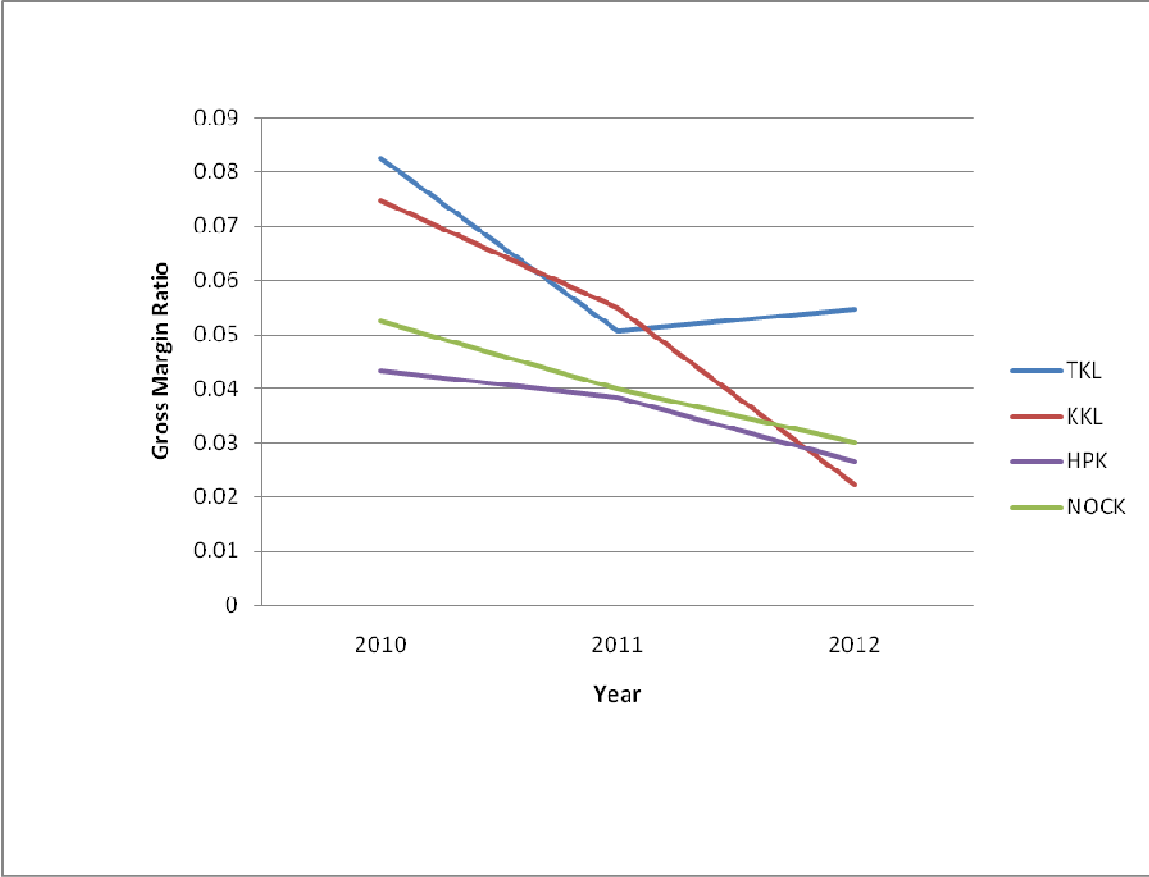
		Period		
		2010	2011	2012
Company	Total Kenya Limited(TKL)	8.26%	5.05%	5.47%
	Kenol Kobil (KKL)	7.47%	5.49%	2.23%
	National Oil (NOCK)	5.25%	4.00%	3.00%
	Hass Petroleum (HPK)	4.33%	3.83%	2.66%

Source: Research data, 2013

The study sought to establish the movement of annual gross margin ratio before and after price regulation respectively. From the findings of (Table 4.1 and Figure 4.1), gross profit margin recorded by TKL in 2010 was 8.3%. In 2011, after the introduction of price control on pump prices the company's gross profit margin reduced to 5.1%. In 2012 gross margin improved marginally to 5.5%. KKL, NOCK and HPK gross margin exhibited a downward trend from year 2010 to 2012. Kenol Kobil Limited's gross profit margin was 7.5% in 2010,

went down to 5.5% in year 2011 and further down to 2.2% in year 2012. National Oil Corporation of Kenya’s gross margin was 5.2% in year 2010, declined to 3.0% in the year 2012. Hass Petroleum (K) Limited recorded a gross margin of 4.3% in 2010, 3.8% in 2011 and 2.7% in 2012. The above findings were represented using a line graph as shown in figure 4.1.

Figure 4.1: Annual Gross Profit Margin Ratio for TKL, KKL, HPK and NOCK



4.3 Regression Results

Regression analysis was done using Microsoft Excel 2007 and results presented in the Table 4.2 to Table 4.9 below.

Table 4.2: Regression Model Results for Total Kenya Limited in 2010 (Before Price Regulation)

Regression Statistics			
R Square	0.4910		
Standard Error	0.0207		
ANOVA			
	Significance F		
Regression	0.2993		
	Coefficients	t Stat	P-value
Intercept	-0.0611	-0.7744	0.5197
Gross Profit ratio	1.3158	1.3889	0.2993

Regression results for the Total Kenya Limited's data finding before the introduction of price regulation were presented in Table 4.2 above. From the ANOVA statistics, which are the population parameters, there was a significance level of 30%. The standard error which measures the standard deviation of financial performance around its fitted value was 0.021. Since the p-value was not less than 0.05 we did not reject the null hypothesis that the regression parameters are zero at significance level of 0.05. The R^2 , also called the coefficient of multiple determinations, is the percentage of the variance in the dependent variable explained uniquely or jointly by the independent variable. This means that 49% of ROCE was explained by the changes in the independent variable (gross margin).

Table 4.3: Regression Model Results for Total Kenya Limited in 2011 and 2012 (After Price Regulation)

Regression Statistics			
R Square	0.6090		
Standard Error	0.0143		
ANOVA			
	Significance F		
Regression	0.0223		
	Coefficients	t Stat	P-value
Intercept	-0.1061	-2.2454	0.0658
Gross Profit ratio	2.7447	3.0568	0.0223

Results of the regression of data finding for Total Kenya for 2011 and 2012, after introduction of price regulation were presented in Table 4.3 above. From the statistics 61% of financial performance was explained by changes in gross profit ratio. According to the regression models above, taking all factors constant (gross profit ratio) at zero Total Kenya Limited would record ROCE of negative 0.1. Further when gross profit ratio increased by one unit, ROCE increased by 2.7.

Table 4.4: Regression Model Results for Kenol Kobil in 2010 (Before Price Regulation)

Regression Statistics			
R Square	0.4869		
Standard Error	0.1055		
ANOVA			
	Significance F		
Regression	0.3022		
	Coefficients	t Stat	P-value
Intercept	-0.0954	-0.3192	0.7798
Gross Profit ratio	4.9143	1.3776	0.3022

Data findings for Kenol Kobil for 2010 were presented in Table 4.4 above. From the ANOVA statistics the significance level was 30%.The standard error which measure the standard deviation of financial performance around its fitted value was 0.101. Since the p-value was not less than 0.05 we did not reject the null hypothesis that the regression parameters are zero at significance level of 0.05.The proportion of ROCE explained by changes in gross margin was 49%.

Table 4.5: Regression Model Results for Kenol Kobil in 2011 and 2012 (After Price Regulation)

Regression Statistics			
R Square	0.7492		
Standard Error	0.5282		
ANOVA			
	Significance F		
Regression	0.0055		
	Coefficients	t Stat	P-value
Intercept	-1.9951	-4.5929	0.0037
Gross Profit ratio	44.4587	4.2339	0.0054

Output of the regression analysis of the data findings for Kenol Kobil after the introduction of price regulation were presented in Table 4.5 above. From the ANOVA statistics the significance level was 30%.The standard error which measure the standard deviation of financial performance around its fitted value was 0.528. The proportion of ROCE explained by changes in gross margin was 75%.

Table 4.6: Regression Model Results for National Oil in 2010 (Before Price Regulation)

Regression Statistics			
R Square	0.2344		
Standard Error	0.01348		
ANOVA			
	Significance F		
Regression	0.5158		
	Coefficients	t Stat	P-value
Intercept	0.0191	0.4417	0.7019
Gross Profit ratio	0.6364	0.7826	0.5158

Data finding for National Oil Corporation for 2010, before the introduction of price regulation, was processed and the output presented in Table 4.6 above. The data had a significance level of 51% and standard error of 0.01.Since the p-value was not less than 0.05 we did not reject the null hypothesis that the regression parameters are zero at significance level of 0.05.The proportion of ROCE explained by changes in gross margin was 23%.

Table 4.7: Regression Model Results for National Oil Corporation of Kenya in 2011 and 2012 (After Price Regulation)

Regression Statistics			
R Square	0.0208		
Standard Error	0.0114		
ANOVA			
	Significance F		
Regression	0.7331		
	Coefficients	t Stat	P-value
Intercept	0.0342	2.0315	0.0885
Gross Profit ratio	0.1667	0.3573	0.7331

Data finding for National Oil Corporation of Kenya for 2011 was output presented in Table 4.7. From the ANOVA statistics the significance level was 73%. The standard error which measure the standard deviation of financial performance around its fitted value was 0.01. 2% of ROCE is explained by the changes in gross margin.

Table 4.8: Regression Model Results for Hass Petroleum in 2010 (Before Price Regulation)

Regression Statistics			
R Square	0.9739		
Standard Error	0.0028		
ANOVA			
	Significance F		
Regression	0.0131		
	Coefficients	t Stat	P-value
Intercept	-0.2341	-7.5154	0.0172
Gross Profit ratio	6.1956	8.6404	0.0131

Data finding for Hass Petroleum for 2010 was presented in Table 4.8. 98% of ROCE is explained by the changes in gross margin with a standard error of 0.003 and significance level was 1%.

Table 4.9: Regression Model Results for HPK in 2011 and 2012 (After Price Regulation)

Regression Statistics			
R Square	0.9057		
Standard Error	0.0608		
ANOVA			
	Significance F		
Regression	0.0003		
	Coefficients	t Stat	P-value
Intercept	-0.4066	-3.5690	0.0118
Gross Profit ratio	25.9984	7.5893	0.0003

Data findings for Hass Petroleum for 2011 and 2012 were presented in Table 4.9 above. The proportion of ROCE explained by gross profit margin was 91%. The standard error which measures the standard deviation of financial performance around its fitted value was 0.06.

Table 4.10: Regression Model Results for the Total Population (Before and After Price Regulation)

Regression Statistics			
R Square	0.1175		
Standard Error	0.4300		
ANOVA			
	Significance F		
Regression	0.0171		
	Coefficients	t Stat	P-value
Intercept	-0.2992	-1.8607	0.0692
Gross Profit ratio	7.6559	2.4750	0.0171

Regression results for the whole population's data finding before and after the introduction of price regulation were presented in Table 4.10 above. From the ANOVA statistics, which are the population parameters, there was a significance level of 2%. The standard error which measures the standard deviation of financial performance around its fitted value was 0.43. The R^2 , which measures the percentage of the variance in the dependent variable explained uniquely or jointly by the independent variable was 12%. This means that only 12% of ROCE was explained by the changes in gross margin.

4.4 Discussion

An analysis of gross margin realized between 2010 and 2012 revealed a downward trend in the gross margin for Kenol Kobil, NOCK and Hass petroleum. There was a decline in Total Kenya gross margin from 2010 to 2011 and a slight increase in 2012.

From the regression analysis, taking all factors constant (Gross profit ratio) at Zero, financial performance in 2010 as measured by ROCE was negative 0.061, negative 0.095, 0.019 and negative 0.234 for Total Kenya, Kenol Kobil, NOCK and Hass Petroleum respectively. The data findings analyzed also showed that unit increase in Gross profit ratio for Total Kenya, Kenol Kobil, NOCK and Hass Petroleum lead to 1.3, 4.9, 0.1 and 6.2 increases in ROCE respectively.

An analysis for 2011 and 2012, after the introduction of price regulation, keeping all factors constant (Gross profit ratio) at zero Kenol Kobil was most affected in its financial performance with ROCE of negative 2.0, followed by Hass Petroleum with ROCE of negative 0.4 and Total Kenya with ROCE of negative 0.1. NOCK recorded the best financial performance with a positive ROCE. Further when gross profit ratio increased by one unit, ROCE increased by 44.5 and 26.0 for Kenol Kobil and Hass respectively and ROCE for Total Kenya and NOCK increased by smaller margin of 2.7 and 1.2 respectively.

A look at the goodness of fit (R^2) for 2011 and 2012, the percentage of the variance in the dependent variable explained uniquely or jointly by the independent variable, revealed improvements for Total Kenya and Kenol Kobil and a slight drop in Hass Petroleum. There was however a decrease in (R^2) for NOCK in 2011 and 2012 as compared to 2010.

4.5 Summary

This chapter looked at data analysis and hence the research findings. The data collected was analyzed and interpreted in line with the objectives of the study which was to establish the impact of price regulation on the profitability of oil marketing companies in Kenya. As a measure of profitability, profitability ratios that included gross profit margin and return on capital employed for 3 years was calculated, this covered period before and after the introduction of price regulation in pump prices of petroleum products.

From the regression equations for the period 2010 to 2012, profitability was directly related to gross margin. Taking gross margin at zero, only NOCK's financial performance improved

after introduction of price regulation with a rise in ROCE from 0.019 to 0.034. Total Kenya, Kenol Kobil and Hass petroleum financial performance dropped after introduction of price regulation with ROCE for Total Kenya dropping from negative 0.061 to negative 0.106, for Kenol Kobil dropping from negative 0.095 to negative 1.995 and ROCE for Hass Petroleum dropping from negative 0.234 to Negative 0.407. The research results showed that the introduction of price regulation in the oil sector had a negative impact on profitability of oil marketing companies in Kenya.

CHAPTER FIVE

SUMMARY AND CONCLUSION

5.1 Introduction

This chapter presents the summary, conclusions and recommendation. Section 5.2 discusses summary of the study. Section 5.3 presents conclusion. Section 5.4 presents limitations of the study. Section 5.5 presents recommendation for further research

5.2 Summary of the Study

Kenya experienced sharp increase in prices of petroleum products between 2007 and 2010. It was observed that oil firms were taking advantage of international price changes to exploit the public. Due to the public outcry and the need to protect consumers the government through its agency the Energy Regulatory Commission came up with a way of regulating pump prices by setting the maximum prices that oil marketers are to charge.

The study sought to establish the impact of price regulation on the profitability of oil marketing companies in Kenya and used causal research design. Gross margin as set by the Energy Regulatory commission was used as the control factor. The study used secondary sources of data from audited reports and management reports. The performance of companies before and after introduction of price control was analyzed using profitability ratios. Gross profit ratio and return on capital employed were calculated to establish the profitability of oil companies. Data collected was analyzed using Microsoft Excel 2007 version and presented in tables and line graph. Regression analysis on ROCE and gross profit was done, trend analysis of gross profit margin before and after introduction of price regulation was also done.

From the regression analysis, a comparison of (R^2) , the percentage of the variance in the dependent variable explained uniquely or jointly by the independent variable, revealed a large percentage of ROCE is explained by gross profit margin. The proportion of ROCE explained by changes in gross profit margin for Total Kenya was 49% in 2010 and 60% in 2011 and 2012, 49% in 2010 and 74% in 2011 and 2012 for Kenol Kobil. Hass Petroleum recorded (R^2) of over 97% in 2010 and 91% in 2011 and 2012. There was however a decrease in (R^2) for NOCK after introduction of price regulation, 23% was recorded in 2010 and 2% in 2011 and 2012.

An analysis of the movement of annual gross margin ratio before and after price regulation showed decline in gross profit margin from the year 2010 to 2013 for Kenol Kobil, National Oil Corporation of Kenya and Hass Petroleum. Total Kenya gross profit margin reduced to 5.1% in 2011 from 8.3% recorded in 2010 and improved marginally in 2012 to 5.5%. The study results showed that indeed price regulation on oil pump prices had a negative impact on the profitability of oil marketing companies.

5.3 Conclusion

The Ministry of Energy controls key sector players in the supply chain of Kenya and regulatory institutions, as such, ERC and OMCs should consult further to improve suitability and applicability of ERC formula in order to protect the profitability of the sector. The formula has been criticized as not capturing all elements of supply chain such as financing costs for imports, depot costs and demurrage.

The study showed that oil marketers should move to reduce operational costs so as to increase their operating profits. The companies should strive to operate efficiently by minimizing their operating expenditures so as to increase their profitability. The companies should use derivatives to cushion themselves against rising international oil prices as this constitutes a large proportion of their direct costs.

5.4 Limitations of the study

The study is based on data that is historical. Therefore the findings of the study may not be fully applicable at the time of the study due to the dynamic operating environment in the Kenyan market

The study focused on the gross margin as the only variable affected by price regulation. This alone may not adequately measure financial performance of the company without considering other financial parameters directly affected by pricing for example working capital requirements, fixed costs, stock holding costs.

Another major limitation in the study was to conclusively obtain financial statement from all of the market players in the oil sector. This is stemmed from the fact that it's only two companies that are listed in the stock market, and as such revealing their annual reports was not a challenge. As for most of the rest, access to annual financial reports was restricted to directors only.

The study focused only on profitability ratios as a measure of financial performance. This alone may not adequately measure financial performance without considering other ratios like liquidity and gearing ratios.

Finally, the fluctuation of the foreign exchange rate in Kenya was another limitation for the study. The fluctuations in the foreign exchange rate of the Kenya shilling against the United States (US) dollar results to foreign exchange gain or loss which is reflected in the profit and loss account of the companies.

5.5 Recommendation for Further Research

The study recommends that a study to be carried out to determine the relationship between international oil price and the local pump price. This is because the changes in the local prices of petroleum products as set by the ERC are based on the international oil price quotation.

The study further recommends that another study be done on the effects of oil price regulation on the individual share price of oil companies listed on the Nairobi stock exchange to measure the reaction of share prices as a result of oil price regulation in Kenya.

The study recommends that another study be carried out to establish the relationship between price regulation and the product supply in the oil sector.

This study only used profitability ratios as a measure of financial performance. To this end therefore, the study recommends a similar study to be carried out using all measures of financial performance for an organization that includes liquidity ratios, gearing ratios, market value and growth ratios.

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APPENDICES

APPENDIX 1: Letter of Introduction



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DATE 31/8/2013

TO WHOM IT MAY CONCERN

The bearer of this letter TERESA NJERI WANJOGU

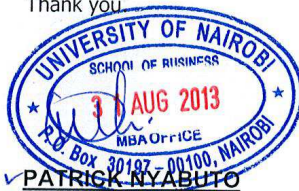
Registration No. 561/72864/2012

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University.

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you



✓ **PATRICK NYABUTO**
MBA ADMINISTRATOR
SCHOOL OF BUSINESS

APPENDIX II: List of Oil Marketing Companies in Kenya

1. ADDAX
2. AL-LEYL
3. ASTROL
4. BAKRI
5. BANODA
6. E.A GASOIL
7. ENGEN
8. ESSAR
9. FOSSIL
10. GALANA
11. GAPCO
12. GULF ENERGY
13. HASHI
14. HASS PETROLEUM
15. INTOIL
16. JADE
17. KENOL KOBIL
18. KEROKA
19. MOGAS (K)
20. NATIONAL OIL CORPORATION OF KENYA
21. OILCITY
22. OILIBIA
23. OILCOM
24. OLYMPIC
25. ORIX
26. PETROL
27. RIVAPET
28. TOTAL KENYA
29. TRADIVERSE
30. TROJAN
31. VIVO

Source: PIEA, 2013

APPENDIX III: Extract of the Financial Performance Used

Total Kenya			Kenol Kobil		
Period	ROCE	Gross Profit ratio	Period	ROCE	Gross Profit ratio
Q1 2010	0.05	0.07	Q1 2010	0.24	0.08
Q2 2010	0.03	0.08	Q2 2010	0.25	0.06
Q3 2010	0.03	0.08	Q3 2010	0.26	0.09
Q4 2010	0.08	0.10	Q4 2010	0.49	0.10
Q1 2011	0.05	0.05	Q1 2011	0.53	0.04
Q2 2011	-0.01	0.04	Q2 2011	0.59	0.06
Q3 2011	0.04	0.05	Q3 2011	0.56	0.04
Q4 2011	0.05	0.06	Q4 2011	0.63	0.07
Q1 2012	0.03	0.05	Q1 2012	(1.35)	0.02
Q2 2012	0.04	0.06	Q2 2012	(1.24)	0.03
Q3 2012	0.06	0.05	Q3 2012	(1.21)	0.02
Q4 2012	0.04	0.05	Q4 2012	(1.19)	0.02

NOCK			HASS PETROLEUM		
Period	ROCE	Gross Profit ratio	Period	ROCE	Gross Profit ratio
Q1 2010	0.04	0.05	Q1 2010	0.03	0.04
Q2 2010	0.05	0.04	Q2 2010	0.05	0.05
Q3 2010	0.05	0.06	Q3 2010	0.04	0.04
Q4 2010	0.07	0.06	Q4 2010	0.02	0.04
Q1 2011	0.04	0.05	Q1 2011	0.60	0.04
Q2 2011	0.03	0.04	Q2 2011	0.65	0.04
Q3 2011	0.04	0.04	Q3 2011	0.58	0.03
Q4 2011	0.03	0.03	Q4 2011	0.62	0.04
Q1 2012	0.04	0.03	Q1 2012	0.25	0.03
Q2 2012	0.03	0.02	Q2 2012	0.26	0.03
Q3 2012	0.05	0.03	Q3 2012	0.30	0.02
Q4 2012	0.06	0.04	Q4 2012	0.28	0.03