EFFECTS OF PRICE REGULATION ON THE FINANCIAL PERFORMANCE OF PETROLEUM SECTOR FIRMS IN KENYA: A CASE STUDY OF TOTAL KENYA LTD.

PAUL NZAU NZIOKI

A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN FINANCE, FACULTY OF BUSINESS AND MANAGEMENT SCIENCE, UNIVERSITY OF NAIROBI

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DECLARATION

I declare that this research project is my original work and has not been presented to any other university for the award of a degree or any other purpose.

Signature ……  … Date… 21st August, 2023

PAUL NZAU NZIOKI

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

Signature:  Date: 01/11/2023

PROF. JOSHUA WANJARE
FINANCE AND ACCOUNTING DEPARTMENT

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DEDICATION

I dedicate this research project to my father Mr. John Bosco Muli, my wife Hellen Betty, my daughter Zahara Mwikali and my employer (EPRA) for their continued support morally, spiritually and financially throughout the course. Special appreciations to my lecturers, my fellow students and friends for their support towards the completion of the research. Finally, to my brothers and sisters, thanks for the inspiration and support throughout my life. God bless you all.

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LIST OF ABBREVIATIONS AND ACRONYMS

EPRA	Energy and Petroleum Regulatory Authority
ERC	Energy Regulation Commission
GDP	Gross Domestic Product
IEA	Institute of Economic Affairs
KNBS	Kenya National Bureau of Statistics
NEDs	Non-Executive Directors
NSE	Nairobi Securities Exchange
OMCs	Oil Marketing Companies
ROA	Return on Assets
ROE	Return on Equity
SMEs	Small and Medium Enterprises
SOE	State-Owned Enterprises
TPP	Total Price Performance
US	United States
VIF	Variation Inflation Factors
WSCs	Water and Sewerage Companies

ABSTRACT

Price controls in the petroleum sector have been a subject of ongoing debate due to their potential effect on the financial performance of companies operating within this industry. This study addresses the problem posed by price controls by examining their impact on the financial performance of prominent selected players in the Kenyan petroleum sector. The primary objective was to assess how price controls influence Return on Assets (ROA), and to provide insights into the broader implications for regulatory frameworks within the sector. The study used a comprehensive panel dataset spanning from 2001 to 2020, categorizing data into two distinct periods: pre-regulation (2001-2010) and post-regulation (2011-2020). Monthly data for various study variables was collected and subjected to inferential statistical analysis, including correlation and regression analyses. The findings of the study revealed significant insights into the relationship between price controls and financial performance. The study indicated a marked decrease in ROA following the implementation of price controls, highlighting the detrimental impact of regulatory interventions on the firms' profitability. Regression coefficients underscored the importance of liquidity, company size, and board independence in shaping financial outcomes, with liquidity levels positively influencing ROA. In light of these findings, the study recommended that policymakers should strike a balance between consumer protection and industry sustainability when designing and implementing price control mechanisms in the petroleum sector. This balance could consider periodic reviews and adjustments to regulatory frameworks. Conversely, oil marketing companies should prioritize prudent liquidity management and strategic growth initiatives to navigate the challenges posed by price controls effectively. The study provided a nuanced perspective on the complexities of price controls and their implications for financial performance in the petroleum sector, offering valuable guidance for policymakers and industry stakeholders.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Many organizations struggle in today's dynamic business environment to strike a balance between profitability and pricing regulatory compliance in a competitive market. Organizations must develop proactive pricing strategies that adhere to standards while guaranteeing their profitability in the current business environment when industries see quick changes and disruptions. Businesses may be penalized and lose their competitive edge if they don't change their pricing tactics to conform to rules (Gupta & Bansal, 2020). As a result, for firms to succeed in nimble business contexts, understanding how pricing regulation affects financial performance is crucial. Regulatory agencies determine prices for products and services to promote fair competition, safeguard customers from predatory pricing, and avoid price gouging in times of need. However, poorly designed price regulations can stifle innovation, increase costs for businesses and ultimately harm consumers. Price controls can be successful in averting short-term price surges, but they can also have unexpected consequences, such as shortages and decreased quality of goods and services, according to International Monetary Fund (2020).

The price ceilings theory, which was first proposed by James M. Buchanan in 1949, is the first theoretical foundation for this study. It states that price ceilings, which are governmental restrictions on the highest price that can be charged for a good or service, cause a shortage of the regulated good or service because suppliers reduce their output due to lower profitability. Due to their inability to meet the demand for their goods or services, businesses suffer as a result of the shortage, which lowers their overall performance (Buchanan, 1949). The second theory that guides this study is the optimal regulation theory, which George Stigler initially proposed in 1971. This theory contends that price regulation can enhance business performance if it is intended to address

market flaws like monopolistic power or externalities. To achieve optimal regulation, however, it is necessary to weigh the advantages of regulation against its drawbacks, such as compliance costs and the possibility of unintended consequences (Stigler, 1971).

The performance of companies in Kenya's petroleum sector has been negatively impacted by price controls. Petroleum products are subject to price limitations enforced by the Kenyan government, which have restricted companies' ability to charge market pricing for their goods. As a result, businesses have been unable to recoup their production costs and infrastructure investments, which have resulted in a drop in the sector's overall performance. According to the Institute of Economic Affairs (2017) price controls have decreased sector investment, resulting in inadequate infrastructure, which has resulted in supply shortages and higher costs. Price limitations have caused some businesses in the sector to close, limiting competition and further degrading the sector's performance. According to an assessment by World Bank (2019) rent-seeking practices in Kenya's petroleum industry have resulted in inefficiencies and corruption which have caused a reduction in the quality of services offered by sector companies.

1.1.1 Price Regulations

Price regulation is the practice of the government setting or in some manner affecting prices. For specific commodities or services, this may entail establishing price floors or ceilings, price caps, or a pricing index (Van der Waal, Henzen & Dijkgraaf, 2020). Similar to this, Joskow (2011) defines price regulation as a type of government action that limits or sets the pricing of particular goods or services, usually to achieve some social or economic aim like fostering competition, safeguarding consumers, or containing inflation. Price regulation is therefore, a method of setting prices for certain goods by governments working with regulatory bodies or other governmental organizations and is occasionally used as an emergency economic tool to ensure that everyone can

acquire necessary goods as well as control inflation and price discrimination from monopoly businesses.

Price control is a topic that economists and decision-makers have argued for decades. Advocates claim that price controls can assist safeguard customers against price gouging and guarantee that necessary goods and services continue to be accessible and affordable. For instance, the government has implemented price limits on essential goods like maize flour, sugar, and cooking oil to shield customers from price increases during times of scarcity (Abiero, Muendo & Ombaka, 2019). In industries like healthcare, where high costs might restrict access to necessary medications and services, price regulation has also been used to overcome market failures. Opponents counter that price controls can harm customers by limiting their options, reducing competition, and causing shortages. For instance, price limitations on essential commodities may deter farmers from producing them, resulting in shortages over time (Ouma, Ogutu & Mwendwa, 2020).

The particular regulatory framework used to operationalize price regulation in the oil marketing sector would vary. The Energy (Petroleum Pricing) Regulations of 2010 in Kenya serve as the governing body for setting prices in the oil marketing sector. Within this framework, the Energy and Petroleum Regulatory Authority (EPRA) which was later renamed as the energy regulatory commission (ERC), determines the maximum retail prices of petroleum products using a formula that accounts for the landed cost of imported petroleum products, storage and distribution costs, taxes, and profit margins for oil marketing companies (Onyango & Ogutu, 2018). The Petroleum Products (Taxes and Levies) (Amendment) Bill 2021 was later introduced in Parliament on February 1, 2021 that sought to revoke the Energy (Petroleum Pricing) Regulations, 2010 and therefore introduced a new pricing formula to determine the new prices for petroleum products.

1.1.2 Financial Performance

Financial performance is a method of evaluating a company's ability to produce profit, control costs and maintain liquidity. Balance sheets, income statements, and cash flow statements are financial papers that can be used to evaluate a company's financial performance and establish its overall financial health (Ouma, Odhiambo & Mokaya., 2018). Financial performance is also defined as the capacity of an organization to generate value for its constituents, such as shareholders, clients, staff members, and suppliers. Financial returns, customer happiness, staff contentment, and supplier relationships can all be used to quantify its value (Rasheed et al., 2018). The ability of a company to effectively and efficiently use its resources in order to accomplish its strategic goals is also another definition of financial performance.

A number of internal and external environmental factors can have an impact on financial performance, which is a crucial indicator of a company's success. In contrast to external elements like the state of the economy, governmental regulations and competition, internal factors like management strategies, organizational design, and employee motivation may be present. The financial performance of small and medium-sized firms (SMEs) is significantly influenced by external factors, with economic conditions being the major one according to Hoque, Mia & Alam (2018). Internal factors, such as leadership style and strategic planning, can also have an impact on financial performance. A company's ability to adjust to these internal and external influences will ultimately determine how successful it is financially. On the other hand, large organizations may produce goods and services at cheaper costs thanks to economies of scale, which boosts profitability and financial performance. Growing a business can give it more negotiating leverage with suppliers and lower production costs per unit. However, there may be restrictions on

economies of scale, such as diseconomies of scale, which, if poorly handled, can have a detrimental influence on financial performance (Machirori, Mapuranga & Musharuwa, 2021).

The measures of financial performance that will be appropriate in this study is to determine the extent to which the company uses its total assets in generating returns, also called returns on assets (ROA). It determines the efficiency at which the company is able to generate returns from the total assets. Similarly, the study will also assess financial performance by use of return on equity (ROE) which assesses the returns generated by the company, as a percentage of the total equity invested in the company (Komen & Munene, 2017). A higher ROE as well as a higher ROA would mean that there is higher financial performance as the company is able to generate higher income for every shilling of investment into the company and higher returns for every shilling worth of assets owned by the company respectively (Njoroge & Njoroge, 2017). The net profit margin is also used as a determinant for financial performance. It is determined by dividing a company's net profit by its revenue, and it is used to evaluate a company's profitability as assessed from the sales made by the company. However, ROA and ROE are better measures of financial performance for this study (Mwinyihija & Riziki, 2019).

1.1.3 Price Regulation and Financial Performance

The effect of price control on financial performance is complex and depends on a number of variables. Decreased pricing brought on by regulation may raise demand for goods and services, increasing business revenue. On the other side, regulation may stifle innovation, lower profit margins and discourage new entrants from the market (Omondi & Mutai, 2019). Hence, while making judgments, officials must carefully weigh the potential advantages and disadvantages of price regulation. There are numerous instances of pricing restriction laws that have different impact on companies in numerous industries. The Kenyan government controls the cost of

essentials like maize, sugar, and wheat to maintain their affordability for customers. The financial success of companies engaged in the production and distribution of certain commodities may be significantly impacted by this.

Market dynamics and specific regulatory policies determine how price regulation affects financial performance. Li and Li (2021) claim that price restriction has a detrimental effect on financial performance by lowering profitability and stifling innovation. This is in accordance with Chinese state-owned enterprises (SOEs). On the other hand, Hjartarson and Zhou (2018) suggested that there is a positive correlation between price regulation and financial performance in hospitals, suggesting that hospitals with more price control ran more profitably and effectively. The effect of price control on financial performance is complicated and influenced by the sector, the state of the market, and regulatory frameworks.

1.1.4 Total Kenya Limited

Total Kenya Limited is a subsidiary of Total Group, a French multinational integrated oil and gas company. It was established in Kenya in 1955 as Total Oil Products East Africa Limited (Total Kenya Limited, 2022). The company has been a major player in the petroleum industry in Kenya and has significantly contributed to the country's economic growth. Total Kenya has continuously expanded its operations in the country, with over 200 service stations spread across the country.

The petroleum industry is also a significant contributor to the country's Gross Domestic Product (GDP), accounting for over 4% of the total GDP in 2019 (KNBS, 2020). With more than 1,000 workers and hundreds more indirect job prospects, the enterprise has also produced numerous employment chances for Kenyans. With the acquisition of many businesses, including the Kenya Oil Company and Gulf Africa Petroleum Corporation, Total Kenya has steadily increased the scope of its operations in Kenya. The corporation has also released cutting-edge goods including

solar lamps and lubricants, which have assisted in diversifying its sources of income. By prioritizing client pleasure, the business has also built a devoted customer base and produced high-quality goods and services. (Total Kenya Limited, 2022).

The government's pricing controls, which are intended to shield customers from price increases by petroleum companies, have had an impact on Kenya's petroleum industry. One of the businesses affected by these laws is Total Kenya. A price control system was put in place by the Kenyan government in 2018 that constrained the profit margins for oil corporations, notably Total Kenya. Due to this, the company's profits decreased, falling by 64% in the first half of 2018 compared to the same period in 2017 (Nation Africa, 2018). Also, the pricing restrictions have reduced the amount of money that petroleum firms have invested in Kenya. According to Olagoke Aluko, the managing director of Total Kenya, the business has delayed some of its expansion plans as a result of the uncertainty brought on by the price control system (Business Daily, 2019). As a cost-saving move, the company was also compelled to let go of some of its staff.

1.2 Research Problem

Price regulations are a contentious issue in the business world, with conflicting views on their effectiveness and impact on business performance. The conflict between the requirement to safeguard consumers from high costs and maintain company profitability gives birth to the conceptual issue. Price controls may diminish companies' profit margins, which could result in decreased investments, job losses, and ultimately company withdrawal from the market. But, in the absence of rules, corporations might practice price gouging, exploiting customers and distorting the market. Price controls in South Africa's energy sector, according to Brink and Schulz (2021) had a negative impact on company performance since they made it harder for companies to compete and develop. Similar to this, research by Abdallah and Tsegaye (2021) on pricing

controls in the Ethiopian telecom industry discovered that they caused telecom companies to become less profitable and to make fewer investments. These studies show how price regulation can restrict corporate expansion and competitiveness, thereby harming the economy in the long run.

Throughout the past few years, the performance of the petroleum sector companies in Kenya has been inconsistent, with both good and negative effects being noted. In terms of demand and investment, the industry has on the one hand experienced consistent expansion. The industry's overall consumption, for instance rose by 4.3% in 2020, primarily as a result of a sharp increase in the demand for cooking gas and diesel fuel (KNBS, 2021). On the other hand, the industry has also encountered a number of difficulties, such as strict price rules, slim profit margins, and greater competition. The government's severe price regulations on petroleum goods in 2020 reduced the revenues of many oil corporations doing business in Kenya. The performance of Kenyan petroleum sector companies has been considerably damaged by the strict price rules, according to a report by the Institute of Economic Affairs (IEA, 2020). Price limits have reduced oil marketing companies' income, which has hampered their capacity to make investments in growing their businesses or upgrading their infrastructure (IEA, 2020).

There is available literature related to price regulation and financial performance. Internationally, Issah (2021) conducted a research that focused on how oil marketing companies (OMCs) in Ghana fared financially as a result of regulation and deregulation of petroleum prices. The effectiveness of South African gasoline price regulation is examined by Crompton et al. (2020), with an emphasis on how it affects the achievement of its desired goals. Locally, Kimathi (2017) examined the influence of price regulation on the financial performance of Kenyan oil marketing enterprises using selected oil marketing firms as a case study. Munyasya (2014) conducted a descriptive

survey on the influence of price control by the Energy Regulatory Commission (ERC) on the performance of Kenyan oil marketers using selected oil and marketing companies as a case study. According to the studies that have been conducted, there is a contextual and conceptual gap in which the impact of price regulation on financial outcome of petroleum industry enterprises has not been thoroughly examined. The study also detects a methodological gap between local studies and fills it by employing an event study design to answer the research question: What is the effect of price regulations on financial performance of Total Kenya Limited?

Table 1: 1.1: Summary of the Research Gaps

Researcher	**Study Topic**	**Findings**	**Research Gaps**
Maziotis , Saal, and Thanassoulis (2009	The impact of price control on the financial success of Water and Sewerage Companies (WaSCs) in England and Wales	The findings established that initial price controls enabled the firms to achieve economic success but as they got stronger the firms were forced to cut expenditures as a result	Contextual gap as the current study will be conducted in Kenya investigating Total Kenya LTD
Issah (2021)	Oil marketing companies (OMCs) in Ghana fared financially as a result of regulation and deregulation of petroleum prices.	The adoption of the price deregulation policy led to an upturn in gross sales	A contextual gap as the current study will be conducted from Kenyan context
Crompton et al. (2020)	Effectiveness of South African gasoline price regulation	The findings revealed that import parity pricing regulation has not kept up with developments in the market and that over the past 20 years methodological flaws in the regulatory accounting system have led to a rise in regulated margins.	A conceptual gap as far as the current study will assess the financial performance as caused by price regulation while the study under review assessed the effectiveness overall
Sacchi and Ramsheva's (2017)	The Effects of Fiscal Tools on District Heating	The research established that doubled heat delivered as well as significantly reducing the carbon footprint	Contextual Gap in terms of the current study being conducted in Kenya

	Systems, Aalborg, Denmark		
Kimathi (2017)	The impact of price control on the financial performance of oil marketing companies in Kenya a case study of Total Kenya LTD	The findings revealed that price control; had a negating effect on the ROE as well as the earnings per share	A conceptual gap in terms of the specific variables that affect the financial performance of Total Kenya LTD
Njagi's (2017)	Price regulation and the financial success of oil marketing companies in Kenya	The findings established that the implementation of petroleum price regulation had a negative effect on Kenya's oil companies' financial performance	A methodological gap in terms of operationalization of the variables
Namiba (2016)	The financial performance of Kenyan oil businesses, specifically Total Kenya Limited, Kenol Kobil Limited, National Oil Corporation of Kenya, and Hass Petroleum Kenya Limited	According to the findings, the installation of petroleum price regulation had a negative influence on the financial success of Kenyan oil companies, as measured by Return on Assets (ROA).	Methodological Gap in terms of the period covered

1.3 Research Objective

The research objective of the study was to establish the effect of price regulations on financial performance of oil marketing companies in Kenya.

1.4 Value of the Study

This study added knowledge to the body of research regarding how price regulation affected the financial success of petroleum industry companies. Researchers in the fields of economics and business who were interested in learning how regulatory regulations affect the performance of companies in the petroleum sector would find this to be of particular help. The study also helped

future researchers identify the study gap that needed to be filled and also empirically helped to affirm or criticize the existing theories.

The stakeholders at selected oil marketing companies such as Total Kenya Limited found the report to be extremely valuable as it shed light on potential mitigation techniques for any detrimental effects of price regulation on the financial performance of Total Kenya Limited and other petroleum industry companies. The study's findings were used by these stakeholders to create investment plans, pricing strategies, and business models that were more responsive to the shifting regulatory landscape.

The study had significant policy ramifications by giving policymakers a better understanding of how price regulation affected the Kenyan petroleum sector companies' financial performance. This informed the establishment of more effective regulatory frameworks that combined the need for consumer protection with the requirement to support the growth and sustainability of the petroleum sector. The findings were also used by policymakers to pinpoint areas that required policy changes in order to foster sector expansion and guarantee that it advanced larger national development objectives.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The section aims to review pertinent studies. Therefore, it entailed theoretical examination, financial performance indicators, empirical research, conceptual framework and summary of the literature. These sections addressed the existing gaps in knowledge identified in the literature to be filled by the current study.

2.2. Theoretical Review

The section expounded on several theories relevant to the study. These theories included the price celling theory, optimal regulation theory and the rent-seeking theory. The section therefore explained the proposition of the theories, their relevance to the study and their criticism.

2.2.1 Price Ceilings Theory

The theory of price ceilings was first introduced by economist James M. Buchanan in 1949. According to the theory, shortages resulted if a government placed a legal cap on the price that could be charged for a good or service because the market won't be able to settle at that price (Buchanan, 1949). The quantity of the commodity or service wanted, exceeded the quantity provided when a price ceiling was set below the equilibrium price. Reduced supply would result from suppliers finding it unprofitable to create and sell the good or service at the lower price. On the other hand, because the product was less expensive, consumers would desire more of it, which would raise the quantity requested. A product shortage results when supply was insufficient to meet demand. Price caps could exacerbate existing market inefficiencies (Mankiw, 2018). In order to minimize their production costs and turn a profit at the reduced price, suppliers, for instance,

could compromise the product quality, which would result in lesser-quality goods for customers (McConnell, Brue & Flynn, 2019).

One of the main critiques was that because manufacturers were less motivated to deliver them at the artificially cheap price, they can result in shortages and a decline in the quality of goods or services. Furthermore, price caps may lead to the sale of items on the black market at inflated costs, diminishing the advantages of the program for consumers (Hsieh, & Moretti, 2019). In addition, some economists contend that price caps might result in an improper allocation of resources since producers may choose to develop different items or services that are not regulated by price. Empirical research from numerous nations and businesses backs up these criticisms (McMillan & Rodrik, 2011).

The analysis, which considered the potential effects of price limitations imposed by the government on the company's revenue, profitability, and overall financial performance, made use of the notion of price ceilings. Price ceilings were governmental restrictions on the highest price at which a good or service would be offered, and they had big impact on companies that operated in regulated sectors of the economy. Price ceilings in the instance of Total Kenya Limited would result in decreased sales and profits since the company would be compelled to offer its goods for less than it would under normal market circumstances. The ability of the business to invest in new technology, grow its business, or provide profits to its shareholders which would be impacted as a result.

2.2.2 Optimal Regulation Theory

According to the optimal regulation theory, which was put forth by George Stigler in 1971, rules should be created to balance the costs and benefits of regulation in order to maximize economic

efficiency (Stigler, 1971). Regulations should only be put in place when they outweigh the costs to society and their level should be chosen to strike this ideal balance. The theory held that rules could help society and cost it money. By addressing market imperfections like externalities, information asymmetry or market power, regulations can, on the one hand, increase social welfare (Joskow, 2008). Regulations would, for instance, demand that businesses lower their pollution levels or enforce product labelling to give consumers accurate information. These rules may result in enhancements to consumer protection, environmental quality, or public health. Yet, laws can also have a negative impact on society by restricting the ability of the market to function, increasing the cost of compliance for businesses and stifling innovation and competition. Restrictions could raise costs, limit consumer options or lessen the incentives for businesses to invest in cutting-edge technologies. Economic productivity and social wellbeing may suffer as a result of these costs (Hahn, 1989).

The theory had been criticized for being overly simplistic and based on irrational presumptions about how corporations and regulators would act. The importance of political variables on regulatory decision-making, the challenges of monitoring and enforcing regulations, and the possibility of regulatory capture by business interests had all been criticised as being ignored by optimum regulation theory while Majone (1989) focused on the limitations of regulatory expertise and the difficulties of regulating the regulatory process, Stigler (1971) claimed that regulatory agencies are prone to capture by the very businesses they are supposed to supervise. The optimal regulation theory is nevertheless a crucial foundation for comprehending regulatory policy in spite of these challenges.

The study's examination of the potential effects of price controls imposed by the government on a company's revenue, profitability, and overall financial performance made the theory of price

ceilings pertinent. Price ceilings were governmental restrictions on the highest price at which a good or service would be offered, and they would have a big impact on companies that operated in regulated sectors of the economy. Price ceilings in the instance of the Total Kenya Ltd would result in decreased sales and profits since the companies would be compelled to offer the goods for less than they would under normal market circumstances. The ability of the business to invest in new technology, grow its business, or provide profits to its shareholders may be impacted as a result.

2.3 Financial Performance Indicators

Price regulations would impact financial performance of Total Kenya Limited. However, there are other factors that would also influence the financial performance that would include the quality of decisions made by the board, liquidity management, exchange rate volatility and total investments in the company (total assets).

2.3.1 Price Regulation

Price control in the oil marketing sector had a considerable impact on financial performance. When price controls were implemented, oil marketing companies can be required to sell their goods for a predetermined maximum price. As a result, they were unable to compete on price, which would cause their market share to decline and become less profitable. The company would find it challenging to keep their current clients and win over new ones, which could eventually result in a loss of market share (Kithinji & Muketha, 2016). The ability of the business to meet its short-term financial obligations would be harmed as a result of price control, which had the potential to diminish the profit margins and make it challenging to pay for costs like rent, payroll, and inventory purchases (Njoroge & Njoroge, 2017).

2.3.2 Corporate Governance

Quality decision making is very vital in any organisation to ensure that it meets its overall goals and undertake their responsibilities effectively. The ability to make sound strategic decisions that align with the firm's long-term goals and create value for stakeholders is essential and desired by all firms. It makes it possible for the firm to identify and capitalize on opportunities while at the same time managing risks effectively. It enhances the financial performance of the firm through increased market share, revenue as well as improved profitability (Athey et al., 1994).

The ability to make quality decisions also implies that the firm is able to undertake a robust risk assessment measure that helps the company identify existing and potential risks. The firm therefore, is in a position to undertake steps that mitigate these risks and enhance profitability and increase financial performance. The quality of decisions made by the board of directors may depend on several factors or components in the board, such as the size of the board the level of independence, experience and skills of each member of the board as well as board diversity (Athey et al., 1994).

2.3.3 Liquidity Management

Improved liquidity management is a factor that would enhance financial performance, more so in periods of uncertainty and increased risks. It helps the firm to improve its cash flow management as it ensures that it has enough cash to be able to meet cash-on-hand obligations. This mitigates on risks of overdrafts that tend to be costly for the firm. It also ensures that the company has enough cash for other uses such as investing or expanding the business (Bianchi & Bigio, 2022).

In the scenario of oil marketing companies in Kenya, liquidity would be vital factor, to ensure that the companies have enough cash flow to reduce liquidity risks, as well as ensure that they take

advantage of favourable economic conditions that would enhance returns from investments, and therefore generate increased profits. Proper liquidity management also ensures that they have enough cash on hand so as to reduce reliance on short-term financing, which has higher interest rates and has direct impact on increasing operational costs of the company. Improved liquidity also increases credit worthiness as lenders are more willing to lend to organisations that have good track record of managing their cash flow and meeting their financial obligations. The organisation is therefore able to secure financing whenever it needs it, and it becomes in a better position to negotiate for lower interest rates (Bianchi & Bigio, 2022).

2.3.4 Exchange Rate Volatility

The volatility in exchange rate is a crucial factor that determines the overall operational costs as well as inventory costs for firms in the petroleum industry in Kenya. This is mainly due to the fact that Kenya imports crude oil. It means that the firms in this industry are exposed to exchange rate risks and therefore fluctuations in the exchange rate, increases this risk and hence increasing operational costs that reduces financial performance. The issue becomes critical if there are price ceilings that have been imposed by the regulatory bodies, as it would mean that the firm may not be in position to load these extra costs to the final consumers. The firm is therefore forced to bear and shoulder this cost that would reduce its profitability (Chatterjee et al., 2013).

2.4. Empirical Studies

Internationally, Sacchi and Ramsheva's (2017) study, examined the effects of fiscal tools on the district heating system of Aalborg, Denmark. The study looked at how recovering extra heat from industrial operations can lower the carbon footprint of heat and how removing regulatory restrictions on the delivery of excess heat can change the supply curve for heat. The authors

established the heat supply curve through ten scenarios that represented incremental shares of extra heat using a supply-and-demand framework and a consequential life cycle assessment. The most ambitious scenario, according to the report, doubled the quantity of excess heat delivered, reduced the carbon footprint of heat by 90%, but also raised end-user prices by 41%. In cases where a significant portion of recovered excess heat is recovered, the authors emphasized the need for a flexible provider. The review of this study has revealed contextual and conceptual gaps since more research may be required to examine how price control affects industrial enterprises' performances in various settings such as from thee Kentan perspective to divulge a comprehensive understanding of various study variables.

Maziotis, Saal, and Thanassoulis (2009) investigated the impact of price control on the financial success of Water and Sewerage Companies (WaSCs) in England and Wales between 1991 and 2008. The authors analysed the relative productivity, profitability, and price performance of the regulated WaSCs using an index number approach. The study split actual economic profits into two indices that measured the excess of regulated revenues over benchmark costs: regulatory total price performance (TPP) and geographical multilateral Fisher productivity (TFP). The findings revealed that, from 1991 to 2000, price restrictions were originally "weak," and as a result, enterprises achieved economic profits despite low levels of productivity. In 2001, however, prices started to "catch up promote" and less productive businesses were forced to cut expenditures in order to prevent losses in revenue. The study's research gap was the requirement to find out the implications of price regulation on financial performance of different sectors and in different countries.

Issah (2021) conducted research that focused on how oil marketing companies (OMCs) in Ghana fared financially as a result of regulation and deregulation of petroleum prices. The study used an

event study methodology and purposive random sampling approaches. The study cited supply chain effectiveness, foreign currency rates, and global oil prices as factors that affect OMCs' financial performance. According to the findings, the adoption of the petroleum price deregulation policy led to a rise in the company's gross sales following the deregulation of petroleum pricing, which explained the findings. It was advised that more research be done to examine how price regulation and deregulation affect other OMCs in Ghana. The research gap in this study is the need to investigate the effect of price regulation on other OMCs in other countries to provide more understanding of the impact of these policies on the financial performance of the industries.

The effectiveness of South African gasoline price regulation is examined by Crompton et al. (2020), with an emphasis on how it affects the achievement of its desired goals. The study used a qualitative methodology to examine the historical background of the liquid fuels sector in South Africa as well as changes in policy during the previous 20 years. The findings revealed that import parity pricing regulation has not kept up with developments in the market and that over the past 20 years methodological flaws in the regulatory accounting system have led to a rise in regulated margins. Also, the study demonstrates that despite falling gasoline and diesel volumes between 2005 and 2019, there are still too many service stations. According to the authors, gas prices might be reduced by 0.70 to 0.80 Rands per litre. The research gap identified is the need for further research on the potential impact of price deregulation on financial performance, particularly in the context of the Total Kenya Limited.

Locally, a study by Kimathi (2017) uses Total Kenya Limited as a case study to examine the impact of price control on the financial performance of oil marketing companies in Kenya. The purpose of the study is to investigate how price control affects oil marketing companies' return on equity, earnings per share, and sales trends. The study employs a causal research approach and collects

data from 2008 to 2012.The results of the data analysis show that price control had a detrimental effect on the return on equity and earnings per share of petroleum enterprises in Kenya. Sales, but after price regulation was reinstated, there was a positive effect on sales. This study focuses on the whole oil marketing industries and fails to consider specific factors that may affect individual firms which will be covered by the current study by looking into how price regulation affects the financial performance of the Total Kenya Ltd.

The purpose of Njagi's (2017) study, which covered the years 2006 to 2013, was to examine the connection between price regulation and the financial success of oil marketing companies in Kenya. The author analysed secondary data from 31 oil firms in Kenya and the chi-square test of differences. According to the study, the implementation of petroleum price regulation had a negative effect on Kenya's oil companies' financial performance, which was better in the years before the regulation. To address the issues brought up by stakeholders in the study, the Energy Regulatory Commission pricing methodology should be improved. The study suggests modifying the Energy Regulatory Commission's pricing formula to address issues brought up by industry participants and re-evaluating the ERC's regulatory standards in consultation with all oil marketers to protect them from expenses not taken into account in the gazetted formula. The research gap identified in this study is the need to understand how price regulation affects the financial performance of the firms in the Kenyan petroleum sector and in particular the Total Kenya Ltd before and after the price regulations, which is not explicitly examined in the study especially in terms of the methodologies used to operationalize the study variables as they affect financial performance.

Namiba (2016) investigated the financial performance of Kenyan oil businesses, specifically Total Kenya Limited, Kenol Kobil Limited, National Oil Corporation of Kenya, and Hass Petroleum Kenya Limited, from 2006 to 2015. Secondary data analysis in the study was done using a multiple regression model and descriptive statistics. According to the findings, the installation of petroleum price regulation had a negative influence on the financial success of Kenyan oil companies, as measured by Return on Assets (ROA). The previous analysis concentrated on all of Kenya's oil firms and overlooked the specific major oil marketing companies like the case of the Total Kenya Limited, which is addressed in the present study.

2.5 Conceptual Framework

The conceptual model shows the relationship between study variable. The independent variable is Price Regulation and dependent variable is financial performance.

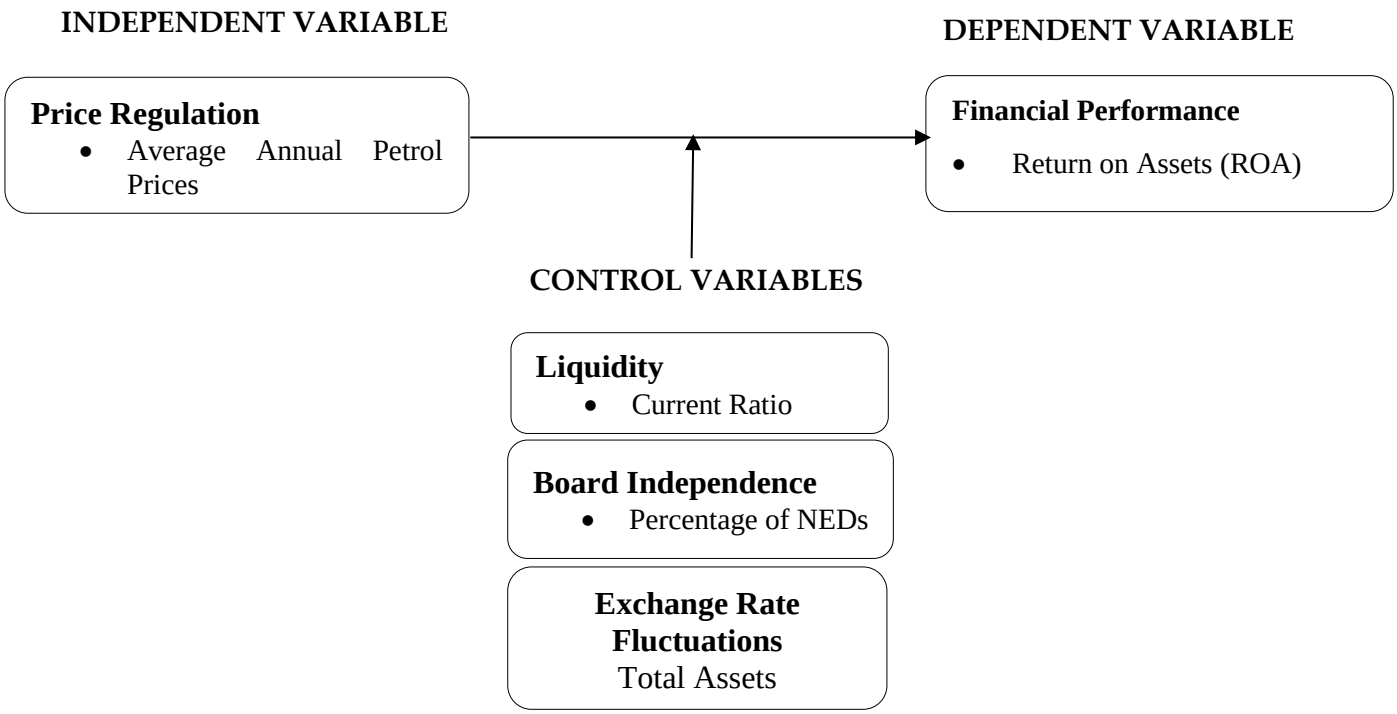

Figure 1: 2. 1: Conceptual Framework

2.6 Summary of the Literature Review

The chapter discussed three economic theories that were relevant to the study. The first theory was the price ceiling theory, which stated that a government-imposed cap on the price of goods or services could result in shortages and reduced quality. The second theory was the optimal regulation theory, which suggested that regulations were supposed to be implemented only when their benefits outweighed their costs. This theory highlighted the importance of balancing the advantages and disadvantages of regulations to ensure economic efficiency. The third theory was the rent-seeking theory, which stated that individuals or firms sought to influence government policies to gain economic benefits at the expense of society. The chapter as well discussed the factors that affected financial performance of TKL.

The research gap addressed in these studies was the need to explore how price regulation impacted the financial performance of specific enterprises in the petroleum sector in different nations, as opposed to the industry as a whole. The studies looked at how price control and deregulation affected financial performance, productivity, profitability, and sales in the water and sewerage, district heating, and oil marketing sectors in places including England, Wales, Denmark, and Ghana. They did not, however, provide a thorough understanding of how price regulation affected the financial performance of the major enterprises in Kenya's petroleum sector, such as the Total Kenya Limited.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter entailed the research design that was adopted in the study, the population targeted by the researcher, data collection technique that was used, analysis methods of the data collected, diagnostic tests that was carried out to test the model, analytical model employed in the study and the significance test used.

3.2. Research Design

The plan or strategy used to conduct a research study, which included the procedures, processes, and methods used to gather and analyse data, is known as the research design. The study used a case design (Creswell, 2014). The case study design entailed identifying a case, in this case, the adoption of price regulation and examining how the case affected Total Kenya Limited's financial results. The study examined the financial performance of Total Kenya Limited both before and after the adoption of price regulation and compared how factors such as liquidity management, size and exchange rate volatility influenced financial performance in similar periods.

3.3 Population

The study population refers to the individuals and objects with a similar characteristic of interest to the researcher. Since the study is a case study, the population of the study was Total Kenya Limited which was a publicly listed oil and gas corporation with operations in Kenya. The study therefore, examined how price regulation affected its financial performance.

3.4 Data Collection

Secondary data was applied in this study which was obtained from authorised sources such as the Total Kenya Ltd website, Energy and Petroleum Regulatory Authority (EPRA) website, NSE

website and other reliable sources. The study utilized longitudinal data for ten years before the regulation (2001-2010) and ten years after the regulations (2011-2020).

3.5 Operationalization of Variables

The operationalization of variables indicated the manner in which each variable was measured in the study. It used the measures used by previous researchers as they sought to determine or measure the variable in their own studies.

Table 2: 2.1: Operationalization Table

Variable	Type	Measurement	Measurement Type	Sources
Financial performance	Dependent	Return on Assets (Net Income/Total Assets) *100	Percentage	(Komen & Munene, 2017)
Price Regulation	Independent	Average Annual Prices of Petrol Fuel	Numeric	Hjartarson and Zhou (2018)
Board Independence	Independent	Percentage of Non-Executive Directors (NEDs)	Percentage	Athey et al., (1994).
Liquidity	Independent	Current Ratio (Current Assets/Current Liabilities)	Ratio	Bianchi and Bigio (2022)

Exchange Rate Fluctuations	Control	Volatility of Exchange rate between Ksh and US Dollar	Percentage	Chatterjee et al., (2013).
Size	Control	Natural Log of Total Assets	Numeric	Kimathi (2017)

3.5 Data Analysis

The data collected was summarised and analysed in two phases. Descriptive statistics was undertaken where descriptives for each variable was compared before the price regulations were effected and after the price regulations. Data before price regulation was then analysed by use of both correlation analysis and regression analysis, to determine whether prices before price regulation had significant effect on financial performance and then data after price regulation was also analysed in a similar manner. The findings in each of the phase was then compared to determine whether price regulations had significant effect on financial performance.

3.6 Diagnostic Tests

This study run diagnostic tests on the data to evaluate the robustness of the model before doing multiple regression analysis. Data was tested for normality, linearity, autocorrelation, heteroscedasticity, and multicollinearity.

3.6.1 Normality Test

The residuals must be regularly distributed in order to pass the normality test. Incorrect estimations and biased hypothesis tests may result from residual non-normality. The Shapiro-Wilk test, which examines the assumption that the residuals are normally distributed, is a frequently used diagnostic

test for normality (Razali & Wah, 2011). The researcher altered the data or utilized non-parametric approaches when the normality test showed that the residuals were not normally distributed.

3.6.2 Linearity Test

A linearity test verifies if the relationship between the dependent and independent variables is linear. Hypothesis testing and estimations may be skewed as a result of non-linearity. The scatterplot enabled the researcher to visually evaluate if there was a linear or non-linear relationship between the dependent variable and the independent factors. A different model or data transformation was considered by the researcher. The scatterplot indicated that the relationship was non-linear (Tabachnick & Fidell, 2019).

3.6.3 Autocorrelation Test

The correlation of residuals at several time points is referred to as autocorrelation. Estimates and hypothesis tests may be distorted as a result of autocorrelation. A frequently employed diagnostic method for evaluating autocorrelation is the Durbin-Watson test (Tabachnick & Fidell, 2019). The null hypothesis that there was no autocorrelation in the residuals was tested using the Durbin-Watson test.

3.6.4 Heteroscedasticity Test

When the variances of the residuals are different at various levels of the independent variable, this is known as heteroscedasticity. Biased estimations and hypothesis testing may result from heteroscedasticity. Breusch-Pagan test evaluated whether the variance of the residuals varies according to the independent variable's level (Tabachnick & Fidell, 2019). Regression analysis assumes that data is homoscedastic and if it failed the test, then data was transformed by either

standardizing the data or finding the reciprocal, etc. However, use of White test which is a non-parametric test is also a way of treating data that was heteroscedastic in nature.

3.6.4 Multicollinearity Test

When two independent variables are correlated, this is referred to as multicollinearity. Hypothesis testing and estimations may become unstable as a result of multicollinearity. The study used variance inflation factor (VIF) to investigates if the independent variables are multicollinear, which is the null hypothesis (Tabachnick & Fidell, 2019). Variables that failed the test indicated that the ability of the variable in testing the effect of the independent variable on the dependent variable was compromised and led to undertaking spurious regressions. In that case the variable that was collinear was dropped from the model.

3.7 Analytical Model

The analytical model of the study took the form of

$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \varepsilon$

Whereas Y = Financial Performance (Measured by ROA)

X1 is Price regulation factor that measures average price of Petrol Fuel

X2 is the Board independence measured by percentage of NEDs

X3 is the Liquidity measured by current ratio

X4 is the Exchange rate volatility measured by volatility of US Dollar to Ksh.

X5 is the total investment measured by natural log of total assets.

B1, β2. B3, β4 and β5 are regressional co-efficients and β0 and ε are constants.

CHAPTER FOUR:
DATA ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 Introduction

The monthly data collected in regard to price regulations and financial performance was analysed to understand the nature of the data collected in terms of descriptive statistics. Diagnostic tests were also carried out to determine whether the data was appropriate for undertaking inferential statistics of both correlation and regression analysis. The chapter then undertook an interpretation of the findings.

4.2 Descriptive Statistics

The mean, standard deviation, minimum values and maximum values of the study variables were expressed. The study also considered the skewness and kurtosis of the data for each variable, to have a clearer understanding of the data for each variable. Monthly data was collected from Total Kenya Limited 10 years before regulation started in 2011 and 10 years after the regulations. This therefore provided for a total of 240 observations made for each observable phenomenon in the study.

The dependent variable of the study was Return on Assets which is a financial metric that measures the profitability of a company in relation to its total assets. The minimum ROA value was approximately -2.46%, indicating potential losses exceeding the company's assets, while the maximum was around 7.67%, suggesting high profitability. On average, the firm across the study period exhibited a ROA of about 3.96%. The standard deviation of 2.65% showed variability in ROA values among different periods. The skewness value of -0.732 indicated a slight leftward

skew, and the kurtosis of -0.335 suggested a moderately flatter distribution than the normal distribution.

Table 3: 4.1: Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Y (ROA)	240	-2.46	7.67	3.96	2.65	-.732	.157	-.335	.313
X1 Dummy	240	0	1	.50	.501	.000	.157	-2.017	.313
X2 Gasoline Price	240	51.45	124.85	89.27	20.71	-.280	.157	-1.172	.313
X3 Board Independence	240	40.00	72.73	53.89	12.03	.367	.157	-1.653	.313
X4- Liquidity	240	.97	2.16	1.41	.29	.838	.157	-.049	.313
X5 – Exchange rate	240	62.11	110.50	85.61	12.37	.314	.157	-1.122	.313
X6 Size	240	15.63	17.58	16.85	.66	-.573	.157	-1.319	.313
Valid N (listwise)	240								

Source: Researcher (2023)

The Price Control is a dummy variable that was introduced in the study, to determine the period where there was price control (from 2011 to 2020) which was denoted by 1 and the period where there was no price control which was denoted by 0. The mean of 0.50 indicates an approximately equal distribution between the two conditions. The standard deviation of 0.501 reveals that the variable's values are close to the mean, with minimal variation.

The study variable on Gasoline Price indicated the average monthly petrol retail prices in Kenya. The minimum price for petrol in the study period was around Ksh. 51.45, while the maximum price within the same period, reached to Ksh, 124.85. The average gasoline prices was approximately Ksh. 89.27, with a standard deviation of Ksh. 20.71, suggesting significant variability in gas prices. The skewness of -0.280 indicates a slight leftward skew in the distribution, implying that lower prices were more prevalent. The kurtosis of -1.172 indicated a distribution slightly less peaked than the normal distribution.

The other variable was board independence which was determined by the percentage of NEDs in the board of the firm within the study period. The minimum value of around 40% suggested that the firm at the period where it had the least form of independence in the board was at least 40% while the maximum of roughly 72.73% indicated a higher level of board independence. The mean board independence was approximately 53.89%, and the standard deviation was 12.03%, showing moderate variation within the period of the study. The positive skewness of 0.367 implied that the firm for the larger part of the period under study, it had higher board independence. The negative kurtosis of -1.653 suggested a distribution with slightly thinner tails than the normal distribution.

Liquidity on the other hand was measured by the ratio of current ratio to current liabilities. It indicated the extent to which the current assets could be able to cover or meet the current liabilities as and when they fell due, within the period in which the company was under study. The variable measured the company's ability to convert its assets into cash. The mean liquidity was around 1.41, and the standard deviation was approximately 0.29, indicating relatively low variability in liquidity levels. The skewness of 0.838 suggest\ed a rightward skew in the distribution, indicating a higher prevalence of period in which the firm had higher liquidity. The kurtosis of -0.049 indicated a distribution with slightly flatter tails than the normal distribution.

The other variable was Exchange Rate, which was determined by the amount of Kshs that the US dollar could be exchanged in average for a particular month in the study period. The exchange rates ranged from Ksh 62.11 to Ksh 110.50, with an average exchange rate of about Ksh. 85.61 and a standard deviation of approximately 12.37, signifying notable variability. The skewness of 0.314 suggested a slight rightward skew in the distribution, indicating that lower exchange rates are more common. The kurtosis of -1.122 indicated a distribution slightly less peaked than the normal distribution.

Size on the other hand was determined by the total assets that the company invested. The natural logarithm was used to determine the value of the total assets of the business. The company sizes ranged from approximately 15.63 to 17.58. The mean size was around 16.85, with a standard deviation of 0.66, showing moderate variability in company sizes. The negative skewness of -0.573 indicated a leftward skew, implying that smaller companies were more prevalent. The negative kurtosis of -1.319 suggested a distribution with slightly thinner tails than the normal distribution.

4.3 Diagnostic Tests

Various tests were conducted to assess the robustness of the model before proceeding with multiple regression analysis. These tests included examinations for normality to check if the data followed a Gaussian distribution, tests for linearity to ensure that the relationships between variables were linear, evaluations for autocorrelation to detect any temporal dependencies in the data, checks for heteroscedasticity to identify whether the variance of errors varied across different levels of the independent variables, and assessments for multicollinearity to determine if there were high correlations among the predictor variables. These diagnostic tests collectively aimed to ensure the validity and reliability of the data and its suitability for the subsequent regression analysis.

4.3.1 Normality Test

Table 4: 4.2: Normality Test Table

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Y=ROA	.085	240	.000	.926	240	.000
X1Price Control	.341	240	.000	.636	240	.000
X2Gasoline Price	.095	240	.000	.937	240	.000
X3Board Independence	.284	240	.000	.788	240	.000

X4Liquidity	.166	240	.000	.920	240	.000
X5Exchange Rate	.160	240	.000	.924	240	.000
X6Size	.272	240	.000	.816	240	.000

a. Lilliefors Significance Correction

Source: Researcher, (2023)

The results of the Shapiro-Wilk normality test, along with the Kolmogorov-Smirnov test for each variable in the study, indicate whether the data followed a normal distribution. A p-value less than the chosen significance level (typically 0.05) suggested that the data significantly deviated from a normal distribution, indicating non-normality. For all variables, the Shapiro-Wilk test produced p-values of 0.000, indicating that the data significantly departed from a normal distribution. This suggested that the assumption of normality was violated for all variables in the dataset.

To address the issue of non-normality and ensure that no spurious regressions are analysis undertaken, nonparametric statistical tests that do not rely on the assumption of normality are preferred, however, the study also undertook transformation of the data by standardizing the data to help make the data distribution more normal as well as improve the validity of regression analysis.

4.3.2 Linearity Test

Linearity test was undertaken by the use of Normal Q-Q (Quantile-Quantile) plots. The Normal Q-Q plots is plotted from the residuals (differences between the observed Y values and the predicted Y values from the regression line). If the residuals closely follow a straight diagonal line, it suggests that the residuals are normally distributed and therefore linear regression model is appropriate. Figure 4.1 indicates that the residuals in the data are normally distributed and therefore linear regression model would be appropriate for the study.

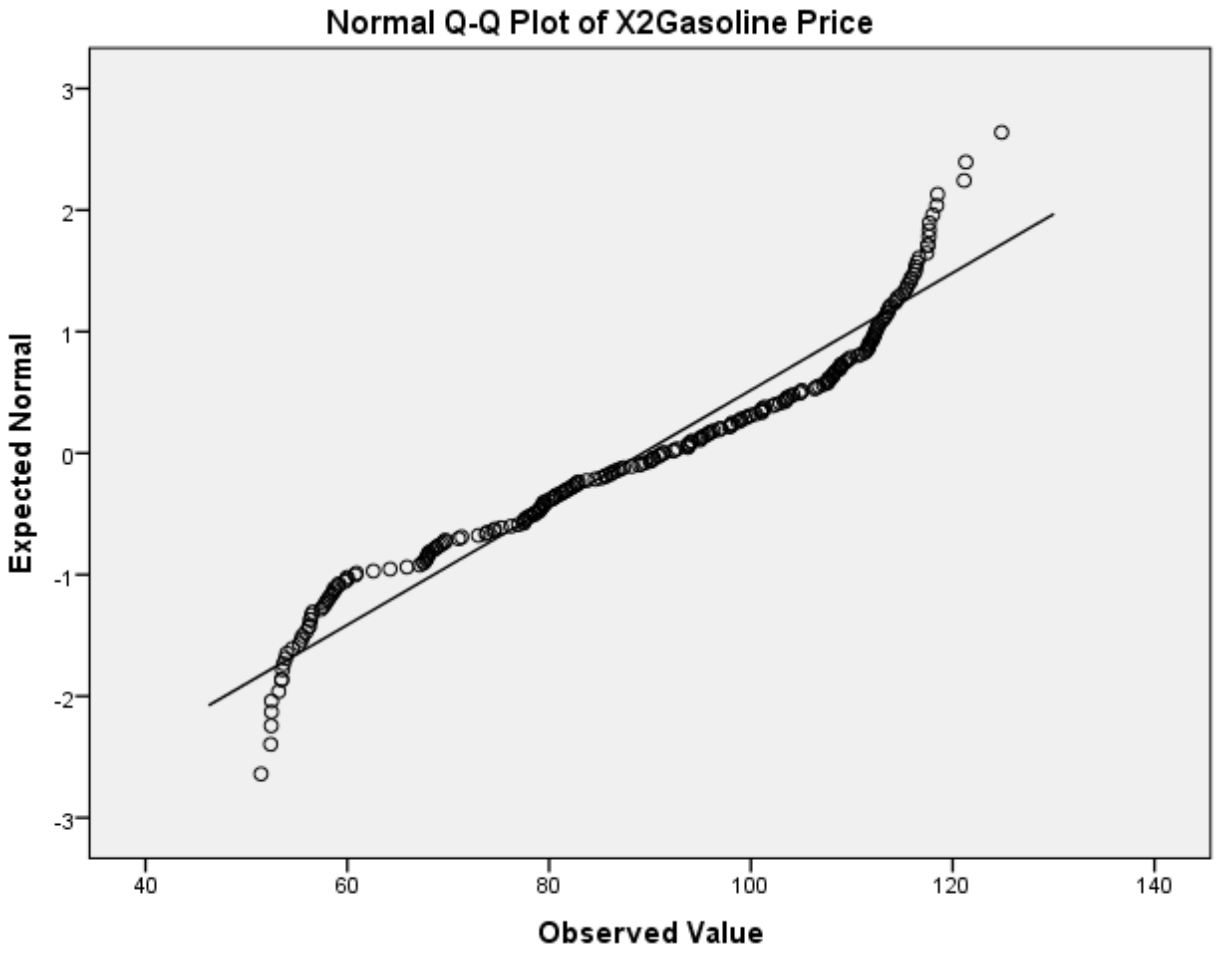

Figure 2: 4.1: Normal Q-Q Plot

4.3.3 Autocorrelation Test

The Durbin-Watson test was employed to assess autocorrelation, which is the presence of serial correlation or dependence among the residuals of a regression model. It produces a test statistic that ranges between 0 and 4. A value close to 2 indicates no significant autocorrelation (i.e., the residuals are independent). Values significantly below 2 indicate positive autocorrelation (residuals are correlated positively with their lagged values), while values significantly above 2 indicate negative autocorrelation (residuals are correlated negatively with their lagged values). The interpretation is that if the Durbin Watson statistic falls far from 2, it suggests a potential issue with autocorrelation.

Table 5:4. 3: Durbin Watson Test Table

Model	Durbin-Watson
1	.058

Source: Researcher, (2023)

The Durbin Watson score of the data was 0.058 which indicated a potential issue with autocorrelation as it indicated positive autocorrelation- significantly below a score value of 2. The potential issue with autocorrelation required addressing by undertaking transformation of the data, which in this study standardizing the variables was preferred.

4.3.4 Heteroscedasticity Test

Heteroscedasticity tests are crucial in regression analysis to assess whether the variance of the residuals (the differences between observed and predicted values) is consistent across the range of predictor variables. When heteroscedasticity is present, it violates one of the assumptions of linear regression, which assumes constant variance of residuals (homoscedasticity). Scatterplots was used in this study to test for heteroscedasticity. It helped to visually identify heteroscedasticity by plotting the residuals against the predicted values. If the spread of the residuals systematically widens or narrows as the predicted values increase, it indicates heteroscedasticity. Figure 4.2 indicates that the spreads of the residuals is negatively biased that indicated heteroscedasticity.

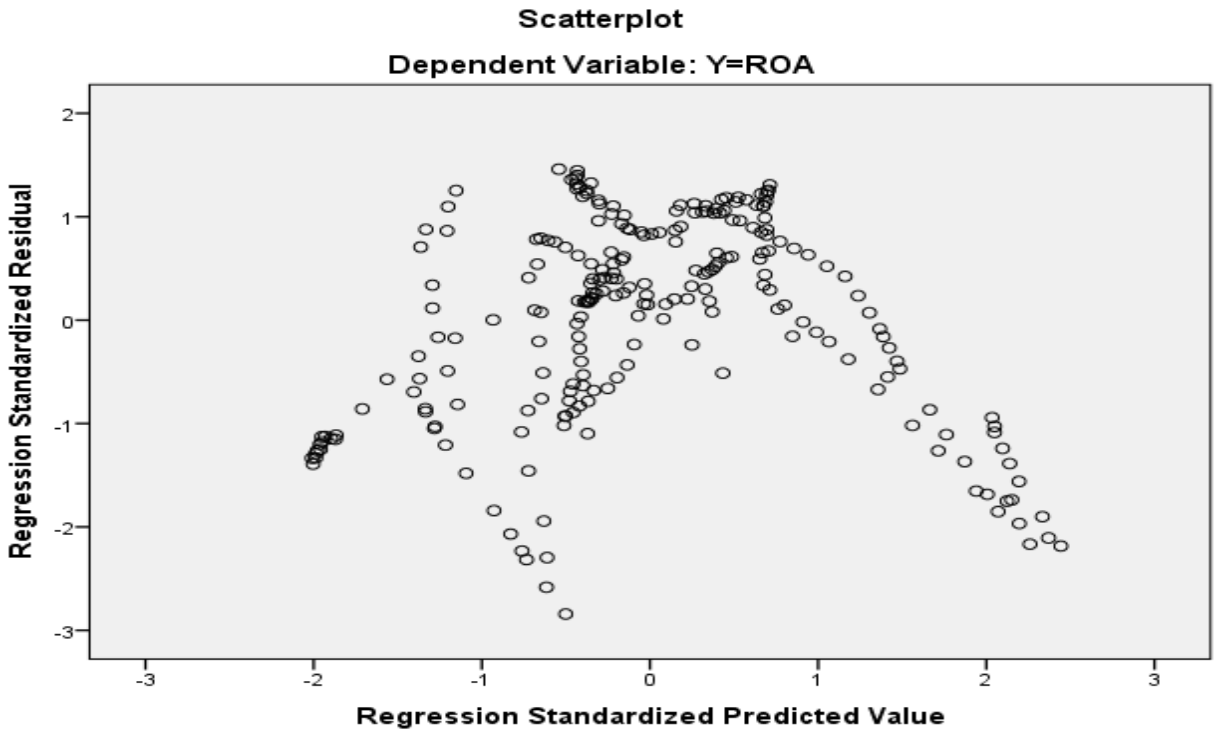

Figure 3: 4.2: Scatterplot Graph

To address this issue, data was treated by applying statistical techniques like robust regression, which gave less weight to observations with larger residuals, or by transforming the dependent variable or predictors to stabilize variance. This meant that using standardized values for the dependent variable ensured that spurious regressions were not undertaken by the study.

4.3.5 Multi-Collinearity Test

The Variance Inflation Factor (VIF) was used to assess multi-collinearity in regression analysis. To calculate the VIF for a predictor variable, a regression model was fitted with that predictor as the dependent variable and all other predictors as independent variables, and the VIF was computed as indicated in the table 4.4. The criteria for passing or failing the VIF test are typically based on the magnitude of the VIF values: VIF values below 10 were considered acceptable, indicating low multi-collinearity, while values well above these thresholds suggested a high degree

of multi-collinearity, requiring corrective actions such as removing one of the correlated predictors to stabilize regression coefficient estimates.

Table 6: 4. 4: Multi-Collinearity Table

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	X1Price Control	.121	8.233
	X2Gasoline Price	.126	7.930
	X3Board Independence	.221	4.519
	X4Liquidity	.386	2.593
	X5Exchange Rate	.079	12.579
	X6Size	.127	7.892

Source: Researcher, (2023).

Table 4.4 indicated that the independent variable exchange rate had VIF of 12.579 which indicated that it was beyond the threshold and therefore this independent variable was removed from the model.

4.4 Correlation Analysis

Correlation analysis is a statistical technique used to measure the strength and direction of the linear relationship between two continuous variables. Spearman's Correlation, a non-parametric method, is particularly useful when dealing with data that is not normally distributed Instead of relying on the assumption of normally distributed data, Spearman's Correlation calculates the correlation coefficient based on the ranks of the data values. This makes it robust to non-linear relationships and violations of normality, making it a valuable tool for assessing associations in datasets with skewed or non-normally distributed variables, as well as for detecting monotonic relationships that Pearson's correlation might miss.

Table 7: 4. 5: Correlations Table

Correlations

		Y=ROA	X1Price Control	X2Gasoline Price	X3Board Independence	X4 Liquidity	X6 Size
Spearman's rho	Y=ROA	1.000 . 240					
	X1Price Control	.155*	1.000				
	X2Gasoline Price	-.009	.816**	1.000			
	X3Board Independence	.585**	.107	-.234**	1.000		
	X4Liquidity	.879**	.493**	.258**	.610**	1.000	
	X6Size	.240**	.865**	.839**	.144*	.498**	1.000

Source: Researcher, (2023)

Based on the Spearman's correlation results between the independent variables and the dependent variables, the study found that there was positive and statistically significant correlation between the variables and financial performance, with the exception of Retail average gasoline prices. There was a statistically significant positive correlation between X1Price Control and ROA at the 0.05 level (two-tailed), with a correlation coefficient of approximately 0.155. The other variables Board independence (0.585), liquidity (0.879) and Size (0.24) had significant positive correlations with financial performance (ROA) depicting increase in financial performance when the variables were increased.

The findings indicate that the company had a significant increased performance with the price control in place than when the price control was not in place. However, the specific retail gasoline prices had insignificant and weak correlation with financial performance of the company.

4.5 Regression Analysis

Regression analysis was used to determine the effect of price regulations on financial performance of Total Kenya Limited. The regression model adopted by the study took the form $Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \varepsilon$

However, the diagnostic tests undertaken indicated that the data had to be standardized before undertaking regression analysis, while at the same time the exchange rate variable had to be dropped as it had multi-collinearity issues in the model. The resulting regression model took the form:

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 5X5 + \varepsilon$$

The regression model summary was indicated in the table 4.6

Table 8: 4. 6: Regression Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.894[a]	.799	.795	.45326909

a. Predictors: (Constant), Zscore(X6Size), Zscore: X3Board Independence, (X4Liquidity), X1Price Control, X2Gasoline Price
b. Dependent Variable: Zscore: Y=ROA

Source: Researcher (2023)

The model summary indicated that the regression model was a good fit for the data, with an R-squared value of approximately 0.799. This suggested that about 79.9% of the variation in financial performance (ROA) could be explained by the chosen independent variables. The adjusted R-squared value of 0.795 accounts for the number of predictors in the model, providing a more reliable estimate of goodness-of-fit. The standard error of the estimate (approximately 0.453) represented the average distance between observed and predicted values, reflecting the model's accuracy in predicting financial performance.

Table 9: 4. 7: ANOVA TABLE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	190.924	5	38.185	185.857	.000[b]
	Residual	48.076	234	.205		
	Total	239.000	239			

a. Dependent Variable: Zscore: Y=ROA

b. Predictors: (Constant), Zscore(X6Size), Zscore: X3Board Independence, Zscore(X4Liquidity), Zscore: X1Price Control, Zscore: X2Gasoline Price

The ANOVA table 4.7 further validated the model's significance, with a highly significant F-statistic (185.857) and a corresponding p-value of 0.000. This suggested that at least one of the independent variables significantly contributed to explaining the variance in ROA. The regression sum of squares (190.924) indicates the variance explained by the model, while the residual sum of squares (48.076) accounts for unexplained variance.

Table 10: 4. 8: Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.908E-15	.029		.000	1.000
	Zscore: X1Price Control	-.306	.068	-.306	-4.483	.000
	Zscore: X2Gasoline Price	-.248	.081	-.248	-3.069	.002
	Zscore: X3Board Independence	-.411	.049	-.411	-8.441	.000
	Zscore(X4Liquidity)	1.241	.045	1.241	27.752	.000
	Zscore(X6Size)	.149	.073	.149	2.033	.043

a. Dependent Variable: Zscore: Y=ROA

Source: Researcher, (2023)

Looking at the coefficients table 4.8, each independent variable had a unique impact on financial performance (ROA), since the p-value was less than 0.05 for all the independent variables. Notably, introducing price control on fuel prices had a significant negative impact on financial performance, while increasing average retail prices also had a negative impact on financial performance. Liquidity on the other hand had a highly significant and positive standardized coefficient (Beta) of approximately 1.241, indicating a strong positive association between liquidity and ROA. Conversely, X3-Board Independence had a highly significant and negative Beta of approximately -0.411, suggesting that greater board independence was associated with lower ROA, this could be explained by the fact that increasing independence may blind out the board on important industry issues, and therefore make decisions that do not have strategic impact on the position of the firm. Price Control and Average retail Gasoline Price both exhibit negative

Betas, indicating that they negatively influence ROA. Size had a smaller but still significant positive effect on ROA.

Based on the findings of the regression analysis, it was evident that several factors significantly influenced the financial performance (ROA) of petroleum sector firms in Kenya, particularly liquidity, board independence, and firm size. Effecting price regulation (X1Price Control) negatively influenced financial performance while gasoline prices (X2Gasoline Price) also impacted financial performance, albeit negatively.

4.6 Interpretation of Result Findings

The study findings revealed crucial insights into the impact of various factors on the financial performance of Total Kenya Ltd within the context of price regulation in the petroleum sector. The results indicated a statistically significant negative correlation between the presence of price control (X1Price Control) and the firm's financial performance (ROA). This suggested that when price controls were imposed, the company's profitability tended to decrease. This finding underscored the potential challenges that price regulations posed to the financial well-being of petroleum sector firms, possibly due to limitations on pricing flexibility.

The findings identified a noteworthy negative association between increasing average retail gasoline prices (X2Gasoline Price) and financial performance (ROA). This implied that as gasoline prices rose, the company's profitability tended to decline. Such a relationship underscored the sensitivity of petroleum sector firms to fluctuations in input costs like gasoline prices. The findings suggested that managing and hedging against volatility in gasoline prices was crucial for enhancing financial performance.

The study also revealed a strong positive correlation between board independence (X3Board Independence) and financial performance (ROA). This signified that companies with more independent boards tended to exhibit higher profitability. Enhancing board independence was found to be a strategic move that would boost financial performance and corporate governance, which could build trust among stakeholders and investors.

The findings also demonstrated a robust positive relationship between liquidity (X4Liquidity) and financial performance (ROA). Firms with higher liquidity levels tended to achieve better financial performance. This finding emphasized the importance of maintaining healthy cash reserves and liquidity management strategies as it could positively impact profitability.

Lastly, the study highlighted a positive correlation between company size (X6Size) and financial performance (ROA). Larger-sized companies tended to achieve higher profitability. For the Total Kenya Limited, this suggested that strategies for growth and expansion may have a favourable impact on financial performance.

Several studies aligned with the current research's findings on the impact of price control on financial performance. Internationally, Sacchi and Ramsheva (2017) and Maziotis, Saal, and Thanassoulis (2009) both indirectly supported the notion that regulatory restrictions could affect financial performance. Sacchi and Ramsheva demonstrated how the removal of regulatory restrictions on excess heat delivery altered the supply curve, and Maziotis et al. found that price restrictions influenced the profitability and productivity of companies, highlighting the variability in financial outcomes under different regulatory environments. Njagi’s (2017) study examined the connection between price regulation and the financial success of oil marketing companies in Kenya. The findings suggested that petroleum price regulation had a negative effect on Kenya's

oil companies' financial performance. While this aligned with the current study's findings, it's essential to note that Njagi's research did not explicitly focus on Total Kenya Limited.

On the contrary, Issah (2021) research on oil marketing companies in Ghana suggested that the adoption of petroleum price deregulation policies had a positive impact on sales. This contradicted the current study's findings regarding the negative impact of price control on financial performance. These discrepancies may stem from distinct regulatory contexts and market dynamics in different regions, emphasizing the need for localized analysis when assessing the effects of price control on financial performance.

CHAPTER FIVE:
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter provided a concise overview of the research and reiterated its significance. This section typically began by restating the research problem or objectives and briefly summarizing the methodology employed. It set the stage by reminding readers of the context and scope of the study. Additionally, it highlighted the key findings or themes that emerged from the analysis, serving as a preview of the conclusions to come. This section aimed to engage readers and prepare them for the insightful conclusions and actionable recommendations that would follow in the subsequent sections of the chapter.

5.2 Summary

This study sought to investigate the impact of price regulations on the financial performance of Total Kenya Limited in Kenya, focusing on a panel dataset spanning from 2001 to 2020. The research objective was to understand how the company's financial metrics were affected by price controls in the petroleum sector. The dataset was divided into two distinct periods: 2001-2010, representing the years before price control implementation, and 2011-2020, covering the period after price control came into effect. Monthly data was meticulously collected for each study variable, providing a comprehensive and detailed view of the company's performance dynamics over time.

The research employed inferential statistical techniques, specifically correlation analysis and regression analysis, to uncover relationships and patterns within the data. These analyses aimed to explore the interplay between price regulation financial performance measured by Return on Assets (ROA). The findings indicated that the introduction of price regulation had a discernible

impact on the Total Kenya Limited's performance. Notably, there was a noticeable decrease in the company's Return on Assets (ROA) during the period following the enforcement of price controls. This suggested that the regulatory intervention may have constrained the firm's profitability, which is consistent with the study's research objective.

Furthermore, the study's analysis uncovered intricate relationships between other independent variables and financial performance. For instance, liquidity levels (measured by variables such as current ratio or quick ratio) were found to have a positive influence on ROA, emphasizing the importance of maintaining adequate liquidity reserves for sustaining profitability in a regulated environment. The study also revealed that factors such as company size and board independence played crucial roles in shaping financial outcomes, with larger-sized companies and those with more independent boards demonstrating more favourable financial performance. These findings underscored the multifaceted nature of financial performance in the context of price regulation, highlighting the need for a holistic understanding of various contributing factors. Overall, the study's findings provided valuable insights into how external regulatory measures could impact the financial health and resilience of companies, offering valuable guidance for both policymakers and industry practitioners.

5.3 Conclusion

The study meticulously examined the effect of price regulations on the financial performance of Total Kenya Limited in Kenya, spanning a decade-long period before and after the implementation of price controls in the petroleum sector. The findings shed light on the intricate dynamics at play within the regulated environment. Notably, the introduction of price controls appeared to have a discernible impact, particularly on the selected company's profitability, as evidenced by a noticeable decrease in Return on Assets (ROA) during the post-regulation period. These results

underscored the challenges that external regulatory interventions could pose to the financial health of companies, requiring a delicate balance between consumer protection and maintaining a favourable business environment for firms.

Furthermore, the analysis illuminated the multifaceted nature of financial performance, with liquidity, company size, and board independence emerging as influential factors. Maintaining healthy liquidity reserves and adopting effective governance structures became pivotal for sustaining profitability in a regulated landscape. In sum, the study's findings offered valuable insights into the complex relationship between price regulations and financial performance within the petroleum sector, providing a foundation for informed decision-making by policymakers and industry stakeholders. They underscored the importance of careful consideration and flexibility in regulatory frameworks to support both economic stability and the financial viability of firms.

5.4 Recommendations

The study's recommendations reflect a nuanced understanding of the interplay between price regulation and financial performance, offering guidance for policymakers and the oil marketing firms to strike a balance that safeguards both consumer interests and the long-term financial viability of the company. These recommendations aim to foster resilience and adaptability in the face of regulatory challenges within the petroleum sector.

The study recommended that policymakers should carefully evaluate the implementation of price controls in the petroleum sector. While such controls may serve consumer interests, they could have adverse effects on the financial performance of companies. Therefore, a balance should be struck between protecting consumers and ensuring the financial sustainability of petroleum sector firms. This could involve periodic reviews and adjustments to price control mechanisms to prevent undue negative impacts on profitability.

To enhance financial performance, the study suggested that the firms in the petroleum sector should maintain healthy liquidity levels. Practically, this involves prudent cash management, optimizing working capital, and developing strategies to ensure an adequate buffer against economic fluctuations. Additionally, the companies could explore options for efficient short-term financing to maintain liquidity without overly impacting profitability. They should also consider strategic growth initiatives to bolster financial performance. Expanding operations, entering new markets, or diversifying product offerings could be viable approaches. However, such growth should be undertaken judiciously, considering market conditions and potential risks to ensure sustainable profitability.

Encouraging greater board independence could be a sound policy recommendation. Policymakers could mandate minimum thresholds for independent board members within the petroleum sector to strengthen corporate governance. Additionally, the oil marketing could voluntarily adopt practices that promoted board independence, such as appointing independent directors and establishing robust audit and oversight committees.

5.5 Limitations of the Study

A major limitation of the study is that it focused on selected companies such as Total Kenya Limited, as the case study. This restricted the broader applicability of the findings to the entire petroleum sector, as the effects of price regulation could vary across firms with distinct operational structures and market positions. To address this limitation, future research could adopt a more extensive, multi-firm approach, encompassing a diverse range of petroleum companies. This would allow for a more comprehensive understanding of how different firms within the sector were affected by price controls and permit a more nuanced analysis of specific factors that influenced financial performance.

Another limitation concerns the dataset's time frame, which spans from 2001 to 2020. While this period captured significant regulatory changes, it may not fully capture the long-term effects of price regulation. Additionally, the study relied on secondary panel data, which may have inherent limitations such as data accuracy and completeness. Future research could consider utilizing primary data collection methods to ensure data quality and access to specific financial metrics that are relevant to the study objectives.

The study also focused primarily on financial performance indicators like ROA and liquidity. It did not delve into the potential impact on non-financial aspects such as corporate social responsibility or environmental sustainability. Future research could expand the scope to examine a broader range of performance measures, providing a more holistic perspective on the effects of price regulation.

5.6 Areas for Future Study

Future researchers in the field of price regulation and its impact on the financial performance of companies, could undertake comparative studies that examine the experiences of multiple companies across different countries and regions, which would provide valuable insights. Investigating how diverse regulatory environments and market conditions influence financial performance would offer a more comprehensive understanding of the complex dynamics at play.

Secondly, extending the timeframe of research would be crucial. Longitudinal studies that track the effects of price regulations over extended periods, including both short-term and long-term impacts, would contribute to a more nuanced understanding of the temporal aspects of financial performance in regulated markets. Such research could assess how firms adapt and strategize in response to evolving regulatory frameworks.

Additionally, future research could delve deeper into non-financial performance aspects affected by price regulation, such as environmental sustainability and social responsibility. Assessing the broader impact of price controls on a company's corporate image, stakeholder relations, and compliance with environmental standards would provide a more holistic view of the consequences of regulatory interventions. Lastly, emerging areas like the application of artificial intelligence and machine learning in predicting financial performance under varying regulatory scenarios present exciting research opportunities. Future researchers would therefore build upon the foundations laid by this study to uncover further insights into the intricate relationship between price regulation and financial performance in the petroleum sector.

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APPENDICES

Appendix I: Data Capture Form

Year	Net Income	Total Assets	Total Directors	Total NED	Average Petrol Price	Average USD-Ksh	Current Assets	Current liabilities
2001								
2020								

Appendix 2: Data

Year	Month	Net Income	Total Assets	Current Assets	Current Liabilities	Gasoline Retail Price	Ksh-USD	Total BOD	NED
2001	Jan	(131,300)	7,077,673	4,728,609	4,758,308	53.2	78.7	6	4
	Feb	(135,350)	7,084,907	4,735,076	4,777,197	53.89	78.42	6	4
	March	(139,400)	7,092,140	4,741,543	4,796,086	54.57	77.74	6	4
	April	(143,451)	7,099,374	4,748,009	4,814,976	55.24	77.62	6	4
	May	(147,501)	7,106,607	4,754,476	4,833,865	55.91	78.57	6	4
	June	(151,551)	7,113,840	4,760,943	4,852,754	56.58	78.85	6	4
	July	(155,601)	7,121,074	4,767,410	4,871,643	56.45	79.4	6	4
	Aug	(159,652)	7,128,307	4,773,877	4,890,533	56.36	79.05	6	4
	Sep	(163,702)	7,135,541	4,780,344	4,909,422	56.36	79.16	6	4
	Oct	(167,752)	7,142,774	4,786,810	4,928,311	55.58	79.19	6	4
	Nov	(171,803)	7,150,008	4,793,277	4,947,201	56.21	79.02	6	4
2001	Dec	(175,853)	7,157,241	4,799,744	4,966,090	54.02	78.67	6	4
2002	Jan	(127,249)	7,070,440	4,722,142	4,739,418	53.68	78.59	6	4
	Feb	(78,646)	6,983,639	4,644,540	4,512,747	52.41	78.28	6	4
	March	(30,042)	6,896,838	4,566,938	4,286,075	53.49	78.02	6	4
	April	18,562	6,810,036	4,489,336	4,059,403	53.58	78.23	6	4
	May	67,166	6,723,235	4,411,734	3,832,732	52.45	78.26	6	4
	June	115,770	6,636,434	4,334,133	3,606,060	53.49	78.53	6	4
	July	164,373	6,549,633	4,256,531	3,379,388	51.45	78.56	6	4
	Aug	212,977	6,462,832	4,178,929	3,152,717	52.48	78.29	6	4
	Sep	261,581	6,376,031	4,101,327	2,926,045	52.49	78.48	6	4
	Oct	310,185	6,289,229	4,023,725	2,699,373	55.46	79.02	6	4
	Nov	358,788	6,202,428	3,946,123	2,472,702	56.21	79.31	6	4
2002	Dec	407,392	6,115,627	3,868,521	2,246,030	57.4	79.42	6	4
	Jan	420,727	6,261,321	4,017,144	2,370,177	59.16	77.52	8	4
	Feb	434,062	6,407,015	4,165,768	2,494,324	59.98	76.84	8	4
	March	447,397	6,552,708	4,314,391	2,618,470	60.79	76.88	8	4

	April	460,731	6,698,402	4,463,015	2,742,617	59.74	75.99	8	4
	May	474,066	6,844,096	4,611,638	2,866,764	58.69	71.21	8	4
	June	487,401	6,989,790	4,760,262	2,990,911	57.64	73.33	8	4
	July	500,736	7,135,483	4,908,885	3,115,057	57.81	74.47	8	4
	Aug	514,071	7,281,177	5,057,508	3,239,204	57.99	75.82	8	4
	Sep	527,406	7,426,871	5,206,132	3,363,351	58.16	77.66	8	4
	Oct	540,740	7,572,565	5,354,755	3,487,498	58.34	77.45	8	4
	Nov	554,075	7,718,258	5,503,379	3,611,644	58.53	76.86	8	4
2003	Dec	567,410	7,863,952	5,652,002	3,735,791	58.71	75.58	8	4
	Jan	572,014	8,084,941	5,860,585	3,941,363	59.07	76.12	8	4
	Feb	576,619	8,305,929	6,069,169	4,146,935	59.99	76.26	8	4
	March	581,223	8,526,918	6,277,752	4,352,507	60.91	77.2	8	4
	April	585,827	8,747,906	6,486,335	4,558,079	62.58	78.1	8	4
	May	590,432	8,968,895	6,694,918	4,763,651	64.24	78.87	8	4
	June	595,036	9,189,884	6,903,502	4,969,223	65.91	79.27	8	4
	July	599,640	9,410,872	7,112,085	5,174,795	67.18	79.36	8	4
	Aug	604,245	9,631,861	7,320,668	5,380,367	68.44	80.72	8	4
	Sep	608,849	9,852,849	7,529,251	5,585,939	69.71	80.55	8	4
	Oct	613,453	10,073,838	7,737,835	5,791,511	69.43	81.09	8	4
	Nov	618,058	10,294,826	7,946,418	5,997,083	69.14	81.08	8	4
2004	Dec	622,662	10,515,815	8,155,001	6,202,655	68.86	79.71	8	4
	Jan	615,070	10,537,272	8,142,024	6,198,821	67.9	77.82	9	4
	Feb	607,479	10,558,729	8,129,047	6,194,987	67.96	76.73	9	4
	March	599,887	10,580,185	8,116,070	6,191,153	68.02	74.45	9	4
	April	592,295	10,601,642	8,103,092	6,187,319	69.68	75.99	9	4
	May	584,703	10,623,099	8,090,115	6,183,485	71.33	76.29	9	4
	June	577,112	10,644,556	8,077,138	6,179,651	72.99	76.53	9	4
	July	569,520	10,666,012	8,064,161	6,175,817	73.74	76.11	9	4
	Aug	561,928	10,687,469	8,051,184	6,171,983	74.5	75.68	9	4
	Sep	554,336	10,708,926	8,038,207	6,168,149	75.25	74.01	9	4
	Oct	546,745	10,730,383	8,025,229	6,164,315	68.72	73.51	9	4
	Nov	539,153	10,751,839	8,012,252	6,160,481	68.12	74.57	9	4
2005	Dec	531,561	10,773,296	7,999,275	6,156,647	73.87	72.94	9	4
	Jan	527,771	11,154,976	8,376,364	6,534,292	67.58	72.13	9	4
	Feb	523,981	11,536,656	8,753,452	6,911,938	67.83	71.75	9	4
	March	520,190	11,918,336	9,130,541	7,289,583	67.57	72.03	9	4
	April	516,400	12,300,016	9,507,630	7,667,229	71.04	71.08	9	4
	May	512,610	12,681,696	9,884,718	8,044,874	76.95	71.62	9	4
	June	508,820	13,063,376	10,261,807	8,422,520	79.18	73.14	9	4
	July	505,029	13,445,056	10,638,896	8,800,165	80.43	73.51	9	4
	Aug	501,239	13,826,736	11,015,984	9,177,810	82.4	72.69	9	4
	Sep	497,449	14,208,416	11,393,073	9,555,456	82.91	72.71	9	4

	Oct	493,659	14,590,096	11,770,162	9,933,101	81.35	72.19	9	4
	Nov	489,868	14,971,776	12,147,250	10,310,747	79.48	71.07	9	4
2006	Dec	486,078	15,353,456	12,524,339	10,688,392	78.56	69.58	9	4
	Jan	489,254	15,116,731	12,295,238	10,444,456	78.15	69.89	9	4
	Feb	492,430	14,880,006	12,066,137	10,200,520	77.62	69.61	9	4
	March	495,606	14,643,280	11,837,035	9,956,585	77.52	69.23	9	4
	April	498,782	14,406,555	11,607,934	9,712,649	77.84	68.6	9	4
	May	501,958	14,169,830	11,378,833	9,468,713	78.57	67.14	9	4
	June	505,134	13,933,105	11,149,732	9,224,777	78.97	66.57	9	4
	July	508,310	13,696,379	10,920,630	8,980,841	79.16	67.07	9	4
	Aug	511,486	13,459,654	10,691,529	8,736,905	79.48	66.93	9	4
	Sep	514,662	13,222,929	10,462,428	8,492,969	79.02	67.02	9	4
	Oct	517,838	12,986,204	10,233,327	8,249,034	80.75	66.81	9	4
	Nov	521,014	12,749,478	10,004,225	8,005,098	82.05	65.51	9	4
2007	Dec	524,190	12,512,753	9,775,124	7,761,162	82.75	63.4	9	4
	Jan	539,165	12,680,589	9,940,829	7,906,812	86.1	68.33	9	4
	Feb	554,141	12,848,425	10,106,534	8,052,462	88.18	70.3	9	4
	March	569,116	13,016,261	10,272,238	8,198,112	89.99	64.82	9	4
	April	584,091	13,184,097	10,437,943	8,343,762	92.71	62.3	9	4
	May	599,067	13,351,933	10,603,648	8,489,412	94.96	62.11	9	4
	June	614,042	13,519,769	10,769,353	8,635,062	98.73	64.05	9	4
	July	629,017	13,687,604	10,935,057	8,780,712	102.45	66.78	9	4
	Aug	643,993	13,855,440	11,100,762	8,926,362	104.18	67.91	9	4
	Sep	658,968	14,023,276	11,266,467	9,072,012	103.89	71.71	9	4
	Oct	673,943	14,191,112	11,432,172	9,217,662	101.09	76.52	9	4
	Nov	688,919	14,358,948	11,597,876	9,363,312	98.12	78.23	9	4
2008	Dec	703,894	14,526,784	11,763,581	9,508,962	86.16	77.75	9	4
	Jan	685,452	15,943,568	12,515,838	10,265,549	81.73	78.97	9	4
	Feb	667,009	17,360,353	13,268,096	11,022,136	80.6	79.5	9	4
	March	648,567	18,777,137	14,020,353	11,778,723	79.41	80.2	9	4
	April	630,124	20,193,921	14,772,611	12,535,310	77.62	79.53	9	4
	May	611,682	21,610,706	15,524,868	13,291,897	76.23	77.95	9	4
	June	593,240	23,027,490	16,277,126	14,048,484	77.48	77.73	9	4
	July	574,797	24,444,274	17,029,383	14,805,070	79.89	76.6	9	4
	Aug	556,355	25,861,059	17,781,640	15,561,657	79.47	76.24	9	4
	Sep	537,912	27,277,843	18,533,898	16,318,244	80.26	75.43	9	4
	Oct	519,470	28,694,627	19,286,155	17,074,831	81.13	75.28	9	4
	Nov	501,027	30,111,412	20,038,413	17,831,418	82.29	74.78	9	4
2009	Dec	482,585	31,528,196	20,790,670	18,588,005	82.73	75.44	9	4
	Jan	518,720	31,432,153	20,734,329	18,498,990	83.71	75.76	9	4
	Feb	554,855	31,336,110	20,677,988	18,409,975	74.61	76.75	9	4
	March	590,990	31,240,066	20,621,647	18,320,960	85.61	76.93	9	4

	April	627,125	31,144,023	20,565,306	18,231,945	86.8	77.3	9	4
	May	663,260	31,047,980	20,508,965	18,142,930	88.92	78.62	9	4
	June	699,395	30,951,937	20,452,624	18,053,915	89.19	80.97	9	4
	July	735,530	30,855,893	20,396,282	17,964,899	90.83	81.28	9	4
	Aug	771,665	30,759,850	20,339,941	17,875,884	91.3	80.46	9	4
	Sep	807,800	30,663,807	20,283,600	17,786,869	93.82	80.84	9	4
	Oct	843,935	30,567,764	20,227,259	17,697,854	95	80.66	9	4
	Nov	880,070	30,471,720	20,170,918	17,608,839	96.3	80.38	9	4
2010	Dec	916,205	30,375,677	20,114,577	17,519,824	95.65	80.52	9	4
	Jan	833,901	30,777,551	20,549,942	17,975,069	95.37	80.97	10	4
	Feb	751,598	31,179,425	20,985,306	18,430,314	98.97	81.52	10	4
	March	669,294	31,581,299	21,420,671	18,885,559	103.32	84.29	10	4
	April	586,991	31,983,173	21,856,035	19,340,804	112.1	83.82	10	4
	May	504,687	32,385,047	22,291,400	19,796,049	116.31	85.3	10	4
	June	422,384	32,786,922	22,726,764	20,251,294	115.87	88.96	10	4
	July	340,080	33,188,796	23,162,129	20,706,539	116.34	89.91	10	4
	Aug	257,776	33,590,670	23,597,493	21,161,784	118.03	92.88	10	4
	Sep	175,473	33,992,544	24,032,858	21,617,029	118.42	96.28	10	4
	Oct	93,169	34,394,418	24,468,222	22,072,274	121.3	100.98	10	4
	Nov	10,866	34,796,292	24,903,587	22,527,519	124.85	93.19	10	4
2011	Dec	(71,438)	35,198,166	25,338,951	22,982,764	113.39	86.46	10	4
	Jan	(82,330)	35,013,369	25,173,077	22,561,964	111.95	86.1	10	4
	Feb	(93,222)	34,828,572	25,007,202	22,141,164	111.32	83.06	10	4
	March	(104,114)	34,643,776	24,841,328	21,720,364	111.69	82.88	10	4
	April	(115,006)	34,458,979	24,675,454	21,299,564	118.5	83.12	10	4
	May	(125,898)	34,274,182	24,509,579	20,878,764	121.13	84.26	10	4
	June	(136,790)	34,089,385	24,343,705	20,457,964	117.67	84.76	10	4
	July	(147,682)	33,904,588	24,177,831	20,037,163	108.46	84.18	10	4
	Aug	(158,574)	33,719,791	24,011,956	19,616,363	106.48	84.08	10	4
	Sep	(169,466)	33,534,995	23,846,082	19,195,563	108.95	84.64	10	4
	Oct	(180,358)	33,350,198	23,680,208	18,774,763	115.26	85.14	10	4
	Nov	(191,250)	33,165,401	23,514,333	18,353,963	113.68	85.61	10	4
2012	Dec	(202,142)	32,980,604	23,348,459	17,933,163	112.61	85.97	10	4
	Jan	(75,940)	33,564,234	23,905,859	18,396,073	111.6	86.91	7	3
	Feb	50,261	34,147,864	24,463,260	18,858,982	113.57	87.43	7	3
	March	176,463	34,731,494	25,020,660	19,321,892	117.69	85.78	7	3
	April	302,664	35,315,124	25,578,061	19,784,801	117.65	84.26	7	3
	May	428,866	35,898,754	26,135,461	20,247,711	113.2	84.09	7	3
	June	555,068	36,482,385	26,692,862	20,710,620	108.18	85.5	7	3
	July	681,269	37,066,015	27,250,262	21,173,530	109.52	86.87	7	3
	Aug	807,471	37,649,645	27,807,662	21,636,439	112.26	87.47	7	3
	Sep	933,672	38,233,275	28,365,063	22,099,349	113.88	87.38	7	3

	Oct	1,059,874	38,816,905	28,922,463	22,562,258	112.27	85.25	7	3
	Nov	1,186,075	39,400,535	29,479,864	23,025,168	108.87	86.15	7	3
2013	Dec	1,312,277	39,984,165	30,037,264	23,488,077	109.28	86.32	7	3
	Jan	1,321,595	39,363,968	29,387,503	22,774,421	111.41	86.27	7	3
	Feb	1,330,912	38,743,771	28,737,743	22,060,766	112.37	86.28	7	3
	March	1,340,230	38,123,574	28,087,982	21,347,110	114.43	86.53	7	3
	April	1,349,547	37,503,377	27,438,222	20,633,455	114.98	86.76	7	3
	May	1,358,865	36,883,180	26,788,461	19,919,799	115.55	87.42	7	3
	June	1,368,183	36,262,983	26,138,701	19,206,144	115.43	87.61	7	3
	July	1,377,500	35,642,785	25,488,940	18,492,488	116.67	87.76	7	3
	Aug	1,386,818	35,022,588	24,839,179	17,778,832	117.43	88.15	7	3
	Sep	1,396,135	34,402,391	24,189,419	17,065,177	112.46	88.86	7	3
	Oct	1,405,453	33,782,194	23,539,658	16,351,521	111.72	89.23	7	3
	Nov	1,414,770	33,161,997	22,889,898	15,637,866	107.64	89.96	7	3
2014	Dec	1,424,088	32,541,800	22,240,137	14,924,210	102.86	90.46	7	3
	Jan	1,439,998	32,682,070	22,341,642	14,962,248	93.75	91.36	9	6
	Feb	1,455,907	32,822,339	22,443,146	15,000,285	85.6	91.48	9	6
	March	1,471,817	32,962,609	22,544,651	15,038,323	90.34	91.76	9	6
	April	1,487,726	33,102,878	22,646,155	15,076,361	90.22	93.33	9	6
	May	1,503,636	33,243,148	22,747,660	15,114,398	93.76	96.34	9	6
	June	1,519,546	33,383,418	22,849,164	15,152,436	98.14	97.79	9	6
	July	1,535,455	33,523,687	22,950,669	15,190,474	99.45	101.31	9	6
	Aug	1,551,365	33,663,957	23,052,173	15,228,511	103.5	102.51	9	6
	Sep	1,567,274	33,804,226	23,153,678	15,266,549	103.49	105.38	9	6
	Oct	1,583,184	33,944,496	23,255,182	15,304,587	94.16	102.76	9	6
	Nov	1,599,093	34,084,765	23,356,687	15,342,624	91.34	102.2	9	6
2015	Dec	1,615,003	34,225,035	23,458,191	15,380,662	90.94	102.19	9	6
	Jan	1,666,610	34,388,396	23,618,296	15,383,078	89.52	102.35	9	6
	Feb	1,718,218	34,551,758	23,778,401	15,385,493	87.38	101.96	9	6
	March	1,769,825	34,715,119	23,938,506	15,387,909	86.46	101.45	9	6
	April	1,821,433	34,878,481	24,098,611	15,390,324	81.61	101.25	9	6
	May	1,873,040	35,041,842	24,258,716	15,392,740	85.14	100.75	9	6
	June	1,924,648	35,205,204	24,418,821	15,395,155	87.07	101.13	9	6
	July	1,976,255	35,368,565	24,578,925	15,397,571	93.81	101.28	9	6
	Aug	2,027,862	35,531,926	24,739,030	15,399,986	96.01	101.31	9	6
	Sep	2,079,470	35,695,288	24,899,135	15,402,402	92.28	101.19	9	6
	Oct	2,131,077	35,858,649	25,059,240	15,404,817	92.44	101.25	9	6
	Nov	2,182,685	36,022,011	25,219,345	15,407,233	95.82	101.68	9	6
2016	Dec	2,234,292	36,185,372	25,379,450	15,409,648	95.08	101.99	9	6
	Jan	2,276,286	36,337,601	25,471,040	15,396,818	96.88	103.5	12	8
	Feb	2,318,279	36,489,829	25,562,629	15,383,988	101.14	103.38	12	8
	March	2,360,273	36,642,058	25,654,219	15,371,159	99.98	102.58	12	8

	April	2,402,267	36,794,286	25,745,809	15,358,329	99.01	103.11	12	8
	May	2,444,260	36,946,515	25,837,398	15,345,499	100.48	102.98	12	8
	June	2,486,254	37,098,744	25,928,988	15,332,669	99.72	103.22	12	8
	July	2,528,248	37,250,972	26,020,578	15,319,839	98	103.58	12	8
	Aug	2,570,241	37,403,201	26,112,167	15,307,009	96.98	103.3	12	8
	Sep	2,612,235	37,555,429	26,203,757	15,294,180	97.87	102.88	12	8
	Oct	2,654,229	37,707,658	26,295,347	15,281,350	101.09	103.16	12	8
	Nov	2,696,222	37,859,886	26,386,936	15,268,520	103.58	103.32	12	8
2017	Dec	2,738,216	38,012,115	26,478,526	15,255,690	105.04	102.87	12	8
	Jan	2,702,747	38,116,016	26,545,787	15,268,063	107.17	102.62	12	8
	Feb	2,667,277	38,219,916	26,613,047	15,280,436	108.79	101.17	12	8
	March	2,631,808	38,323,817	26,680,308	15,292,809	108.33	100.93	12	8
	April	2,596,338	38,427,717	26,747,568	15,305,182	107.7	100.4	12	8
	May	2,560,869	38,531,618	26,814,829	15,317,555	108.04	100.42	12	8
	June	2,525,399	38,635,518	26,882,089	15,329,929	113.07	100.82	12	8
	July	2,489,930	38,739,419	26,949,350	15,342,302	109.67	100.49	12	8
	Aug	2,454,460	38,843,319	27,016,610	15,354,675	114.58	100.68	12	8
	Sep	2,418,991	38,947,220	27,083,871	15,367,048	117.54	100.85	12	8
	Oct	2,383,521	39,051,120	27,151,131	15,379,421	116.48	101.09	12	8
	Nov	2,348,052	39,155,021	27,218,392	15,391,794	117.54	102.3	12	8
2018	Dec	2,312,582	39,258,921	27,285,652	15,404,167	114.3	102.2	12	8
	Jan	2,331,078	39,117,736	26,997,616	15,041,905	104.99	101.56	11	8
	Feb	2,349,574	38,976,552	26,709,580	14,679,644	101.13	100.22	11	8
	March	2,368,070	38,835,367	26,421,544	14,317,382	102.13	100.37	11	8
	April	2,386,565	38,694,182	26,133,508	13,955,121	107.57	101.09	11	8
	May	2,405,061	38,552,997	25,845,472	13,592,859	112.79	101.19	11	8
	June	2,423,557	38,411,813	25,557,436	13,230,598	115.82	101.68	11	8
	July	2,442,053	38,270,628	25,269,400	12,868,336	116.14	103.21	11	8
	Aug	2,460,549	38,129,443	24,981,364	12,506,074	111.7	103.25	11	8
	Sep	2,479,045	37,988,258	24,693,328	12,143,813	113.57	103.72	11	8
	Oct	2,497,540	37,847,074	24,405,292	11,781,551	108.83	103.68	11	8
	Nov	2,516,036	37,705,889	24,117,256	11,419,290	110.99	102.33	11	8
2019	Dec	2,534,532	37,564,704	23,829,220	11,057,028	109.91	101.44	11	8
	Jan	2,598,032	38,016,576	24,288,119	11,326,203	110.61	101.09	11	8
	Feb	2,661,532	38,468,449	24,747,019	11,595,378	112.58	100.84	11	8
	March	2,725,032	38,920,321	25,205,918	11,864,553	112.07	103.82	11	8
	April	2,788,532	39,372,193	25,664,817	12,133,728	94.09	106.47	11	8
	May	2,852,032	39,824,066	26,123,716	12,402,903	84.58	106.74	11	8
	June	2,915,532	40,275,938	26,582,616	12,672,079	90.34	106.4	11	8
	July	2,979,032	40,727,810	27,041,515	12,941,254	101.37	107.32	11	8
	Aug	3,042,532	41,179,683	27,500,414	13,210,429	104.83	108.13	11	8
	Sep	3,106,032	41,631,555	27,959,313	13,479,604	106.3	108.44	11	8

	Oct	3,169,532	42,083,427	28,418,213	13,748,779	108.13	108.65	11	8
	Nov	3,233,032	42,535,300	28,877,112	14,017,954	106.72	109.34	11	8
2020	Dec	3,296,532	42,987,172	29,336,011	14,287,129	107.69	110.5	11	8