

**EFFECTS OF CHANGES IN BUSINESS DYNAMICS ON BUDGET PERFORMANCE  
OF OIL MARKETING COMPANIES IN KENYA.**

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## **DECLARATION**

### **Student's Declaration**

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. Also, I declare that this contain no material written or published by other people except where due reference is made and author duly acknowledged.

Sign.....

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### **Supervisor's Declaration**

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

Sign.....

Date.....

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## **ABSTRACT**

The last decade has seen tremendous changes in the Kenya's oil marketing industry. Similarly, There has been a great growth in the industry from number of players to factors that determine effective performance in the industry. These changes can affect the performance of budgets in different ways. Changes in volume sold can greatly affect the overall performance of a company since the sale of product forms the basis of deriving the bottom line to all companies as to whether they cope or not. Undoubtedly, the changes market share is a factor to budget surviving the harsh environment that has become even worse due to entrants of new and aggressive smaller companies competing for the same market. This study was carried out to determine the effects of four major dynamics on the performance of budgets. The study used a descriptive research design. The target products in this study constituted three main oil products retailed at the service stations namely Premium Motor Gasoline (PMS), Automotive Gas Oil (AGO) and Illuminating Kerosene (IK). This study analyzed these dynamics between January 2011 and December 2015. The analysis on the movement of the four variables indicates a change in the same direction, a confirmation that indeed changes in these dynamics affects the performance of the OMCs budgets in a similar manner. This study however concludes that fluctuations in ullage allocation do not highly affect the budget performance of the OMCs. The study is therefore consistent with previous studies that suggest that many other factors including exchange rate, taxes, spillage, dealer margins, transport rates as well as speculation affects the performance of companies in oil marketing industry in Kenya.

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## **ABBREVIATIONS**

AGO.....	Automotive Gas Oil
CFA.....	Collateral Financing Agreement
ERC.....	Energy Regulatory Commission
FO.....	Fuel Oil
FOB.....	Freight On Board
IK.....	Illuminating Kerosene
KOSF.....	Kipevu Oil Storage Facility
KPC.....	Kenya Pipeline Corporation
KPRL.....	Kenya Petroleum Refineries Limited
LPG.....	Liquefied Petroleum Gas
MOE.....	Ministry Of Energy
NEMA.....	National Environmental Management Authority
NOCK.....	National Oil Corporation of Kenya
OMC.....	Oil Marketing Companies
OTS.....	Open Tender system
PMS.....	Premium Motor Spirit

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study.**

Budgeting is the process of expressing quantified resources requirement like amount of capital, amount of material, number of people into a time phased target to be achieved over a given number of periods. Bhimani et all (2008) described budget as a quantitative future plan created by managers to assist in the implementation of the plan.

Budgeting dates back to the late 1920s when most top managers wanted to control costs and cash flows so as to maximize on their returns and also ensure that they plan for the future before the process grew into a fixed performance contract involving future outcome and expenditure. This was coupled by increasing rate of industrial growth, unprecedented need for housing, education, health care, and transport. Time has since elapsed and the traditional way of budgeting has become obsolete hence attracting critics due to growing changes of business environment that requires a different type of control and monitoring mechanism. The environment for doing business has since changed to be complex and competitive that budgeting in its existing form is no longer useful for the contemporary business needs, (Michael and Ali, 2011).

Managers have stuck though to the traditional form of budgeting and that has proved to work against them. But despite these challenges of the inefficiency of traditional budgeting, most top managers have stuck to them. This is so because budgeting is so much ingrained in the



cultures of most of the companies hence it is not easy to convince the managers that their operations will be smooth or better off without them, (Dugdale and Lyne, 2006).

The budgeting process is a time when the management of any company takes time to organize and create their financial strategies, goals and objectives for the coming financial year or half year depending on how the management plans its operations.

During this time for the companies in oil industry in Kenya, the managers focuses on the needs of the company in the next year in regards to how much funds they require to handle the operational issues like purchasing of stocks for trade, payment of transport charges to KPC and road transport, storage charges to KPC and KOSF, licenses/fees to various government institutions like KPA, NEMA and MOE, purchase or construction of petrol stations to create outlets for their products, employee expenses, marketing expenses and several other expenses that are associated with the business. To achieve all these, they need to determine the amount of stock that they need to sale so as to cater for all these expenses and at what margin. Therefore, volumes budgets are then the most vital budget for a company operating in the oil industry especially the downstream business.

The budgeting process helps the managers to assess current operating conditions and help in implementing needed changes to aid in better financial management and utilization, (Anderson, 1996).According to Caldwell (1996), the main reason for budgets would be to assist establish procedures for preparing a company's planned revenue, cost, aiding in coordinating and implementing plans to functional heads. With this, they will then be able to evaluate the budget performance by the number of supplementary budgets that are made by a company in a given financial year due to under budgeting brought about by constant change in product cost and

capital expenditures associated with the industry, how often or number of times the budgeted expenditure do not meet the actual expenditure due to dynamism in operations, for example, National Oil Corporation of Kenya (NOCK) constructed ultra-modern LPG filling plant and Lubricants storage that was projected to cost \$4.9 Million from September 2013 but this capital expenditure exceeded the budget cost due to cost fluctuations and exchange rate fluctuations, the number of times the actual expenditure is less than the budgeted amount, the number of times borrowings have been done outside the budgeted amount to improve or maintain status due to competition from other marketers, for example, according to Petroleum Institute of East Africa (PIEA) 2<sup>nd</sup> quarter issue, the ultra-modern LPG and Lubricants storage plant built by NOCK will help the marketer's brand to improve its market share of 5% to their target of 20% after commissioning of the plant hence improving competition with other players and how often the budgeted expenditures in a company satisfies the actual expenditure for the budget to meet its goals and objectives which include financial prudence. By monitoring budget performance, the OMCs will then be able to monitor their profitability, take liquidity measures, gearing risks and evaluate above all their investors' ratio to ensure that the overall company's' performance is in line with the objectives, mission and vision of the company.

Belverd (1996) agrees to this and states that if realistic goals are established by the managers, then comparing the actual results with the budgeted targets can help them asses how well the organization is performing.

Drury (2008) outlined some of the six functions of traditional budgets as; refining the company's long term plans, co-coordinating the different departments and helping to improve the relationship with them, communicating ideas and expectations from top management to all

other employees, motivating manager to achieve challenging goals and targets, controlling the business activities using various variance analysis to determine the areas of required attention and evaluating the performance of top managers in relation to achieving targets. Despite these functions that seem comprehensive, the contemporary business environment faces various internal and external challenges and most of them are not expected and the magnitude of their influence on the business is unknown. Fraser (2000) states that the main argument is that in this age of discounted change, companies cannot be locked into a rigid, 'plan-make and sell' business model inherent in budgeting and Michael and Ali (2011) agrees that the traditional budgeting methods are too time consuming and unresponsive to external changes.

There are companies that operate in rapidly shifting business environment which can make use of very little guidelines in the budgets. This is because the budgeting process is slow in detecting problems and since unpredictable circumstances cannot be included in the budget during its preparation, it is normally out of date when it is supposed to be used, (Maria and Rebecca, 2010). This is evident for example in Kenya where the oil industry is so dynamic and unpredictable in such a way that if a company has volume expectations and financial needs and obligations fixed to the traditional budgeting practices, then that company will find it difficult to compete for the market share and still control its budget effectively as intended by the management. The unpredictability of several dynamic factors like the different degree of commands on market share , the difference in ability to discount retail prices and still make profit and availability of storage space at KPC to store more products makes it difficult to predict outcome of budgets.

This aspect of competition with the international, indigenous and reselling companies has seen companies reduce their retail prices and engage in expensive unbudgeted expenditure which include dealing with expensive loans from banks and disposing off assets to meet day to day expenditure, for example, kenolkobil in 2013 sought to sell its depots in Kisumu, Eldoret and Sagana to raise money to settle expensive product debts. Another example of how budget performance has been affected in Kenya by need for competition is the Total Kenya and Chevron case where the former sought to buy the latter's assets so as to boost their market share. The transaction was said to be the biggest ever by a Kenyan oil company when buying the assets of another company leaving the local market. The purchase price was put at \$11.4 billion and was financed by a consortium of five banks namely Citibank, Standard Chartered Bank, Kenya Commercial Bank, Barclays Bank, Stanbic Bank and Bank of Africa. Such transactions are so expensive and affect the budget performance and future preparation of future budgets of a company by increasing the number of expenditure outside the scope of the budgets.

According to The East African and Business Daily (2003), this was the oil industry's biggest ever transaction that will leave Total Kenya with the task of generating profits for shareholders as it manages the huge financing cost that comes with the debt. In the same year, Total showed its half year accounts indicating they closed in a negative cash flows position of \$ 4.7 billion putting in doubts whether the marketer will be able to generate cash to meet its obligations. Such transactions shows that the budgets are not normally adhered to strictly hence the performance of the same is uncertain as the number of times that the actual expenditure exceeds the budget expenditure is a lot brought about by the competition of market share. The CEO of Total Kenya then Mr. Felix Majekodunmi (2008) stated that the facilities acquired from Chevron such as the lubricants plant would make the company unduly a dominant player in the

respective niches. This is clearly coming to pass as Total Kenya is the current market leader among the OMCs in Kenya with a market share of 20% up from number two after kenolkobil.

Apart from the International player Total Kenya, the same has been seen in the indigenous company Kenolkobil where they faced the same fate of high debts coupled with strict government policies and regulations on the industry. The marketer in June 2013 had a difficulty in settling money owed to KPC to a tune of Ksh1.2 billion. As a result, the government through its MOE which regulates the industry suspended the marketer from buying the cheaper product through OTS or through KPRL due to the Ksh 1.2 billion owed to KPC. This greatly affected the marketer as all refined product by KPRL were stored at the KPC storage facilities across the country. This meant that Kenolkobil had to buy more expensive product that might have not been anticipated. This not only affected their budgets but also affected the competitiveness of the company that saw the company move from position one to three in market share. The uncertain shift and loose of competitiveness saw the company struggle due to the shrinking product margins brought about by expensive products and controlled retail prices by ERC.

A sources close to the company revealed that it had reached a point where the company could no longer meet routine responsibility of paying workers' salaries (Opara, 2012). Bloomberg also reported that Kenolkobil had kicked off a private placement to raise Ksh1.7 billion (\$19.6 million) to fund its day-to-day business, a sign that the company's budget was poorly performing as it did not achieve its objective that year. This is clear as the same company sought for a strategic partner, Puma Energy, to assist boost its performance, a deal which did not come true due to the many wrangles with government institutions and employee unrest on the issue.

Most of the researches done in this field of how best to tackle these uncertainties have suggested that there should be a different way of tackling this challenge as the traditional way of budgeting is past its peak and hence lost its usefulness and become outdated. There are various suggestions by various scholars, for example, Pilkington and Crowther (2007) argued that beyond budgeting is much better than traditional budgeting since it promotes the most ideal characteristics of the budget system which include; flexibility, coordinating and responsiveness. To try and improve on the budgets, some companies have opted to incorporate strategic planning when budgeting but this has proven to be very difficult as there are major differences in the targets, information and intended use of the two tools. For example, unlike strategic planning that uses current information to evaluate the company's strength and weaknesses, personnel values of key implementers, industry opportunity and threats and broader societal expectations, budgeting uses estimates to project and determine the most likely future requirements for future operations of the business which cannot be determined with certainty. Wallander (1995) observes that if something unexpected occurs, the budget would be of no help. Budgets are summaries based on guesses and assumptions about the future and exclude unexpected events. A clear example in Kenyan case is the unexpected fluctuations of exchange rate, international oil prices, need to compete for better performance and adherence to government institutions' operational inefficiencies.

The traditional budgets are normally set by the top management on what they expect and want to achieve financially and then passed downwards to the lower level managers for implementation as agreed on by Hanninen (2013), that the budget is the most powerful tool for management control. It can play an essential role in the organization's power politics because it

can increase the power and authority of top management and limit the autonomy of lower level managers. Once the budgets are locked down, that would be final.

The financial conditions of doing business may change due to changes in the environment but the budgeted figures will not. This may be a hinder to the committed and hardworking employees who are capable of achieving and exceeding their targets if given more resources that are provided for in the budgets. Most scholars have also agreed with this thought that in the dynamic business environment, managers should be looking to grow, expand and exceed targets and limits and not to be restricted by them, (Daum, 2002). Growth being a very important target for top management, they would naturally like to go into unexploited areas both operations-wise and product-wise, for example, when Hashi Energy Kenya in 2011 came up with the brilliant idea of connecting homes with piped cooking gas. This ambition did not however see light due to the many limitations of changing building structures, perceived risks and distances of homes in Nairobi making huge fluctuation of original estimated costs of implementing the investment. It is then vital that companies have a system that can accommodate any unplanned occurrence or need so as to achieve their targets.

Such growth are then unachievable if a company made a fixed budget as any divergence from the planned commitments would affect the whole company, for example, they may be forced to settle for expensive debts, spending employee budgeted salary hence employee unrest, making rush costly decisions on investments and entering into deals with un strategic investors with long term negative effects to the vision and mission of the company.

Daum and Hope (2003) highlighted that growth of an organization as a factor in causing the irrelevance of the traditional budgeting methods. This does not affect only the capital expenditure by the company but also the employees who may not like having these controls

forced into them hence making it potential to demotivate them into nonperformance. On the other hand, Otley (2003) agrees with Daum and Hope (2003) and say that budget system has the potential to create dysfunctional behavior and discusses his experience of a coal mine that held back stock to meet weekly quotas. Katarzyna and Thomas (2007) compare the business dynamics to controlling temperature in a thermostat and relate this to how the budget cannot be adjusted. He noted that the biggest problem faced in an organization control is that unlike the thermostat where the desired temperature is easily decided on and easily set, in most organizations what is the best for each company is often ambiguous and subject to change.

Apart from being unreliable in the contemporary business environment, budgets have been heavily criticized for being too costly and time consuming. A research by Prof Horvath and Dr. Sauter (2004) showed that senior managers spend about 10% to 20% of their time on budgeting and finance planning departments spend as much as 50% of their time on it. Yet only a small percentage of these two groups regard the budgeting process as a valuable use of their time.

The traditional budget though would not all the time be deficient when tackling commitments. There are instances where companies plan to undertake an investment with the prevailing market conditions which may be high and then the circumstances change favoring the expenditure on the project by reducing the cost. A good example is the slump of the cost of crude oil in the international market making it cheaper to import refined petroleum products. This may affect other cost centers that may have under budgeted to favor the main investment but end up being too late to start the new commitment. Traditional type of budgeting is a relic of the past hence as a result, it prevents reactions to change in the market. It cannot then keep up with the changes and requirements of today's business world and it is not useful to the business management, (Hanninen, 2013).



## **1.2 Problem Statement**

Budgeting since its inception has been one of the most used management control tool by managers to monitor various cost centers in companies and also used as a tool to stamp authority on lower level managers and employees to performance. Pietrzak (2013) agrees to this and states that budgeting is considered to be one of the most important, successful and useful tools of technique used in managerial accounting. Despite the reliance on this management tool, there has not been much change from the traditional budgeting techniques while the business environment has greatly advanced from how business used to be conducted in the 19<sup>th</sup> and early 21<sup>st</sup> century. This change is brought about by the rapid growth in technology, emergence of new businesses, emergence of new challenges, emergence of new policies both local and international and emergence of new ways of doing business. Hope and Fraser (2003) observed that one should question the assumptions about roles that the budgets play in contemporary organization because empirical findings suggest that roles most often quoted are no longer fulfilled.

Oil industry is one of the most dynamic industries because of the tendency of changes in the crude oil prices, difference in retailing prices, competition of market share and availability of storage space. Patrick Kioko (2011) stated that the last half decade has seen extraordinary price fluctuations in the Kenya's oil market. Equally, the exchange rates (especially US dollar to Kenya's Shillings) have been characterized by significant fluctuations with the local currency hitting historical lows. It is also worth noting that for those companies operating in Kenya, there should be constant purchase of bulk product for them to remain competitive.

That therefore goes unsaid that if these companies maintain the traditional ways of budgeting which is fixed and do not consider the macro changes that directly affects the productivity of volume output like changes in volume sold due to fluctuation in international crude prices, movement of monthly average retail prices, changes in market share and variation of ullage allocation per OMC, then there bound to be either poor or underperformance of expected volume budgets. Since budgets are fixed to a desired financial output, it is most likely be a challenge remaining relevant and improving market share and performance with all these changes. Katarzyna and Thomas (2007) noted that budgets are fixed performance traps because budgeting process brings about commitment towards resources, actions and rewards. The commitment is made for the following year which is too long a period to ensure flexibility.

It is therefore as a result of this dynamic nature of the industry that this study is based. The oil industry in Kenya is chosen because of its constant changing nature of various business tactics that are not normally within the internal management control. This has hence necessitated the need to study these variables and how they affect the overall performance of volume budgets in companies in the oil industry in Kenya.

### **1.3 Research Objectives**

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

The study endeavors to determine how changes in volume sold due to the fluctuation in international prices, changes in markets share, movement of average retail prices of AGO and KPC allocations affect the budget performance of companies in the oil industry in Kenya.

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

1. To determine how changes in volume sold affects the budget performance of oil marketing companies.
2. To establish how movement of monthly average retail prices of AGO affect the budget performance of oil marketing companies in Kenya.
3. To find out how changes in market share affect the performance of budgets of Oil marketing companies.
4. To find out how ullage allocation per OMC by KPC affects budget performance of Oil marketing companies.

### ***1.3.3 Research Questions.***

1. How do changes in volume sold affect the budget performance of oil marketing companies?
2. How does movement of monthly average retail prices of AGO affect the budget performance of oil marketing companies in Kenya?
3. How do changes in market share due to number of retail outlets affect the performance of budgets of Oil marketing companies?
4. How does ullage allocation per OMC by KPC affect budget performance of Oil marketing companies?

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews the literature that is deemed relevant to this study on budgets. It embraces the definition and highlights the characteristics of budgets and how business dynamics affects its performance. This is done by understanding the theories advanced on budgets performance as well as empirical studies done in the same field. Rubin (1992) defined a theory as an orientation to a field, to state assumptions, to point a certain problem as key significance and to come up with a hypothesis as to what causes what. An essential feature of theory building is comparison of the emergent concept, theory or hypothesis with the exact literature, (Eisenhardt, 1989).

#### **2.2 Theoretical Review.**

##### ***2.2.1 Early Bird / Progressive Theory.***

The progressive theory was developed by Mabel Walker between 1930 and 1964 when she focused her attention on municipal administration especially how the municipalities used their funds generated for the taxes. According to her, she attempted to provide a theory based on economic thought and also to provide a theory to assist the governments to make decisions on use of their resources, (Khan and Hildreth, 2002).

Most societies and governments tend to have a quick progression when it comes to development based on the needs of its people. This hence triggered Walker to develop a theory towards this progression which is in two senses. The first one being theory of progressive era that dates from 1900-1914 and the second is the age of reform that dates from 1890-1940, (Hofstadter, 1955).

The progressive era according to Walker was characterized by more modern thoughts about reforms that were informed, moderate and complex. This state encouraged the progressives to organize and administer reforms to address the social problems that were faced. They were both pragmatic and intellectual in their approach, (Hofstadter, 1955).

Walker also implied that the progressive ideals could be used as part of social and intellectual thought. This can hence be interpreted that progress was a distinctly modern idea, a modern invention and at least none beyond movement through a repetitive cycle, (Waldo, 1980). Most governments currently and during the period were faced with constant changes due to their operation nature and the environment which they operate under, because of this, it was assumed that the services offered and the methods used by the government officials were evolving for the better and that they could manage these changes to a higher level of existence and quality of life. On their part, the governments had to crystallize their progressive criteria into four values of honesty, economy, efficiency and proportion. The governments required honesty to address the issue of stealing, plunder and less flamboyant types of theft cases. Economy was required because the government required keeping the tax rate low based on low expenditure and revenue. Efficiency was based more on how the governments would consume the taxes paid by citizens since it is natural that they require value for their money. It is worth noting that a low tax rate is vital but even more important is the fact that the tax payer gets full value for every dollar expanded and that it's important functions are not neglected, (Walker, 1930).

Finally, proportion has two parts that intends to balance between the governments affairs that are currently pursued and the emerging trends. Most governments had problems with expenditure hence the ideal for proportions and the balance is central to budgets, (Khan and

Hildreth, 2002). This is the reason then why progressive budgets are set to explain the indifference between various demands by various people who are either directly or indirectly involved in the preparation and the usage of the budgets in the various government levels. This is fully stated that for one to fully understand the municipal budget making process, one should visualize the huge pressure that is faced by the preparers from various sources among them organized interests, ambitious departmental heads, civic groups, official prejudices, politicians and the general public hence the resulting will be because of these other forces and not the beneficial requirements of the governments, (Walker, 1930).

The theory therefore found that it would be very difficult for any government to conform to the budgets and still progress if not to divert from their expenditure due to the above interests. This attempt would certainly impede the process of proper utilization of the budget as intended and hence result to diverting the funds so that the governments can accommodate all the interested forces. This therefore greatly affects the overall performance of the budgets. This can be noted in the current business situation for OMCs that there are uncertainties that occur that were not foreseen hence most OMCs do not adhere to the budget as prepared. Just as Khan and Hildreth (2002) stated that most governments had problems following their budgets due to external interests and influences, most OMCs are faced with changes in cost, policy issues and various macro factors that make them deviate from intended performance level.

### ***2.2.2 Contingency Theory.***

Contingency theory is an organization theory that tries to explain that the best way to organize, lead, make decisions in a company is largely dependent on the internal and external factors that the company interacts with during the course of doing business. This is so according to Hamilton and Shergill (1992) that factors like growth in size of the company, geographic extension, innovation and diversification increases the number of contingent factors and misfits factors that then lowers the performance of the company. On the other hand, Fielder and Hersey (1973) argued that there are four fundamentals to contingency theory; that there is no one best way to manage, the design of the organization and its subsystems must the environment, effective organizations must not only have proper fit with the environment but also between its subsystems and that the management style should match the task to be undertaken.

The above variables are brought about by the shifting dynamics of the environment for which most companies operate. In some modern developments, change in technology renders the existing structures useless especially if the other players in the same market have upgraded to the change. A survey of several companies indicated that most organizations overwhelmingly continue to use traditional macro-structures like divisional type and informational technology that are not radical, (Palmer and Dunford, 2002).

The contingency theory then goes a long way to indicate that with the unexpected changes in the oil industry in Kenya, the budgeting techniques would not also serf ice if the external and some internal factors of a company shifts. Not only that but also with the growing competition pressure from other small companies that have not heavily invested in various facilities, it becomes extremely difficult not to counter competition by spending more if the OMCs are to remain in business. The amount of certainty and the rate of change in the business

environment greatly influence the development and progress of internal features of the organization, (Lawrence and Lorsch, 1967). As per Hamilton and Shergill, (1992), the increase of contingent factors lowers the performance of a company a factor that can be seen from the drop of market share by Kenolkobil when it faced challenges of exchange rate, government wrangles and stiff completion.

### ***2.2.3 The Policy Era (1971-1992)***

This dates back to the late 1970s and the early 1980s when the governments were struggling with the issues of how can the CEOs have a firm control over the budget so that they can have them functioning as required. The challenges that the governors faced were those of how to allocate funds to other cost centers of much priority. The same period was when Reagan was in power in the United States and his administration were faced by some problems as any other government in that time but the way he decided to deal with it made the difference. Reagan's administration was faced by decline in taxes to the government which in turn limited the amounts at his disposal to spend on his desired expenditures. Because of this challenge, Reagan sort to establish the best way to run his government with the limited revenue.

He successfully managed to limit the expenditure only to those expenses that would benefit the president and the department of Defense under his administration. This self-interest by Reagan then led other CEOs of other local governments to make use of the limited funds and this forced them to identify policy priorities to execute first so that they undertake important projects first. This art was later supported by policy analysts that examination of state budgeting finds predominance of executive led budgeting process fueled by policy analysts for state budget offices, Robert Lees (1991) and that a dominant trend in budgeting in the 1970s and 1980s was



basically how to prioritize functions by devising the machinery for making tradeoffs and reductions, (Rubin, 1996). The policy oriented budget document should have a statement of priorities. The document is as a result of consequence of policy analysts, CEOs priorities and policy tradeoffs.

#### ***2.2.4 The collaborative Era (1993-onwards)***

Unlike the previous era, the policy era, this era is characterized by a strong collaboration between the governments and other non-governmental organizations including the private institutions. Here, the governments would retain the important policy influence but collaborate with the private and non-governmental organizations (NGOs) to ensure that there is a steady and constant flow of services hence the shift from output to outcome mentality. This shift to performance budgeting led to the question of how can the governments use the budget process to collaborate with other non-governmental organizations and the private sector to enhance optimum service delivery.

As the governments continued to request the private entities to assist in service delivery, they also then begun to include them in their budget considerations hence ensuring that the services are delivered in a professional way and accountability is observed. This was supported by Thurmaier and Chen (2009) that as the trust based relation contracting between the governments and the private entities grew, there was reduction in transaction cost and eliminate ambiguity so as to address larger pragmatic issues.

#### ***2.2.5 Descriptive and Normative Theories.***

Descriptive theory is based on close observation or participation in the public sector activities, (Rubin, 1990). The theory suggests that there are factors that affect or dominates the budget process especially in the public sector. These factors include the public politics, bureaucracy in the public sector and the prevailing economic conditions at that time of budget execution. This therefore intends to explain that the public administrators of budgets ought to understand the outcomes and inputs of their organization processes so as to be able to improve on them. Bailey (1968) held that one cannot improve what they cannot explain or describe.

Various budgeting processes of different sectors faces different issues hence there will be no two or more processes that would be similar. This is mainly so because the demand of the public sectors are different and need to be satisfied differently. The possible factors affecting the fruitful outcome would include the different degree of organizational differentiation, managerial capacity, the available level of technology advancement, form of government in place and various environmental factors like political climate, economic base and demographic variables, (Khan and Hildreth, 1998).

This theory advocates for the competence of managers involved in the decision making because if the managers do not make good decisions based on their experience to the changing dynamics of their administration, then they are likely to face a challenge of resource allocation. This can be seen with the fluctuation of exchange rate in Kenya a factor that greatly affects the cost on purchase of products, government politics can be related to government policies and their applications, a case in point is the formula of allocating ullage at KPC and the formula for calculating pump prices by ERC and why despite the marketers outcry they remain in place due to the bureaucracy in the processes.

Normative theory on the other hand has a much narrower observations than the descriptive theory and it's proposes are normally based on values than observations, (Rubin, 1990). This theory believes that performance information have direct impact on resource allocation and most policy analysts say that it is a much better policy than the descriptive policy because it is more specific on how to improve cases. Normative seeks to give more power to the executive in the public domain in determining the outcome of the budgets since it is a more political exercise. Normative theory strongly advocates for accountability at all times. It is believed that progress can only be achieved if there is improved information and ensuring that the public has the information regarding the use of funds and for what purposes.

The theory strongly advocates for the essentials for planning in the budgeting process, this is so because by planning, the outcomes of decisions will be much closer to determine with at least some level of certainty. Planning is inherent in budgeting, (Rubin, 1990). There is also an encouragement for some sense of public participation during the budgeting process so as to explain to the average person the details and necessities of budgeting.

In Kenya, most OMCs would use the past expenditures and add a percentage to project their budget needs for the coming year a process done by management, this according to normative theory would not be much beneficial as there is need to involve all functional department personnel so as to include their experiences in the dynamics of the business. In Kenyan oil industry, then it would involve including the sales persons, depots operational staff and the field engineers just but a few in the budget process.

### **2.3 Determinants of budget performance of oil industry in Kenya.**

Budgeting is a purely managerial control tool that is within their control so as to monitor and ensure effective financial management in a company. This is however affected by the complexity of the business and other changing conditions of the business environment, economic, technological and political changes makes it extremely difficult to consistently ensure a good control and cash flow, (Okoye and Odum, 2011). Therefore, for the optimum control to be achieved, the management must observe various aspects of optimization.

#### ***2.3.1 Cost management.***

Products cost volatility in the oil industry is a major challenge facing the OMCs in Kenya and its associated costs like fluctuation in demurrage and infrastructural costs. Oil prices fluctuations are a major cause in under or overutilization of budgets since they depend on the prevailing macro or micro economic conditions than they are to physical supply and demand factors, (Oracle white paper, 2011).

To control these unexpected costs, there should be a close monitoring of the cost so that they do not go out of hand and consume the budget allocation for other cost centers. Once then an operation on the utilization starts, close attention need to be paid to the actual performance and budgets performance by those in charge of control by comparing the budget figures and the actual, noting the variances and taking action to determine the causes of variances in the budgets, (Okoye and Odum, 2011)

#### ***2.3.2 Time Management.***

The performance of the major trading currency to the local Kenyan shillings has faced some turbulence over the years and since all oil marketing companies in Kenya have to trade in US dollars (USD) when importing or trading with the international brands, they then have to manage their time of purchases of crude or refined petroleum products well so that the constant fluctuation of the exchange rate does not affect their pricing and unavailability of ullage as experienced in some instances does not interfere with their budget allocations. A case in study is the case of Kenolkobil who faced this problem which gravely affects its operations. According to the East African magazine, the company reported a disappointing results for the year ended 2012. The unfavorable business, volatile international oil prices, difficult local conditions in almost all markets, high inflationary pressure, volatile foreign exchange rate and high interest rates explained the kind of results that the company faced.

This therefore makes it prudent that the management involved in decision making be very conscious to such changes so that they do not find themselves overspending when it comes to executing the most vital expenditures. This can help in ensuring that the budgets are kept within the planned expenditure.

### ***2.3.3 Quality Management***

Quality management is the output of time, cost and scope, (Oracle white paper, 2011). This indicates that for any company to achieve the output of timeliness and cost, they have to ensure that the quality of their transactions are not questionable as this may results to associated cost that will directly affect the cost of business and affect the time of execution.

## **2.4 Empirical Review.**

Most studies have shown that governments have a greater presence in the petroleum market in West Africa than those in East and Southern Africa, (Kojima, 2010). In Kenya, oil companies used to compete in Open Tender System (OTS) for the importation of crude petroleum products which would then be refined at the Kenya Petroleum Refineries Limited (KPRL) to produce the various components that are then distributed to the OMCs at a margin. Some of the common by products of the refining process include; Premium Motor Spirit (PMS), Automotive Gasoil (AGO), Illuminating Kerosene (IK), Liquid Petroleum Gas (LPG) and Fuel Oil (FO).

KPRL was first established in Kenya in the year 1960 under the name East Africa Oil Refineries Limited and then in the year 1963 changed the name to KPRL. KPRL is 50% owned by the Kenyan Government and 50% owned by Essar Energy Overseas Limited. This was so until the closure of the refinery in 2013 that the companies still go through the same process of OTS but source for already refined products based on the requirements of the market.

The question then would be how efficient is the budgeting process used by the OMCs and the process of OTS to the OMCs? This should be under review since it is a requirement by the Ministry of Energy (MoE) that for any company to participate in the OTS process they must have meet some conditions one of them is to have met the line fill requirements with the Kenya Pipeline Company (KPC) which is very expensive for some OMCs. The OTS works in a way that all interested OMCs who have met the requirements would bid for a tender to supply petroleum products to the entire market at the best price. The winning bidder would then source for the product and then supply at a margin for others for on-word supply to their customers.

This however is normally faced by some challenges due to wrong timing in terms of changes in prices and the performance of Kenyan currency that would make the cost of importation exceed the budgeted cost. The fluctuation of international prices, constant fluctuations in market share due to stiff competition of customers in the Kenyan market and frequent changes of retail prices all affects the OMCs differently. There are varying degrees of scope to reduce cost of supplying petroleum products to east and Southern Africa, (Sexsmith, 2008). This fluctuation in costs pushes companies to deviate from their budgets as there are punitive penalties to not delivering after winning the tender for the supply under the OTS. As a result of such costs, OMCs are left with other expensive options like getting into Collateral financing Agreements (CFA) to ensure constant supply of stocks. In the modern market, the uses of CFA as become an important tool to product financing, paying and clearing systems, (Ager, 2014). A study by Mutungi (2010) observed that OMCs in Kenya had huge investments in inventory being the main trading stock and high level of borrowing and consequently low net investment in their current investment base. Because of this, CFA enabled companies to maintain an acceptable level of working capital. CFA however is not the best source of funding for any company in any industry in Kenya. This is noted by a presentation during the audit review of a report on the closure of KPRL by the Cabinet Secretary and Permanent Secretary in the Ministry of Energy and Petroleum (MoE&P) that CFA has some challenges among them operational risk, fraud and legal risks which led to major financial loss to the companies ( MoE&P,2014).

The cost of doing business in Kenya and proper discipline has had a big effect on some players and has either seen them leave the Kenyan market for the adaptive indigenous companies like Chevron, merge with other companies to consolidate power like Kenol and Kobil or some

seen to sack some employees due to inability to cope with high expenditure on employee salaries and other benefits and still purchase inventory.

This is supported by a report by Trade Mark Southern Africa (2010) that stated that reduced profit margins, increased competition and official price caps are forcing big marketing firms out of Africa as they change their tactics to the much profitable upstream market. This shift saw the Dutch giant Shell to exit the Kenyan market following the footsteps of other five international majors that left the country. There are still other associated costs that affect the budgets for the OMCs like the high cost of demurrage, high operational cost costs and infrastructural limitations.

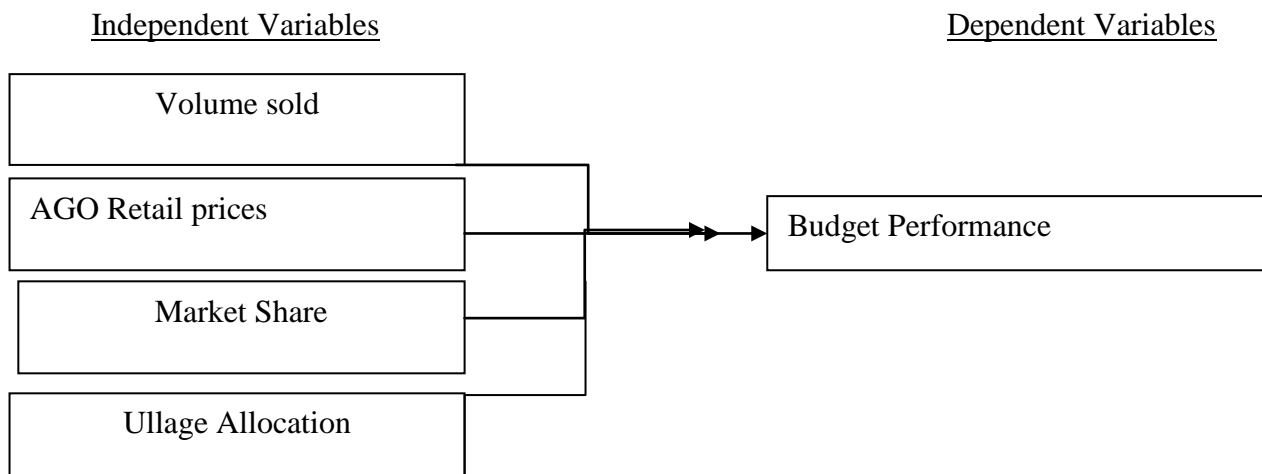
A case in point is in 2009 when the OMCs complained that there was lack of proper infrastructure for storage of imported petroleum products. According to the Standard Newspaper (2009), they stated that the government owned, KPC run Kipevu Oil Storage Facility (KOSF) had no enough ullage to store all the imported products which greatly affected the supply of product which directly affects the market share. Due to this lack of adequate storage space led to accumulation of demurrage fee which in turn interferes with what they had budgeted for and allocated to product. For instance, at one point the OMCs stated that eight vessels were sitting in the high seas waiting to discharge due to lack of ullage. They complained that the vessel owners charged the OMCs importing the product up to 30,000 US dollars a day amounting to 240,000 US dollars (Ksh. 21million) a day for the eight vessels. These unexpected costs would directly dent the budget performance of the OMCs both volume-wise to the market as a result of lost sales and financially as they must comply with them.



## 2.5 Conceptual Framework.

A conceptual framework lays out key factors, constructs or variables and presumes a relationship among them, (Miles and Huberman, 1994). This sought to provide not only knowledge of hard facts but rather soft interpretation of intention and therefore, it should not be viewed as merely a collection of facts but rather a construct in which each plays a role.

In this study, the conceptual framework intended explain the relationship between changes in volume sold by each OMC, variations of average retail prices of AGO per OMC, changes in market share among the 35 OMCs, changes in ullage allocations and how these lead to the various kinds of budget performance outcomes. This can be represented diagrammatically as;



### 2.5.1 Definition and Measurement of Variables.

Changes in volume sold by OMCs as a result of international oil prices is the constant change of quantities that each marketer is able to deliver to the Kenyan market measured in liters per product. For the case of this study, volume sold shall be abbreviated by VO. These changes hence can be measured by the quantities that are supplied by the OMC per month over the study period to determine how they affect their budget performance.

Movement of average AGO prices is the constant changes of retailing prices for the product over the study period. Despite the monthly control of ERC petroleum prices, the oil marketers normally seek to have competitive prices by reducing their prices below the set cap so as to lure more customers. This will be measured by the changes in the prices. This is abbreviated as AP.

Market share indicates how the Kenyan market is shared by the OMCs in terms of number of customers which indicated how the marketers are performing in the industry. This variable constantly changes depending on the aggressiveness of the OMCs and will be measured by the share of market that each commands. This is abbreviated as MS.

The final independent variable is ullage allocation. This is the spacing in the storage facility, KPC, that each marketer is given. This is a vital factor in the oil industry in Kenya since the bulk of supply of product passes through the pipeline. Therefore it is prudent to determine how this factor affects the budget performance of these companies and will be measured by the share of allocation to each OMC. This is abbreviated as UA.

Finally, budget performance can be defined by how effective the managements of the OMCs are managing product supply, costs and profitability derived from meeting the budget performance targets so as to achieve maximum returns. This is abbreviated by BP.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction.**

This chapter details the methods used by the researcher to collect and analyze data so as to achieve the main objectives of this study. It covers the research design, target population, data collection and data analysis methods used during the research process.

#### **3.2 Research Design.**

This research used descriptive research design. According to Polit and Hungler (1999), the purpose of a descriptive research design is to observe, describe and document aspects of a situation as it naturally occurs in a certain state. Descriptive design seeks to describe the status of an identifiable variable the way it is. Hence in an effort to determine how various factors affect the performance of various companies, this design was the most appropriate to use.

#### **3.3 Target Population.**

The target populations consist of 35 Oil marketing Companies. According to PIEA (2014), there are 35 OMCs classified based on the market shares of each over the period under study. There are three major products that are common and majorly imported and sold by all the companies, these are PMS, AGO and Ik. The target population aims at all these three products. To effectively show how volume output per OMC, changes in AGO retail prices per OMC and changes in market share per OMC affects their budget performance, the study covered a period of five years from January 2011 to December 2015. This therefore gave a total of 175 observations.

### **3.4 Sampling technique.**

A census technique was used to collect the data. This was so since the population of study is not big hence sampling was not appropriate for optimum outcome. This technique is also suitable due to the heterogeneity of the population. The researcher therefore engaged all the 35 OMCs over a period of five years so as to achieve all the 175 outcomes intended for this study.

### **3.5 Data Collection**

The study relied solely on secondary data that was obtained from PIEA publications, monthly average prices, research data, ERC Monthly publications, Pipecor data and various publications on operations in oil marketing industry. The research used panel data. Panel data is multi-dimensional data that is obtained over a certain period of time, in this case over a period of five years from January 2011 to December 2015 for the 35 OMCs. According to Hsiao (2003), panel data set is one that follows a given sample of individuals over time, and thus provides multiple observations on each individual.

### **3.6 Data Analysis**

The research used fixed effects regression model to analyze the data after performing hausman's test and also LM test. The researcher analyzed how changes in volume sold per OMC affects the budget performance, how movement of average retail prices for AGO affects budget performance, how changes in market share due to number of retail outlets affects the budget performance and how ullage allocation by KPC affects budget performance over the study period. To effectively analyze the above data, the researcher used stata.

This will be presented in a general model as;

$$Y_{it} = \beta_0 + \beta X_{it} + \mu_{it} + \varepsilon_{it}$$

Where  $i = 1, 2, 3 \dots 35$  is the number of OMCs and  $t = 1, 2, 3 \dots 5$  is the time of study

### 3.7 Model Specifications

The overall regression model for the categories would then be represented in the following form;

$$\text{Prob}(Y_{it} = j) = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \mu_{it}$$

Where;

$j = 1$ ; below budget,  $2$ ; within budget,  $3$ ; above budget.

$i = 1, 2, 3 \dots 35$  number of OMCs.

$t = 1, 2, 3 \dots 5$  number of years.

$Y_{it}$  = Budget Performance.

$X_{1it}$  = Volume Sold (VO).

$X_{2it}$  = Average Prices (AP).

$X_{3it}$  = Market share (MS).

$X_{4it}$  = Ullage allocation (UA).

$\mu_{it}$  = Random variable.

# CHAPTER FOUR

## FINDINGS AND DISCUSSIONS

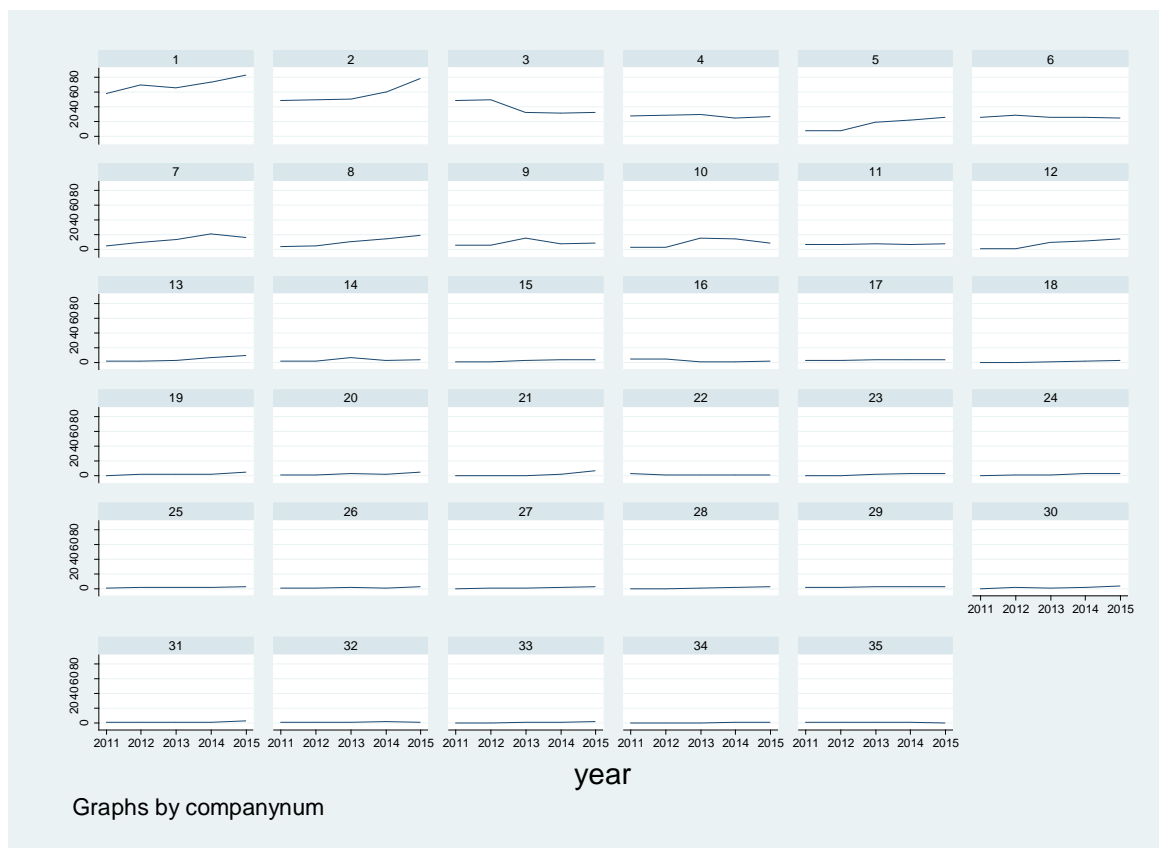
### 4.1 Introduction

This chapter presents a summary on the information collected and processed during the study, analysis and discussion on the results of the study. The chapter is organized as follows; 4.2 provide descriptive analysis and 4.3 Regression results.

### 4.2 Descriptive Analysis

#### 4.2.1 Trend Plot.

Over the period of study. Below is the illustration of dependent variable movement

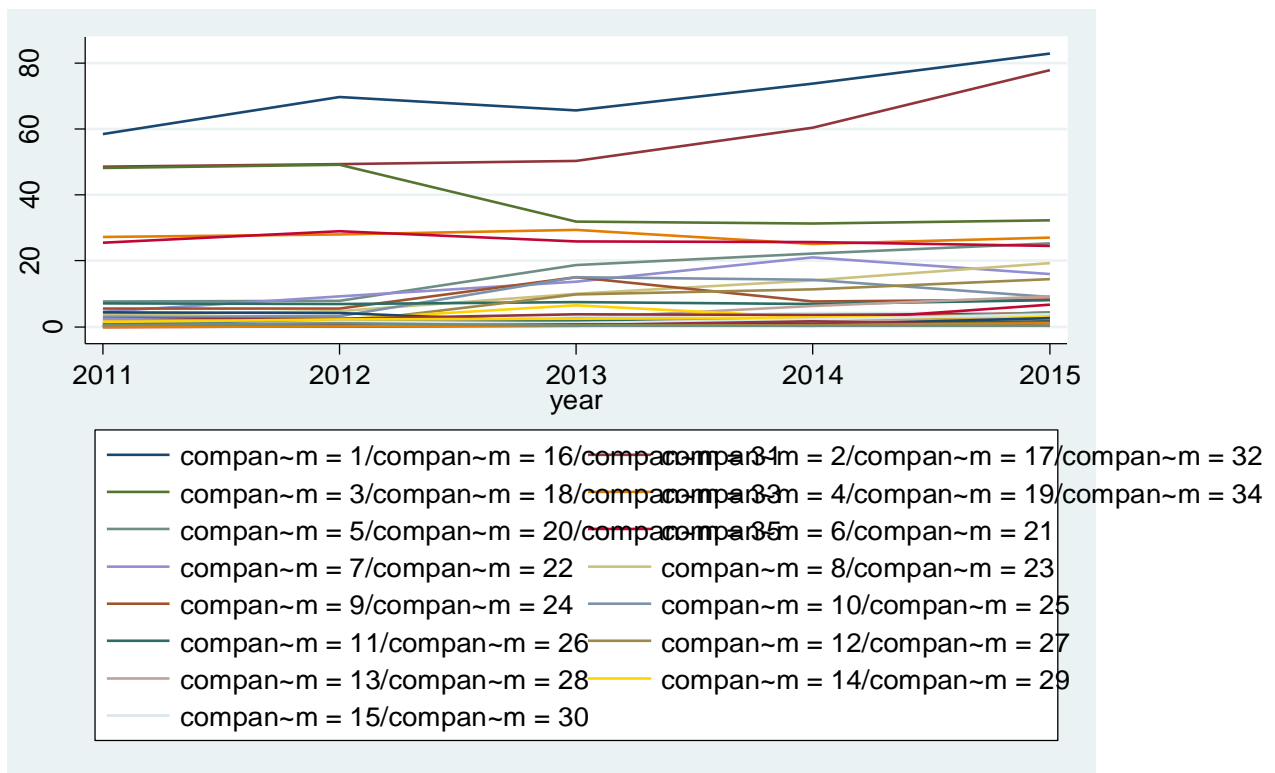


*Illustration 1: Trend plot*

As per the graph above, it shows that there are companies with a big change in budget performance over the years and those that have marginal change indicated by almost plain graph. For example, company 11, 15, 26, 34 and 35 have very small change in budget performance over the five years of study while company 1, 2, 3, 7 and 8 have a big change on budget performance over the five years. From the graph, company 1 seems to be an outlier hence needs to be dropped.

**4.2.2 Over plain Plot.**

This plot helps to indicate if there are any significant differences between the firms which may necessitate dropping of an outlier. This is illustrated as below.

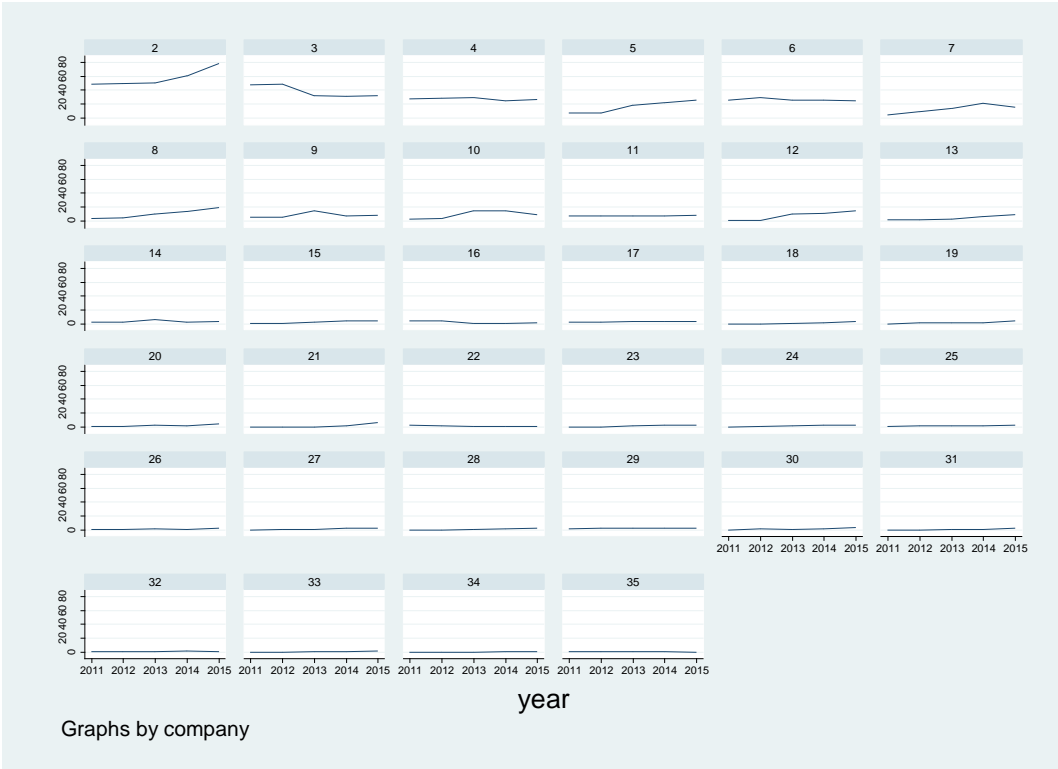


**Illustration 2: Over plain plot**

From the over plain plot above, it indicates the differences among the companies under study which in turn helps determine if it is necessary to drop any outlier. From the plot above, it clearly indicates that company 1 is different from the rest of the 34 companies hence need to be dropped.

**4.2.3 Dropping of the outlier.**

**a) Trend Plot.**

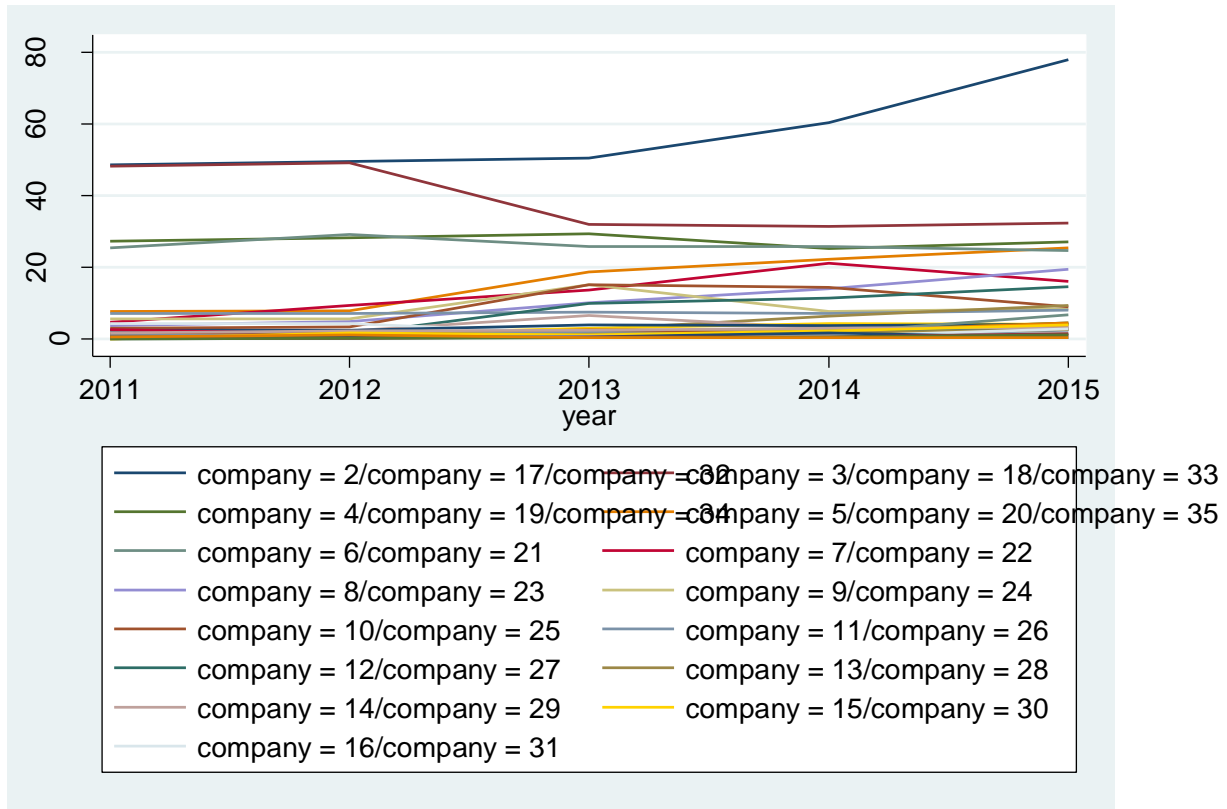


**Illustration 3: Trend plot**

For the trend plots, when we drop company 1, it illustrates as above showing a more insignificant differences among the remaining 34 Companies.



**b) Over plain Plot.**



**Illustration 4: over plain plot**

The over plain plot above also shows a more insignificant difference among the remaining 34 companies after dropping company 1.

**4.2.4 Descriptive statistics**

Descriptive statistics gives the mean, standard deviation, maximum value and minimum value of the variables before dropping any variable. The data for volume sold per OMC, average retail prices per OMC, market share per OMC and Ullage allocation per OMC were obtained for all the 35 OMCs over the study period of five years and summarized by the table below.

<b>Variable</b>		<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Observations</b>
<b>budget</b>	overall	9.498847	16.40176	0	82.9016	N = 175
	between		16.15756	.37248	70.12398	n = 35
	within		3.73531	-2.112835	30.04593	T = 5
<b>Volume sold</b>	overall	8.000446	13.8591	0	69.6652	N = 175
	between		13.65052	0.3155	59.6121	n = 35
	within		3.165667	-2.024953	24.73694	T = 5
<b>Retail Prices</b>	overall	27.38286	45.01937	0	113	N = 175
	between		40.73352	0	102.6	n = 35
	within		20.14117	-36.01714	112.9829	T = 5
<b>Market Share</b>	overall	0.0273594	0.0477421	0	0.239	N = 175
	between		0.0466414	0.00102	0.184	n = 35
	within		0.0124057	0.0253606	0.0926394	T = 5
<b>Ullage allocation</b>	overall	1134.334	1977.241	7.8597	9933.644	N = 175
	between		1939.391	50.16452	8600.54	n = 35
	within		484.4697	-1648.059	3186.887	T = 5

*Illustration 5: Descriptive table*

The table above shows descriptive statistics before introduction of logarithms to the independent variables, as such, it shows that the mean of dependent variable is 9.498847 with an overall std dev of 16.40176, between of 16.15756 and within of 3.73531.

For independent variables, the mean of volume sold is 8.000446 with an overall std dev of 13.8591, between of 13.65052 and within of 3.165667, retail prices has a mean of 27.38286, with a std dev of 45.01937, between of 40.73352 and within of 20.14117, market share has a mean of 0.0273594 with an overall std dev of 0.0477421, between of 0.0466414 and within of 0.0124057 and finally ullage allocation has a mean of 1134.334 with a std dev of 1977.241, between of 1939.391 and within of 484.4697.

The descriptive table below shows the movement of the variables after dropping the outlier and also introducing the log.

<b>Variable</b>		<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Observations</b>
<b>budget</b>	overall	7.715755	12.770150	0	77.94200	N = 170
	between		12.422810	0.37248	57.39492	n = 34
	within		3.521837	-0.99865	28.26283	T = 5
<hr/>						
<b>logretail</b>	overall	1.16486	2.008623	0	4.73620	N = 170
	between		1.794786	0	4.63458	n = 34
	within		0.943163	-1.63689	4.91057	T = 5
<hr/>						
<b>Logvolsold</b>	overall	1.377974	1.035680	0	4.19717	N = 170
	between		0.972913	0.251047	3.89186	n = 34
	within		0.385328	0.381125	2.65165	T = 5

<b>logmrktshare</b>	overall	0.021799	0.036825	0	0.21430	N = 170
	between		0.035686	0.001017	0.15924	n = 34
	within		0.010617	-0.02322	0.07687	T = 5
<hr/>						
<b>ullageall</b>	overall	914.7393	1,504.3620	7.8597	9,345.85800	N = 170
	between		1,461.6130	50.16452	7,293.30500	n = 34
	within		421.137200	-1867.65	2,967.29300	T = 5

***Illustration 6: Descriptive table***

From the descriptive table above, it indicates that the total observations for the variables becomes 170 down from 175 after dropping the outlier, as such, the mean for budget is 7.715755 with an overall std. dev. of 12.770150, between of 12.422810 and within of 3.521837. This gives a maximum of 77.94200 and a minimum of -0.99865.

As for the independent variables, the observations remain 170 which is for 34 companies over the five years. The mean for retail prices is 1.16486 and an overall std. dev. of 2.008623, between of 1.794786 and within of 0.943163, volume sold has a mean of 1.377974, a std. dev. overall mean is 1.035680, between is 0.972913 and within of 0.385328, market share has a mean of 0.021799 with an overall std. dev. of 0.036825, between of 0.035686 and within of 0.010617, and finally ullage allocation has a mean of 914.7393, with an overall std. dev. of 1,504.3620, between of 1,461.6130 and within of 421.137200.

### 4.3 Regression results

A linear regression will be run in Stata and post estimation diagnostic test carried out to determine the adequacy of the model. A correlation analysis, Hausman test, Breusch pagan test and Heteroskedasticity tests were.

#### 4.3.1 Correlation Analysis.

Correlation analysis is a method of statistical evaluation that researchers use to study the strength of a relationship between two or more numerically measured and continuous variable over a certain period of time.

	<b>Budget</b>	<b>Volume sold</b>	<b>Retail Price</b>	<b>Market share</b>	<b>Ullage allocation</b>
<b>Budget</b>	1.0000				
<b>Volume sold</b>	0.9993*	1.0000			
<b>Retail Price</b>	0.6586*	0.6535*	1.0000		
<b>Market share</b>	0.9079*	0.9107*	0.6462*	1.0000	
<b>Ullage allocation</b>	0.9328*	0.9374*	0.5879*	0.8940*	1.0000

*Illustration 7: Correlation Analysis.*

From the above analysis of correlation before dropping the outliers and introducing log, it shows that the correlation is very high at 0.8940 for market share and ullage allocation, 0.9107

for market share and volume sold. A high correlation between the two variables indicates that highly related. From the above illustration, it therefore means that market share is highly correlated to ullage allocation which is discouraged especially among independent variables. The same is different for the correlation of 0.9993 for volume sold against budget, 0.9079 for market share against budget and 0.9328 for ullage allocation against budget since these are correlation with dependent variable.

To correct this high correlation among independent variables, we introduce logarithms to the highly correlated variables as represented in the table below.

	<b>Budget</b>	<b>Log volume sold</b>	<b>Log retail Price</b>	<b>Log market share</b>	<b>Ullage allocation</b>
<b>Budget</b>	1.0000				
<b>Log volume sold</b>	0.8777*	1.0000			
<b>Log retail Price</b>	0.6611*	0.6722*	1.0000		
<b>Log market share</b>	0.8859*	0.7769*	0.6155*	1.0000	
<b>Ullage allocation</b>	0.8897*	0.7392*	0.5702*	0.8704*	1.0000

*Illustration 8 : Correlation Analysis.*

The illustration above after dropping the outliers and introducing the logarithms shows a much improved correlations among both independent and dependent variables. As per the above, correlation between dependent and independent variables are 0.8777 for log volume sold, 0.6611 for log retail prices, 0.8859 for log market share and 0.8897 for ullage allocation.

### 4.3.2 Hausman Test

Hausman test was used to determine whether to choose random effects or fixed effects for the analysis. Below is the test:

	fixed	random	Difference	sqrt(diag(V_b-V_B)) S.E.
logvol	4.330898	4.482741	-0.151843	0.2619123
logretail	0.1770481	0.2326402	-0.0555921	0.0848194
logmrkt	93.04799	98.23666	-5.188675	10.50703
ullageallo~n	0.002333	0.0027132	-0.0003802	0.0002916

**Illustration 9: Hausman Test**

$$\chi^2(3) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 0.91$$

$$\text{Prob} > \chi^2 = 0.8237$$

The results above indicate a Prob = 0.8237, illustrating the  $H_0 > 0.05$ . As such we accept the null hypothesis of using the random effects to analyze the data.

### 4.3.3 Breusch-Pagan (LM test)

The LM test was used to determine whether to use the random effects regression or a simple OLS regression. The test was done as illustrated below.

Breusch and Pagan Lagrangian multiplier test for random effects

$$\text{Budget [company]} = Xb + u [\text{company}] + e[\text{company}]$$

Estimated results:

	Var	sd = sqrt (Var)
Budget	269.0178	16.40176
E	.2574981	.5074427
U	.0526336	.2294201

Test:  $\text{Var}(u) = 0$

$$\text{chibar2} (01) = 9.05$$

$$\text{Prob} > \text{chibar2} = 0.0013$$

According to this test, the null hypothesis is that the variance across the groups is zero, and as per the illustration above, it rejects the null hypothesis indicating that random effects regression is the best to be used in the analysis.

#### ***4.3.4 Testing for Heteroskedasticity***

A test for Heteroskedasticity was done to determine the variability of the variables. The test below was obtained after testing for heteroskedasticity in the model.

H0:  $\sigma^2(i) = \sigma^2$  for all i

$$\text{chi2} (35) = 4.8e+07$$

$$\text{Prob} > \text{chi2} = 0.0000$$



As per the above results, Prob=0 indicating the presence of heteroskedasticity in the data which hence requires this to be corrected. This was then done by introducing 'robust' and running in stata to correct for the heteroskedasticity.

#### **4.3.5 Regression Analysis**

Regression model is used here to describe how the dependent variable changes with changing conditions. Regression Analysis was carried out for business dynamics and how they affect budget performance in among the OMCs. To test for the relationship that the independent variables have on budget performance, the study did the linear regression analysis to determine the changes the independent variables have on dependent variable

The Regression model was of the form:

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

Y=Budget performance

X1=Volume sold

X2=Retails price

X3=Market share

X4= Ullage allocation

<b>budget</b>	<b>Coefficient</b>	<b>Std. Err.</b>	<b>P Value</b>	<b>95% confidence Interval</b>
logvol	4.330898	0.6692687	0.000	2.96926 5.692535
logretail	0.1770481	0.1384907	0.210	-.1047135 .4588096

logmrkt	93.04799	56.43433	0.109	-21.76853	207.8645
ullageallocation	0.002333	0.0007373	0.003	.0008329	.0038331
_cons	-2.620729	0.9635797	0.010	-4.581146	-.6603112

The study model will therefore be:

$$Y_i = -2.620729 + 4.330898X_1 + 0.1770481X_2 + 93.04799X_3 + 0.002333X_4$$

According to the regression equation established, taking the two factors into account the constant in the study is noted to be -2.620729. At 5% level of significance and 95% level of confidence, volume sold had a 4.330898, retail price 0.177048, market share had 93.04799 and ullage allocation 0.002333 level of significance on the dependent variable budget performance of OMCs. These represent the amount of change which the independent variables have on budget performance. They show that ullage allocation will have the least effect of change on determining the change in budget by 0.002333 bearing in mind that this is a factor that is determined by KPC and has minimal effect on the output of sales directly to OMC and their customers.

Retail prices have 0.1770481 change effect on budget performance. This is a controlled factor by ERC hence it marginally affects the performance of the OMCs. Even though volume sold by each company is more significant by 4.330898 as it directly affects how the budgets perform, market share dictates on how much volume each and every company can sale. If an OMC do not have a large market share both in terms of local and industrial clients, their volume budgets will not change as much as illustrated by level of change to the other independent

variables. As such, market share has the largest change by 93.04799 on the performance of the budget.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

In this chapter the summary and conclusions from the research findings of the study and recommendations on areas of further research study are presented.

#### **5.2 Summary**

The general objective of this study was to determine how changes in volume sold, changes in markets share, changes of average retail prices of AGO and KPC allocations affect the budget performance of companies in the oil industry in Kenya over a period of five years from January 2011 to December 2015. The specific objectives focused on each variables and how they would affect the performance of budget. Volume sold data, market share data and ullage allocation data were obtained from Pipecor indicating the amount of volume sold by each of the 35 oil marketing companies and an analysis done to determine how the changes in volume sold affected these performances and retail prices data was obtained from research data from market survey to analyze how these affect budget performance.

An insight into the characteristics of the data was presented by the descriptive statistics and illustrated in the tables in chapter three. The performance was seen to have a trend as per the trend plot and over lay plot analysis. This tested for any presence of an outlier from the data and as such there was an outlier which was dropped to have a more consistent data for the analysis. Also, statistics involving mean and standard deviation was done and described both with and without logarithms in the data.

Hausman test was done to determine the best model to use between OLS and fixed effects model and the test assumed a fixed effects model which was also supported by Breusch-Pagan (LM test). After dropping of the outlier and introduction of the logarithms to correct for the data, a regression was done using the fixed effects model and results obtained. The results showed various effects of the business dynamics stated on budget performance. These results are consistent with a study by Kioko 2013, on effects of exchange rate fluctuations on changes in retail prices in Kenya and effects of collateral financing agreements on the financial performance of petroleum industries in Kenya, Ager (2014).

### **5.3 Conclusion**

From the regression analysis all the coefficients are positive indicating that all the independent variables positively affect the performance of the budget performance of oil marketing companies in Kenya.

However, market share was seen to have a higher level of significance with 93.04 that the other three independent variables which indicate that it would significantly affect the performance of the budget than other variables. This is seen to be true as the market leaders in terms of budget market share are seen to have a much bigger budget with higher performance than the companies in lower levels. This was followed by coefficient of volume sold with 4.33 changes on the budget performance. Above all, all variable had different degrees on effects on budget performance. Ager (2014), variables in relation to the financial performance of petroleum companies in Kenya had a significant influence on the financial performance of petroleum companies in Kenya.

#### **5.4 Recommendations**

The analysis done in the previous chapter indicates that changes in business dynamics in oil industry in Kenya should not be ignored since they have significant effects on how the budgets perform. The study found significant effects of these variables on performance of the budget of which are just a few in the dynamic business environment.

With the constant change in policies and new entrants in the Kenyan market, decision makers and those who prepare the budgets cannot afford to ignore the macro factors when preparing the budgets since these factors will greatly determine how they will perform.

#### **5.5 Recommendations for Further Studies**

This study used four macro factors and sought to test how they would affect the performance of budgets, however, there are other factors which are specific to the industry that still needs to be tested and the extent of their effects determined on the overall performance of the performance on OMCs.

This is because the environment in Kenya is highly competitive hence constant change on strategies and policies of trade.

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## **APPENDICES**

### Population of Oil Marketing Companies in Kenya

1. Total Kenya Limited
2. VIVO Energy Kenya Limited
3. Kenol/Kobil Limited
4. Libya Oil Kenya Limited
5. Hashi Energy Limited
6. Gulf Energy Limited
7. Gapco Kenya Limited
8. Regnol Oil Kenya Limited
9. Petro Oil Limited
10. National Oil Corporation of Kenya Limited
11. Hass Petroleum Limited
12. Fossil Fuels Limited
13. Engen Kenya Limited
14. Oryx Energy's Kenya Limited

15. Bakri International Co. Limited
16. Royal Energy Kenya Limited
17. MGS International Limited
18. Tosha Petroleum Kenya Limited
19. Ainushamsi Energy Limited
20. Galana Oil Kenya Limited
21. Olympic Petroleum Limited
22. Banoda Oil Limited
23. Ranway Traders Limited
24. Essar Petroleum (EA) Limited
25. Cityoil Kenya Petroleum Limited
26. Ramji Hiribhai Devani
27. East African Gas Oil Limited
28. Dalbit Petroleum Limited
29. Al Leyl Limited

30. Global Petroleum Products

31. Kosmoil Limited

32. Tiba Oil Company Limited

33. Stabex Limited

34. Oilcom Limited

35. Towba Limited