THE RELATIONSHIP BETWEEN OPERATIONAL EFFICIENCY AND FINANCIAL PERFORMANCE OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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DECLARATION

I declare that this Research Project is my original work and has not been submitted for examination in any other university or institution of higher learning .

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D63/70885/2014

This Research Project has been submitted for examination with my approval as the University Supervisor

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DEDICATION

I dedicate this research work to my dear family especially my parents for their dedication and unconditional love and support throughout the Master of Science program. May God continue bless you.

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ABBREVIATIONS

ANOVA - Analysis of Variance Technique

CBK - Central Bank of Kenya

CMA - Capital Markets Authority

EMH - Efficient Market Hypothesis

GDP - Goss Domestic Product

IFC - International Finance Corporation

IPO - Initial Public Offering

KCB - Kenya Commercial Bank

KNBS - Kenya National Bureau of Statistics

NSE - Nairobi Securities Exchange

OE - Operational Efficiency

ROA - Return on Assets

ROCE - Return on Capital Employed

ROE - Return on Equity

ROS - Return on Sales

SMEs - Small and Medium Enterprises

SPSS - Statistical Package for Social Sciences

ABSTRACT

The operational efficiency aspect for any type of business is vital and must be considered by managements in order to earn healthy and sustainable financial performance. Operational efficiency is the proficiency of a corporation to curtail the unwelcome and maximize resource capabilities so as to deliver quality products and services to customers. Kenya has experienced significant transformations since the inception of Nairobi Securities exchange, in terms of growth due to local and foreign direct investment such that it has emerged fourth in sub-Saharan Africa and one of the most active securities market in the whole of |Africa. Besides the solid profitability the market has brought to the various listed firms, it has also contributed to the stability of the financial market and economic development of Kenya in general. As a result, the study of financial performance determinants, specifically operational efficiency has provoked academic research, corporation's management, financial market and regulatory interests (Athanasoglou, Brissimis & Delis, 2008). The objective of this study was to examine the relationship between operational efficiency and the financial performance of firms listed at the Nairobi securities exchange. The study also used other five control variables which are: Financial leverage, Liquidity, Size of the firms, capital adequacy and real interest rates to also test whether they have a relationship with ROA of firms listed at the NSE. This study covered a five year period from 2009 to 2013. Descriptive research design was used and secondary data was collected from World Bank and the annual reports of firms listed at the NSE. Data was then analyzed using a regression analysis model and statistical softwares namely: SPSS version 21 and Microsoft Excel 2010. The results of analysis were then interpreted using tables. The findings showed that operational efficiency positively impacts on the ROA of the firms listed at NSE. The effect of operational efficiency on ROA is statistically significant at 5% level. The study therefore concludes that operational efficiency has a statistically significant relationship with ROA. The study also found that financial leverage positively affects ROA of firms listed at NSE however effect is not statistically significant. Liquidity positively affects ROA of the firms listed at NSE though the effect is not significant. Size of the firms listed at NSE negatively impacts on ROA and the effect is statistically significant. Both capital adequacy and real interest rates positively impacts on the return on assets of firms. However, the effect is not statistically significant. The study recommended that the managers of firms should avoid losses through forecasting the level of financial performance using fluctuations in the internal and external factors like operational efficiency, size of the firm, capital adequacy and interest rates, which affect Return on assets.

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

One of the most imperative aims of a company's management is to maximize the present and future financial and operational performance because they impact the market price per share and consequently, shareholders' wealth (Gill et.al, 2014). Operational efficiency is the key determinant for long-term solvency for any business, in fact, firm-specific determinants of financial performance involves operating efficiency and financial risk. According to Bhagavath, (2009) the operational efficiency concept has become of concern due to increased competition, business processes and new technology evolution. Whenever there is increased uncertainty, business establishments may decide to diversify their portfolios and/or raise their liquid holdings in order to reduce their risk. Because of the intense of change in the business operation environment, firms face serious competition and that is why a good operating performance is critical for successful business (Goel, 2012).

Improving operational efficiency has direct impact on the organizations profit margins and efficient firms are more cost-effective. The operational efficiency aspect for any type of business is vital and must be considered by managements in order to earn healthy and sustainable financial performances (Sufian, 2007). For an economy to grow, money needs to shift from less to more productive undertakings especially through investing the idle coinage and savings. This calls for the government to encourage and ensure borrowers and lenders of money are brought together at a low cost, civil education be provided to the public on how to invest as individuals or together as a group, facilitation of upright management of companies, provision of

financial solutions to common problems and raising of money to expand business activities, create employment and generally help the economy to develop.

Kenya has experienced significant transformations in since the inception of Nairobi Securities exchange, which was formerly known as Nairobi Stock Exchange, in terms of growth due to local and foreign direct investment. Only 67 out of all firms in Kenya have met the strict minimum requirements to join the listing by the Nairobi securities exchange to have their shares traded publicly. Both external and internal factors have affected this securities market but it still it has managed to come up with financial solutions and even emerged fourth in sub-Saharan Africa and one of the most active securities market in the whole of |Africa. Besides the solid profitability the market has brought to the various listed firms and, it has also contributed to the stability of the financial market and economic development of Kenya in general. As a result, the study of financial performance determinants, specifically operational efficiency has provoked academic research, corporation's management, financial market and regulatory interests (Athanasoglou, Brissimis & Delis, 2008).

1.1.1 Operational Efficiency

The term 'efficiency' is beheld in both the industrial organization and strategic management collected works as the product of firm-specific factors such as management skills, innovation, cost control and market share as determinants of current firm performance and its stability. According to Kalluru & Bhat (2009), Operational efficiency is the proficiency of a corporation to curtail the unwelcome and maximize resource capabilities so as to deliver quality products and services to customers. An organizational operational efficiency depends on factors like skilful and proficient workers, proper technological progression, proper procurement carry out, return to scale of the businesses, supply chain controlling among many others.

Relatively, more efficient firms tend to maintain more stability levels in terms of output and operating performance compared to their other industry peers (Mills and Schumann, 1985).

There are several ratios of measuring operational efficiency. To begin with, we can use the Total Asset Turnover ratio which measures a company's ability to generate sales given its investment in total assets. The formula for the ratio is dividing net sales by average total assets. Secondly we can use the Fixed-Asset Turnover ratio which is analogous to total asset turnover ratio except is that only fixed assets are taken into account here. Fixed-asset turnover is arrived at by dividing net sales by average net fixed assets. Another ratio for measuring operational efficiency is Equity Turnover. This ratio measures a company's ability to generate sales given its investment in total equity. It is calculated as the ratio of net sales to average total equity. These ratios shows whether the firm is managing operational cost efficiently which will ultimately have an influence upon its profitability (Rao & Lakew, 2012).

Efficiency scores obtained for organization can be used to formulate operational strategy to enable a firm meet its business objectives and goals by enhancing allocation of available resources in order to maximize outputs of the firm (Reid & Sanders, 2007). According to Berger & Mester (1997), statistical based "efficient cost frontier" tactics would measure efficiency more accurately. The operating performance of corporations has long been at the center of academic research and has received a substantial amount of attention. This is primarily due to the fact that operating efficiency is of particular interest for both managers, whose aim is to improve the performance of their financial firms, and policy makers, whose task is to assess the effects of market structure on performance and, therefore, to safeguard the

stability of the financial system .If firms operate more efficiently, they might expect improved productivity and consequently profitability. Consequently, the consumer could expect better and fair prices, quality service, better security and reliability of financial structures (Berger, Hunter & Timme, 1993).

1.1.2 Financial Performance

Financial performance is a measure of how well a firm can use its resources from its most primary business to generate returns. It is the extent to which a set objective is or has been attained. Financial performance has repercussions to corporation‘s health and eventually its continued existence. Elevated routine in performance reflects increasing management effectiveness and efficiency in making use of company‘s resources. A fine calculated and employed management of day to day expenses is anticipated to add positively to the formation of a firm's wealth. This in turn contributes to profitability and consequently to growth of the country‘s economy at large. For a firm to improve overall performance, it should aim at minimizing risk and well prepare for uncertainty at this time it is a prerequisite for firm to know about the Determinants of working capital and the appropriate intensity (Naser and Mokhtar, 2004).

Traditionally, financial performance measures were fragmented into four classifications, which are profitability, liquidity / working capital, gearing and investor ratios. Alamro et al. (2012), put forward that today, different researchers use various methods to measure financial performance. For illustration, return on capital employed (ROCE) is a key measure of profitability which shows the net income that is generated from every one dollar of assets employed. Return on equity (ROE) displays the amount of net income reimbursed as a percentage of shareholders equity

by revealing how much profit a company generates with the money shareholders have invested. ROE is expressed as a percentage and calculated as the ratio of Net Income to Shareholder's Equity. Another measure of financial performance is Return on Assets (ROA) which explains a firm's ability to make use of its assets and Return on sales (ROS), reveals how much a company earns in relation to its sales. Financial ratios express connections between financial statement items. Although they provide chronological records, management can use these ratios to identify internal strengths, weaknesses thus eventually estimate future financial performance. Investors as well can use ratios to compare companies in the equivalent industry. Ratios do not make sense as standalone figures, but they are meaningful when matched to historical statistics and industry averages (Basu, 2015)

In this study, we shall measure financial performance using Return on asset. ROA is measured by dividing annual net income by average total assets. In his thesis on Financial Performance of Palestinian Commercial Banks, Alkhatib (2012), used ROA along with price to book value (Tobin's Q model) and economic value add as performance proxy measures successfully. Inoti, Onyuma and Muiru (2014), also used ROA and ROE as measures financial performance in their study on Impact of Acquisitions on the Financial Performance of the Acquiring Companies in Kenya, A Case Study of Listed Acquiring Firms at the Nairobi Securities Exchange.

1.1.3 Operational Efficiency and Financial Performance

If internal aspects of a firm are primarily responsible for its financial performance variation, organizations are expected to make changes based on finest operational practices to their structural and infrastructural elements in order to attain selected performance goals (Narasimhan, Swink & Kim, 2005). The operating efficiency of a

business in relation to the efficient utilization of the assets is reflected in net profit margin. Although a high return margin reflects better performance, a lower margin does not automatically indicate a lower rate of return on assets turnover. The overall operating efficiency of a firm therefore can be assessed on the basis of a combination of both. Firms are on performance curves based on the resources they use, however, fresh manufacturing know-hows, including management-related ones, might place firms on new performance curves. (Pisano, 1996)

Extant literature has highlighted that operations efficiency is closely associated with the environmental or financial performance of firms. Dhillon (2012), calculated using Karle Pearson's coefficient correlation tool and examined that there was an insignificant positive correlation between operational efficiency and overall profitability during Gill et al, (2014). In his study concluded that operational efficiency negatively affects Future Performance of Indian Manufacturing Firms. His findings showed that an increase in the cash conversion cycle, operating risk, and operating expenses which represented operational efficiency negatively impacted the future performance of the firms. This study hopes to establish the relationship between operational efficiency and financial performance of firms listed at the Nairobi securities exchange.

1.1.4 Firms Listed at the Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) is a market which deals in the exchange of shares of publicly quoted companies, and government, corporate and municipal bonds among other instruments for money in Kenya. The existence of Nairobi Stock exchange which was later renamed to Nairobi Securities exchange can be traced to the 1920's when it was operating as an informal market for Europeans during the time

when Kenya was still a British colony (IFC, 1984). It was then constituted in 1954 as a voluntary group of stockbrokers registered under the Societies Act (NSE, 1997). It used to be a private operation until year 1991 when the NSE was registered under the Companies Act. In 1994 investors were allowed to open and settle electronic accounts and trade at regular hours.

The NSE has been regulated since 1989 by the Capital markets Authority (CMA). The CMA grants approval for listing for all public offers and listing of securities on any securities exchange in Kenya. There are very strict conditions for firms prior to their listing and as at 31st December 2014, only 67 firms in Kenya were listed at the NSE (CMA, 2015). Nairobi securities exchange is the only market where financial products, specifically shares and bonds, of listed companies are exchanged in Kenya. It is the sub-Saharan Africa's fourth-largest bourse and one of the most active markets in the continent. It now lists fixed-income securities and small-cap shares as well as cross-listing equities with neighboring bourses.

NSE is the largest exchange in the country in terms of trading volumes. During the year 2010-2011, NSE reported a turnover of 35.77, 412billon in the equities segment. The shares of the Nairobi Securities Exchange are listed and traded on its own main board, under the symbol: NSE prior to the 2014 IPO. The shareholding in the bourse's stock is currently as follows: CFC Stanbic nominees Kenya Limited is at the highest rank owning 7.30 %, the treasury of Kenya owns 3.37 % Investor Compensation Fund Board owns 3.37 % as well and the rest of the shares equal to 85.96% belong the public. (NSE, 2014)

The NSE plays an important role in the process of economic development such as helping to mobilize domestic savings thereby bringing about reallocation of financial

resources from dormant to active agents, making long-term investments as the transfer securities (shares and bonds) among the participating public is facilitated, enabling companies to engage in local participation in their shares ownership, thereby giving Kenyans a chance to own shares of reputable firms, facilitate government's privatization programmes, enhances the inflow of international capital, helps companies to raise extra finance essential for expansion and development.(NSE, 2015). On the other hand, NSE continues to face some challenges like high maintenance costs, insider trading, lengthy listing procedures, implementing the legal and regulatory framework such as Internet trading guidelines, offer of securities rule, securities and investment bill (Maina, 2014).

1.2 Research Problem

Operation efficiency can be viewed as what occurs when the right combination of people, process and technology come together to boost the productivity and worth of any business operation, whereas driving down the cost of routine operations to a preferred level. The final result is that resources previously needed to manage operational tasks can be redirected to new, high value initiatives that bring additional capabilities to the organization (Dillon, 2012) NSE being the largest the largest exchange in the country in terms of trading volumes means it's an institution of concern. Furthermore, given the strict conditions prior to a firm listing requires the financial performance of firms listed in the financial instrument be exemplary and so it is important to study whether changes in operating efficiency and other control variables would prevent a steady high financial performance.

Literature on operational efficiency gives diverse views on the nexus between operational efficiency and financial performance. For instance, Gillet et al. (2014),

findings showed that changes in operational efficiency cause changes in future performance of manufacturing firms in India. An increase in the operational efficiency has a negative impact on the future performance of the firm. In their study Werner and Moormann, (2009) concluded that profitable businesses are those that operate with higher technical efficiency than their competitors. Furthermore, the operation efficiency in terms of the structure and concentration of the national financial sector has a considerable impact on a firm's financial performance. Other studies have found no relationship at all. For instant Ochieng et al, (2012) examined the effects of operational factors on organizational performance of Kenyan insurance Industry and their findings revealed that operational factors have no relationship with organizations' performance.

Surveys shown above on the operational efficiency of firms show mixed conclusions on the relationship between operational efficiency and financial performance. Some show negative relationship, others positively significant relationship and others no relationship at all. Some studies measure the relationship between efficiency and profitability and not specifically financial performance. Different ratios have been used to measure financial performance like return on equity, return on sales among others. This study will bridge this gap to specifically answer the question: What is the relationship between operational efficiency and financial performance of firms listed at the Nairobi securities exchange?

1.3 Objective of Study

To examine the relationship between operational efficiency and financial performance of firms listed at the Nairobi Securities Exchange.

1.4 Value of Study

The existing research in this field is expanded by this paper because typically, it will be first in Kenya to study operational efficiency on financial performance of all the firms listed at the NSE whereby performance will be represented by Return on Asset figures and the operation efficiency will be represented by the Operating expense indicator called the total asset turnover which will be calculated as a ratio of sales to total assets. This will provide a platform for quality discussion and debates amongst academicians, policy makers, and professionals and provides a basis for further research

The study will be useful to probable investors in easier monitoring of firms whose operation efficiency is questionable thus making wise investment decisions. It will also shed light on the various factors besides efficiency of operation that could affect the performance of the listed firms. It will help in understanding the consequence of these factors on financial performance of the listed firms at the NSE thus investors can take advantage on the investment opportunities available when these variables fluctuate

The findings will also be useful to policy makers and regulators in the area of regulation and supervision. This study will guide the government on how certain monetary and fiscal policies influence firm performance and hence contribute in improvement of policy making. The study will also provide useful insights to CMA the regulator of NSE on how various legal, regulatory and procedural requirements could impact on the finance performance in general as they endeavor to conform. In this way, the study findings will offer useful inputs to advise the review of the policy and legal framework and influence effective formulation of economic policies by government statutory bodies guiding the operations of firms.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discussed the different theories, literature and review of empirical studies both internationally and locally on operational efficiency and financial performance.

2.2 Theoretical Review

The theoretical foundations of private equity are found in the modern literature of capital assets that acknowledges the special role of capital structure on investment opportunities. This study is grounded on efficient market hypothesis, Organizational Development Theory and the J-curve phenomenon.

2.2.1 Efficient Market Hypothesis

The origins of the Efficient Markets Hypothesis (EMH) can be traced back to the pioneering theoretical contribution of (Bachelier 1914). Market efficiency is one of the essential concepts in finance and involves three related concept, these are: Operational efficiency which is a measure of how well things function in terms of speed of execution and accuracy, informational efficiency which is a measure of how quickly and accurately the market reacts to new information and the efficient market hypothesis (EMH) which deals with informational efficiency. A market can be informationally efficient without being operationally or allocationally efficient. For instant, there can be imperfect competition in product markets (allocational inefficiency) with a monopolist dominating the market, and still have efficient capital markets, with the equity issued by the monopolist being rationally priced.

Operational efficiency deals with the cost of transferring funds. It is a market condition that exists when participants can execute transactions and receive services

at a price that fairly equates to the actual costs required to provide them. Economists use this term to describe the way resources are employed to facilitate the operation of the market. It is usually desirable that markets carry out their operations at as low a cost as possible. An operationally-efficient market allows investors to make transactions that move the market further toward the overall goal of prudent capital allocation, without being chiseled down by excessive frictional costs, which would reduce the risk/reward profile of the transaction (Bachelier 1914).

In the theoretical world of perfect capital markets, transaction costs are assumed to be zero and markets are perfectly liquid, implying perfect operational efficiency. The advent of electronic trade and increased competition have pushed fees low enough to be fair to investors while still allowing brokers to earn a profit. In other areas of the market, certain structural or regulatory changes can serve to make participation more operationally efficient. This minor change has reduced unnecessary costs of trading in and out of money market funds, making the futures markets much more operationally efficient.

2.2.2 The Organizational Development Theory

Organizational development emerged out of human relations studies when psychologists realized that organizational structures and processes influence worker behavior and motivation. Originally proposed by Lewin (1930), organizational development is a long-range effort to improve an organization's problem solving and renewal process through a more effective and collaborative diagnosis and management of organization culture with the assistance of a consultant facilitator and the use of the theory and technology of applied behavior. Organizational development is simply a process of continuous diagnosis, action planning, implementation and evaluation, with the goal of transferring knowledge and skills to organizations to

improve the operational efficiency through expanding their capacity for solving problems and managing future change.

Objectives of organizational development vary from one situation to another. Broadly speaking, all organizational development programs try to achieve the following objectives: Making individuals in the organization aware of the vision of the organization, encouraging employees to solve problems instead of avoiding them, Strengthening inter-personnel trust, cooperation, and communication for the successful achievement of organizational goals, encouraging every individual to participate in the process of planning, thus making them feel responsible for the implementation of the plan., creating a work atmosphere in which employees are encouraged to work and participate enthusiastically, replacing formal lines of authority with personal knowledge and skill and creating an environment of trust so that employees willingly accept change (Lewin, 1930).

Organization development theory is significant in this study since it provides managers with a vehicle for introducing change systematically by applying a broad selection of management techniques. This theory is critical to the performance of any organization because it brings key skills and perspectives that effectively facilitate changes in culture and shifts in strategy to address the complex challenges facing organizations. This, in turn, leads to greater personal, group, and organizational effectiveness. This is essential especially when considering that the business environment has been undergoing fundamental administrative and control changes. The changes have prompted or necessitated that companies undertake a continuous re-evaluation of their strategies and ways of conducting business so as to maintain a competitive edge in the corporate world. Failure to do this would, undoubtedly, result

in extinction, irrelevance and losses in the company and thus the importance of this study's outcome (Bundy, 2002).

2.2.3 The J-curve Phenomenon

J-curve theory was developed by Davies (1962), and it illustrates return on investment over the investment life, from the time investment was introduced to its exit. Bremmer (2006) explains that J-curve is generated by relating duration of investment as dependent factor and returns as the independent variable. The common practice of paying a fee to manage the investment as well as the initial starting costs do not yield equal book value. As an outcome, private equity typically shows negative return. After three to five years, the circular internal rates of return (IRR) is expected to show substantial IRR. According to Jeng and Wells (2000), the expected period is normally shorter for buyouts funds compared to initial stages of expansion.

The J-curve is employed in explaining the historical of companies to give negative returns and investment returns in final periods as the company matures. According to Davies (1962), in the starting years or terms, various factors contribute to reduced earnings on investments. Among the factors that may lead to negative returns cost related to management of the starting companies, high leverage costs, and underperforming investments. As time progresses, the companies start realizing gains.

This theory will be essential in this study as it illustrates the different factors that affect the return on investments. According to Grabenwarter and Weidig (2005), there are various factors that affect J-Curve's length and depth. First, J-Curve is affected by project's management starting fee. The beginning of projects typically require substantial investments, but the investment reduce with time progression as the organization stabilizes. Additionally, at the initial stages, the return on investment is

minimal, and management fee heavily relies on committed capital. Second, the early stages entail various transactions: some which are useful and others underperform. The ones that underperform are soon identified and rectified.

2.3 Factors Affecting Financial Performance

Financial performance is influenced by both internal factors which are controllable and external factors which management or shareholders of firms can't control. This section will discuss a number of factors that affect the firms' financial performance with empirical evidence.

2.3.1 Operational Efficiency

Operational efficiency is the capability of a business to deliver quality commodities to customers in the most cost-effective manner possible. The operating efficiency of a business in relation to the efficient utilization of the assets is reflected in net profit margin. Although a high return margin reflects better performance, a lower margin does not automatically indicate a lower rate of return on assets turnover. Relatively, more efficient firms tend to maintain more stability levels in terms of output and operating performance compared to their other industry peers (Mills and Schumann, 1985).

There are several ratios of measuring operational efficiency. We can use the Total Asset Turnover ratio by dividing net sales by average total assets. Secondly we can use the Fixed-Asset Turnover ratio by dividing net sales by average net fixed assets. Lastly we can use Equity Turnover calculated as the ratio of net sales to average total equity. These ratios shows whether the firm is managing operational cost efficiently which will ultimately have an influence upon its profitability. (Rao &Lakew, 2012).

2.3.2 Capital Adequacy

Capital adequacy is a percentage ratio of an establishment's capital to its assets and it is used as a measure of financial health, performance and stability. A relationship exists between a firm's financial performance and capital adequacy. The Signaling theory argues that there is a positive relationship between a bank`s profits and its level of capital. A higher capital signals positively to the market on the value of a firm. Trong (2013), established that the link between funding, capital adequacy and firm performance varies with the heterogeneity of firms' characteristics.

Profitable institutions which have a considerably more capital adequacy are shown to have higher sustainability, efficiency and outreach. Contrary to the Signaling theory, the Risk Return Theory argues that capital and financial performance are negatively associated (Saona, 2011).

2.3.3 Liquidity

Liquidity is the ability of a firm to convert an asset to cash quickly. It is simply the ability of a business to pay off its short-term obligations measure with ratios such as current ratio, quick ratio and cash ratio. It is the amount of capital (Cash, credit and equity) that is available for investment and spending (Qasim & Ramiz, 2011). High liquidity produces flexibility for a firm or an investor in a low-risk position, but also tends to decrease profitability. Liquidity may arise from the possible inability of a firm to accommodate increase in liabilities, thus affecting firms' financial performance.

There is a certain level of liquidity that each business shouldn't fall below depending on the field of operation because failure to meet short term obligations may lead to losses and eventually collapsing of a firm (Onuonga, 2014). Illiquidity of a firm

means that it cannot obtain sufficient funds, either by increasing liabilities or by converting assets promptly, at a reasonable cost. In other words, periods during which the firms don't enjoy enough liquidity, they cannot satisfy the required resources from debt without conversion the asset into liquidity by a realistic budget. In this stage the company is said to experience a liquidity risk.

2.3.4 Size of a Firm

Firm size is the speed and extent of growth that is ideal for a specific business. Growth in size of a firm can be in terms of revenue, profits, assets or number of employees which are all essential for increased financial performance. In a modest way, the best indication of ''bigness'' of a firm is the size of its management group or the amount of assets it possesses compared to others in the same industry (Sritharan, 2015).

Large firms are more likely to manage their working capitals more efficiently than small firms. Most large firms enjoy economies of scale and thus are able to minimize their costs and improve on their financial performance. In their study, Kodongo et al., (2014), findings suggested that asset tangibility, sales growth and firm size are important determinants of profitability and consequently determine the financial performance. A study by Omondi and Muturi (2013), suggest that firms should expand in a controlled way with the aim of achieving an optimum size so as to enjoy economies of scale which can ultimately result in higher level of financial performance.

2.3.5 Financial Leverage

Financial leverage is the use of debt to acquire additional assets, sometimes referred to as gearing. The more debt financing a firm uses, the higher its financial leverage.

Debt and Equity are the basic components of the firm's financial structure which show the financial leverage of a firm. Financial leverage is most often referred to as firm's debt-to-equity ratio, which provides insight into how risky a company is. Usually, a company that is more heavily financed by debt poses greater risk, as this firm is relatively highly leveraged (Saleem, 2013).

Leverage ratios like the debt ratio, the debt to equity ratio or the equity ratio show how much of the firm's asset belong to creditors rather than shareholders. The ratio of debt-equity has implications for the shareholders' dividends and risk, this affect the cost of capital and the market value of the firm. There is an advantage to financing with debt and the financing or leverage decision is a significant managerial decision because it influences the shareholder's return and risk and the market value of the firm (Pandey, 2007).

2.3.6 Interest Rates

Interest rate is a macro environment factor which is a percentage of the principal charged by the lender as a compensation for the loss of asset use. It is usually expressed as a percentage of the total amount loaned. Higher interest rates offer lenders in an economy a higher profitability relative to other countries. Increasing interest rate and capital flow volatility are found to raise inflation uncertainty and encourage financial investments while discouraging fixed investments by real sector firms (Felix, 1998).

Interest rates are generally higher for borrowers who are more likely to default. Interest is often compounded, meaning that the interest earned on a savings account for example, is considered part of the principal after a predetermined period of time. Interest is then earned on the larger principal balance during the next period and the

process begins again (Canner et al., 1997). Interest rate is influenced by a number of factors namely the risk of default, the length of the loan, inflation rates, and the real rate A study by Ovamba (2014), on the relationship between macroeconomic factors and bank profitability had results indicating that factors (real GDP, inflation and exchange rate) have a significant effect on profitability and financial performance.

2.4 Empirical Review

The empirical review will discuss the literature done in the recent past both internationally and locally on operational efficiency and other factors affecting financial performance.

2.4.1 International Evidence

Wang and Lin (2014), study the Impact of Bank Operational Efficiency Using a Three-Stage Data Environment Analytical Model. The authors use a three-stage sequential technique to develop a Data Envelopment Analysis (DEA) model for examining a bank's technical efficiency index. Information is obtained from 34 Taiwanese commercial banks for the period from 2008 to 2011 following the global financial crisis. The Malmquist total factor productivity index is also employed to measure the impact of changes in productivity on the panel data. Empirical results derived from the DEA approach show a gain in technical efficiency and scale efficiency in the industry after adjusting the slack variables when using the corrected ordinary least squares (COLS) regression model. The results indicate that commercial banks need to diversify to increase their market share when dealing with derivatives which are associated with higher risk. The Balk's Malmquisit TFP index shows a decrease in bank productivity and improvement in pure technical efficiency.

Qiang et al., 2014), examine whether and how internal control over financial reporting affects firm operational efficiency. The final sample consists of 17,421 firm-year observations representing 3,907 unique firms during the period 2004 to 2011. The frontier analysis called Data Envelopment Analysis (DEA) is used to measure firm operational efficiency. They find that operational efficiency, derived from the frontier analysis, is significantly lower among firms with material weaknesses in internal control relative to firms without such weaknesses. They document some evidence suggesting that effective internal control leads to greater operational efficiency through reducing the likelihood of misappropriation of corporate resources and through enhancing the quality of internal reports for decision making. The study also documents that smaller firms benefit more from having effective internal control in terms of operational efficiency.

Daša (2014), aimed at broadening the understanding operational factors of small and medium businesses (SMBs) as a significant driver of economic development, as particularly related to their market performance, as well as the impact of the internal and external environment on it. The study was conducted on Croatian fast-growing SMBs. The paper provided a more realistic picture of the variability of environmental factors, as well as of the variability of SMBs performance/effectiveness, as well as included the period of economic crisis, jeopardizing not only the performance, but also the very survival of businesses in general. This study confirmed that eight internal factors (business entity size, life cycle stages, technology and product innovation, organizational autonomy, centralization and formalization, market roles, and type/importance of goals) and three out of the five analyzed external factors (general state of the economy, sector, and type of customers), depending on the period (life cycle stage and general state of the economy), exercise a more or less significant

impact on the performance/effectiveness (sales growth and achievement of goals) of SMBs

Kijjambi (2014), established the factors responsible for financial performance of domestic commercial banks in Uganda. The factors are analyzed in the light of structure–conduct performance and Efficiency hypothesizes. The study analyzed performance of all licensed domestic and foreign commercial banks independently on average basis. The study population included all licensed Domestic commercial banks in Uganda as at 31st December 2011.Data was collected from published annual financial statements for both dependent and independent variables for the study. Using Linear multiple regression analysis over the period 2000-2011, the study found that, management efficiency; asset quality; interest income; capital adequacy and inflation are factors affecting the performance of domestic commercial banks in Uganda over the period of study.

2.4.2 Local Evidence

Omondi and Muturi (2013), aimed to find out the factors affecting the financial performance of listed companies at Nairobi Securities Exchange in Kenya. The study adopted an explanatory research design and 29 listed firms which have consistently been operating at the Nairobi securities exchange during the period 2006-2012 were sampled. Purposive sampling technique was used. The analysis of the secondary data collected from statements of financial position of each firm followed a number of basic statistical techniques. Descriptive statistics and inferential statistics were used to analyze data. Pearson correlation was used to ascertain the interrelationship between the variables, whereas multiple-regression was used to assess the extent of the effect of the independent variables on the dependent variable. The study provides some

precursory evidence that leverage, operational efficiency, liquidity, company size and company age play an important role in improving company's financial performance.

Mutunga, Minja and Gachanja (2014), endeavored to empirically test the effects of Innovative Adaptation and Operational Efficiency on Sustainable Competitive Advantage of Food and Beverage Firms in Kenya. This study sought to answer the following research question: What are the effects of human capital (in innovative adaptation and dynamic operational efficiency) on firms' ability to attain sustainable competitive advantage within the food and beverage companies in Kenya? This research entailed a descriptive study design. This study sought to do that among the F & B firms in Kenya. From the study, 87% of respondents indicated concurrence on usefulness of operational efficiency for sustainable competitive advantage. Kenyan firms in the food and beverage industry therefore highly regard human capital, given innovative adaptation and operational efficiency, as a major contributor to sustainable competitive advantage.

Kisaka et al., (2014), sought to determine the X-efficiency of commercial banks in Kenya. The data was collected from 33 banks for the period 2000 to2005. The study applied the Stochastic Econometric Cost Frontier approach which involves the estimation of the cost function and the derivation of the X-efficiency estimate based on the deviation from the efficient cost frontier. The empirical results obtained showed that X-efficiency exists in the commercial banks in Kenya and is affected by economies of scale. The persistency of X-efficiency in relation to bank size was measured to determine if inefficient banks tend to remain inefficient over time. The results indicate that the average large bank inefficiency was more persistent than the average small bank inefficiency.

Maronga and Nyamosi (2015), sought to determine the speed of price adjustment and the pricing efficiency of the Nairobi Securities Exchange market after earnings announcements. The study was guided by the semi-strong form sub-hypothesis of the efficient market hypothesis. Efficiency was measured by the speed of price adjustment after earnings announcements. The study targeted all the companies listed at the Nairobi Securities Exchange, utilizing a sample of 20 companies. Data consisted of the closing prices of the stocks on the day of announcement, and on the 1^{st}, 3^{rd}, 7^{th}, $14^{th}$and 28^{th}day before and after earnings announcements. The study found that excess returns were realized both before and after the day of announcement. The study concludes that the Nairobi Securities Exchange is not semi strong form efficient.

Mukolwe and Wanyoike (2015), assess logistics management practices on operational efficiency of Mumias Sugar Company Limited, Kenya. The target population for the study included staff from selected departments of Mumias Sugar Company, representatives of farmers, and officials from the Ministry of Agriculture and the Kenya Sugar board. Purposive and convenience sampling methods were used to select sample elements for interviews. Stratified sampling technique was used to select the predetermined sample size of 92. Data was analyzed using mean, standard deviation and inferentially through correlation and regression analysis. The study revealed that effective management of information flow improves the company's internal and external processes. Automation of warehousing activities greatly enhances accuracy, speed of operations and reduces wastage. Transport management and physical distribution practices on the other hand allows faster and cost effective flow of goods and raw materials thus improving operational efficiency.

2.5 Summary of Literature Review

Common business practice implies that operational efficiency (OE) plays an important role in improving current and future firm performance. A business operation must have achievable targets depending on its assets and individual firms can make objective plans and can promote use of best practices within the firm with appropriate return to scale. Effective financial management is a key to success for any business and being factors affecting financial risk is vital to mastering the art of good financial performance. Efficiency isn't just about reducing costs; other business objectives, including service quality, still have to be achieved in order to keep existing customers and revenue. Many organizations are too concerned with costs and are not aware that the real business value can be destroyed if approached purely as a cost cutting exercise. (Abuzayed & Molyneux, 2009).

Literature show operational efficiency and financial performance have a relationship. Qiang et al., 2014), documented some evidence suggesting greater operational efficiency through reducing the likelihood of misappropriation of corporate resources and through enhancing the quality of internal reports for decision making leads to increased financial performance. Locally, a study by Mutunga, Minja and Gachanja (2014), show that 87% of respondents indicated concurrence on usefulness of operational efficiency for sustainable competitive advantage. Similarly, Omondi and Muturi (2013),provides found that operational efficiency among other internal variables play an important role in improving company's financial performance. In contrast. A study by Wang and Lin (2014), show a decrease in productivity and improvement in pure technical efficiency. In Addition, Okezie et.al. (2015), reveals no strong negative or positive influence of operational efficiency on performance.

The existing studies on the effect of operational efficiency on financial performance have no consistent conclusion. In fact, compelling conclusion on this nexus cannot just be drawn through a simple perfunctory overview of the data. Econometric analysis is therefore necessary in order to make empirical assessment, precisely on the effect of operational efficiency on financial performance of firms listed at the Nairobi Securities Exchange.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter described the methodologies undertaken in conducting the study. Specifically, this chapter covers: research design, population, data collection, data analysis, analytical model, and significance test.

3.2 Research Design

According to Dul and Hak (2008), research design is an arrangement of conditions for data collection and analysis in a way that attempts to combine relevant data on the study topic. It is the general project pattern that specifies the kind of information to be collected, sources to be used, and procedures to be employed. Descriptive research design was used in this study. It is a research whereby quantitative data is gathered and analyzed to illustrate the current trends in give phenomenon, even and linkages between various factors at the time of study (Green & Tull 1966). The choice of descriptive research was on the basis that it allows a researcher to determine the correlations among several variables either in isolation or in combination and their effects on the dependent variable (Cooper & Schindler, 2003).

3.3 Population

Polit and Hungler (1999), define population as a set or totality of entire objects, subjects or members that conform to specific requirements, or share some similar characteristics. The population in this study was all the 67 firms listed Nairobi Securities Exchange as at December 2014 (see appendix I).

3.4 Data Collection

Mugenda and Mugenda (2003), define data collection as the process through which information on specific population is gathered and computer, in a conventional systematical in a manner that enables researcher is able to answer stated research. This study employed secondary data collection technique. Secondary data collection is the gathering of information already researched and presented by other scholars (Dawson, 2009) or data obtained from other sources but population. The secondary data was obtained from the annual reports of the selected firms, Nairobi Securities Exchange (NSE) and Central bank of Kenya website (CBK)'s websites. Secondary data make useful information available that is necessary for carrying out an evaluation. With secondary data, there is a lot of background work that has been conducted by different researchers and hence there is a lot of information (Johnson, 2014).

3.5 Data Analysis

Data analysis is the process of transforming raw data into profitable information usable to the research in making conclusions about the research topic OECD (2001). Since data analysis used linear regression model, this study used analytical software of Statistical Package for the Social Science version 21 (SPSS) and advanced excel for analysis. The use of the two mentioned analytical software enabled the researcher determine the correlations between various variables.

3.5.1 Analytical Model

The regression model that was used in this study comprised six independent variables and one dependent variable. Financial performance was the dependent variable using

ROA and the independent variables were: operational efficiency, capital adequacy, liquidity, size of the firm, financial leverage and interest rates.

It will be as follows:

$Y=\alpha+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\varepsilon$

Where:

Y= Financial performance was determined using the return on assets (ROA). ROA is calculated by dividing firm's annual earnings by its total assets.

X_1= Operational efficiency, was calculated using the Total Asset Turnover ratio obtained by dividing total revenue by total assets. This OE ratio measures a company's ability to generate sales given its investment in total assets.

X_2= capital adequacy obtained by dividing capital expenditure by total assets.

X_3= liquidity calculated by the current ratio which is calculated as dividing current assets by current liabilities.

X_4= Size of the firm was measured by the log of total assets of each firm

X_5 = Financial leverage which was measured using the debt to equity ratio.

X_6= Real annual interest rates was sourced from the World Bank website

3.5.2 Test of Significance

Mugenda and Mugenda (2003) define reliability as the extent to which values are error free, therefore, giving reliable outcome after repeated trials. This study tested the statistical significance level at 95% confidential level. This determined whether the data is a true representation of the entire population. Using ANOVA, the analysis started by examining the significance of the differences amongst more than two samples concurrently. Suppose the test will fall within the 5% confidential level, which will mean the chosen sample is a true representation of the entire population.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The main objective of the study was to investigate the relationship between operational efficiency and financial performance of firms listed at the Nairobi securities exchange. The study targeted all the 67 firms listed Nairobi Securities Exchange as at December 2014 where the study used descriptive and inferential analytical techniques to analyze the data obtained. The study used linear regression model models. However, before running the regressions, descriptive statistics and correlation analysis were calculated. Correlation analysis shows the relationships between the different variables considered in the study. The correlation matrix presented simple bivariate correlations not taking into account other variables that may influence the results.

4.2 Response Rate

The study targeted all the 67 firms listed Nairobi Securities Exchange as at December 2014 and data was obtained from 49 firms. This represented a response rate of 73.13% response rate which is considered good for the analysis (Mugenda and Mugenda 2003).

Table 4.1: Response Rate

Response Rate	Frequency	Percentage
Response	49	73.13%
Unresponse	18	26.87%
Total	67	100.00%

Source: Resource findings

4.3 Data Analysis and Findings

Descriptive statistics, inferential analysis, graphical techniques were used to analyze the data and the findings were presented in table and graphical form. Descriptive statistics analyzed mean, minimum, maximum and the standard deviation of the variables while inferential statistics looked at the regression analysis, model summary and the analysis of variance. Correlation analysis was also used to assess the strength of the relationship between the dependent and each explanatory variable.

4.4 Descriptive Statistics

The descriptive statistics and the distribution of the variables were presented in Table 4.2 presents. The mean value, minimum, maximum and the standard deviation of Return on Assets, operational efficiency, financial leverage, liquidity, size, capital adequacy, real annual interest rates were analyzed.

Table 4.2: Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	245	-.0241	1.2304	.124198	.1459266
Operational efficiency	245	.0001	7.1831	.623690	1.0289113
Financial leverage	245	.0000	6.4380	.575183	.9620051
Liquidity	245	.5600	7.0070	1.819807	.9713133
Size	245	7.8384	11.5920	9.991379	.8497821
Capital adequacy	245	.0000	1.7248	.027155	.1613942
Real annual interest rates	245	2.8	12.0	7.960	3.9224
Valid N (listwise)	245				

Source: Research Findings

On the average return on asset (ROA) had a mean of .124198 with standard deviation of .1459266. Operation efficiency registered a mean of 0.62369 of total asset turnover

ratio which illustrates that one unit of total assets invested by the firms yield 0.62369 units of revenue. Financial structure had a mean of 6.589048 with a standard deviation of 3.6684082.Financial leverage had a mean of .575183 with a standard deviation of .9620051.The mean ration of current assets and current liabilities is 1.819807 with standard deviation of .9713133 implying that every unit of current asset invested is used to finance 1.819807 units of current liability. Capital adequacy mean was 0.027155 with a standard deviation of 0.1613942 while real interest rate recorded a mean of 7.96 with a standard deviation of 3.9224.

4.5 Inferential Statistics

The inferential statistics involved the use of multiple linear regression analysis to determine the significance of the coefficients of the explanatory variables in explaining the variation in dependent variables. Model summary was used to determine the proportion of the dependent variable explained by the explanatory variables while ANOVA was used to determine the fitness of the model used in the analysis. Correlation analysis established the direction of the relationship between the variables.

4.5.1 Correlation Analysis

The Pearson product-moment correlation coefficient is a measure of the strength of a linear association between two variables and is denoted by r. The Pearson correlation coefficient, r, can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable increases so does the value of the other variable.

Table 4.3: Correlation Analysis

Correlations

		ROA	Operational efficiency	Financial leverage	Liquidity	Size	Capital adequacy	Real annual interest rates
ROA	Pearson Correlation	1						
Operational efficiency	Pearson Correlation	.440	1					
	Sig. (2-tailed)	.000*						
Financial leverage	Pearson Correlation	-.033*	-.117	1				
	Sig. (2-tailed)	.639	.103					
Liquidity	Pearson Correlation	.005*	-.041	-.053	1			
	Sig. (2-tailed)	.940	.573	.464				
Size	Pearson Correlation	-.299	-.198**	-.054	.072	1		
	Sig. (2-tailed)	.000*	.003	.441	.308			
Capital adequacy	Pearson Correlation	.067	.015*	-.085	.021	-.212*	1	
	Sig. (2-tailed)	.298	.826	.223	.765	.001*		
Real annual interest rates	Pearson Correlation	.023*	.079	-.027**	-.163*	.053	-.037**	1
	Sig. (2-tailed)	.722	.232	.703	.020*	.413	.566	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

A value less than 0 indicates a negative association, that is, as the value of one variable increases the value of the other variable decreases. Table 4.3 below gives a summary of the correlation between the dependent variables and the explanatory variables. Operational efficiency shows a weak and positive correlation (R= 0.440) with ROA. Financial leverage has a weak negative association with the ROA of the firm (R = -0.033). With 5% level of confidence, liquidity has a strong and positive association with ROA. Size of the firms show weak but positive relationship with ROA (R=0.299). Capital adequacy also shows weak and positive relationship with ROA (R=0.298). Finally, real annual interest rates has a weak and positive relationship with ROA of firms listed at NSE.

The figures below show the trend of ROA and operational efficiency over the study period and the association between these two major variables whose relationship is the objective of this study.

Figure 4.1 ROA from 2009 to 2013

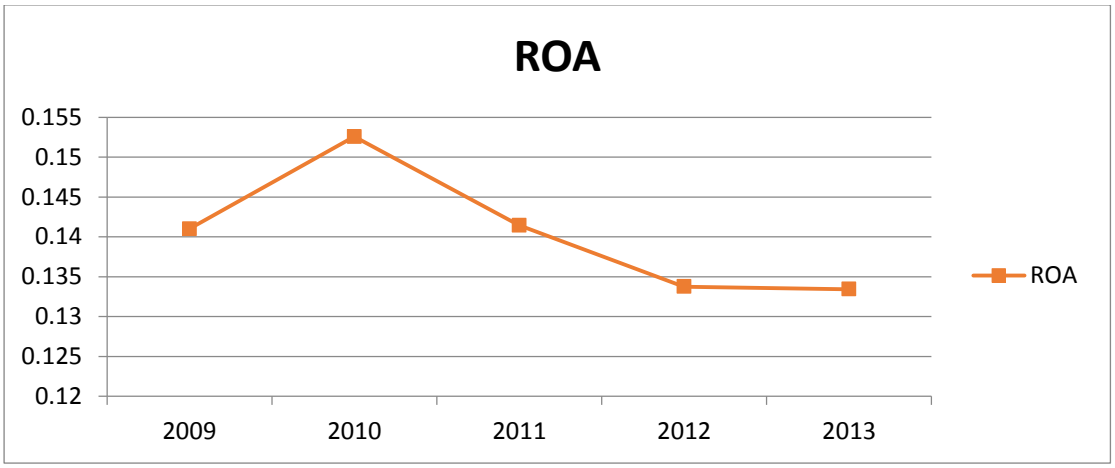

Figure 4.1 illustrate that ROA increased from 2009 to 2010 and a subsequent decline was witnessed from 2010 to 2012 and finally stabilize between 2012 and 2013.

Figure 4.2 : Operational efficiency from 2009 to 2013

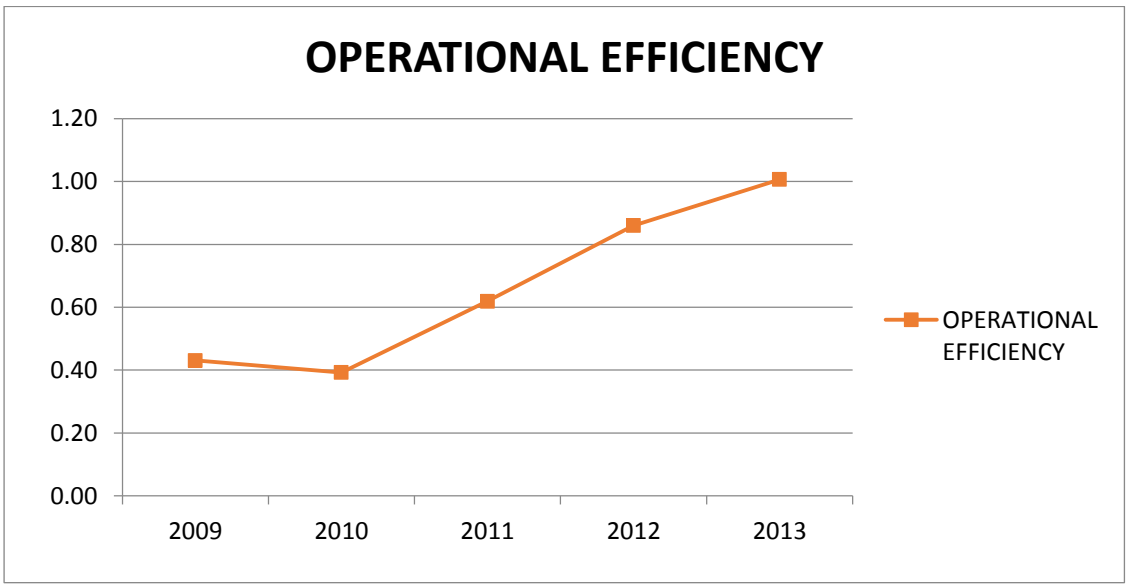

Figure 4.2 below shows that operation efficiency for the firms listed at NSE increased from 2010 to 2013 as demonstrated by the graph.

Figure 4.3: Relationship between ROA and operational efficiency between 2009 and 2013

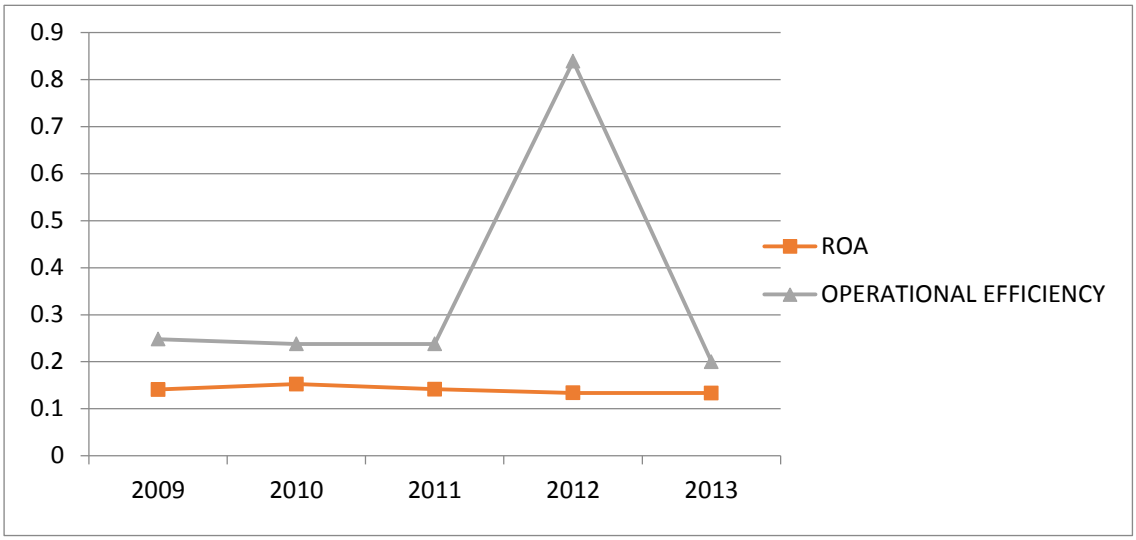

Figure 4.3 above shows that ROA and operational efficiency for the firms listed at NSE recorded a constant index between 2009 and 2011. However, from 2011opeerational efficiency increases while ROA remained relatively constant as shown by the graph above. The graph also demonstrates that ROA is largely below the operational efficiency and recorded a mean value less than 0.2 while operational efficiency recorded mean value greater than 0.2.

4.5.2 Regression Analysis

Regression analysis looked at the model summary, analysis of variance and regression coefficients. The estimated model as explained in chapter three is given by:

$$Y=\alpha+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\varepsilon$$

4.5.2.1 Model Summary

Determination coefficient (R^2) was carried out to determine the proportion of the variation in dependent variable that is attributed to the changes in the explanatory variables. The study established R^2 of 0.213 which implies that 21.3% of the variation

in ROA of the firms listed at NSE is attributed to the changes in explanatory variables (real annual interest rates, capital adequacy, financial leverage, liquidity, operational efficiency, size (natural log of total assets).

Table 4.4 Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.461[a]	.213	.186	.1427602

a. Predictors: (Constant, Operational efficiency, financial leverage, Liquidity, Real annual interest rates, Capital adequacy, Size)

4.5.2.2 Analysis of Variance

The study used ANOVA statistics to establish the significance of the relationship between value of the ROA of the firms listed at NSE and the explanatory variables. The regression model is significant given the level of significance 0.000 which is below 0.05; therefore the model is declared fit for estimation.

Table 4.5 Analysis of Variance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.982	6	.164	8.027	.000[b]
	Residual	3.628	178	.020		
	Total	4.609	184			

a. Dependent Variable: ROA

b. Predictors: (Constant, Operational efficiency, financial leverage, Liquidity, Real annual interest rates, Capital adequacy, Size)

4.5.2.3 Model Coefficients

Table 4.6 shows the regression coefficients of independent variables that explains the changes in ROA.

Table 4.3: Regression Coefficients

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	.448	.147		3.059	.003
Operational efficiency	.056	.010	.397	5.842	.000
Financial leverage	.003	.011	.020	.305	.761
Liquidity	.005	.011	.029	.422	.674
Size	-.037	.015	-.173	-2.496	.013
Capital adequacy	.373	.494	.052	.756	.451
Real annual interest rates	.001	.003	.019	.280	.780

a. Dependent Variable: ROA

Therefore the estimated model becomes:

$$Y= 0.448 + 0.397X_1+ 0.020X_2+ 0.029\ X_3 – 0.173X_4 + 0.052X_5 + 0.019X_6$$

4.6 Interpretation of the Findings

Other factors held constant, ROA for the firms registered an average value of 0.448 units during the study period. The findings show that operational efficiency positively impacts on the ROA of the firms listed at NSE. The effect of operational efficiency on ROA is statistically significant at 5% level of significance ($t=5.842$, $p=0.000$, $p<0.05$). This illustrates that one unit increase in operational efficiency will contribute to 0.397 unit increase in ROA of the firms listed at NSE. Financial leverage positively affects ROA of firms listed at NSE and one unit increase in financial leverage will lead to

0.020 unit increases in ROA of firms. However, financial leverage is not statistically significant at 5% level of significance (t=0.305, p=0.761, p>0.05). Therefore the study can conclude that financial leverage is not an important determinant of ROA of firms listed at NSE.

The regression result further shows that liquidity positively affects ROA of the firms listed at NSE. Liquidity has a coefficient of 0.422 implying that one unit increase in liquidity will lead to 0.422 unit increase in ROA of firms listed at NSE. With a p-value of 0.674 which is greater than 0.05, this implies that liquidity is not statistically significant at 5% level of significance in affecting ROA. Size of the firms listed at NSE negatively impacts on ROA and the effect is statistically significant at 5% level of significance (t=-2.496, p=0.013, p<0.05). Therefore one unit increase firms' total assets will lead to a 2.496 unit decrease in ROA of the firms listed at NSE. Both capital adequacy and real interest rates positively impacts on the return on assets of firms. However, the effect is not statistically significant at 5% level of significance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Introduction

This chapter presents the summary of finds, conclusion, recommendations and suggestions for further research derived from the findings. The chapter also presents the limitations that were encountered with suggestions for further research.

5.2 Summary of the Findings

Statistical analysis in chapter four above provided various results which can be summarized in terms of descriptive statistics and inferential statistics. Return on asset (ROA) had a mean of .124198 with standard deviation of .1459266. Operation efficiency registered a mean of 0.62369 of total asset turnover ratio. Financial leverage had a mean of 6.589048 with a standard deviation of 3.6684082. Financial leverage had a mean of .575183 with a standard deviation of .9620051.The mean ration of current assets and current liability was 1.819807 with standard deviation of .9713133. Capital adequacy had a mean of 0.027155 with a standard deviation of 0.1613942 while real interest rate recorded a mean of 7.96 with a standard deviation of 3.9224. Correlation analysis showed that Operational efficiency had a weak and positive correlation (R= 0.440) with ROA. Financial leverage had a weak negative association with the ROA of the firm (R = -0.033). Liquidity had a strong and positive association with ROA. Size of the firms showed weak but positive relationship with ROA (R=0.299). Capital adequacy showed weak and positive relationship with ROA (R=0.298). Real annual interest rates had a weak and positive relationship with ROA of firms listed at NSE.

Determinant of coefficient was established to be 21.3%. Other factors held constant, ROA for the firms registered an average value of 0.448 units during the study period. Operational efficiency positively impacts on the ROA of the firms listed at NSE and the effect is statistically significant. Financial leverage positively affects ROA of firms listed at NSE however effect is not statistically. Liquidity positively affects ROA of the firms listed at NSE though the effect is not significant. Size of the firms listed at NSE negatively impacts on ROA and the effect is statistically significant. Both capital adequacy and real interest rates positively impacts on the return on assets of firms. However, the effect is not statistically significant.

5.3 Conclusions

This study sought to investigate the relationship between operational efficiency and financial performance of companies listed in the Nairobi Securities Exchange in Kenya. The findings show that operational efficiency positively impacts on the ROA of the firms listed at NSE. The effect of operational efficiency on ROA is statistically significant at 5% level. The study therefore concludes that operational efficiency has a statistically significant relationship with ROA. The study also found that financial leverage positively affects ROA of firms listed at NSE however effect is not statistically. Liquidity positively affects ROA of the firms listed at NSE though the effect is not significant. Size of the firms listed at NSE negatively impacts on ROA and the effect is statistically significant. Both capital adequacy and real interest rates positively impacts on the return on assets of firms. However, the effect is not statistically significant.

5.4 Policy Recommendations

The empirical results of this study might be useful in guiding the NSE and its regulator the Capital Markets Authority in setting policies and procedures that encourage the traded firms to have increased profits and better financial performance by ensuring these firms maintain a high level of operational efficiency. This study found that operational efficiency positively impacts on the ROA and the effect of is statistically significant on the financial performance of the firms listed at NSE.

The study found out that real interest rates positively impacts on the return on assets of firms listed at NSE. The regulators of macroeconomic variables like interest rates should ensure they are well regulated in such a way that they lead to economic growth and increased financial performance of firms.

To have high level of financial performance, the managers of firms listed on the NSE should carefully plan and forecast using fluctuations in the internal and external factors like operational efficiency, size of the firm, capital adequacy and interest rates, which affect Return on assets. This study having revealed some of the factors affecting the performance, management will mitigate losses with a view to ensure their firms remain stable to serve their purposes and as long as this happens, they will be able to maximize shareholders value.

5.5 Limitations of the Study

This study used secondary data from financial reports of the firms listed at the NSE and the websites like that of CBK. Unlike primary data, secondary data may not be from untrustworthy sources, may be inaccurate, maneuvered by management or generalized hence rendering the information unreliable.

For the researcher to bring about this research work from start to end, a lot of money was invested. In this case, money had to be spent on internet browsing in search of relevant materials and data, printing and binding of proposals and reports, transport fees to the firms and to school. All in all, any worthy research is capital intensive.

The study was limited to only six variables but there are very many variables whose relationship with ROA can be empirically tested and can be found to affect financial performance of firms. Future researchers are advised to explore the factors that are left out in this study so that firms' managers, scholars, investors and regulators can have a better understanding of factors that affect financial performance.

The period of this study was limited to only five years. This period is short and may not be adequate to make unquestionable conclusions about the relationship between operational efficiency and financial performance of companies listed in the Nairobi Securities Exchange.

5.6 Suggestions for Further Research

Future scholars should consider using a longer study period for more trustworthy results on the relationship between operational efficiency and financial performance of companies listed in the Nairobi Securities Exchange. The period of this study was limited to only five years may not be adequate to make indisputable conclusions.

Future scholars should also test data at more than one significant levels so as to check whether they can get useful results that can add value to existing literature. This study used 5% significant level that revealed a statistically significant relationship between operational efficiency and financial performance of companies listed in the Nairobi Securities Exchange. A test at 1% significant level could have yielded different results.

This study investigated the effect of not just operational efficiency, but also other control variables namely financial leverage, Liquidity, Size of the firms, capital adequacy and real interest rates on ROA of firms listed at the NSE. These are just a small percentage of the many firms in Kenya and therefore future scholars should examine the effect of these variables on financial performance of other firms other industries like financial sector, agricultural sector among others.

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APPENDICES

APPENDIX I: LIST OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE AS AT DECEMBER 2014

AGRICULTURAL

1. Eaagads Ltd
2. Kapchorua Tea Co. Ltd
3. Kakuzi
4. Limuru Tea Co. Ltd
5. Rea Vipingo Plantations Ltd
6. Sasini Ltd
7. Williamson Tea Kenya Ltd

AUTOMOBILES AND ACCESSORIES

8. Car and General (K) Ltd
9. Sameer Africa Ltd
10. Marshalls (E.A.) Ltd

BANKING

11. Barclays Bank Ltd
12. CFC Stanbic Holdings Ltd
13. I&M Holdings Ltd
14. Diamond Trust Bank Kenya Ltd
15. Housing Finance Co Ltd
16. Kenya Commercial Bank Ltd
17. National Bank of Kenya Ltd
18. NIC Bank Ltd
19. Standard Chartered Bank Ltd
20. Equity Bank Ltd
21. The Co-operative Bank of Kenya Ltd

COMMERCIAL AND SERVICES

22. Express Ltd
23. Kenya Airways Ltd
24. Nation Media Group
25. Standard Group Ltd

26. TPS Eastern Africa (Serena) Ltd
27. Scangroup Ltd
28. Uchumi Supermarket Ltd
29. Hutchings Biemer Ltd
30. Longhorn Kenya Ltd
31. Atlas Development and Support Services

CONSTRUCTION AND ALLIED

32. Athi River Mining Cement Limited
33. Bamburi Cement Ltd
34. Crown Berger Ltd
35. E.A.Cables Ltd
36. E.A.Portland Cement Ltd

ENERGY AND PETROLEUM

37. Kenol Kobil Ltd
38. Total Kenya Ltd
39. KenGen Ltd
40. Kenya Power & Lighting Co Ltd
41. Umeme Ltd

INSURANCE

42. Jubilee Holdings Ltd
43. Pan Africa Insurance Holdings Ltd 0rd 5.00
44. Kenya Re-Insurance Corporation Ltd
45. Liberty Kenya Holdings Ltd
46. British-American Investments Company (Kenya) Ltd
47. CIC Insurance Group Ltd

INVESTMENT

48. Olympia Capital Holdings Ltd
49. Centum Investment Co Ltd
50. Trans-Century Ltd

INVESTMENT SERVICES

51. Nairobi Securities exchange

MANUFACTURING AND ALLIED

52. A Baumann and Company
53. BOC Kenya
54. British American Tobacco Limited
55. Carbacid Investments Limited
56. East African Breweries
57. Eveready East Africa
58. Kenya Orchards Limited
59. Mumias Sugar Company Limited
60. Unga Group

TELECOMMUNICATION AND TECHNOLOGY

61. Safaricom

GROWTH ENTERPRISE MARKET SEGMENT

62. Atlas Development & Support Services
63. Home Afrika
64. Flame Tree Group Holdings Ltd
65. Kurwitu Ventures

FIXED INCOME SECURITY MARKET SEGMENT

66. Kenya Power & Lighting Ltd 4% Pref 20.00
67. Kenya Power & Lighting Ltd 7% Pref 20.00

Source: https://www.nse.co.ke/listed-companies

APPENDIX II: REAL ANNUAL INTEREST RATES

YEARS	2009	2010	2011	2012	2013
REAL ANNUAL INTEREST RATES	2.8	12	3.8	9.5	11.7

Source: http://data.worldbank.org/indicator/FR.INR.RINR

APPENDIX III: TOTAL ASSETS

Name of the Company	2009	2010	2011	2012	2013
Access Kenya	1,771,307,000	1,615,161,000	2,415,111,000	2,265,714,000	2,499,648,000
Athi River Mining	12,141,091,000	16,564,900,000	20,515,940,000	26,953,100,000	31,378,329,700
Bamburi Cement	32,112,000,000	33,306,000,000	33,502,000,000	43,038,000,000	43,345,400,000
Barclays Bank	164,875,000,000	172,415,000,000	167,029,000,000	184,825,000,000	206,739,000,000
BOC Kenya Ltd	1,988,401,000	2,019,810,000	1,816,803,000	1,989,541,000	1,882,265,400
BAT	10,553,206,000	11,121,561,000	13,750,545,000	15,176,495,000	16,062,419,300
Car & General Kenya	3,210,498,000	3,871,293,000	5,562,239,000	5,705,400,000	6,698,440,300
Carbacid Kenya	1,376,380,000	1,512,166,000	1,739,985,000	2,012,816,000	2,161,223,300
CMC Holdings	13,293,168,000	14,667,707,000	14,579,112,000	12,957,113,000	14,450,073,400
Crown Paints	1,858,452,000	1,972,337,000	2,215,352,000	2,258,263,000	2,343,596,200
CFC Stanbic	127,690,950,000	140,080,202,000	150,171,015,000	143,212,155,000	180,511,797,000
Co-operative Bank	110,678,000,000	154,339,000,000	168,312,000,000	200,588,000,000	231,215,000,000
Eaagads	260,061,000	3,076,491,000	354,922,000	573,356,000	499,424,100
East African Breweries	34,546,993,000	38,218,440,000	49,519,364,000	54,584,316,000	59,635,659,900
East African Cables	3,543,383,000	4,518,445,000	4,993,032,000	6,248,642,000	6,827,343,100
East African Portland Cement	12,035,963,000	12,037,565,000	13,530,871,000	14,091,006,000	15,612,819,000
Eveready East Africa	997,672,000	1,195,824,000	1,016,908,000	1,150,729,000	1,233,503,200
Express Kenya	1,304,116,000	1,341,699,000	766,798,000	495,609,000	389,564,800
Equity Bank	100,812,000,000	143,018,000,000	196,294,000,000	243,170,000,000	277,729,000,000
HFCK	18,239,359,000	29,278,396,000	31,870,916,000	40,967,577,000	47,389,377,000
Jubilee Holdings	23,679,814,000	30,691,382,000	38,039,832,000	47,257,540,000	61,159,185,000
Kakuzi	2,873,255,000	3,218,590,000	3,817,320,000	3,571,700,000	4,057,404,900
Kapchorua Tea Company	1,167,797,000	1,498,931,000	1,570,203,000	1,962,897,000	2,145,602,400
KenGen	108,603,879,000	150,566,886,000	160,993,290,000	163,144,873,000	187,468,112,300
Kenol Kobil	29,435,336,000	30,372,909,000	45,974,304,000	32,684,166,000	41,182,096,200
Kenya Airways	75,979,000,000	73,263,000,000	78,743,000,000	77,432,000,000	77,659,800,000
Kenya Orchards	78,703,987	74,491,123	70,372,491	68,936,272	70,597,300
Kenya Power & Lighting	71,563,808,000	85,025,890,000	121,171,515,000	134,131,983,000	153,815,292,300
KCB Bank	195,015,488,000	251,356,200,000	330,663,959,000	368,018,785,000	390,851,579,000
Kenya Reinsurance Coorporation	15,001,000,000	17,241,000,000	19,096,000,000	23,788,000,000	28,223,000,000
Limuru Tea	84,794,000	158,305,000	191,242,000	320,023,000	351,711,000
LongHorn Kenya	431,357,000	523,000,000	709,653,000	661,675,000	778,232,400
Marshalls East Africa	1,433,970,000	1,126,208,000	1,076,865,000	567,095,000	589,913,100
Mumias Sugar	17,475,715,000	18,081,787,000	22,927,399,000	27,400,113,000	29,591,545,400
Nation Media Group	6,572,400,000	7,975,200,000	8,816,300,000	10,677,400,000	11,240,390,000
National Bank of Kenya	51,404,408,000	60,026,694,000	68,664,516,000	67,178,607,000	92,555,717,000
NIC Bank	47,558,241,000	59,013,922,000	78,984,005,000	108,348,593,000	121,052,739,000
Olympia Capital Holdings	787,577,000	974,479,000	1,074,236,000	1,867,621,000	1,897,407,000
REA Vipingo Plantations	1,414,084,000	1,707,016,000	2,288,740,000	2,376,618,000	2,592,873,600
Sameer Africa	3,005,374,000	3,086,993,000	3,125,040,000	3,399,651,000	3,368,642,800

ScanGroup	3,933,148,000	8,009,431,000	8,489,938,000	8,646,961,000	10,861,526,400
Standard Chartered Bank	123,778,972,000	142,746,249,000	164,046,624,000	195,352,756,000	220,391,180,000
Standard Group	3,003,966,000	3,306,000,000	3,512,257,000	3,501,548,000	3,843,685,100
Total Kenya	31,528,196,000	30,375,677,000	35,198,166,000	32,980,604,000	41,095,168,400
TPS Serena	6,996,196,000	11,923,137,000	13,131,840,000	13,484,076,000	16,435,390,200
Unga Group	5,565,541,000	5,064,420,000	5,708,897,000	6,410,259,000	6,534,374,400
Williamson Tea Kenya	3,921,165,000	5,328,706,000	6,032,743,000	7,243,227,000	7,285,215,000

Source: Annual reports of the firms listed at the NSE

APPENDIX III: TOTAL REVENUE

YEARS	2013	2012	2011	2010	2009
Firm	**Total revenue'000**	**Total revenue'000**	**Total revenue'000**	**Total revenue'000**	**Total revenue'000**
Access Kenya group		1,900,620	221,464	221,464	
Eaagads Ltd	68,025	157,075	16,830	42,960	28,921
Kapchorua Tea Co.	157,075	1,406,794	1,404,794	1,130,108	743,079
Kakuzi	1,384,375	2,043,332	2,376,860	2,113,774	2,008,157
Limuru Tea Co.	157,075	116,012	102,504	123,859	91,130
Rea Vipingo Plantations Ltd	2,570,103	2,571,725	211,606	1,441,668	1,371,090
Sasini Ltd	2,816,834	2,779,883	2,669,877	2,266,406	2,182,090
Williamson Tea Kenya Ltd	1,353,206	3,607,409	3,284,909	2,723,187	1,489,982
Express Ltd	387,494	22,908	225,916	52,864	112,380
Kenya Airways Ltd	98,860,000	107,897,000	5,664,000	5,513,000	5,975,000
Nation Media Group	157,075	12,346,800	1,617,400	1,910,300	1,601,600
Standard Group Ltd	4,818,808	3,617,816	376,493	428,774	413,120
TPS Eastern Africa (Serena)	6,841,420	5,343,960	520,002	330,014	617,380
Car and General (KENYA) Ltd	7,056,021	5,711,529	1,793,900	321,565	257,446
CMC Holdings Ltd	157,075	11,730,774	807,283	1,328,849	879,236
Sameer Africa Ltd	272,397	3,960,967	2,326,723	165,522	166,520
Marshalls (E.A.) Ltd	257,075	234,306	117,479	169,688	142,321
Barclays Bank Ltd	27,424	27,424	17,632	17,131	17,517
Diamond Trust Bank Kenya Ltd	14,499,283	16,579,014	3,041,672	2,745,951	2,002,037
Housing Finance Co Ltd	5,440,059	5,440,059	3,464,079	2,475,814	1,804,112
Kenya Commercial Bank Ltd	47,862,478	43,082,218	28,501,387	23,109,793	17,968,455
National Bank of Kenya Ltd	8,165,790	5,376,734	3,422,862	3,118,207	2,733,201
NIC Bank Ltd	11,642,416	11,467,574	6,831,580	4,757,544	4,425,440
Standard Chartered Bank Ltd	21,526,288	19,375,477	12,011,253	9,777,689	9,347,475
Equity Bank Ltd	41,861,288	30,847,947	5,279,294	5,601,439	4,539,715
Jubilee Holdings Ltd	18,042,639	6,693,303	3,516,778	3,059,824	3,136,456
Kenya Re-Insurance Corporation Ltd	11,661,605	8,944,635			
East African Breweries Ltd	59,061,875	55,522,166	11,989,258	12,316,332	10,635,771
Eveready East Africa Ltd	1,428,278	1,374,789	3,732,267	3,432,080	3,867,619
Centum Investment Co Ltd	4,883,200	1,272,313	475,653	985,280	1,185,778
Trans-Century Ltd	11,807,576	13,487,229			

Mumias Sugar Co. Ltd	11,957,823	15,542,686	1,193,161	1,589,204	1,909,894
Unga Group Ltd	15,759,078	15,976,763	260,439	564,016	156,665
Athi River Mining	14,179,208	11,400,569	948,714	705,450	620,640
Bamburi Cement Ltd	33,928,000	37,491,000	9,596,000	4,889,000	5,443,000
Crown Berger Ltd	5,158,993	4,432,877	139,818	77,781	140,293
E. A. Cables Ltd	4,502,964	4,300,608	726,444	669,927	597,486
Total Kenya Ltd		119,788,989	733,699	1,031,368	781,935
Olympia Capital Holdings Ltd	501,868		61,945	34,875	260,090
Umeme Ltd	965,752,000				
Pan Africa insurance		7,920,841			
BOC Kenya Ltd		1,294,550		295,179	399,769
BAT		30,503,560	2,108,964	2,416,913	2,049,596
Carbacid investments Ltd		921,753	2,525,633	2,506,467	2,452,291
East Africa portland cement		8,614,806	1,881,678	715,889	1,112,625
Kenya Power & Lighting Co. Ltd			4,782,433	2,738,309	2,648,691
Eveready East Africa Ltd.			741,568	27,855	179,505
A. Baumann & Company			15,799	94,479	13,059
Kenya Ochards			132,911	116,725	124,699

Source: Annual reports of the firms listed at the NSE

APPENDIX IV: TOTAL EQUITY AND LONG-TERM DEBT

	YEAR	EQUITY	LONG-TERM DEBT
Athi River Mining	2013	22,500,000.00	13,800,900.00
Athi River Mining	2012	20,450,260.00	13,329,740.00
Athi River Mining	2011	16,095,887.00	9,993,361.00
Athi River Mining	2010	13,358,440.00	8,431,518.00
Athi River Mining	2009	8,787,329.00	4,658,399.00
Bamburi	2013	31,510,000.00	5,525,000.00
Bamburi	2012	30,861,000.00	5,166,000.00
Bamburi	2011	24,174,000.00	4,231,000.00
Bamburi	2010	21,626,000.00	4,216,000.00
Bamburi	2009	19,378,000.00	4,022,000.00
Barclays Bank Ltd	2013	184,900.00	4,499,000.00
Barclays Bank Ltd	2012	184,825.00	4,499,000.00
Barclays Bank Ltd	2011	165,994.00	4,474,000.00
Barclays Bank Ltd	2010	170,876.00	4,351,000.00
Barclays Bank Ltd	2009	164,876.00	4,294,000.00
British American Tobacco	2013	9,716,000.00	2,450,000.00
British American Tobacco	2012	9,083,000.00	2,025,898.00
British American Tobacco	2011	6,412,067.00	1,977,849.00
British American Tobacco	2010	5,114,312.00	1,900,596.00
British American Tobacco	2009	4,672,076.00	1,547,455.00
BAIC (Kenya) Ltd	2013	14,569,150.00	4,897,720.00
BAIC (Kenya) Ltd	2012	12,472,324.00	5,907,420.00
BAIC (Kenya) Ltd	2011	8,557,448.00	3,644,610.00
Car and General (K) Ltd.	2013	2,090,003.00	633,783.00
Car and General (K) Ltd.	2012	1,862,329.00	536,670.00
Car and General (k) Ltd.	2011	1,536,764.00	276,041.00
Car and General (k) Ltd.	2010	1,288,858.00	221,552.00
Car and General (k) Ltd.	2009	1,120,991.00	208,038.00
Carbacid Investments Ltd.	2013	1,652,770.00	209,880.00
Carbacid Investments Ltd.	2012	1,467,365.00	226,922.00
Carbacid Investments Ltd.	2011	1,453,030.00	151,851.00
Carbacid Investments Ltd.	2010	1,445,608.00	142,237.00
Carbacid Investments Ltd.	2009	1,309,831.00	146,750.00
Centum Investment Co Ltd	2013	11,041,242.00	1,000,000.00
Centum Investment Co Ltd	2012	9,559,377.00	-
Centum Investment Co Ltd	2011	7,856,167.00	-
Centum Investment Co Ltd	2010	5,859,392.00	-
CIC Insurance Group Ltd	2013	16,589,040.00	4,396,410.00
CIC Insurance Group Ltd	2012	14,069,551.00	3,197,799.00
CIC Insurance Group Ltd	2011	11,120,796.00	2,595,699.00

CIC Insurance Group Ltd	2010	6,567,549.00	863,287.00
CIC Insurance Group Ltd	2009	3,490,495.00	820,199.00
CMC Holdings Ltd.	2013	5,837,436.00	313,756.00
CMC Holdings Ltd.	2012	5,736,158.00	679,590.00
CMC Holdings Ltd.	2011	5,145,429.00	431,402.00
CMC Holdings Ltd.	2010	5,454,979.00	424,298.00
CMC Holdings Ltd.	2009	5,273,147.00	459,837.00
Crown Berger Ltd	2013	2,785,910.00	685,410.00
Crown Berger Ltd	2012	2,258,263.00	669,019.00
Crown Berger Ltd	2011	2,215,352.00	646,037.00
Crown Berger Ltd	2010	1,972,337.00	492,268.00
Crown Berger Ltd	2009	1,858,452.00	532,286.00
Diamond Trust Bank Kenya	2013	18,626,921.00	3,807,801.00
Diamond Trust Bank Kenya	2012	13,248,819.00	3,911,680.00
Diamond Trust Bank Kenya	2011	10,259,679.00	2,109,519.00
Diamond Trust Bank Kenya	2010	8,088,198.00	1,892,700.00
Diamond Trust Bank Kenya	2009	7,020,417.00	1,958,015.00
E.A Portland Cement	2013	7,272,879.00	2,263,591.00
E.A Portland Cement Ltd	2012	7,090,257.00	2,357,448.00
E.A Portland Cement Ltd	2011	5,702,918.00	2,100,179.00
E.A Portland Cement Ltd	2010	5,701,201.00	1,836,650.00
E.A Portland Cement Ltd	2009	6,102,252.00	1,512,392.00
E.A.Cables Ltd	2013	3,975,100.00	863,332.00
E.A.Cables Ltd	2012	3,716,416.00	791,387.00
E.A.Cables Ltd	2011	2,918,720.00	644,888.00
E.A.Cables Ltd	2010	3,119,083.00	872,774.00
E.A.Cables Ltd	2009	2,296,299.00	635,519.00
Eaagads Ltd	2013	980,000.00	543,690.00
Eaagads Ltd	2012	980,000.00	624,452.00
Eaagads Ltd	2011	980,000.00	709,398.00
Eaagads Ltd	2010	980,000.00	624,408.00
Eaagads Ltd	2009	980,000.00	571,806.00
East African Breweries ltd.	2013	32,533,849.00	7,413,590.00
East African Breweries ltd.	2012	29,428,000.00	7,165,823.00
East African Breweries ltd.	2011	27,008,546.00	6,862,495.00
East African Breweries ltd.	2010	26,004,195.00	6,620,187.00
East African Breweries ltd.	2009	21,652,464.00	64,125,973.00
Equity bank ltd	2013	51,555,000.00	26,736,000.00
Equity bank Ltd	2012	42,916,000.00	25,612,000.00
Equity bank ltd	2011	34,285,000.00	18,178,900.00
Equity bank ltd	2010	27,204,000.00	15,789,450.00
Equity bank ltd	2009	22,908,000.00	11,234,565.00

Eveready East Africa Ltd	2013	1,170,800.00	245,900.00
Eveready East Africa Ltd	2012	1,150,729.00	105,476.00
Eveready East Africa Ltd	2011	1,016,908.00	79,076.00
Eveready East Africa Ltd	2010	1,195,824.00	123,592.00
Eveready East Africa Ltd	2009	997,672.00	74,800.00
Express Ltd	2013	389,741.00	126,945.00
Express Ltd	2012	334,118.00	135,831.00
Express Ltd	2011	357,319.00	202,043.00
Express Ltd	2010	781,758.00	397,396.00
Express Ltd	2009	802,366.00	389,913.00
Home Afrika Ltd	2013	875,750.00	233,570.00
Housing Finance Co Ltd.	2013	5,859,507.00	1,433,650.00
Housing Finance Co. Ltd.	2012	5,137,245.00	1,097,359.00
Housing Finance Co. Ltd.	2011	4,717,364.00	329,927.00
Housing Finance Co. Ltd.	2010	4,257,407.00	321,598.00
Housing Finance Co. Ltd.	2009	4,073,376.00	220,443.00
Jubilee holdings ltd.	2013	62,410,658.00	34,201,581.00
Jubilee holdings ltd.	2012	8,699,689.00	2,378,960.00
Jubilee holdings ltd.	2011	6,711,651.00	1,546,797.00
Jubilee holdings ltd.	2010	5,577,363.00	1,245,690.00
Jubilee holdings ltd.	2009	3,794,098.00	1,009,865.00
Kakuzi	2013	2,904,028.00	666,334.00
Kakuzi	2012	2,801,225.00	624,452.00
Kakuzi	2011	2,756,765.00	709,398.00
Kakuzi	2010	2,210,504.00	624,408.00
Kakuzi	2009	1,888,294.00	571,806.00
Kapchorua Tea Co. Ltd	2013	495,600.00	372,367.00
Kapchorua Tea Co. Ltd	2012	495,600.00	341,851.00
Kapchorua Tea Co. Ltd	2011	495,600.00	319,713.00
Kapchorua Tea Co. Ltd	2010	495,600.00	266,582.00
Kapchorua Tea Co. Ltd	2009	495,600.00	271,966.00
KenGen Ltd	2013	74,128,739.00	73,934,313.00
KenGen Ltd	2012	70,179,554.00	61,850,220.00
KenGen Ltd	2011	69,418,587.00	64,166,527.00
KenGen Ltd.	2010	70,530,868.00	59,636,829.00
KenGen Ltd.	2009	66,980,112.00	25,793,197.00
KenolKobil Ltd	2013	6,646,294.00	14,854,274.00
KenolKobil Ltd	2012	6,445,725.00	667,552.00
KenolKobil Ltd	2011	11,650,461.00	1,529,666.00
KenolKobil Ltd	2010	12,705,512.00	94,974.00
KenolKobil Ltd	2009	11,454,628.00	75,929.00
Kenya airways	2013	61,209,000.00	40,620,000.00

Kenya airways	2012	53,676,000.00	30,653,000.00
Kenya airways	2011	56,552,900.00	33,386,000.00
Kenya airways	2010	52,683,000.00	32,710,000.00
Kenya airways	2009	54,257,000.00	37,081,000.00
Kenya commercial bank	2013	17,568,906.00	3,628,169.00
Kenya commercial bank	2012	15,481,622.00	3,655,414.00
Kenya commercial bank	2011	44,365,027.00	4,292,762.00
Kenya commercial bank	2010	39,129,771.00	2,356,968.00
Kenya commercial bank	2009	36,329,842.00	2,001,332.00
Kenya Orchards Ltd	2013	1,150,050.00	453,780.00
Kenya Power & Lighting Co	2013	47,405,675.00	39,907,832.00
Kenya Power & Lighting Co	2012	43,511,553.00	21,512,025.00
Kenya Power & Lighting Co	2011	40,231,865.00	20,138,964.00
Kenya Power & Lighting Co	2010	38,684,297.00	37,598,237.00
Kenya Power & Lighting Co	2009	34,586,239.00	21,211,800.00
Kenya Re-Insurance	2013	15,769,010.00	9,238,540.00
Kenya Re-Insurance	2012	14,613,155.00	9,174,802.00
Kenya Re-Insurance	2011	11,526,485.00	7,569,956.00
Kenya Re-Insurance	2010	10,573,502.00	6,667,427.00
Kenya Re-Insurance	2009	9,099,925.00	5,900,708.00
Liberty Kenya Holdings Ltd	2013	5,587,500.00	3,950,710.00
Liberty Kenya Holdings Ltd	2012	5,421,591.00	3,296,190.00
Liberty Kenya Holdings Ltd	2011	4,174,597.00	3,600,620.00
Limuru Tea Co. Ltd	2013	124,000.00	67,253.00
Limuru Tea Co. Ltd	2012	124,000.00	53,450.00
Limuru Tea Co. Ltd	2011	124,000.00	36,045.00
Limuru Tea Co. Ltd	2010	124,000.00	27,782.00
Limuru Tea Co. Ltd	2009	124,000.00	11,693.00
Longhorn Kenya Ltd	2013	763,000.00	4,500.00
Longhorn Kenya Ltd	2012	661,675.00	9,600.00
Longhorn Kenya Ltd	2011	709,653.00	22,920.00
Longhorn Kenya Ltd	2010	523,000.00	-
Longhorn Kenya Ltd	2009	431,357.00	-
Marshalls (E.A) Ltd.	2013	392,129.00	5,280.00
Marshalls (E.A.) Ltd.	2012	592,629.00	11,964.00
Marshalls (E.A.) Ltd.	2011	555,676.00	25,879.00
Marshalls (E.A.) Ltd.	2010	807,218.00	45,786.00
Marshalls (E.A.) Ltd.	2009	690,958.00	76,980.00
Mumias Sugar	2013	13,288,970.00	2,981,335.00
Mumias sugar	2012	15,723,686.00	2,925,531.00
Mumias Sugar	2011	14,476,007.00	2,396,834.00
Mumias Sugar	2010	10,999,852.00	2,192,476.00

Mumias Sugar	2009	10,039,469.00	2,382,814.00
Nation media	2013	8,243,400.00	84,400.00
Nation media	2012	7,323,500.00	137,200.00
Nation media	2011	6,122,400.00	163,000.00
Nation media	2010	5,422,100.00	93,700.00
Nation media	2009	4,713,700.00	89,300.00
National Bank of Kenya Ltd	2013	10,900,670.00	3,165,900.00
National Bank of Kenya Ltd	2012	10,449,976.00	3,458,301.00
National Bank of Kenya Ltd	2011	19,456,474.00	5,974,210.00
National Bank of Kenya Ltd	2010	9,929,611.00	4,984,010.00
National Bank of Kenya Ltd	2009	7,907,692.00	1,709,582.00
NIC Bank Ltd	2013	16,540,010.00	5,321,090.00
NIC Bank Ltd	2012	15,481,622.00	5,831,981.00
NIC Bank Ltd	2011	10,522,953.00	1,977,719.00
NIC Bank Ltd	2010	8,353,229.00	1,865,185.00
NIC Bank Ltd	2009	6,792,254.00	786,510.00
Olympia Capital Holdings ltd	2013	1,250,810.00	765,980.00
Olympia Capital Holdings ltd	2012	1,067,228.00	542,210.00
Olympia Capital Holdings ltd	2011	647,259.00	-
Pan African Insurance	2013	3,230,000.00	1,355,900.00
Pan African insurance	2012	2,629,000.00	3,694,000.00
Pan African Insurance	2011	2,123,000.00	5,136,000.00
Pan African Insurance	2010	1,832,000.00	7,200,000.00
Pan African Insurance	2009	1,325,000.00	7,860,000.00
Rea vipingo	2013	2,095,870.00	480,897.00
Rea vipingo	2012	1,722,145.00	396,489.00
Rea vipingo	2011	146,860.00	394,644.00
Rea vipingo	2010	281,068.00	989,099.00
Rea vipingo	2009	214,222.00	975,450.00
Safaricom	2009	51,330,367.00	4,680,000.00
Safaricom	2013	80,265,128.00	12,000,000.00
Safaricom	2012	72,081,698.00	12,202,079.00
Safaricom	2011	67,454,091.00	12,282,495.00
Safaricom	2010	62,763,117.00	7,908,388.00
Sameer Africa Ltd	2011	2,249,788.00	450,162.00
Sameer Africa Ltd	2010	2,168,142.00	426,816.00
Sameer Africa Ltd	2009	2,282,567.00	364,255.00
Sameer Africa ltd.	2013	2,679,613.00	571,236.00
Sameer Africa Ltd.	2012	2,326,723.00	480,768.00
Sasini ltd	2013	6,382,911.00	1,940,206.00
Sasini ltd	2012	6,426,802.00	1,910,550.00
Sasini ltd	2011	6,762,172.00	2,352,627.00

Sasini ltd	2010	6,489,979.00	2,116,420.00
Sasini ltd	2009	5,661,822.00	2,051,037.00
Scangroup Ltd.	2013	8,251,785.00	346,178.00
Scangroup Ltd.	2012	4,899,630.00	358,058.00
Scangroup Ltd.	2011	4,354,909.00	337,430.00
Scangroup Ltd.	2010	3,577,805.00	191,143.00
Scangroup Ltd.	2009	2,366,222.00	11,620.00
Standard chartered bank ltd	2013	42,530,000.00	8,625,000.00
Standard chartered bank ltd	2012	30,752,814.00	4,906,762.00
Standard chartered bank ltd	2011	20,694,456.00	4,126,940.00
Standard chartered bank ltd	2010	20,331,122.00	5,715,085.00
Standard chartered bank ltd	2009	13,992,155.00	3,960,439.00
Standard group	2013	2,024,137.00	461,760.00
Standard group	2012	1,838,902.00	543,943.00
Standard group	2011	1,654,066.00	663,672.00
Standard group	2010	1,428,573.00	732,453.00
Standard group	2009	1,261,428.00	891,572.00
The Co-operative Bank of	2013	36,773,649.00	10,252,392.00
The Co-operative Bank of	2012	29,367,000.00	8,072,000.00
The Co-operative Bank of	2011	20,951,000.00	2,846,000.00
The Co-operative Bank of	2010	19,980,000.00	5,133,000.00
The Co-operative Bank of	2009	15,656,000.00	2,493,000.00
Total Kenya	2013	15,379,060.00	1,117,028.00
Total Kenya	2012	14,192,676.00	854,765.00
Total Kenya	2011	9,194,818.00	3,020,584.00
Total Kenya	2010	9,579,853.00	3,276,000.00
Total Kenya	2009	8,962,191.00	3,978,000.00
TPS E. A. (Serena)	2013	11,750,682.00	2,548,901.00
TPS E. A. (Serena)	2011	11,516,544.00	3,469,720.00
TPS E. A. (Serena)	2010	10,265,172.00	2,768,787.00
TPS E. A. (Serena)	2009	6,008,161.00	1,943,771.00
Trans-Century Ltd	2013	21,845,754.00	8,505,563.00
Trans-Century Ltd	2012	22,424,264.00	8,065,792.00
Trans-Century Ltd	2011	11,236,478.00	3,371,518.00
Trans-Century Ltd	2010	8,733,331.00	3,168,545.00
Trans-Century Ltd	2009	6,458,540.00	2,458,540.00
Uchumi supermarket	2013	2,925,412.00	200,000.00
Uchumi supermarket	2012	2,657,810.00	80,309.00
Uchumi supermarket	2011	2,462,533.00	183,368.00
Uchumi supermarket	2010	1,859,073.00	320,140.00
Uchumi supermarket	2009	-	6,008,161.00
Umeme Ltd	2013	950,660.00	579,940.00

Umeme Ltd	2012	451,756.00	432,619.00
Unga Group Ltd.	2013	2,956,879.00	149,364.00
Unga Group Ltd.	2012	2,675,765.00	453,088.00
Unga Group Ltd.	2011	3,744,951.00	345,150.00
Unga Group Ltd.	2010	3,364,703.00	355,354.00
Unga Group Ltd.	2009	3,146,387.00	334,142.00
Williamson Tea Kenya	2013	437,820.00	238,590.00
Williamson Tea Kenya	2012	437,820.00	280,968.00
Williamson Tea Kenya	2011	437,820.00	1,074,119.00
Williamson Tea Kenya	2010	437,820.00	909,731.00

Source: Annual reports of the firms listed at the NSE

APPENDIX V: CAPITAL EXPENDITURE

Name of the Company	2009	2010	2011	2012	2013
Access Kenya	1,003,967	530,550	349,975	390,181	287,915
Athi River Mining	687,418	1,138,100	1,269,759	859,086	1,252,403
Bamburi Cement	593,140	1,057,590	426,221	423,547	889,832
Barclays Bank	3,582,000	1,388,000	975,000	886,000	673,000
BOC Kenya Ltd	15,657	27,025	13,664	32,180	52,404
BAT	547,847	235,237	1,091,680	490,703	800,853
Car & General Kenya	15,336	27,060	167,203	20,586	29,152
Carbacid Kenya	517,175	13,404	55,113	30,348	176,898
CMC Holdings	255,307	169,888	339,750	98,486	255,155
Crown Paints	36,658	13,762	51,802	34,557	43,300
Centrum	1,724	10,045	2,512,361	130,585	1,940,988
CFC Stanbic	1,824,096	562,373	610,210	295,152	348,213
Co-operative Bank	2,357,588	1,745,494	3,601,239	3,060,120	2,595,833
Diamond Trust Bank	900,646	438,509	666,208	1,258,974	3,051,222
Eaagads	8,541	16,966	3,504	32,706	171,037
East African Breweries	923,574	1,003,728	3,019,762	6,332,947	4,421,779
East African Cables	111,555	55,210	15,631	58,321	45,737
East African Portland Cement	336,185	179,909	191,360	115,552	239,475
Eveready East Africa	277,009	396,835	11,415	76,059	543,324
Express Kenya	6,264	68,422	84,200	40,226	61,796
Equity Bank	2,197,000	2,203,000	2,698,000	4,145,000	4,480,000
HFCK	11,801	62,521	180,850	162,930	404,036
Jubilee Holdings	127,721	112,811	96,719	99,432	576,430
Kakuzi	1,151,353	4,973,037	6,948,048	2,678,696	5,446,591
Kapchorua Tea Company	49,800	277,827	487,512	360,898	414,917
KenGen	1,278,510	1,159,496	1,177,976	1,589,938	1,166,287
Kenol Kobil	1,192,604	155	1,532,657	134,068	701,345
Kenya Airways	3,891,378	5,422,189	6,416,238	8,275,311	8,612,354
Kenya Orchards	-	-	20,000	-	-
Kenya Power & Lighting	158,305	139,868	135,016	256,030	194,778
KCB Bank	3,639,527	2,272,587	1,957,586	2,778,753	2,465,437
Kenya Reinsurance Coorporation	30,489	69,838	13,765	59,208	203,181
Liberty Kenya Ltd	176,339	81,487	116,503	120,389	48,969
Limuru Tea	14,328	64,072	42,352	49,274	42,655
LongHorn Kenya	7,439,834	5,886,120	8,328,458	218,511	7,016,417
Marshalls East Africa	3,943	17,569	14,563	20,391	25,872
Mumias Sugar	226,282	42,913	32,930	50,325	92,304
Nation Media Group	141,384	101,954	58,012	30,173	82,751
National Bank of Kenya	440,294	620,627	1,056,880	1,069,980	920,544
NIC Bank	822,130	200,998	685,252	713,630	447,986
Olympia Capital Holdings	39,538	10,990	57,597	9,156	985
Pan Africa Insurance Co.	513,643	98,744	57,622	117,224	70,499
REA Vipingo Plantations	336,238	26,192	22,170	27,324	84,736
Safaricom	22,066	426,181	98,029	225,188	28,509
Sameer Africa	119,493	306,562	109,156	171,800	67,327
Sasini	112,377	362,197	122,661	200,411	67,283
ScanGroup	105,262	417,831	136,166	229,022	67,238
Standard Chartered Bank	1,120,922	1,455,401	720,724	658,691	479,155
Standard Group	98,147	473,465	149,671	257,633	67,194
Total Kenya	91,031	529,099	163,176	286,244	67,150
TPS Serena	83,916	584,733	176,681	314,855	67,105
Unga Group	62,569	751,636	217,196	400,688	66,973
Williamson Tea kenya	72,601	78,492	84,575	210,971	145,889

Source: Annual reports of the firms listed at the NSE