

**THE EFFECT OF REGULATIONS ON FINANCIAL PERFORMANCE OF
COMMERCIAL BANKS IN KENYA**

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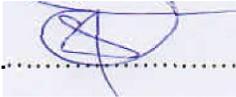
IRENE SHIMANYULA

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DECLARATION

This research project is my original work and has not been presented for a degree at Any other University for examination.

Signature.....

Date 6th December 2021

Irene Shimanyula

D61/5311/2017

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

Signature. . . 

Date...December 6, 2021.

Dr. Herick Ondigo

Faculty of Business and Management Sciences,
University of Nairobi.

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DEDICATION

My study is dedicated to my father Mr. Julius Shimanyula for advising me to take up this course, to my mum Mrs. Magdalene Shimanyula for your encouragement and motivation, to my dear husband Mr. Fredrick Alunala and, my children David and Ivanka for your love, motivation, support, encouragement, patience, understanding and the sacrifices you made that saw me bring this project to completion, without which it would have been impossible.

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LIST OF ABBREVIATIONS

CBK-Central Bank of Kenya

CAMEL- Capital Adequacy, Asset Quality, Management Efficiency and Liquidity Ratio

ICPAK- Institute of Certified Public Accountants of Kenya

KPMG- Klynveld Peat Marwick Main Goerdele

MENA-Middle East and North Africa

ROA-Return on Assets

ROE-Return on Equity

SACCOs- Savings and Credit Cooperative Organizations

SMEs-Small and Medium Enterprises

USA- United States of America

ABSTRACT

Financial performance a key focus by many will continue for an extended time due to its significance in the life of an organization. Consequently, there have been several attempts to comprehend this in terms of factors that contribute to the realization of this success and those that do not. The relationship existing between banking regulations and firms' performance has been a discussion of interest to many with some giving positive feedback and others with negative views. This research sought to establish the effect of regulations on financial performance among commercial banks in Kenya. The independent variables for this study were liquidity regulation, efficiency regulation, capital adequacy regulation and credit risk regulation while bank size was used as the control variable in the model. Descriptive research design was used. The target population was the banks in Kenya. There are 38 banks in Kenya as at 2020 but only 37 provided complete data set. Research variables data were derived from CBK and audited bank's annual financial statements from 2016 to 2020 for all 37 banks making 185 observations. Regression and correlation analysis were used to test the study hypotheses by establishing the relationship between regulations and ROE. The study found that efficiency ($\beta=0.007$, $p=0.001$) and bank size ($\beta=0.011$, $p=0.000$) had a positive and significant effect on ROE among banks in Kenya. Credit risk ($\beta=-0.005$, $p=0.000$) had a significant negative effect on ROE while liquidity and capital adequacy were not statistically significant. The results also indicated R^2 of 0.463 which implied that the selected independent variables contributed 46.3% to variations in ROE. The study recommends the need for policy makers to focus on efficiency regulation, credit risk regulation and bank size as these three have a significant effect on ROE of banks. Managers and directors of commercial banks should also work on improving their efficiency and reducing their credit risk in a bid to enhance their performance and to remain competitive in the ever-changing environment.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

A number of research works in finance have been conducted with an intent of establishing why two firms running a similar form of venture have varying performances despite the fact that they operate in the same environment (Athanasoglou, Sophocles & Matthaois, 2009). Due to this variation of performance, research have been undertaken focusing on both external and internal factors that are thought to cause the variance. One of the main focuses of all the business stakeholders including management executives and scholars is financial performance and this will continue for an extended time due to its significance in the life of an organization (Mirieri, 2020). As a results of this, there have been several attempts to comprehend the same in terms of factors that contribute to the realization of this success and those that do not (Abata, 2014). The relationship existing between regulations and business performance has been a discussion of interest to many.

Three theories were used in this research; they include the Public Interest theory of regulations, liquidity efficiency and the agency theories with agency theory as the anchoring theory. This is because banks are agents of its customers including its shareholders. One of the major reasons for a strained relationship between the agent and

the principal is information asymmetry, which is considered major in the banking sector compared to other industries (Gekara and Osano,2018). Research also indicates it is due to information asymmetry in this sector that bank regulations were deemed necessary.

The focus of this study was the Kenyan commercial banks reason being, banks occupy an important place in a country's economy and for them to thrive a number of factors need to be put into consideration to ensure they operate in a safe manner, hence preventing their failure as has been the case with some banks. It is therefore necessary to conduct research on regulations and figure out whether they in any way contribute to the success of these institutions aside from other macro-economic factors where much research has been done previously.

1.1.1 Regulations

Generally, regulations are set of rules and policies enacted by the state to control the operations of citizens in a country (Agborndarkow,2010). Kori, Muathe and Maina, (2018) define financial regulations as a set of restrictions and guidelines as set by the government to ensure that banks operate within given directives. According to Kiplagat and Kalui (2020) regulations to financial monitoring process of financial firms through monetary policies by an authority created by the government with the aim of attaining macroeconomic goals. The Financial Times has also described financial regulations as a set of laws that govern a financial institution including its activities.

Regulations are important because they are aimed at ensuring well organized markets, providing licenses to financial institutions, implementation of applicable laws and indicting of cases of market mismanagement, offering protection to consumers of financial services and also ensuring the financial system's stability. There are a number of regulations, but the main regulations include The Banking Act Chapter 488 Laws of Kenya, The Central Bank of Kenya Act, Chapter 491 Laws of Kenya and the Prudential Guidelines of 2013. The Central bank of Kenya is the Kenya's banking sector sole regulator, and it is responsible for all the prudential supervision and consumer protection generally alongside other international bodies such as the Basel committee on Banking supervision, the World Bank, the Financial Stability Board, the International Monetary Fund, the international organization of securities Commission and the Financial Action Task Force Commission.

There are various methods for measuring regulations among them being The CAMEL Rating, Analytic Hierarchy Process (AHP) and the Data Envelope analysis among many others. For instance, Hunjak and Jakovcevic in their research used the AHP model which they found out enabled the integration of both qualitative and quantitative data by which the bank features and also factored on the factors both external and internal affecting banks. The feasibility of the model implementation was tested on banks based in Croatia which were considered to constitute 90% of the total banking assets. According to them, this model provided a platform of evolution of an array of appraisal models multi-criteria and also made it possible to compare a small number of banks. This research adopted the CAMEL model as it has been the most widely used model by different researchers.

1.1.2 Financial Performance

Financial performance has almost a similar meaning as defined by different researchers with several names given to it. Among them being growth, survival, and competitiveness. It is the determination of the revenue recorded by a financial entity at the end of a financial year. Muga (2012) has also defined it as the use of financial indicators by a business to achieve its objectives, policies, and operational guidelines. Almajali et al. (2012), have defined financial performance as a firm's capacity to acquire an array of monetary objectives, for instance profitability. financial performance is an indication of a company's utilization of its assets in the revenue production hence guiding stakeholders in making decisions (Baba & Nasieku, 2016). Financial Performance indicates that the health of the banking sector is widely dependent on the banks' performance financially and it is a measure to imply the strengths and weaknesses of individual banks (Nzuve,2016).

Information on financial performance is useful to all the banking stakeholders. Nzuve, (2016) further added that agencies such as the regulators and the government are interested in such information for the regulation development purposes. The two main objectives of any business entity are profit and wealth maximization. In the former, management tends to use all available mechanisms to increase a firm's profitability. In the latter, management considers only decision which will increase the shareholders' value. The attainment level of a firm's objectives is also weighed through financial performance.

A firm's measure of performance can be done both subjectively and objectively (Dess and Robinson, 1984). With the former being reliance on financial accounting measures and the latter being market based measures, Market based measures are deemed to be necessary in measuring performance alongside financial measures as they are the best in measuring strategic implementation and performance by an entity (Kori , Muathe and Maina, 2020). The market-based measures include the Tobin Q, Market Value Added (MVA), Market to Book Value (MTBV), Abnormal Returns, Annual Stock Return, Price Earnings Ratio, Log to Market Capitalization, Stock Repurchases among many others. This research, however, use the accounting based measures, ROE specifically since the study was on all commercial banks and for market based measures to be adopted, the market measures for non-listed banks need to be readily available, yet they are not.

1.1.3 Regulation and Financial performance

According to the agency theory, regulations tend to create an external discipline which plays both a coordination and a controlling role of the industry behavior. Regulations that are inclined towards benefiting the customers for instance augmenting assurance to the customer, facilitating customer's transactional access or create alliance profits tend to be more beneficial to institutions such as banks. (Osano & Gekara, 2018). The major issue as outlined by the agency theory is the conflict between the principal (the stakeholders) and the agent (bank management). Thus, agency theory focuses on the need to resolve the disputes between the interests of firms in this case commercial banks, and the stakeholders (Edwards,1997). Pursuant to this theory, the success of banks is highly

dependent on how the management executes their day-to-day duties as instructed by the principals and this is where regulations are deemed to come in.

According to the Liquidity Preference theory, liquid money is important to run a business' daily activities. The more liquid a bank is the more profitable it is deemed. This theory tends to highlight the different approaches that have been used in cash management. Hence the importance to establish how commercial banks have utilized these approaches in their cash management and their ultimate performance. (Pandey, 2010). Liquidity risk in the financial sector was clearly manifested in the global financial crisis. This affected liquidity as the same was depleted in the entire market segments, and thus leading to a system-wide scramble for liquidity. In that context, central banks through their regulatory role have aided in preventing a total collapse of the financial system (Coeure,2013). The Liquidity Preference Theory is evidenced by the CBK setting interest rates to control prices of assets through the demand and supply of monies (Mohamed, Mutegi, Muriuki, 2017).

On the other hand, the public interest theory of regulation clearly brings out the link between laws and profitability of banks. According to this theory, regulations tend to protect against market failures by providing solutions or corrective measures. They intend to increase the good of the economy. This theory indicates that regulations aid in overcoming the negative effects that markets are likely to face e.g., imperfect markets. According to this theory, banks are regulated to enhance their operations by eliminating

market breakdowns at the society's advantage. Banks are required to allocate resources in an efficient manner (Stigler, 1972).

1.1.4 Commercial Banks in Kenya

Commercial banks are vital in a country's economy, hence bolstering economic growth. This then calls for the need of banks to be properly managed so as to ensure a safe economic environment of a country. Currently, there are approximately Thirty-Eight (38) licensed banks in Kenya with roughly 60 percent of them being locally owned and the other percentage being affiliates of foreign lenders both globally and in the African region. Also, from these statistics 11 banks are listed with the other 29 being non listed. In Kenya banks are categorized as tier 1 to tier 3 with the biggest banks such as KCB Bank Kenya limited being on the top tier due to the amount of their asset base.

The CBK is the main banking regulator in Kenya, and it follows up on compliance of regulations such as the Banking Act (cap 488), the prudential guidelines, 2013 among many other regulations in the financial sector. These regulations according to the CBK are meant to shield various stakeholder such as bank depositors, decrease risks of interruptions of the banks activities that may result from unfriendly environments they operate and a subsequent in failure of banks which might be massive. These rules also tend to prevent banks from being dens for unlawful ventures for instance laundering of funds as money laundering. Regulations also aid customers to earn the trust of banks for purposes of credit allocation. The CBK in measuring performance of commercial banks, applies the CAMEL approach.

The financial sector Stability report of 2020 deemed the Kenya's banking sector's performance as stable and resilient in the preceding years records, not any different with 2019 records with the total assets increasing by 9.9%, liquidity increasing to 53.3% and the total profits to increase by 8.5 %. This was however not the case in 2020, where assets grew by 8.3%, profitability on the other hand reduced by 25.6% and liquidity increased to 56.5%. However, this change was attributed to the effects the COVID-19 pandemic. The records and Covid -19 notwithstanding, recently we have witnessed banks performing exceptionally well and others performing dismally to an extent of crumbling regardless of the enactment, implementation and even the watering down of certain regulatory reforms. These reforms have been ongoing since the 90's (Marwa,2018). However, bank profits have still been unstable. Part of the banks that have crumbled recently are the Imperial bank, Chase bank and the National Bank which was luckily revived by the KCB. Part of the cause for their collapse was seen to be violation of the laws and regulations set for the banks, Inability unable to keep up with the preset capital and ratios requirements among many other reasons (Marwa,2018).

1.2 Research Problem

Financial performance a key focus by many will continue for an extended time due to its significance in the life of an organization (Mirieri, 2020). Consequently, there have been several attempts to comprehend this in terms of factors that contribute to the realization of this success and those that do not (Abata, 2014). The relationship existing between banking regulations and firms' performance has been a discussion of interest to many

with some giving positive feedback and others with negative views. In most instances much focus has been placed on some basic macroeconomic variables such as rate of interest, GDP, as factors that influence the performance of firms, (Gan, Lee & Zhang, 2006). Even with the existence of these factors, they still revolve around regulations. Regulations are meant to ensure continuous existence of banks which as a result promotes economic growth and a nation's development (Barus, Muturi, Kibati, 2017). This was not the case with Barth et al (2001) who viewed regulations as restrictions that only lead to financial crisis.

There are a myriad of financial entities including SACCOs, but the main focus was on Commercial banks as they have a key obligation in the country's economy and their failure will only result into the failure of the economy entirely. This sector specifically has also faced a challenging regulatory environment including limiting of rates of interest that was put in force in 2016, implementation of various policies in the banking system as mitigation measures to reduce the impact of Covid -19 that hit the world in 2020. Most of these reforms were more favorable to the customer as compared to the banks. Through these "favorable policies" banks were at a risk of disrupting their books as they implemented these policies hence impacting on their financial performance. Even with the easing of the containment measures and the reduction of the Covid-19 cases and even the amendment of the interest rates, many of the key regulatory issues raised identified in the previous years still remain important and relevant in future hence the justification for this study.

An array of studies have been undertaken internationally, regionally (Africa) and even locally. For instance, (Altavilla, Boucinha and Peydro, 2018) in their research on Monetary policy and bank profitability concluded that easing of monetary policies which they associated with lowered interest rates or yield curve flattening led to decreased profits where there were no controls for the endogeneity of these policies to the bank's financial wellbeing. They further concluded that pursuant to a shock brought about by monetary policy various banks productivity elements react unequally. Even with these effects, they observed that for such policies to have an adverse effect, it normally takes a while for them to be realized. According to Karemera(2018) ,Capital requirement ratio, Liquidity ratio, management efficiency ratio did not impact on the Rwandan Commercial banks' profitability. Although the findings relate to this study, they were not conducted for Kenya. Hence the research gap.

Locally, Akims (2019) in their study found out that laws on capital adequacy and risk on credit had a considerable effect on banks productivity. Despite the fact that regulators in Kenya are confident that there are adequate regulations to protect banks, this was not the case with Ogada(2020) in her research concluded that it was as a result of under regulation financial institutions both in Kenya and other developing economies have recorded losses. Kori, Muathe and Maina (2020) concluded that regulations impacted on the productivity of banks though not to a greater extent. They also indicated that regulations enacted to meet one's selfish interests affect banks negatively. With the foregoing, the actual impact and relationship between financial policies and bank records in terms of gains is not clear, hence the research gap and the need to establish a consensus

on the same. Hence the need to add to this discussion by responding to the research question, what is the effect of regulations on the performance of Commercial Banks in Kenya?

1.3 Research Objective

To ascertain the effects of regulations on the financial performance of commercial banks in Kenya.

1.4 Value of the Study

The outcome of this research question's accuracy of whether regulations have any contributions on banks and their performance financially. The study intends to offer valuable contribution not only in practice but also in policy and theory. In theory for instance, the study will add helpful knowledge in the entire finance sector as it will provide a basis for further research from the knowledge gaps that have been identified so far. The study will also be useful in theory development. This study shall also provide researchers with an understanding on the extent of the applicability of the theories in relation to behaviors of financial institutions in general and banks specifically. This Study will also be beneficial to the field of finance through the provision of knowledge in financial intermediation activities by regulators of commercial banks and in that regard, facilitate more investigation on the impact of laws on the stakeholders of financial services in comparison to the attitude to banks.

In terms of policy and where the findings are positive, policy makers make informed decisions while formulating policies to govern banks. This will also enable them to determine the regulatory factors that can be geared towards the attainment of goals necessary for development without downplaying on the prudential regulations and the financial sector's stability. The regulators will also have a know-how on complementing development aims with other well-designed policies for the financial sector. The study findings also provide guidance to policy makers in upgrading the quality of banking services and improve on the competitiveness of the banking industry which will be aligned with the policies. The findings of this paper will also be beneficial to the government as it will assist them in analyzing the challenges facing banks hence come up with policies that address these challenges. In the event the findings are negative, the policy makers will find ways of ease the regulations so as to make the environment friendly for banks to thrive.

In terms of practice, commercial banks will be aware on how their growth is impacted by these regulations as they will gain a better understanding of the banking trends, patterns and regulations from a professional. This will also aid banks in their internal policies formulation in line with the regulations which will allow for alignments of the two so as to attain their pre-set objectives, including financial. Banks will also be able to strictly adhere to the formulated policies with the regulator having to deal with less cases of bank misconducts in the event the correlation between the two variables is in the affirmative. This study will also instill a lot of confidence in the country's banking system by the

financial services consumers as they will have a clear understanding of whether regulations contribute to the safety of their monies in the bank.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter gives a description on the theories that touch on regulation and the bank's performance. The chapter covers the review of various literatures by other researchers. It will also highlight recent empirical studies and further insight into regulations and the performance of banks Kenya. It will also give details on already existing research in this similar topic.

2.2 Theoretical Framework

There exists an array of theories that tend to explain the effects of regulation on profitability of banks both directly and indirectly in general and specifically in Kenya. This study will be limited to the Agency, Liquidity preference and the Public Interest theories.

2.2.1 The Agency Theory

Jensen and Meckling (1976) were the propounders of this theory. It originated from the economic theory and has since been used in the corporate governance works. Agency relationship is the relationship between the agent and the principal. It tends to explain organizational behavior in terms of the relationship between managers (the agents) and the shareholders (the principals). This theory implies that the agent who has been tasked by the principal tend to possess a utility maximization logic hence tends to focus on objectives that are more inclined to their personal interests and even ignoring the organizations' good (Eisenhardt, 1989). Researchers have brought out two forms of this

relations one where the agents are tasked with a variety of duties which are prone to change and are in line with the principals' important aims and interests and one where the principal-agent relationship is more hierarchical and impetuous.

This theory is founded on a dual behavioral supposition. With one of them on an individual's own utility maximization and the other on an individual's likelihood of gaining from the incomplete contracts (Zogning, 2017). Kitsou (2013) supported this theory by indicating the genesis for the weakening of family business which resulted from the increase of the company's size hence complicating the management role as technical expertise was preferred to blood ties. Gomez (2013) further added that the intervention of the principal is to ascertain the agent's work and not to control them or interfere with their strategies. Critics against this theory argued that the assumption that conducts of the principals and their effects are similar and simply controllable is not true in the actual world (Zogning,2017). They also indicated that agency theorists ignore costs required to stay protected against unscrupulous conduct by the principals which come about by the requirement for concealed initiatives, innovation, creativity and entrepreneurship and innovation by companies. (Davis and al. 1997).

This theory tackles two problems; the agents goals conflicting with thos of the principal and the principal's inability to verify the works they have assigned to the agent, which problems is caused by information asymmetry (Osano and Gekara, 2018). This issue is deemed to be more rampant in the financial sector as compared to other fields of business (Howels and Bain 2004). They further indicated that these regulations on banks exist to resolve the issue of information asymmetry which may expose bank stakeholders to risks inclined the selfish interest of managers (Howels and Bain 2004). Agency problem will

continue being a challenge to all financial institutions where if not managed will negatively impact on these entities' performance. Hence the need for managers to be monitored and proper policies to be enacted to aid in risk management. This theory relates the attitudes and behaviors of the market players, mostly managers of commercial banks to compliance with regulations and resultant profitability of banks hence its relevance for this study.

2.2.2 Liquidity Efficiency Theory

Keynes (1936) is deemed to have been the first person to have discovered this theory. Where he observed that there were three motives that drove people to prefer liquidity, these which included the transaction, precaution, and the speculative motives. This theory also affirms that institutions retain monies to meet obligations as they arise and not to incur unnecessary costs. Liquidity risk results from the market player's inability to convert stock into cash when required. From a commercial bank's perspective, it is where a bank may face challenges in meeting its financial obligations from its financial liabilities (Kalui,2020). Hence liquidity management is aimed at ensuring that banks have sufficient liquidity to meet there day to day financial obligations.

This theory was reflected in the financial depression in the 1930s (Anadchira and Gichure, 2019). The banks' system's ability to give credit can influence the profit rate, demand and supply and influence credit prices. Holmstom and Tirole (1998) developed on this theory by observing borrowing frictions between intermediaries. in accessing credit, governments had an edge over individually owned firms due to their ease of enforcing settlement of the loans as compared to private entities. They also regarded the significant role played by banks in rectifying any inadequacies resulting from

externalities and personal information and also issues on insider trading. Rothbard (1962) criticized this theory by indicating that there are issues affecting interest other than the liquidity preference as alluded by Keynes. He was also of the view that this theory was biased towards short-run interest with no account on long run interest.

Liquidity creation in the banking sector is significant more so during times of financial difficulties (Acharya, Shin & Yorulmazer, 2009). Bouwman (2013) therefore emphasized on the need for regulators to focus more on policies governing liquidity and capital requirements so as to build on banks sufficiency on liquidity. This theory will thus be used in this research to figure out the consequences of liquidity management policies on the productivity of Kenyan commercial banks. The CBK also uses this theory to regulate commercial banks on liquidity hence ensuring they are compliant with the set standards. The preposition of this theory further supports the liquidity regulation variable hence its applicability in this study.

2.2.3 Public Interest Theory of Regulation

Pigou (1932) is said to be the developer of this theory. He indicated that in the event the public calls for regulations for purposes of rectifying wrongs, they are in that effect enacted for the interest of the public. Regulations are intended for the good of the entire public and not an individual. A regulatory arm tends to represent the interests of the community it functions in and not the regulator's private interests (Posner, 1974). This theory also encourages for government regulation as a means to overcome the demerits of imbalance market operations, unavailable markets, imperfect competition among many other challenges (Hertog, 2012). Public Interest view on regulation has by and large been

a point of interest for most economists as it is linked with the welfare economics (Hantke-Domas, 2003).

One assumption of this theory is the fact that markets if abandoned, will not always function in the interest of the public thus the need for supervision will be necessary (Uche,2001). This theory also assumes that regulators are well-informed hence their decisions are not affected by computational or informational drawbacks (Gekera and Osano,2018). Critiques of the Public Interest theory have found this theory to be somewhat ambiguous and not able to tell when and if the same has made any progress (Smyth, Russell; Söderberg, Magnus, 2010). Stigler (1972) Public Choice theory has been contrasted with the Public Interest theory. According to him, regulations are prepared upon the public's demand for resource allocation efficiently. Further he opined that, regulations are communally inefficient and are a focus of private individuals to prohibit entry of competitors in the market (Mueller,2008). the Chicago school of economics has also been viewed to be strongly inclined towards setting up persuasive intellectual justification for deregulation (Gekera and Osano, 2018).

Creditors, directors, employees, government together with its agencies, shareholders, suppliers, collectively referred to as business stakeholders focus more on the company's sustainability which is made up of economic, social and environmental factors among them being regulations. This theory will thus be helpful in this research since furtherance of novel ideas and knowledgeable standards favorable to independent markets and the alterations of the stakeholders view towards the executive's involvement in the financial

sector is necessary for encouraging a critical approach to regulation. This theory also relates to the need for regulations for the promotion of the interests of the society as a whole hence its relevance for this study.

2.3 Determinants of Performance of Commercial Banks in Kenya

Apart from regulations, there exists other components worth considering on this aspect of commercial banks performance in Kenya as depicted by this section. These factors have been classified into Macro and Microeconomics. With the former being external hence beyond the control of an entity and vice versa for the latter.

2.3.1 Capital Adequacy

Capital is arrived at by the totaling capital to the weighted assets. A well-capitalized bank is an indication that it will record a better than average performance (Barth,2004). Hence the risk level of a well-capitalized bank is low. With adequate capital, banks are protected against various risks such as operational, market and credit risks. Capital Adequacy Ratio (CAR) is also a gage of capital adequacy (Ongore and Kusa, 2013). Directly corresponds to the flexibility of banks during adverse conditions. With a good capital structure, banks a likely to adhere to all the regulatory standards necessary to maintain their capital (Osano and Gekara,2018).

2.3.2 Credit Risk

This is measured by a bank's fixed and current assets, credit portfolio among other investments. Ironically, loans are a bank's major asset as they interest rates from these loans tend to form part of the bank's major source of income generation (Kiplagat and Kalui,2020) on the other hand no performing loans tend to pose a major risk on banks.

Thus, banks are required to maintain the lowest rate possible of non-performing loans so as to minimize chances of making losses. Ongoro and Kusa (2013) concluded that asset quality is a measure of non-performing loans to the total loans. CBK also stated that it is achieved by the ratio of gross loans to total assets.

2.3.3 Management Efficiency

This has been regarded as a biased assessment of an organization's attribute of its staff, organizational discipline, management, and control systems (Ongore and Kusa,2013). Various ratios can be used to measure the same among them being expenses to assets ratio, total asset growth, loan growth rate, earning growth rate. An efficient management system is considered where the profits are higher than costs (Mwongeli, 2016).

2.3.4 Liquidity Management

This is the banks' capability of meeting all its anticipated expenses without liquidating any of its other assets (Osano and Gekara, 2018). Liquidity is technically made up of liquidity coverage ratio and the net stable funding ration (Ahokpossi,2013). Liquidity requirement coupled with the capital adequacy requirement tend to point out on the requirement that banks need to have enough leverage so as to accommodate the least liquid asset and to be involved in higher developments (Osano and Gekara,2018). The greater the buffer of liquid assets in relation to the expected liabilities, the greater the bank's liquidity (Osano and Gekara, 2018). They further concluded that a good banking regulation on liquidity can reduce bank runs but at the same time it might negatively affect the bank's ability to lend to a non-financial economy and bank profitability.

2.3.5 Bank Size

Size is significant for banks risk taking ability and its capital as well. It also has an impact on a number of banks activities including investment opportunities, asset diversification, equity capital access and diversification. The larger the bank the lower the capital ratio hence the easier its ability to access equity capital and the easier their ability to diversify their selection of assets hence a decreased credit risk. It is gaged as the natural logarithm of the annual bank's sum assets large banks are thus assumed to take up the biggest risk (Rahman, Ashraf and Zheng, 2015).

2.4 Empirical Literature Review

This segment will explore both the global and studies in the Kenyan context on the impact of regulations on the performance of such entities. The review will also include studies conducted on other issues which impact on the profitability of commercial banks both locally and internationally. Erdogan and Aksoy (2016) in their study on banking regulations and determinants of banks' profits in Turkey concluded that authority had a positive influence on the banks' profits in Turkey. They used a sample size of 36 Turkish banks and their period of study was 1995 to 2007, which data was analyzed through the regression analysis. The empirical findings indicated a considerable relationship between capital, bank size, off balance sheet transactions, loans, liquidity, and performance and negative and relationship between credit quality concentration and profitability. They measured profitability by use of three alternative variables; return on assets (ROA), the return on equity (ROE), and the earning per person (EPP).

Zgarni and Hassouna, (2018) undertook research on the impact of regulations on the performance of commercial banks in Tunisia in a financial liberation context. They

observed that financial liberalization initiated by several countries and at all times was deemed valuable as far as economic growth was concerned proved to have negative effects performance of banks. They also observed that the rate of regulation on Tunisian banks was high compared to its counterparts in other countries hence the justification as to why Tunisian banks formed part of the statistics of financial crisis. This however did not deter the Tunisian regulators from carrying out regulatory reforms as they stated. Their study was limited to ten Commercial banks in Tunisia, for the period between 1990 to 2011. The data was analyzed through regression analysis. They concluded that banking regulations did not have any relationship with banks' functionality. They suggested for a comparative analysis with banking regulations on banks in other countries.

Mohammady, (2019) studied the performance of private and public commercial banks in Afghanistan. He used the CAMEL approach in his study. He used data from 2014 to 2017, secondary data for instance audited financial statements. His findings were that private banks performed much better than public banks and a slightly better performance for public banks on Return on Assets ratio and the Total Asset ratio. Even though he was looking at policies in comparison with performance of banks in Afghanistan, he focused more on the aspect of private and public banks as opposed to the relationship of regulations to the performance of these banks.

Locally, Mwangeli, (2016) in her study in the case of Kenya used a target population of commercial 43 banks and analyzed the relationship between the two variables by the use of a chi square test of independence. The study population was 43 Kenyan commercial banks her period of study was 2010 to 2015. She used the Chi square test of

independence to examine the association between the two variables. The examination was undertaken on each of the ratios and the findings were negative, that is no relationship existed between the two variables and she also found out that most banks were compliant with the minimum capital requirement. From this study, she concluded that in most western countries, regulations had an adverse influence on banks on their profitability and it is difficult for them to be compliant with regulations and still achieve high profits. Her theories of study were the micro and the macroprudential regulations which are not theories per-se.

Gekera and Osano, (2018) found a positive correlation between regulations and banks profitability. For instance, on interest rates, they found out that the capping is linked to the base set rate by the regulator while coming up with monetary policies hence the same responds to market conditions. On capital adequacy, they also found a positive relationship. According to them, the greater the banks' capital the greater the bank's ability to spread their business processed by reinforcing their capacity so as to accommodate risks and draw funds at minimal costs thus enhancing their liquidity position. Some of their recommendations were that banks should not be subjected to extreme regulations and monitoring as this might lead to information asymmetry and as a result lead to banks' dismal performance hence impacting on the nation's economy. Their study failed to delve too much on liquidity ratio regulation.

Kori, Muathe and Maina (,2020) in their study in the Kenya context found that regulations had quite a substantial effect in the performance of banks, though not to a very high extent. they further established that, careless restrictions or restrictions centered on self-interest by the government and their agents can have adverse effects on the

performance of commercial banks and prudential restrictions which are aimed at promoting economic growth will expand the market hence lead to economic growth. Their mode of data collection was both an open and closed ended questionnaire and a document review that was done via the internet on Return on Equity on 40 commercial banks in the years 2016 to 2018. They also conducted a cross-sectional data collection procedure was also undertaken and used both a cross-sectional descriptive survey and an explanatory research design.

From the above analysis, it is clear no concise correlation exists laws and functionality of banks in terms of their overall performance. In summary, Surveys previously conducted in developed nations in the USA and Europe indicate that regulations have had an unfavorable result on their financial entities profitability. On the other hand, Nigeria had embarked on deregulation process 1986 that resulted into and an increased risk of financial fragility even on banks that were deemed to be doing well. For the case of Rwanda on the other hand, no relationship existed while in the case of Kenya there are mixed outcomes on the relationship. (Mwongeli,2016).

2.5 Conceptual Framework

This section provides an elaborate scheme that associates dependent and the independent variable. The independent variable that will be used are the capital adequacy, liquidity management, credit risk, credit risk management and management efficiency, it is expected that regulations pegged on all these independent variables will tend to impact positively on performance of commercial banks. The controlling variable shall be bank size.

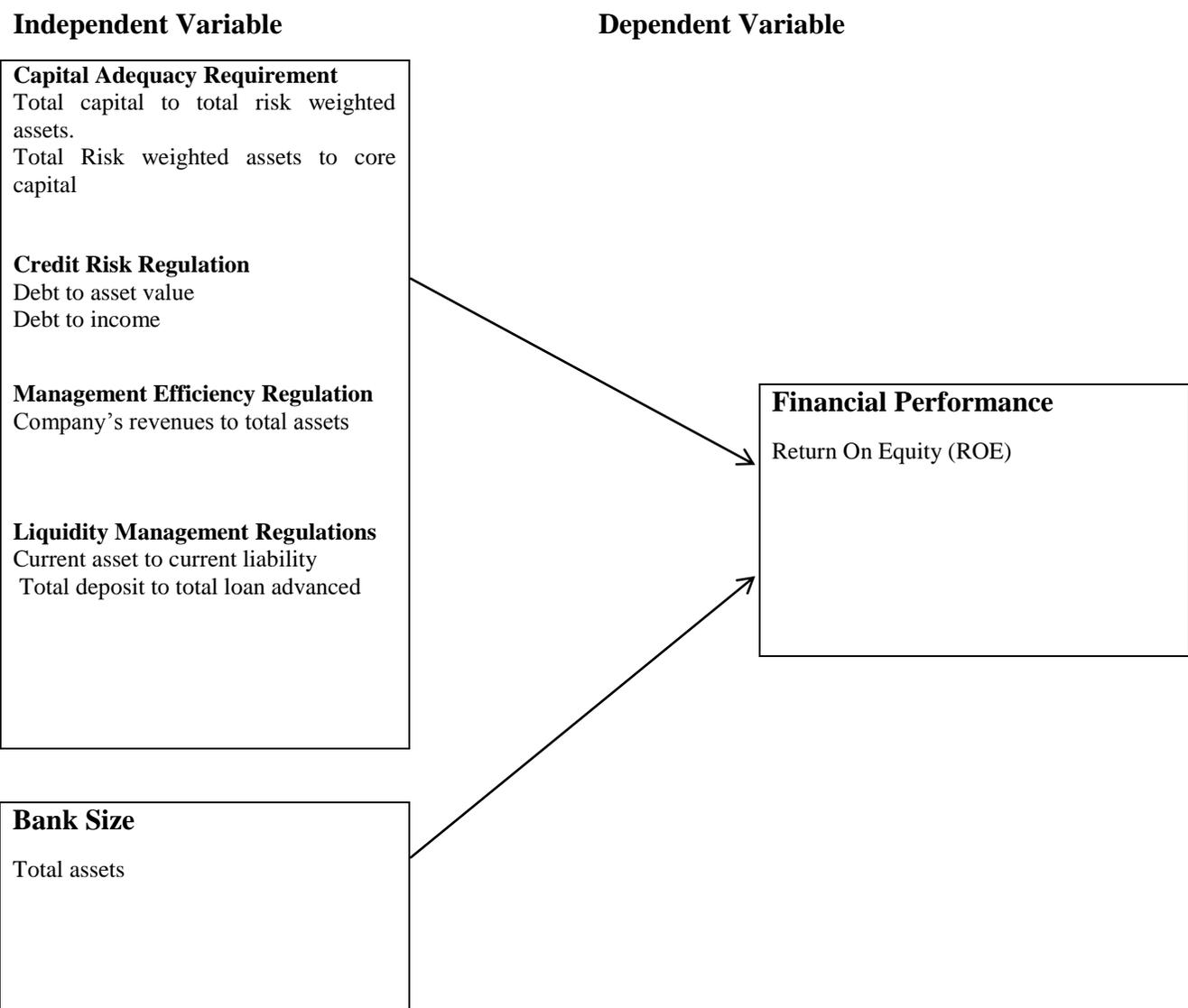


Figure 2.1 Conceptual model

Source: Author (2021)

2.6 Summary of the Literature Review

Several frameworks have explained the expected relation amongst regulations and performance of commercial banks. Theories tackled in this section include the agency Liquidity Efficiency and the public interest theory. The main determinants of financial performance such as capital adequacy, credit risk, management efficiency, liquidity efficiency and bank size were also factored in. From the agency theory, it was deduced that regulations are necessary to resolve the issues that exist between the agent and the principal. Liquidity efficiency theory on the other focused more on regulations that focused on banks' liquidity.

A number of domestic and global studies existing on banking regulations and their financial performance was also undertaken. In Mwangeli (2016) undertook an investigation to examine influence of regulations on the Kenya commercial banks profitability a the study revealed no association in the two variables. Osano and Gekara (2018) found a positive correlation between these two variables. Kori, Muathe and Maina (2020) in their study found a relationship between regulations and profitability though not a greater extent. From the above, there is no accord among previously conducted studies researchers thus more the justification for this paper.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the design and methodology this research was based on in testing relationship between banks' regulations and financial performance. Elements discussed include research design, target population, sample size, sampling procedure, data collection, diagnostic test and data analysis.

3.2 Research Design

A descriptive research design was used which design intends to describe a phenomenon's present status, determining the essentials of prevalent conditions, practices, attitudes and on the other hand seeking precise descriptions (Mugenda,2012). This design was ideal for this research as it describes a situation as it is without any manipulations.

3.3 Target Population

Reliance was on 38 Kenyan commercial banks as its target population, ranked as big, average, and small size based on the market share. According to a report by CBK in 2021 commercial banks in operation as at 31st December, 2020 were 38 with the exclusion of those that were under statutory management.

3.4 Data Collection

The study placed its focus on secondary data for the 38 commercial banks. Secondary data is information that is readily available from previously conducted studies and can easily be accessed from publications and websites (Ndolo,2017). This mode of data collection is cost effective and faster. Various accounting ratios were applied to evaluate

the financial performance of these commercial banks. Data was gotten from CBK's website and the websites of these 38 banks. The period of study was from 2016 to 2020.

3.5 Diagnostic Test

The viability of the study was determined by several diagnostic tests which included the normality, Multicollinearity and the stationarity tests. This also aided in ensuring the suitability of taking parametric figures. Normality test tests the assumption that the response variable's residual has a standard distribution around the mean. This was done through the Shapiro-wilk test. Stationarity test was used to determine if statistical features for example variance, mean and autocorrelation structure vary in any way. This was done thorough the Hariz Tzavaliz Unit Root Test. Multicollinearity was used to check on the relationship degree between all the independent variables. Variance Inflation Factors were used.

3.6 Data Analysis

The data obtained was analyzed through the Statistical Package of Social Sciences Software (SPSS). Descriptive and inferential statistics were used in the study. Descriptive statistics entailed the use of standard deviation, frequencies, mean and proportions. Multiple regression determined the connection between the dependent and the independent variables. The mode of data presentation was in form of tables. Initial analytical tests will be undertaken so as to guarantee the appropriateness of undertaking parametric statistics (correlation and multiple linear regression). These initial diagnostic tests included linearity tests, multi-collinearity and normality test. The tests checked on the extent to which independent variables are related.

In this study the following regression model was used:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

Where Y = Profitability (Return on Equity)

X1 = Capital adequacy

X2 = Liquidity Management

X3 = Credit risk regulation

X4 = Bank size

β_0 = Value of credit available when all the other predictor variables (X1, X2, X3, X4 and X5) are zero.

β_1 , β_2 , and β_3 are the regression co-efficient or change introduced in Y by each independent variable

ϵ is the random error term accounting for all other variables that affect profitability but not captured in the model.

VARIABLE TYPE	VARIABLE	MEASUREMENT	MEASUREMENT SCALE	MODE OF DATA COLLECTION
Independent	Capital Adequacy	Total Equity to Total Asset	Ratio	Secondary
Independent	Liquidity Management	Total current assets to Total current liabilities	Ratio	Secondary
Independent	Management Efficiency		Ratio	Secondary
Independent	Credit Risk	Non-performing loan to Total assets	Ratio	Secondary
Independent	Bank size	Log total assets	Ratio	Secondary
Dependent	Financial Performance	Return on Equity	Ratio	Secondary

Source: Author (2021)

3.7 Test of Significance

Parametric tests were conducted to establish the statistical significance of the overall model as well as individual parameters statistical significance. The F-test was used in establishing the statistical significance of the overall model. It was obtained from ANOVA. The t-test was used for the individual variables.

CHAPTER FOUR

DATA ANALYSIS RESULTS AND FINDINGS

4.1 Introduction

This chapter focuses on data analysis. The objective of the research was to establish the relationship between regulations and ROE among banks in Kenya. Patterns were studied by descriptive and inferential analysis, that were then analyzed and conclusions drawn on them, in accordance with the specific objectives.

4.2 Descriptive Statistics

The research sought to describe the data in terms of their means and standard deviations. The descriptive analysis was necessary as it helps in understanding the characteristics of the collected data before conducting inferential analysis. Table 4.1 summarizes the findings. Data was obtained from 37 of the 38 banks giving a response rate of 97.4% which was considered adequate.

Table 4.1: Descriptive Results

	N	Minimum	Maximum	Mean	Std. Deviation
ROE	185	-.244	.070	.00644	.038379
Liquidity	185	.001	.227	.07351	.040753
Efficiency	185	.016	11.384	1.64009	1.178527
Capital adequacy	185	.0280	2.1258	.237358	.2113328
Credit risk	185	.0008	38.5539	.355127	2.8284459
Bank size	185	14.7750	20.6163	17.725991	1.3648773
Valid N (listwise)	185				

Source: Research findings (2021)

Table 4.1 shows the descriptive analysis, with 185 observations for each variable based on the product of the number of cross-sectional units and the number of periods studied ($37 \times 5 = 185$). The dependent variable was ROE while the independent variable was regulations (liquidity, efficiency, capital adequacy and credit risk). Finally, the control variable was bank size.

4.3 Diagnostic Tests

To ascertain the model viability, a number of diagnostic tests were done, like normality, stationarity, Multicollinearity test, homogeneity of variance and autocorrelation.

4.3.1 Normality Test

To test whether the collected data assumed a normal distribution, normality test was conducted using the Shapiro-Wilk Test. The threshold was that, if the p value is above 0.05, then the data assumes a normally distribution.

Table 4.2: Test for Normality

	Shapiro-Wilk		
	Statistic	Df	Sig.
ROE	0.869	185	0.078
Liquidity	0.918	185	0.102
Efficiency	0.874	185	0.091
Capital adequacy	0.892	185	0.101
Credit risk	0.923	185	0.120
Bank size	0.874	185	0.094
a. Lilliefors Significance Correction			

Source: Research findings (2021)

The outcomes of normality test yielded a p- value above 0.05 thus the null hypothesis rejection and acceptance of the alternate hypothesis meaning the normality test revealing normal distribution in the data.

4.3.2 Multicollinearity Test

Multicollinearity exists when a perfect or near perfect linear relation exist between a number of independent variables. Variance Inflation Factors (VIF) as well as tolerance levels were utilized.

Table 4.3: Multicollinearity

Variable	Collinearity Statistics	
	Tolerance	VIF
Liquidity	0.724	1.382
Efficiency	0.697	1.434
Capital adequacy	0.703	1.422
Credit risk	0.661	1.513
Bank size	0.634	1.577

Source: Research findings (2021)

The outcomes in Table 4.3 specify that all the variables had a VIF values <10 and tolerance values >0.2 suggesting that Multicollinearity did not exist.

4.3.3 Heteroskedasticity test

To check for heteroskedasticity, the Breusch-Pagan test is used. The null hypothesis was that the variance of error terms is constant. Heteroskedasticity Test Results are shown in Table 4.4.

Table 4.4: Heteroskedasticity Results

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity		
Ho: Constant variance		
Variable: fitted values		
chi2(1)	=	0.8147
Prob > chi2	=	0.6252

Source: Research findings (2021)

The null hypothesis of Homoskedastic error terms is not rejected, according to the results in Table 4.4, which are supported by a 0.6252 p-value

4.3.4 Autocorrelation Test

Autocorrelation is a measure of how similar one time series was when compared to its lagged value across successive timings. The measure of this test was done using the Wooldridge test.

Table 4.5: Test of Autocorrelation

Wooldridge test for autocorrelation in panel data			
H0: no first-order autocorrelation			
<hr/>			
F(1, 184) = 0.336			
Prob> F = 0.5189			
<hr/>			
Source: Research findings (2021)			

From the results of Table 4.5, the null hypothesis of no serial correlation is not rejected given that the p-value is significant (p-value = 0.5189).

4.3.5 Stationarity Test

Stationarity test was utilized in determining if the statistical characteristics such as variance, mean, as well as autocorrelation change with the passage of time. Table 4.6 shows Levin-Lin Chu unit root test outcomes.

Table 4.6: Levin-Lin Chu unit-root test

Levin-Lin Chu unit-root test			
Variable	Hypothesis	p value	Verdict
ROE	Ho: Panels contain unit roots	0.0000	Reject Ho
Liquidity	Ho: Panels contain unit roots	0.0000	Reject Ho

Efficiency	Ho: Panels contain unit roots	0.0000	Reject Ho
Capital adequacy	Ho: Panels contain unit roots	0.0000	Reject Ho
Credit risk	Ho: Panels contain unit roots	0.0000	Reject Ho
Bank size	Ho: Panels contain unit roots	0.0000	Reject Ho

Source: Research findings (2021)

The null hypotheses that: Panels contain unit roots were rejected for all variables since the p values were below 0.05, derived from the outcomes in Table 4.6. This meant that all of the variables' panel data were stationary.

4.4 Correlation Results

Correlation analysis was carried out to determine strength as well as association direction between each predictor variable and the response variable. The results in Table 4.7 show the nature of link between the research variables in terms of magnitude and direction.

Table 4.7: Correlation Results

		ROE	Liquidity	Efficiency	Capital adequacy	Credit risk	Bank size
ROE	Pearson Correlation	1					
	Sig. (2-tailed)						
Liquidity	Pearson Correlation	.005	1				
	Sig. (2-tailed)	.947					
Efficiency	Pearson Correlation	.357**	-.234**	1			
	Sig. (2-tailed)	.000	.001				
Capital adequacy	Pearson Correlation	.057	-.057	.184*	1		
	Sig. (2-tailed)	.438	.441	.012			
Credit risk	Pearson Correlation	-.479**	-.049	-.113	.155*	1	
	Sig. (2-tailed)	.000	.508	.126	.036		
Bank size	Pearson Correlation	.495**	-.147*	.268**	-.034	-.174*	1
	Sig. (2-tailed)	.000	.046	.000	.000	.643	.018

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

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

c. Listwise N=185

Source: Research findings (2021)

The outcomes in Table 4.8 reveal that liquidity and ROE are positively but not significantly correlated ($r=0.005$) at 5% significance level. In addition, results show that efficiency and ROE are positively and significantly correlated ($r=0.357^{**}$) at 5 % significance level. This implies that both efficiency and ROE change in the same direction. Capital adequacy did not have a significant link with ROE while credit risk had a significant negative relationship with ROE ($r=-0.479^{**}$) at 5 % significance level. Bank size exhibited a positive and substantial relationship with ROE ($r=0.495^{**}$) at 5 % significance level.

4.5 Regression Results

Regression analysis was performed to determine the extent to which ROE is explained by the selected variables. The regression results were presented in Table 4.8 to Table 4.10.

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.680 ^a	.463	.448	.028525

a. Predictors: (Constant), Bank size, Capital adequacy, Liquidity, Credit risk, Efficiency

Source: Research findings (2021)

From the findings as represented by the adjusted R^2 , the independent variables that were studied explained 46.3% of the variations in ROE among commercial banks in Kenya. This therefore means the five variables contributed 46.3% of the variations in ROE among commercial banks in Kenya whereas other factors not researched contribute 53.7%.

Table 4.9: ANOVA Analysis

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.125	5	.025	30.814	.000 ^b
	Residual	.146	179	.001		
	Total	.271	184			

a. Dependent Variable: ROE

b. Predictors: (Constant), Bank size, Capital adequacy, Liquidity, Credit risk, Efficiency

Source: Research findings (2021)

Table 4.9 ANOVA statistics depict that the data had a 0.000 level of significance hence this indicates that the data is perfect for making conclusions on the variables.

Table 4.10: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
	(Constant)	-.205	.029		-6.969	.000
1	Liquidity	.082	.054	.087	1.534	.127
	Efficiency	.007	.002	.212	3.549	.000
	Capital adequacy	.018	.010	.098	1.732	.085
	Credit risk	-.005	.001	-.399	-7.028	.000
	Bank size	.011	.002	.385	6.638	.000

a. Dependent Variable: ROE

Source: Research findings (2021)

The coefficient of regression model was as below;

$$Y = -0.205 + 0.007X_1 - 0.005X_4 + 0.011X_5$$

Where:

Y = ROE; X₁ = Efficiency; X₂ = Credit risk; X₃ = Bank size

4.6 Discussion of Research Findings

The research objective was to determine the effect of regulations on ROE. The study utilized a descriptive design while population was the 38 banks in Kenya. Data was

collected from 37 banks, resulting in a response rate of 97.4%, which was deemed sufficient. The study relied on secondary data which was gathered from CBK and individual banks annual reports. The specific attributes of regulations considered were; liquidity, efficiency, capital adequacy and credit risk. The control variable was bank size. Data was analyzed via descriptive as well as inferential statistics. This section discusses the findings.

Regression results revealed that liquidity regulation was positively but not significantly related with ROE of banks in Kenya ($\beta=0.082$, $p=0.127$). The outcomes further show that efficiency was positively and significantly related with ROE of banks ($\beta=0.007$, $p=0.000$). Credit risk exhibited a negative and significant effect on ROE of banks ($\beta=-.005$, $p=0.000$). Capital adequacy exhibited a not significant positive effect while bank size exhibited a significant positive effect. The R squared was 0.463. Implying the chosen predictor variables contributed 46.3% to variations in ROE.

These findings are in line with Erdogan and Aksoy (2016) who in their study on banking regulations and determinants of banks' profits in Turkey concluded that authority had a positive influence on the banks' profits in Turkey. They used a sample size of 36 Turkish banks and their period of study was 1995 to 2007, which data was analyzed through the regression analysis. The empirical findings indicated a considerable relationship between capital, bank size, off balance sheet transactions, loans, liquidity, and performance and negative and relationship between credit quality concentration and profitability.

The study findings also concur with Kori, Muathe and Maina (2020) who in their study in the Kenya context found that regulations had quite a substantial effect in the performance of banks, though not to a very high extent. they further established that, careless

restrictions or restrictions centered on self-interest by the government and their agents can have adverse effects on the performance of commercial banks and prudential restrictions which are aimed at promoting economic growth will expand the market hence lead to economic growth. Their mode of data collection was both an open and closed ended questionnaire and a document review that was done via the internet on Return on Equity on 40 commercial banks in the years 2016 to 2018. They also conducted a cross-sectional data collection procedure was also undertaken and used both a cross-sectional descriptive survey and an explanatory research design.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings from the preceding chapter, as well as the conclusions and limitations discovered during the research. Moreover, it provides recommendation for policy makers and offer suggestions on areas desiring further research.

5.2 Summary

The objective of this research was to assess the effect of regulations on ROE of banks in Kenya. The chosen variables for research comprised liquidity ratio, leverage ratio, efficiency ratio, credit risk ratio, capital adequacy ratio and bank size. A descriptive research design was chosen in completion of the research. Secondary data was gathered from CBK, and an analysis performed via SPSS. Annual data for 37 banks for five years from 2016 to 2020 was obtained from their annual reports.

The first objective was to determine liquidity regulation effect on ROE among commercial banks in Kenya. The correlation results at 5% significance level show that liquidity ratio possessed positive though not significant link with ROE. Regression results ($\beta=0.082$, $p=0.127$) show that there was a positive but not significant effect of liquidity ratio on ROE among banks in Kenya. This implies that liquidity regulation is not a good predictor of financial performance.

The second objective was to examine the effect of efficiency regulation on ROE among banks in Kenya. The correlation results at 5 % significance level show that efficiency possessed a positive link with ROE. This implies that enhancement in efficiency would lead to increase in ROE. Regression results ($\beta=0.007$, $p=0.000$) show presence of positive as well as significant effect of efficiency on ROE among banks in Kenya. This implies that efficiency regulation is beneficial for ROE among banks.

The third objective was to examine the effect of capital adequacy regulation on ROE among banks in Kenya. The correlation results at significance level of 5% show that capital adequacy had a positive although not significant link with ROE. As a result, increasing capital adequacy will not result in a major change in ROE. Regression results ($\beta=0.018$, $p=0.085$) show that there was a positive but not significant capital adequacy impact on ROE among banks in Kenya.

The fourth objective was to examine the effect of credit risk regulation on ROE among banks in Kenya. The correlation results at 5 % significance level show that credit risk possessed a negative link with ROE. The link was statistically significant as well. Regression results ($\beta=-0.005$, $p=0.000$) show that there was a negative and significant effect of credit risk on ROE among banks in Kenya. This implies that credit risk regulation is a significant determiner of ROE among banks in Kenya.

The fifth objective was to examine the effect of bank size on ROE among banks in Kenya. The correlation results at 5% significance level show that bank size possessed a positive link with ROE. This implies improved bank size would lead to increase in ROE. Regression results ($\beta=0.011$, $p=0.000$) show that there was a positive as well as significant effect of bank size on ROE among banks in Kenya.

5.3 Conclusions

The study conclusions depicted efficiency possessed a positive as well as significant effect on ROE. This may imply that banks which have high efficiency are likely to record a high level of ROE compared with banks with less efficiency. The study concludes that efficiency regulation has a significant beneficial effect on ROE among banks in Kenya. An increase in bank efficiency enhances ROE.

In addition, the results discovered credit risk regulation has a significant negative effect on ROE. This implies that banks with high levels of NPLs in their books end up having a lower ROE. The study concludes that credit risk regulation is vital in enhancing ROE of banks in Kenya.

Further, the study revealed that bank size possesses a significant positive impact on ROE. This research concludes that bank size has a significant positive effect on ROE among banks. This implies that bigger banks in terms of asset base are likely to record a higher ROE compared to small banks.

5.4 Recommendations for Policy and Practice

From the study findings, efficiency had a significant effect on ROE. Thus, the research recommends that commercial banks directors in Kenya ought to come up with policy guidelines on how banks should maximize efficiency. Furthermore, management and directors of banks in Kenya should work on ensuring they have efficiency managers in place as this will have a significant contribution on ROE.

The research findings reveal that credit risk had a negative as well as significant impact on ROE. The research therefore commends that the administrators of banks in Kenya

should work on reducing the level of non-performing loans. This can be achieved by coming with effective credit scoring models that will enable the bank to distinguish between good and bad borrowers.

Further, bank size was found to have a significant and positive effect on ROE of banks. The study therefore recommends that banks in Kenya should strive on growing their asset base as bigger banks are able to enjoy economies of scale and have better structures that help them in managing and monitoring loans compared to small banks, and this leads to enhanced ROE.

5.5 Limitations of the Study

The focus was on some of the elements that are thought to affect ROE of banks in Kenya. The study concentrated on five explanatory variables. Other factors, however, are likely to have an impact on a bank's ROE. Some are controlled by the bank, such as internal control systems and corporate governance, while others are not.

The research used secondary quantitative data. The study also ignored qualitative data that could explain other factors that influence the relationship between regulations and banks' ROE. Qualitative methods like focus groups, open-ended surveys, and interviews can aid in the development of more definite outcomes.

The research focused on a five-year duration (2016 to 2020). It is unclear whether the results will last for a longer period of time. It is too not clear if same results will be achieved after 2020. In order to account for key economic events, the research ought to have been conducted over a longer period of time.

The researchers utilized an ordinary least square regression model to analyze the data. Because of the limitations of employing regression models, such as erroneous as well as deceiving outcomes that cause the variable value to change, it was not possible to generalize the conclusions of the research with accuracy. Furthermore, if more data was included in the regression, the outcome could be varied.

5.6 Suggestions for Further Research

The research findings discovered an R square of 46.3%. This implies that there are other factors that affect ROE among the banks in Kenya that were not addressed by the research. Other research ought thus to focus on other factors for example; interest rate regulation, operational risk, board composition in terms of expertise, audit committee, among other corporate governance aspects that affect ROE among the banks.

The research was limited to commercial banks in Kenya. Additional research on other Kenyan financial institutions should be conducted, according to the study's suggestions. Future research should look into how regulations predict other factors besides the ROE, such as bank value, efficiency, and growth, to name a few.

Because of the readily available data, the focus of this research was drawn to the last five years. Future studies may span a longer time period, such as ten or twenty years, and might have a significant impact on this study by either complementing or contradicting its conclusions. A longer study has the advantage of allowing the researcher to catch the effects of business cycles such as booms and recessions.

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APPENDICES

Appendix I: List of Commercial Banks as at 31st December 2020

1. UBA Kenya Bank Ltd
2. The Co-operative Bank
3. Suntra Investment Bank Ltd
4. Sterling Investment Bank
5. Standard Investment Bank
6. Standard Chartered
7. Prime Bank
8. Paramount Bank
9. Oriental Commercial Bank Ltd.
10. NIC Bank
11. ABC Bank
12. National Bank
13. K-Rep Bank
14. Kenya Post Office Savings Bank
15. KCB Bank
16. Investments & Mortgages Bank Limited – I&M Bank
17. Housing Finance
18. Guardian Bank Ltd.
19. Giro Commercial Bank Ltd
20. Fina Bank
21. Fidelity Bank

22. Faida Investment Bank – FIB
23. Equity Bank
24. Equatorial Investment Bank
25. Equatorial Commercial Bank Limited
26. Dyer & Blair Investment Bank
27. Development Bank of Kenya Ltd
28. Co-operative Bank
29. Consolidated Bank
30. Commercial Bank of Africa
31. Citibank N A
32. CFC Stanbic Bank Limited
33. Central Bank of Kenya
34. Bank of Baroda (Kenya) Ltd.
35. Bank of Africa Kenya Ltd
36. Afrika Investment Bank
37. African Development Bank Group
38. African Banking Corporation

Source CBK (2021)

Appendix II: Research Data

Bank	Year	ROA	Liquidity	Efficiency	Capital adequacy	Credit risk	Bank size
1	2016	0.008	0.054	1.169	0.1645	0.1426	16.9342
1	2017	0.003	0.066	1.117	0.1528	0.1566	16.9451
1	2018	0.006	0.099	1.096	0.1560	0.1829	17.0576
1	2019	0.000	0.063	1.094	0.1844	0.1989	17.1451
1	2020	0.002	0.075	1.101	0.1538	0.1490	17.1964
2	2016	-0.015	0.086	0.716	0.1639	0.2325	18.0537
2	2017	0.000	0.114	0.997	0.1616	0.2606	17.8408
2	2018	0.001	0.095	1.010	0.1578	0.2816	17.8080
2	2019	0.004	0.202	1.078	0.1602	0.3383	17.7090
2	2020	-0.046	0.210	0.449	0.1083	0.4139	17.5996
3	2016	0.030	0.047	2.591	1.9617	0.0754	18.0376
3	2017	0.036	0.049	11.384	0.3053	0.0846	18.2332
3	2018	0.041	0.045	7.477	0.3229	0.0586	18.3812
3	2019	0.032	0.052	3.995	0.3466	0.0882	18.6278
3	2020	0.029	0.055	3.394	0.3274	0.0828	18.7805
4	2016	0.035	0.075	1.694	0.1840	0.0420	19.2998
4	2017	0.028	0.052	1.521	0.1786	0.0521	19.3751
4	2018	0.026	0.060	1.521	0.1803	0.0556	19.4197
4	2019	0.023	0.072	1.506	0.1638	0.0610	19.6003
4	2020	0.020	0.077	1.562	0.1667	0.0560	19.7397
5	2016	0.026	0.036	3.597	0.4230	0.0202	17.5571
5	2017	0.034	0.034	4.861	0.4574	0.0139	17.6829
5	2018	0.037	0.039	5.024	0.5397	0.0207	17.8521
5	2019	0.031	0.034	3.654	0.4392	0.0713	17.9537
5	2020	0.037	0.043	4.945	0.4842	0.0936	17.9514
6	2016	0.039	0.111	2.781	0.2832	0.0580	18.2945
6	2017	0.033	0.067	3.045	0.2637	0.0192	18.4534
6	2018	0.040	0.084	3.027	0.2555	0.0368	18.4028
6	2019	0.037	0.086	2.598	0.2764	0.0162	18.2656
6	2020	0.030	0.122	2.513	0.2715	0.0257	18.3858
7	2016	0.017	0.081	1.527	0.1792	0.1059	19.1891
7	2017	0.029	0.134	1.604	0.1845	0.0745	19.2507
7	2018	0.023	0.095	1.507	0.1732	0.0831	19.3199
7	2019	0.023	0.075	1.437	0.1573	0.0797	19.3172
7	2020	0.003	0.054	1.025	0.0939	0.0553	16.4642
8	2016	-0.015	0.047	0.839	0.0790	0.1176	16.4487

Bank	Year	ROA	Liquidity	Efficiency	Capital adequacy	Credit risk	Bank size
8	2017	-0.025	0.064	0.744	0.0509	0.1527	16.4149
8	2018	-0.042	0.071	0.800	0.0280	0.1533	16.3718
8	2019	-0.045	0.076	0.704	0.1352	0.2568	16.2888
8	2020	-0.006	0.025	0.821	0.1551	0.0638	16.1464
9	2016	0.009	0.025	1.147	0.2285	0.0722	16.3200
9	2017	0.009	0.020	1.152	0.1477	0.0754	16.4904
9	2018	0.014	0.023	1.249	0.1451	0.0724	16.7006
9	2019	0.010	0.018	1.203	0.1496	0.0870	16.8910
9	2020	0.034	0.086	1.701	2.1258	0.0342	19.6518
10	2016	0.036	0.073	1.715	0.2277	0.0390	19.6787
10	2017	0.029	0.063	1.642	0.2268	0.0620	19.7736
10	2018	0.031	0.079	1.700	0.1618	0.1009	19.8406
10	2019	0.031	0.064	1.744	0.1505	0.0979	19.9402
10	2020	0.004	0.005	1.185	0.2508	0.2601	16.6135
11	2016	0.002	0.004	1.129	0.2355	0.2098	16.6072
11	2017	0.007	0.008	1.461	0.2323	0.2981	16.5449
11	2018	0.070	0.024	3.765	0.3147	0.3695	16.5472
11	2019	0.024	0.016	2.261	0.1463	0.0241	19.4199
11	2020	0.024	0.018	2.311	0.1850	0.0325	19.6087
12	2016	0.019	0.021	2.047	0.1901	0.0666	19.7107
12	2017	0.019	0.021	2.040	0.2111	0.0629	19.7497
12	2018	0.019	0.021	2.061	0.2091	0.0683	19.7719
12	2019	-0.230	0.042	0.016	0.7005	38.5539	14.7750
12	2020	-0.119	0.099	0.134	0.2990	0.0037	15.4739
13	2016	-0.064	0.126	0.217	0.1486	0.0095	16.0114
13	2017	0.002	0.068	1.031	0.2496	0.0622	17.7749
13	2018	-0.043	0.048	0.308	0.1944	0.1628	17.6683
13	2019	-0.021	0.085	0.672	0.1599	0.3770	17.7944
13	2020	0.004	0.074	1.051	0.1659	0.1735	17.8130
14	2016	0.002	0.030	1.088	0.1622	0.1448	18.1380
14	2017	0.040	0.081	1.808	0.2017	0.0272	19.8748
14	2018	0.035	0.049	1.827	0.1966	0.0628	19.9761
14	2019	0.036	0.051	1.937	0.2041	0.0553	20.0779
14	2020	0.035	0.042	1.976	0.1593	0.0710	20.1671
15	2016	0.036	0.071	1.890	0.1979	0.0873	20.3283
15	2017	0.024	0.076	1.456	0.1441	0.0367	18.2134
15	2018	0.005	0.079	1.076	0.2078	0.1197	18.0567
15	2019	-0.014	0.082	0.825	0.1986	0.1923	18.0516

Bank	Year	ROA	Liquidity	Efficiency	Capital adequacy	Credit risk	Bank size
15	2020	0.004	0.094	1.066	0.1952	0.1618	18.0204
16	2016	0.012	0.088	1.214	0.1869	0.1409	18.1831
16	2017	-0.001	0.168	1.008	0.1145	0.2346	16.4941
16	2018	-0.004	0.149	1.202	0.1399	0.3195	16.5210
16	2019	0.009	0.134	0.972	0.1534	0.4078	16.6697
16	2020	-0.012	0.127	0.809	0.0911	0.4882	16.6992
17	2016	0.010	0.168	1.184	0.0810	0.4145	16.7474
17	2017	0.009	0.079	1.349	0.2649	0.0916	17.5282
17	2018	0.013	0.227	1.423	0.2547	0.1108	17.2864
17	2019	0.007	0.196	1.148	0.2387	0.1088	17.2774
17	2020	0.002	0.048	1.216	0.2597	0.1467	17.4516
18	2016	0.020	0.053	1.364	0.2428	0.1090	17.1856
18	2017	0.016	0.090	1.387	0.1763	0.0304	16.4972
18	2018	0.016	0.104	1.324	0.1904	0.0169	16.5037
18	2019	0.010	0.078	1.388	0.2022	0.0453	16.5757
18	2020	0.014	0.086	2.000	0.2275	0.0757	16.5997
19	2016	0.011	0.096	2.000	0.2220	0.0689	16.6120
19	2017	0.029	0.089	1.623	0.1577	0.0842	17.0226
19	2018	0.018	0.128	1.445	0.1872	0.0923	17.1171
19	2019	0.005	0.109	1.107	0.1620	0.0929	17.2596
19	2020	0.004	0.087	1.109	0.1866	0.1064	17.3218
20	2016	0.005	0.064	1.088	0.1711	0.1534	17.3744
20	2017	0.029	0.053	2.399	0.3213	0.0792	16.1408
20	2018	0.024	0.067	2.446	0.3911	0.1871	16.3419
20	2019	0.011	0.032	1.494	0.2463	0.0745	16.8845
20	2020	0.010	0.030	1.472	0.2729	0.0922	17.0273
21	2016	0.017	0.000	1.672	0.1813	0.0437	18.0874
21	2017	0.013	0.070	1.517	0.1769	0.0692	18.0912
21	2018	0.002	0.060	1.091	0.1700	0.1081	18.0282
21	2019	-0.010	0.046	0.874	0.1534	0.2494	17.9190
21	2020	-0.002	0.050	0.992	0.1456	0.2356	17.8490
22	2016	0.037	0.052	2.880	0.2020	0.0248	19.0716
22	2017	0.037	0.053	2.137	0.1815	0.0289	19.1652
22	2018	0.030	0.049	1.830	0.1858	0.0870	19.2966
22	2019	0.026	0.048	1.955	0.1792	0.1079	19.3315
22	2020	0.033	0.044	2.840	0.2156	0.0979	19.4287
23	2016	0.001	0.065	1.492	0.1625	0.0517	16.6358
23	2017	-0.011	0.044	1.279	0.2008	0.1720	16.5742

Bank	Year	ROA	Liquidity	Efficiency	Capital adequacy	Credit risk	Bank size
23	2018	-0.037	0.013	1.256	0.1933	0.1331	16.3714
23	2019	0.035	0.174	1.876	0.1536	0.0446	20.1400
23	2020	0.033	0.049	1.959	0.1801	0.0705	20.2045
24	2016	0.030	0.045	1.819	0.1663	0.0766	20.2873
24	2017	0.034	0.059	1.997	0.1955	0.0627	20.3868
24	2018	0.028	0.068	1.846	0.1903	0.1016	20.6163
24	2019	-0.013	0.058	0.727	0.3933	0.1590	15.4706
24	2020	-0.005	0.158	0.863	0.5708	0.1807	15.4489
25	2016	0.000	0.066	1.002	0.4494	0.3825	15.4946
25	2017	0.000	0.062	1.128	0.3119	0.1374	15.9516
25	2018	0.003	0.080	1.051	0.3869	0.0821	16.1101
25	2019	0.009	0.092	1.174	0.3316	0.0718	16.1741
25	2020	0.008	0.110	1.177	0.3093	0.0940	16.1683
26	2016	-0.002	0.086	1.113	0.3442	0.1931	16.3327
26	2017	-0.009	0.131	1.151	0.1399	0.1116	18.6473
26	2018	0.001	0.076	1.006	0.0715	0.1749	18.5348
26	2019	0.007	0.068	1.089	0.0542	0.3001	18.5148
26	2020	-0.001	0.053	1.078	0.0370	0.3913	18.5591
27	2016	-0.008	0.113	1.090	0.1150	0.3564	18.5343
27	2017	0.027	0.054	2.133	0.2059	0.0912	18.9262
27	2018	0.026	0.043	1.999	0.2304	0.1126	18.9481
27	2019	0.020	0.046	1.895	0.2227	0.1089	19.1442
27	2020	0.020	0.057	1.840	0.1869	0.1224	19.1550
28	2016	0.015	0.096	1.492	0.2412	0.0519	16.1693
28	2017	0.011	0.081	1.279	0.2741	0.0828	16.0592
28	2018	0.012	0.115	1.256	0.2946	0.1056	16.0711
28	2019	0.024	0.125	1.457	0.2853	0.1318	16.1067
28	2020	0.009	0.087	1.226	0.2450	0.1211	16.1615
29	2016	0.031	0.057	2.443	0.1729	0.0170	17.9899
29	2017	0.029	0.041	2.058	0.2216	0.0362	17.9950
29	2018	0.029	0.061	1.743	0.2248	0.0486	18.1721
29	2019	0.023	0.088	1.815	0.3729	0.0606	18.4220
29	2020	0.024	0.053	1.816	0.4136	0.1018	18.5049
30	2016	-0.005	0.080	0.897	0.1509	0.1025	18.7977
30	2017	-0.192	0.031	0.233	0.1281	0.8832	16.0873
30	2018	-0.029	0.088	0.510	0.1644	0.7290	16.2608
30	2019	0.019	0.111	1.251	0.2425	1.2528	18.0733
30	2020	0.012	0.059	1.230	0.2312	0.8521	18.0994

Bank	Year	ROA	Liquidity	Efficiency	Capital adequacy	Credit risk	Bank size
31	2016	0.019	0.156	1.292	0.2468	0.1284	16.7655
31	2017	0.001	0.149	1.025	0.2325	0.2383	16.8541
31	2018	-0.022	0.199	1.271	0.1646	0.2780	16.7757
31	2019	-0.015	0.085	1.211	0.1440	0.2035	17.0467
31	2020	0.004	0.125	1.028	0.1793	0.1968	17.0908
32	2016	0.024	0.054	1.856	0.1870	0.0411	19.1552
32	2017	0.021	0.040	1.588	0.1812	0.0505	19.1847
32	2018	0.017	0.032	1.517	0.1684	0.0666	19.3319
32	2019	0.022	0.079	1.827	0.1740	0.0945	19.4537
32	2020	0.021	0.091	1.555	0.1834	0.0998	19.4947
33	2016	0.027	0.061	1.557	0.2116	0.1015	19.2707
33	2017	0.036	0.062	1.877	0.2091	0.0829	19.3389
33	2018	0.024	0.047	1.559	0.1852	0.0896	19.4705
33	2019	0.028	0.071	1.703	0.1947	0.1169	19.4694
33	2020	0.027	0.068	1.785	0.1773	0.0953	19.5264
34	2016	-0.034	0.054	0.548	0.1745	0.3332	16.4876
34	2017	-0.054	0.071	0.465	0.1627	0.1677	16.4404
34	2018	-0.101	0.031	0.259	0.1265	0.4271	16.2268
34	2019	-0.244	0.045	2.737	0.2201	0.5598	16.0372
34	2020	-0.069	0.020	4.314	0.2060	0.7111	15.7413
35	2016	0.016	0.097	1.332	0.2164	0.1103	16.1624
35	2017	0.011	0.124	1.173	0.2230	0.1156	16.1547
35	2018	0.004	0.139	1.059	0.2908	0.2416	16.1419
35	2019	-0.007	0.129	0.894	0.2111	0.2211	16.1414
35	2020	-0.009	0.087	0.941	0.2015	0.2857	16.0475
36	2016	-0.034	0.031	0.534	0.2379	0.0180	15.8672
36	2017	0.004	0.037	1.092	0.3868	0.0186	15.5385
36	2018	0.003	0.073	1.024	0.3878	0.0436	15.6880
36	2019	0.003	0.086	1.035	0.3316	0.1276	16.5455
36	2020	0.004	0.026	1.126	0.2537	0.2432	16.5936
37	2016	0.036	0.066	2.223	0.1930	0.0329	16.8122
37	2017	0.026	0.060	2.311	0.2545	0.0255	16.9247
37	2018	0.024	0.067	2.120	0.2274	0.0008	17.0730
37	2019	0.014	0.082	1.720	0.2109	0.0308	17.2917
37	2020	0.015	0.078	1.737	0.2015	0.0506	17.4010

