# CHRISTIAN SERCIVE UNIVERSITY COLLEGE DEPARTMENT OF ACCOUNTING AND FINANCE

# EVALUATION OF THE IMPACT OF CORPORATE SOCIAL RESPONSIBILTY ON THE PERFORMANCE OF RURAL AND COMMUNITY BANKS. A CASE OF ASHANTI REGION

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## DECLARATION

I hereby declare that this submission is my own work towards the Masters of Business Administration and that, to the best of my knowledge, it contains no material previously published by another person or material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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# DEDICATION

This dissertation is dedicated to the glory of almighty God.

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We are most grateful to God the almighty who has given me the strength, wisdom, and protection to complete this research work.

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May God richly bless them.

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#### ABSTRACT

This study is about evaluation of the impact of corporate social responsibility on the performance of rural and community banks, a case of Ashanti region. Secondary data with reference period of 2012-2017 were collected from fifteen selected rural and community banks in the Ashanti Regions of Ghana Data Envelop Analysis was employed to evaluate the impact of corporate social responsibility on the performance and productivity of rural and community banks. The results of the DEA analysis revealed that the *overall* the average technical efficiency score is 94.7%. The sampled rural banks have a 5.3% level of inefficiency in input usage. They require input savings of 5.3%. DMUs with efficiency score of 1 are described as technically efficient. Rural banks with DMU 5, 7, 12, 14 performing better in technical efficiency. DMUs 1 and 2 can obtain input savings of 6%. and 6.1% respectively. The least inefficient banks are 4, 15 and 13: requiring input savings of 2.3%, 2.6% and 0.9% respectively. The most inefficient banks are 8, 9, and 11: require input savings of 17.5%, 14.1% and 18.1% respectively. Also the results also show that other bank specific factors like the age of the bank, non-performing loans and growth in liabilities had a detrimental effect on technical efficiency. Duality was also statistically related to technical efficiency. Most of the Board members of these RCBs were found to be the managing directors of the banks. This made it difficult for them to separate ownership from Management. The study therefore recommends that, Industry stakeholders (regulators) should improve the technical efficiency of these RCBs. RCBs should improve their technical efficiency by reducing wasteful operations so they can undertake decisions which will be in the interest of the bank RCBs should improve upon their efforts in generating non-interest income through commissions, net-earnings from issuance of investment instruments as they would make a significant contribution to the productivity of RCBs.

#### **CHAPTER ONE**

## **INTRODUCTION**

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

Corporate social responsibility has become a fast and significantly emerging practice amongst financial institutions in Ghana. It is evidently one of the newest strategy which is used by management as a means of creating a positive effect in the society whiles business is ongoing.

Holme and Watts (2000) define CSR as the continuous commitment by an organization to ethically behave so as to contribute to economic development whiles at the same time improving the quality of life of the employees and their family members as well as the local community and society at large.

Ethical decisions can be undertaken by banks in order to secure their banking operations through well informed decisions which will allow government agencies to reduce their investment in the establishments. Many reasons have been advanced to explain why banks voluntarily indulge in society activities. Amongst them are, to fulfill their primary needs of presenting themselves as legitimate members of the community (Bowen, 1953). This defines why banks pursue CSR as a primary goal of attaining sustainable profitability and performance.

It is interesting to note that banks effort on social responsibility have churned out a multiplier effect on sustainable development. This social responsibility hugely costs them some significant expenses and they really have effects on their performance.

There is a fundamental assumption that corporate sector provides significant benefits to society. It is equally expedient to also note that there are growing concerns that bigger society provides great opportunities for these corporate bodies to utilize public resources to run their institutions (Carroll, 1979). Expert opinions posit that most of the rules and regulations which are formed are due to public outcry, which has a negative bearing on profit maximization as well as the wellbeing of the shareholders. However, if there were no public outcry the level of regulations would be reduced (Carroll, 1999). A firm is deemed socially responsible if it complies with the minimum law requirements of a good citizen. Good neighborliness is an

expression used by Elbert and Parket (1973) to better explain the core concept of social responsibility. This concept of good neighborliness consists of two meanings. Firstly, by not doing things to destroy the neighborhood and secondly by ensuring the commitment of business in general to an active role in the solution of societal problems, for instance pollution, transportation, racial determination and transportation.

CSR is an ethical theory that an organization has as an obligation to behave in a manner that would help the society and its members. It is an obligation which every individual within the community must perform in order to strike a balance between the economy and the ecosystems. There is an existence of trade-off between economic development in the material sense and the wellbeing of the society and environment (Bowen, 1953). For a corporate institution to be socially responsible, it must sustain the equality between the two. This concept does not pertain to only business organization but to every one whose actions and inactions have a bearing on the environment (Bowen, 1953). CSR can be categorized into four main groups. These are economic, ethical, philanthropic and legal. This categorization is of the assumption that for CSR principle to hold, a company's responsibility towards the society must be based on normal profit maximization, following the legal rural and moral responsibility as well as philanthropic actions.

The concept of CRS is based on the relationship between the world and society and also on the company's behavior towards its sustainable groups such as employees, buyers, investors, local community and suppliers (Carroll, 1991). To ensure institutional sustainability it must be financially secured, reduce systematically its negative impact on the environment and also must act in conjunction with the societal expectation.

According to Waddock and Graves (1997), the primary focus of business is generally profits. However, they can also make significant contribution to the social and environmental goals through the application of corporate social responsibility as a strategic line in their core business practice, corporate governance as well as management instrument. Businesses can incorporate economic, legal, ethical as well as discretionary expectations of the society at any level of decision making and at any giving time. This business ethical decision making can be used to secure their business by formulating decision when making government agencies to reduce their investment in the business operation (Carroll 1979). In essence corporate social responsibility is best described as achieving commercial success in way that will honor ethical values and respect for people in the community as well as the natural environment. The concept of financial performance is defined as the compost of an organization financial health, its capacity and willingness to honor their long term financial obligations as and when they fall due. Final performance is defined as the act of preforming financial activity. To a large extent financial performance is defined as the degree to which financial obligations are been accomplished. It explains the process of measuring the results of the policies of a firm and their business operations in monitory terms.

A firm's internal efficiency can namely be captured using financial based indicators such as ROA, and ROE. These indicators are used to determine a firm's overall financial health at a given period of time. They can be used to compare similar firms across industry or even to compare industries or sectors in aggregation. ROA is used to measure the efficiency of assets in producing income whiles ROE is used to determine the performance of the business in relation to shareholders investment (Marshall, 1920). It is however interesting to note that these accounting measurement rely only on captured historical data of the firms performance. These data can be subject to biasness form managerial manipulation and massaging as well as the differences in the accounting procedures (McGurie. Schneeweis and Hill, 1986)

However, according to (Moore and Spence, 2006) accounting based measurements are better predictors for CSR than market based measures despite their limitations. Some researchers hold the view that CSR has the propensity to improve upon the competitive edge of a firm in the long run. This means that there is a positive relationship between CSR involvement and firm performance (Weber, 2018). This concept hinging on the link between Corporate Social Responsibility and performance is a least understood area of CSR (Angelidis, Massetti and Magee-Egan, 2008).

Bowman and Haire (1975) revealed that some stakeholders see CSR as a symbol of organizational reputation where improvement stems from action to support the community there by resulting in an increase in revenue efficiency. They also released in their research that firms which devote a medium amount of resources to CSR always churn out a very high ROE which is an indication of an inverted "U" shape relationship between CSR and performance. In theory it is proven that CSR is expected to make a significant improvement in a firm's long run performance such as achieving a higher return on assets and equity. The

concept of understanding customer wants and how to convert these wants into needs is a major driving force that helps firms to have a smooth entry into new markets which are volatile. This helps to ensure competitive advantage, maintenance of a better and loyalty branded image in the eyes of those who depend on these institutions. Significantly, strict conformance to CSR principles ensures the ability of a firm to have a strong and good customer base leading to increase revenue.

In 2014, there was a comprehensive study in the Ghana banking industry and the PWC report produced that there are 27 universal banks in the Ghanaian financial sector, one hundred and thirty seven (137) rural and community banks and fifty eight (58) non-banking financial institutions made of savings and loans, finance house as well as mortgage firms (PWC 2014). They form the formal financial sector. An interesting revelation from this research portrayed that majority of these institutions have as their core focus a strong concentration on urban and peri-urban areas. They therefore directed their services towards these areas. Aside these formal sectors in the financial industry, there are also the informal and semi-formal sectors which are collectively made up of Susu collectors and non-governmental organizations.

Rural community banks are principally the main the source of rural credit which is responsible for extending financial services to rural communities. RCBs basically form about 5% of total asset of banks; they also have in total about 50% of banking outlets in Ghana (IFAD 2008). A significant contribution of rural finance in the economy is that RCBs provide protection coupled with a serving as a financial cushion to people who dwell in the rural areas whose primary source of financing is basically from the informal credit such as money lenders, Susu savings, corporative unions, church fund, petty traders, farmers and even some from landlords. This means the services rendered by these RCBs are critical to the rural folks and helps them to address their credit needs.

In composite terms, RCB's and other financial institutions provide about 60% of the money supply in the economy of Ghana outside the commercial banking system. (Naire and Fissha 2010). Ghana's private sector development cannot be left out without mentioning the contributions of RCBs. All these collectively ensure effective and efficient mechanisms to ensure poverty reduction (Naire and Fissha, 2010). The number of depositors of RCBs in Ghana grew at an annual average rate of 14% and an average of 27% annual growth in the number of borrowers.

RCBs denote a network of independent unit banks whose actions and inactions such as financial intermediation are regulated by Bank of Ghana (Nair and Fissha 2010). They are essentially unit banks which are owned by the rural community members. Ownership is by the purchase and possession of stocks. They are given license to function as financial intermediaries who liaise between deficit financers and surplus financers (Obeng, 2008). The presence of RCBs is motivated because of the financial products and services they give to rural community folks such as petty traders, farmers, fishermen etc. RCBs all put together have about four hundred and twenty one (421) branches and of a total of five hundred and forty eight (548) services delivery locations, which are located mostly in the rural settings of the Ghanaian economy (Obeng, 2008). It is therefore equally important to make mention of the vital role RCBs play in the economy by just looking at their small asset size relative to total assets of GH¢3.8million. Their presence can be felt almost everywhere in Ghana (Obeng 2008).

Rural and Community Banks have taken keen interest in CSR activates which include, education and leadership development, Health, Community development which are all geared towards ensuring the wellbeing of community members. This means that CRS is key in the success of RCBs. Based on the above reasons the study attempts to evaluate the effect of corporate social responsibility on the performance of selected rural and community banks in Ghana.

#### **1.2 Statement of Problem**

Sound long-term performance of financial institutions present huge economic benefits on real sector outcomes among which are national economic growth and income distribution. Having long-term performance has the propensity of attracting investment in long-term projects and at the same time allowing investors access to their savings at short –term notice (Levine, 1991).

Financial institution with sound long term performance bring to fore job security to its employees, create new employment opportunities and also ensure the continuous government revenue whiles satisfying their shareholder, expectation. Goldsmith (1969) empirically posited the positive correlation between long-term performance and GDP per capita.

Even though the banking industry is becoming one of the most profitability businesses within the economy, their investment in social activities can churn out higher performance (Grant, 1991). It is interesting to note that either dividend or market performance of the shares of institution, reduce appreciably when they engage in economic non-profit activity. However shareholders are of the belief that in order to increase competitive advantage, enhance company reputation, they should be ready to tolerate an amount of corporate non-profit activity. This will in the end improve upon corporate performance.

In the light of this, it is important for RCBs to incorporate social activities into their operations. In recent times, surveys on CSR conducted have been conducted by some opinion polls have demonstrated how people perceive the necessity of corporate social responsibility in institutions. A group called MORI has shown that there has been an increase in the perception of people on CSR sharply from 28% in 1998 to 46% in 2001 (the Guardian, 2001). This shows that there is an increasing conscientization and awareness of CSR especially among costumers in the financial environment. It is therefore imperative to mention that corporate institutions, which fail to meet the expectation of the society in respect of social responsibility, can lose their legitimate reasons for existence, which may consequently lead to collapse.

Some researchers have been able to establish a link between corporate performance and CSR investment. Okoth (2012) in his study revealed that CSR has an effect on ROA and ROE. These two accounting ratios were used to measure performance. Gichana (2004) who released that all firms which are listed on the NSE had incorporated CSR in their mission statements. Lorraine (2009) also realized that a firm size had a direct relationship with its CRS investment. This means that the more a firm invests in CSR the more profitable it becomes. Eisa (2011) also revealed that the determination of ROE is partly based on CSR strategy and involvement.

The empirical studies and discussions mentioned earlier have demonstrated the existence of a relationship between CSR and performance. They have also exhibited that there is a link between CSR as a firm long – run profitability. However, some of those ratios used to measure performance are subject to modifications and manipulation. Therefore the over reliance on ROA and ROE as a tool for measuring performance could be bias. Their

simplicity renders them incapable of capturing true performance of the units. Additionally, their studies also failed to expose the effects that CSR has on the technical performance as well as the productivity of these RCBs.

This research is concentrated on using a more robust technique called Data Envelope Analysis (DEA) in measuring the performance of these RCBs in their involvement in CSR.

The study seeks to examine the effect of CSR on technical efficiency and productivity using DEA. This study would therefore aim at filling this gap by evaluating the impact of CSR on technical efficiency and productivity using the Data Envelope Analysis (DEA)

## 1.3 Objectives of the Study

The main objective of the study is to evaluate the effect of corporate social responsibility on the performance of RCBs.

## **1.3.1 Specific objectives**

The specific objectives that would be used to address the aim of the study are as follows

- 1. To evaluate and bench mark the performance level of RCBs on CSR investment
- 2. To model the impact of CSR on technical efficiency of RCBs
- 3. To estimate the impact of CSR on the productivity of RCBs

#### **1.4 Research Questions**

This research sought to achieve these stated objectives by answering the following questions on the research.

- 1. What is the level of performance of RCBs in respect of CSR investment?
- 2. What is the impact of CSR investment on technical efficiency of RCBs?
- 3. What is the impact of CSR on the productivity of RCBs?

#### **1.5 Significance of the Study**

This study will help the managers of RCBs to understand that their involvement in societal activities can help in the management of societal risk exposures which are offshoots of their main banking operations. This study will also help the management of RCBs to understand institutionalizing competitive marketing strategies as a means of ensuring sustainability of bank efficiency and productivity. This study can also help to create a platform on which these

banks effectively attract, significantly motivate and efficiently retain skilful and well devoted employees who will assist them in achieving then state objectives.

It is also worth mentioning that rural banking performance depends largely on the readily available and accessible credit to their customers. The collapse of rural banks which occurred in the 1990s coupled with the high rate of insolvency and liquidity issues of RCBs posed a major challenge to the rural banking industry. This research finding will serve as a yardstick to ascertain the effectiveness of actions which have been used to address the issues regarding technical efficiency and productivity of rural banks. Also, the findings of this study will assist managers of these rural banks under review to effectively offer their operations against their own benchmark and the standards set by BOG.

Finally, the findings of this study will enrich the discussions on CSR and then make significant contributions to the already existing theories, concepts and literature on their association. Researchers who are also interested in pursuing further works on CSR can also use the information obtained to work on areas that were not discussed in the CSR discussion, corporate strategy and corporate performance.

#### 1.6 Scope of the Study

The study was carried out on RCBs which are operating in the Ashanti Region of Ghana. Performance was based on technical efficiency and productivity using a non-parametric frontier application approach. In addition, the study is limited to the financial years of 2012-2017.

#### 1.7 Limitations of the study

The research was carried out irrespective of the limitations. The work was be carried out for a six-year period from 2012-2017. Therefore any developmental trends which might occur before or after this period present a limitation. Another limitation is the availability of time where there is the need for a thorough and a comprehensive study. The time available will not be adequate. Additionally, inadequate funds will limit the research because of various ion expenses that would be directly and indirectly be incurred form the research

#### **1.8 Organisation of the study**

The work is grouped and shown in five chapters. It starts with the general introduction; background of the study, statement of problem, objectives of the research and questions of the research which needs to be answered at the end of the research, the research relevance, scope and limitations of the study will be presented in the first chapter. The second Chapter presents the literature review that discusses relevant literature which supports the work. The third Chapter describes the methodology of the study. The section critically addresses the research design, population, sampling technique, data collection and analysis technique. The fourth chapter discusses the findings of the study. This throws more light on the study. The side study. The section critically and the study.

## **CHAPTER TWO**

## LITERATURE REVIEW

## **2.0 Introduction**

This chapter provides a historic review of the financial and banking systems in Ghana. This will help to put into context the period of the analysis.

The chapter begins with a number of discussions on the financial environment and the concept of financial and banking systems. The next highlight the various theories on CSR, the empirical studies on CSR and the theoretical framework and the conclusion from the literature review.

## 2.1 Basic Concepts of The financial Environment

The main components of the financial environment are the financial institutions and the markets which serve governments, business organizations as well as individuals. These constituents can be broadly categorized into the financial system and the banking system. Owing to their similarities in the concepts of these two terminologies, they can be used in place of each other.

## 2.1.1The financial system

It denotes a network of financial institution such as banks, credit unions as well as building societies. The financial institutions and markets play an essential role in the development of the economy through financial flows. They act as the financial intermediaries which are responsible for the effective and efficient allocation as well as the deployment of monetary resources (Merton, 1995). Financial intermediation functions as a vessel through which monetary resources are transferred from surplus financers to deficit financiers.

## Fig 2.1 BANK FINANCIAL INTERMEDIATION



#### 2.1.2 The Banking System

This denotes a network of banks which is responsible fundamentally into receiving deposits and savings, from the public, firms and other institutions. They also responsible for ensuring effective monetary transactions and the provision of financial services and products to their customers such as giving out loans and credit faculties for the deficit financers. Other core transactions are investment in corporate and government financial instruments such as bonds and shares.

#### 2.2 Theoretical Framework on corporate social responsibility:

Corporate social responsibility (CSR) lacks a consensus definition. Different writers define it based on their background, academic and social exposures, prevailing interest. Additionally, their definitions are also based on well explained values incorporated in the writer's frame of reference. CSR is also known as corporate conscience or corporate social performance. They significantly depict duties executed by organizations to the society in which they operate, for instance, protection of the environment, provision of social amenities, educational scholarships, community development etc.

According to the World Business Council for sustainable Development (2001) CSR is the commitment of business to contribute to sustainable economic development, working with their employees, their families and the local communities.

Jamali and Mirshak also explain that CSR is a representation of the concern with the needs and goals of society which goes beyond mere economic considerations.

The European Union describes CSR as a concept where a company incorporates social and environmental concerns in their business operations as well as their interactions with their stakeholders based on voluntary premise with the aim that behaving responsibly churns out into sustainable business success.

In summary, corporate social responsibility means;

1. When organizations respond possibly to societal priorities and expectations that are emerging.

- 2. The conduction of business in an ethical way taking into consideration the interest of the external environment.
- 3. Ensuring interest congruence of shareholders and other stakeholders in the society.

The basic implication of the concept of CSR is pivoted on how organizations manage their business processes to produce an overall positive effect on society. It also explains how organizations ethically behave and contribute to the economic development of the society through the improvement in the quality of life of the local community and the society as a whole.

CSR depicts a set of standards that is subscribed by a company into contributing to the economic development of the society. There are many complex approaches related to the concept of CSR. These approaches have become mainstream theories or normative corporate social responsibility some of these theories are;

#### 2.2.1 The theory of social costs

According to Marshall (1920) responsible allocation of resources is the main during force of the effect of corporate - non economic activities on the social-economic system thus, the problem of modern corporate responsibility deal with the effective and efficient allocations of social costs. The literature on social cost has an indirect influence on attempts to measuring social performance. According to Marshal (1920), in the literature of CSR, the problem of external economies have to be secured by the concentration of many small business which are of similar nature in particular localities or by the localization of industry. Small enterprise location is seen as a matter of exogenous advantage when they can be placed among a group of similar enterprises. There are always portions of the environment that are affected by the activities of the environment. The transition from external to social is a short logical passage where there is a co-operation between social forces and economic forces. The duty of the state in the economic system is to cover social costs. This is an attempt to preserve the national product and citizen's welfare. This means that its natural counterpart should be one of leaving no responsibility to the organization that produces the cost whether voluntarily or involuntarily. It therefore becomes clear that payment of social costs is a matter of contribution and it has been either borne by the state or the organization.

#### 2.2.2 Agency Theory

Agency theory is an important phenomenon which goes along shareholders-oriented values. The concept of agency theory has become a dominant theory in many business schools around the world in the last decade (Ross, 1973). This theory presents owners of business as principals and managers of business as agents. The manager owes a fiduciary duty towards the owners. The managers are generally subject to very strong incentives so as to alienate their economic interest with those of the owners. This is done to ensure goal congruence in respect of shareholders value maximization. This agency theory has become a commonly accepted theory under certain condition which states that the satisfaction of social interest contribute to the maximization of shareholder value. In view of this bigger companies pay attention to CRS; most critical is the interest of the people who has a stake in the firm. In respect of this, Jensin (2000) made a proposal known as 'enlightened value maximization' which is specifically geared towards long-term value maximization or making the firm's main objective as value-seeking which allows some trade-offs with relevant fragment of the firm.

Burke and Logston (1996) in an attempt to distinguish between profitable CRS from others which are not, brought to fore a concept called strategic corporate social responsibility (SCSR). This concept of SCSR refers to policies, processes and programs which churn out substantial related benefits to the firm. This is particularly done through the provision of support to core business activities in an attempt to make the firm effective in fulfilling its objective. From this viewpoint, there is an ideal level of CSR which is determined by costbenefit analysis taking several conditions into consideration (Mcwilliams and Siegel, 2001). It is therefore important to make a careful deduction of the optimal level of social output with regards to each situation for maximizing shareholder value.

#### 2.2.3 Stakeholder Theory

In principle, the main purpose of the firm is to create value for its stakeholders according to the stakeholder theory. This can be done by converting their interest into goods and services (Clarkson, 1995). This will serve as a vehicle for coordinating the interest of stakeholder (Evan and Freeman, 1988). Stakeholder theory from a business perspective started it's "life" as a managerial theory. The reason being that business organizations must principally have it as an aim to manage the business for the benefits of it's stakeholders. Example, customers, suppliers, owners, local communities and employees whilst at the same time maintaining

existence and survival of the firm (Evan and Freeman, 1988). The corporate level or the top management are the decision-making body of the firm. Their decision-making is discretionally. It is frequently stated that such decision-making must involve a representation of stakeholders. The stakeholder theory of CSR is linked to the belief that organizations have an obligation to constituent groups in the community other than shareholders and beyond what the law prescribes (Jones, 1980). The concept of stakeholder theory gives a new and dynamic way of thinking about strategic management (Freeman, 1984). By focusing on strategic management, business executives can begin to put the corporation on the road back to success.

According to normative theory, management is required to have a moral duty which seeks to protect the organization as a whole and connected with this aim, the legitimate interest of all stakeholders must be considered (Freeman, 1970). Balancing the multiple claims of conflicting stakeholders is a yardstick to ensuring the health of the organization. This is an important principle which must be upheld by senior level management (Freidman, 19880). In 1970, Freidman in his research in explaining stakeholder theory generalized the notion of stockholder as the only focus group of whom management ought to be responsible. The concept of stakeholder theory can be categorized in two senses. According (Freeman and Reed, 1983), there is a narrow sense and a wide sense. In the narrow sense, the term stockholder includes those groups who are vital to the existence, survival as well as success of the organization. In the wider sense, it involves individuals and groups whose actions and inactions can be affected by the organization. (Donaldson and Preston, 1995) held that stakeholders are fundamentally identified by the kind of interest they have in the operations of the organization. They also make an assumption that all stakeholders' interest has an intrinsic value.

There are two main ethical principles that define the basic legitimacy of the theory; principle of the corporate effect and the principle of corporate right (Freidman and Reed, 1983). The principle of corporate right stipulate that organizations and its managers should not violate the legitimate rights of other in the determination of their future prospects whereas the principle of corporate effect focuses on the responsibility for consequences stating that managers and businesses as a result of their actions are responsible for the effects caused on others.

#### 2.2.4 Solutions to conflicting interesting among stakeholders

Several authors have proposed different approaches to stakeholder's theory upon the assumption that the basic stakeholder framework uses different ethical theories in solving conflicting stakeholder demands. Amongst these are the following;

- 1. Feminist ethics (Burton and Dunn, 1996)
- 2. The common Good theory (Argandona, 1998)
- 3. The integrative social contracts theory (Donaldson and Dunfee, 1999)
- 4. The Doctrine of the fair Contracts. (Freeman, 1994)

#### 2.2.5 Relational Theory

This theory has its roots from the complex firm-environment relationship. Corporate citizenship of the relational theory depends strongly on the type of society to which it is referred. Business organizations take this path in order to behave responsibly. The fundamental principle defining this theory is about the relationship a corporate body develops with its stakeholders. It is therefore imperative for corporations to search continuously for engagement and commitment with the stakeholders. According to Garriga and Mele (2004), corporate citizenship is a concept that is used under integrative and political theories. Relational theory is subdivided into four theories namely; business and society, stakeholder approach, social contract and corporate citizenship.

The principle of stakeholders approach is one of strategies used to improve management of the firm. Corporate relationship of relational theory depends on the type of community it refers to. On the other hand, the theory of social contract explains the fundamental issue that justifies the morality of activities in the economic system. This helps to have a theoretical basis that analyzes the social relationship between the society and corporations. The concept of stakeholder approach primarily hinges on the wealth creation ability of the firm or the ability to develop value for the stakeholders. This can simply be achieved by converting their stakes or interest into goods and services (Clarkson, 1995). It is also a vehicle that helps to coordinate the interest of different stakeholders (Evan and Freeman, 1995). In effect, the stakeholder approach helps to understand the reality in order to manage the social responsibility behavior of a firm.

The business and society concept explains business in the society using CSR as the interacting factor between business and society. It is important that the social responsibility of

a business should be reflective of the social power possessed by the business. The approach is both within the interactive and ethical theories. The interactive theory captures the integration of social demands and the ethical theory focuses on the right thing the business must do to achieve a good society. (Garriga and Mele, 2004).

#### 2.3 CSR and Bank Performance

The performance of banks mainly dependent on two factors: These are the factors within the capacity of management and those that are beyond the reach of management capacity (Linyuru, 2006). Those factors that can be controlled by management are described as internal or working factors and those that cannot be controlled by management are called external factors. The internal factors are primarily the differences that occur in the management policy of banks and the decisions regarding the sources and uses of management funds. They also capture capital and liquidity management as well as management expenses. The self-induced effect that management has on profitability can be analyzed by critically examining the comprehensive income statement and the statement of financial positions of the banks. The items in the statement of financial position illustrate or show the bank's management policies and decisions in respect of the sources, composition and the use of funds (Bourke, 1989). The statement of comprehensive income depicts the efficiency of management in generating revenues and control of costs. Examples of factors that management can be controlled are the capital ratios, overhead expenses, liquidity ratios, asset and liability portfolio mix. Conversely, external factors of bank performance can either be firm related or environment related. The environment related factors include market structure, inflation, GDP, interest rate, regulation and market growth. The firm's specific factors include firm size and ownership.

#### 2.3.1 Argument for and against corporate social responsibility

Primary, the aim of every business organization is the creation and maximization of wealth for investors or shareholders. It is interesting to know that some of these organizations extend their tentacles beyond this primary aim to improve the concerns of the society as well as the environment in which the organization functions.

#### 2.3.2 Argument for corporate social responsibility

The dynamic nature of the present business environment and their ethical concepts are conditioning people to be more receptive towards social responsible actions (Davis and Blomstrom, 1971). They further argued that managers of business segment the attributes and values of the society so as to reflect the changing trend in the business world. Oshagbemi, (1984) cited in Dadzie (2008) in his article on "managerial response to social responsibility", in favour of CSR holds the view that the concept of CRS is pivoted on two principal premises. Firstly, he explains that society is interested in accomplishing some goals, however the business been a social institution must have moral obligation to help the society in which they operate. Secondly, he also holds the assertion that one of the main contributing factors to societal problems is the actions and inactions of the business and so they are expected to help rectify these problems. This will ensure that the society becomes a better place to dwell.

Megginson, Trueblood and Ross (1984) also cited in Dadzie (2008) refuted the claims that there exist the basis which underline the rationale for a corporate body to be socially responsible. Firstly, there is the view assertion that since corporate bodies are separate entities just like individuals under the law, they must bare a reciprocating effect by having the same roles as individual humans. They further explain that the operation of corporations is at the pleasure of the society. In view of this people can take away the right of the business to operate if it is seen not to be receptive to the needs of the society. The second view held that business organization becomes socially responsible so as to reduce the pressure and involvement of government and regulation in their activities. This means business owners avoid the high cost of regulations so as to be more flexible in their decision making. They further opined that such an action will help to maintain the credibility of business in the eyes of the general public.

Dadzie (2008) had the belief that the concept of CSR is based on an ideology. Corporations are seen to be selfish in their pursuit undertaken by privately owned businesses entrepreneurs in a capitalist system of framework. Therefore, the socialists hold the assertion that the system will not cater for the needs of many people unless the business becomes socially responsible. To him, the rationale and cognitive perception behind the doctrine of social responsibility is one of demand place on businesses so as to make adjustments in their social conscience and orientation from the perspective of 'caveat emptor' that is let the buyer beware or to that of "caveat venditor" let the sellers beware.

In the summary of Dadzie (2008), the following arguments were used to justify why organizations should become socially responsible.

- 1. To achieve competitive advantage.
- 2. To receive and maintain a stable and conductive working environment
- 3. Investment in CSR is seen as means of managing external perceptions and also maintenance of a good will.
- 4. Engaging in CSR activities can help keep employees happy.

#### 2.3.3Argument against CSR

In spite of the enormous scholars who have argued for the reasons for which organizations should adopt CSR, there are others who have diverse perceptions about CSR.

- Investment in CSR activities involves huge financial cost which invariably reduces the profit. This will be contradictory to the actual reason for the existence of an organization. Any amount of money that goes into investment in social activities is taken from the pocket of owners of the business. (Friedman, 1963; Andrews, 1989; 257; Davis, 1973 cited in Boachie – Mensah, 2003)
- 2. When firms engage in CSR activities, they gain too much power. This has the tendency to destroy the checks and balances which exists among the government, businesses and the public as a whole.
- Organizations may lack the technical-know-how to become socially responsible. This means that CSR activities should be given to people who have the requisite skills in social programs. Example social workers, teachers etc. (Davis 1973 cited in Boachie – Mensah, 2003)
- 4. Organizations may also experience conflict of interest in how they expend their monetary resources.

#### 2.4 Rural Banking in Ghana

## 2.4.1 Historical Antecedents

The emergence of the concept of rural and community banking was spearheaded by the government of Ghana in an attempt to increase the number of financial institutions and banking units in the country. These RCBs were under the management of Association of Rural Banks called Apex Bank. This is serves as the regulatory body for all RCBs in Ghana.

Their main objective is the supervision and the provision of administrative support for the 123 rural banks in Ghana. The concept of rural banking was introduced in 1976 when in a town called Agona Nyarkrom in the Central Region; the first rural bank was established. The establishment of many RCBs followed suit. The brain behind the concept of rural banking was derived from the government of Philippine. They used this concept to solve the challenge of the development gap which existed between the rural and urban areas. They used this system of rural and community banking as a conduit to channel bank products and services to the rural community. This stemmed from the fact that the indigenous commercial banks were reluctant in extending their activities into these rural activities. This is because the operations of these rural dwellers were perceived to be risky (Under and Steel, 2006). It was therefore imperative to form these RCBs so as to put the culture of investment and savings into these village folks. The RCBs also provided credit to entrepreneurs who wanted to invest into mechanized farming, rural industry and agro processing.

#### 2.4.2 The Role of RCBs in Ghana

Since Ghana's independence in 1957, any government who had a primary agenda of promoting the development of rural areas in Ghana focused mostly on rural banking. This was done to ensure that the living standard and living conditions of rural folks are improved significantly (Kudiabor, 1974). Brown (1986) held the position that there are several challenges which are eminent in rural sector and these are hindering developments in the rural community in Ghana. Notably amongst them are: poor coordination in the activities of government agencies, low living standards among rural settlers, power lobbying by groups. In recent times however, government have made new policies which are aimed towards provisions of credit and the improvement in productivity. To add to this, there has been the formation of investment programs which are geared towards eradicating poverty. Commercial banks who were previously providing credit facilities to rural areas stopped. This was because they had now made a lot of savings from these rural dwellers and the expense of rural dwellers.

#### 2.4.3 Products and services of RCBs

The fundamental reasons for the existence of rural and community bank is to satisfy the banking needs of the rural community. Some of these are;

- 1. They promote socio-economic infrastructure for rural community
- 2. Promotion of commercial activities in the rural community
- 3. RCBs act as agents for developing rural areas
- 4. Mobilization and accumulation of savings in the rural communities
- 5. Provision of credits to the rural areas

## 2.4.4 The need for rural credit

The agenda for development for rural communities in Ghana needs a holistic national commitment through the formulation and implementation of policies and strategies captured in the 1992 constitution. The failure of governments to ensure the effective and efficient coordination between agencies and departments has resulted in centralization of policies which makes it difficult for decision making to be effective and efficient. It is therefore important for the government to ensure a decentralized approach which will help to remedy the issues that are churn out as a result of the poor coordination. This can be done by instituting a more decentralized political and administration of jurisdiction right from the peripheral district levels to the regional levels. This will help to extend development to rural areas (Obeng, 2008).

Rural credit is needed to speed up developmental projects in the community coupled with the reduction in poverty. This is evident in the areas of improvement in the quantity of society resources which are made available to the building of schools, health facilities etc. The rural folks can partake in the development of their own areas when they have access to credit facilities.

#### 2.5 Approaches for measuring bank performance.

There are two main approaches used in measuring banks performance. These are the traditional method which is accounting based known as the CAMEL model and the frontier applications (parametric and non-parametric approaches)

## 2.5.1 Traditional methods/CAMEL

This is the most commonly used approach used in the evaluation of the performance of a business unit. It is based on financial rations. (Khrawish, 2011). These ratios are obtained from the statement of financial positions and the annual reports of these banks. Its wide application is as a result of the simplicity that comes with its calculation. It has become one

of the most popular models which has been approved by regulators whose keen interest is in estimating efficiency of banks (Hefferman and Fu, 2008)

The CAMEL model is an acronym for capital adequacy (C), Asset quality (A) Management efficiency (M), Earnings quality (E) and lastly liquidity (L). The motivation for the use of this model is when there is a likelihood of bank failure in performance as it will be shown when any of the variables either input or output present any unfavourable sign. It employs ratios like return on Asset (ROA), return on Equity (ROE) and net interest margin (NIM) (Sangmi and Nazir, 2010). The CAMEL method ensures that the different financial health constituents of the financial institution are reviewed by using different ratios obtained and extracted from the financial statement. In the summary the model is principally a ratio based approach.

However, this approach presents some disadvantages. According to Berger and Humphrey (1998) these ratios don't truly give an indication of efficiency or performance since managers in an attempt to satisfy their interest massage these figures or ratios so to make the statements nice and attractive. They also fail to capture the cross sectional difference in input and output mixes. This is because they don't take into consideration their prices. The inability of this method to control for input and output mix and other exogenous market forces has a significant adverse effect on performance. The exogenous factors have the propensity to constrain standard performance ratios by decreasing their proximity to a more perfect estimating which would account for true performance.

## 2.5.2 Frontier methods of measuring bank performance.

As a result of the various criticisms and shortfalls of the CAMEL approach to estimating performance, the frontier applications have been employed to determine efficiency. It is able to capture the deviations that occur in the performance estimate from that of the ideas "best practice firms" on the efficient frontier. It controls the effects which occur as a result of the existence of exogenous factors like the price in the local markets. It is able to estimate clearly how input and output prices affect banks performance.

According to Cummins and Weiss (2000) frontier applications present scores that has the capacity to summarize bank efficiency in a single statistic. This will help to control the difference which occurs amongst businesses in a very complex multidimensional frame work which is embedded in economic theory roots. In summary the frontier application models

present a more superior analysis to that of the accounting based ratios. It is also a better estimate of a firm's efficiency. (Paxton, 2002).

There are two man frontier methods of estimating the efficiency of banks. These are parametric (Stochastic Frontier Approaches) and the non- parametric (Data Envelope Analysis (DEA). This research focuses on the non-parametric DEA approach. One can consult for a more detailed review of the frontier applications including the DEA and SFA techniques from Seiford and Thrall (1990) among others.

#### 2.5.3 Size of Organization and CSR Practices

According to Oketch (2004), the level of CSR practice an organization undertakes determines the size of the organization. He further argued that, larger organizations undertake more CSR activities relative to smaller ones. This presumably gives larger organizations a greater leverage on societal issues. Forstarter, (2002) also from his research argued that big organizations are subjected to effective and detailed scrutiny by various members in the community. Consequently, they are exposed to greater pressure in respect of their CSR investment. This will help them to be legitimately be accepted by the community. According to Simdec (2006), size of organization depends on number of full-time employees and annual sales turnover. The inference from these studies show that larger organizations turn to invest more in CSR than smaller ones as a result of the societal pressure and also their better financial positions.

#### 2.6. Conceptual framework

It is a well-known fact that irrespective of the size of the organization, ownership structure, age and the attitude of organizational executives to CSR, there is a fierce competition amongst them. What makes one outstanding is the quality of interest which stakeholders derive from such organization. RCBs can achieve these benefits by having the required belief systems of CSR so as to create a good rapport with society members for marketing purposes, reputational and image building purposes. It will also provide a way for them to be abreast with societal norms and values.



Fig 2.3 Conceptual Framework of CSR in Financial institutions in Ghana

## Source: Researchers own construct November, 2018

## 2.7 Empirical Evidence

McGuire et al (19880 in his research found a positive correlation between CSR and the performance variables. (E.g ROE ad return on sales)

Keffas and Olulu – Briggs (2011) used a non- parametric analysis of technical efficiency. By using Data Envelope Analysis he found out that there is a positive correlation between CSR and the performance of banks in the USA, the UK and Japan. In their study, they divided the banks into two groups. These were those who invest in CSR and those who don't. Their results confirmed the existence of positive correlation between CSR and performance. The banks with CSR had better asset quality and were more efficient in managing their asset portfolio and capital.

Sweeney (2009) investigated the relationships between CSR and performance using dimensions such as employee attraction, motivation and retention, business reputation and easy access to capital. He found a positive indirect relationship between CSR and the banking performance. He concluded that CSR directly influences performance via easy access to capital and business reputation. He again found out that CSR indirectly influences performance through social reputation.

Deng et al (2013) investigated the impact of CSR on stakeholder value maximization. His findings revealed that mergers by high CSR acquirers use small time to complete and they are

likely to fail as opposed to low CSR acquirers. This shows that the acquirer's social performance is an important element of merger performance.

McWilliams and Siegel, (2000) fond that there is no link between CSR and performance Aupperle, (1985), interestingly found a negative relationship between CSR and performance of banks.

## **2.8** Conclusion

From the above literature it is clear that CSR has an impact on the performance of RCBs in Ghana. RCBs occupy an important component in the development of the Ghanaian economy. It is therefore expedient to measure and determine their performance through their investments in corporate social responsibility. This will help to address the issue of gaps in their efficiency and this will help to improve upon performance and productivity

It is however interesting to note that most of the empirical studies focused on accounting based models to determine the performance of these banks in respect of their CSR investment. This method is however too simplistic to capture the true performance of the banks. This research is focused on a more robust method identified as the frontier applications. The Data Envelope technique which had been widely applied in literature would be used to estimate the technical efficiency, revenue efficiency and productivity of these RCBs. The advantage of this method is its flexible nature, and also not requires that distributional assumptions are imposed on the nature of inefficiency. The next chapter presents the frame work of methodology which this study was carried out.

## **CHAPTER THREE**

## **RESEARCH METHDOLOGY**

#### **3.1 Introduction**

This chapter presents the research methodology which shows the techniques as well as the procedures the research applies in carrying out the research. It also details out the study design, population; method of sampling, target size and the techniques which are used for data collection, validity and reliability of data, and the data analysis techniques. The methodology also defines the parameters within which the research will be conducted basically on scientific principles.

## 3.2 Research design

This is a well laid out comprehensive plan that shows the methods that are used in the collection and analysis of the data. It is based on the objectives of the study (Leedy and Ormrod, 2005). It is said to be the blue print of the study. For the design to be effective and serve its purpose well, it should be relevant to the study purpose as well as being economical in the adopted procedures (Saunders, Lewis and Thornhill, 2009).

This research seeks to explore the effect of CSR investment on the performance on RCBs. It therefore means that the exploratory research design will be adopted.

In terms of the approach, the research employed the quantitative approach. This means that quantitative data was collected and tested statistically for associations and effects so as to help provide insightful observations on the research problem under study.(Sullivan, 2009).

#### **3.3 Research Population**

In the view of Chinsall (1981), population refers to a group of objects or individuals who possess similar features for which the researcher has interest in surveying. The aim of this study is to investigate the effect of CSR on technical efficiency and productivity of RCBs in the Kumasi metropolis which number up to 25.

#### 3.4 Sampling Technique and Sample size

#### 3.4.1 Sampling technique

It is the process whereby a target number of items or objects is selected from a total population which are used to make statistical testing with the aim of making deductions and inferences as well as conclusions on the whole population which are used for statistical testing with the aim of making inferences and conclusions on the whole population on the condition that the selected target is representative enough (Bryman, 2007). A sample also refers to the section of the whole population which is drawn randomly and it becomes the representative of the population. Sampling is critical in the data collection process mostly from primary source. The purposive sampling technique was employed for this study. This method is very beneficial where there is the in cases where the researcher's sense of judgment in the process of selecting the case. This will help him to correctly address the research questions in the research. This technique is very beneficial when the researcher is dealing with small samples which are chosen for a primary purpose. This sampling technique is also ideal for use because it is very are informative (Saunders, Lewis and Thornhill, 2009). For this study, the sample size of fifteen (15) is chosen from a total of 25 RCBs in the Kumasi metropolis and this represents 60% of the target populations.

#### 3.5 Data Sources

The data which was employed for this study was solely obtained from secondary data sources which are obtained from different materials like annual financial reports books, conference proceedings at conferences and journals etc. Secondary data have already been obtained by another person and may have been used for a purpose other than the one currently under study. (Cnossen, 1997)

This study employed secondary data. It relied on secondary source of data which was derived from the financial statements and balance sheets of the sampled RCBs; specifically the (1) statement of comprehensive income, (2) the financial position and (3) the statement of cash flow of each of the RCBs were used to obtain data for the study. This data covered a period of six (6) years. In total of balanced panel dataset of 120 observations was utilized. Data on microeconomic factor used in this study were taken from the website of Ghana Statistical Services (GSS, 2014)
# 3.6 Data Envelope Analysis (DEA)

The Data Envelope technique approach was first made by Charles et al (1978). It was made as an offshoot of the ideas of Farrell's (1957). It is a linear programming technique, which is employed by researchers to comprehensively analyse the relative efficiency and the productivity of decision making units (DMU) with each having the same inputs and out puts. Previously researchers to evaluate the performance of non-governmental organizations used this DEA technique. In recent times, its application has been extended to other different industries. It became very popular in the mid 1980 as a model used to measure the efficiency of banks. This technique was applied first by Sherman and Gold in 1985.

Subsequently many different models of Data Envelope Analysis have been reviewed comprehensively by researchers such as Seiford and Thrall (1990), Ali and Seiford (1993), Lovel (1993, 1994). The CCR- model and BCC model are the commonly used forms of DEA. CCR-model was named after Charnes, Cooper, and Rhodes in 1978. BCC-model was named after Banker, Charnes and Cooper in 1984. Treatment of returns to scale distinguishes between BCC-model from CCR –model. The CCR – Model holds the view that each DMU works with constant returns to scale technology but the CCR model allows for that VRS technology. With the DEA frontier approach, the performance of each bank is evaluated by economic (cost), technical or allocative efficiency based on the assumption that the banks are able to convert input into output.

The DEA reproach shows some strength in that is applicable to banks, which have the capacity to produce multiple outputs from multiple inputs. Each DMU consists of multiple inputs and outputs and when they are put together, the produce of an overall single measure of technical efficiency. As a linear programming technique, the DEA in measuring efficiency can be expressed as.

$$\begin{aligned} \operatorname{Max} h &= \frac{\sum_{r} U_{r} Y_{rjo}}{\sum_{i} V_{i} X_{ijo}} & subject \ to \\ \\ \frac{\sum_{r} U_{r} Y_{rj}}{\sum_{i} V_{i} X_{ij}} &\leq 1 & j = 1 \dots n \ (for \ all \ j) \end{aligned}$$

Where the assumption is that Ur and Vi are always equal to some small positive quantity of  $\varepsilon$ , this helps to prevent any input or output from been ignored in the measurement and estimation of the banks efficiency and productivity.

From the above equation if h=1 then the DMU will be considered to be efficient. In situation where the h < 1, then the DMU will be deemed as not efficient.

The weakness of the DEA technique is its assumption that there is no random noise or any measurement error in the data. To rectify this problem, researchers employ, resampling technique like boot strapping which will be used to derive the true distribution of underlying the DEA efficiency estimates.

# **3.7 Model Specification**

# 3.7.1 First stage Analysis: Evaluation of Rural Bank efficiency.

The efficiency of rural and community banks which were sampled was done by the application of the non-parametric DEA approach based on technical efficiency and productivity.

The approach of Banker, Charnes and Cooper (1984) was used to formulate the models of DEA. The motivation for the use of the DEA method is based on the premise that it is flexible to use. Additionally, there is no specification of a functional form in which the best practice frontier should take to determine the performance of RCBs. Both multiple inputs and outputs are used and this helps to provide an opportunity to determine technical and revenue efficiency from multiple sources relative to the use of single output used by other researchers. The versatility of DEA approach is evident in its extensive and widely usage in many works to determine the efficiency and productivity of decision making units (DMU) (Tahir and Tahrim 2015).

# **3.7.2 For technical efficiency**

Charnes cooper and Rhodes (1978) introduced the CCR-Model. The model is used to measure the efficiency of each decision making unit (DMU). It is derived as a maximum of the ratio of total sum of weighted outputs of total sum of weighted inputs. The efficiency therefore equals.

# $E = \frac{Weighted \ sum \ of \ output}{weighted \ sum \ of \ inputs}$

The weights for this ratio is derived through the restriction that similar ratios for every Decision Making Unit have to be less or to one. This means multiple inputs and outputs are reduced to a single "virtual" input and single virtual output without the requisition of preassigned weights. In effect the intuition is that the efficiency score is a function of the weight or the combination of inputs and out puts.

Assuming that there are 't' inputs and "f" outputs the relative technical efficiency score for a given DMU will be derived using a linear programming model as follows

$$\max \Theta = \frac{\sum_{r=1}^{s} V_{ro}}{\sum_{i=1}^{m} V_{l} R_{io}}$$

s.t

$$\frac{\sum_{r=1}^{s} V_r Y_{rj}}{\sum_{i=1}^{m} V_I X_{ij}} \le 1:r$$
  
J = 1, 2---n  
 $V_i \ge 0i; i = 1, 2, \dots, t$   
 $U_i \ge 0i; i = 1, 2, \dots, s$ 

And  $X_{ij}$  = quantity of input i employed by DMU J  $Y_{rj}$  = quantity of output churned out by the DMU J  $V_i$  = weight of input i Ur = weight of output r The Charnes Cooper transformation (1962) presents the representative solution (V,U) for

$$\sum_{r=1}^{m} V_i X_{io} = 1$$

which

This means that the denomination in the efficiency  $\theta$  shown in the above is set equal to one. This makes the transformed linear programing model for DMU to be written as

$$Max\theta = \sum_{r=i}^{s} v_r y_{ro}$$
  
s.t  $\sum_{r=i}^{s} v_r y_{rj} - \sum_{r=i}^{m} X_{ij} \le 0: j = 1, 2, n$ 

and  $\sum_{r=i}^{\infty} V_i X_{i0} = 1$ 

Where  $V_i \ge 0$ : i = 1, 2, ---m $u_i \ge 0$ : i = 1, 2, ---s

The linear programming model shown above will be run n times to identify the relative efficiency score for all the DMUs. To maximize its efficiency select input and output that best serves the purpose. In summary, a DMU is classified efficient when it has a score of 1.00 showing 100% efficiency. On the other hand a score less than 1.00 shows inefficiency relatively.

# 3.8 Second stage modeling

# 3.8.1 Modeling the relationship between bank performance and CSR

In the second stage, we examine the effects of CSR investment on bank performance using the IV-GMM regression

Where  $y_{it}$  denotes bank performance including technical efficiency and productivity.  $X_{it}$  represents the vector of CSR investment (including community development, health, education etc.). Whiles  $G_t$  represents the set of macroeconomic variables.  $\alpha$ ,  $\beta$  and  $\delta$  show the parameters to be estimated. The subscripts *i* and *t* represent the cross sectional and time dimension of the panel sample respectively.  $\varepsilon_{it}$  also shows white noise and  $u_i$  is the unobserved heterogeneity across the banks.

The equation numbered five (**5**) is consistently estimated using the system GMM technique. This is justified on the grounds that the presence lagged values of the independent variables as part of the regressors ensures that the conventional estimation technique on the panel data become inappropriate. Therefore, the application of panel data with fixed random efforts is not able to solve econometric problem that is inherent in dynamic model. This is as a result of the correlation between the endogenous and residues from the regression. Additionally, the system GMM is seen to provide better estimate in the family of dynamic regression models (Masai, Gallali and Jovini, 2015).

The transformation of equation 5 through first differencing ensures that the unobserved panel effect is removed and this renders the equation to become.

$$\Delta y_{it} = \delta \Delta y_{it-1} + \beta \Delta X_{it} + \delta \Delta G_t + \Delta \varepsilon_{it}$$

Even though this will not eliminate the issues of endogeneity intrinsically present in the problem, with the use of the two – step GMM estimator the issue of endogeneity will be addressed consequently (Arellano and Bover, 1995). The issue of simultaneity bias, reverse causality and omitted variable bias will be solved by the GMM. According to Masai (2015) the GMM is able to address the issue of endogeneity. There is also the issue of biased standard errors and parameter estimates. These can sprout up in the GMM technique when there are various instruments. Solution to this problem is the application of Windmeijer's (2005) procedure for correction. This was used greatly in this research to reduce the problem explained above. This will enhance the robustness of the results. Additionally, application of the GMM estimator depends to a large extent on the instrument matrix validity. It also depends on the assumption that there exit no auto correlation (AR) residuals.

In this research two tests were proposed. Firstly, there must not be any correlation of the matrix investments with the disturbance. In the evaluation of this first hypothesis the Sargan test was employed. To check that the instruments employed in the model are valid. The null hypothesis of the Sargan test checks that the instruments used. The implication therefore is that a higher P-value of the Sargan test statistic is better.

Secondly, the test for residually correlation. Residuals derived from the difference equation are usually correlated at the first order but not to second order. The test of Arellano and Bond (1991) which are AR (1) and AR (2) were used to verify this hypothesis. Failure to reject the null hypothesis in both tests will provide supports to reliable estimations.

#### Variable selection

The balanced panel data of 15 RCBs were used for this study. A six (6) year sample period thus from 2012 to 2017 was used. This gave 120 observations. Both bank specific data and macro-economic variables were used for the research. In order to make a justified comparison with other previous research the variables were obtained from published financial statement which are highly used in published studies. It should however be noticed that the sample chosen for this research included only RCBs in the Ashanti region of Ghana.

The lists of variables used are illustrated in table 3.1 and 3.2 below.

The choice of suitable inputs and outputs is a necessary step in the use of DEA to examine performance of any type of Bank or DMU. This partly correct for banks owing to the fact there is a significant conflicting views over the choice of suitable inputs and outputs for banks.

The applications of DEA in previous times in the measurement bank efficiency have been pivoted on two main approaches. This was the justification of their choice and selection of inputs and outputs. The first approach is known as the intermediary approach. This approach sees banks as financial intermediary whose fundamental role is to transfer funds from surplus financers to deficit financers for profit.

In this research the output are total loans (net), customer's deposits and investments. The inputs are total assets, salary of staff, and interest expense.

The second one also sees banks as institutions that use capital and labor as inputs to generate loans and deposit account services. In the analysis, 15 RCBs are used as a modification of the intermediary approach. In this research the variables have been categorized into three namely, input, output and control variables. To guide the selection of variable to be used in the model, the intermediation approach suggested by Sealey and Lindley (1977) will be used. The assumption is that the rural banks serve as intermediary between creditors and borrowers. Hermes et al... (2009)

Table 3.1 presents the variables that were employed in the GMM estimation whiles table 3.2 focuses on the variables used in the technical and productivity estimates. The measurements of the variables are presented in the table accordingly.

Variable	Indicators	Measurement	Expected Sign
Dependent Variable			
Rural Bank	Technical	Estimated using DEA-	+ (the higher the better)
Performance	Efficiency (TE)	VRS approach	
	Productivity	Estimated using DEA-	+ (the higher the better)
Indonondont			
Variables			
	Corporate Social	Investment on CSR	+/-
Bank Specific	Responsibility		
Factors	(CSR)		
	Non-Performing	Ratio of Non-performing	+/-
	Loans Ratio	loans to total loans	
	(NPLR)		
	Age of Bank	Age of Bank	+/-
	Firm Size	Log of Total assets	The bigger the better
	Investment to total	Ratio of the investment	The bigger the better
	assets (Inv_TA)	to total asset	
Macroeconomic	Gross Domestic	Gross domestic product	+
Variables	Product (GDP)	measured at constant	
		price	
	Inflation (Infl)	Annual inflation rate	-
	Interest rate		

 Table 3.1 Variables and Measurements for the Second Stage Modelling

Variable	Measurement
Output Variables	
Total loans	Total loans and advances in GHC
Customers Deposit	Total deposits made by customers in Ghana Cedis
Investments	Total investments made by the banks
Input Variables	
Salary of Staff	Total Staff Income in Ghana Cedis
Assets	Total assets held by banks
Interest Expense	Net interest earnings

# Table 3.2 Variables Used In the Estimation and Measurements of Efficiency

# **CHAPTER FOUR**

# DATA ANALYSIS AND DISCUSSION

# 4.1 Introduction

In this chapter, the findings of the impact of corporate social responsibility expenditure on the technical efficiency and productivity of the rural banks in the Kumasi Metropolis are presented. The results are categorised into two main parts based on the objective of the study. Section one focuses on the results of the DEA efficiency and productivity results. Then section two presents the results of the determinants of technical efficiency and productivity using GMM panel regression modelling. The yearly financial reports of the 15 RCBs that were chosen for the study was the source of the secondary financial data for the study. The annual reports covered a period of six years from2012-2017.

# 4.2 Descriptive Summary of Variables

For purposes of having a deeper and a comprehensive understanding of the internal and industrial features of the sampled banks, a descriptive summary of the variables which will be used for the estimations are conducted. It can be seen that there are significant variations in the variables chosen for the work. All the financial figures are quoted in new Ghana Cedis

Variable	Obs	Mean	Std.	Min	Max
education	120	22231.08	9212.241	4534	64254
communityd~p	120	17455.45	7682.149	0	43400
Health	120	19575.34	6253.241	0	36140
miscellane~s	120	15547.92	8333.352	0	34300
Csr	120	74809.79	21459.83	31686	150670

Tabl	e 4.1	Annual	means	of	CSR	com	ponents
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From table 4.1 it can be seen that the average loan disbursement was GHC 15M. The minimum was GHC 1.9M and the maximum was GHC 43.2M. It can also be seen that there was a strong variability in credit delivery as revealed by the standard deviation for loans and advances. Customer deposits had an average of GHC 28.5M ranging from GHC 2M to

63.8M. It can be seen however that there was a high variability as depicted by the standard deviation. Net interest expenses also had an average of GHC 66M approximately and it also showed a range of GHC25M to GHC 193M.

As observed from the table the overall expenditure on CSR for the sample period showed a mean of GHC 78M ranging from GHC 32,000 to GHC 150,000. Further checks from the table portray that the composition of CSR expenditure in total operating expenses is averages at 2.05%.

Variable	Obs	Mean	Std.	Min	Max
education	120	22231.08	9212.241	4534	64254
communityd~p	120	17455.45	7682.149	0	43400
Health	120	19575.34	6253.241	0	36140
miscellane~s	120	15547.92	8333.352	0	34300

Table 4.2 Means of CSR components

Table 4.2 shows the various components of CSR expenditures namely Education, Community development, Health, and miscellaneous CSR expenses. The table shows that expenditure on education has the highest mean of GHC 23000 for the sample period. It has a percentage contribution of roughly 40% ranging from GHC 4,500 to GHC6500 roughly. This was followed by expenditure on health whose percentage composition in total CSR expenditure was 36%. Expenditures on Community development and other miscellaneous items had 13% and 11% respectively. This means that most of the CSR activities embarked on by the selected banks were on education and health.

DMU	CSR Investment	CSR COMPONENT	SHARES	RANK
	GHC		%	
10	110,922	Education	45	
		Health	30	1 <sup>st</sup>
		Comm. Development	23	
		Others	2	
1	90747.13	Education	35	
		Health	31	2nd
		Com Development	21	
		Others	13	
8	84614.13	Education	20	
		Health	40	3 <sup>rd</sup>
		Comm. Development	22	
		Others	18	
3	63387	Education	30	
		Health	29	13th
		Comm. Development	11	
		Others	20	
7	60350.38	Education	46	
		Health	25	14th
		Comm. Development	20	
		Others	8	
13	53890.13	Education	50	
		Health	23	15 <sup>th</sup>
		Comm. Development	13	1
		Others	14	1

# Table 4.3 Ranking RCBs based on CSR expenditure

Table 4.3 shows the ranking of the selected rural banks in terms in their CSR investment. The table is divided into two halves thus the first top three and the last bottom three. The first three are DMUs 10, 1 and 8 with investments of GHC 110,992, GHC 90,747.13 and GHC 84, 614.13 respectively. The last bottom three are DMU 3,7 and 13 with investments of GHC

63387 GHC 60350.38 and GHC 53890.13 respectively. These rural banks performed poorly in terms of their expenditure on CSR as they were below the industrial average of GHC 74809.79.



# FIG 4.1 Benchmarking Bank Specific CSR Investments

Fig 4.3 presents the investments for the various selected rural banks in corporate social responsibility. It can be seen that most of the DMUs have high expenditures on Education and health. By their means it can be seen that 1, 2, 3, 6, 8, 9, 12 and 15 have their CSR investments heavily dependent on Education and Health. For community development DMU 4 had the highest expenditure followed by DMU 1. It can be seen that DMU 14 had the poorest expenditure on Education. DMU 11 had the highest investment in Health. Generally, investments in other miscellaneous expenses on CSR were poor relative to the industrial average. This means that most of these selected rural banks had priority for Education, Health and community development. This could be due to the strong commitment of rural banks in embarking on such projects

DMU	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CSR	Mean														
СОМР															
Education	22231.	22231.	19898.	13229.	13229.	23754.	18290.	23869.	25075.	18664	20382.	20942.	46692.	21551	20550.
	08	08	25	13	13	13	88	25	75		13	5	63		25
Comm.	17455.	17455.	22415	18255.	18255.	11955.	18004.	18136.	20654.	9444.2	15407.	17450.	26924	10816.	18672.
Dev.	45	45		5	5	5	25	25	75	5	88	88		13	38
Health	19575.	19575.	27038.	19793.	19793.	16998.	19582	20160.	14713.	15702.	23699.	22792.	19744.	16893.	15014.
	34	34	13	88	88	75		75	5	13	88	25	13	5	13
Miscellane	15547.	15547.	90747.	70619.	70619.	63387	65277.	71769	72926.	60350.	84614.	76861.	11092	70461.	67699.
ous	92	92	13	13	13		88		38	38	13	63	2	88	38

# Table 4.3 Average Annual means of CSR component for selected Rural Banks

# .4.3 First Stage Analysis:

# 4.3.1 Measurement and Benchmarking of Rural Bank Efficiency based on the

# **DEA Approach**

DMU	2012	2013	2014	2015	2016	2017	Mean	Rank
1	0.891	0.824	0.927	1	1	1	0.940	11th
2	0.817	0.874	1	1	0.944	1	0.939	12th
3	0.901	0.964	0.876	0.978	1	1	0.953	9th
4	1	1	0.876	1	1	0.985	0.977	7th
5	1	1	1	1	1	1	1	1st
6	1	1	0.958	0.953	1	1	0.985	6th
7	1	1	1	1	1	1	1	1st
8	1	0.955	0.645	0.782	0.749	0.821	0.825	14th
9	0.751	0.721	1	0.85	0.923	0.909	0.859	13th
10	1	0.994	0.883	0.855	0.918	1	0.941	10th
11	0.788	0.758	0.73	0.834	0.853	0.955	0.819	15th
12	1	1	1	1	1	1	1	1st
13	1	1	1	0.946	1	1	0.991	5th
14	1	1	1	1	1	1	1	1st
15	1	1	1	0.883	1	0.961	0.974	8th
Mean	0.943	0.939	0.926	0.939	0.959	0.975	0.947	

Table 4.4 Technical efficiency – variable returns to scale

The first stage of the study presented the DEA efficiency frontier which calculated the technical efficiency for each chosen rural bank for the period under study.

Table 4.4 presents the results of the DEA efficiency scores. They are also graphed in Figure 4.2 below. The results show that the overall the average technical efficiency score is 94.7%. The implication is that the sampled rural banks have a 5.3% level of inefficiency in input usage. They can therefore obtain input savings of 5.3%. DMUs with efficiency score of 1 are described as technically efficient. The annual technical efficiency scores as illustrated on Table 4.3 show that generally some of the selected

rural banks are performing better in technical efficiency more than others as in the case of DMU 5, 7, 12 and 14. The DMUs with efficiency score less than 1 are technically inefficient as in the case of 1, 2, 3 4, 6, 8, 9, 10, 11, 13 and 15. The most inefficient banks are 8, 9, and 11: require input savings of 17.5%, 14.1% and 18.1% respectively. The least inefficient banks are 4, 15 and 13: requiring input savings of 2.3%, 2.6% and 0.9% respectively. DMUs 1 and 2 can obtain input savings of 6%. and 6.1% respectively. In summary technically inefficient DMUs need input savings according to their level if inefficiency in input usage.



Fig 4.2 Overall efficiency scores for the sampled period

# 4.4 Analysis of Productivity of Selected Rural Banks

In this part, the DEA productivity results for each of RCBs are shown and discussed. A yearly summary of the results are also presented to show the trends over the study period. Table 4.5 shows the summarized form of the estimates of productivity changes as well as the components for individual RCBs in the sample period from 2012 to 2017. The frequency distribution is also presented in Table 4.6. It can be seen that quite a number of observations can be deduced from Table 4.6.

	effch	techch	pech	sech	tfpch
2012/2013	1.018	0.912	0.995	1.023	0.929
2013/2014	0.984	0.992	0.984	1	0.976
2014/2015	0.999	1.115	1.018	0.981	1.113
2015/2016	1.041	0.887	1.022	1.018	0.922
2016/2017	1.022	0.922	1.019	1.003	0.942
Grand (2012-2017)	1.013	0.962	1.007	1.005	0.974

**Table 4.5 Malmquist Index Summary of Annual Means** 

Table 4.5 shows the determinants of productivity. These are efficiency change (effch), technical change (techch), pure efficiency change (pech), scale efficiency change(sech) and total factor of productivity change (tfpch)



# Fig 4.3 Annual means of productivity components

Primarily, out of the 15 banks sampled, only five (5) where seen to show technological improvement. These are banks 2, 3, 4, 5, and 12. These banks had scores greater than 1. The remaining 10 exhibited technological regress as shown in their scores. They had scores less than 1. Again eight (8) of the selected banks representing 53.3% under study suffered productivity decline ranging from -0.21% to -0.26%. This reduction in productivity was as a result of technological regress. It can also be seen that productivity grew from 0.14% to 0.4%. The observations in scale efficiency also was

show that six (6) out of the sampled banks were scale inefficient. This was manifested in their low productivity levels. The main source of productivity decline was pivoted on technological inefficiency and technological regress. Only few of the banks exhibited both scale as well as technological efficiency. Bank 3 had the highest improvement in terms of productivity representing a growth rate of 0.12%. Bank 14 had the highest productivity decline of -0.26%

	effch	techch	pech	sech	tfpch
1	1.033	0.983	1.023	1.01	1.016
2	1.045	1.005	1.041	1.003	1.05
3	1.111	1.009	1.021	1.088	1.12
4	0.99	1.007	0.997	0.993	0.997
5	1	1.014	1	1	1.014
6	0.97	0.968	1	0.97	0.938
7	0.997	0.964	1	0.997	0.961
8	0.939	0.999	0.961	0.977	0.938
9	1.043	0.997	1.039	1.004	1.04
10	1	0.979	1	1	0.979
11	1.089	0.931	1.039	1.048	1.014
12	1.007	1.037	1	1.007	1.044
13	1	0.967	1	1	0.967
14	0.99	0.746	1	0.99	0.738
15	0.989	0.869	0.992	0.997	0.859
Industry Mean	1.013	0.962	1.007	1.005	0.974
e	ffch <u> </u> te	chch —	pech — s	ech — tf	pch

**Table 4.6 Malmquist Index Summary of Firm Means** 



Fig 4.3 Overall summary of firm means of productivity estimates

EFFCH	Freq.	%	TECH	Freq.	%	TFP	Freq.	%	PECH	Freq.	%
< 1	6	40	< 1	10	66.67	<1	8	53.3	<1	3	20
1	3	20	= 1	0	0	1	0	0	=1	7	46.67
>1	6	60	>1	5	33.33	>1	7	46.67	>1	5	33.33
Total	15	100	Total	15	100	Total	15	100	Total	15	100

Table 4.7: Frequency Distribution of TFP, TECH, EFFCH, PECH and SECH

	Ceffch	Ctechch	Cpech	Csech	Ctfpch
2012/2013	1.018	0.912	0.995	1.023	0.929
2013/2014	1.002	0.904	0.979	1.023	0.905
2014/2015	1.001	1.019	0.997	1.004	1.018
2015/2016	1.042	0.906	1.019	1.022	0.94
2016/2017	1.064	0.828	1.038	1.025	0.882
Grand (2012-					
2017)	1.077	0.79	1.045	1.03	0.856



Fig 4.4 Cumulative TFP Change and Components

#### 4.6 DEA Total Factor Productivity Changes (TFP) Summary of Annual Means

This portion provides the results for the total factor productivity changes (TFP), which is equivalent to the product of EFFCH (Efficiency change) and TECH (technical change). The annual means estimates of TFP changes as well as their constituents for the RCBs are shown in Table 4.8. It is further graphed in Fig 4.4. It is interesting to note that many observations and inferences can be deduced from the table. Observation from the table portray TFP was on the decline mostly in the years of 2012-2013, 2013-2014, 2015-2016 and 2016-2017. This shows that productivity is on the decline in between these years. TFP however improved between the years of 2014-2015. This means that in between these periods, there was an improvement in technological and efficiency changes. The overall TFP experienced a deterioration of -0.78%. The deterioration in TFP is however not a surprise owing to the presence of technical regress. Attributable to this discovery is as a result of the seasonal changes in the banking Industry in Ghana. Fundamental to this issue is that banks operating technology is season specific

	effch	techch	TFP
2012/2013	1.018	0.912	0.929
2013/2014	0.984	0.992	0.976
2014/2015	0.999	1.115	1.113
2015/2016	1.041	0.887	0.922
2016/2017	1.022	0.922	0.942
Grand (2012-2017)	1.013	0.962	0.974

Table 4.8 Annual means of TFP Changes from 2012 to 2017



Fig 4.4 Annual changes in Productivity Index (MPI)Additional analysis presents the cumulative change of TFP for the period under study, is shown in Table 4.9 and Figure 4.6. This helps to make a better comparison of the endpoints years from the first period which is 2012-2013. As presented in the table, the results augment the initial observation that productivity deteriorated during the period. In cumulative terms there was a -14.4% deterioration in TFP over the entire period for the sampled Rural Banks. The RCBs used 11.8%% more inputs in 2016-2017 compared to 2012-2013. In cumulative terms, technological change showed a regress of -8.8% in between 2012-2013 The cumulative trends for technological change indicate a regress (inward shift of the frontier) of -9.6% between 2013 and 2014, while the cumulative technical efficiency shows a progress (efficiency catch-up) of 0.2%. This in principle means that while relatively less technically-efficient RCBs did catch-up with more technically-efficient ones in some years, they were still wasteful using relatively more inputs in production thus they were unable to provide the same level of efficient services.

	CEFFCH	СТЕСНСН	CTFP
2012/2013	1.018	0.912	0.929
2013/2014	1.002	0.904	0.905
2014/2015	1.001	1.019	1.018
2015/2016	1.042	0.906	0.94
2016/2017	1.064	0.828	0.882
Grand (2012-2017)	1.077	0.79	0.856

**Table 4.9 Cumulative Change of TFP and Components** 



Figure 4.6 Cumulative TFP Change and Components

# 4.5 Second stage Analysis:

# 4.5.1 Modeling the relationship between bank performance and CSR

In the second stage, we examine the effects of CSR investment on bank performance using the IV-GMM regression. The study critically examines the impact of CSR expenditure on Rural bank performance over the sample period. The study explored the specific CSR components as well as other financial and non-financial variables. Macroeconomic factors were also employed to determine bank performance. The two-step GMM estimator approach is used to do the estimations. The outcomes of the estimations are presented in Table 4.9 A and 4.9B. The study examines the impact of CSR expenditure on technical efficiency and productivity.

The first estimation is made up of two models which are interconnected. Model 1 focuses on the overall the overall CSR investment. The estimation of model 1 is not only to explore the total CSR expenditure affects technical efficiency but to also make a comparison of current study to extant studies which have been mainly based on Technical efficiency.

The model two captures the various components of CSR investment and how they affect technical efficiency. This shows that the values were added hierarchically. This will help to track any problems with respect to collinearity as they have the propensity of affecting the signs of the parameters which will consequently churn out inconsistence results. n in order to solve the problem of any potential biases, the

standard errors of the models were rectified using the Windmeijer (2005) finite sample correction. The instruments validity in the system was checked using Sargan tests.

TABLE 4	.9 A
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Technical Efficiency: Dependent Variable			
Variables	MODEL 1	MODEL 2	
LnCSR	.092 (.042)***		
Lneducation		037(.186)*	
Lncomdev		289(.157)*	
Lnhealth		292 (.077)***	
Lnother		.081 (.083)	
Lndcp	008 (.0181)	105(.320)	
Lnage	147 (.066)**	056(.103)	
Npl	104 (.042)**	369(.533)	
Lnroa	008 (.0181)	.135(.445)	
Liability	147 (.066)**	369(.533)	
Department	008 (.0181)	.135(.445)	
Duality	147 (.066)**	.064 (.168)	
Size	104 (.042)**	3.941 (3.520)	
Females	008 (.0181)	369(.533)	
Constant	147 (.066)**	.135(.445)	
Diagnostic Test			
Chi Square Value	36.53	36.53	
Prob>Wald Chi <sup>2</sup>	0.0000	0.000	
Nos. Observations	120	120	

\*,\*\*,\*\*\* denotes coefficients significant at 10%, 5% and 1%

Starting from Model 1, by focussing on the bank specific factors the model shows that overall CSR investment has an effect on performance. Corporate Social Responsibility is the bedrock on which community commitment to an organization hinges (Frynas, 2005). It gives corporate organizations the competitive advantage in the market. This means that banks which perform CSR activities have a strong customer base and so they are able to generate also of returns on their investment leading to an improvement in Technical Efficiency. (Frynas, 2005). This findings support Dadzie (2008) in his research on the impact of corporate social responsibility on firm performance.

The results also show that other bank specific factors like the age of the bank, nonperforming loans and growth in liabilities had a detrimental effect on technical efficiency. This confirms the learning curve hypothesis which posits that as bank gains experience over time, they are able to reduce waste as it learns lessons from past experiences, best practises in the industry to make inform decisions in the future. This helps to reduce risks and losses. It can also be seen that growth in liabilities has a statistically negative effect on technical efficiency. Growth in liabilities means that banks are earning less on assets. They take more deposits without using the funds to raise loans which will help them to increase their net interest income (Tesfai, 2015). Non-performing loans also had a negative impact on technical efficiency. Nonperforming loans is a parameter for measuring the credit quality. High NPLs means most of the banks are developing hard core on their loan accounts. (Moore 2011). This therefore means these banks have loan accounts which are static and not diminishing in the outstanding balance as a result of on the non-payments of interest and principal. These findings collaborate with Owusu (2014) and Tesfai (2011) who found a negative relationship between non-performing loans and performance.

Duality was also statistically related to technical efficiency. Most of the Board members of these RCBs were found to be the managing directors of the banks. This made it difficult for them to separate ownership from Management. In effect they were not able to work efficiently through proper supervision and monitoring of banks liabilities and their conversions into loans or assets. The size of the bank also had a negative relationship with Technical efficiency. This could be as a result of poor monitoring and work specialization. Most of the workers the workers are assigned to so many tasks hence they don't stick to one particular type of task so as to enhance specialization. This reduces the overall performance. This supports the findings of Tower (2007) and Li et al (2008).

Model 2 shows how the various components of CSR affect technical efficiency. It can be Investment in Education; community development had a negative relationship with technical efficiency. However the impact was statistically not significant. This means that an increase in education and community development investments do not result in reduction of technical efficiency. However expenditure on health a strong negative statistical significance on technical efficiency.

# TABLE 4.9 B

Bank Productivity Indices: Dependent Variable			
Variables	MODEL 1	MODEL 2	MODEL 3
Lneducation	-0.0484(0.153)*	-0.14171(0.156) *	-0.1637(0.174) *
Lncomdev	-0.1228(0.091) **	0.002877(0.093) **	0.011235(0.104)*
Lnhealth	0.333705(0.157) *	0.185414(0.159) *	0.205496(0.178) *
Lnother	0.039647(0.085) **	0.060423(0.086) **	0.077862(0.097) **
Lndcp	0.828081(1.054) *	2.15821(1.068) *	1.725251(1.197) *
lnage	18.98316(8.629) *	26.39514(8.740) *	24.54861(9.788) *
npl	-2.80991(1.352) *	-4.07505(1.369) *	-3.70605(1.533) *
Inroa	0.331699(0.239) *	0.408674(0.242) *	0.448688(0.271) *
Liability	-0.59651(0.389) *	-0.94579(0.394) *	-0.88793(0.441) *
Department	0.062013(0.107) *	0.066258(0.108) *	0.038073(0.121) *
Duality	-0.11837(0.129) *	-0.16224(0.130) *	-0.18714(0.145) *
Size	-0.01651(0.047) ***	-0.02396(0.048) ***	-3.33E-02(0.054) **
Females	-0.08529(0.085) **	-0.08171(0.087) **	-8.54E-02(0.097) ***
Constant	-22.1827(9.545) *	-28.2819(9.660) *	-26.2575(10.815) *
Diagnostic Test			
Chi Square Prob>Wald Chi <sup>2</sup> Nos.	0.6629 0.0000 64	0.7926 0.000 64	0.9995 0.000 64
Observations			

\*, \*\*, \*\*\* denotes coefficients significant at 10%, 5% and 1%

The second stage analysis is the estimation of the determinants of bank productivity which are Technical change, Technological change and Total factor productivity.

In model 1, Technical change is regressed against the CSR variables which are community development, Health, Education and miscellaneous activities. The purpose is to determine the extent to which these variables affect bank productivity. From the results it can be seen that technical change has a negative but statistically insignificant effect on education. This implies that an increase in expenditure on education does not statistically affect the Technical change. This could be that expenditure in education is so important to community folks such that they build a strong bond and loyalty with bank. This might have increased the customer base of the banks leading to larger deposits which creates large assets for the bank. This however rejects the findings of Frynas (2005) who revealed that CSR expenditure significantly affect bank productivity as a result of the reduction in Shareholder value.

It is however interesting to note that expenditure on community development had a slightly statistically significant but inverse relationship with bank technical efficiency change. This implies that community development may not affect the rural community members directly. Rural community development is perceived to be a public good and therefore it doesn't create a strong commitment and loyalty with bank customers. Another observation is that investments in community developmental activities are normally in fixed assets which generally may not increase shareholder value. These findings support the work of Uwloma and Egbide (2012) who found a statistically significant negative relationship between CSR expenditure and bank productivity. Other findings reveal that investment in health activities had a positive and significant relationship with bank productivity. These health activities are essentially blood screening, building of hospitals and payment of hospital charges. These are seen as a very vital project which creates strong customer relations with depositors. This helps to increase customer base thereby generating into higher deposits which invariably creates asset for the banks through loans. This supports the work of Hartman and Seidel (2002) who revealed that CSR expenditure helps to create a competitive advantage for banks who involve themselves in CSR activities.

Model 2 is the estimation of CSR investment on technological progress of the banks. Technological change is one of the indices which measure bank productivity. It is the development, achievement in the overall process of invention, innovation as well as diffusion of technology or processes. The results show that investments in Community development and other miscellaneous activities have a positive and somewhat significant relationship with technological change. Thus an increase in these expenditures will lead to an increase in bank technological change. It is also interesting to note that expenditure in education is negatively related to technological change. An increase in expenditure in education leads to a decrease in technological change. However the p-value of 15.6% suggests that the effect is not very significant. This proves that expenditure on education may be so high but banks are compensated by increase in customer loyalty. This will help the bank to raise enough funds to invest in technology.

Model 3 estimates the effect of CSR investment in Total Factor Productivity (TFP). It can be seen that investments in community development and health has a positive and significant effect on TFP. This is essentially because customer's deposits are liabilities for the banks, however they are the cheapest source of funds which the bank can use to create assets and earn interest income. This means that banks will have an increase in Net Interest Income as well as a higher percentage of Net Interest Margin. This will significantly increase bank productivity in terms of shareholder wealth maximization. These findings corroborate the works of Carlson and Akerston (2008) who found a positive and significant relation between CSR involvement and Total Factor Productivity. However the effect is not statistically significant. This implies that the huge capital outflow from the banks is compensated through increase in deposits which create investment returns to the banks through the disbursement of loans and advances. This work empirically confirms the findings of Ojo (2010) that the relationship between CSR and TFP is not significant as shown by the p-value of 9.7%

# 4.5 Discussion of results

The main objective of the study is to find out the effect of corporate social responsibility on performance of RCBs in Ghana, particularly in Ashanti region. Again the study seeks to find out the impact of the CSR components on the indices of bank productivity which are technical change, technological change and Total Factor Productivity. A total of 15 rural banks out of twenty five (25) rural banks in Ashanti

region were sampled representing 60% of the entire population. Financial data was obtained from the annual reports of the bank for the periods of 2012-2017. Rural bank performance was evaluated from two main dimensions namely; technical efficiency and bank productivity using the widely used non-parametric DEA approach. The main reason for focusing on the rural banks stem from the fact that these banks contribute significantly to economic growth and development. However their operations are saddled with a lot of threatening challenges which invariably have a negative bearing on their sustainability. Additionally, these challenges affect their ability to perform their core functions. It is therefore expedient if not indispensable to identify these challenges and how they affect their productivity and then devise strategies to resolve them.

The findings of the study showed that the most of sampled rural banks were underperforming in respect of technical efficiency. The DEA efficiency revealed that the overall the average technical efficiency score is 94.7%. The implication is that the sampled rural banks have a 5.3% level of inefficiency in input usage. They can therefore obtain input savings of 5.3%. DMUs with efficiency score of 1 are described as technically efficient. The annual technical efficiency scores also show that generally some of the selected rural banks are performing better in technical efficiency more than others as in the case of DMU 5, 7, 12 and 14. The DMUs with efficiency score less than 1 are technically inefficient as in the case of 1, 2, 3 4, 6, 8, 9, 10, 11, 13 and 15. The most inefficient banks are 8, 9, and 11: require input savings of 17.5%, 14.1% and 18.1% respectively. The least inefficient banks are 4, 15 and 13: requiring input savings of 2.3%, 2.6% and 0.9% respectively. DMUs 1 and 2 can obtain input savings of 6% and 6.1% respectively. This means that technically inefficient DMUs need input savings according to their level if inefficiency in input usage.

In relation to bank productivity, by focussing on the bank specific factors the research showed that overall CSR investment has an effect on performance. Corporate Social Responsibility is the bedrock on which community commitment to an organization hinges. It gives corporate organizations the competitive advantage in the market. This means that banks which perform CSR activities have a strong customer base and so they are able to generate returns on their investment leading to an improvement in Technical Efficiency. This findings support Dadzie (2008) in his research on the impact of corporate social responsibility on firm performance.

The results also show that other bank specific factors like the age of the bank, nonperforming loans and growth in liabilities had a negative effect on technical efficiency. This confirms the learning curve hypothesis which posits that as bank gains experience over time, they are able to reduce waste as it learns lessons from past experiences, best practises in the industry to make inform decisions in the future. Growth in liabilities was also on the high side meaning that banks are earning less on assets. They take more deposits without using the funds to raise loans which will help them to increase their net interest income (Tesfai, 2015). Non-performing loans also had a negative impact on technical efficiency. Non-performing loans is a parameter for measuring the credit quality, this means high NPLs arise as a result of the banks developing hard core on their loan accounts. This therefore means these banks have loan accounts which are static and not diminishing in the outstanding balance as a result of on the non-payments of interest and principal. These findings collaborate with Owusu (2014) and Tesfai (2011) who found a negative relationship between non-performing loans and performance.

Again, Duality was also seen to have a negative impact on bank productivity. Most of the Board members of these RCBs were found to be the managing directors of the banks. This meant that it was practically impossible to separate ownership from Management. In effect they were not able to work efficiently through proper supervision and monitoring of banks liabilities and their conversions into loans or assets. The size of the bank also had a negative relationship with Total Factor Productivity. This is as a result of poor monitoring and work specialization. Most of the workers the workers are assigned to so many tasks hence they don't stick to one particular type of task so as to enhance specialization. This reduces the overall performance. This supports the findings of Tower (2007) and Li et al (2008).

From the results it can be seen that bank productivity has a negative but statistically insignificant effect on education. This implies that an increase in expenditure on education does not statistically affect the banks productivity. Primarily expenditure in education is so important to community folks such that they build a strong bond and loyalty with bank. This might have increased the customer base of the banks leading to larger deposits which creates large assets for the bank. This however rejects the findings of Frynas (2005) who revealed that CSR expenditure significantly affect bank productivity as a result of the reduction in Shareholder value.

It can be seen that investments in community development and health has a positive and significant effect on TFP. This is essentially because customer's deposits are liabilities for the banks, however they are the cheapest source of funds which the bank can use to create assets and earn interest income. This means that banks will have an increase in Net Interest Income as well as a higher percentage of Net Interest Margin. This will significantly increase bank productivity in terms of shareholder wealth maximization. These findings corroborate the works of Carlson and Akerston (2008) who found a positive and significant relation between CSR involvement and Total Factor Productivity. However expenditure on education was negatively related to bank productivity.

# **CHAPTER FIVE**

#### SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

# **5.1 Introduction.**

This chapter provides a summary of the findings that were deduced from the study in accordance with the research objectives. Recommendations were therefore made from the findings. The limitations of the work are also presented in this chapter.

# 5.2. Summary of findings

The main objective of the research was to examine the effect of CSR investments on rural bank performance in the Ashanti Region of Ghana. The performance was measured from the dimensions of technical efficiency and bank productivity. There is a general assumption that the economic growth and development are pivoted on bank performance. Therefore the estimation of the performance of these banks is of critical concern to investors, managers, regulators and policy makers. As a result of the empirical nature of the work, there was the need to have a comprehensive understanding of the banking system in Ghana.

The Data Envelope Technique approach was used in measuring technical efficiency and productivity. The study concentrated on a sample of 15 banks out of 25 RCBs in Ashanti region from 2012-2017.

In aggregate terms the findings of the study depict that the most of sampled rural banks were underperforming in respect of technical efficiency. The DEA efficiency revealed that the overall the average technical efficiency score is 94.7%. The implication is that the sampled rural banks have a 5.3% level of inefficiency in input usage. They can therefore obtain input savings of 5.3%. DMUs with efficiency score of 1 are described as technically efficient. The annual technical efficiency scores also show that generally some of the selected rural banks are performing better in technical efficiency more than others as in the case of DMU 5, 7, 12 and 14. The DMUs with efficiency score less than 1 are technically inefficient as in the case of 1, 2, 3 4, 6, 8, 9, 10, 11, 13 and 15. The most inefficient banks are 8, 9, and 11: require input savings of 17.5%, 14.1% and 18.1% respectively. The least inefficient banks are 4, 15 and 13: requiring input savings

of 2.3%, 2.6% and 0.9% respectively. DMUs 1 and 2 can obtain input savings of 6% and 6.1% respectively. This means that technically inefficient DMUs need input savings according to their level if inefficiency in input usage.

# 5.3 Recommendations.

In aggregate terms the findings of the study depict that the most of sampled rural banks were underperforming in respect of technical efficiency and productivity. This means that there is more room for improvement for the RCBs in terms of their technical efficiency and productivity. The findings also portray that collectively Technical change; Technological change and Total Factor productivity need improvements in terms of efficient allocation of monetary resources to CSR activities. To give a road map to better performance, the findings provide critical policy implications for individual RCBs as well as their industry stakeholders (regulators) to improve the technical efficiency of these RCBs if they need to really excel in undertaking their core mandates. Recommendations can be deduced from the findings in that, RCBs should improve their technical efficiency by reducing wasteful operations so they can undertake decisions which will be in the interest of the bank. This will help in leading to an improvement in technical efficiency as well as productivity of the banks. It is necessary for these RCBs to improve upon their efforts in generating non-interest income through commissions, net-earnings from issuance of investment instruments as they would make a significant contribution to the productivity of RCBs

#### **5.4 Policy implications**

This study will help the managers of RCBs to understand that their involvement in societal activities can help in the management of social risks exposures as part of their main operations. This study will also help the management of RCBs to understand better ways of institutionalizing good marketing policies and strategies for the bank. It

will also help RCBs to attract, motivate and retain competent employees who will assist them in achieving then state objectives.

It is also worth mentioning that rural banking performance depends largely on the availability and accessibility of credit to their clients. The rampant collapse of rural banks in the 1990s coupled with the high rate of insolvency and liquidity issues of RCBs is a major challenge which has become eminent in the financial sector. This research finding will serve as a yardstick to ascertain the effectiveness of actions, which hitherto were used to address the issues regarding technical efficiency and productivity of rural banks. Also, the findings of this study will assist managers of these rural banks under review to effectively offer their performance against their own target and the standards set by BOG.

# 5.5 Limitations of the study

The research was carried out irrespective of the limitations. The work was be carried out for a six-year period from 2012-2017. Therefore any developmental trends which might occur before or after this period present a limitation. Another limitation is the availability of time where there is the need for a thorough and a comprehensive study. The time available will not be adequate. Additionally, inadequate funds will limit the research because of various ion expenses that would be directly and indirectly be incurred form the research.

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## **APPENDICES**

## **APPENDIX A**

## NAME OF BANKS USED IN THE STUDY (NOT ARRANGED IN ANY ORDER)

ODOTOBIRI KUMAWUMAN BOSOMTWE ATWIMA KWANWOMA KOMFO ANOKYE YAA ASANTEWAA AHAFO ANO JUABENG BOSOME FREHO ATWIMA MPONUA ATWIMA MPONUA AMANTIN &KASEI SEKYERE AMANSIE WEST ASANTE AKYEM

## APPENDIX

Random-effects tobit regression	Number of obs =	82
Group variable: Rbank	Number of groups $=$	12

Random effects u\_i ~ Gaussian

Obs per group:  

$$min = 2$$
  
 $avg = 6.8$   
 $max = 8$ 

Integration method: mvaghermite Integration pts. = 25

Wald chi2(13)=36.53Log likelihood=99.76741Prob > chi2=0.0005

vrs	Coef.	Std.	Z	P>z	[95%	Conf.
ledu	-0.0273 ()	0.03084	-0.89	0.376	-0.08775	0.033145
lcomdev	-0.03575	0.01841	-1.94	0.052	-0.07183	0.000335
lhealth	-0.08572	0.031709	-2.7	0.007	-0.14787	-0.02357
lother	0.009815	0.017166	0.57	0.567	-0.02383	0.043459
ldcp	-0.05834	0.212419	-0.27	0.784	-0.47467	0.357998
lage	0.114555	1.738371	0.07	0.947	-3.29259	3.521699
npl	-0.00581	0.272314	-0.02	0.983	-0.53953	0.527918
lroa	-0.00935	0.048285	-0.19	0.846	-0.10399	0.085282
liab	0.028893	0.078427	0.37	0.713	-0.12482	0.182608
DEPT	0.061798	0.021529	2.87	0.004	0.019601	0.103994
DUALITY	0.05079	0.025897	1.96	0.05	3.34E-05	0.101547
size	0.033087	0.00955	3.46	0.001	0.014369	0.051805
females	-0.0139	0.017212	-0.81	0.419	-0.04763	0.019839
_cons	1.212177	1.922993	0.63	0.528	-2.55682	4.981174
/sigma_u	3.06E-20	0.012556	0	1	-0.02461	0.02461
/sigma_e	0.071675	0.005597	12.81	0	0.060705	0.082645

Random-effects tobit regression	Number of obs =	86
Group variable: Rbank	Number of groups $=$	12

Random effects u\_i ~ Gaussian Obs per group:

min = 2avg = 7.2 max = 8

Integration method: mvaghermite	e Integration pts.	=	25
	Wald chi2(10)	=	29.56
Log likelihood = 103.02027	Prob > chi2	=	0.0010

vrs	Coef.	Std.	Z	P>z	[95%	Conf.
lcsr	-0.11908	0.038392	-3.1	0.002	-0.19432	-0.04383
ldcp	-0.07071	0.209902	-0.34	0.736	-0.48211	0.340693
lage	0.106226	1.707811	0.06	0.95	-3.24102	3.453474
npl	-0.00993	0.266998	-0.04	0.97	-0.53323	0.51338
lroa	-0.02732	0.045606	-0.6	0.549	-0.1167	0.062069
liab	0.050025	0.076213	0.66	0.512	-0.09935	0.1994
DEPT	0.054425	0.020575	2.65	0.008	0.014099	0.094752
DUALITY	0.042052	0.020469	2.05	0.04	0.001933	0.082171
size	0.034209	0.008709	3.93	0	0.017139	0.051278
females	-0.03003	0.016017	-1.87	0.061	-0.06142	0.001367
_cons	0.89801	1.876834	0.48	0.632	-2.78052	4.576538
/sigma_u	4.45E-19	0.01356	0	1	-0.02658	0.026578
/sigma_e	7.30E-02	0.005569	13.11	0	0.062118	0.083947
rho	3.71E-35	2.26E-18	0	1		

Random-effects tobit regression	Number of obs =	82
Group variable: Rbank	Number of groups $=$	12

Random effects  $u_i \sim Gaussian$  Obs per group: min = 2 avg = 6.8max = 8

Integration method: mvaghermite Integration pts. = 25

Wald chi2(13) = 16.26 Log likelihood = -44.345427 Prob > chi2 = 0.2354

tfpch	Coef.	Std.	Z	P>z	[95%	Conf.
ledu	-0.1637	0.17413	-0.94	0.347	-0.50499	0.17759
lcomdev	0.011235	0.103682	0.11	0.914	-0.19198	0.214448
lhealth	0.205496	0.178131	1.15	0.249	-0.14363	0.554626
lother	0.077862	0.096509	0.81	0.42	-0.11129	0.267017
ldcp	1.725251	1.196986	1.44	0.149	-0.6208	4.071301
lage	24.54861	9.788059	2.51	0.012	5.36437	43.73286
npl	-3.70605	1.533375	-2.42	0.016	-6.71141	-0.70069
lroa	0.448688	0.271445	1.65	0.098	-0.08333	0.98071
liab	-0.88793	0.44177	-2.01	0.044	-1.75379	-0.02208
DEPT	0.038073	0.121116	0.31	0.753	-0.19931	0.275455
DUALITY	-0.18714	0.145466	-1.29	0.198	-0.47224	0.097971
size	-3.33E-02	0.053682	-0.62	0.535	-0.13848	0.071949
females	-8.54E-02	0.096866	-0.88	0.378	-0.27526	0.104447
_cons	-26.2575	10.81462	-2.43	0.015	-47.4538	-5.06122
/sigma_u	1.40E-18	5.50E-02	0	1	-0.1077	0.107704
/sigma_e	0.402473	0.032403	12.42	0	0.338965	0.465981
rho	1.21E-35	9.50E-19	0	1		

Random-effects tobit regression Number of obs = 86 Group variable: Rbank Number of groups = 12

Random effects  $u_i \sim Gaussian$  Obs per group: min = 2 avg = 7.2max = 8

Integration method: mvaghermite Integration pts. = 25

Wald chi2(10) = 14.44 Log likelihood = -49.356609 Prob > chi2 = 0.1538

tfpch	Coef.	Std.	Z	P>z	[95%	Conf.
lcsr	0.290651	0.21935	1.33	0.185	-0.13927	0.720569
ldcp	1.955063	1.202037	1.63	0.104	-0.40089	4.311012
lage	26.5498	9.771609	2.72	0.007	7.397797	45.7018
npl	-4.09262	1.52783	-2.68	0.007	-7.08711	-1.09813
lroa	0.415422	0.26069	1.59	0.111	-0.09552	0.926366
liab	-0.91569	0.436377	-2.1	0.036	-1.77097	-0.06041
DEPT	-0.02044	0.117755	-0.17	0.862	-0.25124	0.210352
DUALITY	-0.02845	0.117071	-0.24	0.808	-0.25791	0.201002
size	-0.07707	0.049822	-1.55	0.122	-0.17472	0.020578
females	-0.01365	0.091495	-0.15	0.881	-0.19297	0.165681
_cons	-3.05E+01	10.73348	-2.84	0.005	-51.5035	-9.42907
/sigma_u	4.32E-18	0.054783	0	1	-0.10737	0.107372
/sigma_e	4.17E-01	3.27E-02	12.74	0	0.352805	0.48111
rho	1.07E-34	2.72E-18	0	1		

effch	Coef.	Std.	Z	P>z	[95%	Conf.
ledu	-0.0484	0.153082	-0.32	0.752	-0.34843	0.251636
lcomdev	-0.1228	0.091379	-1.34	0.179	-0.3019	0.0563
lhealth	0.333705	0.157392	2.12	0.034	0.025222	0.642187
lother	0.039647	0.085205	0.47	0.642	-0.12735	0.206644
ldcp	0.828081	1.054378	0.79	0.432	-1.23846	2.894625
lage	18.98316	8.62869	2.2	0.028	2.071243	35.89509
npl	-2.80991	1.351673	-2.08	0.038	-5.45914	-0.16068
lroa	0.331699	0.239669	1.38	0.166	-0.13804	0.801442
liab	-0.59651	0.389287	-1.53	0.125	-1.3595	0.166474
DEPT	0.062013	0.106864	0.58	0.562	-0.14744	0.271462
DUALITY	-0.11837	0.128543	-0.92	0.357	-0.37031	0.133569
size	-0.01651	0.047404	-0.35	0.728	-0.10942	0.0764
females	-0.08529	0.085434	-1	0.318	-0.25274	0.082161
_cons	-22.1827	9.545094	-2.32	0.02	-40.8908	-3.47469
/sigma_u	4.21E-19	0.045664	0	1	-0.0895	0.0895
/sigma_e	3.56E-01	0.027781	12.81	0	0.301321	0.41022
rho	1.40E-36	3.04E-19	0	1		

techch	Coef.	Std.	Z	P>z	[95%	Conf.
ledu	-0.14171	0.155513	-0.91	0.362	-0.44651	0.163087
lcomdev	0.002877	0.092615	0.03	0.975	-0.17864	0.184398
lhealth	0.185414	0.159157	1.16	0.244	-0.12653	0.497356
lother	0.060423	0.086218	0.7	0.483	-0.10856	0.229408
ldcp	2.15821	1.067605	2.02	0.043	0.065743	4.250677
lage	26.39514	8.740418	3.02	0.003	9.264235	43.52604
npl	-4.07505	1.369213	-2.98	0.003	-6.75865	-1.39144
lroa	0.408674	0.242459	1.69	0.092	-0.06654	0.883885
liab	-0.94579	0.394403	-2.4	0.016	-1.71881	-0.17278
DEPT	0.066258	0.108062	0.61	0.54	-0.14554	0.278055
DUALITY	-0.16224	0.130013	-1.25	0.212	-0.41706	0.092581
size	-0.02396	0.04794	-0.5	0.617	-0.11792	0.069999
females	-0.08171	0.086548	-0.94	0.345	-0.25134	0.087917
_cons	-28.2819	9.660142	-2.93	0.003	-47.2154	-9.34837
/sigma_u	1.62E-18	0.052173	0	1	-0.10226	0.102257
/sigma_e	0.359758	2.84E-02	12.68	0	0.30415	0.415367
rho	2.03E-35	1.31E-18	0	1		

Random-effects tobit regression	Number of obs =	82
Group variable: Rbank	Number of groups $=$	12

Random effects u\_i ~ Gaussian

Obs per group: min = 2 avg = 6.8max = 8

Integration method: mvaghermite Integration pts. = 25

	Wald chi2(13)	=	20.08
Log likelihood = -25.335504	4 $Prob > chi2$	=	0.0933

pech	Coef.	Std.	Z	P>z	[95%	Conf.
ledu	-0.02823	0.141808	-0.2	0.842	-0.30617	0.249709
lcomdev	-0.1297	0.084649	-1.53	0.125	-0.29561	0.036209
lhealth	0.312237	0.145801	2.14	0.032	0.026473	0.598
lother	0.032218	0.07893	0.41	0.683	-0.12248	0.186917
ldcp	1.034286	0.976727	1.06	0.29	-0.88006	2.948637
lage	20.66848	7.993219	2.59	0.01	5.002058	36.3349
npl	-3.11411	1.252128	-2.49	0.013	-5.56824	-0.65999
lroa	0.33365	0.222018	1.5	0.133	-0.1015	0.768798
liab	-0.63414	0.360617	-1.76	0.079	-1.34093	0.07266
DEPT	0.088228	0.098994	0.89	0.373	-0.1058	0.282252
DUALITY	-0.09938	0.119076	-0.83	0.404	-0.33276	0.134006
size	-0.0099	0.043913	-0.23	0.822	-0.09597	0.076163
females	-0.07742	0.079142	-0.98	0.328	-0.23254	0.077694
_cons	-24.1032	8.84E+00	-2.73	0.006	-41.4334	-6.77288
/sigma_u	1.29E-19	0.044106	0.00E+00	1	-0.08645	0.086446
/sigma_e	0.329569	2.57E-02	1.28E+01	0	0.27913	0.380009
rho	1.52E-37	1.04E-19	0.00E+00	1.00E+00		

sech	Coef.	Std.	Z	P>z	[95%	Conf.
ledu	-0.04368	0.143228	-0.3	0.76	-0.3244	0.237046
lcomdev	-0.12344	0.085497	-1.44	0.149	-0.29102	0.044126
lhealth	0.334481	0.147261	2.27	0.023	0.045855	0.623106
lother	0.027131	0.07972	0.34	0.734	-0.12912	0.183379
ldcp	0.929372	0.986509	0.94	0.346	-1.00415	2.862894
lage	18.77942	8.073268	2.33	0.02	2.956105	34.60273
npl	-2.81378	1.264667	-2.22	0.026	-5.29249	-0.33508
lroa	0.277174	0.224242	1.24	0.216	-0.16233	0.71668
liab	-0.58588	0.364229	-1.61	0.108	-1.29976	0.127994
DEPT	0.063125	0.099985	0.63	0.528	-0.13284	0.259093
DUALITY	-0.10632	0.120269	-0.88	0.377	-0.34204	0.129406
size	-0.01225	0.044352	-0.28	0.782	-0.09918	0.07468
females	-0.09177	0.079935	-1.15	0.251	-0.24844	0.064902
_cons	-22.045	8.930683	-2.47E+00	0.014	-39.5488	-4.54117
/sigma_u	9.80E-19	4.41E-02	0	1.00E+00	-0.08641	0.086413
/sigma_e	0.33287	0.025993	1.28E+01	0.00E+00	0.281925	0.383815
rho	8.67E-36	7.80E-19	0.00E+00	1.00E+00		