UNIVERSITY OF CAPE COAST

CORPORATE GOVERNANCE AND FINANCIAL PERFORMANCE OF CREDIT UNIONS IN THE CENTRAL REGION OF GHANA

AGARTHA ARABA ACKON

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BY

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Thesis submitted to Department of Accounting, School of Business, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Commence degree in Accounting.

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature ……. Date …….

Name: Agartha Araba Ackon

Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature…… Date …….

Name: Mr. Patrick Darkwa

ABSTRACT

The purpose of this research was to determine the impact of Corporate Governance (CG) standards on the financial performance of Credit Unions in Ghana's Central Region. The research analysed the financial accounts of sixteen credit unions in Ghana's Central region from 2014 to 2018. Return on Asset (ROA) and Return on Equity (ROE) were used as proxies for financial success. The research accomplished its goals via the use of static panels, namely the random effect model. The research discovered that expanding the size of the board of directors had a substantial positive impact on ROA but a negative effect on ROE. Finally, the research discovered a substantial impact between credit risk and audit compliance. The study therefore recommended that management of credit unions should encourage larger board size due to the increased expertise it offers to the union. It is also recommended that the union should endeavour to comply with audit recommendations as this adherence will help strengthen existing internal controls of the credit unions which will eventually result in higher performance.

KEY WORDS

Corporate Governance

Credit Unions

Performance

Return on Equity

Return on Assent

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DEDICATION

To my husband and parent

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

LIST OF ACRONYMS

AGM	Annual General Meeting
CAR	Capital Adequacy Ratio
CEO	Chief Executive Officer
CG	Corporate Governance
COSO	Committee of Sponsoring Organisation
CR	Credit Size
CUA	Co-operative Credit Union Association
DV	Dependent Variables
FD	First Difference
FE	Fixed Effect
GCCUL	Ghana Co-operative Credit Unions Limited
GDP	Gross Domestic Product
IL	Interest on Loans
LR	Liquidity Ratio
LSDV	Least Square Dummy Variables
MFI	Microfinance Institutions
NFI	Non-Financial Income
NIM	Net Interest Margin
NPLGL	Non-Performing Loans to Gross Loans
NPLR	Non-Performing Loan Ratio
PF	Performance

PWC	Price Waterhouse Coopers
RE	Random Effect
RMP	Risk Management Practices
ROA	Return on Asset
ROE	Return on Equity
SACCO	Savings and Credit cooperative organization
SASRA	Sacco Societies Regulatory Association
SD	Savings Deposit
SSE	Sum of Square Error
TE	Total Expenses
WOCCU	World Council of Credit Unions

CHAPTER ONE

INTRODUCTION

In recent years, financial institutions have been confronted with powerful mergers and acquisitions in Ghana of which Credit Unions are not exceptional. This hinders the degree of financial inclusion and limits the public confidence in the financial system at large. Given that Credit Unions serve the most vulnerable members of society, it is critical to investigate their Corporate Governance (CG) procedures in order to guarantee their long-term viability. Meyer (2019) contends that despite the rapid growth and the importance attached to these Credit Unions in the microfinance sector, CG structures are also their greatest obstacle.

Background to the Study

In the course of its lifespan, no organization tries to deteriorate (Njekang & Afuge, 2017). While some may struggle in terms of financial dexterity to rise, others may struggle to grow in market share. The willingness to attain whatever growth target an organization sets, however, depends on how well the business is governed in terms of creating a reputation, preserving transparency, and promoting good corporate performance through an efficient communication channel (Kyere, & Ausloos, 2021; Njekang, & Afuge, 2017). This is where there is an ownership and control separation in the company, the concept of CG comes into being (Srivastava, Das, & Pattanayak, 2019).

Corporate Governance's key goal is to achieve a competitive advantage in the information economy of a free market (Bashir, Fatima, Sohail, Rasul, & Mehboob, (2018). When CG raises value by leveraging all available capital, this

competitive advantage is possible. Good practices in CG ensure efficient decision making, operational efficiency, and waste reduction. It also balances the needs of all involved parties, including managers and non-managers.

At the root of effective cooperatives is a good CG (Harvey, 2017). Governance is a structure and mechanism aimed at ensuring an organization's overall course, oversight, and transparency (Puri & Walsh, 2018). For growth, development, and poverty reduction, governance is a key determinant (Fiandrino, Devalle, & Cantino, (2019). Governance can also be used as an instrument for determining the efficacy of the structures of society.

On the other hand, if the institutions are appropriately and effectively positioned, the outcome should be the standard of living, growth, and development, and political stability (Yilmaz, 2018). In a similar spirit, a strong CG framework in an organisation result in an astounding array of advantages desired by shareholders, corporate executives, and executive directors (Paniagua, Rivelles, & Sapena, 2018). Firms that protect investors' rights and have a track record of adhering to strong CG principles such as timely and sufficient corporate disclosure and sound board governance attract both local and foreign investors more than those that do not (Yilmaz, 2018). A special focus is put on the effect of CG on the overall performance of the business.

When it comes to organizations, a cooperative is one-of-a-kind since it balances and negotiates connections between its members and their families as well as between merchants, government officials, and international commercial merchants with social capital in order to develop these partnerships (Puri &

Walsh, 2018). The cooperative's mission is to safeguard members' rights, to care for others, and to promote the community's overall welfare. At its core, social performance is based on the premise that businesses should be concerned with more than just their economic position in society and should accept responsibility not just for their economic activities, but also for their impact on society and the world in which they operate (Kyazze, Nkote & Wakaisuka-Isingoma, 2017).

Corporate Governance has grown in significance and impact over the last two decades in organizations' operations (Abdulazeez, Ndibe, & Mercy, 2016). Organisations have evolved from sole proprietorships to partnerships through to limited liabilities where the interest of shareholders, individual investors, institutional investors and stakeholders need to be protected (Abdulazeez, Ndibe, & Mercy, 2016). The individual interests of shareholders, individual investors, institutional investors and other stakeholders lead to potential conflicts of interest between directors who manage the resources of the organisations and the shareholders who own the organizational resources. CG has been recognized as a method of resolving these potential conflicts amongst stakeholders (Abdulazeez, Ndibe, & Mercy, 2016).

Based on the findings of Al-ahdal et al. (2020), poor CG may cause the public to lose confidence in a bank's ability to manage its assets and liabilities, including deposits, ultimately leading to a liquidity crisis. The quality of a financial institution's CG procedures determines the system's sensitivity to uncertainty and eventual risk; this is a critical factor in determining why some banks fail while others thrive. However, Al-ahdal, et al. (2020) study indicates

that strong CG results in an increase in value, increased profit, increased revenue growth, and decreased resource expenditure. CG systems are built on the fundamental building blocks of a stable board of established directors, transparency and audit processes, well-structured compensation, shareholders, and a productive annual general meeting (Srivastava et al., 2019).

According to Kyere and Ausloos (2021), Al-ahdal and colleagues (2020), and Srivastava and colleagues (2019), greater openness and accountability are required in areas such as the Board of Directors and its operations, director compensation, as well as the establishment of special board monitoring committees. These writers emphasised the critical nature of the monitoring function of non-executive directors. This study builds on Njekang and Afuge's (2017) research in Cameron, which examined the relationship between sound CG and credit union financial success.

Credit unions provide microfinance in Ghana on a semi-formal basis. Credit unions are not-for-profit financial cooperatives owned by its members, with each member having one vote in the organisation (Al-ahdal, Alsamhi, Tabash, & Farhan, (2020)). Members may deposit funds with the organisation or borrow from it, or a combination of the two.

Credit unions in Ghana have experienced exponential growth starting from the first credit union in Ghana and Africa formed by Rev Father John McNulty in 1955 in the Upper West Region to the current four hundred and fifty –five (455) scattered across the country (Suroso, Widyastuti, Salim, & Setyawati, (2017). As of 2013, there were 56,904 credit unions worldwide and 22,385 of them were

found in Africa forming approximately 39 percent of total credit unions worldwide (Suroso, et al. 2017).

According to the Ghana banking survey 2011 conducted by PricewaterhouseCoopers (Ghana) Ltd (PWC), the unbanked sector of Ghana's population was over 80 percent. In 2012, Ghana's banking penetration measured as the ratio of asset-to-GDP was 39 percent (Appiah, Awunyo-Vitor, & AwuahNyarko, 2017). Whiles acknowledging the importance of credit unions to the development of the financial sector, a large percentage of the Ghanaian population is still unbanked. Many people preferred to keep their monies at home and avoid banking services especially with the introduction of new taxes on banking services by the government (Darko, Aribi, & Uzonwanne, 2016). According to Adeabah, Gyeke-Dako, Andoh, (2019), about 29 percent of adults in Ghana have an account with formal financial institutions. In addition, just 30% of people over the age of 15 hold an account with a traditional financial institution (Darko et al., 2016). The above strategies imply that majority of Ghanaians do not transact financial businesses with formal financial institutions such as the banks but rather engage in financial and economic activities outside the banking sector.

Credit unions are a major part of the non-bank financial service providers in Ghana. For members of a credit union to fully realize the benefits and reduce the potential risks, the credit union must have a good CG structure on practices. The benefits of good CG are well articulated in the literature (Kyere, & Ausloos, 2021; Al-ahdal, et al. 2020; and Srivastava et al., 2019). Good CG involves having a robust internal control system, a quality human resource base,

appropriate motivation packages, a good Board of Directors and management staff or team. The operations of an institution require sound internal controls that will minimize or eradicate any risk exposure and consequently will translate into a successful realization of the organizations' goals.

The internal control system of credit union comes in handy as their activities involves "a process, affected by an entity's BoD, management team and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting and compliance" (Kyere, et al. 2021). Therefore, the availability of strong internal controls may not completely remove financial fraud or mistake but it provides a greater assurance of sound, effective and efficient management of the organisation. Human resource constitutes the greatest asset of every organisation (Darko, et al. 2016). For an organisation to maximize its investment in capital and technology, they need to have the best human resource.

The organisation can either train existing staff or attract the best in the industry. This implies that the organisation should be in the position to appropriately remunerate their staff. Given that credit unions are also competing with commercial financial institutions that have more financial resources to attract the best human resource, the credit union losses out. This creates a challenge for credit unions because of the quality of human resources at the level of the board, management and employees influence the good CG systems implemented in an organisation.

Also, the risks involved in operating a credit union can be from both the management of the union and the members contributing to the union. In the quest to increase returns to members or meet other set targets, the management or individual officers may feel pressured. The pressure could result in the directors making risky and non-strategic decisions that may expose the union unduly. Also, as a human institution, there is the plausibility of fraud and embezzling of union funds on the part of management. These challenges call for an effective and robust internal control systems and good CG systems that minimize these risks.

Fiandrino et al. (2019) reported that better performance is correlated with higher CG scores. Additionally, Bashir, et al. (2018) believed that effective governance may benefit a company by increasing expected cash flows and lowering capital expenditures. In accordance with the current literature, this research examines the impact of favourable CG on the financial performance of credit unions in the Central Region.

Statement of the Problem

Given that the majority of Ghanaians do not conduct business with conventional banks Gyamerah, Amo, & Adomako (2020), effective management of non-bank financial institutions like as credit unions and ‘susu' schemes are necessary. Therefore, the assessment of good CG systems and financial performance of non-bank financial institutions and for that matter credit unions in Ghana to avert the exploitation of this group of people is paramount. Credit unions are growing rapidly in Ghana according to Darko, et al

(2016), the registered credit unions in Ghana as of 2014 were 455. As of 2014, the total membership of credit unions in Ghana was 490,167. The total number of employees was 2,384. Members' deposits (shares and savings) were GH$ 475,966,676.

Loans outstanding were GH$ 289, 861,735. The value of total assets was GH$ 565,435,725 with liquidity levels at GH$ 167,367,557 (Darko, et al. 2016). Different organisations and groups are setting up their credit unions. These unions are promising members of attractive packages and benefits when they join. The credit unions enumerate benefits like; timely access to funds in hard times, possession of union shares, access to low-interest loans and competitive savings returns. The managers of these unions juxtapose these benefits to the exorbitant interest rates, the low-interest rate paid on deposits and high service charges charged by microfinance institutions and orthodox commercial banks to make their case. Despite the potential benefits of credit unions, credit unions have greater risk exposure since they deal more with the informal sector where the issues of reliable documentation are a challenge.

Therefore, ineffective internal controls and lack of good CG can result in fraud, waste, abuse and mismanagement of the agency's resources (FAH, 2018). As such, monitoring and assessing the CG systems of credit unions are critical tools in measuring and determining the effectiveness of the organisation ability to achieve and deliver on its said objectives and services. Also, weak internal controls can heighten the risk exposure of the company and thus weaken the financial performance of the company (Njekang, & Afuge, 2017). Based on the

above issues, the question that arises is: what are the CG systems in place to reduce the risk exposure of credit unions and as a consequence lead to the improved financial performance of credit unions?

In the extant literature, there are very scanty studies that consider the relationship between CG and financial performance of credit unions. Very few studies exist on the direct relationships between credit unions institutions CG and their performance (Sarpong-Danquah, Gyimah, Afriyie, & Asiamah, 2018). Despite the few studies, however, there is the general understanding among researchers that when there is an improved CG practice, it induces higher profitability (Adeabah, Gyeke-Dako, & Andoh, 2019; Agyei-Mensah, 2018; Appiah, 2017; Atuahene, 2016).

Moreover, there are little studies on Ghana, especially on credit unions. Also, a few studies (Agyei-Mensah, 2018; Atuahene, 2016) have analysed the CG on performance of credit unions. Most of these studies have not looked at credit unions. There are also little studies in the Central Region. There is, therefore, the pressing need for a study on the relationship between credit unions and CG to establish how some of these CG affect firm performance, especially in the case of an evolving economy such as Ghana. As a result, this study looks at CG and credit union financial performance in Ghana's Central Region in order to fill the gap.

Purpose of the Study

The purpose of this research is to determine the effect of CG on the financial performance of Credit Unions in Ghana's Central Region.

Research Objectives

To achieve the purpose of the study, the following objectives were set for the study:

1. To examine the effect of board size on the financial performance of credit unions in the Central Region
2. To analyse the effect of credit risk management practice on the financial performance of credit unions in the Central Region.
3. To investigate the effect of audit compliance practice on the financial performance of credit unions in the Central Region

Research Hypotheses

The corresponding hypotheses are:

1. H_0: Board size has no significant effect on the financial performance of credit unions in the Central Region of Ghana.

   H_1: Board size has a significant effect on the financial performance of credit unions in the Central Region of Ghana.
2. H_0: Credit risk management practices have significant effect on the financial performance of credit unions in the Central Region of Ghana.

   H_1: Credit risk management practices have no significant effect on the financial performance of credit unions in the Central Region of Ghana.
3. H_0: Audit compliance practice does not significantly affect the financial performance of credit unions in the Central Region of Ghana.

   H_1: Audit Compliance practice does significantly affect on the financial performance of credit unions in the Central Region of Ghana.

Significance of the Study

This research is important because it will provide light on Ghana's credit unions' corporate governance structures. For instance, the study would be an indicator of how credit unions in Ghana could incorporate into their operations acceptable CG standards adopted by the World Credit Union Association. This study is important because it focuses not only on the credit union but also on its financial performance, a key success factor that would help determine whether the operations of the credit union are sustainable. Finally, this study will update the current literature on credit unions in Ghana.

Delimitation of the Study

The purpose of this research was to determine the impact of the CG on the financial performance of credit unions in the Central area. It evaluated CG in terms of board composition, credit risk management procedures, audit compliance, and credit union financial performance. The research was geographically focused on Ghana's Central region. As a consequence, the study's results may not be applicable to other financial institutions within the sector or beyond the central area.

Limitations of the Study

The study's main shortcoming is how generalizable the results may be expected to be. Although the credit unions in the Central Region fit the characteristics of typical Ghanaian credit unions, the uniqueness of every Organisation introduces a certain level of bias in its results. Therefore, the reliability and explicability of the findings can be a challenge. Also, the secondary

nature of the data of the credit union does not give enough information to verify whether the standards of the credit unions have on their books are being implemented.

Organisation of the Study

This chapter addressed the study's context, problem statement, goal, aims, and research questions, as well as the study's relevance, delimitation, and limitation. The remainder of the study is divided into the following sections. The discussion of the review of literature was covered in Chapter Two. Chapter two examined the history of credit unions on a national and worldwide scale, the value of credit unions, the critical nature of strong corporate governance, particularly in a financial institution, risk assessment, and credit union financial sustainability. The study's methodology was described in Chapter Three. The study design, population description, sampling process and sample characteristics, data collecting procedure, and data analysis were all included in the research approach. The fourth chapter discussed the study's findings and implications for the study's goals. The conclusion, findings, and suggestions are included in the last chapter.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter reviews the existing literature on the topic of the study. This chapter discusses corporate governance, credit risk management, audit compliance, financial performance, the connection between board size and financial performance, and the relationship between credit risk and financial performance. Additionally, this chapter offers an introduction of credit unions and conducts a literature review on the theories that underpin the research.

Theoretical Review

This section deals with theories related to the study. The agency and stakeholder theories are discussed in detail. These theories deal with good practices that influence performance and profit of financial institutions.

Agency theory

The 1976 organisational theory article by Jensen and Meckling, titled "Management Behavior, Business, Cost, and Ownership Structure," helped to the establishment of business theory as the primary CG theoretical framework (Lan & Heracleous 2010). It is common to begin a conversation on CG with the neoclassical idea of agency (Ping and Wing, 2011). It is at the core of the concept's basis that there be a separation of ownership and management. According to agency theory, when there is a knowledge asymmetry, the agent is more likely to pursue objectives that are harmful to the principle.

The premise is that contract participants must act in their own self-interest and have the option of participating in a contract or entering into a new contractual arrangement that benefits all actors. Non-governmental organisations (NGOs) are referred to as agencies in this theory and managers' agents are described as being connected to their boards of directors. In this respect, the board of directors typically allocates authority to agents. However, the company's goals cannot be accomplished without the board of directors' stewardship of their power, which is often opportunistic in nature, leading in conflict of interest.

Furthermore, because the theory established a link between shareholders (Principals) and managers and company managers (agents), it is important to understand the role that these agents and agencies play in influencing corporate governance.

Additionally, the agency concept emphasizes that shareholders want agents to behave and make choices in the principal's best interests. Rather than variable incentive payments, Holmstrom and Milgrom (1994) suggested that agents would prioritize projects with a high rate of return and a fixed salary. It does not eliminate or even decrease corporate misbehavior, despite the fact that this would be a fair judgment. The positivist method is used to maximize shareholder profit when actors are controlled by fundamental rules. As a consequence, this concept encourages a more personal viewpoint (Clarke, 2004). Indeed, the concept of agency may be utilized to investigate the relationship between ownership and management structures. The agency model, on the other hand, can be used to align management's goals with those of the owners if a division is present.

Stakeholder theory

The stakeholder concept, first introduced in 1970 and later developed by Freeman (1984), was integrated into the management discipline, integrating a broad variety of stakeholders with corporate responsibility. Wheeler and colleagues (2002a) "argued in favor of the stakeholder hypothesis, which was developed via a mix of sociological and organisational sciences." Rather than being a cohesive formal theory, the theory of stakeholders—which integrates philosophy, ethics, political theory, economics, law, and organisational science—is more of a longstanding study tradition. Those who are considered stakeholders are members of the community or individuals who have the ability to influence or have an effect on the achievement of the organization's goals.

To the contrary of agency theory, which argues that managers work for and represent consumers, stakeholder theory asserts that organisational managers are responsible for managing a network of relationships that includes suppliers, workers, and business partners. Furthermore, this kind of network was thought to be significant in and of itself, irrespective of the connection between owner manager-employee as described by the agency theory of employment (Freeman, 1999). Those who believe in stakeholder theory include Sundaram and Inkpen (2004), who think that it is intended to address the community of stakeholders who deserve and need management's attention. All groups are active in business, despite the fact that Donaldson and Preston (1995) believed that all organisations were interested in business to gain benefits. The business, according to Clarkson

(1995), is a structure made up of stakeholders, and the organization's goal is to create wealth for those who are a part of that structure.

The network of links that the company has with a diverse range of organizations, according to Freeman (1984), has an impact on decision-making processes because stakeholder theory is concerned with the nature of these linkages in terms of both practices and outcomes for the company and its stakeholders. This idea, according to Donaldson and Preston (1995), is intended to be applied to managerial decision making, and that all stakeholders' interests are of inherent importance, with no one set of interests predominating over others. The stakeholder theory was developed in response to an apparent weakness arising from an omission in the agency theory, which defines shareholders as the only interest community of a corporate organization. Several principles have been integrated into the framework of the stakeholder theory as a result of the expansion of the agency problem (Sand et al., 2011).

The stakeholder theory tries to provide a solution to the question of which group of stakeholders is worthy of management's time and effort. According to the stakeholder theory, businesses have a social responsibility to take into account the interests of all parties who are affected by their operations.

Empirical Review

This section considered similar studies undertaken by other researchers on the research problem. The relevance of this is to gather a pool of knowledge on the topic under study to create ample opportunity for analysing the data.

Board size and financial performance

A board of directors has several duties (FAH, 2018). In business planning, the CEO consults non-executive directors who are not senior management (Njekang et al., 2017; Sarpong-Danquah, et al., 2018). Many research on board size have supported smaller boards due to benefits of cohesiveness, profitability, and efficiency in monitoring the company (Kyere, et al. 2021). Suroso et al. As demonstrated by Sarpong-Danquah et al. (2018, 2019; Rashid, 2011), bigger groups are more vulnerable to social loafing and greater communication costs, making them less effective at monitoring.

According to Gyamerah and colleagues, the most powerful boards consist of eight or nine members (2020). It becomes difficult for all members to express themselves within the time limitations of board meetings, according to their viewpoint, when a board reaches its optimum size. According to Bashir et al. (2018) and Jensen et al. (2018), the CEO has difficulty managing boards with more over seven or eight members (1993). Tobin's Q is shown to be negatively related to board size, as demonstrated by Suroso and colleagues (2017a), who used data from large public companies in the United States to establish this connection statistically significant (US).

According to studies, increasing the size of the board offers a lot of advantages (Wu, 2003). The agency's viewpoint is that having a bigger board increases the likelihood of the board being proactive in resolving agency issues since management decisions are reviewed by a greater number of people (Nicholson & Kiel, 2003). According to the findings of this study, there is a

statistically significant positive connection between Tobin's Q and the size of the board of directors for Singapore-based companies. According to agency theorists, boards of directors can only be so large (Njekang et al., 2000). (2017). As Bashir and colleagues (2018) point out, having more than eight directors may disrupt group dynamics and reduce the effectiveness of the board of directors.

One might also argue that the overall number of board members is more significant than the number of independent nonexecutive members (Bashir, et al. 2018; Appiah, et al., 2017; Dalton, et al., 1999). As a result, this study assesses both. According to theoretical resource dependence, a larger board allows for more external interactions and therefore greater resource access (Al-Ahdal, et al., 2020; Fiandrino et al, 2019; Nicholson & Kiel, 2003). Many studies (Srivastava et al., 2019) show that boards of directors link a business to its external environment; managers help the company acquire resources from outside the organization. According to Srivastava et al. (2019), the demand for external services like debt finance increases the need for CEO guidance, resulting in a larger board of directors. Based on their research, companies that require more debt financing are more likely to have a commercial banker on their board. Ferris, Jagannathan, and coworkers found that the 1995 board size log and the market to book value ratio for debt financing companies are both statistically significant. Kyere and coworkers (2021) argue that larger boards will offer more advise and guidance to the CEO. Independent non-executive directors may offer knowledge and experience to the board of directors' decision-making process, according to Hermalin and Weisbach (1988). Lorsch and MacIver (1989) state that during

regular business operations, managers think one of their primary responsibilities is to advise the CEO.

As reported by Adeabah, Gyeket, and colleagues (2019) as well as Adams and Mehran (2003), boards of directors spend more time and money on non-monitoring activities than they do on monitoring operations, which is a good thing for the company. If a bank expands its board of directors in proportion to the number of states where it operates, possibly to accommodate overseas subsidiaries, the board of directors of the bank increases as well (Adam & Mehran, 2003). Researchers Agrawal and Knoeber (2001) discovered that businesses requiring more political help had a higher proportion of foreigners with political ties on their boards of directors. Despite the fact that smaller boards are more effective at monitoring, the size of boards is projected to grow as the demand for advisory services among corporations grows (Agrawal & Knoeber, 2001). In accordance with Adeabah, Gyeket and colleagues (2019) and Yermack (1996), CEOs of diverse businesses will need a higher degree of help than CEOs of less diversified organizations, and the demand for advice will increase proportionally to the number of market sectors in which they operate. Consequently, for diversified businesses, the board of directors should be sufficiently diverse to include independent non-executive members with expertise that aligns with the company's various business goals and who can also provide advice to the CEO on investment opportunities. As a consequence, it is generally thought that the size of the board of directors and the size of the business are linked (Yermack, 1996; Dalton et al., 1999; Njekang et al., 2017). It is feasible to

explain why this outcome has been achieved by referring to the two main theories of governance in use today.

Increasing the number of directors needed by bigger companies is necessary in order to oversee and control the activities of such organizations (Njekang et al., 2017). Firms that are larger and more diversified will need the appointment of more directors in order to get access to more resources. Companies may find it too expensive to maintain their high-level boards of directors in place. The task of planning ahead, coordinating responsibilities, making decisions, and ensuring that everyone attends the board's regular meetings on a consistent basis may be challenging for a big board of directors. Having a small number of directors with adequate knowledge and competence, on the other hand, is required in order to ensure the effectiveness of the board.

Take the following hypothesis into consideration: Based on the assumption that bigger boards would result in a free rider issue for directors and a lack of board cohesiveness, the following recommendations are made: H0: In Ghana's Central Region, the size of the board of directors has minimal effect on the financial success of credit unions.

H_1: Board size has a significant effect on the financial performance of credit unions in the Central Region of Ghana.

Credit risk management practices and financial performance

Bashir et al. (2018) state that credit and liquidity risk affect the financial performance of Indonesian Conventional Bank, which has a total asset value of around 10 trillion rupees. This study's performance measures included ROA,

ROE, and Net Interest Margin (NIM). The non-performing loan ratio was used to assess credit risk (NPLR). When it comes to ROA and ROE, it seems that credit risk management has a substantial negative effect. Net interest margin was shown to be unaffected by credit risk management or the liquidity ratio (LR). As a result, the authors of Srivastava et al. (2019) and Bashir et al. (2018) were unable to evaluate credit risk against latent profitability factors due to endogeneity issues.

The NPLR had a significant impact on both ROE and ROE, while both ROE and ROE were insignificant to the Capital Adequacy Ratio, according to SarpongDanquah, et al., (2018), who used two credit risk representatives and a credit risk management representative (CAR). To address the issue of not utilizing additional factors important to the bank, Noman, Pervin, Chowdhury, and Banna (2015) found a strong statistically significant negative effect on all non-renewable ratios of gross lending (NPLGL) and gross lending loss reserve (LLRGL). They also discovered that CAR had a negative effect on ROA that was statistically significant. Basel II adoption has a substantial beneficial effect on NIM, but a significant negative impact on ROA, according to a different study.

Between the years 2000 and 2010, Kolapo, Ayeni, and Oke (2012) found a favorable correlation between the management of credit risk and the profitability (ROA) of five Nigerian commercial banks. There was a significant correlation between credit risk management and bank performance as assessed by ROA, according to the results. Separate research conducted by Atuahene (2016) showed a link between credit risk and success that was unfavorable. According to Boahene, Dasah, and Agyei (2012), credit risk management was associated with

profitability in Ghana between 2005 and 2009, as assessed by banks' return on equity (ROE).

Although Atuahene (2016) and Amidu and Hinson (2006) noted that the improvement in the sample period is linked to the situation following the 2008 credit crunch and the eurozone crisis, which impacted the Ghanaian economy from 2012 to the present, their analyses, on the other hand, were all focused on static analysis, which the current study aims to improve. Atuahene re-examined the effect of performance improvement initiatives on savings and credit cooperative societies' supply of financial services. Productivity and effectiveness were found to be influenced by appropriate performance management methods in the study. They discussed how performance management influenced membership. Members are concerned about keeping their investments, which can provide them with benefits such as easier loan access.

Credit unions' financial performance is harmed by a lack of or ineffective performance improvement methods, according to the current study. Darko, et al. (2016), on the other hand, demonstrated that branding can benefit SACCO membership by increasing retention, membership, ownership, and savings. In light of the findings, it was concluded that rebranding is a viable option for SACCOS to project a new image and increase market share. The study made no recommendations for how a SACCO could maximize revenue by increasing membership.

Darko et al. (2016) and Gyamerah et al. (2020) wanted to know how Kenya's prudential regulatory environment affected deposit-taking SACCO

financial performance. The criteria for loan provision, minimum liquidity, minimum investment requirements, and minimum capital requirements all had a significant impact on the financial performance of SACCOs in Kenya, according to the study. It was discovered that these structures have a positive relationship with return on investment. The study did not, however, show how supervision adheres to these criteria. A prudential regulatory framework for saccos is important because of the frequency of supervision. SACCOs may fail to follow them if they are not closely monitored. Failure to operate within the regulatory framework has an impact on performance, according to the current study.

Suroso, et al. (2017) also claimed that capital control has an impact on SACCO financial efficiency. Finally, he stressed that ineffective risk-reduction policies could jeopardize financial stability. SASRA regulations protect Sacco members. Regulation of SACCOs is necessary to guarantee that they adhere to the regulations and maximize their earnings. Additionally, Suroso et al. (2013) and Lagat, Mugo, and Otuya (2013) examined the effect of credit risk management initiatives on the lending portfolios of Kenya's savings and credit cooperatives. According to the results, risk management operations such as risk identification, risk analysis, and risk monitoring have a substantial effect on the loan portfolio.

On the other hand, risk assessment had a negligible effect on the lending portfolios of savings and credit cooperatives. Furthermore, the majority of SACCOs have implemented risk management techniques to manage their portfolios, according to the study. The current study adds to the body of knowledge established by Suroso, et al. by looking at the RM structure as a

predictor of financial success in credit unions (2017). The impact of risk management techniques on the financial sustainability of microfinance organizations was investigated by Kombo, Wesong, and Murumba (2011). Among the findings were that the most commonly reported sources of funding for microfinance organizations in the sample were donor support, revolving funds, and government subsidies (MFIs). Strategic risk, liquidity risk, and credit risk were the most common risks, while subsidy reliance and credibility were uncommon.

Srivastava and colleagues (2019) used structural equation modeling to examine and validate the relationships between market structure, business strategy, and profitability while addressing the impact of operational risk on profitability. The evidence suggested that larger life insurance firms may pursue incremental growth in Taiwan with caution. However, the conservative approach usually had trouble dealing with competitive markets. As a result, the bigger insurers would suffer significant losses if the investment environment shifted significantly (Srivastava et al.). The structural equation modeling methodology was used by Kyere, et al. (2021) to determine that operational risks have a negative and significant impact on the profitability of the insurance industry and to select the leverage organization and portfolio concentration as operating risk representatives.

However, owing to the cross-sectional nature of the panel assessment used in this study, the impact of operational risk on profitability over time could not be established. As a consequence, the following hypothesis was formed:

H_0: Credit risk management practices have significant effect on the financial performance of credit unions in the Central Region of Ghana.

H_1: Credit risk management practices have no significant effect on the financial performance of credit unions in the Central Region of Ghana.

Audit compliance and financial performance

Oino (2019) explored the influence of accountability and disclosure on financial institutions' financial performance. Examining transparency and disclosure, auditing and compliance, risk management as CG indicators, and evaluating how these variables impact bank profitability, liquidity, and loan portfolio quality were the primary objectives. A random sample of twenty financial institutions was chosen, each with 10 respondents, totalling 200 sampls. To create composite indices for CG and financial performance indicators based on a series of questions tailored to each institution, we utilized principal component analysis (PCA) with the built-in capability to verify for composite reliability. The research demonstrates that increased transparency and accountability, enhanced auditing and enforcement, and enhanced risk management all have a beneficial effect on financial institutions' financial performance.

Gyamerah, et al., (2020) discovered that firms with more openness and disclosure are evaluated better than similar companies with less transparency and disclosure, consistent with the idea that enterprises with less asymmetric knowledge issues receive a market premium. Additionally, FAH (2018) demonstrated empirically and theoretically that public disclosure of financial and market information increased efficiency and economic growth. Zaman, Arslan,

and Siddiqui conducted empirical research on the connection between openness and transparency and business performance (2014). Emphasizing the critical significance of CG in the banking sector, the research examined the role, level, and performance impact of CG in the Pakistani banking industry.

During the last five years, 2007-2011, researchers utilized proxies for three sub-categories: disclosure of the company's board of directors and management, disclosure of the ownership structure, and disclosure of financial transparency. The research also looked at the structural changes in the T&D Index and how they affected 30 Pakistani banks' financial performance. However, disclosure of ownership structures has a negative impact on ROE and ROA, as shown by the empirical research using the OLS regression model. Financial performance is positively related to transparency and disclosure and their sub-levels.

Oino and Itan (2018), with the focus on board membership, responsibility and reporting, audits and enforcement as well as risk management as CG and profitability indicators, liquidity and loan portfolios as financial performance proxy, examined the effect of CG on the financial performance of financial institutions in London City. Twenty financial institutions were chosen and 10 respondents from each of the selected institutions were picked, with a total sample size of 200. To create composite indices for governance and financial performance indicators, the PCA was employed, which has the inherent capability of searching for composite dependability, based on a set of questions posed for each.

The estimate of Taylor Linear utilized many regressions for the analysis of the influence on financial performance of various CG indicators, and the results indicated that all CG indicators had a favourable impact on financial institutions' performance. However, although the effect of audits and enforcement, accountability, transparency, and risk management on financial performance has been shown to be significant, the impact of board function and composition on financial results has been demonstrated to be insignificant. Policy prescriptions are proposed as a result in order to clarify the role of board members while simultaneously guaranteeing accountability and transparency. Despite the fact that the present literature has many useful and outstanding contributions, researches that examine the connection between CG and the credit union sector have made insufficient contributions.

The CG on credit union financial efficiency has been evaluated by a few studies (FAH, 2018; Okwee, 2011). The bulk of these researches did not analyze credit unions. Also, in the contest of Ghana, there are little studies; especially, in the Central Region. Thus, the research addresses this vacuum by examining the connection between credit unions and CG in order to ascertain how some of these CG characteristics influence firm production, particularly in a developing country like Ghana. Thus, this study aims to fill the gap by examining the CG operations and financial outcomes of credit unions in Ghana's Central Region.

Conceptual Review

Overview of credit unions

Credit unions are member-owned, democratically managed financial cooperatives that provide very competitive interest rates in order to promote thrift, increase lending, and provide other financial services to its members (O'Sullivan 2003). O'Sullivan noted, however, that many credit unions continue to provide such services aimed at promoting economic development and sustainability. Credit union systems globally differ considerably in terms of overall system assets and average organisation asset size. It has been reported that hundreds of thousands of individuals with small holdings have volunteered their time, in addition to institutions with billions in assets. Njekang and colleagues (Njekang et al., 2017).

Credit unions, along with a variety of other financial organisations, function as mutual and/or cooperative groups that also engage in cooperative banking, such as construction societies. Credit union members and shareholders pick their board of directors using a one-person-one-vote system, in contrast to banks, according to Sarpong-Danquah et al., regardless of the amount of money invested (2018) SarpongDanquah et al. (2018) and Diekmann (2012) state that credit unions provide much of the same financial services as banks, but with somewhat different nomenclature, such as shares (savings accounts), share draught (checking accounts), credit cards, deposit certificates, and online banking.

Generally speaking, only credit union members have the ability to make deposits or borrow money in the majority of cases. In the opinion of Diekmann,

frequent market research performed at banks and credit unions shows that credit unions have a much higher percentage of clients who are pleased with the quality of service (2012). Since credit unions have long claimed to provide better service and to be committed to assisting members in improving their financial position, he was not surprised to find a greater level of customer satisfaction among credit union customers than among non-credit union consumers. Credit unions are not-for-profit organizations whose main goal is to help members rather than to make profits, according to the Federal Reserve Bank of New York (Bashir, et al. 2018; Darko, et al. 2016; FAH, 2018).

In order to preserve capital and solvency, a credit union's revenues (from loans and investments) must surpass its operating costs and dividends (interest earned on deposits), according to the World Council of Credit Unions (WOCCU) (AlAhdal, et al., 2020 & WOCCU, 2012). According to Fiandrino et al. (2019) and

Percival (2012), the World Organization of Credit Unions (WOCCU) status is deeply entrenched in the history of the Global Credit Union. F.W. in 1870, Raiffeisen, the worldwide revolution's creator, stated that credit unions, as defined by the standard code of commerce, are merchants under German cooperative law's paragraph eleven. According to Percival (2012), they are a kind of Business Company in which the proprietors are Credit Union members (Darko, et al., 2016 & Percival, 2012). Credit unions operated in 100 countries, according to Percival, with 52,945 credit unions by the end of 2010. The organization has 188 million members and oversaw assets worth US$ 1.5 trillion dollars.

He asserts that credit union pioneering countries such as Germany, France, the Netherlands, and Italy are not often included in their figures since they were early adopters. In these four nations, according to the European Association of Co-operative Banks, there were 38 million members by the end of 2010. Agyei-Mensah, (2018) showed that the greatest credit union activity occurs in a wide range of nations. Percival, speaking on behalf of the World Council, stated that the United States (92) and India (20) had the highest numbers of credit union members, followed by Canada (11) and South Korea (5.6 million) (Percival).

The largest number of credit union members can be found in Ireland (75 percent), Barbados (72%), St. Lucia (67 percent), Belize (65%), Grenada (59 percent), Trinidad and Tobago and Jamaica (54 percent each), Canada (46 percent), Antigua and Barbuda (45 percent), and the United States (45 percent), according to Agyei-Mensah, (2018). The largest number of credit union members can be found in Li (45 percent) and the United States (45 percent). According to him, the average proportion for all nations examined in the research was 7.5 percent (Percival, 2012).

A total of 2,000 credit union branches with 2.2 million members were created in Poland in 1992. (Njekang et al., 2017).

Credit unions have increasingly resembled banks in terms of the products and services they provide during the last two decades. The Gyamerah, et al., (2020) and Suroso, et al. (2017) studies found that although many of the historically important distinctions between commercial banks and credit unions have been erased, others persist. In addition to holding uncollateralized, short-

term consumer loans, credit unions also dedicate substantial proportion of their assets, according to Suroso, to credit card cards, vehicle loans, residential mortgages and, increasingly, corporate loans. One reason for credit unions' increased proportion of business loan assets is that they have taken advantage of easing regulatory limitations defining the criteria for becoming credit union depositors and creditors in their membership regions (Suroso).

Numerous credit unions have historically specified membership categories, such as workers of a particular business's factory (Sarpong-Danquah, et al., 2018; Srivastava et al., 2019). As Srivastava et al. stated emphatically, many credit unions today have membership areas that include employees of many businesses in a single sector (for example, airlines or health care), self-employed workers in the sector (for example, real estate agents or flower shop owners), or all people in geographic areas (for example, counties).

Concepts of corporate governance

From the earliest days of social organization, the idea of CG has existed and is evolving. Atuahene, (2016) characterize CG as the process by which management and insiders are regulated by stakeholders (shareholders, creditors, workers, consumers, suppliers, government and society, in general) to guard their personal interests. Agyei-Mensah, (2018) explained that it as a structure by which the market actors involved (managers, staff, consumers, shareholders, suppliers and the board of directors) are monitored and safeguarded. It is management by which the business is directed and monitored, on the one hand, in order to strike a balance between its interests and the interests of other relevant interests.

CG as defined by Njekang et al., (2017) includes structure that seeks to provide the board of directors with guidelines to properly fulfill their obligations and to satisfy shareholders who remove issues of moral hazard. CG entails the board of directors and senior management managing the company and its affairs organisations, influencing how they carry out their priorities, strategies, and policies, while ensuring adequate economic returns for founders and other shareholders, day-to-day management work, and protection of the rights and interests of known stakeholders (shareholders and depositors). A multi-faceted topic is CG. The topics of transparency and fiduciary responsibility are an important CG theme, which generally promotes the introduction of standards and mechanisms to ensure ethical conduct and protect shareholders. The economic efficiency viewpoint, in which the CG structure ought to strive to maximize economic output with emphasis on the wellbeing of shareholders, is another main focus. The CG issue also has other sides, such as the view of the stakeholder, which demands further attention and responsibility to players other than shareholders, such as workers or the climate, (Al-Ahdal, et al., 2020).

The CGP of modern corporations have recently been of significant concern, especially after the high-profile failures of large U.S. companies (Al-Ahdal, et al., 2020; Nambiro, 2007). A healthy, agreeable society, for example, is a consistent wellspring of individual training; a credit society teaches the correct use of cash. A whole host of composition ranges are included in CG. This includes board structure, risk management, accountability and disclosure. They are the cornerstone of CG's effectiveness.

Board size

Al-Ahdal, et al. (2020) provides the earliest literature on board scale. From their studies, it was pointed out that technical and organizational progress inevitably contributes to cost savings and downsizing is the choice for smaller board sizes.

A study conducted by Hermalin and Weisbach (2003) challenged the assumption that larger boards are less successful than smaller boards. If boards are overburdened with agency concerns, it is possible that it may grow, as some directors will tag along as free riders. Again, they suggested that capping the number of directors on a board to seven or eight could make them more effective thus, arguing that any more would be difficult to manage for the CEO. Large boards may also result in less fruitful debate due to the fact that expressing one's opinions in a large group is often time-consuming and difficult and generally leads in lack of consensus on the board (Njekang et al., 2017).

Furthermore, when a board is extremely large, the coordination issue outweighs the advantages of having more directors, and when a board is very large, it often takes on a more symbolic function rather than fulfilling its original duty as an extension of management. (Al-Ahdal, et al. (2020). On the other side, tiny boards lack the benefit of bigger boards in terms of professional counsel and opinion distribution around the table. In terms of experience, skills, gender, and nationality, larger boards are more likely to have greater diversity on their boards (Al-Ahdal, et al. 2020). When a board is smaller, it is generally simpler for the CEO or inside directors to take money from the company since smaller boards

often have a lower number of outside members. In a tiny board, the few directors are concerned with decision-making, leaving little time for monitoring operations.

Credit risk management practices

Organizational risk management (RM) is defined as the process used by a company's board of directors, management, and other employees to identify potential events that could have an impact on the organization and manage the risk of remaining within the company's risk appetite in order to provide reasonable assurance that the organization's goals will be achieved (Njekang et al., 2017). Similarly, business risk management is the process through which businesses assess, control, manipulate, finance, and monitor risks from all sources and across all sectors in order to optimize the company's short- and long-term value to its stakeholders (Njekang et al.,). The company-wide strategy to managing and centralizing risk exposure is the underlying concept for enterprise risk management.

In comparison to the so-called 'silo-approach' prevalent in many companies in which risks are handled independently of each other, RM is a holistic, collaborative approach to managing the risks of a business. However, with all the risk exposures posed in an RM initiative under the corporate umbrella, it may be insufficient to resolve the overall risk of the organization in terms of the possibility of failing to achieve substantial corporate goals, such as executing the business plan or protecting debt agreements (Njekang et al., 2017).

Credit risk management, in its simplest form, is a systematic approach to risk management that includes risk assessment, the creation of risk reduction

methods, and the use of risk management instruments. It is possible to transfer or avoid some risks, while accepting others. When it comes to issue solutions, the risk management method takes a two-step approach. To find the cause of the danger, you must first identify the major risk factors. The first objective is to comprehend the instrument's risk profile; the second objective is to develop methods for quantifying risk through mathematical models. After developing a broad risk detection and management system, the methods may be used to a variety of situations, products, tools, and organisations.

Management of credit risk involves developing an acceptable credit risk environment; implementing a solid process for providing credit; maintaining proper credit management and monitoring methodology, and adequate control of credit risk (Fiandrino et al. 2019; Njekang et al., 2017). It is the responsibility of top management to ensure that adequate and consistent credit risk management guidelines are in place, i.e. that all credit risk management guidelines are communicated effectively throughout the bank and that they are understood by everyone involved in credit risk management. According to Fiandrino et al. (2019), the methodology of credit management has been developed and comprises several stages, including credit risk identification, evaluation, supervision and control, and ultimately credit surveillance. Credit risk is the exposure faced by banks when, on due date or at maturity, a borrower (customer) fails to honor debt obligations.

To properly identify a credit, one must first determine the risks associated with that credit. Credit risk occurs when a borrower's credit rating improves. The

risk of loss should be specified by a financial institution that believes the debtor is unable to fully repay its credit obligations or that any significant credit responsibility is due to the debtor more than 90 days in advance. Measurement of credit risk includes the credit rating / scoring process. The fundamental purpose of credit rating an account is to determine whether it will continue to be a performing asset after a certain length of time has passed, i.e. if it will continue to meet its obligations as and when they arise. Credit rating agencies make predictions about a borrower's ability to meet future financial commitments. In fact, no mathematical or empirical model exists that can correctly forecast a borrower's future capacity to fulfil financial commitments.

Audit compliance

Audit compliance includes the mechanism by which companies, in accordance with regulatory requirements, carefully review their transactions. It is a method used to assess whether or not an audit procedure or transaction has complied with relevant rules (Fiandrino et al. (2019). Audit compliance refers, according to Fiandrino et al., to a thorough analysis of the adherence of an agency to regulatory guidelines. The auditor identifies the cause and proposes means to avoid potential anomalies if laws are broken. The rules that may be verified by the business itself may be created by means of corporate by-laws, policies, strategies and processes or by external laws and legislation.

The business's audit compliance has been audited according to Stephen (2002) to determine if the operations of the company are compatible with the applicable legislation, rules and corporate authorities. This involves reporting on

the audited agency's degree of accountability for its activities and the practice of good public governance. In particular, such elements may include the scope of an audit of compliance by the audited business with the terms and conditions agreed on, such as the contractual terms and conditions, laws and regulations, budgeting decisions, policies, codes or terms.

Fiandrino et al. (2019) defined audit enforcement as an audit conducted to determine if an organisation is complying with the conditions of an arrangement (such as a bond indenture) or the rules and regulations governing an operation or process imposed by an external entity or authority. Additionally, other studies felt that the development of audit compliance is primarily a twenty-first-century phenomenon. Its development as a distinct branch of auditing parallels the fast expansion of industry during the industrial revolution, as well as the simultaneous growth of businesses and government efforts to control and regulate corporate activities. In particular, the enforcement audit highlights the unique role auditing plays in detecting events or accidents that can impact the ability of an entity to achieve its goals, according to Bashir, et al. (2018).

Audit compliance is critical in corporate business decision-making processes. It assists senior executives in avoiding operating losses as a result of adverse regulatory efforts like as litigation, fines, and other punitive consequences. Thus, audit compliance enables businesses to improve their strategic and operational financial efficiency. According to Atuahene, (2016), corporate output refers to the process through which a company's productivity is measured in terms of set goals that indicate how efficiently resources are utilized.

Return on investment, profitability, market share, revenue, and shareholder value are all examples of corporate success measures. When these factors are beneficial, organisations are in good shape. When they are not, organisations, on the other hand, find themselves in difficult situations (Atuahene, 2016).

Financial performance

Performance may be defined as the ways a company's (bank) assets are used to assist it accomplish its objectives. For Atuahene, (2016), Atuahene, (2016) and Njekang et al., (2017), financial success includes objective financial measures, a commitment to make financial capital accessible, and institutional support for investment possibilities. Njekang et al., (2017) explains economic success in terms of how well a company performs. Other scholars define an organization's output as the extent to which it accomplishes its stated objective. The widespread view among academics and practitioners is that effective boards contribute to effective organisations.

There is evidence that effective boards may contribute value to the business, Epstein et al., (2003), whether from an internal or external shareholder perspective.

Effective CG prevents a corporation from failing to fulfill its financial obligations (Atuahene, 2016). Numerous times, it has been said that a business organization's governance structure has an effect on its capacity to react to external variables influencing its financial performance (Atuahene). As a result, it has been shown that excellent management companies perform better, and that strong CG is critical to a business's financial success. According to Appiah, et al., (2017), a

solid corporate governance structure allows a business to attract investment, grow its finances, and strengthen the foundation for financial success.

Good management is believed to generate goodwill and confidence from investors. Again, it is anticipated that poorly managed companies would be less effective. Additionally, other studies claim that companies benefit from a stronger corporate structure by gaining greater access to finance, lowering capital expenditures, improving cash-related execution, and treating all partners more fairly. They suggest that low CG not only results in poor firm monetary execution and risky financing models, but is also beneficial during macroeconomic crises such as the 1997 East Asia crisis. Different scientists argue that it is necessary to increase the security of speculators and the liquidity of the business sector with excellent CG.

Among the numerous inquirers on the organization's money sources, significant shareholders have reliably ensured that a clear concern would be a result of their remaining cases. Worldview of the detachment of the ownership and control of administrations of the offer holder Appiah, et al., (2017) clarified that the issue of the office occurs when the central (Shareholders) does not have the significant strength/data to screen and control the operator (director) and when the remuneration of the vital and the specialist is most certainly not adjusted. The emphasis on national reform for cooperatives travels from one country to another and then from one environment to the next. Because of the changing parts of government in acceptable improvement required by rapid globalization and liberalization, monitoring these advances for fear that the rate of acceptable

improvement turns out to interfere pitifully with whatever is left of the divisions has turned out to be entirely vital for nations. In just about every segment, cooperatives are expanding today. As friendly business gets to be mind boggling and new, the effective current writing and staff agree that it is difficult to adapt to growing circumstances without fitting corporate administration rehearsals. In the midst of all these advances, there is no planned push to spread the achievements and collaboration among the hones of corporate administration and budgetary execution in a community relation.

Conceptual Framework

A conceptual framework for studying the effect of the Ghanaian government on credit union financial performance in the Central area of the country is presented in this chapter. It is proposed that favourable changes in CG will cause positive changes in financial performance. Also, unfavourable changes in CG will cause negative changes in financial performance. According to Abeysekera (2010), Agyei-Mensah (2017), Chen and Jaggi (2000), Healy and Palepu (2001) and Nahar (2015), board size and audit compliance increases performance while credit risk reduces performance. As a result, a conceptual framework for this study is illustrated in Figure 1 as;

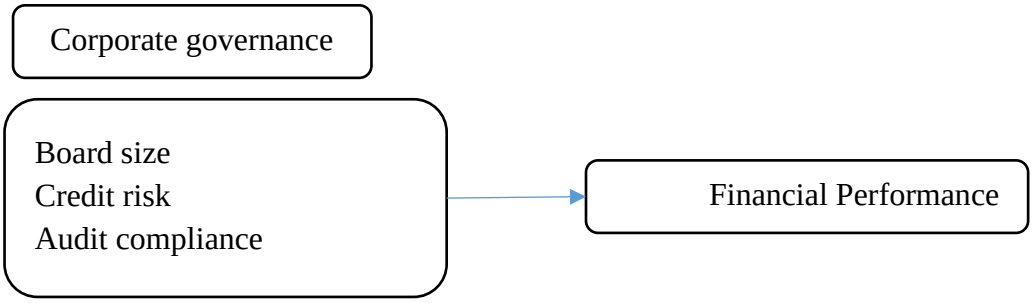

***Figure 1*: Conceptual Framework**

Source: Author's Construct (2020)

Chapter Summary

For the reasons stated above, CG is a viable avenue for improving financial institutions' performance. Despite the critical role of CG in enhancing financial performance, little is known about its impact on Central Region credit unions. To overcome these shortcomings, the current study differentiates itself by examining the impact of financial performance on credit unions in the Central Region.

CHAPTER THREE

RESEARCH METHODS

Introduction

The techniques utilized for achieving the research goals are discussed in this chapter. Among the topics covered in the study are research design, data type and source, techniques and instruments of analysis utilized, empirical model definition, and description of variables and the estimate process used.

Research Paradigm

Paradigm is a term that was derived from the Greek meaning pattern as indicated by Kivunja and Kuyini (2017) and it has been explained comprehensively by many researchers or academicians. Hughes (2010) defined paradigm as a way of perceiving the world that supports a research topic and affects the way in which the researcher thinks about the research topic at hand. It was also revealed by Fraser and Robinson (2004) that a paradigm is a group of beliefs concerning how a particular issue or problem exists and a set of arrangements or steps to be followed to investigate the problem. This study is also situated in the positivist philosophy. The positivist theory claims that relational laws are the basis of the objective knowledge sought by a researcher (Acquah, Zoogah & Kwesiga, 2013).

According to Pring (2000) positivism research paradigm was proposed by a French philosopher known as Auguste Comte. Although Auguste Comte proposed the positivism research paradigm, what he said about observation, experiment and cause-effect relationship are attributed to Francis Bacon. This is because Bacon earlier on preached the concept of experiment, observation, and cause-effect relationship which form the pillars of the positivism paradigm (Crotty, 1998). The positivist is of the view that scientific or natural sciences research methods can be applied to social sciences research. Therefore positivist social science duplicates steps followed by natural scientists to control and comprehend the natural world.

Also, the Positivist philosophy believes that knowledge is externally empirical and that the phenomenon is purely neutral and disconnected from researchers being investigated. This guarantees that researchers' value and prejudice does not influence the analysis and therefore assures that the tools are legitimate and the results of the study are reliable (Eberhardt & Teal, 2011). In positivist philosophy, reliability refers to the degree to which a study's findings can be reproduced and duplicated in similar circumstances. Once the positivist research assumptions are satisfied, positivist research may demonstrate a high probability of dependability, allowing for confident replication or repeat in comparable circumstances.

Research Approach

The study used a quantitative analysis methodology focused on the scope of the purpose of the study being considered, basic goals / hypotheses and the scope of the primary data to be obtained and analyzed. By default, the structures were measurable and subject to statistical manipulation. According to Creswell (2014), by gathering numerical data evaluated using mathematically based techniques, in particular statistics, the quantitative approach deals with describing phenomena.

To find regularities in human life, quantitative approaches use deductive reasoning and break down the social environment into empirical components known as variables, which can be numerically interpreted as frequencies or rates. These correlations can be explored using statistical techniques, and accessed

through stimuli and systematic analysis carried out in research. (Ben-Shlomo & Brookes, 2013).

Typically, this approach begins with the gathering of data on the basis of a hypothesis or theory and is followed by the use of descriptive or inferential statistics (Tashakkori & Teddlie, 2003). Quantitative techniques are often described as deductive in nature, given that statistical hypothesis test findings result in generalizations regarding population features. Quantitative approaches are often defined as believing that, irrespective of human experience, there is a single "reality" that exists (Lincoln & Guba, 1985).

QR findings will probably be extrapolated to a whole population or a subpopulation, since the bigger sample is utilized randomly (Carr, 1994). Such disadvantages of the quantitative analysis technique include the fact that quantitative research methods provide snapshots of a phenomenon: they are not in-depth, and they disregard the views of test takers and testers, as well as what they mean by something (Rahman, 2016).

Research Design

To conduct a successful study, every competent researcher must choose a research design that is appropriate for the type of the study being conducted. In addressing the research issue, research design has been defined as a collection of guidelines and instructions to be followed (Potwarka, Snelgrove, Drewery, Bakhsh & Wood, 2019; Leedy & Omrod, 2010). Due to the nature of the scientific inquiry underpinning this research, the research used the explanatory study design. Cartwright (Tacq 2010), arguing for causal studies, considering that things

and events have causal potential and have the ability to trigger other events or circumstances because of the properties they possess. As a result, it was established if the CGP had an effect on the financial performance of credit unions in Ghana's Central Region (CCR).

The main aim of explanatory research is to describe why phenomena arise and to forecast future events (Birru, Runhaar, Zaalberg, Lans & Mulder, 2019; Maxwell & Mittapalli, 2012; Viotti & Kauppi, 2019). There are several reasons for using a statistical test to test for validity, but most of them are related to how the data is organized and how it may be analyzed quantitatively. (Spirtes, Glymour & Scheines, 2000).

Data source and description

The study obtained secondary data from Ghana Co-operative Credit Unions Limited (GCCUL), the Central Regional Chapter at Cape Coast. The GCCUL has official data on composition of board of directors, data on risk management practices, ROA, liquidity reserve, cost of funds etc. University of Education; Winneba co-operation credit union limited, Adwumapa ILO THLD co-operative credit union limited, Agona District Workers co-operative credit union limited, Ajumako Enyan Essiam district teachers co-operative credit union, Ajumako-Bisease Catholic parish co-operative credit union limited, Dunkwa traders' cooperative credit union limited, Ajumako-Bisease Catholic parish co-operative credit union limited, Aju.

Measurement of variables

In Ghana's central region, the success of these credit unions is evaluated by their return on assets and return on equity (ROA and ROE). In the case of the ROA, financial performance is calculated by dividing net income by total assets; in the case of the ROE, financial performance is calculated by dividing net income by total shareholders' equity.

Credit risk management practices

Financial performance

This is a measure of the quality of risk and risk management information provided in the annual reports of these co-operative credit unions. Credit risk is considered as default risk or inability of a borrower to fully meet their commitments on time. It was also measured by comparing the annual reports of these banks to a checklist and summing up the disclosed items of the checklist in the annual reports and dividing by the total items in the checklist as used by researchers such as Lipunga (2014); Hossain (2008) and Agyei-Mensah (2017). In order to get the nonperforming loan rate, divide the number of loans that have fallen behind on their payments by the total number of loans that have been made (NPLR).

Board size

The total number of executive and non-executive directors on the board of directors is described as the board's size. This variable was calculated by summing the total number of directors listed in credit unions' annual reports. Studies

showed a favourable connection between board size and transparency (Abeysekera, 2010, Agyei-Mensah, 2017; Nahar, 2015). Additionally, this research anticipates a favourable correlation between board size and the degree to which credit risk management information is disclosed.

Audit compliance

Audit recommendation compliance is defined as the ability of these credit unions to implement or to rectify anomalies identified by the external auditors on time (Abeysekera, 2010; Healy & Palepu, 2001). It was calculated by dividing the total number of suggestions by the number of recommendations that were followed.

Model development and specification

This study focuses on Static panel analysis by applying two estimation techniques: Random Effects (RE), and Fixed-Effects (FE) estimation. The estimation of the panel data is based on the hypothesis that the "heterogeneity" of each cross-sectional unit is taken into account in the estimation process. Literature review shows that (Baltagi 1985), random and fixed effect estimations are appropriate for solving issues of heterogeneity which exist in panel data. These models are founded on the premise that variations between cross-sectional units may be captured by including an intercept term that is unique to each cross-sectional unit. According to the RE model, this intercept is regarded as a random disturbance, while it is treated as a constant component according to the FE model.

Random effect

The random model of effects posits a random variable for the individual impact or variance between entities. That is, the unobserved heterogeneity is unrelated to the model's explanatory factors.

$$Y_{it} = \gamma_0 + X'_{it}\gamma + (\alpha_i + v_{it}) \quad (1)$$

Where $\gamma_0$is the constant term, α_i represent the individual-specific random effect or a period not included in the regression, and the mistakes are distributed with a zero mean and constant variance, and they are independent and identical, v_{it}~$i.\ i.\ (0,\ \delta^2{}_v)$. It is assumed in the random effect model that α_i is independently distributed of X_{it}.

Fixed effect model

The FE model allows an arbitral correlation α_i and X'_{it}. That is the unobserved heterogeneity is correlated with the explanatory variables.

$$Y_{it} = \alpha_i + X'_{it}\gamma + v_{it} \quad (2)$$

Where I is a fixed effect that is unique to the person or time period and is not included in the regression, and the errors are independent and identically distributed with a zero mean and constant variance, v_{it}~$(0,\ \delta^2{}_v)$. Fixed-effect models regulate all time-invariant variations between people, ensuring that the estimated coefficients of fixed-effect models are not influenced by time-invariant variables such as culture, religion, gender, race, and so on that are not included in the fixed-effect models.

Empirical model specification-FE

With reference to the theoretical model highlighted and the objectives of this study, the empirical fixed effects model for the first hypothesis is expressed as;

$$PF_{it} = (\gamma_0 + \alpha_i) + \gamma_1 BS_{it} + \gamma_2 CR_{it} + \gamma_3 LR_{it} + \gamma_4 SD_{it} + \gamma_5 IL_{it} + \gamma_6 NFI_{it} + \gamma_7 TE_{it} \quad (3)$$

Where PF represent performance of co-operative credit unions proxies with returns on asset, γ_0 is the constant parameter, α_i, represent the fixed effect across the cross sectional unions, BS represent the board size of the credit unions, CR represent credit size of credit unions in central region, LR represent the liquidity reserve of the credit unions, SD represent the savings deposit of the credit union, IL represent the interest on loans, NFI represent the non-financial income of the credit unions, TE represent the total expenses of the credit unions, v_{it} is the error term representing all the factors which is controlled for in this model.

Similarly, the second hypothesis of the effect of risk management practices on credit unions performance is expressed as:

$$PF_{it} = (\gamma_0 + \alpha_i) + \gamma_1 RMP_{it} + \gamma_2 CR_{it} + \gamma_3 LR_{it} + \gamma_4 SD_{it} + \gamma_5 IL_{it} + \gamma_6 NFI_{it} + \gamma_7 TE_{it} \quad (4)$$

Where PF represent performance of co-operative credit unions proxies with returns on asset, γ_0 is the constant parameter, α_i, represent the fixed effect across the cross sectional unions, RMP represent the risk management practices of the

credit unions, CR represent credit size of credit unions in central region, LR represent the liquidity reserve of the credit unions, SD represent the savings deposit of the credit union, IL represent the interest on loans, NFI represent the non-financial income of the credit unions, TE represent the total expenses of the credit unions, v_{it} is the error term representing all the factors which is controlled for in this model.

Finally, the third hypothesis which seeks to evaluate the effect of audit compliance practices on performance of credit unions in central region can be expressed as:

$$PF_{it} = (\gamma_0 + \alpha_i) + \gamma_1 ACP_{it} + \gamma_2 CR_{it} + \gamma_3 LR_{it} + \gamma_4 SD_{it} + \gamma_5 IL_{it} + \gamma_6 NFI_{it} + \gamma_7 TE_{it} \quad (5)$$

Where PF represent performance of co-operative credit unions proxies with returns on asset, γ_0 is the constant parameter, α_i, represent the fixed effect across the cross sectional unions, ACP represent the transparency and proper accounting disclosures and compliance practices of the credit unions, CR represent credit size of credit unions in central region, LR represent the liquidity reserve of the credit unions, SD represent the savings deposit of the credit union, IL represent the interest on loans, NFI represent the non-financial income of the credit unions, TE represent the total expenses of the credit unions, v_{it} is the error term representing all the factors which is controlled for in this model.

Empirical model specification-RE

With reference to the theoretical model highlighted and the objectives of this study, the empirical fixed effects model for the first hypothesis is expressed as;

$$PF_{it} = \gamma_0 + \alpha_i + \gamma_1 BS_{it} + \gamma_2 CR_{it} + \gamma_3 LR_{it} + \gamma_4 SD_{it} + \gamma_5 IL_{it} + \gamma_6 NFI_{it} + \gamma_7 TE_{it} + (\alpha_\iota + v_{it}) \quad (6)$$

Where PF represent performance of co-operative credit unions proxies with returns on asset, γ_0 is the constant parameter, α_i, represent the random effect across the cross-sectional unions, BS represent the board size of the credit unions, CR represent credit size of credit unions in central region, LR represent the liquidity reserve of the credit unions, SD represent the savings deposit of the credit union, IL represent the interest on loans, NFI represent the non-financial income of the credit unions, TE represent the total expenses of the credit unions, v_{it} is the error term representing all the factors which is controlled for in this model.

Similarly, the second hypothesis of the effect of risk management practices on credit unions performance is expressed as

$$PF_{it} = \gamma_0 + \gamma_1 RMP_{it} + \gamma_2 CR_{it} + \gamma_3 LR_{it} + \gamma_4 SD_{it} + \gamma_5 IL_{it} + \gamma_6 NFI_{it} + \gamma_7 TE_{it} + (\alpha_\iota + v_{it}) \quad (7)$$

Where PF represent performance of co-operative credit unions proxies with returns on asset, γ_0 is the constant parameter, α_i, represent the random effect across the cross-sectional unions, RMP represent the risk management practices of the credit unions, CR represent credit size of credit unions in central region, LR represent the liquidity reserve of the credit unions, SD represent the savings

deposit of the credit union, IL represent the interest on loans, NFI represent the non-financial income of the credit unions, TE represent the total expenses of the credit unions, v_{it} is the error term representing all the factors which is controlled for in this model.

Finally, the third hypothesis which seek to evaluate the effect of audit compliance practices on performance of credit unions in central region can be expressed as

$$PF_{it} = \gamma_0 + \gamma_1 AC_{it} + \gamma_2 CR_{it} + \gamma_3 LR_{it} + \gamma_4 SD_{it} + \gamma_5 IL_{it} + \gamma_6 NFI_{it} + \gamma_7 TE_{it} (\alpha_i + v_{it}) \quad (8)$$

Where PF represent performance of co-operative credit unions proxies with returns on asset, γ_0 is the constant parameter, α_i, represent the random effect across the cross-sectional unions, AC represent the transparency audit compliance practices of the credit unions, CR represent credit size of credit unions in central region, LR represent the liquidity reserve of the credit unions, SD represent the savings deposit of the credit union, IL represent the interest on loans, NFI represent the nonfinancial income of the credit unions, TE represent the total expenses of the credit unions, v_{it} is the error term representing all the factors which is controlled for in this model.

Measurement of other control variables

Size

The size of the co-operative credit unions is measured as the log of their total assets. There is no discontinuity in this variable, which is expressed as the

natural logarithm of the total assets of each of the credit unions included in this research.

Liquidity Reserve

This variable, liquidity reserve measures the total available cash and cash equivalents, which include highly liquid securities such as government, agency and government guaranteed securities as well as other unencumbered credit union assets. This variable is also strictly continuous in nature.

Deposit

In a savings and loan association, bank deposits are money that has been deposited for safekeeping. These deposits are made for savings, money market, and checking accounts. Account holders have the right to withdraw money from their accounts in accordance with the terms and conditions of the account agreement. This variable is strictly continuous in this study. The deposits are the total amount of cash deposits in the union's account of the period.

Interest on loans

This variable measures the level of interest rate on the credit given out as loans to the customers of these credit unions. This variable is also continuous in nature.

Non-interest income

Non-interest income is a continuous variable used in accounting and finance to describe gains or losses from sources unrelated to the corporation's or entities normal activities. In non-operating profit may be included gains or losses

from savings, property or asset sales, exchange of currencies, and other usual gains or losses. As a rule, non-financial revenues are not repeated, and are usually excluded or handled separately during a time-limited evaluation of production. In its natural state, this variable is continuous.

Total Expenses

Total expenses are the sum of all expenditures incurred by the credit union in fiscal years. The variable total expenses of the co-operative credit unions in central region are continuous in nature. It measures the total expenditure of the credit unions in Ghana, specifically, Central region of Ghana.

Definition of Variables

Table 1: Definition and Measurement of Variables

Variable	Type	Definition	A prior sign
Performance	Continuous	Measures the return on total asset of the credit unions used for the study.	
Board size	Continuous	Measures the total board of directors of the credit unions	+
Credit size	Continuous	Measures the total credit of the credit unions	+
RMP	Continuous	Measures the risk management practices of the credit unions used for the study.	+
CP	Continuous	compliance practices of the credit unions	+
IL	Continuous	Measures the interest rate placed on each credit given out as loans.	-/+
BD	Continuous	Measures the total number of deposits in these credit unions association.	+
NFI	Continuous	Measures the non-financial income of the	+

		credit unions	
TE	Continuous	Measures the total expenses of these credit unions	-

Risk Management Practices (RMP), Compliance Practice (CP), Interest rate on Loans (IL), Total Deposits (BD), Non-Financial Income (NFI) and Total Expenses (TE)
Source: Authors compilation (2020)

Robustness Tests

The Hausman post estimation test was conducted to check the robustness and consistency of the estimates from the regressions.

Hausman specification test

According to the null hypothesis, which states that individual effects are uncorrelated to any model regressor, the Hausman specification test compares models with fixed and randomly distributed effects (Hausman, 1978). This test statistic has k degrees of freedom and follows chi-squared.

$$LM = (b_{fixed} - b_{random})' W^{-1} (b_{fixed} - b_{random}) \sim x2\ (k) \quad (9)$$

$$W^{*} = Var\ [b_{fixed} - b_{random}] = Var\ (b_{fixed}) - Var\ (b_{random})$$

The formula of the Hausman test examines whether "the estimate of random effects is not significantly different from the unbiased estimate of fixed effects" (Kennedy, 2008). W^{*} is the difference between the fixed and random effect estimations' estimated covariance matrices. If the individual impacts are linked to any other retrograde device, the model of the random effect violates a GaussMarkov presumption (BLUE).

Chapter Summary

This chapter established and provided the data analysis techniques. The chapter addressed research paradigm, methodology, and design. The research utilized a fixed and random effect estimators on a static panel. The fixed effect model was chosen using the hausman test.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter analyses and summarises the study's results. It begins with a description of the study's descriptive statistics, the correlation test, and the stationarity of the variables employed, and then provides tests of the study's goals in the form of tables and regression analysis.

Descriptive Statistics

Table 2 lists the statistics that were used in the estimation of the dependent, independent, and control variables. The descriptive statistics for dependent and independent variables include the number of observations, the mean, the standard deviation, as well as the lowest and highest values of the observations. Table 2 provides a greater ROE than ROA for credit unions in the Central Region. The mean of the ROA which is 15.117 percent is higher than that of ROE which is 0.721 percent. The standard deviation of ROA is relatively higher (1.024) than that of ROE (0.527). This, therefore, implies that there is more variation in the values of ROA than that of ROE. This means that the values of

ROA are spread away from their average value and that an investor would see investing in ROA as riskier than that of ROE.

Specifically, there is about 1.024 percent risk involved when considering ROA as a performance variable and about 0.527 percent risk when considering ROE as a measure of performance of credit unions in Central region of Ghana. This is because a credit union in central region can have as high as 16.961 percent and as low as 10.181 percent values for ROA. Similarly, a credit union's return on equity (ROE) may range from -1.502 percent to 2.819 percent. The range (the difference between the maximum and minimum value for ROA is significantly higher than the range for ROE. Board size (BS) which is measured as the number of directors on the board recorded a mean score of 5.563 and has 0.691 dispersion from the mean. The highest board size recorded was 7 and the lowest is 4.

For audit compliance, the mean value is 0.637 and the standard deviation is 0.484. Audit compliance ranges from 0 to 1 indicating no audit compliance and full audit compliance respectively. Credit risk management (Loan delinquency rate) recorded the mean value of 11.1 with a standard deviation of 9.44. This ranges from 0 to 44.7 percentages representing the minimum and maximum values respectively. Bank savings deposit averages GHC 63947 with a variability of GHC 56512. The minimum and maximum bank savings deposits are GHC 330.039 and GHC 271808.9.

Also, the mean provision for loan loss ratio value of 11.088 percent implies that credit unions in Central Region on average reserve only 11 percent of their entire loan portfolio to cover loan loss. The low standard deviation of 0.853

also confirms that most of the credit unions in Central Region maintain provision for loan loss ratio. The loan loss provision values ranges from 7.472 percent and 13.403 percent representing the minimum and maximum values respectively. For interest on loans, the mean value is 10.33 percent and the standard deviation value of 1.19 percent. The minimum and maximum values of interest on loans are respectively 3.893 percent and 12.34 percent.

The study also finds that capital adequacy ratio (CAR) has a mean of 20.028 percent with a standard deviation of 6.415. The relatively low standard deviation suggests that most credit unions in Central Region maintain a capital adequacy ratio close to the mean reported value for CAR. The mean value of 20.028 percent suggests that the credit unions do have adequate capital and this may have a toll on their profitability levels. The 20.028 percent spread implies that the values of capital adequacy ratio (CAR) of the credit unions diverge from the mean value by about 6.415 percent. The least value recorded for capital adequacy ratio is 1.1482 and that of the highest is 35.029 percent. Finally, for liquidity reserve ratio, the study showed that the average value of 34.396 percent with a standard deviation of 11.821 percent. This shows that there is not much variability in the values of liquidity reserve ratio. The minimum and maximum values of liquidity reserve ratio (LRR) ranges from 2.347 percent and 68.998 percent.

Table 2: Descriptive Statistics of Variables

Variable	Obs	Mean	Std.Dev.	Min	Max
ROA	79	15.117	1.024	10.181	16.961
Return On Equity	79	0.721	0.527	-1.502	2.819

Board Size	80	5.563	691	4	7
Audit Compliance	80	0.637	0.484	0	1
Credit Risk Management	80	0.111	0.094	0	0.447
Ln(Bank savings deposit)	79	10.545	1.234	5.799	12.513
Loan Loss Provision	78	11.088	0.853	7.472	13.403
Interest on loan	79	10.33	1.19	3.893	12.34
CAR	77	20.028	6.415	1.482	35.029
LRR	78	34.396	11.821	2.347	68.998

Source: Author's Computation (2020)

Before the regression analysis was undertaken, there was the need to carry out some preliminary tests to justify the appropriateness of conducting the regression analysis and the right model to employ for the regression analysis. Among these tests included the test for multicollinearity using correlation matrix. Also, panel unit root test was conducted to ascertain the stationarity properties of the variables.

Pre-estimation Tests

Test for Multicollinearity

Before the panel regression analysis can be executed**,** there is the need to ensure that there is no perfect or near collinearity (popularly known as multicollinearity) among the explanatory variables. The first step in the test for multicollinearity is to conduct a pairwise correlation matrix. The pairwise correlation matrix will indicate the correlation coefficients and the associated direction. According to Gujarati and Porter (2009), the multicollinearity problem does not exist when correlations among variables are below 0.80. In this research, and in accordance with Gujarati and Porter (2009), a correlation coefficient more than 0.8 indicated the presence of significant collinearity between the variables.

According to the findings in Table 3, there is no evidence of multicollinearity among the variables utilized in the study. The lowest and the highest correlation observed from Table 3 are -0.017 and 0.696 respectively. The lowest correlations exist between interest on loans and Credit risk management (loan delinquency rate) while that of the highest correlation exist between loan loss provision and ROA. The highest correlation coefficient of 0.7 according to Gujarati and Porter (2009) does not indicate high multicollinearity.

The results in Table 3 illustrate that there is a fairly mild positive and significant correlation (0.246) between the dependent variables (ROA and ROE). This means that credit unions that have high ROA are likely to have high ROE and vice-versa. Between board size (BS) and ROA, there is a modest positive (0.031) and significant connection. This implies that anytime board size increases, financial performance (ROA) also increases and vice versa. In Ghana, there is a modest negative (-0.156) but non-significant connection between board size and financial success (ROE). While audit compliance is adversely associated with ROA and return on equity, the associations are not statistically significant. This variable, on the other hand, has a positive correlation with the board size.

Table 3: Pairwise correlations

VARIABLES	ROA	ROE	BS	AC	DR	BS	LLPRVIN	CAR	LRR
RA	1								
RE	0.25*	1							
BSize	0.03*	-0.16	1						
AC	-0.05	-0.06	0.14	1					
Cr M	-0.07*	0.05	-0.01	-0.08	1				

BS	0.60*	0.06	0.05	-0.36*	-0.14	1				
LL P	0.70*	0.13	-0.07	-0.20	-0.14	0.52*	1			
IL	0.03*	0.37*	-0.02	0.03	-0.017	0.45*	0.70*	1		
CAR	0.620*	0.13	-0.09	-0.26*	0.03	0.45*	0.53*	0.56*	1	
LRR	0.36*	0.29*	-0.29*	-0.38*	0.095	0.40*	0.28*	0.23*	0.55*	1

* Shows significance at the 5% level

Source: Author's Estimation (2020)

The connection between delinquency rate and return on assets is negative and substantial, while the relationship between delinquency rate and return on equity is positive. Negative and insignificant relationships are seen for delinquency rate and board size and audit compliance respectively. While Bank saving has a strong positive and significantly related with ROA, its relationship with ROE is positive and weakly insignificant. Bank saving also has a negative correlation on audit compliance and delinquency rate. Equally relevant is also the high positive correlation (0.696) between loan-loss provision and ROA. This means that credit unions that maintain a high provision for loan loss turn to have high returns on assets. Contrary to its signification relationship on ROA, Loan Loss Provision has a positive and insignificant correlation with ROE. It also has positive and significant correlation with bank savings deposit.

However, loan loss provision is negatively and insignificantly correlated with the rest of the control variables. Interest on loan is favourably and substantially linked with ROA, return on equity, bank savings deposit, and loan loss provision, as shown by the correlation matrix. While same variable is negatively and significantly correlated with board size and delinquency rate, a

positive and significant correlation between loan losses provision and audit compliance. Additionally, the findings indicate that there is a positive correlation between ROA and CAR. This implies that credit unions with a high capital adequacy ratio also have a high rate of return on assets (ROA). The conclusion for ROE and CAR indicates a positive and statistically insignificant connection between ROE and capital adequacy ratio. This means that credit unions with a high capital adequacy ratio are more likely to have a high return on equity than those with a low capital adequacy ratio.

Capital adequacy ratios are also positively and substantially linked with bank savings deposits, loan loss provisions, and interest on loans, while audit compliance is adversely and significantly correlated with credit union capital adequacy ratios in the central area. Finally, although liquidity reserve ratios have positive and substantial relationships with ROA, return on equity, bank savings deposits, loan loss provision, and capital adequacy ratios, they have negative and significant associations with board size and audit compliance. However, liquidity reserve ratio is positive but insignificantly related with delinquency rate.

Stationarity Test: Panel Unit Root Test

Because the data for this research is an imbalanced panel, unit root tests for all variables are required to educate readers on the stationarity of the variables used. Fisher-type panel unit root test is summarized in Table 4. The fisher panel unit root test was used in this research because it is well-suited for imbalanced panel data.

Table 4: Fisher-type panel unit root test

Variables	Fisher_Type	P-value	Order of integration
ROA	62.9941	0.00	I (0)
ROE	145.4075	0.00	I (0)
BS	2.5933	0.048	I (1)
AC	0.2647	0.01	I (0)
CRM	84.3664	0.00	I (0)
BA_S	80.1603	0.00	I (0)
LLPRV	95.2646	0.00	I (0)
IN	52.6885	0.012	I (0)
CAR	62.0127	0.00	I (0)
LRR	44.6790	0.07	I(0)

*** p<0.01, ** p<0.05, * p<0.1
Source: Author's Estimation (2020)

At levels, variables such as ROA, ROE, Audit compliance (AC), Credit Risk Management (CRM), Bank Savings deposit (BA_S), Loan Loss Provision (LLPRV), Interest on Loans (IN), Capital Adequacy Ratio (CAR), Liquidity Reserve Ratio (LRR) passed the panel unit root test at different levels of significance but Board Size (BS) did not pass unit root at level but at first difference. The null hypothesis of the Fisher type panel unit root test is that all panels contain a unit root, as opposed to the alternative hypothesis that certain series in the panel are stationary. Since all variables show significant results (some at levels and others at first difference), the study fails to accept the null hypothesis and concludes that all series in the panel are stationary.

Board size, audit compliance and credit risk management on ROA

To accomplish the study's goals, four distinct models were calculated. This was required in order to determine the effect of board size, credit risk management practices, and audit compliance with or without the inclusion of other potentially significant factors in a defined model. Table 5 illustrates the estimation of four models (1-4) using the random effect method. The Hausman

test was carried out to determine which of the two static panel models to be discussed and the results revealed, as shown in Table 5, that random model effect are preferred models to be discussed because a null random effect hypothesis is the preferred model that has not been rejected. The ROA was employed as a proxy for credit union financial success. The appendices include the findings of the fixed effect models.

Table 5: Random effect: ROA

Variables	Model 1	Model 2	Model 3	Model 4
Board Size	0.2781**			0.2650**
	(-0.073)			(-0.0765)
Bank savings deposit	0.144***	0.137***	0.150***	0.136***
	(-0.0426)	(-0.0423)	(-0.0434)	(-0.0433)
Loan loss provision	0.236***	0.217***	0.229***	0.218***
	(-0.0521)	(-0.0504)	(-0.0523)	(-0.0508)
Interest on loans	0.475***	0.488***	0.475***	0.485***
	(-0.0515)	(-0.051)	(-0.0529)	(-0.0523)
Capital Adequacy Ratio	0.00464	0.00491	0.00553	0.00417
	(-0.00679)	(-0.00655)	(-0.00683)	(-0.0067)
Liquidity reserve ratio	0.00266	0.00234	0.00188	0.00307
	(-0.00375)	(-0.00359)	(-0.0038)	(-0.00381)
Delinquency Rate (RM)		-0.761**		-0.738**
		(-0.33)		(-0.335)
Audit Compliance			0.2147**	0.20368**
			(-0.085)	(-0.0866)
Constant	5.902	6.17	5.944	6.154
	(-0.435)	(-0.431)	(-0.444)	(-0.44)
Observations	75	75	75	75
Number of Credit Unions	16	16	16	16
Hausman test (X^2)	4.54	3.04	3.8	4.55

Prob > chi2	0.603	0.803	0.704	0.805

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Author's Estimation (2020)

Model 1 findings revealed that the board size (BS) coefficient was 0.2781. This is a positive coefficient that is statistically significant at the 1% level of significance. This indicates that adding a member to the board of directors of credit unions will improve performance by 0.2781. According to the findings of the two models, bigger board sizes are linked with better financial performance of credit unions in the Central area, all other factors being equal.

In other words, the finding suggests that credit unions with a larger board of directors do better financially than those with a smaller board of directors. The conclusion supports the findings of Danoshana and Ravivathani (2019) that had a favourable and substantial effect on the financial performance of Sri Lankan financial institutions by the board (one of the CG factors). The findings also corroborate Merendino and Melville's (2019) conclusion that board size has a favourable and substantial impact on company performance. This is to be anticipated, since a bigger board of directors provides credit unions with a broader variety of experience to make sound choices. Additionally, Njekang et al., (2017) stated that bigger boards of directors may be advantageous since they enhance an organization's pool of knowledge.

The findings of the research, on the other hand, are in opposition to those of Narwaland and Jindal (2015), who investigated the effect of CG on profitability and found that the size of the board of directors has no substantial impact on the

financial performance of the Indian textile sector. This is also consistent with Fiandrino et al. (2019) and Srivastava et al., (2019) findings that a negative connection exists between board size and company profitability. The research showed that the impact of credit risk management (as measured by loan delinquency) on the credit union's performance was – 0.761 and – 0.738 units for credit risk (delinquency rate) in models 2 and 4. At a 5% level of significance, the findings are statistically significant.

The performance of models 2 and 4 is reduced by 0.761 and 0.738 percentage points, respectively, when the credit risk is increased by a factor of two (using proxy ROA). This shows that there is a significant and negative relationship between credit risk and credit union performance in Ghana's Central region. This is anticipated because anytime loan default rates rise, money borrowed by credit unions becomes unavailable for day-to-day operations, resulting in a loss of profit and unnecessary costs to the institution. Consequently, credit unions in Ghana's central region suffer because management fails to reduce the risk of loan default.

The findings of Srivastava et al., (2019) confirmed that credit risk management has a significant negative impact on banks' return on assets (ROA) and return on equity (ROE), which evaluate the financial performance of the Indonesian conventional bank by utilizing non-performing loans as a metric for managing the credit risk, respectively. Noman and colleagues (2015) discovered that the ratio of non-performing loans to gross loans, as well as the loan loss reserve to gross loans ratio, had a negative and statistically significant effect on all

profitability measures, including net profit margin. A significant link was found between credit risk management and performance (as assessed by non-performing loans) by Kyere et al. (2021) and Li and Zou (2014), whereas Gyamerah, et al. (2020) found a negative association between credit risk and performance.

Atuahene (2016) found that there was a positive relationship between credit risk management and profitability (ROA) across five Nigerian commercial banks between 2000 and 2010. Other studies, such as those conducted by Atuahene, found a positive relationship between credit risk management and profitability (ROE) of Ghanaian banks between 2005 and 2009. For audit compliance, the findings of Table models 3 and 4 indicate that the audit compliance coefficients are respectively 0.2147 and 0.20368 units. At a 1% level of significance, these coefficients are statistically significant. This means that if the audit compliance rate rises, the performance (ROA) of credit unions in the Central Region increases by 0.2147 and 0.20368 percent, respectively, all other factors being constant.

For loan loss provision, its coefficients are 0.236, 0.217, 0.229, and 0.218 in the four stepwise models (1-4). These coefficients are positive and statistically significant at 1% significance levels. This indicates that increasing loan loss provision by a percentage improves credit union performance by at least 0.220 percent, all other factors being equal. This implies that if a credit union offers substantial cash in lieu of loan losses, it will have more funds to invest, resulting in a rise in the ROA of credit unions in the Central area. As a result, loan loss provision will benefit the credit union's performance and survival. This conclusion

is consistent with Alhadab et al. (2016), who discovered that loan loss provisions had a beneficial effect on the profitability of Jordanian commercial banks.

Similarly, the conclusion corroborates that of Njekang et al., (2017) and Tahir et al. (2014), who discovered a positive connection between loan loss provision and profitability, such that increasing loan loss provision results in increased profitability. However, this result contradicts Bashir, et al. (2018), who both found a negative and substantial connection between loan loss provision and bank profitability in Macao. Also, Bashir, et al. provides a reasonable explanation of the negative impact on ROA of financial institutions of the loan loss provision. Financial institutions, according to Vong (2005), are more lucrative when they can invest their assets, including loanable money. If, on the other hand, a greater level of provision is maintained to cover anticipated loan losses, the financial institution's capacity to make loans is reduced, substantially lowering the bank's ROA.

According to Njekang et al., (2017), banks' coverage of credit losses is critical to their profitability. A well-managed bank is regarded to have a smaller provision for loan losses, which translates into increased profitability. The findings in table 5 show 0.00464, 0.00491, 0.00553 and 0.00417 correspondingly, as coefficients of the Models 1-4 of the Capital Adequacy Ratio (CARs). Although statistically insignificant, these coefficients are positive. The finding indicates that the capital adequacy ratio and ROA have a favourable connection. This indicates that an increase in the capital adequacy ratio results in an increase in credit unions' financial performance (ROA). This result is consistent with

earlier research such as those conducted by Agyei-Mensah, (2018), which discovered a positive connection between bank profitability and risk-weighted capital ratios (as capital adequacy ratio).

Similarly, Srivastava et al., (2019) shows that the core capital ratio (Capital adequacy ratio) is positively linked to bank profitability when the ROA and ROE are used as proxies for bank profitability. These studies suggest that a greater capital adequacy ratio should lower a financial institution's cost of funding, both in terms of price and quantity, thus increasing the bank's net income and hence profitability (ROA). Again, Srivastava et al.m argues that financial institutions with a greater capital adequacy ratio are seen to be more secure than those with a low capital adequacy ratio. As a result, people feel secure investing in such organisations, especially during economic downturns.

For deposits of bank savings, the findings of Table 5 Models 1-4 showed that their related ratings are correspondingly 0,144, 0,137, 0,150 and 0,136 units. All of these coefficients are positive and statistically significant at the 1% level. The rise in bank savings deposits as a result of the hike in the cedi improves the performance of credit unions in the Central area by at least 0.136 percent. This is feasible since saving results in capital buildup in any organisation. Thus, when savings grow, the union's investment should grow as well, resulting in a rise in profitability, all other factors being equal. Similarly, in terms of interest on loans, the findings of the research reveal that the interest coefficients on loans are 0,475, 0,488, 0,475 and 0,485 correspondingly from the four regression models.

At the 1% level of significance, each of these coefficients is statistically significant. This means that increasing interest rates on loans by a percentage point increases ROA by roughly 0.5 percent, all other factors being equal. By increasing the interest rate on loans, the credit union improves its chances of earning enough profit to pay its expenses. This finding corroborates the findings of Kyere, et al. (2021), who investigated the impact of lending rates on the performance of Kenyan commercial banks. The research discovered a favourable and statistically significant connection between lending rates and commercial bank performance.

According to the findings of Atuahene (2016), who conducted a similar research on the effect of interest rates on commercial bank performance in Kenya and discovered that interest rates had no significant impact on commercial bank profitability in the short term, this is in contrast to the findings of Atuahene (2016). In addition, Atuahene (2016) found that interest rates had no significant impact on the profitability of commercial banks in the short term, which is encouraging. Finally, according to the findings of their study, all of the coefficients for the liquidity reserve ratio are positive, although in a non-significant way.

Random Effect Regression Results for ROE

As with the findings in Table 5, the research begins by doing a Hausman test to identify the best suitable model for analysis. The Hausman's p-values provide evidence in favor of the random effect models. As usual, four stepwise regressions models are estimated just as the case of Table 5. Table 6 presents the

random effect's result of the ROE models, the fixed effects results for ROE are also presented in the Appendices.

the effect of board size on credit risk management, audit compliance, and other control variables on return on equity at credit unions in the Central Region is shown in Table 6 (ROE). The difference between Tables 5 and 6 is that Table 6 utilizes return on equity (ROE) as a metric of financial success, while Table 5 uses return on assets (ROA) as a measure of financial performance. Model 6 has a board size coefficient (BS) of -0.5086, which is negative. A negative coefficient that is statistically significant at the 5 percent level of significance is represented by this value. It implies that, with a board size of 6 to 7 persons, the financial performance of a credit union tends to reduce by approximately 0.5 percent more than a credit union of 4-5 persons serving on its board, all other things being equal.

On the other hand, the results of models 5 and 8 indicate that the size of the board of directors has a negative and statistically significant relationship with both the financial performance of credit unions in the central region.

Table 6: Random Effect Estimation of Return on Equity

Variables	Model 5	Model 6	Model 7	Model 8
Board Size	-0.5086**			-0.5025**
	(0.101)			(0.102)
Bank savings deposit	-0.0679	-0.0616	-0.0779	-0.0687
	(0.0620)	(0.0628)	(0.0631)	(0.0650)
Loan loss provision	-0.164**	-0.149**	-0.163**	-0.159**
	(0.0853)	(0.0856)	(0.0848)	(0.0874)
Interest on loans	0.349***	0.338***	0.357***	0.351***
	(0.0773)	(0.0777)	(0.0786)	(0.0806)

Capital Adequacy Ratio	-0.0156	-0.0162	-0.0172	-0.0166
	(0.0107)	(0.0106)	(0.0107)	(0.0109)
Liquidity reserve ratio	0.0178***	0.0182***	0.0177***	0.0167***
	(0.00562)	(0.00546)	(0.00557)	(0.00583)
Delinquency rate (RM)		0.364**		0.320**
		(0.159)		(0.150)
Audit Compliance			-0.0844	-0.0678
			(0.114)	(0.117)
Constant	-0.663	-0.860	-0.598	-0.674
	(0.690)	(0.703)	(0.702)	(0.747)
Hausman test (X^2)	2.72	3.31	1.99	5.64
Prob > chi2	0.8432	0.7688	0.8499	0.6872
Observations	75	75	75	75
Number of CU_ID	16	16	16	16

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Author's Estimation (2020)

This research supports Atuahene's (2016) conclusion that board size has a negative connection with company profitability. The results of this study are consistent with the findings of many previous studies on the subject, which have shown a negative connection between board size and the financial success of companies, among other things. For instance, Bashir, et al. (2018) is of the view that large board size results into problems of control, coordination and flexibility with which decisions making is carried out. Stancic et al. (2012) also found an inverse relationship between board size and banks' profitability in Serbia

In contrast to Danoshana and Ravivathani (2019), who found that board size had a positive and significant impact on the financial performance of financial institutions in Sri Lanka from 2008 to 2012, the results of this study show that board size had no such effect. Furthermore, the results go counter to

Merendino and Melville's (2019) conclusion that the size of a business's board has a positive and significant effect on the success of the firm. The results also show the effect of credit risk management (measured by loan delinquency) on ROE. According to the research, the credit risk management coefficients (delinquency rate) for models 6 and 8 are 0.364 percent and 0.320 percent, respectively. At a 5% level of significance, these coefficients are statistically significant.

As a result, increasing credit risk management by a percentage improves ROE by at least 0.320 percent, all other factors being equal. As credit risk management increases it is expected that performance be increased because the firms will be able to guard against risks that may culminate into low performance, all other things being equal. The results confirmed that Kolapo, Ayeni and Oke (2012) have concluded that the credit risk management and the profitability of the five Nigerian commercial banks were in a positive connection between 2000 and 2010. Other investigators such as FAH, (2018) also have shown that between 2005 and 2009 the ROE for banks in Ghana is a favourable link between credit risks management and profitability.

However, the findings contradict those of Suroso, et al. (2017) and Li and Zou (2014), who discovered a substantial negative connection between credit risk management (as measured by non-performing loans) and performance. Salah and Fedhila (2012) showed a negative correlation between credit risk and company performance. In terms of audit compliance, the findings indicate that audit compliance has a negative but negligible connection with the return on equity of credit unions in Ghana's central area. This contrasts previous findings for ROA,

which indicated that audit compliance had a positive and substantial impact on ROA. In contrast to Table 5, Table 6 indicates a substantial negative correlation between loan loss provision and ROE.

At five percent (that is alpha level 0f 0.05) significance level, a one percent increase in provision for loan loss by credit unions results in at least 0.147 percent drop in the ROE. As already indicated, the primary channel through which most credit unions generate income is by advancing loans to their clients. However, an increase in loan loss provision reduces the amount of loanable funds which culminates in a decline in net income. However, since net income is ROE's numerator, the fall in net incomes results in a fall in ROE. This result validates the findings by Ogundajo and Onakoya (2016), who underscored that firms with high loan loss provision recorded poor performance and had low firm value, whereas firms with lower loan loss provision perform better.

The findings from models 5-8 of Table 6 indicate that bank savings deposits have a positive and statistically significant association with ROE. All four stepwise regression coefficients for bank saving are negative and statistically insignificant at all conventional levels of significance. This indicates that cedi increases in bank savings deposits have a negative effect on credit union performance (ROE) in the Central area. This finding contradicts earlier findings using ROA as a performance measure, which indicate a positive and substantial connection between bank savings deposits and credit union financial success in the central area.

According to the research, there is a positive and statistically significant connection between interest on loans and return on equity. The results show that a percent increase in interest on loan increases performance (ROE) by at least 0.3 percent, ceteris paribus. This implies that if a credit union raises the interest charged on loans, it increases its chance of getting more profit to cover for costs incurred, ceteris paribus. This confirms the findings of Darko, et al. (2016), who examined the impact of lending rates on commercial bank performance in Kenya. The research discovered a favourable and statistically significant connection between lending rates and commercial bank performance.

Kyere et al. (2021) concluded that interest rates had no significant influence on Kenyan commercial banks' short-term profitability when they examined whether interest rates affected their performance. This conclusion, on the other hand, contradicts their results. There is a negative link between credit unions' capital adequacy ratio (CAR) and their return on equity (ROE), but the relationship is not statistically significant, according to the study's results. This is in line with the results of Ali et al (2017), who examined the impact of bank-specific factors, like capital adequacy ratios on profitability of Islamic banks in Yemen. Their research discovered no correlation between capital adequacy ratio and bank performance as assessed by return on equity.

Several other research, however, have shown a substantial positive connection between capital adequacy ratio and return on equity (Olszak, Chodnicka-Jaworska, Kowalska & Switala, 2017). Finally, the study's findings also show that the liquidity reserve ratio coefficients in all four step-by-step

regression models were 0.0178 percent, 0.0182 percent, 0.0177 percent and 0.0167 percent.

At 1 percentage level, these coefficients are positive and statistically significant. This implies that for every percentage point increase in liquidity reserves, the ROE of credit unions in the central area rises by at least 0.02 percent.

This is the case because when banks keep enough reserves, the profitability increases as the credit union gets sufficient funds to meet its obligations and it enables the credit union to safeguard against liquidity risk and financial crises. The conclusion corroborates the findings of Adebayo, Adebanjo, and Olabode (2018), who discovered a positive and substantial connection between liquidity management and the profitability of commercial banks in Nigeria. This conclusion, however, contradicts the findings of Oganda, Mogwambo, and Otieno (2018), which discovered a negative and substantial negative connection between cash reserves and equity bank performance in Kenya. They argued that when banks accumulate reserves, their capacity to provide more loans decreases, and therefore profitability decreases, ceteris paribus.

Chapter Summary

The results are discussed in this chapter. A descriptive statistics section is followed by an application of the Hausman specification test to select between random and fixed effect models, followed by a presentation and discussion of findings based on regression analysis results. The procedure begins with descriptive statistics and progresses to the application of the Hausman

specification test to select between random and fixed effect models. The chapter concludes with an evaluation of the effect of board size, credit risk management, and audit conformity on the financial performance of credit unions in the central area of the United States.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter summarises the whole research as well as the findings and suggestions from the study. Additionally, the chapter suggests several topics for future research. The research investigated the impact of CG on financial performance (ROA and ROE) of credit unions in Ghana, focusing on the Central Region. To accomplish the goals, the research first clarified conceptual problems and examined relevant literature. The study's goals and research hypotheses were accomplished via the use of static panel models, namely fixed and random effects models. The Hausman test favored the random effect model for debate in selecting between the two models.

Summary of Key Findings

In relation to the first objective, which examined the effect of board size on the financial performance of credit unions in Ghana's Central Region, the study discovered that board size has a significant and positive effect on the financial performance (ROA) of credit unions in Ghana's Central Region.

Specifically, holding other variables in the specified model (model 4) constant, a larger board size induces a 0.2650 percent increase in ROA more than that of a smaller board size. However, using ROE as proxy for financial performance, the study found that a larger board size tends to reduce financial performance by 0.5025 percent, all things being equal.

With regards to the second objective, the study shows that credit risk management (loan delinquency rate) has a negative and significant effect on ROA but positive and significant effect on ROE. Per the ROA model, a percentage increase in credit risk management results in a reduction in performance by 0.738 percent all other things being equal. However, in the ROE model, a percentage increase in the credit risk management increases financial performance (ROE) by 0.320 percent.

On the third goal, the researchers found that audit compliance had a positive and statistically significant impact on return on investment (ROI.) Under normal circumstances, this equates into an increase in the financial performance of credit unions in the Central region of 0.20368 percentage points. It is found, on the other hand, that there is a negative and insignificant relationship between audit compliance and shareholder returns. Bank savings deposits, loan loss provisions, and interest on loans were shown to have a positive and significant influence on ROA as control variables. By contrast, capital adequacy and liquidity reserve ratios had a positive but small impact on ROA, according to the study findings.

The research found that while the liquidity-reserve and interest-bearing ratios of lending have positive and significant ROE relationships, the loss-provision ratio has a negative and significant effect on ROE, but the bank savings and equity adequacy ratio of credit unions in central Ghana specifically have a negative and minor impact on ROE.

Conclusions

Based on the research's results, the study concludes with these comments. It may be inferred that the size of the board of directors has a substantial impact on the financial performance of credit unions in Ghana. While a larger board size increases the credit union's performance (ROA) due to the diversity of expertise available, the study concluded that a smaller board size is preferable for ROE as a financial performance indicator because it tends to reduce bureaucratic bottlenecks in terms of decision making. The study's findings indicated that the impact of board size on financial performance is conditional on the financial performance measure used. Credit risk management is critical for credit unions in the central area to improve their financial performance (ROE). As with prior research, credit risk management is also highly dependent on the financial success metric used.

Finally, the research emphasizes that adhering to audit regulations and recommendations is critical for credit unions in Ghana to improve their financial performance (ROA).

Policy Recommendations

The research makes the following suggestions based on its findings: based on the first goal, it is suggested that credit union management in Ghana strive to expand board size, particularly when considering ROA as a financial success measure. However, board size should be reduced when credit unions use ROE as their financial performance indicator. This is because a larger board size reduces ROA while it increases ROE.

It is also recommended that credit unions should endeavor to comply with all the necessary audit recommendations, regulation, rules and standards governing audit compliance so as to enable the credit unions stand the chance of being financially sound to increase their financial performance (ROA).

Lastly, the study also recommended that the management of credit unions should endeavor to enforce credit risk management rules to ensure financial stability of the credit unions. As management try to make sure that loan defaults and delinquency rates are controlled and minimized, the financial performance of the credit unions will be enhanced, all other things being equal.

Suggestions for Further Research

The study's results identified the following topics for further research:

1. The purpose of this research is to determine the impact of CG on the financial performance of credit unions in Ghana's Central Region. Additional research may be conducted to duplicate this study in other regions or for the whole nation. This will provide further insight on the impact of CG on credit union financial performance in Ghana.
2. The study suggests that other dynamic estimation techniques like GMM and dynamic OLS can be used to validate or confirm the result of this study since there is the possibility that the previous values of financial performance could affect the present values leading to endogeneity problem which static panel models have no control over but the dynamics models can help deal with that problem.

REFERENCES

Abdullah, H., & Valentine, B. (2009). Fundamental and ethics theories of Corporate Governance. *Middle Eastern Finance and Economics*, 4(4), 88-96.

Abdulazeez, D. A., Ndibe, L., & Mercy, A. M. (2016). Corporate governance and financial performance of listed deposit money banks in Nigeria. *Journal of Accounting and Marketing*, 5(1), 1-6.

Abeysekera, I. (2010). The influence of board size on intellectual capital disclosure by Kenyan listed firms. *Journal of intellectual capital*.

Acquaah, M., Zoogah, D. B., & Kwesiga, E. N. (2013). Advancing Africa through management knowledge and practice: The way forward. *African Journal of Economic and Management Studies*.

Adeabah, D., Gyeke-Dako, A., & Andoh, C. (2019). Board gender diversity corporate governance and bank efficiency in Ghana: a two-stage data envelope analysis (DEA) approach. *Corporate Governance: The International Journal of Business in Society*.

Adebayo, M., Adeyanju, D., & Olabode, S. (2011). Liquidity Management and Commercial Banks' Profitability in Nigeria. *Research Journal of Finance and Accounting*, 2(7/8).

Aduda, J., Chogii, R., & Magutu, P. O. (2013). An empirical test of competing CG theories on the performance of firms listed at the Nairobi Securities Exchange. *European Scientific Journal*, 9(13).

Agyei-Mensah, B. K. (2017). The relationship between Corporate Governance, corruption and forward-looking information disclosure: a comparative study. *CG: The International Journal of Business in Society*.

Agyei-Mensah, B. K. (2018). Impact of corporate governance attributes and financial reporting lag on corporate financial performance. *African Journal of Economic and Management Studies*.

Al-ahdal, W. M., Alsamhi, M. H., Tabash, M. I., & Farhan, N. H. (2020). The impact of corporate governance on financial performance of Indian and GCC listed firms: An empirical investigation. *Research in International Business and Finance*, 51(10)10-83.

Aliani, K., Mâ, I., Hamid, D., & Zarai, M. A. (2011). DiversitÃ© en genre dans le Conseil dâ™ Administration et optimisation fiscale: validation dans le contexte tunisien. *Global Journal of Management and Business Research*, 11(8).

Amidu, M., & Hinson, R. (2006). Credit risk management, capital structure and lending decisions of Banks in Ghana. *Banks and Bank Systems*, 1(1), 93–101.

Apanga, M. A., Appiah, K. O., & Arthur, J. (2016). Credit risk management of Ghanaian listed banks. *International Journal of Law and Management*, 58(2), 162–178.

Appiah, K. O., Awunyo-Vitor, D., & Awuah-Nyarko, S. (2017). Corporate governance and financial performance of listed banks: evidence form

emerging market. *International Journal of Economics and Accounting*, *8*(1), 29-42.

Arjoon, S. (2006). Striking a balance between rules and principles-based approaches for effective governance: A risks-based approach. *Journal of Business Ethics*, 68(1), 53-82.

Atuahene, R. A. (2016). *Corporate governance and financial performance Evidence from the Ghanian banking sector* (Doctoral dissertation, University of Bradford).

Baltagi, B. H. (1985). Pooling cross-sections with unequal time-series lengths. *Economics Letters*, *18*(2-3), 133-136.

Bashir, U., Fatima, U., Sohail, S., Rasul, F., & Mehboob, R. (2018). Interna corporate governance and financial performance nexus: A case of banks of Pakistan. *Journal of Finance and Accounting*, *6*(1), 11-17.

Bassem, B. S. (2009). Governance and performance of microfinance institutions in Mediterranean countries. *Journal of Business Economics and Management*, 10(1), 31-43.

Baysinger, B. D., Kosnik, R. D., & Turk, T. A. (1991). Effects of board and ownership structure on corporate R&D strategy. *Academy of Management journal*, 34(1), 205-214.

Boahene, S. H., Dasah, J., & Agyei, S. K. (2012). Credit risk management and profitability of selected banks in Ghana. *Research Journal of Finance and*

Accounting, 3(7), 6–14.

Bouaziz, Z., & Triki, M. (2012). The impact of the board of directors on the financial performance of Tunisian companies. Corporate Board: role, duties and composition, 8(3), 6-21.

Boyd, J. a&nd Hakenes, H. (2014). Looting and risk shifting in banking crises. *Journal of Economic Theory*, 149, 43-64.

Bwana, K. M., & Mwakujonga, J. (2013). Issues in SACCO development in Kenya and Tanzania: The historical and development perspectives. The International Institute for Science, *Technology and Education Journal*, 3(5).

Cadbury Committee (1992), Report on the Financial Aspects of CG, Gee, London.

Chen, C. J., & Jaggi, B. (2000). Association between independent non-executive directors, family control and financial disclosures in Hong Kong. *Journal of Accounting and Public policy*, *19*(4-5), 285-310.

Chen, J., Chen, M., Chen, T., & Liao, W. (2009). Influence of capital structure and operational risk on profitability of life insurance industry in Taiwa. *Journal of Modelling in Management*, 4(1), 7–18

Clarke, T. (2004). Theories of CG. The Philosophical Foundations of CG, Oxon. London and New York: *Routledge*.

Communication of the Commission (2003), "Modernising company law and enhancing CG in the European Union – a plan to move forward",

Co-operative Credit Unions Association. (2015). Annual Report. Retrieved from https://www.cua.com/SharedContent/documents/CUA-2015-AnnualReport.pdf, CG. *Middle Eastern Finance and Economics*, 4(4), 88-96.

Cull, R., A. Demiguc-Kunt, & J. Morduch (2007). Financial performance and outreach: A global analysis of leading microbanks. *Economic Journal* 117(517), 107–133.

Darko, J., Aribi, Z. A., & Uzonwanne, G. C. (2016). Corporate governance: the impact of director and board structure, ownership structure and corporate control on the performance of listed companies on the Ghana stock exchange. *Corporate Governance*.

Dayanandan, R. (2013). Good governance practice for better performance of community organisations-myths and realities. *Journal of Power, Politics & Governance*, 1(1), 10-26.

Demirgüç-Kunt, A., & Klapper, L. (2012). Financial inclusion in Africa: an overview. *The World Bank*.

Denis, D. K., & McConnell, J. J. (2003). International CG. *Journal of financial and quantitative analysis*, 38(1), 1-36.

Denis, D. K., & McConnell, J. J. (2003). International CG. *Journal of financial and quantitative analysis*, 38(1), 1-36.

Drobetz, W., Schillhofer, A. & Zimmerman, H. (2003). Corporate Governance and Expected Stock Returns: Evidence from Germany. WWZ/Department of Finance Basel University Working Paper No. 2/03.

Duncan, R. C. (2003). Governance and growth. In Symposium on Governance held at the University of the South Pacific, Suva, September.

Eberhardt, M., & Teal, F. (2011). Econometrics for grumblers: a new look at the literature on cross-country growth empirics. *Journal of Economic Surveys*, *25*(1), 109-155.

El-Osta, H. S., & Mishra, A. K. (2005). Dimensions of wealth dispersion among farm operator households: an assessment of the impact of farm subsidies. *Journal of Agricultural and Applied Economics*, *37*(1379-2016-112684), 187-208.

Fiandrino, S., Devalle, A., & Cantino, V. (2019). Corporate governance and financial performance for engaging socially and environmentally responsible practices. *Social Responsibility Journal*.

Gelos, R. G., & Wei, S. J. (2002). Transparency and international investor behavior (No. w9260). *National Bureau of Economic Research*.

Greenbury, R. (1995), Directors' Remuneration: Report of the Study Group, Chaired by Sir Richard Greenbury, Gee Publishing, London.

Gyamerah, S., Amo, H. F., & Adomako, S. (2020). Corporate governance and the financial performance of commercial banks in Ghana. *Journal of Research in Emerging Markets*, *2*(4), 33-47.

Habbash, M. (2010). The effectiveness of CG and external audit on constraining earnings management practice in the UK (Doctoral dissertation, Durham University).

Hampel, R. (1998), Committee on CG: Final Report, Gee, London.

Hartarska, V. & Nadolnyak, D. (2007), "Do regulated microfinance institutions achieve better sustainability and outreach? Cross country evidence", *Applied Economics*, 39(10), 1-16.

Hartarska, V. (2005). Governance and performance of microfinance institutions in central and eastern Europe and the newly independent states. *World Development*. 33, 1627–1648.

Harvey, P. L. (2017). Reference Model, Governance Framework and Instantiation Strategy. In Community Informatics Design Applied to Digital Social Systems (pp. 201-259). *Springer*, Cham.

Haslinda, A. & Valentine, B. (2009). Fundamental and ethics theories of CG. *Middle Eastern Finance and Economics*, 4(7), 88-96.

Hausman, J. A., & Taylor, W. E. (1981). A generalized specification test. *Economics Letters*, *8*(3), 239-245.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of accounting and economics*, *31*(1-3), 405-440.

Hossain, M. M., & De Lasa, H. I. (2008). Chemical-looping combustion (CLC) for inherent CO2 separations—a review. *Chemical Engineering Science*, *63*(18), 4433-4451.

Kioko, B. (2010). The impact of SASRA regulations on the financial performance of SACCO‟s in Kenya. Nairobi: SASRA.

Kolapo, T. F., Ayeni, R. K., & Oke, M. O. (2012). Credit risk management and commercial banks' performance in Nigeria: A panel model approach. *Australian Journal of Business and Management Research*, 2(2), 31–38.

Kombo, A., Wesong, J., & Murumba, N. (2011). An Evaluation of the Impact of Risk Management Strategies on Micro Finance Institutions Financial Sustainability; A case of Selected MFIs in KIsii Municipality.

Kyazze, L. M., Nkote, I. N., & Wakaisuka-Isingoma, J. (2017). Cooperative governance and social performance of cooperative societies. *Cogent Business & Management*, 4(1), 1284391.

Kyere, M., & Ausloos, M. (2021). Corporate governance and firms financial performance in the United Kingdom. *International Journal of Finance & Economics*, *26*(2), 1871-1885.

La Porta, R., Silanes, F.L., Shleifer, A. & Vishny, R.W. (1998), "Law and finance", *Journal of Political Economy*, 106 (6), 1113-1155.

Lagat, F. K., Mugo, R., & Otuya, R. (2013). Effect of credit risk management practices on lending portfolio among savings and credit cooperatives in Kenya.

Ledgerwood, J. (1998). Microfinance handbook: An institutional and financial perspective. *The World Bank*.

Lee, C-C., Ning, S-L. & Lee, C-C. (2015) 'How does bank capital affect bank profitability and risk? Evidence from China's WTO accession', *China and World Economy*, 23(4), 19–39.

Li, F., & Zou, Y. (2014). The impact of credit risk management on Profitability of Commercial Banks: A Study of Europe. Published Thesis by Umeå School of Business and Economics, Sweden.

Lipunga, A. M. (2014). Determinants of profitability of listed commercial banks in developing countries: Evidence from Malawi. *Research Journal of Finance and Accounting*, *5*(6), 41-49.

Liu, Y. M. (2003). The Effect of Industrial Structure on Business Strategy and Profitability for Life Insurance in Taiwan (Unpublished Master Thesis). Taichung, Taiwan: Department of Insurance, Chaoyang University of Technology.

Mahadeo, J. D., Soobaroyen, T., & Hanuman, V. O. (2012). Board composition and financial performance: Uncovering the effects of diversity in an emerging economy. *Journal of Business Ethics*, *105*(3), 375-388.

Makena, M. L. (2014). Rebranding strategy and performance of savings and credit co-operatives in Meru County, Kenya. Thesis, Nairobi University.

Mallin, C. A. (2007). CG (2nd ed.). New York: Oxford

McGee, R. W. (2008). CG in Asia: A comparative study of Indonesia, Malaysia, Thailand and Vietnam. Malaysia, Thailand and Vietnam (June 2008).

Merendino, A., & Melville, R. (2019). The board of directors and firm performance: empirical evidence from listed companies. CG: *The International Journal of Business in Society*.

Mersland, R. (2009). Corporate Governance and ownership in microfinance organizations.

Meyer, J. (2019). Outreach and performance of microfinance institutions: the importance of portfolio yield. *Applied Economics*, *51*(27), 2945-2962.

Meyer, E., & De Wet, J. (2013). The impact of board structure on the financial performance of listed South African companies. *Corporate Board: Role, Duties & Composition*, *9*(3).

Müller, V. O. (2014). The impact of board composition on the financial performance of FTSE100 constituents. *Procedia-Social and Behavioral Sciences*, *109*(8), 969-975.

Mutinda, C. M. (2016). Impact of prudential regulatory framework on financial performance of deposit taking SACCOs in Kenya. (Doctoral dissertation). University of Nairobi, Kenya.

Mwangi, K. J., Nyachwaya, O. Z., & Cheruyoi, K. R. (2015). Effect of CGP on financial performance of saccos in Kericho Municipality. *Journal of Economics and Finance*, *6*(3), 57-75.

Nahar, S., Azim, M., & Jubb, C. A. (2016). Risk disclosure, cost of capital and bank performance. *International Journal of Accounting & Information Management*.

Njekang, D.N. and Afuge, J.A. (2017) The impact of CG on financial performance of credit unions: The case study of CamCCUL network. *International Journal of Multidisciplinary Research and Development*. 4(6), 233-243.

Nobanee, H., & Ellili, N. (2014). The Impact of the Mandatory Corporate Governance Disclosures on the Banking Growth in UAE: Islamic versus Conventional Banks, 717-722.

Noman, H. M., Pervin, S., Chowdhury, M. M., & Banna, H. (2015). The effect of credit risk management on the banking profitability: A case on Bangladesh. *Global Journal of Management and Business Research*, 15(3), 41–48

Oganda, A. J., Mogwambo, V. A., & Otieno, S. (2018). Effect of Cash Reserves on Performance of Commercial Banks in Kenya: A Comparative Study between National Bank and Equity Bank Kenya Limited. *International Journal of Academic Research in Business and Social Sciences*, *8*(9), 685704.

Oino, I., & Itan, M. (2018). Impact of CG on Bank Financial Performance. *Journal of Business Management and Economics*, 6(8).

Okwee, A. (2011). Corporate Governance and Financial Performance of SACCOs in Lango Subregion. Unpublished MBA Research Project, Makerere: Makerere University.

Omolo, J. O. (2015). CG best practices and performance by deposit taking savings and credit cooperative societies in Nairobi City County. Doctoral dissertation, School of Business, University of Nairobi, Kenya.

Onsase, A., Okioga, C., Okwena, D. K., & Ondieki, A. N. (2013, February). Assessment of the effects of performance management practices on provision of financial services by savings and credit cooperative societies:

A case of Gusii mwalimu Sacco, Kisii central district, Kenya. In Scientific Conference Proceedings.

Paniagua, J., Rivelles, R., & Sapena, J. (2018). Corporate governance and financial performance: The role of ownership and board structure. *Journal of Business Research*, *89*, 229-234.

Ping, Z., & Wing, C. (2011). CG: A summary review on different theory approaches. *International Research Journal of Finance and Economics*, 68(68), 7-13.

Puri, D. L., & Walsh, J. (2018). Impact of Good Governance on Performance Of Cooperatives In Nepal. *Management and Marketing Journal*, 16(2), 206222.

Renders, A., Gaeremynck, A., & Sercu, P. (2010). Corporate-governance ratings and company performance: a cross-European study. Corporate Governance: *An International Review*, 18(2), 87-106.

Ruziqa, A. (2013). The impact of credit and liquidity risk on bank financial performance: The case of Indonesian Conventional Bank with total asset above 10 trillion Rupiah. *International Journal of Economic Policy in Emerging Economies*, 6(2), 93–106.

Salah, N. B., & Fedhila, H. (2012). Effects of securitization on credit risk management and banking stability: Empirical evidence from American Commercial Banks. *International Journal of Economics and Finance*, 4(5), 194–207.

Sanda, A. U., Mikailu, A. S., & Garba, T. (2005). CG mechanisms and firm financial performance in Nigeria. AERC Research Paper 149. *African Economic Research Consortium*, Nairobi, Kenya.

Sanda, A., Mikailu, A. S., & Garba, T. (2010). CG mechanisms and firm financial performance in Nigeria. Afro-Asian Journal of Finance and Accounting 2(1), 22-39.

Sarpong-Danquah, B., Gyimah, P., Afriyie, R. O., & Asiamah, A. (2018) Corporate governance and firm performance: An empirical analysis of manufacturing listed firms in Ghana. *Accounting and Finance Research*, *7*(3), 111-118.

Shleifer, A. & Vishny, R. (1997), "A survey of Corporate Governance", *The Journal of Finance*, 52(2), 737-783.

Srivastava, V., Das, N., & Pattanayak, J. K. (2019). Impact of CG attributes on cost of equity: Evidence from an emerging economy. *Managerial Auditing Journal*, 34(2), 142-161.

Suroso, S., Widyastuti, T., Salim, M. N., & Setyawati, I. (2017). Intellectual capital and corporate governance in financial performance Indonesia Islamic banking. *International Journal of Economics and Financial Issues*, *7*(4).

Wilson, I. (2006). Regulatory and institutional challenges of Corporate Governance in Nigeria post banking consolidation. *Nigerian Economic Summit Group*

(NESG) Economic Indicators, 12(2), 1-10.

Yilmaz, I. (2018). Corporate governance and financial performance relationship: case for Oman companies.

Zaman, R., Arslan, M., & Siddiqui, M. A. (2014). Corporate Governance and firm performance: the role of transparency & disclosure in banking sector of Pakistan. *International letters of social and humanistic sciences*, 43, 152-166.

Zhu, F. (2014). Corporate Governance and the cost of capital: An international study. *International Review of Finance*, 14(3), 393-429.

APPENDICES

A: Fixed effect: ROA

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA
1.Board Size	0.120			0.0421
	(0.113)			(0.116)
Bank savings deposit	0.169***	0.167***	0.177***	0.155***
	(0.0554)	(0.0529)	(0.0549)	(0.0544)
Loan loss provision	0.199***	0.197***	0.199***	0.192***
	(0.0562)	(0.0543)	(0.0566)	(0.0548)
Interest on loans	0.452***	0.465***	0.447***	0.467***
	(0.0659)	(0.0641)	(0.0662)	(0.0646)
Capital Adequacy Ratio	0.00335	0.00411	0.00513	0.00422
	(0.00772)	(0.00737)	(0.00769)	(0.00757)
Liquidity reserve ratio	0.00255	0.00162	0.00241	0.00291
	(0.00463)	(0.00442)	(0.00471)	(0.00459)
Credit Risk Management		-0.837**		-0.872**
		(0.382)		(0.406)
Audit Compliance			0.0905	0.135
			(0.135)	(0.136)
Constant	6.283***	6.379***	6.218***	6.379***
	(0.495)	(0.482)	(0.497)	(0.486)
R-square	0.903	0.909	0.902	0.911
Observations	75	75	75	75
Number of CU_ID	16	16	16	16

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Author's Estimation (2020)

B: Fixed Effect: ROE

	(1)	(2)	(3)	(4)
	fe11	fe12	fe13	fe14
VARIABLES	ROE	ROE	ROE	ROE
1.Board Size	-0.378*			-0.362*
	(0.200)			(0.214)
Bank savings deposit	-0.0336	-0.0513	-0.0438	-0.0295
	(0.0982)	(0.0976)	(0.0970)	(0.101)
Loan loss provision	-0.201**	-0.204**	-0.200**	-0.198*
	(0.0995)	(0.100)	(0.0999)	(0.101)
Interest on loans	0.361***	0.367***	0.369***	0.363***
	(0.117)	(0.118)	(0.117)	(0.119)
Capital Adequacy Ratio	-0.0136	-0.0156	-0.0164	-0.0144
	(0.0137)	(0.0136)	(0.0136)	(0.0140)
Liquidity reserve ratio	0.0131	0.0143*	0.0130	0.0122
	(0.00820)	(0.00815)	(0.00831)	(0.00849)
Credit Risk Management		0.0289		-0.3357*
		(0.704)		(0.750)
Audit Compliance			-0.167	-0.133
			(0.238)	(0.251)
Constant	-0.567	-0.500	-0.466	-0.531
	(0.878)	(0.889)	(0.877)	(0.899)
R-squared	0.294	0.283	0.290	0.298
Observations	75	75	75	75
Number of CU_ID	16	16	16	16

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Author's Estimation (2020)