KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,

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POSTGRADUATE STUDIES

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CAPITAL ADEQUACY, COST TO INCOME RATIO AND PERFORMANCE

OF MANUFACTURING FIRMS IN GHANA

BY

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DECLARATION

I hereby declare that, this submission is my own work towards the degree in Master of Business Administration (Finance) and that to the best of my knowledge, it contains no materials previously published by another person or group nor material which has been accepted for the award of any other degree of the university, except where due acknowledgement has been made in the text.

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DEDICATON

I dedicate this project work especially to my lovely parents, my wife, my children and

all loved ones who helped me in diverse ways to accomplish my program successfully.

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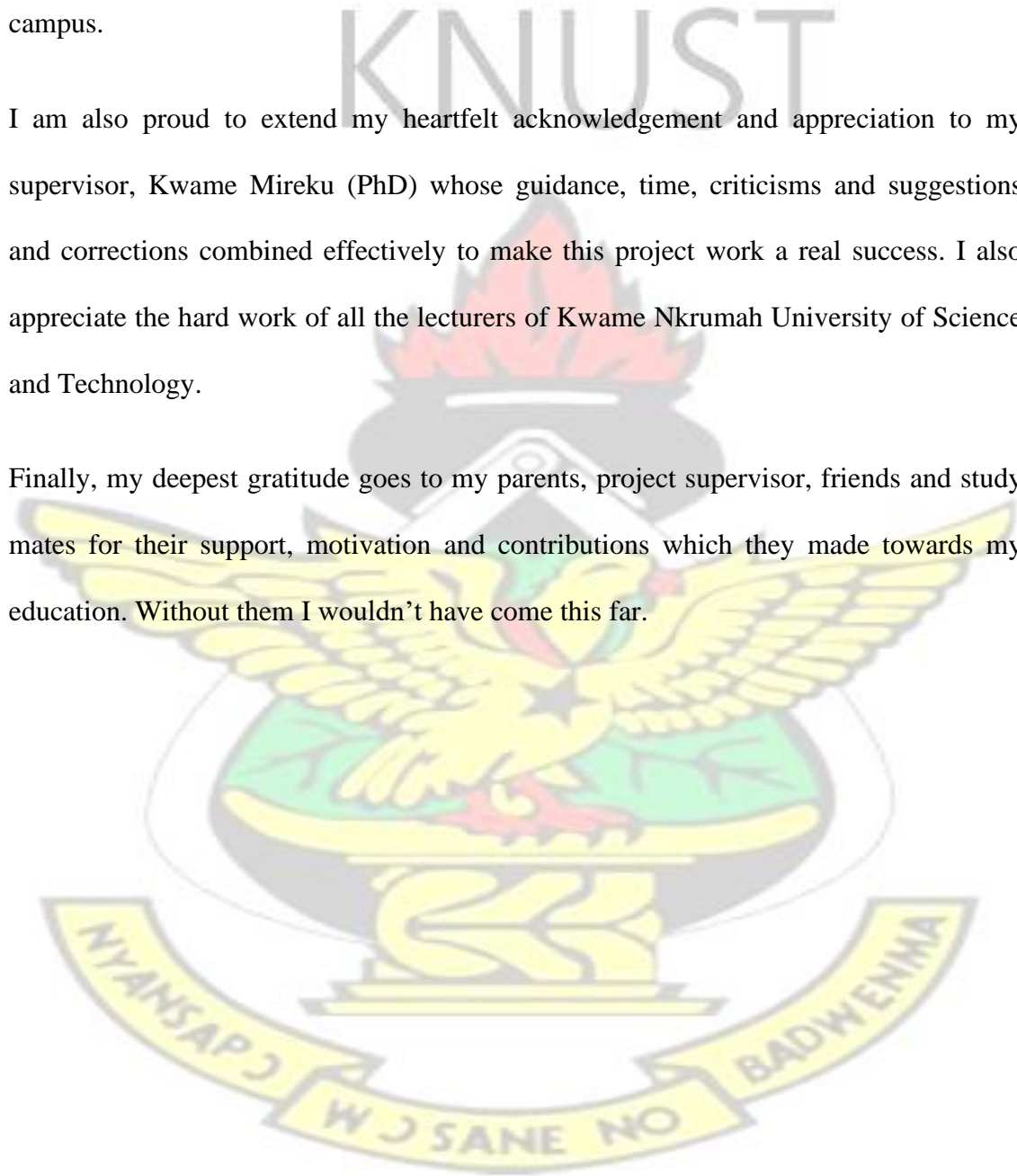
ABSTRACT

The study's main purpose is to investigate how capital adequacy ratio and cost to income ratio impact the financial outcome of manufacturing firms listed on the Ghana Stock Exchange (GSE) from 2017 to 2022. The study adapted multiple linear regression analysis. Capital adequacy ratio was measured with equity capital to asset (ECA) and debt to equity (DE). Purposive sampling technique was used to sample five of the listed manufacturing firms as some firms did not have all the financial statements needed for this study. The study finds that the trend of the average equity capital to asset (ECA) fell from 2018 to 2022. Then the trend of average debt to equity ratio experienced an increase and decrease during the years considered for this study. The trend for the average cost to income ratio (CIR) also experienced some increase and decrease from 2017 to 2022. According to the correlation matrix, return on asset (ROA) did have a positive correlation with equity capital to asset (ECA) but a negative correlation with debt to equity (DE) and cost to income ratio (CIR). Then return on equity (ROE) had a positive correlation with debt to equity (DE) but a negative correlation with equity capital to asset (ECA) and cost to income ratio (CIR). The regression matrix concludes that ECA is significant to return on equity. In the nutshell, capital adequacy ratio (CAR) is significant to the firm performance of manufacturing firms listed on the Ghana Stock Exchange. The study recommends that study should be done on analysing the effects of Capital Adequacy Ratio (CAR) and Cost to Income Ratio (CIR) on Firm Performance for mining and telecommunication companies on the Ghana Stock Exchange.

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LIST OF ABBREVIATIONS

ROA   -   Return on Asset

ROE   -   Return on Equity

ECA   -   Equity Capital to Asset

DE   -   Debt to Equity

CIR   -   Cost to Income Ratio

GSE   -   Ghana Stock Exchange

IR   -   Inflation Rate

ER   -   Exchange Rate

CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND OF THE STUDY

By significantly boosting the gross domestic product, the manufacturing sector plays a crucial economic role in most countries' efforts to move toward development (Ejsmont et al., 2020). Working capital management may provide businesses a competitive advantage over their rivals in the manufacturing industries so they can compete in the external environment (Le et al., 2019). Additionally, manufacturers have lately discovered that if they correctly manage their working capital accounts, they can access considerable cash flow sources (Chowdhury et al., 2018). Economic progress and expansion have generally been attributed to the manufacturing sector (Herman, 2016).

The capital adequacy ratio (CAR), which is always kept as a specific percentage of total assets, is a statistic used to assess a firm's capacity to supply minimal capital. Dendawijaya (2005) defined the CAR as "the success ratio is used to assess a bank's capital sufficiency to support assets with or producing risks, such as loans made". The condition of a bank may be improved if the CAR ratio is high, and the ability of the bank to finance its activities is indicated by a high CAR value. Weighed Analysis by Risk, which is how CAR is calculated, is expressed as a percentage.

An indicator of a bank's operational proficiency and capacity is the operational cost of operational income (BOPO) ratio. Interest costs and interest yields account for the majority of the bank's operational expenses and revenue because the primary functions of the bank is that of a middleman, collecting and distributing money to other parties. The drop in pre-tax earnings, which results from a rise in operating costs, will have an

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effect on the bank in question's profitability (ROA), which will ultimately be reduced (Dendawijaya, 2003).

Macroeconomic factors, which provide light on a nation's economic health, are a crucial component of fundamental analysis for traders. A US Bank Asset Management Group study found that over the past 30 years, stock prices have surpassed inflation. Compared to smaller organizations, mid-sized companies have a stronger correlation with inflation, but larger companies have a stronger impact on inflation than smaller ones. Economic figures have a favourable impact on firm value, claims Yunan (2020). Derbali and Jamel (2018) discover that, in Tunisia, macroeconomic indices have a detrimental impact on business value.

The economy of Ghana has risen gradually during the previous 25 years according to Addo (2017). Manufacturing businesses in Ghana contribute about 25.3% of the GDP of the country. Ghana's industrial production is expanding at a rate of 7.8% thanks to government industrialization initiatives, placing it as the nation with the 38th fastest growing industrial production internationally. Ghana's average medium-term real GDP growth rate is now expected to be at least 8% each year. This inspired the study to concentrate on Ghanaian industrial companies.

Naceur and Kandil (2009) discovered a positive and impactful association between overhead costs and outcome. This finding raises the possibility that these costs are ultimately passed on to depositors and lenders in the form of reduced deposit rates or higher lending rates. Expenses are passed on to customers in a less competitive market where a few banks have a monopoly (Flamini et al., 2009). Then Sufian and Chong (2008) asserted that, ineffective expense management is a major factor in low profitability and that there is a significant correlation among effective expense

management and business performance. The cost-to-income ratio and a company's profitability have an inverse connection, according to Hess and Francis (2004). These studies collectively demonstrate the effect of cost to income and capital sufficiency ratios on firm performance.

1.1 PROBLEM STATEMENT

Numerous studies have been conducted by numerous academics in other nations to determine the relationship and influence of the Capital Adequacy Ratio (CAR) and Cost Income Ratio (CIR) on organizations' performance, emphasizing their significance. Xu et al. (2019) did a close study on Bank profitability and financial stability in the United States and Europe. Mohanty and Krishnankutty (2018) also did a study on the determinants of profitability in Indian banks in the changing scenario by testing capital adequacy ratio. A study by Antwi (2019) is one of the most recent studies conducted in Ghana about the impact of capital adequacy ratio (CAR) and cost income ratio (CIR) on enterprises' performance. However, the study by Antwi (2019) does identify a gap in the body of research, which is what this study aims to address. Only banking companies registered on the Ghana Stock Exchange (GSE) were taken into account in the study by Antwi (2019).

Surprisingly, little attention has been giving to the manufacturing sector concerning capital adequacy ratio (CAR) and cost to income ratio (CIR) concepts in Ghana. But the manufacturing has the ability to revolutionize Ghana's economy by broadening the country's production and export base while also increasing employment, income, and export revenues (Ali et al., 2021). Cocoa processing, food and agro-processing, textiles and garments, and medicines are some of the industries that might promote manufacturing in Ghana. Machado et al. (2020) established that emerging and ongoing

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initiatives that may have a significant impact on the manufacturing sector include the development of value chains for some local raw materials, the impending implementation of GCAP to ensure that goods imported into Ghana meet certain standards, and the elimination of minimum capital requirements for foreign investors entering the manufacturing sector.

Ghana competes in the global economy primarily using natural resources (Johnson, 2019). Other than the usual exports of cocoa, gold, lumber, and crude oil, Ghana has a competitive advantage in numerous product categories. However, it would be pointless to invest in any product category if it could not considerably increase earnings (Murphy, 2020). As a result, suggested items should have a higher income content and be more complex than those now exported. Increasing the proportion of high-income commodities in the export basket hastens economic transition. The opportunity is providing better, economically advantageous items to regional and worldwide markets. Cocoa processing, wood processing, aluminum products, palm oil, food and agro-processing, and fish processing are examples of manufacturing sub-sectors that fit these two requirements.

As a result, the focus of the study is on the manufacturing organizations on the Ghana Stock Exchange. This study fills the geographic gap in the studies by Mohanty and Krishnankutty (2018) and Xu et al. (2019). This research also fills the industrial gap left in the study by Antwi (2019) as this study focuses on manufacturing firms rather than banking institutions. Additionally, data from their analysis from 2013 to 2018 were included in Antwi's study from 2019. In order to provide a more accurate view of the before and post COVID-19 state of organizations, the study aims to close the temporal gap in the literature by using data from 2017 to 2022. This study's primary

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goal is to investigate how the capital adequacy ratio and cost to income ratio affect the financial performance of manufacturing companies on GSE from 2017 to 2022. But this study is limited to only manufacturing firms. Also, this study does not consider all manufacturing firms in Ghana but only those listed on the Ghana Stock Exchange.

1.2 OBJECTIVE OF THE STUDY

This study's main purpose is to investigate how capital adequacy ratio and cost to income ratio impact the financial outcome of manufacturing firms listed on the Ghana Stock Exchange (GSE) from 2017 to 2022. Specific objectives formed to achieve the main objectives are:

1. To examine the trends of capital adequacy ratio and cost to income ratio of manufacturing firms on the GSE.

2. To examine the impact of capital adequacy ratio on the financial performance of manufacturing firms on the GSE.

3. To examine the impact of cost to income ratio on the financial performance of manufacturing firms on the GSE.

1.3 RESEARCH QUESTIONS

This paper plans to answer questions as:

1. What are the trends of capital adequacy ratio and cost to income ratio of manufacturing firms on the GSE?

2. What is the impact of capital adequacy ratio on the financial performance of manufacturing firms on the GSE?

3. What is the impact of cost to income ratio on the financial performance of manufacturing firms on the GSE?

1.4 SIGNIFICANCE OF THE STUDY

The manufacturing industry has never made much of a difference to Ghana's GDP. The GDP of the nation would increase if the manufacturing sector was strong. As a result, the government would have a greater grasp of the performance of its manufacturing enterprises according to the study's findings. This would make it possible for the government to create plans to support industrial companies.

The findings of this study would provide various managers of manufacturing firms with a broader performance measure. Managers would be able to make better decisions as they consider the actual affects of capital adequacy ratio and cost to income ratio on firm's performance. The findings in this study would provide a clearer assessment focus for managers as they decide on the importance of CAR and CIR on firm's performance.

Both internal investors (shareholders) and external investors (new investors) would be interested in the findings of this study. The findings would provide internal investors with a clearer picture of the impact of capital adequacy ratio and cost to income ratio on their investments. Also, an external investor would be given a better picture of the impacts of capital adequacy ratio and cost to income ratio on firm's performance of various manufacturing companies from the findings of this study. This would help them decide which companies to invest in and which to avoid.

This research might be useful to academics as well. A more comprehensive performance metric of shareholder value would be provided by the study. This study also explains many approaches to help academics boost their next research.

1.5 SCOPE AND LIMITATION OF THE STUDY

Although there are many other kinds of businesses in Ghana, this study solely takes into account those that are listed on the Ghana Stock Exchange (GSE). Even so, it narrowed its emphasis to GSE-listed manufacturing businesses alone. The study also looked more closely at businesses that have been operating between 2017 and 2022. Since there haven't been any research on the subject of manufacturing companies in Ghana, this study mainly focused on GSE-listed manufacturing companies that were operational from 2017 to 2022.

But there were some limitations to the studies. This study is limited to manufacturing companies only; hence it ignored other sectors like construction, mining, and banking firms. Again, there are other manufacturing companies in Ghana that are not all listed on the GSE, thereby limiting our findings to only those listed on the GSE. Also, the period of the study (2017–2022) limited the inclusion of new manufacturing companies (2023) on the GSE. Nevertheless, the results of the study were not affected and are therefore reliable and useful for any decision.

1.6 ORGANIZATION TO THE STUDY

This paper is divided into five parts in order to provide a clear presentation of the work. The study's issue statement, study objectives, research questions, study scope, and investigational limitations would all be provided in the first chapter. In Chapter 2's discussion of the relevant literature, a conceptual review, a theoretical review, an empirical review, and a conceptual framework are all included. The technique employed by the researcher—which includes the study design, population and sample testing design, as well as the tools utilized to gather data and the examination process—will be covered in Chapter 3. In Chapter 4, the research's interpretation and presentation

of its findings are discussed. statistics and figures are used to illustrate and interpret various facts and statistics. Finally, Chapter 5 will cover the summary, findings, suggestions for improvement, and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

The literature review shows a summary and assessment of what eminent scientists and academics have written on specific topics or areas of study. Literature reviews are intended to provide a summary of the sources examined when researching a specific topic, as well as show the reader how the work fits into a larger field of study. The study examines the Conceptual Review, Theoretical Review, Empirical Review, and Conceptual Framework in this segment. The literature review is conducted with the study objectives in mind.

2.1 CONCEPTUAL REVIEW

The purpose of the conceptual review is to allow for a review of the literature on the research concepts. Capital adequacy ratio (CAR), firms' performance, Cost Income Ratio (CIR) and manufacturing companies are four of the concepts explored in the study. The relevant studies relating to the study's topic will be reviewed in this part. A conceptual examination is necessary because the reader must comprehend the subject under consideration.

2.1.1 Capital Adequacy Ratio (CAR)

A bank's capital adequacy ratio (CAR) compares the amount of capital it has to its current liabilities and risk-weighted assets (Hersugondo et al., 2021). Minimum capital adequacy ratios are critical. Since it ensures a good leverage for banks, some studies like (Rtd, M.F.A & Santuoh, 2018; Ilham et al., 2022: Ufo, 2015: Ashmarina et al., 2016) have advised various firms, especially the manufacturing firms to have such

leverage to enhance their solvency. The capital adequacy ratio can demonstrate if a business has sufficient cash to absorb a reasonable loss level before going bankrupt and losing depositors' funds (He & Hu, 2023). Capital Adequacy Ratio (CAR) was assessed using Equity Capital to Asset (ECA) and Debt to Assets ratio.

The Equity to Asset ratio is the amount of equity a firm has in relation to its total assets (Ali & Anwar, 2021). It is one of the most important financial metrics that business owners and investors use to analyse the financial health of a company. The equity to assets ratio is an important metric since it sheds light on the financial health of a company (Sitinjak et al., 2023). A company with a high equity to assets ratio is more likely to be financially stable and rely less on debt funding. The company is therefore better equipped to endure financial shocks. A low equity to assets ratio, on the other hand, indicates that a company is more dependent on debt financing and has a poorer financial position (Bordeianu & Radu, 2020). Due to this, the chance of default and the company's vulnerability to financial shocks both rises. By dividing a company's total equity by its total assets, one may calculate the equity to assets ratio. According to Irman and Purwati (2020) it is mathematical expressed as:

Total Equity

Total Asset

When attempting to evaluate a company's financial health and the profitability of an investment, the debt-to-equity ratio (D/E) is a financial leverage ratio that can be helpful (Samo & Murad, 2019). A gearing ratio is one that weighs the capital or equity of the owner against the debt, or money the business has borrowed. Using this ratio, the total liabilities of a firm are compared to shareholder equity. It is frequently recognized as one of the most important factors in business valuation since it reveals a company's reliance on borrowed money. Although the appropriate debt-to-equity ratio will

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normally vary greatly by industry (Renaldo et al., 2023), it generally shouldn't be higher than 2.0. It is mathematically defined as:

$$\underline{\textbf{Total Debt}}$$
$$\textbf{Total Equity}$$

2.1.2 Firm Performance

There are a lot of performance index that can be used as a company's performance within a firm. So, not all the accounting measures could be considered in this research. But, return on assets (ROA) and return on equity (ROE) were the firm performance index adapted for the study.

Return on assets (ROA) is a statistic that contrasts the asset worth of a business with the profits it makes over time (Batchimeg, 2017). Return on assets is a technique that managers and financial analysts utilize to figure out how to spend their money. According to Batchimeg (2017), how effectively a firm uses its resources to earn a profit is determined by the difference between the money earned from selling widgets and the cost of materials and labour represents the company's net profit. However, one of the biggest issues with ROA is that it can't be used across industries (Jha and Rangarajan, 2020). That's because companies in one industry have different asset bases than those in another. So, the asset bases of companies within the oil and gas industry aren't the same as those in the retail industry. That is why this study is only focused on manufacturing firms. According to Dwiarti et al. (2021), The net profit of the business is divided by the asset value to arrive at the ROA.

ROA = Net Profit / Total Assets

Return on equity, according to Shad et al. (2019), refers to how well a company generates returns on the money it receives from its shareholders. When seen together, ROE and ROA can be used to measure how successfully a company manages its debt. When a firm takes on debt, for example, ROE will nearly always be greater than ROA, but if the gap is significant, it could indicate that the organization is not making appropriate use of its borrowed funds. Return on equity was calculated by Kusi et al. (2017) as

ROE = Net Income or Profits/Total Equity.

Franco et al. (2020) demonstrated how ROE varies depending on the industry in which the companies are involved. This is because different types of businesses have varying degrees of assets and obligations on their balance sheets, as well as variable quantities of revenue. It would be unfair to compare a company with high asset and debt needs and lower than usual income to one with lower asset and debt needs and normally higher income expectations. As a result, the firm's age, financial leverage, and assets must all be considered.

2.1.3 Cost to Income Ratio (CIR)

A crucial financial metric that is frequently employed when assessing businesses is the cost-to-income ratio (Ayinuola & Gumel, 2023). It displays the cost to revenue ratio for a business. Investors may clearly see how well the company is run (at least in theory) with the help of the resulting ratio. In essence, it demonstrates the amount of input (cost) needed by the business to produce one pound (or, let's say, dollar or euro) of output (profit). The firm will be more successful, effective, and competitive the smaller the ratio (Dimitri et al., 2019). For instance, a ratio of one would indicate that the

company spends every cent of operating income; it costs £1 to create £1. That situation cannot continue, there is no doubt about it.

The cost-to-income ratio truly needs to be utilized in conjunction with pertinent comparators, as is the case with most valuation methods (Ong Vifor et al., 2022). You may, for instance, examine historical ratio data for a specific company. Nevertheless, cutting costs might temporarily lower the ratio, but over time, it might have a detrimental effect on, for instance, customer service or regulatory compliance, which would eventually have an adverse effect on income. It is simple to determine the ratio. According to Cáceres García, E. and Lamas (2023), it is entirely possible to have a negative income ratio. Since expenses are taken directly out of income (such as dividend or coupon payments), funds with few debt obligations or dividend-paying equities may have negative income ratios. Hence, this study targeted the various operating cost and income. Simply take the bank's operating expenses (this doesn't include bad loans that have been written off, though, and includes administrative and fixed costs like salaries and property expenses). Next, multiply this figure by the operating profit of the business. (which is simply turnover minus operating costs) (Bansal & Kumar, 2021). Defined mathematically as: **CIR = Operation Cost/ Operation Income.**

2.1.4 Manufacturing Firms

Manufacturing started in the nineteenth century when raw materials were turned into finished goods during the Industrial Age (Humphreys, 2020). Craftsmen became wage workers at this time as human labour technology was replaced by machines and chemical industrial processes. A manufacturing business produces finished things using parts, pieces, or raw materials (Mohanavel et al., 2021). These finished goods can

either be sold directly to customers or to other manufacturers to be used in a different product. Manufacturing companies might be very simple, with only a few pieces to put together, or extremely intricate, requiring hundreds of parts to put together a finished good. Manufacturing companies, on average, are subject to greater legal and environmental regulations than other companies. Manufacturing is the efficient transformation of raw materials into finished products using a variety of processes, labor, and tools in accordance with a predetermined plan (Esmaeilian et al., 2016).

2.2 THEORETICAL REVIEW

The theories are designed to explain, forecast, and comprehend events as well as, in some cases, to challenge and advance the current level of knowledge within the parameters of significant boundary expectations. A research study's theory may be supported or upheld using the theoretical framework (Wilkins et al., 2019). The theoretical framework presents and outlines the explanation for why a research problem is being looked into. The two theories discussed in this study were the stakeholder theory and the agency theory.

2.2.1 Stakeholder's Theory

The Stakeholder Theory of organizational management and corporate ethics, which addresses management ethics and values, was first introduced by R. Edward Freeman in 1984 (Parmar et al. 2010). The several stakeholder groups that make up a company's stakeholders are described and modelled in the award-winning book Strategic Management: A Stakeholder Approach. Additionally, when establishing and promoting techniques, management must take those groups' interests into account. According to

the stakeholder theory, the owners should act primarily in the best interests of the company's shareholders by maximizing their wealth through maximizing earnings.

According to stakeholder theory, stakeholders are the ultimate asset owners of a firm, and managers and boards of directors must place a high priority on safeguarding and expanding these assets for the benefit of all stakeholders (Stoelhorst & Vishwanathan, 2022). As Stoelhorst and Vishwanathan (2022) maintained that with stakeholders focus on safeguarding their investment, capital adequacy ratio has been a great interest to them. Also, the desire of stakeholders to expand operations does sweetens their attention on cost to income ratio. The stakeholders' theory motivated this study by assessing how cost to income ratio and capital adequacy ratio affects firms' performance. Therefore, this study focuses on exploring the how cost to income ratio and capital adequacy ratio assist in assessing the stakeholder's value, which is essential to the stakeholder's theory.

The stakeholder theory emphasizes the interdependent interactions that exist between a company and its clients, suppliers, and other stakeholders (Dmytriyev et al. 2021). The idea is that a company has to provide benefit to all stakeholders, not just shareholders. The idea has emerged as an important factor in corporate ethics research.

2.2.2 Agency Theory

The complicated interactions that take place between principals and their agents are discussed in terms of agency theory (Cuevas-Rodrguez et al. 2012). Given that the principle has such confidence in the agent to make the optimal choice, there may be a variety of disputes or disagreements. Dong et al. (2021) claims that, the phrase "agency

theory" relates to the investigation of such linkages. The "agency difficulty" or "agency dilemma" are other names for agency theory.

In solving the agency dilemma, capital adequacy ratio, as a tool of measuring a firms solvency, boost the confidence that the various agents have in their agency. But acknowledging how it affect the manufacturing firms on the stock exchange gives the agents and agency an agreeable measure of their performance. The idea to either regard or disregard the important of both capital adequacy ratio and cost to income ratio as a measure of performance among manufacturing firms in Ghana would be tested. When it comes to agency theory and business the agency theory was very necessary to this study, as the theory shown the different goals of the managers and shareholders in an organization. In order to reduce the agency dilemma between shareholders and managers in the manufacturing firms in Ghana, this study seeks to examine key performance indicators for shareholders in order to actually assess the performance of managers.

2.3 EMPIRICAL REVIEW

Empirical analysis is based more on observation and experience than it is on logical reasoning. The form entails a critical assessment of recent evidence pertinent to a clearly stated research issue, the collection, publication, and analysis of data from the studies included in the review, and the use of pre-specified and validated identity procedures.

2.3.1 Trend of Capital Adequacy Ratio and Cost to Income Ratio

Ercegovac et al. did a study in 2020 on the elements affecting bank profitability measures in the European Union. Two analytically researched criteria for measuring

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bank profitability are ROA and ROE, and they are both recognized as standards. The study of the publicly traded, systemically important banks in the European Union from 2007 to 2019 is used to build the research model of the variables that affect bank profitability. The empirical evidence backs up the initial hypotheses, demonstrating that the efficiency of the banking firm.

Between 2007 and 2019, banks' average capital adequacy ratio increased gradually. Ercegovac et al. (2020) claim that banking companies want effective cost management in the post-crisis period in order to meet performance goals. The absence of the effects of asset size and regulatory capital ratio on profitability measures is another significant empirical finding. The paper's most significant contribution relates to the sample definition, variable selection, and explanatory power of the model that is used to explain trends in global banking.

The importance of non-interest income and retail-oriented business models is first examined by Xu et al. (2019). According to Xu et al.'s (2019) findings, profitability is adversely correlated with a bank's ability to manage idiosyncratic risk as well as systemic risk, and a bank's reliance on non-interest revenue, wholesale funding, and leverage is linked to higher risks. Cost to Income had a rising and falling pattern, rising significantly in 2009 and falling significantly in 2010. Low levels of competition are linked to low levels of idiosyncratic risk but high levels of systemic risk. According to the conclusions of the article by Xu et al. (2019), policymakers should work to comprehend the origins of bank profitability.

Lotto (2018) looked on how capital requirements rules affected the operational efficiency of Tanzanian banks. The studies from Lotto (2018) shown that, capital adequacy ratio fell and rose and fell again from 2009 to 2014. The inverse relationship

between non-performing loans (credit risk) and bank operating effectiveness is another significant finding made by Lotto (2018). The significance of this relationship may be as straightforward as the observation that total deposits due from customers or other banks, as well as total loans and advances issued by the bank, are unrelated to the efficiency with which the bank conducts its business. This probably indicates that banks are making way too many loans, which raises the possibility of default. Lotto (2018) offered some recommendations in his study. First, it is advised that Tanzanian banks increase their investments in cutting-edge technical developments in order to reduce labour costs and other operating costs and increase operational effectiveness.

2.3.2 Cost to Income Ratio and Financial Performance

Since they play a large part in the growth of the economy and the general advancement of the country, commercial banks must be conscious of their vital presence in order to operate effectively and significantly contribute (Dao, 2020). Banks must also be in a secure position to manage financial crises or avoid bankruptcy in order to serve as a location to receive deposits. The goal of Dao (2020) is to identify the elements that influence both the performance of banks and the capital adequacy ratio. The findings show that there is a statistically significant correlation between capital adequacy ratio and bank performance.

Boateng (2018) looked into what influences bank profitability in Ghana and India. Ten banks from each country's financial statements for the previous seven years were considered in the study. The ROA statistic, which measures profitability, was the dependent variable. The independent variables were made up of macroeconomic and bank-specific variables. The analysis used multiple regression as the statistical

technique to determine the relationship between the dependent and independent variables.

According to Boateng's (2018) research, cost to income ratio and bank size had minimal relevance on the profitability of Indian banks but had a significant impact on the profitability of Ghanaian banks. Therefore, it has been suggested that the regulatory bodies of both countries enforce the capital sufficiency condition firmly. In both countries, bank managers are required to adhere to reliable credit risk management practices. In order to save excessive operating costs, bank managers in both countries must once more strengthen internal control systems as bank size increases.

2.3.3 Capital Adequacy Ratio and Financial Performance

According to Wood and Skinner (2018), the primary source of financial intermediation in Barbados is the commercial banking sector. It plays a significant role in the payment system, serves as the main conduit for the mobilization of domestic savings, and serves as a significant outside source of capital for businesses. The commercial banking sector's financial indices deteriorated in 2008, the year the global financial crisis started, with credit quality standing out among them. The percentage of non-performing loans to total loans rose to a peak of 12.0% in 2012 from a record low of 2.9% in 2007. Extensive research on the causes of these loans has been done over the years due to the negative impact non-performing loans have on the financial performance of commercial banks. Between 1991 and 2015, Wood and Skinner (2018) looked into the macroeconomic and bank-specific factors that affected the non-performing loans at commercial banks in Barbados. The empirical results demonstrated that non-performing loans were significantly influenced by bank-specific variables return on equity, return on assets, capital adequacy ratio, and loan to deposit ratio.

According to Mohanty and Krishnankutty's (2018) research, India's banking industry is vital to the nation's development. Banks, a significant economic player, have their own promises and difficulties. Banks must sustain profitability in a cutthroat market even if they are responsible for funding the expanding economy. Mohanty and Krishnankutty (2018) sought to pinpoint the performance factors influencing the banks' return on assets (ROA). Through the panel generalized technique of movements estimating, Mohanty and Krishnankutty (2018) examined the bank-, industry-, and economy-specific factors influencing the profitability of 46 Indian banks during a 17-year period (1999-2015). It was discovered that ROA has a substantial negative correlation with capital adequacy ratio, solvency ratio, and last year ROA, but size, GDP growth, loan to deposit ratio, expense ratio, and productivity had significant positive correlations with 2- and 3-year lag ROA.

Sitompul and Nasution (2019) carried out an investigation to look at the relationships between profitability and return on assets (ROA) and capital adequacy ratios (CAR) in Indonesian commercial banks. Descriptive statistics, conventional assumption testing, and multiple linear regression were the analytical techniques used. The data show that, despite the fact that the Capital Adequacy Ratio had little effect on the Return on Assets.

For the health of the banking industry as a whole, it is crucial to examine how credit risk and bank solvency impact profitability (Madugu et al., 2020). Madugu et al.'s (2020) study sought to ascertain the unique effects of credit risk and capital adequacy ratio (CAR) on profitability of local and international banks within Ghana's banking sector, in addition to assessing their impact on the profitability of the sector as a whole. Madugu et al. employed a fixed effects estimating method and data from 11 banks

covering the years 2006–2016 in their 2020 study. According to the study's findings, local banks' profitability is significantly impacted by credit risk when compared to overseas banks (Madugu et al., 2020). However, it appears that CAR has little effect on domestic banks and has a negative influence on the profitability of foreign banks.

In their research published in 2018, Fidanoski et al. sought to understand how the profitability metrics return on assets (ROA) and ratio net-interest margin (RNIM) were impacted by bank-, industry-, and macro-specific drivers. The selected Croatian banks were included in the research sample by Fidanoski et al. (2018), and the empirical analysis covered the years 2007 through 2014. Fidanoski et al. (2018) estimated profitability models based on trustworthy and reliable econometric tests. The results showed that asset size (scale economies), loan portfolio, and GDP growth had a considerable positive impact on banks' profitability.

The study (Fidanoski et al., 2018) showed how leverage and the capital adequacy ratio (CAR) have positive effects on ROA and RNIM, as well as how market concentration and bank profitability are related. Basically, operational efficiency and risk management practices need to be improved for Croatian banks to become more profitable. Furthermore, rather than using more expensive shares, banks should use relatively cheaper deposits and borrowed funds and carefully balance their capital base and risk exposure. The conclusion of Fidanoski et al. (2018) was supported by the fact that the Croatian financial market does not penalize banks for increased risk exposure brought on by market inefficiencies. To boost competition in the banking business, the regulatory body in Croatia should enact some extra antitrust regulations. The important empirical and theoretical works from this field are also well-synthesized in this study.

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Brastama and Yadnya (2020) conducted research to ascertain how profitability affected banking stock prices in relation to the Capital Adequacy Ratio (CAR) and Non-Performing Loans (NPL). Four companies that were listed on the Indonesia Stock Exchange from 2011 to 2018 made up the sample. sample determination by the use of purposive sampling. Simple regression was utilized for direct analysis between variables, and the Sobel test was performed to identify the indirect effects of variables. The investigation by Brastama and Yadnya (2020) revealed that while the NPL variable has a negative impact on ROA, the CAR variable has a positive impact. Stock prices are positively impacted by the CAR variable. Stock prices are negatively impacted by the NPL variable. Through ROA, the CAR variable has an impact on stock prices. Additionally, through ROA, the NPL variable has an impact on stock values.

Al-Homaidi et al. (2020) examined the effects of internal and external variables on the profitability of 37 commercial banks listed on the Bombay Stock Exchange (BSE) in India between 2008 and 2017. The findings demonstrate that critical internal factors such bank size, asset quality, liquidity, asset management, and net interest margin significantly affect ROA. It has been discovered that a number of factors, such as adequate capital, deposits, operational effectiveness, gross domestic product, and inflation rate, negatively impact ROA. Furthermore, studies by Al-Homaidi et al. (2020) show that factors including capital sufficiency, bank size, operational performance, gross domestic product, and inflation rate significantly lower ROE.

Singh et al. (2021) conducted research to determine the consequences of non-performing loans (NPL) made by Nepalese conventional banks. The main commercial banks in Nepal made up the study's sample, and the data used for it covered the years 2015 to 2019. The analysis relied on secondary data, such as GDP and inflation

statistics taken from the World Bank database and the annual reports of each bank. Multiple regression analysis was the method of data analysis employed in this investigation. NPL was the study's dependent variable, whereas bank size, capital adequacy ratio, GDP growth, and inflation were its independent/explanatory factors. According to SINGH et al.'s (2021) analysis of the research findings, ROA, bank size, GDP, and inflation have a greater impact on bank NPL than CAR has on bank NPL. In other words, this study's analysis of the GDP influence on NPL shows a positive and significant effect, in contrast to the majority of studies that show a negative effect. It demonstrates how Nepalese banks expanded dramatically as GDP growth increased, despite the fact that there were no significant increases in income growth. SINGH et al. (2021) found that GDP growth has a positive and significant effect on the NPL of commercial banks. Therefore, governments and bankers must closely consider GDP growth when making decisions about NPLs.

Anggari and Dana (2020) used yearly financial reports from 2016 to 2018 to evaluate the connections between the Capital Adequacy Ratio (CAR), Third Party Fund, Loan to Deposit Ratio (LDR), and Bank Size to Profitability in banking firms listed on the Indonesia Stock Exchange. The population for Anggari and Dana's (2020) analysis consisted of 44 banks, with 18 being specifically sampled. The results of the Anggari and Dana (2020) study show that the Capital Adequacy Ratio had significant impact on profitability. In the meantime, the profitability of banking businesses listed on the Indonesia Stock Exchange saw a relatively positive influence from 2016 to 2018 due to the Loan to Deposit Ratio.

Antwi (2019) This study looked into how the capital adequacy, cost-to-income ratio, and ratio of Ghanaian banks related to their performance. The annual reports of the sample of banks in the study that are listed on the Ghana Stock Exchange were used to gather data for the years ending in 2013 and 2018. The statistical software application STATA version 15 was used to carry out regression analysis. According to Antwi's 2019 study, measurements for return on assets (ROA) and return on equity (ROE) show that capital adequacy has a negative effect on performance. In contrast to return on assets, it is statistically significant for return on equity.

The study by Antwi (2019) also discovered a statistically significant inverse relationship between ROA and ROE and the cost-income ratio. Both ROA and ROE are negatively correlated with total debt to equity. For ROA, but not for ROE, the relationship between the two is statistically significant. A statistically significant negative association between bank size and ROA and ROE performance is also present.

2.4 CONCEPTUAL FRAMEWORK

A researcher's library of guides to describing a phenomenon is their conceptual framework. It depicts the behavior required throughout the investigation, based on his prior knowledge of the opinions and observations of other academics on the study issue. A conceptual framework lays out the parameters for defining a research question and identifying pertinent, significant responses to it (Varpio et al., 2023). It links the theories, presumptions, convictions, and ideas that underpin your research and presents it in a narrative, pictorial, or graphic style. The relationship between the independent and dependent variables, as well as other factors and ideologies influencing the organization of research, is established by your conceptual framework.

One relationship that a conceptual framework reveals as crucial is the one that researchers have with their own research (Mensah et al., 2020). The conceptual framework of this study draws attention to the elements that are crucial to decision-making, variable selection, data collection, result evaluation, and the development of new theories. The main process parameters, defining variables, and cause-and-effect connections are all included in a conceptual framework. Furthermore, when creating a conceptual framework, the quality of the questions posed and the answers provided by the framework should continue to be the main priorities. This will facilitate the initiation process and allow you to derive valuable conclusions from it.

The selection of models and the analysis of unconventional and non-topic literature constitute a useful and advantageous approach. This aids in the creation of an illustrative framework by the researcher that is multidisciplinary and concurrently examines a wide range of phenomena. As a result, the conceptual framework of this study is leading the charge of this study research. The study's conceptual framework is depicted in Figure 2.1 below:

Independent Variables

Dependent Variables

Capital Adequacy Ratio (ECA, D/E)

Cost to Income Ratio

Control Variables (Firm size and Asset Growth)

Financial Performance (Return on Assets, Return of Equity)
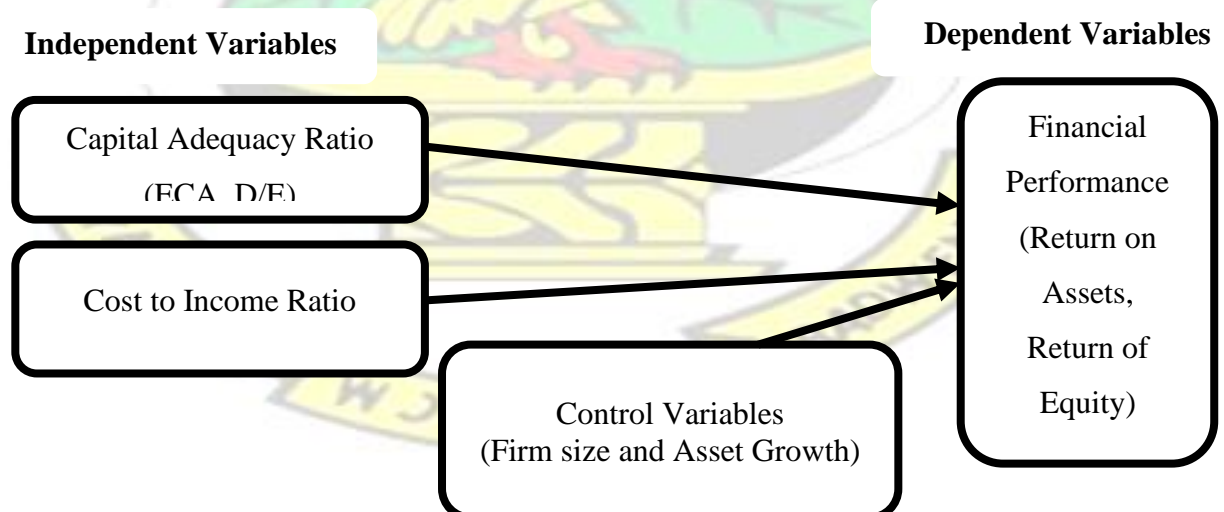
Figure 2.1: Conceptual Framework

Source: Author's Construction (2023)

The links between the independent, control, and dependent variables are shown in the conceptual framework. Measures of company success (Return on Asset and Return on Equity) were taken from figure 2.1 and utilized as the dependent variable. The independent variables in this study were the Capital Adequacy Ratio (CAR), Cost to Income Ratio (CIR), and Equity Capital to Asset (ECA) as measures. As shown by the arrows in boldface in Figure 2.1, the control variables for this study were firm size and asset growth. As a result, this study's objective is to investigate the effects of capital adequacy ratio and cost to income ratio on the financial performance of manufacturing firms listed on the Ghana Stock Exchange (GSE) from 2017 to 2022.
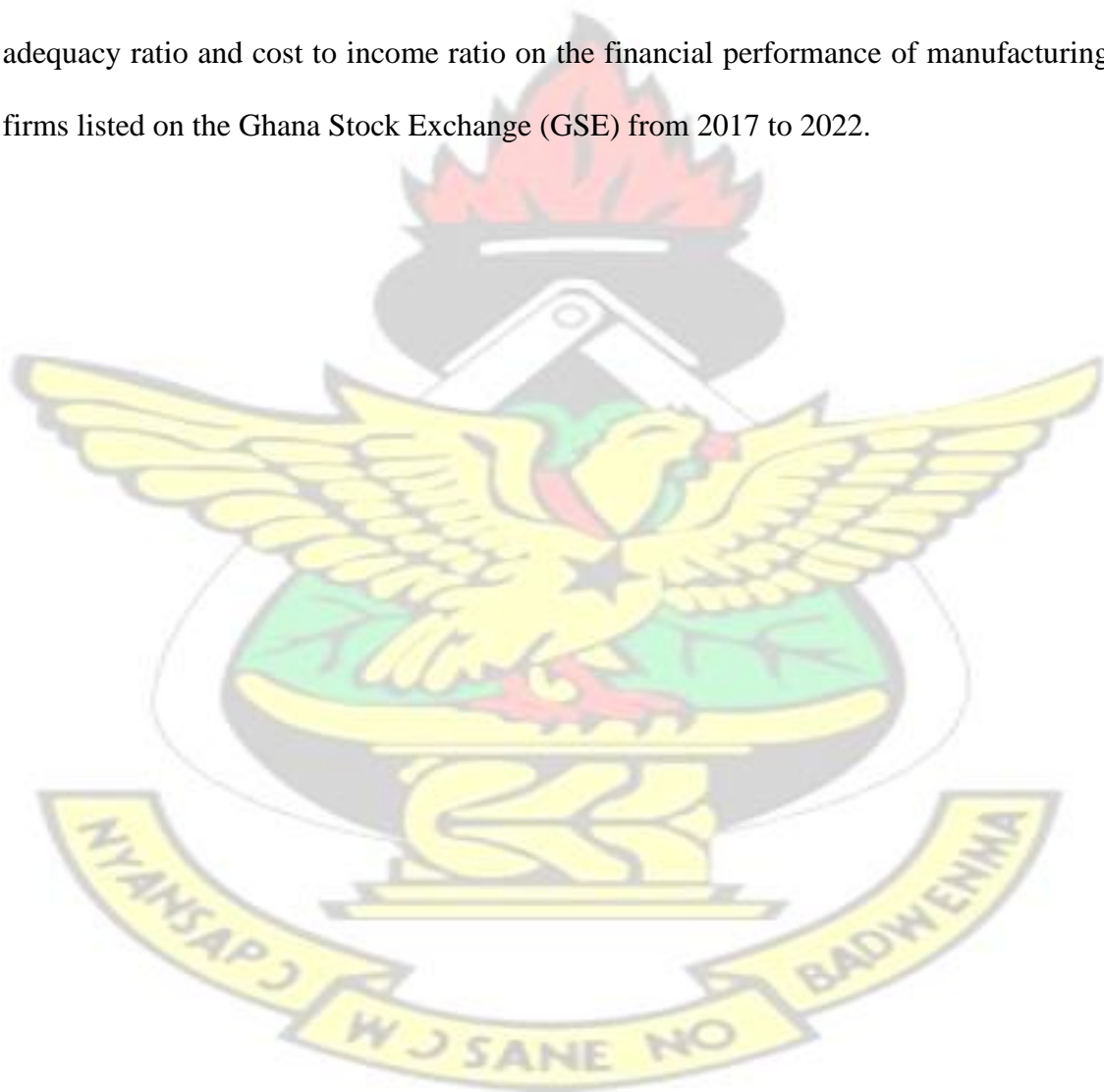
CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION

Methodology is a comprehensive, methodical examination of the approaches relevant to a research topic. It includes a theoretical analysis of a group of practices and guiding ideas related to a certain field of knowledge. Under this heading, the topic overview, research theory, research equation, organizational description, estimation, data processing, and data interpretation will all be covered.

3.1 STUDY DESIGN

Explanatory research design was used as was used by Asenahabi (2019). The study utilized an experimental research approach, similar to that of Rogers and Revesz (2019), in order to keep a considerable control over the variables. This study also employed a desk study methodology because the majority of the data came from the Bank of Ghana and the Ghana Stock Exchange, both of which were easily accessible online. Atkinson et al. (2018)'s work served as the foundation for the desk study. A quantitative research method was used in this study as adopted by Khaghaany et al. (2020) as the data was numerically analysed.

3.2 SAMPLE SIZE AND SAMPLING TECHNIQUE

The population of the manufacturing firms listed on the Ghana Stock Exchange are six firms. But one firm did not have all of its financial statements for the period of this study (2017 to 2022). Therefore, a purposive sampling technique was used for this study so as to achieve the objectives of this research. This resulted in the sample size being five businesses overall. Specifically, Dannex Aryton Starwin Plc, Camelot Ghana

Ltd., Aluworks Ltd, Sam Wood Ltd and Unilever Ghana Plc. In this study, all five manufacturing companies' financial accounts from 2017 to 2022 were analyzed.

3.3 DATA COLLECTION

Secondary data was used in the study. Secondary data sources contain information gleaned from prior sources, such as Internet searches and archives. This study collected financial statements from 2017 to 2022 from the GSE and Bank of Ghana.

The financial statements were downloaded from the website of the Ghana Stock Exchange, while the exchange rates and inflation rates were obtained from the website of the Bank of Ghana.

3.4 DATA ANALYSIS

Utilizing descriptive analytics, historical data from manufacturing companies was analyzed and synthesized in order to determine the mean, standard deviation, maximum and minimum values as well as any noticeable trends. Early data investigations relied heavily on bivariate data analysis since it made it possible to identify trends and anomalies as well as test and infer hypotheses utilizing condensed statistics and graphical representation environments.

SPSS software version 26 was used to analyse the collected data. Regression analysis is being used in this study to determine the relationship between the variables being investigated. Specifically, this study adapted the Multiple Linear Regression analysis.

3.5.1 Model Specifications

The model specification is presented here:

$$ROA = \beta0 + \beta1ECA + \beta2DE + \beta3CIR + \beta4\,FS + \beta5\,AG + \varepsilon \dots Model\ 1$$

$$ROE = \beta0 + \beta1ECA + \beta2DE + \beta3CIR + \beta4\,FS + \beta5\,AG + \varepsilon \dots Model\ 2$$

Where: $ROA = Return\ on\ Assets$

$ROE\ = Return\ on\ Equity$

$ECA\ = Equity\ Capital\ to\ Asset$

$DE\ = Debt\ to\ Equity$

$CIR\ =\ Cost\ to\ Income\ Ratio$

$AG\ =\ Asset\ Growth$

$FS\ =\ Firm\ Size$

$\beta = coefficient\ of\ independence\ variables$

$\boldsymbol{\varepsilon}\ =\ Error\ term\ within\ a\ confidence\ interval\ of\ 5\%$

The study adopted a multiple linear regression model to institute the connection amid the variables of manufacturing firms in Ghana as recommended by Wu et al., (2023).

3.5.2 Justification of Variables

This study uses ECA, DE and CIR as adopted by Antwi (2019) as the Independent Variable whiles ROA and ROE was maintained as the dependent variable. Firm Size and Asset growth were then used as control Variables.

Table 3.1: Justification of variables

VARIABLES	SOURCE	JUSTIFICATION
Return on Asset (ROA)	Ghana Stock Exchange	As a Dependent Variable
Return on Asset (ROE)	Ghana Stock Exchange	As a Dependent Variable
Equity Capital to Asset (ECA)	Ghana Stock Exchange	As a Capital Adequacy measure
Debt to Asset (DA)	Ghana Stock Exchange	As a Capital Adequacy measure
Cost to Income Ratio (CIR)	Ghana Stock Exchange	As a Cost Income Ratio measure
Asset Growth	Ghana Stock Exchange	As an Internal control measure
Firm Size	Ghana Stock Exchange	As an Internal control measure

Source: Author's Construction (2023)

3.6 VALIDITY AND RELIABILITY

Research tools must be valid and trustworthy in order to yield useful results (Kepha et al., 2016). Research instruments are deemed to be legitimate when they measure the intended outcomes. Reliability is also influenced by the study apparatus' internal consistency. In this project, the study instrument's content validity will be evaluated utilizing professional judgment. Linear regression is used to estimate the unknown effect of changing one variable over another (Kim, 2019). The study additionally carried out the following diagnostic tests as part of the validity and reliability assessments: Multicollinearity tests for heteroscedasticity and normalcy.

CHAPTER FOUR

DATA ANALYSES AND DISCUSSIONS

4.0 INTRODUCTION

This chapter presents data analyses and discussions about examining the importance of capital adequacy ratio and cost to income ratio on the financial performance of manufacturing firms listed on the Ghana Stock Exchange (GSE). The following analyses have been presented; descriptive analysis, inter-construct correlations and regression as well as some selected validity and reliability tests (post estimation analysis).

4.1 DESCRIPTIVE STATISTICS

The descriptive statistics for the variables utilized in the investigation are presented in Table 4.1. Return on Asset (ROA), Return on Equity (ROE), Equity Capital to Asset (ECA), Debt to Equity (DE), Cost to Income Ratio (CIR), Firm Size (FS), Asset Growth (AG), Inflation Rate (IR) and Exchange Rate (ER) are the elements to considered.

From Table 4.1, return on asset recorded a mean score of 7.7914 and std. deviation of 13.0476 with a respective maximum value of 49.3807 and a minimum value of -8.4492. Considering these results, it can be stated clearly that the average return on asset from 2017 to 2022 grew by approximately 7.8%.

Table 4.1: Summary of Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
			Descriptive Statistics		
ROA	30	-8.4492	49.3807	7.7914	13.0476
ROE	30	-20.2829	64.6555	15.1699	21.7352
ECA	30	21.4270	85.6199	56.5171	21.1251
DE	30	.1680	3.6670	1.0451	.9654
CIR	30	-11.8613	1371.0693	52.7553	249.1953
FS	30	6.5553	11.8612	8.6391	1.4618
AG	30	-5.3180	87.3173	14.5034	19.7403
IR	30	7.14	31.30	13.0800	8.4631
ER	30	4.4	6.4	5.350	.7138
Valid N (listwise)	30				

Source: Author Construction (2023)

Again, Return on Equity recorded a mean score of 15.1699 and std. deviation of 21.7352 with a corresponding maximum value of 64.6555 and a minimum value of -20.2829. This result indicates that on average, the Return on Equity was increased by approximately 15.2% within the six years. Also, equity capital to asset (ECA) showed a mean score of 56.5171 and a std. deviation of 21.1251 while recording a maximum value of 85.6199 and a minimum of 21.4270. It shows that the average equity capital to asset (ECA) for those six years interval was approximately 56.5%.

Furthermore, debt to equity ratio recorded a mean score of 1.0451 and std. deviation of 0.9654 with a corresponding maximum value of 3.6670 and a minimum value of 0.1680. This result suggests that on average debt to equity ratio within the six years from 2017 to 2022 was 1.1%. Moreover, cost to income ratio (CIR) for the manufacturing firms recorded a mean score of 52.7553 and std. deviation of 249.1953 with a corresponding maximum value of 1371.0693 and a minimum value of -11.8613. That indicated an average increase of 52.8% of CIR for the six years of study. It was

also revealed that in the case of asset growth, the minimum value of -5.3180 and maximum value of 87.3173, with a mean of 14.5034 and standard deviation of 19.7403.

Firm size recorded a maximum of 11.8612 and a minimum value of 6.5553. Firm size also recorded 8.6391 as mean and a standard deviation of 1.4618. Exchange rate then recorded a mean of 5.350 and a standard deviation of 0.7138. Then a maximum value of 6.4 and a minimum value of 4.4. Inflation rate recorded 7.14 as the minimum value and 31.30 as a maximum value. Inflation rate then recorded a mean of 13.0800 and 8.4631 as a standard deviation.

4.2 TREND ANALYSIS

The first objective of the study was to examine the trends of capital adequacy ratio and cost to income ratio of manufacturing firms on the GSE. Equity capital to asset (ECA) and debt to equity ratio (DE) were used to represent capital adequacy and were discussed in this section.

4.2.1 Trend Analysis of Equity Capital to Asset (ECA)

Figure 4.2 presents a trend of the average equity capital to asset (ECA) for manufacturing firms in Ghana from 2017 to 2022. As presented in the figure, ECA increased in 2018, then started to fall from 2018 to 2022. The highest reduction was in 2019, from 63.8016 in 2018 to 56.7711 in 2019.
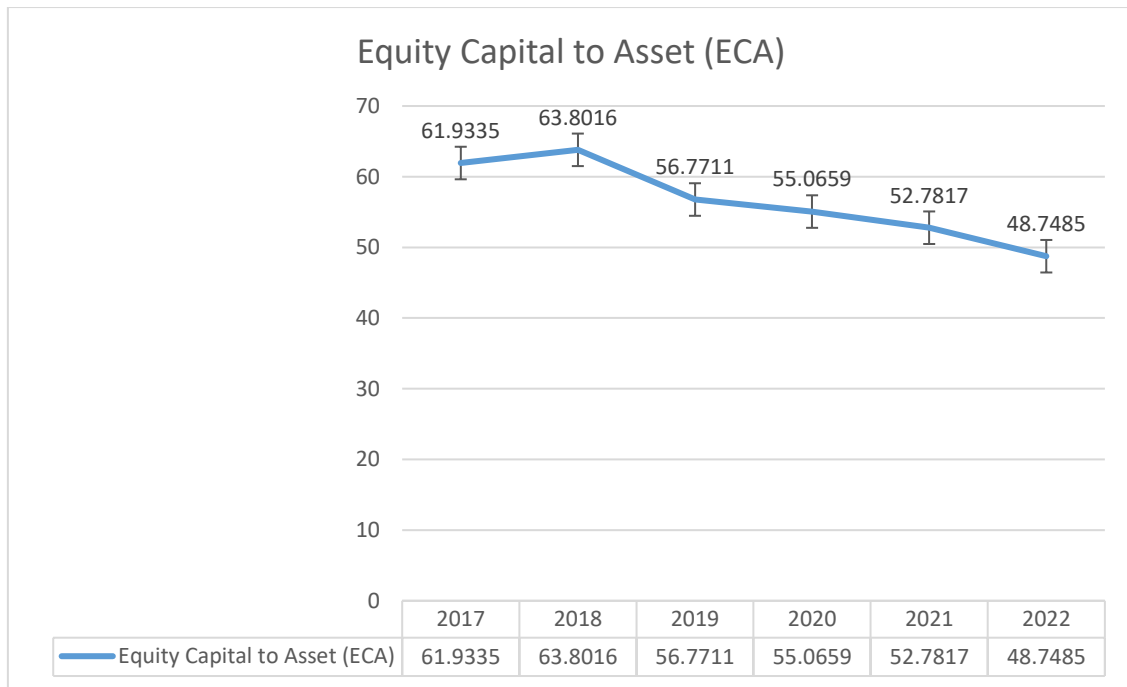
Figure 4.1: Trend Analysis of ECA

Source: Ghana Stock Exchange (GSE)

Equity Capital to Asset (ECA) increased by approximately 2.93% in 2018. Then ECA started to fall by 12.38% in 2019, 3.10% in 2020, 4.33% fall in 2021 and a final 8.27% fall in 2022. The average fall in the ECA from 2018 to 2022 is a result of an average increase in the Total Assets of the manufacturing firms on the GSE. There was also an average fall in the equity capital of the manufacturing firms too.

This made some of the manufacturing firms record a fall in ECA. The fall in ECA of Fanmilk Ghana Limited and Guiness Ghana Limited were significant enough to cause the average ECA to fall. However, there was an initial rise in the equity of most of the manufacturing firms in 2018 this led to the rise of ECA among the manufacturing firms in 2018. Though Benson Oil, Fanmilk Ghana and Samba Foods recorded a fall in ECA, the much increase and improvement in the ECA of Guiness Ghana and Unilever Ghana were enough to make raise the ECA in 2019.

4.2.2 Trend Analysis of Debt to Equity (DE)

Figure 4.3 presents a trend of the average debt to equity ratio (DE) for manufacturing firms in Ghana from 2017 to 2022. As presented in the figure, debt to equity ratio has been experiencing an increase and decrease from 2017 to 2022. DE experienced a major average fall in 2018 and a major rise in 2019.
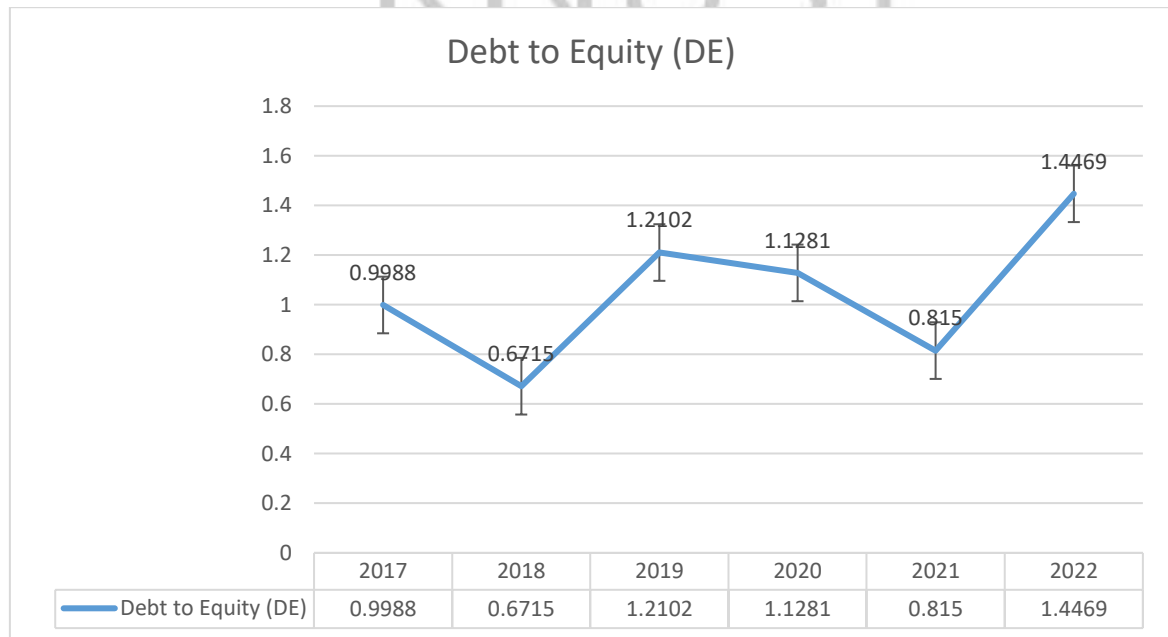
Figure 4.2: Trend Analysis of DE

Source: Ghana Stock Exchange (GSE).

Debt to equity ratio (DE) fell by approximately 48.74% in 2018, then rose by 44.51% in 2019. And started to fall by 7.28% in 2020, then fell again by 38.42% in 2021 and a 43.67% increase in 2022. The average rise and fall in the debt-to-equity ratio from 2017 to 2022 was as a result of an average unstable rise and fall in the Total Equity as a result of previous profit or loss of the manufacturing firms on the GSE. There was also an unstable rise and fall of the average total assets of the manufacturing firms. This made some of the manufacturing firms record an unstable DE. The fall of the DE of Guiness Ghana and Unilever Company were significant enough to make the average

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DE into fall in 2018. Although there was a rise in the DE of Fan Milk Ghana, Samba Goods and Guiness Ghana in 2020, but the fall in DE of Benson Oil and Unilever was enough to turn the average DE to fall in 2020.

4.2.3 Trend Analysis of Cost to Income Ratio (CIR)

Figure 4.4 presents the trend of the average cost to income ratio (CIR) for manufacturing firms in Ghana from 2017 to 2022. As presented in the figure, cost to income ratio (CIR) has been experiencing a gradual increase and decrease from 2017 to 2022. But there was a great rise and fall from 2019 to 2021.

The average cost to income ratio on the manufacturing firms rose by 62.82% in 2018, then fell in 2019 by 51.1%. CIR rose greatly by 97.72% in 2020 and also fell greatly by 2720.1% in 2021 but a 7.58% rise in 2022. The average rise and fall of CIR from 2017 to 2022 is as a result of an average unstable rise and fall of operating income and operating cost of the manufacturing firms on the GSE.
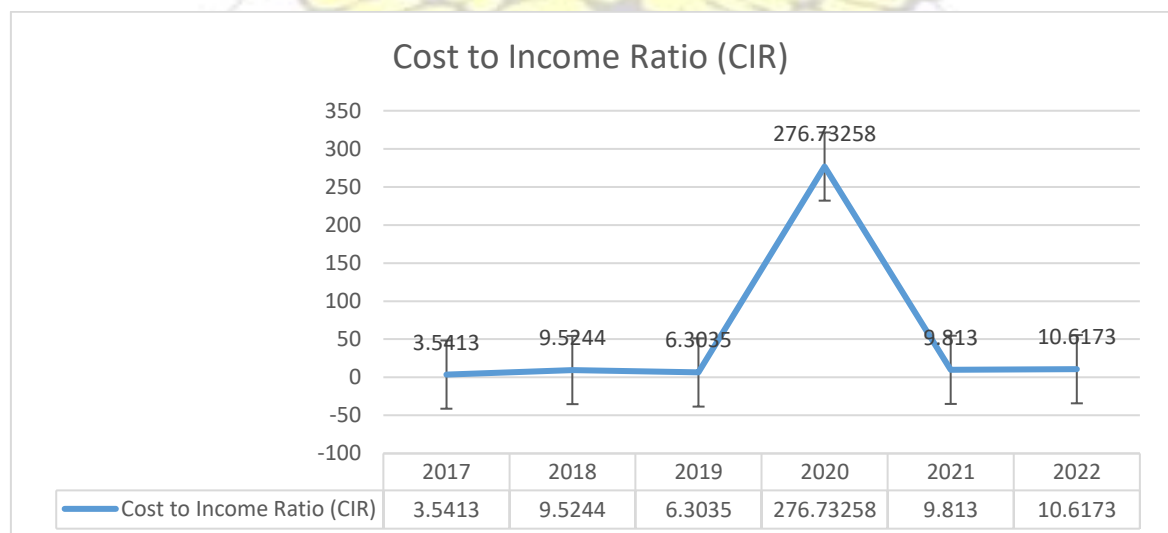

	2017	2018	2019	2020	2021	2022
Cost to Income Ratio (CIR)	3.5413	9.5244	6.3035	276.73258	9.813	10.6173

Figure 4.3: Trend Analysis of CIR

Source: Ghana Stock Exchange (GSE).

There was rather an average rise of operating cost of the manufacturing firms in 2020. This made some of the manufacturing firms record a massive rise of CIR. The great rise of Fanmilk Ghana was significant enough to turn the average CIR to rise greatly. However, there was a significant fall in the operating cost of most of the manufacturing firms in 2021 this led to major increase in CIR among the manufacturing firms in 2021.

4.3 CAPITAL ADEQUACY RATIO AND FIRM PERFORMANCE

In order to fulfil the second which is to examine the impact of capital adequacy ratio on the financial performance of manufacturing firms on the GSE, the study begins to analyse their various correlations.

4.3.1 Correlation Matrix

Table 4.2 shows the correlation matrix. When checking the correlation, the correlation value of each variable should not be below 0, however, the closer it is to 1.00, the more perfect it is correlated. But if the value exceeds 0.8, it indicates that there is a multicollinearity problem. This multicollinearity problem only appeared among some of the accounting measures like between ROA and ROE recording 0.843 and between ROA and asset growth (AG) recording 0.814. The correlation table shows, Pearsons's correlation values from 0 to 0.5 signifies weak positive correlation and from 0.5 to 1 shows a strong positive correlation among variables. Again, values from 0 to -0.5 shows a weak negative correlation whiles values from -0.5 to -1 shows a strong negative correlation.

Return on Asset (ROA) recorded a negative pearson correlation with debt to equity (DE) having values of -0.104. This means there is a negative correlation between ROA and both DE. But the correlation was a negatively weak correlations since the value

was between 0 to -0.5. ROA then shown to have a positive correlation with equity capital to asset (ECA) as ECA recorded a pearson correlation value of 0.243. But, the correlation between ROA and ECA is rather a weak correlation.

Return on Equity (ROE) recorded a negative pearson correlation with equity capital to asset (ECA) having value of -0.195. This means there is a negative correlation between ROE and ECA. However, the correlation is a negatively weak correlations since the value was between 0 to -0.5. ROE then shown to have a positive correlation with debt to equity (DE) as DE recorded a pearson correlation value of 0.320. But, the correlation between ROA and DE is rather a weak correlation.
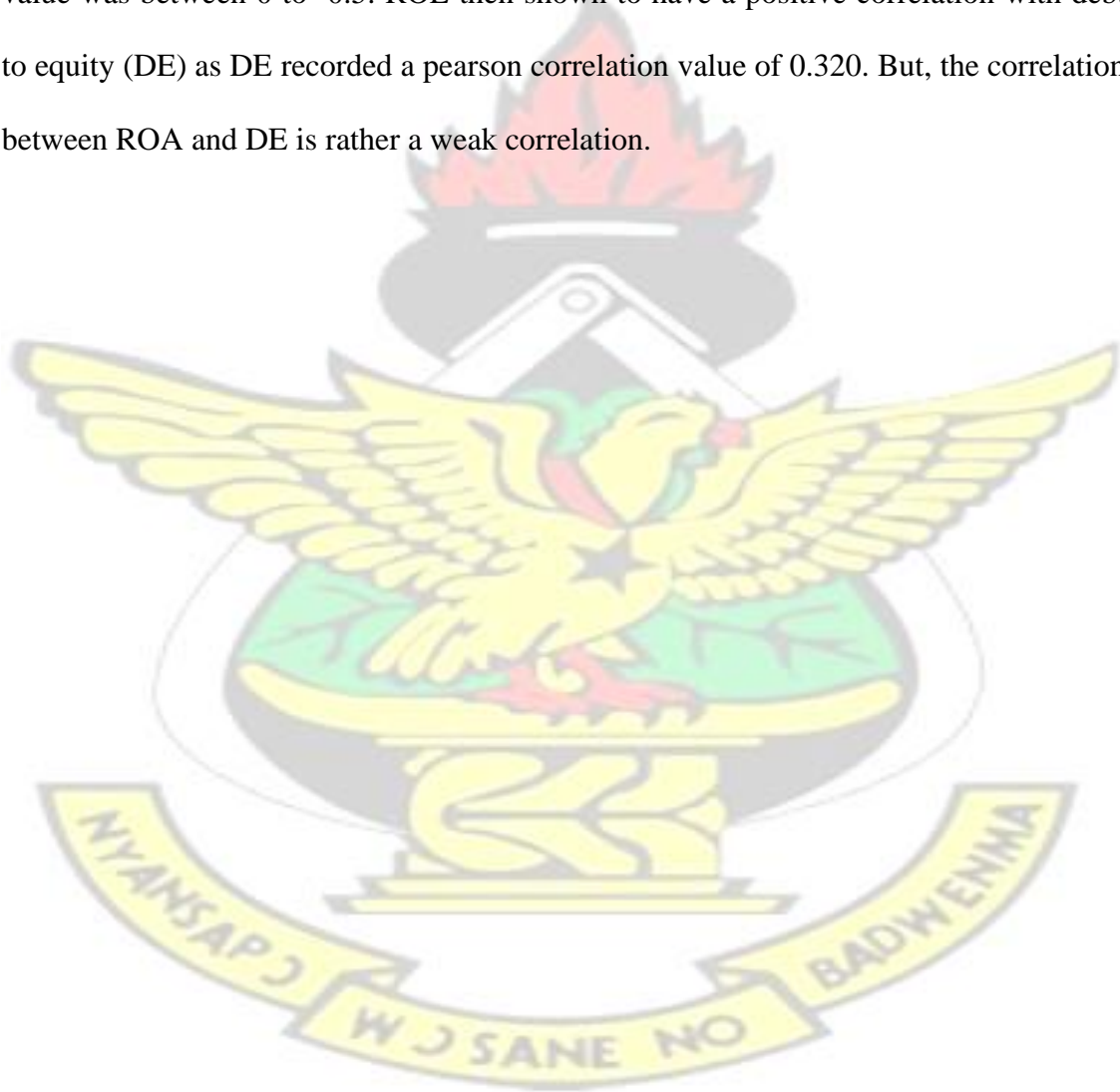
Table 4.2: Correlation Matrix

		ROA	ROE	ECA	DE	CIR	FS	AG
ROA	Pearson Correlation	1						
	Sig. (1-tailed)							
	N	30						
ROE	Pearson Correlation	.843**	1					
	Sig. (1-tailed)	.000						
	N	30	30					
ECA	Pearson Correlation	.243	-.195	1				
	Sig. (1-tailed)	.097	.151					
	N	30	30	30				
DE	Pearson Correlation	-.104	.320*	-.882**	1			
	Sig. (1-tailed)	.291	.043	.000				
	N	30	30	30	30			
CIR	Pearson Correlation	-.116	-.136	.017	-.063	1		
	Sig. (1-tailed)	.271	.237	.464	.370			
	N	30	30	30	30	30		
FS	Pearson Correlation	.341*	.705**	-.726**	.706**	.010	1	
	Sig. (1-tailed)	.032	.000	.000	.000	.479		
	N	30	30	30	30	30	30	
AG	Pearson Correlation	.814**	.628**	.191	-.153	.018	.271	1
	Sig. (1-tailed)	.000	.000	.156	.211	.461	.073	
	N	30	30	30	30	30	30	30

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

Source: Author's construction base on Ghana Stock Exchange (GSE) figures

Return on asset (ROA) recorded significant values of 0.097 with ECA and 0.291 with DE. This means ECA and DE did not have values that falls within the significant threshold of less than 0.05. The values from the significant figures clearly shows that equity capital to asset (ECA) and debt to equity (DE) did not have any significant impact on the return on assets (ROA) of manufacturing firms listed on the Ghana Stock Exchange (GSE).

Return on equity (ROE) recorded significant values of 0.151 with ECA This means ECA did not have value that falls within the significant threshold of less than 0.05. The values from the significant figures clearly shows that equity capital to asset (ECA) do not have any significant impact on the return on equity (ROE) of manufacturing firms listed on the Ghana Stock Exchange (GSE). But debt to equity ratio (DE) recorded a significant value of 0.043 with return on equity (ROE). Therefore, from the correlation matrix, debt to equity (DE) do have a significant effect on the ROE of manufacturing firms in Ghana.

4.3.2 Regression Analysis

Regression analysis may be used to discover the relationship between the dependent, independent and control variables. The purpose of this study is to predict the outcome of the secondary data that was collected. The goal of this investigation is to model the link between the explanatory and secondary data that were collected. The first model is to investigate the link between the independent variable and the dependant variable (ROA). The second variable investigates the link between the independent variable and the dependent variable (ROE).

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Table 4.3: Coefficients (ROA)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-74.937	16.719		-4.482	.000
	ECA	.496	.126	.803	3.941	.001
	DE	3.437	2.520	.254	1.364	.185
	CIR	-.007	.004	-.129	-1.512	.144
	FS	5.359	1.428	.600	3.754	.001
	AG	.356	.072	.538	4.910	.000

a. Dependent Variable: ROA

Source: Authors Computation (2023)

The significant value is defined as a P-value of less than 0.05 in the coefficient table. Model 1 shows Firm size has "Sig" of 0.001 and Asset Growth has "Sig" of 0.000. Firm size and asset growth had a P-value lesser than 0.05 meaning firm size and asset growth are significant to ROA. This means that firm size and asset growth, as a control variable, do affect ROA of manufacturing firms in Ghana.

The independent variables were controlled by Firm size and Asset Growth shown Debt to Equity (DE) has a "Sig" of 0.185 and Cost to Income (CIR) has a "Sig" of 0.144 which were higher than the 0.05 threshold required. But, equity capital to asset (ECA) has "Sig" of 0.001 is having a significance value less than 0.05. This indicate that ECA is significant to return on asset.

Table 4.4: Coefficients (ROE)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-151.135	28.985		-5.214	.000
	ECA	.719	.218	.699	3.296	.003
	DE	7.978	4.369	.354	1.826	.080
	CIR	-.012	.008	-.140	-1.573	.129
	FS	13.076	2.475	.879	5.283	.000
	AG	.344	.126	.313	2.739	.011

a. Dependent Variable: ROE

Source: Authors Computation (2023)

The significant value is defined as a P-value of less than 0.05 in the coefficient table. Model 2 shows Firm size has "Sig" of 0.000 and Asset Growth has "Sig" of 0.011. Firm size and asset growth had a P-value lesser than 0.05 meaning firm size and asset growth are significant to ROE. This means that firm size and asset growth, as a control variable, do affect ROE of manufacturing firms in Ghana.

The independent variables were controlled by Firm size and Asset Growth. Debt to Equity (DE) has a "Sig" of 0.080 and Cost to Income (CIR) has a "Sig" of 0.129 which were higher than the 0.05 threshold required. But, equity capital to asset (ECA) has "Sig" of 0.003 is having a significance value less than 0.05. This indicate that ECA is significant to return on equity.

4.4 COST TO INCOME RATIO AND FIRM PERFORMANCE

Return on Asset (ROA) recorded a negative pearson correlation with cost to income ratio (CIR) having a value -0.116. This means there is a negative correlation between ROA and CIR. However, the correlation is a negatively weak correlations since the value was between 0 to -0.5 as shown from the correlation matrix table 4.2. The correlation matrix then shown that return on equity (ROE) recorded a negative pearson correlation with cost to income ratio (CIR) having a value -0.136. This means there is a negative correlation between ROE and CIR. And, the correlation is a negatively weak correlations since the value was between 0 to -0.5.

Return on asset (ROA) recorded significant values of 0.271 with CIR. This means CIR did not have values that falls within the significant threshold of less than 0.05. The value from the significant figure clearly shows that cost to income ratio (CIR) do not have any significant impact on the return on assets (ROA) of manufacturing firms listed on the Ghana Stock Exchange (GSE) according to table 4.2. Return on equity (ROE) recorded significant values of 0.2371 with CIR. This means CIR did not have value that falls within the significant threshold of less than 0.05. The value from the significant figures clearly shows that cost to income ratio (CIR) do not have any significant impact on the return on equity (ROE) of manufacturing firms listed on the Ghana Stock Exchange (GSE).

According to the regression coefficient as shown in table 4.3, Cost to Income (CIR) has a "Sig" value of 0.144 which was higher than the 0.05 threshold required. This shows that cost to income ratio do not have impact on the return on assets of manufacturing firms in Ghana. Also, table 4.4 Cost to Income (CIR) has a "Sig" value of 0.129 which

was higher than the 0.05 threshold required. This shows that cost to income ratio do not have impact on the return on equity of manufacturing firms in Ghana.

4.5 DISCUSSION OF RESULTS

With the first objective being to examine the trends of capital adequacy ratio and cost to income ratio of manufacturing firms on the GSE. Ercegovac et al. (2020) the trend average capital adequacy ratio of the banks on the European countries rose gradually from 2007 to 2019. That seems to disagree with our findings, as the average trend of equity capital to asset (ECA) of the manufacturing firms fell relatively from 2017 to 2022. Also, debt to equity (DE) trend shown an unstable rise and fall from 2017 to 2022 that again contradicts to the findings of Ercegovac et al. (2020).

Lotto (2018) employed bank level data for the period between 2009 and 2015. The studies from Lotto (2018) shown that, capital adequacy ratio fell and rose and fell again from 2009 to 2014. Lotto (2018) findings agrees with the findings of this study as debt-to-equity ratio (DE) of this study also experienced a rise and fall from 2017 to 2022. Also, ECA experienced an initial rise and fell eventually which aligns to the findings from Lotto (2018). So, the trend of capital adequacy ratio of banks in Tanzania is similar to the capital adequacy ratio of manufacturing firms in Ghana.

Xu et al. (2019) analyze how bank profitability impacts financial stability from both theoretical and empirical perspectives. Xu et al. (2019) then conducted panel regression analysis to examine the empirical determinants of bank risks and profitability, and how the level and the source of bank profitability affect risks for 431 publicly traded banks (U.S., advanced Europe, and GSIBs) from 2004 to 2017. Results by Xu et al. (2019) revealed that Cost to Income experienced a rise and fall in trend as it rose highly in

2009 and fell greatly in 2010. The findings by Xu et al. (2019) agrees with the findings of this study as our findings also shown that, cost to income ratio (CIR) rose and fell relatively over the various years. That means, the CIR of manufacturing firms have the same trend with 431 traded banks in U.S. and advanced Europe.

The second objective of this study was achieved as the results showed that debt to equity ratio (DE) had a significant impact on with return on equity (ROE) according to the correlation matrix. The coefficients show that, equity capital to asset (ECA) seems to have been significant to the firm performance of manufacturing firms in Ghana. In a study by Wood and Skinner (2018), the commercial banking sector is the primary form of financial intermediation in Barbados. The empirical results by Wood and Skinner (2018) indicated that capital adequacy ratio was significant was it is the same case of this study.

Antwi (2019) paper examined the relationship between Capital adequacy, Cost Income ratio and performance of banks in Ghana. The study uses a sample of banks listed on the Ghana Stock Exchange and data for the periods ending 2013 and 2018 was gathered from their annual reports and regression analysis was carried out using Statistical Software Package, STATA version 15. The study by Antwi (2019) revealed that capital adequacy is negatively related to performance, as measured by return on assets (ROA) and return on equity (ROE). However, it is statistically insignificant against return on assets which contradicts to the findings of this study.

Considering the last objective of this research, which seems to establish the effect of cost to income ratio on the financial performance of manufacturing firms on the GSE, there is a negative correlation between ROA, ROE and CIR. However, these correlations are a negatively weak correlation. Also, from both the correlation matrix

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and regression coefficient, this study shown that cost to income ratio (CIR) did not have any significant impact on both ROA and ROE of manufacturing firms in Ghana.

The findings from Dao (2020) used 128 observations of 16 Vietnamese commercial banks during the period from 2010 to 2017 disagrees with the findings of this study. Dao (2020) used two simultaneous dependent variables CAR and ROE, and independent variables which included Cost to Income. The results reveal Cost to-Income ratio have significant effects on two dependent variables. The findings by Boateng (2018) indicated that, cost to income ratio had an insignificant impact on profitability of Indian banks which agrees to the findings of this study.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.0 INTRODUCTION

This chapter presents a summary of findings, conclusions, and recommendations about examining the impact of capital adequacy ratio and cost to income ratio on the financial performance of manufacturing firms listed on the Ghana Stock Exchange (GSE) from 2017 to 2022.

5.1 SUMMARY OF FINDINGS

5.1.1 Trends in Capital Adequacy Ratio and Cost to Income Ratio (CIR)

The study revealed that the average Equity Capital to Asset (ECA) of the manufacturing firms increased in 2018, then started to fall from 2018 to 2022. The highest reduction was in 2019, from 63.8016 in 2018 to 56.7711 in 2019. Equity Capital to Asset (ECA) increased by approximately 2.93% in 2018. Then ECA started to fall by 12.38% in 2019, 3.10% in 2020, 4.33% fall in 2021 and a final 8.27% fall in 2022.

Average debt to equity ratio experienced an increase and decrease from 2017 to 2022. Debt to Equity ratio experienced a major average fall in 2018 and a major rise in 2019. Debt to equity ratio (DE) fell by approximately 48.74% in 2018, then rose by 44.51% in 2019. And started to fall by 7.28% in 2020, then fell again by 38.42% in 2021 and a 43.67% increase in 2022.

The average cost to income ratio (CIR) experienced a gradual increase and decrease from 2017 to 2022. But there was a great rise and fall from 2019 to 2021. The average cost to income ratio on the manufacturing firms rose by 62.82% in 2018, then fell in

2019 by 51.1%. CIR rose greatly by 97.72% in 2020 and also fell greatly by 2720.1% in 2021 but a 7.58% rise in 2022.

5.1.2 Effect of Cost to Income Ratio (CIR) on Firm Performance

It was revealed through the correlation matrix that Cost to Income Ratio (CIR) had a negative correlation with the return on asset (ROA) and return on equity (ROE). The correlation matrix further shows that cost to income ratio is not significant either ROA or ROE. The coefficient showed that cost to income ratio was not significant to firm performance of manufacturing firms on the GSE as it attained a value which was much higher than the 0.05 threshold.

5.1.3 Effect of Capital Adequacy Ratio (CAR) on Firm Performance

It revealed that ROA shown to have a positive correlation with equity capital to asset (ECA) as ECA recorded a pearson correlation value of 0.243. But, the correlation between ROA and ECA is rather a weak correlation. Return on Asset (ROA) recorded a negative pearson correlation with debt to equity (DE) having values of -0.104. This means there was a negative correlation between ROA and DE. However, the correlation was a negatively weak correlations since the value were between 0 to -0.5 according to the correlation matrix.

The correlation matrix also found that return on asset (ROA) recorded significant values of 0.097 with ECA and 0.291 with DE. The values from the significant figures clearly shows that equity capital to asset (ECA) and debt to equity (DE) do not have any significant impact on the return on assets (ROA) of manufacturing firms listed on the Ghana Stock Exchange (GSE). The regression matrix founds that Debt to Equity (DE) has a "Sig" of 0.153 which was higher than the 0.05 threshold required. But,

equity capital to asset (ECA) has "Sig" of 0.029 is having a significance value less than 0.05. This indicate that ECA is significant to return on asset.

The study revealed that ROE shown to have a negative correlation with equity capital to asset (ECA). But, the correlation between ROE and ECA is rather a weak correlation. Return on Equity (ROE) recorded a positive pearson correlation with debt to equity (DE). This means there was a positive correlation between ROE and DE. However, the correlation was a positively weak correlations since the value were between 0 to 0.5 according to the correlation matrix.

The correlation matrix also found that return on equity (ROE) recorded significant values of 0.151 with ECA. This means ECA did not have values that falls within the significant threshold of less than 0.05. The values from the significant figures clearly shows that equity capital to asset (ECA) did not have any significant impact on the return on equity (ROE) of manufacturing firms listed on the Ghana Stock Exchange (GSE). But debt to equity ratio (DE) recorded a significant value of 0.043 with return on equity (ROE). Therefore, from the correlation matrix, debt to equity (DE) do have a significant effect on the ROE of manufacturing firms in Ghana. The regression matrix founds that Debt to Equity (DE) has a "Sig" which was higher than the 0.05 threshold required. But, equity capital to asset (ECA) has "Sig" value less than 0.05. This indicate that ECA is significant to return on equity.

5.2 CONCLUSION

The study's major goal is to look at the impact of capital adequacy ratio (CAR) and cost to income ratio (CIR) on the firm's performance. Only manufacturing companies registered on the Ghana Stock Exchange were included in this study (GSE). In addition,

data from 2017 to 2022 were included in this analysis. The study adopted quantitative research approach and panel data while SPSS was used for the data analysis. The study concludes that the average equity capital to asset (ECA) of the manufacturing firms increased the later fell. Average debt to equity ratio experienced an increase and decrease during the years considered for this study. Then the average cost to income ratio (CIR) experienced a gradual increase and decrease.

Cost to Income Ratio (CIR) had a negative correlation with the return on asset (ROA) and return on equity (ROE). The correlation matrix further shows that cost to income ratio is not significant either ROA or ROE. The coefficient showed that cost to income ratio was not significant to firm performance of manufacturing firms listed on the GSE.

The study concludes that ROA have a positive correlation with equity capital to asset (ECA) Return on Asset (ROA) then recorded a negative correlation with debt to equity (DE). The correlation matrix also found that equity capital to asset (ECA) and debt to equity (DE) do not have any significant impact on the return on assets (ROA) of manufacturing firms listed on the Ghana Stock Exchange (GSE). The regression matrix founds that ECA is significant to return on asset whiles DE is not.

The study further concludes that, ROE have a negative correlation with equity capital to asset (ECA). Return on Equity (ROE) recorded a positive pearson correlation with debt to equity (DE). According to the correlation matrix, equity capital to asset (ECA) did not have any significant impact on the return on equity (ROE) of manufacturing firms listed on the Ghana Stock Exchange (GSE). But debt to equity (DE) do have a significant effect on the ROE of manufacturing firms in Ghana. The regression matrix concludes that ECA is significant to return on equity. In the nutshell, capital adequacy

ratio (CAR) is significant to the firm performance of manufacturing firms listed on the Ghana Stock Exchange.

5.3 RECOMMENDATIONS

5.3.1 Recommendation of the study

Based on the result of the research the following recommendations were made:

The study revealed that managers should consider that Cost to Income Ratio (CIR) cannot be considered as a measure of firm's performance among the manufacturing businesses on the GSE. The study also recommends that managers should pay attention to their CAR especially ECA as it affects their value significantly. The study recommends that shareholders should pay attention to firm sizes as they make investment decisions.

5.3.2 Recommendation for Further Study

Studies should be carried out in the following areas:

A study should be done on analysing the effects of Capital Adequacy Ratio (CAR) and Cost to Income Ratio (CIR) on Firm Performance for mining and telecommunication companies on the GSE.

A study should be done on analysing the effects of Capital Adequacy Ratio (CAR) and Cost to Income Ratio (CIR) on Firm Performance for manufacturing firms in other countries.

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