UNIVERSITY OF CAPE COAST

CAPITAL STRUCTURE IMPLICATIONS AND PERFORMANCE OF

LISTED MANUFACTURING FIRMS IN GHANA

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CAPITAL STRUCTURE IMPLICATIONS AND PERFORMANCE OF

LISTED MANUFACTURING FIRMS IN GHANA

BY

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DECLARATION

Candidate's Declaration

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

Candidate's Signature…………………………... Date: ……………………

Name: Felix Kwame Mokpokpo Degbor

Supervisor's Declaration

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

Supervisor's Signature: ……………………………. Date: …………………

Name: Prof. Siaw Frimpong

ABSTRACT

The study examined the implication of capital structure on the financial performance of listed manufacturing companies in Ghana. The study employed an explanatory research design and a quantitative research technique to address the three specific objectives that guided the study. A survey research approach was used to gather empirical data from one hundred and twenty (120) listed manufacturing firms across Ghana. The study's findings, taken as a whole, support the idea that strategic marketing is a key factor in the success of organisations seeking to position themselves in a changing market. The study's findings also showed that conventional advertising channels are favoured by Ghana's manufacturing firms for reaching new consumers and strengthening existing ones. Intriguingly, just a minority of them employ cutting-edge technology to promote their offerings; listed manufacturing firms would do well to enhance their results by embracing cutting-edge technical marketing tools like mobile marketing. The results shed light on the importance of strategic marketing to the success of listed manufacturing firms in a globalised growing economy. The study recommended that the manufacturing firm should concentrate more on other financing options rather than debt financing due to its negative consequence on profitability.

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DEDICATION

This project is dedicated to GOD, our families and friends, loved ones and the

entire Faculty of University Cape Coast, who gave us support in the course of

completing this study.

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CHAPTER ONE

INTRODUCTION

The capital structure decision plays an important role in the performance of the firm. Capital structure denotes the mode of finance, usually a blend of the loan and equity capital, through which a firm is financed. Capital structure and its implications have been an interesting issue for many researchers, wherein researchers attempted to delineate the connection between capital structure and the financial performance of a firm (Ghosh, 2017). That is if financing is done by employing an incorrect combination of debt and equity, a negative effect is seen in the financial performance and even endurance of a firm. Thus, to maximise the firm value, there is the need to carefully consider the capital structure, which is a complex task, as the use of leverage varies from one firm to the other. This study was conducted to examine capital structure and implications and financial performance of listed manufacturing firms in Ghana.

Background to the Study

The robustness of firms especially private ones contributes significantly to the overall economic strength of countries (Nirajini & Priya, 2013). However, for countries to have robust and functional firms, how capital is acquired and utilised by these firms should be a major priority. The establishment of any business may consist of the contribution of ownership and debt or loan. Debt could be any external repayable funding that has an accompanying cost. The accompanying cost may however be direct or indirect. The direct could be in the form of interest payment or indirect such as agency cost. The worry of entities in Ghana lies within funding; either to source equity or debt assets. Finance is so vital and serves as an instant cause for companies not commencing

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or developing. In this case, the commencement and existence of every business depends primarily on its capital structure (Dada & Ghazali, 2016).

Capital structure according to Pandey (2010), is the term used to signify the balanced relationship that exists between debt and equity. Moreover, Nirajini and Priya (2013) opined that capital structure is the strategy employed by an establishment for funding based on the combination of long-term capital in addition to short-term obligations like overdrafts and other payables. Similarly, capital structure is also defined as the mixture of diverse securities utilised by a company in financing its profitable ventures (Akinyomi & Olagunju, 2013, Lambe, 2014; Salawu, 2009). The capital structure could therefore indicate the vital claims to a firm's assets that include the diverse types of both equities and liabilities. Dada and Ghazali (2016) described capital structures as structures in which equity and debt are used for financing a company's activities to produce ideal revenues for stakeholders to capitalise on the company's revenues given a risk level. Uremadu and Efobi (2012), added that the Capital structure of a firm is one vigorous factor that enhances the performance of that firm.

Capital structure is a significant concept in the business world and for that purpose, corporate management makes regular decisions concerning the ideal capital structure of firms that maximise the profitability of shareholders. Firms usually consider capital structure when it comes to profitability because it serves as one of the most important precursors for profitability (Dimitris & Psillaki, 2008). Accordingly, businesses ought to expand their market segment, and finance procedures and increase in the long term to increase value-added and returns. Theoretically, the trade-off theory argues that the optimality of

capital structure could improve the earnings capacity of firms, however, poor capital structure can erode the benefits of debt (Froko, 2018). Besides the trade-off theory, theories such as the pecking order theory of Myers (1984) and financial distress and bankruptcy cost theory have also demonstrated a theoretical relationship between capital structure and financial performance of firms (Bayeh, 2011; Brounen & Eichholtz, 2001).

Despite the crystallised theoretical contributions underscoring capital structure and financial performance, there direction of the effects predicted by the theories are mixed and inconclusive. Moreover, there are still some grey areas about what constitutes capital structure (Bayeh, 2011; Froko, 2017). Most of these theories seem to limit the dimension of capital structure as a long-term phenomenon. Some important dimensions such as short-term leverage remain under research (Froko, 2017). In contributing to the multidimensional characteristics of capital structure, Froko (2017) identified four dimensions: short-term leverage, long-term leverage, total leverage and equity risk exposure. This study seeks to employ three of these dimensions and investigate the extent to which these capital structure variables influence the financial performance of listed manufacturing firms in Ghana.

Financial performance is the degree to which a business or an organization achieves its financial objectives, such as profitability, growth, efficiency, and liquidity (Dada & Ghazali, 2016). Financial performance can be measured using various indicators, such as financial ratios, financial statements, budget variance analysis, and benchmarking. Financial ratios are numerical values that compare two or more financial variables, such as net profit margin, return on assets, debt-to-equity ratio, and current ratio (Froko, 2018). Financial

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statements are formal records that summarize the financial activities and position of a business or an organisation, such as income statements, balance sheets, and cash flow statements (Addo, 2017).

The choice of the manufacturing sector as the study setting is motivated by the contribution of the sector to economic growth in Ghana. From 2006 to 2012, the industry sector has contributed from 20.8% to 27.6% of the economic growth with the manufacturing sector accounting for about 50% in 2006 (GSS, 2013). However, the performance of the manufacturing sector has been declining from 10.2% (of GDP) in 2006 to 6.7% in 2012 and 5.5% in 2014 (Addo, 2017). It has been argued that one of the key components of the myriad of setbacks to the performance of the manufacturing sector is access to funding (Addo, 2017).

According to Beck, Demiurgic-Kunt, and Levine (2003), financial institutions and other lenders perceive manufacturing firms as a complex, dynamic, and high-risk sector for granting loans. The lenders which are bold to provide debt capital charge high interest on the debts (Bouazza, 2015; Osamwonyi & Tafamel, 2010; International Finance Corporation, 2010), increasing both their long-term leverage and short-term leverage owing to accumulated interest (Adesina, Nwidobie & Adesina, 2015). The high debt capital coupled with high interest rates not only reduces earnings (interest is earning deductible) but also weakens cash flow for viable investment (Owolabi & Obida, 2012; Usman, 2013). The implication is that weakness in the capital structure framework could sacrifice the performance of companies including the manufacturing sector (Dada & Ghazali, 2016; Gambo, Ahmad, & Musa, 2016). It is against this background that the current study seeks to investigate the effect

of capital structure on the financial performance of listed manufacturing firms in Ghana. The listed category of the manufacturing sector is also relevant given the fact that they have the option to equity capital.

Statement of the Problem

The manufacturing sector is fundamental for the sustainable growth of every emerging economy. Most of the advanced economies are also considered as industrialised nations. Therefore, for the Ghanaian economy to advance from the lower middle income to high middle income and a developed economy requires robust industrialisation where manufacturing is primary (Addo, 2017). Despite the sensitivity of manufacturing performance to economic growth, the contribution of the sector has not been sustainable (Farhad & Aliasghar, 2013). The overall performance of the manufacturing sector has reduced drastically over the past decade from 10.2% (2006) to 3.7 % (2015) (GSS, 2019). From the April report of GSS (2019), although the performance improved from 3.7% (2015) to 7.9% in 2016 and 9.5% in 2017, it reduced sharply again to 4.1% in 2018.

The performance challenge is a serious setback and critical for investigation as the current government policy seeks to achieve Ghana beyond aid through industrialisation and trade (Addo, 2017). It is therefore useful to revisit antecedents of the financial performance of the manufacturing sector. Optimality of capital structure has been cited in the literature as a driver of financial performance, however, poor capital structure could deplete performance and negatively affect the ability of firms to generate positive returns from viable business opportunities (Farhad & Aliasghar, 2013; Nirajini & Priya, 2013; Salim & Yadav, 2012).

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Despite Ghana's burgeoning manufacturing sector, characterized by a diverse range of industries such as food processing, textiles, and pharmaceuticals, the specific dynamics of capital structure and their implications on firm performance remain underexplored. This knowledge gap hinders the formulation of targeted policies to support the sector's growth and efficiency. Within the manufacturing sector, where capital-intensive investments are common, understanding how capital structure choices impact firm performance is crucial for sustaining growth and competitiveness. However, empirical studies examining this relationship within the context of Ghanaian-listed manufacturing firms are notably sparse, leaving policymakers, investors, and industry stakeholders with limited guidance on optimal capital allocation strategies, yet their precise impact remains uncertain without empirical investigation.

The need for extensive empirical evidence about the nature of the relationship between capital structure and financial performance in the manufacturing sector, Ghanaian literature on capital structure is filled with the financial and other service sectors (Amponsah, 2011; Akoto & Awunyo-Vitor, 2013; Gatsi & Akoto 2010: Opoku, Adu & Anarfi, 2013), only few studies have extended the evidence to the manufacturing sector with even inconclusive results (Abor, 2007; Gatsi & Akoto 2010; Addo, 2017). Moreover, Froko (2017) has argued that to determine the consequence of capital structure optimality, firms are expected to know their minimum leverage proxy and maximum leverage proxy and test their consequence on key performance benchmarks. To the extent that the maximum leverage is still yielding a positive significant effect, additional debt is relevant (Froko, 2017). This study therefore seeks to

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follow this approach and contribute to the literature by investigating the implication of capital structure on the financial performance of listed manufacturing companies in Ghana.

Purpose of the Study

The purpose of the study was to examine the implication of capital structure on the financial performance of listed manufacturing firms in Ghana.

Specific Objectives

1. Examine the effect of short-term leverage on the financial performance of listed manufacturing firms in Ghana.

2. Determine the influence of long-term leverage on the financial performance of listed manufacturing firms in Ghana.

3. Investigate the extent to which total leverage affects the financial performance of listed Ghanaian manufacturing firms.

Research Questions

To achieve these specific research objectives, these specific research questions were sought to be answered in the study.

1. What is the effect of short-term leverage on the financial performance of listed manufacturing firms in Ghana?

2. What is the influence long long-term leverage on the financial performance of listed manufacturing firms in Ghana?

3. How does total leverage affect the financial performance of listed Ghanaian manufacturing firms?

Significance of the Study

The focus of this study would be to emphasise the relationship that exists between capital structure and the performance of listed manufacturing firms in

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Ghana. It could be therefore deduced that the study has a significant role to play in filling specific gaps in understanding the influence of funding decisions on the financial performance of essential business operations of listed manufacturing firms in Ghana. Moreover, this research is also aimed at providing all levels of financial management whose effort is recognized in any sort of industry with a clear picture of how a firm's capital structure can positively or negatively affect the performance of the business as a whole.

Secondly, the study would serve as a reference for financial managers and stakeholders to equip themselves with the facts of the possible impact of financing decisions on performance. Again, the study would help to reveal the perfect necessity for firms to struggle towards accomplishing an ideal capital structure that would capitalize on shareholders' wealth. The study would go a long way to support managers in the financial field in Ghanaian manufacturing firms to make such an important strategic conclusion on the debt-equity mix for their respective companies. It would also direct stakeholders and potential investors, on which class of firms in the manufacturing industry, to channel their investment, especially on the Ghana stock exchange.

The research would also be beneficial to institutions like the Association of Ghana Industries, manufacturing industries in Ghana and the Trade and Industry Ministry as a whole or other supervisors in the private and public sectors. The study would serve as a source of reference or literature for other related research works in the field of academia. Thus, it would contribute to the literature on capital structure in the manufacturing industry and the findings and recommendations would serve as bases for further research.

Scope of the Study

The research targeted employees in these listed manufacturing firms in Ghana. The population included all permanent employees in these listed manufacturing firms and therefore, customers and temporary employees were excluded from the investigation. The study conceptualises capital structure as short-term leverage, long-term leverage and total leverage of listed manufacturing firms. Also, the study specifically, chooses listed manufacturing firms in the Greater Accra region because the metropolis had all the required characteristics for the conduct of the study. The Ordinal Least Square (OLS) within the panel framework was used to estimate the relationship between the study variables.

Limitations of the Study

One of the primary limitations is the availability of quality data for the study. Access to reliable and comprehensive financial data for all the listed manufacturing firms in Ghana was limited, making it difficult to ensure a representative sample. The study's findings may not be generalisable beyond the listed manufacturing firms. Economic, cultural and regulatory differences in other countries can significantly impact the relationship between capital structure and financial performance.

Studying the implication of capital structure on performance may require a considerable timeframe. Short-term fluctuation in financial performance may not accurately reflect the true impact of capital structure choices on a firm's long-term success. As a result, the study might miss important long-term effects due to limited observation periods. Again, manufacturing firms can be highly diverse in terms of size, industry segment,

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management practice, and growth prospects. The study might not fully capture this heterogeneity, potentially oversimplifying the complex relationships between capital structure and financial performance within the manufacturing sector.

Organisation of the Study

The study has been organized into five chapters. Chapter One considered the general introduction which summarizes the background of the study, statement of the problem, significance of the study, objectives of the study, research questions, scope of the study, and the organisation of the study for the research. Chapter two also reviews prior literature of related studies, definitions and empirical evidence on the study, the importance of dependent variables, independent variables and theories related to this topic will be presented as well. A conceptual framework will also be presented based on the statistical analyses to examine whether the theory formulated is valid or not while chapter three discusses the Research Methodology of the study. At this point, the method and procedures employed for the study have been thoroughly described. Chapter Four deals with Data Collected and Analysis, Results and Discussions. Finally, Chapter Five presents a summarization of findings from the research, draws conclusions and makes recommendations for the study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter provides a review of important literature on capital structure and performance. A literature review is fundamental for scholarly work. Literature review aids in identifying the important contributions provided by several earlier researchers or experts in the field of study; identifies major contributions and development, synthesizes and critiques the literature, identifies gaps and demonstrates how to contribute to filling the gaps (Rousseau, Manning & Denyer, 2008). This study therefore uses this chapter to present the theoretical basis of the work, the prior research efforts and gaps analysis, conceptual issues emanating from the focus of the study and the conceptual framework providing direction for the work.

Theoretical Review

This section discusses relevant theories that help to explain the theoretical constructs underlying the variables of the study. The theoretical framework seeks to provide a theoretical connection between capital structure constructs and financial performance. According to Bryman (2015), a theory may be defined as a statement of a hypothesised relationship between variables. It also involves propositions and assumptions which explain and predict a relationship (Wyer Jr & Srull, 2014). This study reviews theories such as Agency Cost Theory, Bankruptcy Cost Theory and Trade-Off Theory.

Agency Cost Theory

The agency cost theory posits that company managements operate as agents for the shareholders of the company. The shareholder expects that their interests are protected by the management of the company (Chechet & Olayiwola, 2014; Opoku, Adu & Anarfi, 2013). However, this expectation is often not met creating agency problems, where management pursue their interest which are inconsistent with the interests of the shareholders or the value of shareholders' wealth (Farhad & Aliasghar, 2013; Morri & Berreta, 2008). It has been argued in the literature that the absence of goal congruence between management and shareholders leads to aberrant activities and management indiscriminate expenditure when there is high liquidity or cash position in disposal (Ehrhardt & Brigham, 2016; Goyal, 2013; Opoku et al., 2013; Abu-Rub, 2012).

Similarly, managers with access to little cash position are more likely to be judicious in their use of resources and may not be wasteful (Ajibola, Wisdom & Qudus, 2018; Ehrhardt & Brigham, 2009). In contributing to this assertion, Goyal (2013) argues that agency problems can cause managers to make haphazard expenditures when they have enough money at their disposal. Management would continue to engage in aberrant activities to the extent that they are not exposed or shareholders are not aware (Queku, 2018). Therefore, minimising or addressing the agency problem requires transparency and the threat of exposure. The literature has revealed that one of the threats of exposure is corporate risk and distress (Abor, 2007; Getahun 2016; Ihenetu, Iwo & Ebiware, 2016).

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Following Abor (2007), agency problems might have caused some firms to pursue a high level of debt policy as the threat of distress from debt could curtail management aberrant activities, and wasteful spending. Thus, agency costs can lead firms to chase high debt. Managers can be encouraged to reduce spending wastefully by the danger of financial distress from the increasing level of debt. This means that risk accompanying debt is central to addressing agency problems and means of achieving goal congruence and wealth creation (Akpakli, 2019). This prevents and deters wasteful spending and increases amounts accessible to shareholders.

The implication is that debt-carrying capital with high-risk exposure could minimise agency costs and enhance shareholders' value through high high-performing culture. This also suggests that high long-term debt may minimise agency costs and enhance firms' performance. Long-term debt carries a longer duration term structure of debt and high-risk exposure due to uncertainty of time (Barnea, Talmor & Haugen, 1987; Eckbo, 1986; Rub, 2012). Therefore, following the assumption from the agency cost theory that the threat of distress from high debt curtails management wasteful spending and encourages the pursuit of positive net present value projects to enhance returns, the study posits a positive relationship between long-term leverage and the performance of firms.

An evaluation of the agency cost theory assumption suggests that short-term debts have a short duration and therefore have lesser uncertainty and risk compared to long-term debts. Thus, the short-term debt is likely to increase the liquidity position of the firms with lower risk and this may not enhance goal congruence and could even widen the agency cost of debt (Abor, 2007; Khalaf,

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2014; Opoku et al, 2016). Thus, an increase in short-term debt may undermine the performance of firms.

By extrapolation, the assumptions of the agency cost theory may also explain the relationship between total debt and financial performance. Both long-term debt and short-term debt are debt accumulators-total debt. Using these debts also makes management cautious on financial and investment decisions as the emphasis is placed on how the debts are repaid to escape financial distress and bankruptcy. With this, business survival becomes the main concern of managers. However, the direction of the relationship between total debt and financial performance is not an obvious one as it may be affected by the balancing risk profile between long-term debt and short-term debt.

Although the assumptions from the agency cost theory have provided the basis for developing the hypothesis testing framework in this study, the theory fails to recognise the need for optimality of capital structure. Much as debt may drive shareholders' value, it comes with its dangers if the benefits are not balanced against the cost. Thus, the study reviews further theoretical considerations which take into account the optimality of capital structure.

Trade-Off Theory

The trade-off theory was proposed by Myers (1984) to support the importance of capital structure. The trade-off theory propounds that companies have optimal capital structure and move towards their target (Uremadu & Onyekachi, 2018). The theory argues that optimal capital structure is achieved through a trade-off between tax benefits of debt (tax-deductible cost of debt) and the cost of debt associated with the risk of financial distress or bankruptcy

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and agency cost (Getahun, 2016; Khalaf, 2014). The trade-off theory therefore defines cost in terms of agency cost and bankruptcy cost.

The trade-off theory with agency cost and bankruptcy as its source is operated by companies to take upon debt to a level at which the tax saving from extra debt taken becomes the same as the cost that originates from the finance distress' increased probability (Raluca, 2014). This implies that as companies attempt to maximize value, some optimal capital structures are set to increase the wealth of shareholders. The trade-off theory posits that firms rank their basis of financing; from internal to equity financing. Agreeing to the principle of the least resistance, choosing to raise equity as a financing means is of last alternative.

The theory also assumes that firms are better off for increasing debt through increasing tax benefits of debt (Lambert & Gossel, 2016; Mwangi, Makau & Kosimbei, 2014; Nirajini & Priya, 2013). However, as firms desire to take advantage of the tax effect of debt increase and they continue to apply more debts, the interest on the debts certainly increases leading to more financial costs which could ultimately offset the higher tax benefits (Nwachukwu & Akpeghughu, 2016; Nyeadi, Banyen & Mbawuni, 2017; Raluca, 2014). This theoretical assumption implies that the trade-off or the optimality of capital structure is dependent on the net tax consequence.

It also suggests that the direction of the relationship between debt and performance may be dependent on the extent to which the level of debt affects the net of tax benefits. This means that, unlike the agency cost theory which provides the nature and direction of the relationship between debt and performance, the trade-off theory shows that there is a significant relationship

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between debt and performance but fails to conclude on the direction (positive or negative) as the effect may be defined by the level of debt and net tax consequence. According to Myers (1984), the trade-off theory also fails to provide a wide degree of cross-sectional and time variation as observed in debt ratios.

To provide an empirical contribution to this optimality, Froko (2017) proposed debt maturity considerations and debt rate differentials. According to Froko conducting term structure, default risk and multi-period debt analysis, debt may be segregated according to financial leverage types and measured on a mean scale of minimum mean proxy and maximum mean proxy. So long as firms operate within the minimum mean proxy and maximum mean proxy, the application of debt would have a positive significant effect on financial performance unless management engages in aberrant activities or wasteful spending.

Empirical Evidence on Capital Structure and Firm Performance

This section presents a review of existing empirical studies on capital structure and performance of manufacturing firms in Ghana. The purpose of this section is to review prior research efforts, identify current developments, synthesise and critique the existing evidence, identify gaps and demonstrate the contribution of this study in filling those gaps. Addae, Nyarko-Baasi and Hughes (2013) conducted a study on the effects of capital structure on the profitability of listed firms in Ghana. The purpose of the study is to investigate the relationship between capital structure and profitability of listed firms in Ghana during the five years from 2005 to 2009.

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Data for the study was secondary data collected from the Ghana Stock Exchange's (GSE) fact book which is a published work containing financial and other needed data of all stock brokers, licensed members and listed firms in Ghana on the Ghana Stock Exchange (GSE). The study used 34 listed companies for the collection of data. The study employed panel data analysis to analyse the data collected. The findings from the study showed a significant positive relationship between short-term debt and profitability. However, a significant negative relationship was found between long-term debt and profitability. The study also revealed a significant negative relationship between total debt and profitability. It was also found in the study that listed firms in Ghana depend mostly on short-term debt rather than long-term debt. The study also revealed that the average short-term debt to total capital ratio was 52% and long-term debt to total capital ratio was 11%.

Addae et al (2013)'s study are similar to the current study with a similar focus. The evidence provides the basis for empirical comparisons. Nevertheless, the data span for the study of Addae et al (2013) is aged making the implication lacking currency effect. The study of Addae et al (2013) also focused on all listed companies, therefore, sector-specific implications cannot be conclusively drawn. It is therefore useful to conduct a sector-specific (manufacturing) study to provide policy and practical implications to the specific sector while contributing to the theory underlying the study. Extending the evidence to the performance of the manufacturing sector is critical as the sector has suffered performance challenges in terms of contribution to economic growth in Ghana (GSS, 2019). The present study therefore revises the scope by investigating the

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relationship between capital structure and financial performance using current data and the manufacturing sector as the study setting.

A similar study was conducted by Owusu-Antwi, Owusu-Peprah and Barnoh (2016) on capital structure and firms' performance in Ghana. The authors integrated macroeconomic factors into their investigation. The objective of the study was to investigate how macroeconomic factors affect the relationship between capital structure and bank performance from 2004 to 2014. The study used accounting data from 18 selected listed banks in Ghana on the Ghana Stock Exchange (GSE). The study developed panel data to increase efficiency by combining time series and cross-section data.

The study employed the fixed effect regression estimation model to establish a relationship between performance and the capital structure of firms over ten years. The study conducted a Hausman chi-square test in each of the equations. The study identified Gross Domestic Product (GDP) as a significant predictor. The study also indicated that macroeconomics is necessitated in the relationship between capital structure and the performance of the bank. The study however found inflation to be insignificant. The recommendation was therefore made that macroeconomic policies must offer a favourable environment for the operations of the banks, and also the government must improve the bond market.

Similar to Addae et al (2013)'s study, Owusu-Antwi et al (2016) focused on Ghana Stock Exchange. However, Owusu-Antwi et al (2016) extended the data to 2014. The authors also used listed banks thereby providing industry-specific evidence relevant to policy and practice. However, integrating macroeconomic variables which are time series data into the panel model could

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create a static model affecting the reliability of the model and conclusions drawn. Additionally, the macroeconomic variables were only used as control variables along with other control variables such as size and tangibility, therefore, it may be doubtful to conclude that it is the macroeconomic variables which have contributed to the relationship between capital structure and performance.

To draw such a conclusion would require models which could test the extent to which the macroeconomic variables strengthen or shrink the magnitude of the relationship or change the direction between capital structure and performance. This was absent. The present study revises the scope and avoids these methodological challenges while extending the literature of Owusu-Antwi et al (2016) from a bank-based study to the manufacturing sector and data span to 2018 to cater for aged data.

Short-Term Leverage on the Financial Performance

In Ghana, Nyeadi, Banyen and Mbawuni (2017) conducted a study on the determinants of capital structure of listed firms in Ghana. The purpose of the study was to investigate empirically the factors that affect the capital structure decisions of listed firms in Ghana. The source of data needed for the study was the Ghana Stock Exchange (GSE). 28 firms on the Ghana Stock Exchange were used for the study. The data period used in the study was 8 years which ranges from 2007 to 2014. The Mc Gregor dataset which contains the financial statements of all listed firms in Africa was used to extract the data required for the study.

A dynamic panel system of General Methods of Moments (GMM) was employed in the study to test the study hypotheses. The findings from the study

revealed that liquidity, tangibility of firms, long-term debt ratio, firm size and managerial ownership have a significant positive relationship with capital structure. It was also revealed that listed firms on the stock exchange in Ghana use less debt than equity and the firms Favour the use of short-term debt rather than long-term debt in their financial operations. The results also revealed that there is a negative relationship between growth opportunities, profitability, business risk, firm age and long-term debt ratio of Ghanaian listed firms.

Unlike the previously reviewed studies, Nyeadi et al (2017)'s study focuses on determinants of capital structure and fails to determine how capital structure drives performance which is within the scope of the current study. Similar to the other studies reviewed the most recent data used was from 2014 making it difficult for the findings to reflect the current events in the Ghanaian market. Nyeadi et al (2017)'s study seem to follow the study by Addae et al. (2013) which focused on all listed companies. Thus, sector-specific findings, conclusions and implications cannot be drawn. Given the critical role but emerging performance challenges of the manufacturing sector (GSS, 2019), the present study seeks to extend the literature to the listed manufacturing companies to provide policy and practical implications to the specific sector.

Long-term Leverage on the Financial Performance

In the Ogun State in Nigeria, Ajibola, Wisdom and Qudus (2018), embarked on a study on capital structure and financial performance of listed manufacturing firms in Nigeria. The study objective was to examine the impact of capital structure on the financial performance of quoted manufacturing firms in Nigeria over the period 2005-2014. The study employed a longitudinal design. The data used for the study was gathered from published reports from

the mentioned manufacturing companies for all of the periods from 2005 to 2014. The study selected 10 firms out of the 64 registered manufacturing firms on the Nigerian stock market. The study used a panel OLS method to determine the effect of capital structure on financial performance through E-views software.

The results from the panel ordinary least square indicated that long-term debt ratio (LTD), total debt ratio (TD) and return on equity have a positive statistically significant relationship. It was also found that return on equity (ROE) has a positive statistically insignificant relationship with short-term debt ratio (STD). The study also revealed that capital structure's (LTD, STD and TD) proxies have a negative insignificant relationship with return on assets (ROA) which makes return on equity (ROE) a better performance measure. The study therefore suggested that capital structure has a positive effect on financial performance and firms should use more long-term debts.

Ajibola et al (2018)'s study is the closest study reviewed in this study. Ajibola et al (2018) recognised the need for sectorial investigation of the relationship between capital structure and financial performance. The findings in the study of Ajibola et al (2018) will be compared to the evidence which would emanate from the current study. Nevertheless, Ajibola et al (2018)'s study use data from different stock markets outside Ghana. Although Nigeria and Ghana share similar socio-cultural characteristics, the economic structures, and market as well as the economic implications of Government policy may not be the same. Thus, it is still relevant to revisit the subject in the Ghanaian setting. Moreover, the data span used was from 2007 to 2014 which does not adequately

reflect the current issues. The present study therefore expands the scope of analysis to 2018.

Another study was conducted in Nigeria by Ajibola et al (2018) on the impact of capital structure on corporate performance in Nigeria: a quantitative study of the consumer goods sector. The purpose of the study was to examine the impact of capital structure on corporate performance in Nigeria with a special focus on the consumer goods firm sector of the economy. The data used for the study was secondary data collected from the financial statements and the annual reports of four corporate companies in the consumer goods sector listed on the Nigerian stock exchange from the span ranging from 2002 to 2016.

The study employed multiple regression of ordinary least squares (OLS) analytical technique to analyse the collected data. The findings from the study indicated that capital structure has a negative and insignificant impact on the corporate performance of the consumer goods firm sector of Nigeria. The study also revealed a negative and insignificant effect of long-term debt on total assets on returns on assets. It was also found that there is a negative and insignificant relationship between total debt to equity and returns on assets. It was concluded that capital structure is not a main determinant of firm performance.

Total Leverage and Financial Performance

Uremadu and Onyekachi's (2018) study also showed some similarities with the current study as the authors focused on capital structure and performance. Similar to the earlier studies such as Ajibola et al (2018) and Owusu-Antwi et al (2016), Uremadu and Onyekachi (2018) have demonstrated the relevance of conducting an industry-level study to provide sector-specific evidence for policy and management decisions. However, the study by

Uremadu and Onyekachi (2018) used only four (4) listed companies affecting the robustness of the findings and conclusions reached. Uremadu and Onyekachi's study also limited the scope to consumer goods firms. The present study therefore extends the scope to the manufacturing sector.

A study was conducted by Akpakli (2019), on capital structure and the financial performance of listed manufacturing companies on the Ghana stock. The purpose of the study was to explore the capital structure and the performance of listed manufacturing companies on the Ghana Stock Exchange. A qualitative approach and descriptive research design were employed in the study. The study purposely selected 10 companies for the analysis of the study. The data collected for the study is from a secondary source. Data was collected from audited annual financial statements from the respective firms used for the study. The study employed the statistical package EViews version 8 software, to analyse the collected panel data using multiple regression and descriptive statistics. The trends of the data were analysed using the standard deviation, mean, minimum and maximum values.

The results from the studies indicated that there is a positive significant relationship between short-term debt (STDA) and Return on Equity (ROE) at a 1% significance level. It was also revealed that there is a negative significant relationship between long-term debt (LTDA) and both Return on Equity (ROE) and Return on Assets (ROA) at 10% and 5% respectively. A positive significant relationship was found between the total debts of the listed manufactured firms on the Ghana stock exchange and both Return on Equity (ROE) and Return on Assets (ROA) at a 1% significance level.

The study also found a positive significant relationship between firm size as a control variable and both Return on Equity (ROE) and Return on Assets (ROA) at 5% and 10% respectively. It was also found that larger firms listed on the Ghana stock exchange experience high profitability levels as compared to smaller-sized firms on the stock exchange. Sales growth was also found to have a positive significant relationship with Return on Equity (ROE) and Return on Assets (ROA) at 10% and 5% respectively.

Akpakli's (2019) study is one of the comprehensive capital structure studies on the manufacturing sector in Ghana. It is therefore considered a benchmark for empirical discussion and comparative analysis. Nevertheless, Akpakli (2019) used what Froko (2017) termed minimum mean proxies to measure capital structure and thus considered the tern structure (duration) but failed to consider the default risk emanating from maximum mean proxies. Thus, the present study therefore extends the measurement proxies of capital structure and reestimates the relationship.

Conceptual Review

This section deals with the various key concepts used in the study. The key concepts are the overview of the manufacturing sector in Ghana, the Ghana Stock Exchange and manufacturing sector, capital structure and financial performance. These are discussed as follows:

Overview of the Listed Manufacturing Companies in Ghana

Manufacturing can be defined as the process of producing goods on a large scale. Goods are manufactured on large scales so that the demands of the consumers can be met. Ghana has many manufacturing companies. The Ghanaian manufacturing sector includes food manufacturing companies, textile

manufacturing companies, stationery manufacturing companies, and clothing manufacturing companies, among many others. According to (GSE, 2019), there are more than 100 manufacturing companies in the country with 21 being listed on the Ghana Stock Exchange.

The manufacturing industry in Ghana according to Opoku, Adu and Anarfi (2013) accounts for roughly 25.3% of the gross domestic product of the country. It was further stated that the manufacturing industry keeps rising at a rate of 7.8% which gives it the 38th fastest manufacturing sector in the world because of policies of government industrialization (Kyereboah-Coleman, 2007). Some of the manufacturing groups in the manufacturing aiding the rise of the manufacturing sector include aluminium smelting companies, light manufacturing companies, cement manufacturing companies, small commercial shipbuilding and food processing companies (Kyereboah-Coleman, 2007). Lack of capital slowed the growth of the manufacturing companies but with foreign capital, the operations of the manufacturing companies have increased (Abor, 2007; Addae et al., 2013). Most of the products of these manufacturing companies are for local consumers and most of the exports are raw materials.

An industrialization initiative was propelled by the Nkrumah government after Ghana achieved its independence in 1957 and started to increase the manufacturing share of gross domestic product from 10% in 1960 to 14% in 1970 (Opoku, Adu & Anarfi, 2013). The increase in the GDP caused the creation of a wide range of manufacturing companies including Volta Aluminum Company (Valco) smelter, timber processing plants, sawmills, cocoa processing plants and many more (Owusu-Antwi, Antwi & Owusu-

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Peprah, 2016). The manufacturing sector became inactive from 1970 to 1977 and also declined in production from 1977 to 1982 due to shortages of hard currency and overvalued cedi for raw materials, spare parts and poor management (Addae, Nyarko-Baasi & Hughes, 2013). The Rawlings government threw light on the manufacturing sector which attracted the interest of the succeeding governments (Owusu-Antwi, Antwi & Owusu-Peprah, 2016).

Despite the critical role of the manufacturing sector, its performance through its contribution to economic growth has not been sustainable. The overall performance of the manufacturing sector has reduced drastically over the past decade from 10.2% (2006) to 3.7 % (2015) (GSS, 2019). From the April report of GSS (2019), although the performance improved from 3.7% (2015) to 7.9% in 2016 and 9.5% in 2017, it reduced sharply again to 4.1% in 2018. The performance challenge is a serious setback and critical for investigation as the current government policy seeks to achieve Ghana beyond aid through industrialisation and trade.

Ghana Stock Exchange and Manufacturing Sector

A 10-member National Committee chaired by the Governor of the Central Bank of Ghana started to explore the establishment of a national stock market in 1989. About six months after the committee started its work, the Ghana Stock Exchange (GSE) was established in July 1989. GSE however received its official charter in October 1990 (Addae et al, 2013). The GSE is the primary stock market in Ghana and a source of raising capital for qualifying companies.

The number of companies listed on the GSE has improved over the period. The number increased to 13 in 1991.

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Fast forward to 1995, the number rose to 19 and within a decade the number jumped to 32 in the year 2007 and currently stands at 35 (GSE, 2019). The increasing number of listed companies is not surprising as it is a means to raise long-term capital. To address the access to capital challenge of the manufacturing sector in Ghana, many of these manufacturing companies have been listed on the GSE. Currently, the manufacturing sector including the brewery dominates the number of listed companies on the GSE.

This is not surprising as raising capital has been the dominant challenge for the manufacturing sector in Ghana. The lack of adequate capital has slowed the growth of manufacturing companies (Abor, 2007; Addae et al., 2013). Therefore, the rising number of listed manufacturing companies demonstrates how long-term financing is critical for the players. However, since the bond market is not well developed in Ghana, other sources of funds for the companies are short-term finance as well as long-term debt. These dynamics have implications for the capital structure of these companies and could also affect their financial performance.

Concept of Capital Structure

Capital structure means how a company funds its operations by merging equity capital, short-term debt and long-term debt (Toraman, Kihc, Reis, 2013; Zeitun & Tian, 2017). Capital structure depicts how the general operations and growth of the company are financed by the company using various sources of finance (Usman, 2013; Yegon, Cheruiyot, Sang & Cheruiyot, 2014). Capital structure is the combination of various securities used by a company to finance its ventures (Lambe, 2014; Nirajini & Priya, 2013).

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It could be learnt from these definitions that capital structure comprises a mixture of equity and debt employed by firms to finance their operations. Companies' capital structure differs in its type, size and other features or elements such as company size, company age, structure of assets, growth of the company, profitability, liquidity and company risk (Yegon et al, 2014). Froko (2017) identified four capital structure implications: Short-term financial leverage, long-term financial leverage, total financial leverage and equity risk exposure. This study operationalises capital structure into long-term financial leverage, short-term financial leverage, and total financial leverage.

Long-term financial leverage denotes the relationship between long-term debt and equity or assets. According to Ihenetu (2021), debt capital serves as a long-span obligation a company uses to fund its investment activities which is associated with a period of long repayment. Long-term debt is considered the safest type of debt capital because while paying interest in the meantime, the company has if not decades, years to generate the principal (Getahun, 2016; Khalaf, 2014).

Short-term financial leverage is the mixture of short-term debt and equity to finance the entity's operation (Akpakli, 2019). The debt is termed short-term debt due to the expectancy that the borrowed fund will be paid back in a year or less. Short-term debt is the financial obligations of a company which is expected to be paid off within a year (Lambert & Gossel, 2016). Short-term debt is listed under the portion of current liabilities of the section of total liabilities of the balance sheet of a company. The total financial leverage assesses the relationship between total debt and equity or the application of the total debt to finance the entity's assets (Ajibola et al.,2018).

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Firm Performance

The success of a firms depends on its performance. For most businesses and companies, their performance hinge on their profitability. Every business is most concerned with its profitability, they defined profitability as the ability to make profit from all the business activities of an organization, company, firm, or enterprise (Pratheepan & Yatiwella, 2016; Raluca, 2014). Additionally, it shows how efficiently the management can make a profit by using all the resources available in the market. One of the most frequently used tools of financial ratio analysis is profitability ratios, which are used to determine the company's bottom line.

Profitability, according to Rub (2012) is the ability of a firm to earn returns on investment made in its assets that has a positive net present value. A financial action that has a positive net present value will create wealth for shareholders and is therefore desirable. Similarly, a financial action resulting in a negative net present value should be dropped because it will endanger shareholders' wealth. Essentially, the term is relatively measurable in terms of profit and its relation with other elements that can directly influence the profit. However, profitability measures management efficiency in the use of organizational resources to add value to the business. Uremadu, and Onyekachi (2018), explain that profitability can best be measured in terms of Return on Assets, Returns on Equity as well and Returns on Capital Employed. Thus, the current study puts the measurement of profitability in the same perspective.

Lessons from the Literature and Gaps Summary

The theoretical review has provided that there is a theoretical connection between capital structure and financial performance. It is learnt from both the

agency cost theory and trade-off theory that capital structure could have a significant influence on the level of financial performance (Ehrhardt & Brigham, 2009; Goyal, 2013; Opoku et al., 2013; Rub, 2012), however, the theoretical assumptions have not been conclusive about the direction of the relationship (Abor, 2007; Getahun 2016; Ihenetu, Iwo & Ebiware, 2016; Nwachukwu, & Akpeghughu, 2016; Nyeadi, Banyen & Mbawuni, 2017; Raluca, 2014).

Therefore, it is useful to determine the empirical relationship to explore the theoretical assumptions which underscore the capital structure and financial performance connection within the manufacturing sector. It is also learnt that such investigation is relevant not only for the theories but also for management and public policy. One of the core elements for achieving the government policy of 'Ghana Beyond Aid' is industrialization and growth of the manufacturing sector, however, the sector has seen a decline in performance and contribution to economic growth (GSS, 2019).

Despite the need of extensive empirical evidence about the nature of the relationship between capital structure and financial performance in the manufacturing sector, Ghanaian literature on capital structure is filled with the financial and other service sector (Amponsah, 2011; Akoto & Awunyo-Vitor, 2013; Gatsi & Akoto 2010, Opoku, Adu & Anarfi 2013; Usman, 2013), only few studies have extended the evidence to the manufacturing sector with even inconclusive results (Abor, 2005; Akpakli, 2019). Most of the existing industry-level analysis studies on the manufacturing level have study settings and data outside Ghana making holistic adoption of the implications and conclusions problematic and doubtful (Ajibola et al., 2018).

It is also learnt from the literature review that most of the existing studies in the Ghanian literature are aged in terms of the data used (Addae et al., 2013; Nyeadi et al., 2017; Owusu-Antwi et al., 2016). Moreover, Froko (2017) has argued that to determine the consequence of capital structure optimality, firms are expected to know their minimum leverage proxy and maximum leverage proxy and test their consequence on key performance benchmarks. To the extent that the maximum leverage is still yielding a positive significant effect, additional debt is relevant (Froko, 2017). This study therefore seeks to follow this approach and contribute to the literature by investigating the implication of capital structure on the financial performance of listed manufacturing companies in Ghana.

Conceptual Framework

The theoretical development, empirical review and conceptual issues discussed in this chapter have provided critical lessons for this study. The review has revealed relevant gaps and bases for contributing to filling the gaps. These lessons are translated into structure and framework to guide this study. The conceptual framework of this study therefore provides a diagrammatic show of the focus of the study and the relationship between the study variables. The framework is shown in Figure 1. The figure depicts the relationship between capital structure constructs and financial performance. The framework shows that the financial performance variable is the dependent variable while the capital structure constructs are the independent variables and size and age depict control variables. The capital structure constructs are operationalised into short-term financial leverage, long-term financial leverage and total financial leverage.

Figure 1: Conceptual Framework of Capital Structure and Performance
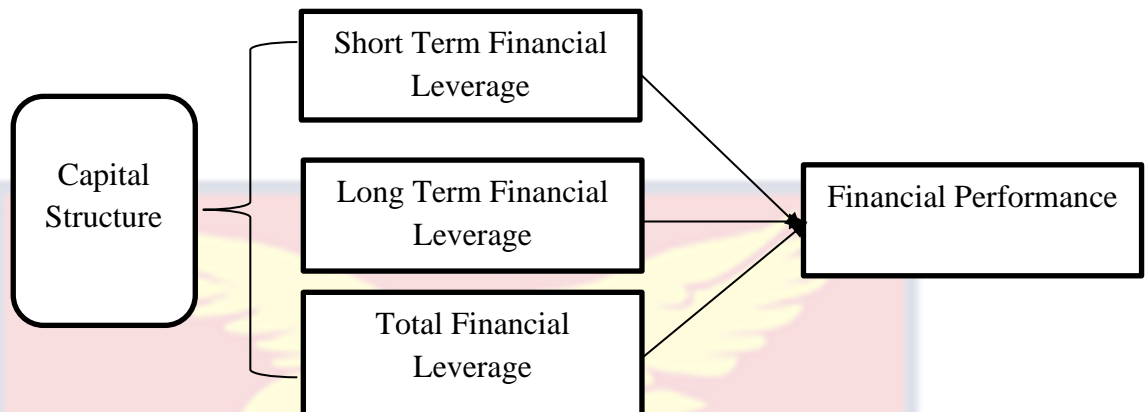
Source: Author's own construct, (2023)

Figure 1: Conceptual framework

Chapter Summary

The chapter provided in-depth information regarding the literature review concerning theoretical review, conceptual review, empirical review and conceptual framework. The theoretical review provided explanations regarding the purported reasons underlying the nature of the relationship existing among the constructs considered in the study. Extensive literature espoused was on the construct considered in the context of the study which aided the construction of the specific research objectives that were shown in the conceptual framework that explains the nexus between the study variables.

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CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter presents the methodology for the investigation. The study focuses on the relationship between capital structure and financial performance of the manufacturing sector in Ghana. This investigation requires sound methodology. Research methodology is the general approach in carrying out an investigation which involves the procedures or tools for data collection and analysis (Cohen, Manion & Morrison, 2013; Cooper & Schindler, 2011). This chapter therefore identifies the relevant research approach, procedure and technique, provides justifications for the suitability and demonstrates how these methods may be applied in this study. The chapter therefore discusses the study philosophy, study approach, study design, sources and descriptions of data, theoretical model specification, empirical model specification, justification and measurement of study variables.

Research Philosophy

Several perspectives influence the structure, process, and direction of social science research. Bryman and Bell (2007) identified five major philosophies that have shaped social science research over the years: positivism, critical realism, interpretivism, postmodernism, and pragmatism. The authors posited that each of the research philosophies has something unique and valuable to contribute to the research undertaken by the researchers. Therefore, the type of philosophy held by individual researchers often leads to embracing a strong qualitative, quantitative and mixed-methods approach in their research (Easterby-Smith, Thorpe & Jackson, 2008).

This study is grounded in the postpositivist research paradigm, which argues that the idea, and even the particular identity of a researcher influences what they overserve and therefore impacts upon what they conclude (Easterby-Smith et al., 2008). The postpositivist pursues objective answers by attempting to recognise, and work with, such biases with the theories and knowledge that theorists develop. Again, postpositivism relates to the philosophical system that embraces issues that can be scientifically verified and hence provide a basis for generalisation. This means that positivists focus on procedures that lead to the generation of facts uninfluenced by human interpretation (Easterby-Smith et al., 2008).

Postpositivists believe that it is through a scientific research approach that researchers can unravel the objective truth existing in the world. Easterby-Smith et al (2008) advanced that positivists usually believe in the thoroughness and replicability of research work, the reliability of observations, and the generalisability of research observations. In respect of the preceding, postpositivists usually rely on large samples and quantitative techniques for data analysis. The proponents of postpositivism rely on deductive reasoning to state theories that they can examine through fixed, predetermined research design and objective measures (Sekaran & Bougie, 2016). Saunders et al. (2016) advanced that the postpositivist paradigm supports quantitative studies. The assumption behind the postpositivist paradigm is that there is an objective truth existing in the world that can be measured and explained scientifically

Research Approach

The study approach is a general mechanism a study uses to conduct social research that spans the steps from broad assumptions to detailed methods

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of data collection, analysis, and interpretation (Bryman & Bell, 2007). Although researchers are open to a variety of research approaches based on their underlying philosophies, there are critical evaluations that need to be done. These include the consideration of the research problem, research objective and hypotheses. Following these rubrics, researchers have the option to choose among the three main approaches outlined by Creswell (2003); namely quantitative, qualitative and mixed approach.

Referencing this critical evaluation it would be more appropriate to use a quantitative approach as the primary analytical procedure to conduct the study. According to Driscoll, Yeboah, Salid and Rupert (2007) quantitative approach is an approach that a researcher adopts to test objective theories by examining the relationship among variables. In addition, quantitative research involves the collection of data that can be quantified in respect of the study variables. It is also believed that the approach assists in examining how the independent variables affect the dependent variable and it involves cause and effect relationships between the variables. Notwithstanding this, the approach will be useful to test pre-determined hypotheses and produce generalisable results (Family Health International (FHI), 2005). Hence, the quantitative approach is suitable since the study involves testing hypotheses, establishing relationships and relating empirical hypotheses to theories. It again makes numerical data and quantitative analysis the core dimensions of this study.

For this approach to be applied, the study would first rely on the literature to determine how each of the study variables could be measured including operationalising the variables and determining the formulae for their measurements. Subsequently, the study would employ secondary data generated

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from audited financial statements of listed manufacturing firms in Ghana to gather numerical data to measure the study variables, formulate empirical hypotheses to operationalise the research objectives and employ statistical techniques capable of presenting inferential statistics and estimates to support the objectives.

Research Design

Research design as defined by Vosloo (2014) is a functional plan that the researcher follows in the collection and analysis of data in a manner that aims to bring relevance to the research purpose with economy and procedure. In other words, it is a blueprint that is followed to complete the study in a way that the study problem will be addressed using economical procedure. This implies that the research design pays much attention to the research methods and procedures that are linked together to acquire a reliable and valid body of data for empirically grounded analyses, conclusions and theory formulation.

Similarly, Bless, Higson-Smith and Kagee (2006) explained study design as the operations to be performed, to test a specific hypothesis under a given condition. The choice of this appropriate roadmap or design is based on the research approach, research questions or hypothesis, data needs and estimation approach to employ. Therefore, the study uses an explanatory design. As explained by Gall (2007) explanatory design is appropriate when a study seeks to establish how a change in phenomenon will have on the existing norms and assumptions. As outlined by some scholars' explanatory designs make it possible for replication and also help the researcher to understand the trend in the behaviour of a phenomenon. This design is suitable as the study analytical procedures require data and trend estimations of relationships.

Sources and Description of Data

To generate the relevant data for the quantitative analysis in this study, secondary data are used. According to Trzesniewski, Donnellan and Lucas, (2011), many research questions can be answered quickly and efficiently using data that have already been collected. Due to this, utilizing existing data for research is becoming more prevalent. To them, secondary data is an empirical exercise that applies the same basic research principles as studies utilising primary data and has steps to be followed just as any research method. Secondary data are data that have been collected, processed and used in studies by persons other than the current researcher (Fàbregues et al., 2021). The main sources of these secondary data are the audited annual financial statements of the listed manufacturing firms in Ghana. Such data are considered to be more reliable and accurate because they are statutorily required to be audited by a recognized auditing firm before publication.

Theoretical Model Specification

Since the study seeks to investigate the effect capital structure has on financial performance within the manufacturing sector in Ghana, modelling becomes very fundamental. Consistent with the study objectives and resulting hypotheses, the models are expected to be operationalised using the measuring proxies. In addition, the study has provided strong theoretical assumptions to support these hypotheses. The theoretical model used to develop the empirical models to test the hypotheses follows a generalised panel model. According to Hsiao (2003), a panel data set follows a given sample of individuals over time and thus provides multiple observations on each individual in the sample. In other words, a panel data set is one where there are repeated observations on the

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same units. Such repeated observations create a potentially very large panel data set.

Hence, the panel model is used because the researcher believed that it will provide a rich environment for development estimation techniques and theoretical results (Greene et al., 2015). Notwithstanding this, it is also believed that panel data allows the researcher great flexibility in modelling differences in behaviour across individuals, firms, etc. Similarly, the research is allowed to study cross-section effects with the help of panel data. It is also used to estimate multiple observations on each unit to provide superior estimates as compared to cross-section models of association. The modes are expressed as $Y_{it} = \propto_{it} +$ $\beta_1 X_{it} + \varepsilon_{it}$ (1)

Where:

'it' also represents the panel dimension

'Y' is the dependent variable which is financial performance in this context.

'X' is the independent variable which is capital structure elements in this context.

$\propto_t$ is the constant

'β'$_1$ is the coefficient of the independent variable

'e' represents the error term.

Statistical Assumptions of the Model

Like any other model, the panel model also has some statistical assumptions for its estimation. This study therefore follows Frees (2004) to outline the following assumptions to validate the results from the model. The core assumptions underlying the model are as follows:

- It is assumed that the variables used in the have a linear relationship

- The model also assumes that there is no serial correlation

- It is also assumed that the variables are independent and identically distributed.

- Finally, for the estimation, the study assumes that the model has fixed effects.

To empirically test the hypotheses using model (1), the study therefore operationalises the study variables and substitutes them into the model with the specific measure of the variables in the hypotheses to derive the empirical model in the model (2). This is expressed as:

$$ROE_{it} = \propto_i + \beta_1 STL_{it} + \beta_2 LTL_{it} + \beta_3 TL_{it} + \varepsilon_{it} \qquad (2)$$

Where ROE is Return on Equity (Dependent variable)

STL is Short-term Term Leverage which represents one element of capital structure and denotes an independent variable

LTL is Long Term Leverage an independent variable and one of the components of capital structure.

TL denotes the Total Leverage which is also an element of capital structure (independent)

$\beta_1, \beta_2 \text{ and } \beta_3$ are the coefficients of the independent variables

Apriori Position of the Study

The coefficient of capital structure (β1) tests the hypothesis between short-term financial leverage and financial performance. Thus, 'β'1 indicates the extent to which short-term leverage affects financial performance. It is expected that short-term financial leverage would have a significant negative effect on financial performance. Short-term debt could put pressure on the manufacturing firms' liquidity and may distract the firms from meeting other

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viable investment opportunities and eventually affect the bottom-line performance negatively (Abor, 2008; Khalaf, 2014; Opoku et al., 2016). The second research hypothesis tests how long-term financial leverage affects the financial performance of listed manufacturing firms in Ghana. The coefficient 'β'2 shows that relationship in the model. The significance of this coefficient is used to reject the null hypothesis formulated about the relationship. Following prior literature, the study posits a positive relationship between long-term leverage and the performance of firms.

The last hypothesis developed seeks to reveal how total leverage has a significant effect on firm performance. The coefficient (β_3) indicates the relationship between total leverage and financial performance. It is the basis to confirm or disaffirm the null hypothesis formulated. It is expected that total leverage has a significant influence on financial performance. Table 1 presents a summary of the study variables, their measurements and expected signs. Under the expectation column symbols such as '+/-' have been used. The '+' indicates a positive relationship while '- 'indicates a negative relationship. The study follows Froko (2018) to measure the capital structure variables from two extreme denominators: equity and asseT

Table 1: Study Variables, Measurement and Apriori

Variables	Measurement	Apriori
Dependent		
Financial performance	ROE	
Independent Variables		
Short term leverage	SDA and SDE	Negative (-)
Long term leverage	LDA and LDE	Positive (+)
Total leverage	TDA and TDE	Positive (+)

Source: Author's Construct from the Literature

Estimation Technique

The study employs Ordinary Least Squares (OLS) within the panel framework to estimate the relationship between the study variables. Ordinary Least Squares (OLS) have become one of the most powerful statistical models when used correctly. OLS estimator can be used for measuring unknown parameters in a linear regression model, to minimise the sum of the squares of the differences between the observed responses (values of the variable being predicted) in the given dataset and those predicted by a linear function of a set of explanatory variables (Greene & William, 2002).

It is believed that OLS outperforms most of the traditional estimators when the assumptions are met (Wooldridge & Jeffrey, 2013). As mentioned by Wooldridge and Jeffrey (2013), the ordinary least square estimator is consistent when the regressors are exogenous, and optimal in the class of linear unbiased estimators, when the errors are homoscedastic and serially uncorrelated. The following are some of the primary assumptions underlying the OLS estimation (Greene & William, 2002; Wooldridge & Jeffrey 2013). According to the scholars, these assumptions are very important because a lack of knowledge of these assumptions would result in their misuse and give incorrect results for the econometrics test completed. It is assumed that the parameters are linear. This is so because the dependent variable y can be calculated as a linear function of a specific set of independent variables plus an error term.

There is also an assumption of stationarity. It is assumed that there is a random sample of n observations. The mean of the error terms has an expected value of zero given values for the independent variables. It is therefore assumed that under the OLS model, there is zero conditional mean.

- It is again assumed that there is no perfect collinearity under ordinary least squares.

- It also assumes homoscedasticity. Thus, the error terms all have the same variance and are not correlated with each other.

The study would conduct pre-diagnostic tests to verify these assumptions. Where the key primary assumptions are met, then the study would proceed to employ the estimator. Otherwise, an alternative estimator is considered.

Chapter Summary

The third chapter discussed the range of methodologies which are relevant to the study objectives, research questions and the formulated hypotheses to address the research problem. The research philosophy and the approach have been explained with justifications. The chapter also presented the theoretical and the working models to the focus of the study. The applications of the models to testing each hypothesis formulated have also been discussed in the chapter. The estimation technique or approach and the underlying assumptions have been explained. These methodologies will be applied in chapter four which is the next chapter.

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CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

The study focuses on the capital structure and profitability of listed firms in Ghana. The previous chapters have presented the introduction, literature review and methodologies relevant to this research. This chapter specifically builds on the previous chapters by applying the analytical procedures and estimation strategies discussed in the methodology chapter. The chapter reports the statistical results, interprets them and discusses the findings about the study prior, theory and empirical literature.

Descriptive Analysis

Statistical properties of data influence the choice of statistical model. The study therefore analyses these properties before running the models specified in this study. The results are reported in Tables 2a and 2b. The results in Table 2a show the descriptive properties of the independent variables: short-term debt to equity (SDE), short-term debt to asset (SDA), long-term debt to equity (LDE), long-term debt to asset (LDA) and total equity debt (TDE) and total debt to asset (TDA). It can be observed that all the variables have positive mean. The positive means for the independent variables are not strange either since they are measured from either positive numerators or positive numbers and therefore the resulting indicators are likely to be positive.

The range values are very high as evident in the very high maximum and low minimum values. Other than total debt to asset (TDA), the standard deviations are very high suggesting that the individual observations are not closely packed. The individual observations depart from the mean values. This

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conclusion is affirmed by the Coefficient of Variation (CoV) which measures the standard deviations from the mean. The general assumption is that when the CoV is greater than one (1) in absolute terms, then there is high volatility in the observations. All the variables have CoV greater than 1 except TDA which is 0.9264 (less than 1).

Table 2a: Descriptive analysis of the leverage variables (2008-2021):

	SDA	SDE	LDA	LDE	TDA	TDE
Mean	0.4706	4.8243	0.1653	4.5410	0.6346	9.2972
Median	0.3786	0.7251	0.0615	0.1223	0.6570	1.1931
Maximum	6.8244	407.9250	1.0098	799.9852	7.1696	1207.9100
Minimum	0.0000	-64.6981	-0.1050	-6.0433	0.0000	-64.6981
Std. Dev.	0.5533	32.6693	0.2084	55.3692	0.5879	85.7966
CoV	1.1757	6.7718	1.2603	12.1932	0.9264	9.2282
Observations	210	210	210	210	210	210

Source: Field Survey (2023)

Table 2b shows the descriptive properties of return on equity (ROE) which is the response variable and the control variables: firm age (FA), firm size (FS), and firm growth (FG). It can be observed that all the variables have positive mean other than ROE. This is not strange considering that ROE takes its numerator from net earnings which could assume negative values. The positive means for the control variables are not strange either since they are measured from either positive numerators or positive numbers and therefore the resulting indicators are likely to be positive.

The range values are very high as evident in the very high maximum and low minimum values. Other than firm age (FA), the standard deviations are very high suggesting that the individual observations are not closely packed. The individual observations depart from the mean values. This conclusion is affirmed by the Coefficient of Variation (CoV) which measures the standard deviations from the mean. The general assumption is that when the CoV is

greater than one (1) in absolute terms, then there is high volatility in the observations. All the variables have CoV greater than 1 except TDA which is 0.4149 (less than 1).

Table 2b: Descriptive analysis of the profitability and control variables (2008-2021)

	ROE	FS	FG	FA
Mean	-0.4084	50494539	0.1749	41.78095
Median	0.0795	581606.0	0.0989	43.0000
Maximum	13.6125	1.30E+09	13.3997	77.0000
Minimum	-80.6924	0.000000	-1.0000	18.0000
Std. Dev.	5.8652	1.99E+08	0.9760	17.3338
CoV*	-14.3614	3.9410	5.5803	0.4149
Observations	210	210	210	210

Source: Field Survey (2023)

Nature of Capital Structure and Profitability

The historical trend in leverage variables and profitability has been captured in Figure 2. It can be observed that profitability has a relatively smoothened trend. Figure 2 shows that the firms have relative stability in the profitability trend. In respect of the leverage, a similar trend can be observed in all the maximum mean proxies (SDE, LDE and TDE). This suggests that there is also relative stability in the trend of these proxies. However, the minimum mean proxies (SDA, LDA and TDA) exhibit some relatively high volatility.

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Figure 2: Trend in the Study Variables (2008-2021)
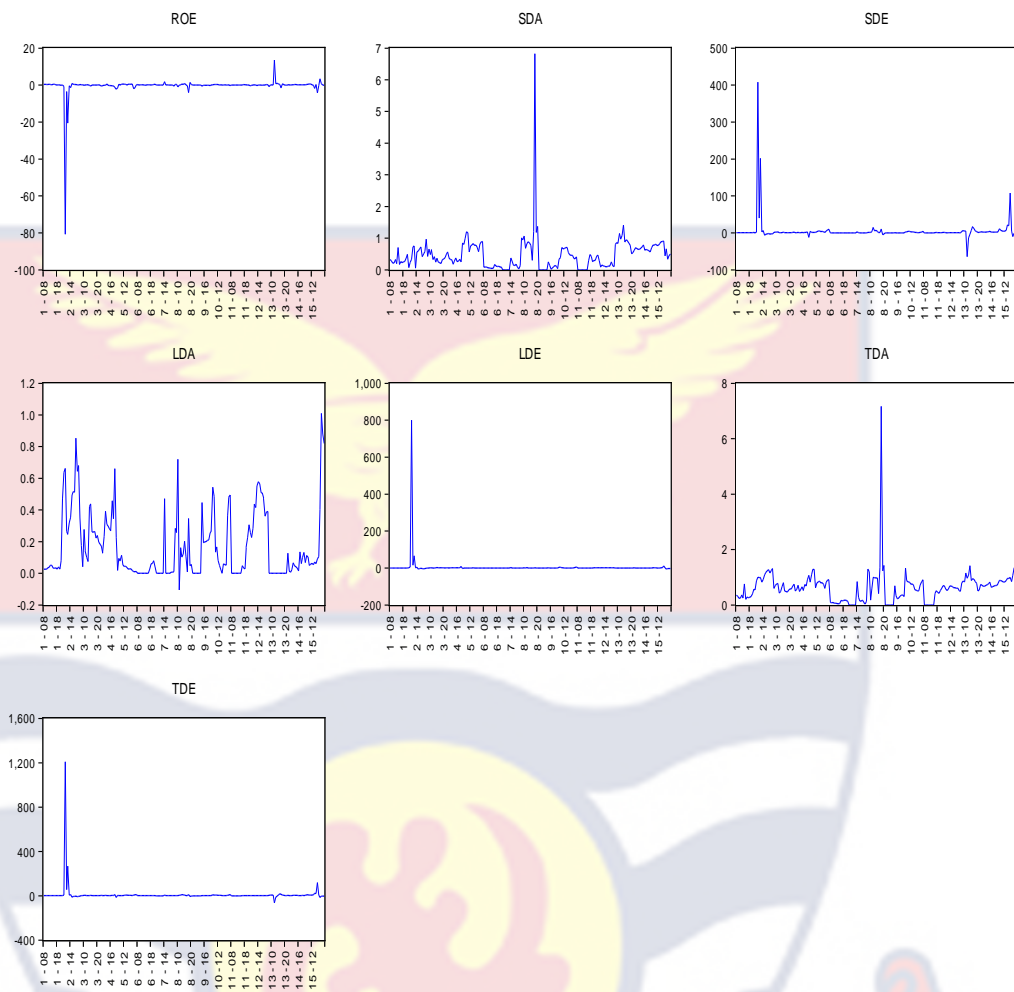
Collinearity Analysis

The models specified in this study require multiple regression. One fundamental assumption under multiple regression is that there is no multicollinearity problem. To test this assumption, the study follows a correlation matrix among the explanatory variables (independent and control variables) to check possible multicollinearity problems. Although there is no strict rule on the appropriateness of the level of the correlation coefficient, however, the rule of thumb as claimed by scholars suggests a coefficient of above 0.9 as evidenced by the multicollinearity problem (Pallant, 2007). Eviews also has an inbuilt mechanism to check multicollinearity.

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Table 3 captures the statistics for determining the multicollinearity position. The results from Table 3 show that most of the coefficients are less than 0.9. However, the correlation coefficient between TDE and SDE is 0.9564 while TDE and LDE is 0.9852. These coefficients exhibit a multicollinearity problem. To minimise the consequence of this multicollinearity problem, the study restructures its models into two: One for SDE and LDE and the controls and another for TDE and the control variables.

Table 3: Correlation Matrix (2008-2021)

	SDA	SDE	LDA	LDE	TDA	TDE	FG	FA	FS
SDA	1.0000								
SDE	0.0428	1.0000							
LDA	-0.0054	0.1367	1.0000						
LDE	-0.0139	0.8923	0.1688	1.0000					
TDA	0.9224	0.0893	0.3222	0.0472	1.0000				
TDE	0.0069	0.9564	0.1608	0.9852	0.0642	1.0000			
FG	0.0627	0.0364	0.0516	-0.0448	0.0539	0.0454	1.0000		
FA	-0.0427	0.1204	0.1234	0.0954	0.0015	-0.1072	0.0048	1.0000	
FS	0.1193	0.0435	0.1004	-0.0127	0.0785	0.0246	0.0327	0.0647	1.0000

Source: Field Survey (2023)

Panel Unit Root Test

One fundamental assumption for Ordinary Least Square (OLS) estimation is that the variables do not exhibit unit root problem behaviour. Thus, the data for the variables are stationary. The study tests this assumption since the study employs Panel OLS. The test is conducted using Fisher Augmented Dickey-Fuller (ADF) and Philip-Perron (PP) as the primary estimators while Levin, Lin & Chu (LLC) as the third estimator when there is a conflict in the results of ADF and the PP. Table 4 reports the results of the panel unit root tests.

The statistics in Table 4 show that all the variables are stationary at the level. This suggests that the data do not have a unit root problem.

Table 4: Stationarity Analysis of the Variables (2008-2021)

Variables	ADF	PP	LLC	ORDER
ROE	37.6909(0.1578)	69.5191(0.0001)	-2.0210(0.0216)	I (0)
SDE	46.1911(0.0298)	68.4521(0.0001)	-5.8107(0.0000)	I (0)
SDA	44.4003 (0.0439)	54.3175(0.0042)	-3.8778(0.0001)	I (0)
LDE	45.6702(0.0188)	78.9792(0.0000)	-1.9046(0.0284)	I (0)
LDA	27.7855(0.4759)	43.8223(0.0289)	-1.9287(0.0132)	I (0)
TDE	45.7721(0.0327)	82.1655(0.0000)	-1.7843(0.0372)	I (0)
TDA	33.2846(0.3103)	50.0582(0.0182)	-2.0317(0.0175)	I (0)
FS	49.6102(0.0136)	91.5647(0.0000)	-1.6656(0.0479)	I (0)
FG	64.8910(0.0001)	98.3141(0.0000)	-4.4657(0.0000)	I (0)
FA	46.0821(0.0205)	84.4612(0.0000)	-1.9899(0.0276)	I (0)

Source: Field Survey (2023)

Model Specifications: Fixed Effect and Random Effect

As explained in the methodology chapter, this study follows OLS. The study has to choose between the appropriateness of fixed effect (FE) specifications and random effect (RE) specifications for the two models. This study follows the Hausman Test to make that decision. It is important to state that the analyses are based on two models. The first estimation contains SDE and LDE in addition to the vector of controls while the second estimation contains TDE and the vector of controls. In both models, the ROE stands as the response variable.

The panel OLS is conducted after the Hausman test is run to determine the appropriate choice between fixed effect and random effect. The Hausman

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results are reported in Tables 5 and 6 for the first model and second model respectively. The Hausman test is based on the null hypothesis that it is appropriate to use the random effect specification. It can be observed from Table 5 that the study fails to reject the null hypothesis that random effect is more appropriate. This conclusion is reflected in all three tests: Cross-section random, period random and cross-section and period random. The results from the analyses suggest that it is appropriate to follow a two-way random effect specification.

Table 5: Hausman Chi-square Test on SDE and LDE Model

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.0000	5	1.0000
Period random	0.0000	5	1.0000
Cross-section and period random	0.0000	5	1.0000

Source: Field Survey (2023)

Table 6 also reports the results of the Hausman test for the TDE model. It can be observed that in both the cross-section and period random tests, the study fails to reject the null hypothesis that random effect specifications are more appropriate. This is consistent with the results in Table 5. However, in terms of the two-way random, the results depict that the Chi-square is significant at 5%. This suggests that the study rejects the null hypothesis that random effect specifications are more appropriate. The study therefore follows a two-way fixed effect for the estimation rather than the random effect specification.

Table 6: Hausman Chi-square Test on TDE Model

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000
Period random	0.000000	4	1.0000
Cross-section and period random	12.414392	4	0.0145

Source: Field Survey (2023)

Panel Ordinary Least Square (OLS) Estimation Results. As reported and concluded under the Hausman test in Table 5, the study conducts the POLS using a two-way random effect estimator for the short-term leverage (SDA and SDE) and the long-term leverage (LDA and LDE) (Model I). Table 7 presents the results of the estimation. The result shows that the R-square (R^2) and adjusted R-square (adj. R^2) are 0.9795 and 0.9788 respectively. These statistics indicate the fitness or goodness of the model. The high R^2 and adjusted R^2 values are a good indication that the specification for model I is good. The adj. R^2 of 0.9788 also suggests that all other things remaining constant, the explanatory variables (the independent variables and vector of controls)) explain about 97.88% of the variations in the profitability of the listed manufacturing firms in Ghana. The remaining 2.12% (100-97.88) of the variations are accounted for by factors outside this model's specifications.

The model I estimated and reported in Table 7 also shows significant f-statistic. The f-stat is 1376.701 it has a corresponding p-value of 0.0000. This makes the f-stat significant at 1%. This indicates that although the individual coefficients such as the vector of controls are not significant at individual levels, they are jointly significant. The Durbin –Watson statistics from the estimation is also closer to 2 (1.9253) indicating that the model exhibits no autocorrelation problem. This provides further evidence and reasonable assurance that the

model is good and sound. The estimates in Table 7 are therefore appropriate to

address the first two objectives and the corresponding

hypotheses (short-term leverage and long-term leverage).

Table 7: Panel Ordinary Least Square Model I (2008-2021)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SDA	-0.2787**	0.1180	-2.3627	0.0191
SDE	-0.0818***	0.0040	-20.2785	0.0000
LDA	-0.5743*	0.3383	-1.6975	0.0911
LDE	-0.0590***	0.0024	-24.9836	0.0000
FG	0.0732	0.0596	1.2279	0.2209
FA	0.0019	0.0046	0.4005	0.6892
FS	-7.59E-11	3.31E-10	-0.2293	0.8189
C	0.3939	0.2205	1.7863	0.0755

Source: Field Survey (2023)

Notes: R^2= 0.9795; Adj R^2= 0.9788; F-statistics = 1376.701; and *P-value* (F-statistics = 0.0000); Durbin-Watson stat = 1.9253
*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

The second model (Model II) also explores the relationship between

total financial leverage and profitability after controlling the vector of controls.

The results of the estimation are reported in Table 8. Table 8 provides some

estimates of pre-diagnostics such as the R-square (R^2), adjusted R-square (adj.

R^2), F-statistics, and Durbin-Watson statistics. It can be seen from Table 8 that

the R^2 and adj. R^2 are 0.9831 and 0.9800 respectively. These statistics indicate

the fitness or goodness of the model. The reported high R^2 and adjusted R^2

values show that the model is good. The adj. R^2 of 0.9800 also suggests that all

other things remaining constant, the explanatory variables (the independent variable and vector of controls) account for about 98% of the variations in the profitability (ROE) of the listed manufacturing firms in Ghana. The outstanding variation of 2% (100-98) is explained by factors outside this model's specifications.

Table 8 further provides details of the significant f-statistic. The f-stat is 321.5421 with a corresponding p-value of 0.0000. This implies that the f-stat is significant at 1%. The significant f-stat means that even though some of the individual coefficients are not significant at individual levels (see Table 8), they are jointly significant. Thus, considering all the coefficients jointly, they are significant in explaining variations in the ROE. The Durbin –Watson (DW) statistics of the estimation as captured in Table 8 is 2.2125. This DW statistic is closer to 2 suggesting that there is no autocorrelation problem in the estimation. These pre-diagnostic results reveal that the estimates from the estimation are appropriate and sound.

Table 8: Panel Ordinary Least Square Model II (2008-2021)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TDE	-0.0673***	0.0007	-92.4066	0.0000
TDA	-0.4384***	0.1284	-3.4140	0.0008
FS	-7.57E-10**	3.88E-10	-1.9510	0.0526
FG	0.1063	0.0621	1.7124	0.0886
FA	0.0094	0.0090	1.0502	0.2951
C	0.1212	0.3812	0.3180	0.7509

Source: Field Survey (2023)

Notes: $R^2 = 0.9831$; Adj $R^2 = 0.9800$; F-statistics = 321.5421; and *P-value* (F-statistics = 0.0000); Durbin-Watson stat = 2.2125
*** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Short-Term Leverage and Profitability

Having determined the appropriateness of the estimation and soundness of the estimated diagnostics as reported in Table 7, the study proceeds to draw the specific estimates to analyse the objective. The first objective of the study is to examine the effect of short-term leverage on the financial performance (profitability) of listed manufacturing firms in Ghana.

From Table 7, the short-term financial leverage measured by minimum mean proxy (SDA) and maximum mean proxy (SDE) has a coefficient of -0.2787 and -0.0818 respectively. The coefficients are both negative indicating negative consequences on return on equity (ROE). The level of significance of the coefficients is determined by the p-value. It can be observed that the associated p-value for the SDA is 0.0191 and the SDE is 0.0000. This suggests that the coefficient of minimum mean proxy for short-term leverage (SDA) is

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significant at 5% while the maximum mean proxy of short-term leverage (SDE) is significant at 1%.

This implies that the study rejects the null hypothesis that the minimum mean proxy of short-term leverage has no significant effect on the profitability of listed manufacturing firms in Ghana. This means that a 1 per cent increase in the level of SDA would lead to a about 0.2787 decrease in the level of profitability, all other things being equal. Conversely, a decrease in the level of minimum mean proxy of short-term financial leverage (SDE) would lead to a 0.2787 increase in the level of profitability of the listed manufacturing firms in Ghana, all other things remaining constant.

Similarly, the significance coefficient of SDE suggests that the study rejects the null hypothesis that the maximum mean proxy of short-term leverage has no significant effect on the profitability of listed manufacturing firms in Ghana. The implication is that a 1 per cent increase in the level of SDE would lead to about a 0.0818 decrease in the level of profitability, all other things being equal. On the other hand, when there is a decrease in the level of maximum mean proxy of short-term financial leverage (SDE) would lead to a 0.0818 increase in the level of profitability of the listed manufacturing firms in Ghana, all other things remaining constant.

These findings are consistent with the study's expectations. Due to the nature of short-term leverage: duration and size, it is more likely to improve short-term liquidity rather than exhibit a significant positive influence on earnings. Short-term debt traditionally augments meeting short-term expenses rather than for long-term investment projects which could have influenced the earning capacity of the firms. Therefore, it is not surprising that the evidence

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found in this study shows that both minimum and maximum mean proxies of short-term leverage have a negative significant effect on earnings.

The evidence supports conclusions drawn from some existing empirical evidence (Amidu, 2007; Ehrhardt & Brigham, 2009; Goyal, 2013; Opoku et al., 2013; Rub, 2012). Goyal (2013) argues that agency problems can cause managers to make haphazard expenditures when they have enough money at their disposal. Nevertheless, the results are inconsistent with some empirical evidence (see: Ajibola et al., 2018; Akpakli, 2019), Contrary to the evidence in this study, Ajibola et al (2018) observed that a positive but insignificant relationship between short-term debt and return on equity (ROE).

The findings have theoretical implications. The evidence found in this study seems to corroborate with the agency cost theory. An evaluation of the agency cost theory assumption suggests that short-term debts have short duration and therefore have lesser uncertainty and risk compared to long-term debts. Thus, the short-term debt is likely to increase the liquidity position of the firms with lower risk and this may not enhance goal congruence and could even widen the agency cost of debt (Abor, 2007; Khalaf, 2014; Opoku et al., 2016). Thus, an increase in short-term debt may undermine the earnings of firms, an assumption affirmed by the significant negative effect of short-term leverage on earnings. Consolidating the empirical evidence in this study vis-à-vis the high short-term debt as against the long-term debt (see Table 2) suggests that listed manufacturing firms in Ghana over-rely on short-term debts. This by extension may be construed to mean using short-term debts to finance long-term projects leading to maturity mismatch. This may explain the dynamics of negative consequences of short-term leverage on earnings.

The findings echo agency problems and the absence of trade-off decisions in the debt management of the firms in question. The high short-term debt may lead to high holding liquidity at the expense of long-term project finance. This may deepen the goal-incongruence between management and shareholders and ultimately lead to aberrant activities and management indiscriminate expenditure due to the high liquidity or cash position in disposal (Ehrhardt & Brigham, 2009; Goyal, 2013; Opoku et al., 2013; Rub, 2012). In contributing to this assertion, Goyal (2013) argues that agency problems can cause managers to make haphazard expenditures when they have enough money at their disposal.

The finding further shows that the listed manufacturing firms in Ghana do not trade in short-term debt at the optimality as suggested by the negative coefficients of both the minimum and maximum mean proxies. The finding, however, extends the minimum-maximum mean proxy hypothesis advanced by Froko (2017) in determining the optimality of leverage. Contributing to this optimality, Froko (2017) proposed debt maturity considerations and debt rate differentials. According to Froko conducting term structure, default risk and multi-period debt analysis, debt may be segregated according to financial leverage types and measured on a mean scale of minimum mean proxy and maximum mean proxy.

So long as firms operate within the minimum mean proxy and maximum mean proxy, the application of debt would have a positive significant effect on financial performance unless management engages in aberrant activities or wasteful spending. However, Froko failed to identify these aberrant activities. A critical evaluation of the findings in this study shows that financing

mismatch including overreliance on short-term debt to finance long-term projects is a clearer example which may distort the optimality.

The magnitude of the coefficients of the minimum mean proxy is higher than the maximum mean proxy in absolute terms. This implies that lower short-term debt has a more negative consequence than a higher short-term debt. This exhibits an appetite for short-term debts for varying business activities which may include long-term finance. The extrapolation that short-term debts are used for long-term projects seems to corroborate with a lower appetite for long-term debts in Table 2.

Long-Term Leverage and Profitability

This focuses on the second objective of the study. The objective specifically seeks to determine the influence of long-term leverage on the financial performance of listed manufacturing firms in Ghana. The test estimate relating to the maximum mean proxy exhibited by LDE shows a negative coefficient. It can be seen from Table 7 that the long-term financial leverage (maximum mean proxy) as depicted by LDE has a coefficient of -0.0589. This coefficient emanating from LDE is negative. This shows that long-term financial leverage (maximum mean proxy) hurts return on equity (ROE). The p-value which is the basis for determining the level of significance of the coefficient is 0.0000. This p-value is less than 1% implying that the coefficient is significant at 1%.

The study, therefore, rejects the null hypothesis that the maximum mean proxy of long-term leverage has no significant influence on the profitability of listed manufacturing firms in Ghana. This means that when there is a 1 per cent increase in the level of LDE would lead to a about 0.0589 decrease in the level

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of profitability, all other things being equal. On the other hand, a decrease in the level of long-term financial leverage (LDE) would lead to a 0.0589 increase in the level of profitability of the listed manufacturing firms in Ghana, all other things remaining constant.

Similarly, the results of the minimum mean proxy of long-term leverage (LDA) are -0.5743. This indicates a negative effect on financial performance (profitability). The associated p-value of the coefficient is 0.0911 suggesting that the coefficient is significant at 10%. This implies that the null hypothesis that 'minimum mean proxy of long-term leverage has no significant effect on the profitability of listed manufacturing firms in Ghana' is rejected. This means that all other things being equal, a 1 per cent increase in the level of LDA would lead to about a 0.5743 decrease in the level of profitability. Conversely, a decrease in the level of minimum mean proxy of long-term financial leverage (LDA) would lead to a 0.5743 increase in the level of profitability of the listed manufacturing firms in Ghana, all other things remaining constant.

The findings do not meet the study's expectations. Since long-term debts often have debt covenants and monitoring clauses, they could check the aberrant activities of firms which seek long-term debt. This monitoring could minimise agency costs and improve performance (earnings). Therefore, this study expected long-term leverage to exhibit a positive relationship with earnings contrary to the negative relationships observed in this study. The results however support some of the earlier studies in the literature (Addae et al., 2013; Akpakli, 2019; Nyeadi et al., 2017). Consistent with the evidence in this study, Addae, et al., (2013) also observed a significant negative relationship between long-term debt and profitability.

Given the level of short-term leverage and the dynamics of the effect of minimum and maximum mean proxies vis-à-vis the long-term leverage, there are debt management challenges with the listed manufacturing firms in Ghana. Unlike the short-term leverage where the minimum mean proxy exhibits the more devastating effect, the maximum mean proxy (LDE) of long-term leverage rather had a more negative consequence on earnings. This means that risk accompanying debt, debt policy and crisis are central to reconciling the debt-earnings relationships of the firms in Ghana.

A further implication is that it is not only the quantum of debt that drives distress and bankruptcy but also the term structural financing mismatch. Over-relying on short-term debt for long-term projects could undermine projects' viability and consequences negative spillover on earnings. Rising debt in favour of short-term debt undermines the choice for long-term debt (LDA: 0.1653 vs LDE: 0.4716; LDE: 4.5410 vs SDE:4.8243), which could project distress and financial constraints and ultimately negative effect on earnings capacity.

Theoretically, the findings seem to support the trade-off theory (TOT). According to the TOT, the use of high-debt financing could generate financial distress if firms fail to balance the benefits with the cost of debt (Myers, 1984). The theory argues that optimal capital structure is achieved through a trade-off between tax benefits of debt (tax-deductible cost of debt) and the cost of debt associated with the risk of financial distress or bankruptcy and agency cost (Getahun, 2016; Khalaf, 2014). The trade-off theory therefore defines cost in terms of agency cost and bankruptcy cost. The financial distress becomes more probable due to the high growing finance cost associated with debt financing. This becomes more exposed when the debts are misdirected. The proponents of

the theory argue that the larger the fixed interest costs, the greater the probability of a decline in earnings since it is an allowable expense and ultimately increases the likelihood of incurrence of costs of financial distress and bankruptcy. This is explained empirically by the negative relationship between long-term leverage and earnings.

Total Leverage and Profitability

This section presents the results and discussions on the third objective of the study. The objective seeks to investigate the extent to which total leverage affects the financial performance of listed Ghanaian manufacturing firms. To achieve this objective. The model estimated and reported in Table 8 shows the relationship between total leverage measured by the maximum mean proxy (TDE) and profitability measured by ROE. The results indicate that TDE has a coefficient of -0.0674. This coefficient is negative. The associated p-value is 0.0000. The negative coefficient means that the direction of the causal relationship is negative. The level of significance of the relationship between TDE and ROE is exhibited by the p-value which is less than 1%. This implies that the study rejects the null hypothesis that total leverage has no significant effect on the profitability of listed manufacturing firms in Ghana. The implication is that an increase in the level of total leverage leads to a 0.0674 decrease in the level of profitability. On the other hand, a percentage decrease in the level of total leverage would lead to a 0.0674 increase in the level of profitability.

Regarding the minimum mean proxy measured by TDA, the results captured in Table 8 show that TDA has a coefficient of -0.4384. This coefficient is negative. The p-value of the coefficient is 0.0008. The coefficient suggests

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that there is a negative causal relationship between TDA and ROE. The p-value of less than 1% shows that the coefficient is significant at 1%. This implies that the study rejects the null hypothesis that 'minimum mean proxy of total leverage has no significant effect on the profitability of listed manufacturing firms in Ghana'. The implication is that an increase in the level of the minimum mean proxy of total leverage (TDA) leads to a 4384 decrease in the level of profitability. On the other hand, a percentage decrease in the level of total leverage would lead to a 0.4384 increase in the level of profitability.

The negative effect on the maximum mean proxy (TDE) is consistent with the study expectation as it is expected that the maximum mean ratio carries a high cost of debts which could erode the benefits of debt and ultimately result in its increasing with the decreasing level of profitability. However, the negative significant effect of the minimum mean proxy of the total leverage does not meet the study expectation. The findings are not surprising as the total debt of the manufacturing sector is largely driven by short-term debt (see Table 2). Financing business activities largely for short-term facilities is likely to only improve short-term liquidity rather than providing an avenue for long-term viable projects which could translate into increasing profitability. This reflects the negative influence exhibited by both the minimum and maximum mean proxies.

The evidence supports conclusions drawn from some existing empirical evidence (Addae et al., 2013; Uremadu & Onyekachi). Nevertheless, the results are inconsistent with some empirical evidence (see: Ajibola et al., 2018; Akpakli, 2019), Contrary to the evidence in this study, Akpakli, 2019 found a significant positive effect of total debt on return on equity (ROE) in Ghana. The

findings provide a theoretical contribution to both the agency cost theory and trade-off theory (TOT). The findings affirm the existence of agency problems and the absence of trade-off decisions in the debt management of manufacturing firms. The high short-term debt-driven total leverage may lead to high holding liquidity at the expense of long-term project finance. As discussed earlier, this may deepen the goal-incongruence between management and shareholders and ultimately lead to aberrant activities and management indiscriminate expenditure due to the high liquidity or cash position in disposal (Ehrhardt & Brigham, 2009; Goyal, 2013; Opoku et al, 2013; Rub, 2012). In contributing to this assertion, Goyal (2013) argues that agency problems can cause managers to make haphazard expenditures when they have enough money at their disposal.

The empirical evidence in this study also suggests that manufacturing firms do not trade off in their debt financing decision. Qualitatively, this is evident by the short-term induced debt financing which could create a mismatch in the term structure of debt and the associated financing projects. This extrapolation from the findings corroborates the minimum-maximum mean proxy hypothesis advanced by Froko (2017) in determining the optimality of leverage. Contributing to this optimality, Froko (2017) proposed debt maturity considerations and debt rate differentials. According to Froko conducting term structure, default risk and multi-period debt analysis, debt may be segregated according to financial leverage types and measured on a mean scale of minimum mean proxy and maximum mean proxy. When these structures are not considered, the benefits of debt financing could be eroded altogether.

Moreover, TOT further assumes that firms are better off for increasing debt through increasing tax benefits of debt (Lambert, & Gossel, 2016; Mwangi, Makau, & Kosimbei, 2014; Nirajini & Priya, 2013). However, as firms desire to take advantage of the tax effect of debt increase and they continue to apply more debts, the interest on the debts certainly increases leading to more financial cost which could ultimately offset the higher tax benefits (Nwachukwu, & Akpeghughu, 2016; Nyeadi, Banyen & Mbawuni, 2017; Raluca, 2014). The theory also suggests that the direction of the relationship between debt and performance may be dependent on the extent to which the level of debt affects the net of tax benefits. Thus, poor debt decisions could undermine a positive relationship between debt and earnings.

Additionally, the wider the financing mismatch (i.e. short-term financing for long-term projects and vice-versa), the larger the finance cost and the greater the probability of a decline in earnings. This is so because earnings are improved through positive returns from investing debt finance in viable projects and higher residual returns after charging these finance costs. Therefore, the theory suggests that the effect of debt on earnings including profitability is based on the application of debt (i.e. applying in viable investment projects) and the level of finance cost which is also determined by the level of debt (Zeitun & Tian, 2007). These theoretical assumptions explain the dynamics of the relationship observed between total debt and profitability.

A further possible reason for the strong negative causal relationship between total debt (TDE and TDA) and profitability (ROE) is that there is a disequilibrium between the benefits of debt and the cost of debt with the distortion skewing to the cost of debt thus violating the foundational assumption

of trade-off. When this happens, the proponents of TOT predict that debt will adversely affect the level of earnings. This implies that the findings have theoretical significance

Chapter Summary

The chapter estimated the relationship between capital structure and profitability of listed firms in Ghana. The specific results were presented, interpreted and discussed in this chapter. The results and discussions were reported according to the specific objectives and the associated hypotheses. The preliminary issues such as descriptive statistics and correlation matrix were presented. The chapter reported that the manufacturing firms' debt financing is skewed toward short-term debt. A multicollinearity problem was observed with the integration and concurrent estimation of total leverage proxies with the rest of the study variables. The study minimised the consequence of the multicollinearity by estimating the total leverage in a separate model. It was observed that debt exhibited a negative effect on profitability.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This is the final chapter of the study. The chapter presents the summary, conclusions and recommendations. The summary captures the overview of the study, the synopsis of the methodology and key findings emanating from each of the specific objectives. The conclusion sub-section of the chapter also reports the relevant conclusions drawn from the key findings of the study. The chapter also makes recommendations based on the findings and conclusions. The final section of the chapter discusses suggestions for future studies.

Summary of the Study

This study investigated the causal relationship between capital structure and financial performance (profitability) of listed manufacturing firms in Ghana. The study was developed from three objectives. The first objective examined the effect of short-term leverage on the financial performance of listed manufacturing firms in Ghana. The second focused on determining the influence of long-term leverage on the financial performance of listed manufacturing firms in Ghana and the third objective investigated the extent to which total leverage affects the financial performance of listed Ghanaian manufacturing firms. These objectives were operationalized into hypotheses. The financial performance was conceptualized as profitability and measured using return on equity while capital structure was operationalised into short-term leverage, long-term leverage and total leverage.

The study followed a quantitative approach coupled with an explanatory design. The study used secondary data collected from the audited financial statements of the listed manufacturing firms in Ghana. The data were collected from

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2008 to 2021. The estimations were based on panel models. The study used Panel Ordinary Least Square (OLS) to estimate the models.

The major findings emanated from the specific objectives are highlighted according to each objective. The key findings from the first objective which sought to examine the effect of short-term leverage on the financial performance of listed manufacturing firms in Ghana are as follows: The descriptive statistics indicated that return on equity (ROE) and short-term leverage as measured by minimum mean proxy (SDA) and maximum mean proxy (SDE). The findings show that the firms over-rely on short-term debt which could improve the firms' liquidity but could not improve earnings. The short-term debt traditionally augments meeting short-term expenses rather than long-term investment projects which could have influenced the earning capacity of the firms. The variables were stationary. It was found that both the minimum mean proxy (SDA) and the maximum mean proxy (SDE) of short-term leverage exhibited a significant negative effect on profitability.

The second objective focused on determining the influence of long-term leverage on the financial performance of listed manufacturing firms in Ghana. The key findings from this objective are as follows: The descriptive analyses revealed the long-term leverage proxies (LDA and LDE). The two proxies had an integration order of zero. The results showed that long-term leverage has a significant negative causal relationship with the profitability of listed manufacturing firms in Ghana. The results suggest that the firms do not get access to sufficient long-term debt to support their long-term projects for improved earnings. Comparatively, these firms tend to rely more on short-term debt suggesting that they use these short-term funds to support long-term projects which could make them expensive resulting in a negative causal relationship.

The third objective investigated the extent to which total leverage affects the financial performance of listed Ghanaian manufacturing firms. The key findings from this objective are as follows: The results of the descriptive analyses for the total leverage proxies (TDA and TDE). The variables had an integration order of zero. The estimation revealed that total leverage proxies exhibited a significant negative causal relationship with the profitability of listed manufacturing firms in Ghana. Total leverage reflects the characteristics of short-term and long-term leverage, a common effect of these leverages could be reflected by the total leverage through spillover.

Conclusions

The conclusions are drawn concerning the specific objectives. Regarding the first objective which sought to examine the effect of short-term leverage on the financial performance of listed manufacturing firms in Ghana, it is concluded that the current capital structure concerning short-term leverage has a significant negative effect on profitability. The findings show that the firms over-rely on short-term debt which could improve the firms' liquidity but could not improve earnings. The short-term debt traditionally augments meeting short-term expenses rather than long-term investment projects which could have influenced the earning capacity of the firms. It is further concluded from the findings that the listed manufacturing firms in Ghana do not trade in short-term debt at the optimality as suggested by the negative coefficients of both the minimum and maximum mean proxies.

The study further concludes the findings emanating from the second objective. The second objective focused on determining the influence of long-term leverage on the financial performance of listed manufacturing firms in

Ghana. It is concluded that increasing both the minimum and maximum mean proxies of the long-term leverage could deplete the profitability of manufacturing firms. The results suggest that the firms do not get access to sufficient long-term debt to support their long-term projects for improved earnings. Comparatively, these firms tend to rely more on short-term debt suggesting that they use these short-term funds to support long-term projects which could make them expensive resulting in a negative causal relationship.

The third objective of the study is to investigate the extent to which total leverage affects the financial performance of listed Ghanaian manufacturing firms. It is concluded from the findings that total leverage has a significant influence on profitability but the direction of the relationship is negative. Since total leverage reflects the characteristics of short-term and long-term leverage, a common effect of these leverages could be reflected by the total leverage through spillover. The empirical evidence in this study also suggests that manufacturing firms do not trade-off in their debt financing decisions. Qualitatively, this is evident by the short-term induced debt financing which could create a mismatch in the term structure of debt and the associated financing projects.

Recommendations

Following the evidence from the key findings and the relevant conclusions, the study further presents recommendations. The study put forth recommendations as follows:

The study found a higher short-term debt as against the long-term debt suggesting that listed manufacturing firms in Ghana over-rely on short-term debts and by extension may be construed to mean using short-term debts to finance long-

term projects leading to maturity mismatch. It is recommended that the management of these firms restructure their debt acquisition to procure long-term debt to finance high-yielding long-term projects to boost the earnings capacity.

The study revealed the absence of trade-off decisions in the debt management of the firms in question as echoed by the negative effect of both minimum mean proxies and maximum mean proxies of all the leverage on financial performance (profitability). It is therefore suggested that these firms actively integrate trade-off decisions in their debt management to balance off the benefit of debt and cost of debt financing and improve the debt-profitability relationship.

The significant negative causal relationship between capital structure and profitability found in this study suggests debt financing is not healthy for profitability. It is recommended that the manufacturing firm should concentrate more on other financing options rather than debt financing due to its negative consequence on profitability.

Suggestions for Future Studies

The current study focuses on the capital structure and financial performance (profitability) of listed manufacturing firms in Ghana. Although the analytical framework and evidence have demonstrated implications for theory, policy and practice, it also opens opportunities for future studies. The following suggestions have been provided for future studies. This study focused on only the listed manufacturing firms. Future researchers could extend the implications by replicating the analytical framework in non-listed manufacturing firms for empirical comparison and comprehensive insight. The evidence from such extended analyses could show whether or not non-listed firms also have similar debt characteristics.

The current study followed composite analyses of the listed manufacturing firms, future studies could also segregate the firms into domestic and foreign firms for comparative analyses. Evidence from such comparative analyses could provide insight for potential investors especially foreign investors who may be interested in investing in the manufacturing sector. Although capital structure exhibited a negative consequence on the profitability benchmark, it is possible that it could have different directional consequences on the performance metric. It is therefore suggested that future researchers should expand the performance benchmarks with specific reference to liquidity. The findings from such future studies could provide evidence to determine whether or not manufacturing firms are sacrificing profitability for liquidity.
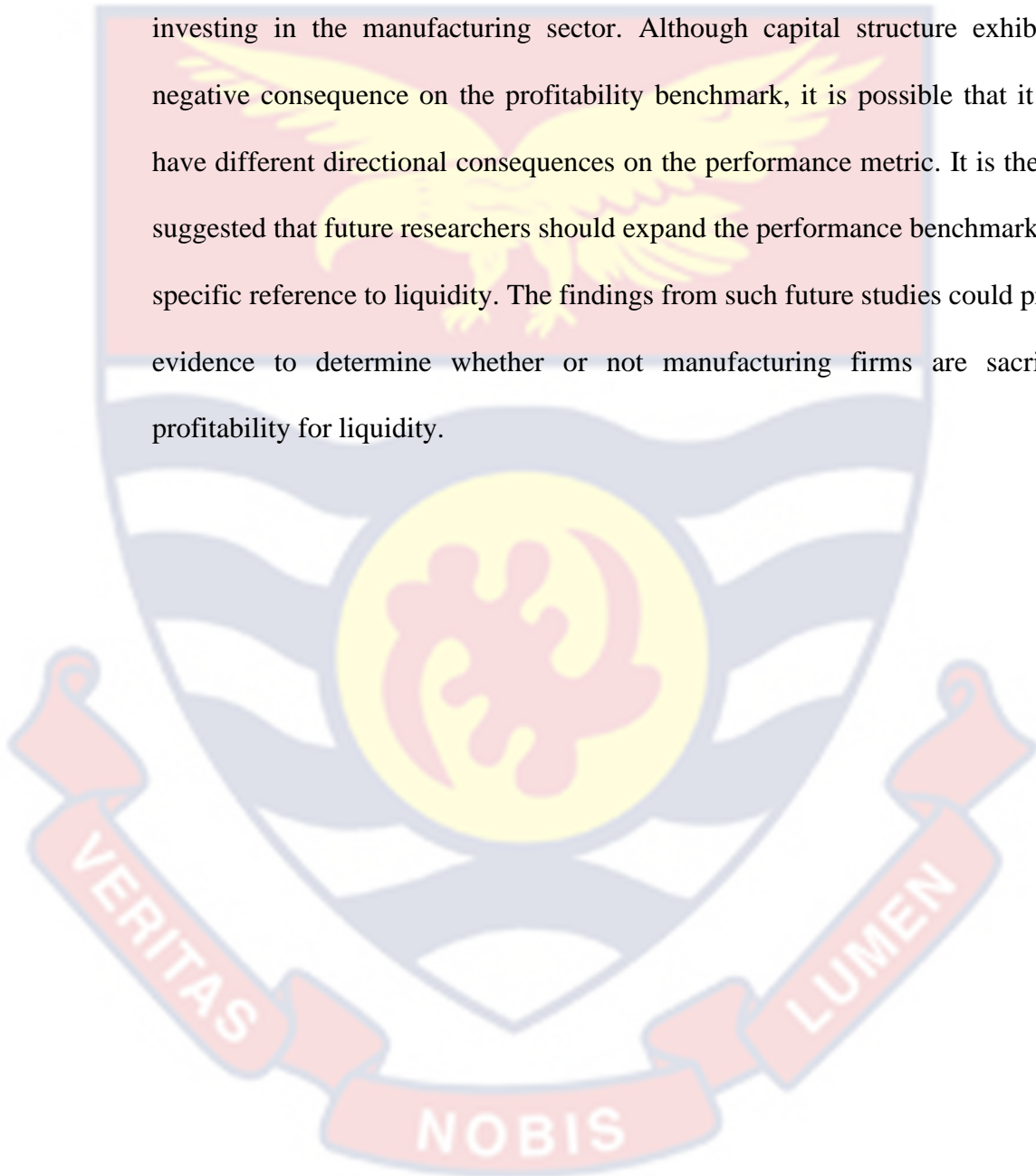
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MANUFACTURING FIRM	FIRM	YEAR	SDA	SDE	LDA	LDE	TDA	TDE
FAN MILK PLC	**1**	2008	0.3238	0.4969	0.0246	0.0377	0.3484	0.5347
FAN MILK PLC	**1**	2009	0.2876	0.4191	0.026	0.0379	0.3137	0.4569
FAN MILK PLC	**1**	2010	0.2125	0.2787	0.0254	0.0333	0.2378	0.312
FAN MILK PLC	**1**	2011	0.2153	0.2868	0.034	0.0453	0.2493	0.332
FAN MILK PLC	**1**	2012	0.3232	0.506	0.0379	0.0594	0.3612	0.5654
FAN MILK PLC	**1**	2013	0.1957	0.2592	0.0517	0.0655	0.2475	0.3288
FAN MILK PLC	**1**	2014	0.7023	0.4547	0.0488	0.0747	0.7581	1.1594
FAN MILK PLC	**1**	2015	0.172	0.7239	0.0322	0.0575	0.2002	0.3566
FAN MILK PLC	**1**	2016	0.2572	0.3615	0.0312	0.0439	0.2884	0.4054
FAN MILK PLC	**1**	2017	0.2272	0.3076	0.0341	0.0462	0.2613	0.3538
FAN MILK PLC	**1**	2018	0.255	0.3549	0.0263	0.0368	0.2813	0.3915
FAN MILK PLC	**1**	2019	0.2693	0.3899	0.0399	0.0578	0.3093	0.4477
FAN MILK PLC	**1**	2020	0.3775	0.6331	0.0263	0.044	0.4038	0.6772
FAN MILK PLC	**1**	2021	0.4886	1.1322	0.0798	0.1849	0.5685	1.3171
COCOA PROCESSING COMPANY	**2**	2008	0.0687	0.1486	0.4696	1.0171	0.5383	1.1659
COCOA PROCESSING COMPANY	**2**	2009	0.2347	1.8422	0.6379	5.0081	0.8726	6.8504
COCOA PROCESSING COMPANY	**2**	2010	0.3374	407.93	0.6617	799.99	0.9992	1207.9
COCOA PROCESSING COMPANY	**2**	2011	0.7181	40.278	0.264	14.808	0.9822	55.086
COCOA PROCESSING COMPANY	**2**	2012	0.7504	201.53	0.2458	66.019	0.9963	267.55
COCOA PROCESSING COMPANY	**2**	2013	0.0507	2.8929	0.3184	1.8183	0.8249	4.7112
COCOA PROCESSING COMPANY	**2**	2014	0.5603	6.5296	0.3539	4.125	0.9142	10.655
COCOA PROCESSING COMPANY	**2**	2015	0.5974	-6.549	0.4939	-5.414	1.0914	-11.96
COCOA PROCESSING COMPANY	**2**	2016	0.6556	-3.833	0.5154	-3.014	1.171	-6.847
COCOA PROCESSING COMPANY	**2**	2017	0.7175	-3.112	0.5131	-2.226	1.2306	-5.337
COCOA PROCESSING COMPANY	**2**	2018	0.419	-1.537	0.8536	-3.131	1.2726	-4.668
COCOA PROCESSING COMPANY	**2**	2019	0.5097	-3.321	0.6438	-4.194	1.1535	-7.515
COCOA PROCESSING COMPANY	**2**	2020	0.5693	-2.275	0.6809	-2.721	1.2502	-4.996
COCOA PROCESSING COMPANY	**2**	2021	0.9664	-3.056	0.3498	-1.106	1.3162	-4.162
GUINNESS GHANA BREWERIES PLC	**3**	2008	0.4247	1.0618	0.1752	0.4381	0.5999	1.4998
GUINESS GHANA BREWERIES PLC	**3**	2009	0.6581	2.1918	0.0416	0.1386	0.6997	2.3304
GUINESS GHANA BREWERIES PLC	**3**	2010	0.4846	2.0283	0.2765	1.1575	0.7611	3.1859
GUINESS GHANA BREWERIES PLC	**3**	2011	0.635	2.8276	0.1412	0.6308	0.7762	3.4684

Company		Year						
GUINESS GHANA BREWERIES PLC	3	2012	0.3294	0.5787	0.1013	0.178	0.4307	0.7567
GUINESS GHANA BREWERIES PLC	3	2013	0.4134	0.8062	0.0738	0.144	0.4872	0.9502
GUINESS GHANA BREWERIES PLC	3	2014	0.2436	0.7264	0.4211	1.2559	0.6647	1.9824
GUINESS GHANA BREWERIES PLC	3	2015	0.3641	1.8388	0.4378	2.2109	0.802	4.0498
GUINESS GHANA BREWERIES PLC	3	2016	0.2399	0.4802	0.2605	0.5213	0.5004	1.0016
GUINESS GHANA BREWERIES PLC	3	2017	0.2257	0.4398	0.261	0.5068	0.4867	0.9484
GUINESS GHANA BREWERIES PLC	3	2018	0.1979	0.3679	0.2643	0.4915	0.4622	0.8595
GUINESS GHANA BREWERIES PLC	3	2019	0.3194	0.6983	0.2232	0.4882	0.5426	1.1864
GUINESS GHANA BREWERIES PLC	3	2020	0.3391	0.8022	0.2382	0.5636	0.5773	1.3658
GUINESS GHANA BREWERIES PLC	3	2021	0.3837	0.9114	0.1953	0.464	0.579	1.3753
ALUWORKS	4	2008	0.5019	1.5924	0.1829	0.5804	0.6848	2.1728
ALUWORKS	4	2009	0.5679	2.2936	0.1715	0.6818	0.7485	2.9754
ALUWORKS	4	2010	0.3796	0.7689	0.1268	0.2569	0.5064	1.0259
ALUWORKS	4	2011	0.3268	0.7407	0.2319	0.5254	0.5587	1.2661
ALUWORKS	4	2012	0.3182	1.0976	0.3918	1.3515	0.7101	2.4491
ALUWORKS	4	2013	0.1752	0.3388	0.3078	0.5955	0.483	0.9343
ALUWORKS	4	2014	0.2753	0.6456	0.2982	0.6992	0.5735	1.3449
ALUWORKS	4	2015	0.3731	1.0758	0.2802	0.808	0.6532	1.8839
ALUWORKS	4	2016	0.2585	0.5461	0.2681	0.5662	0.5266	1.1123
ALUWORKS	4	2017	0.2771	1.0447	0.4576	1.7252	0.7347	2.7699
ALUWORKS	4	2018	0.3349	1.046	0.3449	1.0771	0.6798	2.1232
ALUWORKS	4	2019	0.2514	2.8781	0.6613	7.5721	0.9127	10.45
ALUWORKS	4	2020	0.8405	-12.33	0.2277	-3.34	1.0682	-15.67
ALUWORKS	4	2021	0.8016	4.4554	0.0184	0.1024	0.8201	4.5578
UNILEVER GHANA PLC	5	2008	0.9865	1.0963	0.0938	0.1035	1.0873	1.1998
UNILEVER GHANA PLC	5	2009	1.1994	1.3003	0.0776	0.0841	1.277	1.3844
UNILEVER GHANA PLC	5	2010	1.1757	1.3263	0.1136	0.1281	1.2892	1.4544
UNILEVER GHANA PLC	5	2011	0.563	1.4618	0.0518	0.1346	0.6149	1.5964
UNILEVER GHANA PLC	5	2012	0.7503	3.6304	0.043	0.2082	0.7933	3.8385
UNILEVER GHANA PLC	5	2013	0.7855	4.6253	0.0446	0.2628	0.8302	4.8881
UNILEVER GHANA PLC	5	2014	0.8239	5.7566	0.0358	0.555	0.8597	6.1284
UNILEVER GHANA PLC	5	2015	0.766	3.6806	0.0258	0.1241	0.7919	3.8047
UNILEVER GHANA PLC	5	2016	0.7745	3.8862	0.0274	0.1377	0.8009	4.0239
UNILEVER GHANA PLC	5	2017	0.7149	2.7781	0.0278	0.1079	0.7427	2.8859
UNILEVER GHANA PLC	5	2018	0.5759	1.4176	0.0178	0.0439	0.5938	1.4615
UNILEVER GHANA PLC	5	2019	0.8164	4.7012	0.0099	0.0571	0.8263	4.7583
UNILEVER GHANA PLC	5	2020	0.8857	8.5443	0.0107	0.1031	0.8963	8.6474
UNILEVER GHANA PLC	5	2021	0.8965	9.7006	0.0111	0.1204	0.9076	9.8211

BENSO OIL PALM PLANTATION	**6**	2008	0.0874	0.0958	0.0000	0.0000	0.0874	0.0958
BENSO OIL PALM PLANTATION	**6**	2009	0.0839	0.0916	0.0000	0.0000	0.0839	0.0916
BENSO OIL PALM PLANTATION	**6**	2010	0.0867	0.0949	0.0000	0.0000	0.0867	0.0949
BENSO OIL PALM PLANTATION	**6**	2011	0.0629	0.0672	0.0000	0.0000	0.0629	0.0672
BENSO OIL PALM PLANTATION	**6**	2012	0.063	0.0673	0.0000	0.0000	0.063	0.0673
BENSO OIL PALM PLANTATION	**6**	2013	0.0493	0.0519	0.0000	0.0000	0.0493	0.0519
BENSO OIL PALM PLANTATION	**6**	2014	0.0461	0.0525	0.0000	0.0000	0.0461	0.0463
BENSO OIL PALM PLANTATION	**6**	2015	0.0519	0.0811	0.0000	0.0000	0.0519	0.0548
BENSO OIL PALM PLANTATION	**6**	2016	0.1656	0.1984	0.0000	0.0000	0.1656	0.1984
BENSO OIL PALM PLANTATION	**6**	2017	0.1174	0.1372	0.0263	0.0307	0.1438	0.1679
BENSO OIL PALM PLANTATION	**6**	2018	0.1016	0.121	0.0587	0.0699	0.1603	0.1909
BENSO OIL PALM PLANTATION	**6**	2019	0.1108	0.1339	0.0619	0.0749	0.1728	0.2088
BENSO OIL PALM PLANTATION	**6**	2020	0.0847	0.1012	0.0789	0.0943	0.1635	0.1955
BENSO OIL PALM PLANTATION	**6**	2021	0.0883	0.1013	0.0398	0.0456	0.1281	0.1469
HORDS LIMITED	**7**	2008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
HORDS LIMITED	**7**	2009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
HORDS LIMITED	**7**	2010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
HORDS LIMITED	**7**	2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
HORDS LIMITED	**7**	2012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
HORDS LIMITED	**7**	2013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
HORDS LIMITED	**7**	2014	0.3755	2.4428	0.4708	3.0632	0.8463	5.506
HORDS LIMITED	**7**	2015	0.2738	0.377	0.0000	0.0000	0.2738	0.377
HORDS LIMITED	**7**	2016	0.1468	0.1721	0.0000	0.0000	0.1468	0.1721
HORDS LIMITED	**7**	2017	0.1392	0.1617	0.0000	0.0000	0.1392	0.1617
HORDS LIMITED	**7**	2018	0.1745	0.2114	0.0000	0.0000	0.1745	0.2114
HORDS LIMITED	**7**	2019	0.0836	0.0919	0.0071	0.0079	0.0902	0.0991
HORDS LIMITED	**7**	2020	0.027	0.0279	0.0067	0.0069	0.0337	0.0349
HORDS LIMITED	**7**	2021	0.1249	0.1443	0.0093	0.1072	0.1342	0.155
SAM WOODE LIMITED	**8**	2008	1.0063	1.4057	0.2842	0.397	1.2904	1.8027
SAM WOODE LIMITED	**8**	2009	0.9396	1.2642	0.2568	0.3455	1.1963	1.6097
SAM WOODE LIMITED	**8**	2010	1.0636	1.4811	0.7203	1	0.1782	0.2481
SAM WOODE LIMITED	**8**	2011	0.6819	3.6481	0.1049	0.3741	0.577	3.3066
SAM WOODE LIMITED	**8**	2012	0.828	14.664	0.1614	3.0145	0.9894	6.1293
SAM WOODE LIMITED	**8**	2013	0.8832	5.8722	0.1025	0.3044	0.9856	9.6206
SAM WOODE LIMITED	**8**	2014	0.856	7.159	0.1196	0.2043	0.9756	8.159
SAM WOODE LIMITED	**8**	2015	0.7683	3.7955	0.2024	0.1448	0.9707	4.7955

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Company	ID	Year						
SAM WOODE LIMITED	8	2016	0.3045	0.3045	0.1043	0.1043	0.4089	0.4089
SAM WOODE LIMITED	8	2017	1.2166	1.4017	0.0089	0.1029	1.3642	1.0546
SAM WOODE LIMITED	8	2018	6.8244	10.422	0.3452	0.5272	7.1696	10.95
SAM WOODE LIMITED	8	2019	1.1839	-5.103	0.048	-0.207	1.232	-5.21
SAM WOODE LIMITED	8	2020	1.3691	-3.225	0.0554	-0.13	1.4246	-3.355
SAM WOODE LIMITED	8	2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SAMBA FOOD LIMITED	9	2008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SAMBA FOOD LIMITED	9	2009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SAMBA FOOD LIMITED	9	2010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SAMBA FOOD LIMITED	9	2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SAMBA FOOD LIMITED	9	2012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SAMBA FOOD LIMITED	9	2013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SAMBA FOOD LIMITED	9	2014	0.2472	0.4644	0.4469	0.8395	0.694	1.3039
SAMBA FOOD LIMITED	9	2015	0.1389	0.1739	0.1933	0.242	0.3322	0.4159
SAMBA FOOD LIMITED	9	2016	0.0243	0.0313	0.1999	0.2577	0.2242	0.289
SAMBA FOOD LIMITED	9	2017	0.0513	0.0684	0.1988	0.2651	0.2501	0.3334
SAMBA FOOD LIMITED	9	2018	0.1046	0.1521	0.2077	0.302	0.3123	0.4542
SAMBA FOOD LIMITED	9	2019	0.1399	0.2156	0.2112	0.3254	0.3511	0.5409
SAMBA FOOD LIMITED	9	2020	0.1074	0.1687	0.2556	0.4012	0.363	0.5699
SAMBA FOOD LIMITED	9	2021	0.0363	0.0522	0.2677	0.3845	0.304	0.4367
CAMELOT GHANA LIMITED	10	2008	0.3324	2.6817	0.5437	4.3869	1.3295	7.0686
CAMELOT GHANA LIMITED	10	2009	0.3854	3.0103	0.4865	3.7997	0.872	6.8101
CAMELOT GHANA LIMITED	10	2010	0.701	4.2381	0.1336	0.808	0.8346	5.0406
CAMELOT GHANA LIMITED	10	2011	0.66	3.8074	0.1666	0.9613	0.8266	4.7686
CAMELOT GHANA LIMITED	10	2012	0.6687	2.6786	0.0816	0.3268	0.7503	3.0055
CAMELOT GHANA LIMITED	10	2013	0.7037	2.8594	0.0502	0.2039	0.7539	3.0633
CAMELOT GHANA LIMITED	10	2014	0.7026	2.5427	0.0211	0.0764	0.7237	2.6192
CAMELOT GHANA LIMITED	10	2015	0.5469	1.2069	0.0000	0.0000	0.5469	1.2069
CAMELOT GHANA LIMITED	10	2016	0.4737	1.0129	0.0587	0.1254	0.5323	1.1383
CAMELOT GHANA LIMITED	10	2017	0.4531	0.9191	0.0538	0.1092	0.5069	1.0283
CAMELOT GHANA LIMITED	10	2018	0.4592	0.9378	0.0511	0.1044	0.5103	1.0422
CAMELOT GHANA LIMITED	10	2019	0.3556	1.2586	0.3619	1.2813	0.7175	2.5399
CAMELOT GHANA LIMITED	10	2020	0.3529	2.1035	0.4793	2.8573	0.8322	4.9608
CAMELOT GHANA LIMITED	10	2021	0.4114	4.3648	0.4943	5.2441	0.9057	9.6089
INTRAVENOUS INFUSIONS LIMITED	11	2008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

INTRAVENOUS INFUSIONS LIMITED	11	2009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
INTRAVENOUS INFUSIONS LIMITED	11	2010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
INTRAVENOUS INFUSIONS LIMITED	11	2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
INTRAVENOUS INFUSIONS LIMITED	11	2012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
INTRAVENOUS INFUSIONS LIMITED	11	2013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
INTRAVENOUS INFUSIONS LIMITED	11	2014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
INTRAVENOUS INFUSIONS LIMITED	11	2015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
INTRAVENOUS INFUSIONS LIMITED	11	2016	0.2802	0.4793	0.0475	0.0813	0.4155	0.7109
INTRAVENOUS INFUSIONS LIMITED	11	2017	0.4839	1.0002	0.0324	0.0669	0.5163	1.0672
INTRAVENOUS INFUSIONS LIMITED	11	2018	0.4264	0.7821	0.0285	0.0523	0.4549	0.8345
INTRAVENOUS INFUSIONS LIMITED	11	2019	0.2577	0.444	0.1613	0.2778	0.4192	0.7218
INTRAVENOUS INFUSIONS LIMITED	11	2020	0.2912	0.606	0.2282	0.4749	0.5194	1.0809
INTRAVENOUS INFUSIONS LIMITED	11	2021	0.3008	0.7657	0.3063	0.7795	0.6071	1.5452
ANGLOGOLD ASHANTI	12	2008	0.4319	1.3863	0.2566	0.8236	0.6885	2.2099
ANGLOGOLD ASHANTI	12	2009	0.4649	1.5017	0.2255	0.7284	0.6904	2.23
ANGLOGOLD ASHANTI	12	2010	0.2848	0.6601	0.2837	0.6574	0.5685	1.3175
ANGLOGOLD ASHANTI	12	2011	0.0875	0.1838	0.4361	0.9156	0.5237	1.0994
ANGLOGOLD ASHANTI	12	2012	0.1537	0.3564	0.415	0.9623	0.5687	1.3187
ANGLOGOLD ASHANTI	12	2013	0.1278	0.3978	0.5511	1.7158	0.6788	2.1136
ANGLOGOLD ASHANTI	12	2014	0.1077	0.3427	0.578	1.8387	0.6857	2.1815
ANGLOGOLD ASHANTI	12	2015	0.0971	0.2866	0.5643	1.666	0.6613	1.9526
ANGLOGOLD ASHANTI	12	2016	0.1062	0.276	0.5087	1.3214	0.615	1.5973
ANGLOGOLD ASHANTI	12	2017	0.1184	0.3162	0.507	1.3536	0.6254	1.6697
ANGLOGOLD ASHANTI	12	2018	0.1194	0.2944	0.4751	1.1715	0.5945	1.4659
ANGLOGOLD ASHANTI	12	2019	0.249	0.6386	0.3611	0.926	0.6101	1.5646
ANGLOGOLD ASHANTI	12	2020	0.125	0.2564	0.3875	0.7949	0.5125	1.0513
ANGLOGOLD ASHANTI	12	2021	0.1002	0.1965	0.3901	0.7653	0.4903	0.9618
CLYDESTONE GROUP	13	2008	0.8055	4.1403	0.0000	0.0000	0.8055	4.1403
CLYDESTONE GROUP	13	2009	0.8606	6.1742	0.0000	0.0000	0.8606	6.1742
CLYDESTONE GROUP	13	2010	0.8351	5.0633	0.0000	0.0000	0.8351	5.0633
CLYDESTONE GROUP	13	2011	1.1496	4.8707	0.0000	0.0000	1.1496	4.8707
CLYDESTONE GROUP	13	2012	0.9658	-64.7	0.0000	0.0000	0.9658	-64.7
CLYDESTONE GROUP	13	2013	1.0819	-13.21	0.0000	0.0000	1.0819	-13.21
CLYDESTONE GROUP	13	2014	1.4137	-3.417	0.0000	0.0000	1.4137	-3.417
CLYDESTONE GROUP	13	2015	0.8774	7.1533	0.0000	0.0000	0.8774	7.1533
CLYDESTONE GROUP	13	2016	0.9432	16.619	0.0000	0.0000	0.9432	16.619
CLYDESTONE GROUP	13	2017	0.9225	11.9	0.0000	0.0000	0.9225	11.9

CLYDESTONE GROUP	**13**	2018	0.8425	5.3479	0.0000	0.0000	0.8425	5.3479
CLYDESTONE GROUP	**13**	2019	0.7786	3.5173	0.0000	0.0000	0.7786	3.5173
CLYDESTONE GROUP	**13**	2020	0.5056	1.0225	0.0000	0.0000	0.5056	1.0225
CLYDESTONE GROUP	**13**	2021	0.5422	1.1841	0.0000	0.0000	0.5422	1.1841
GHANA OIL COMPANY	**14**	2008	0.6165	2.3982	0.1264	0.4931	0.7429	2.89
GHANA OIL COMPANY	**14**	2009	0.6941	2.3856	0.0149	0.0514	0.709	2.137
GHANA OIL COMPANY	**14**	2010	0.6696	2.0727	0.0074	0.0228	0.6769	2.0955
GHANA OIL COMPANY	**14**	2011	0.6459	1.9552	0.0237	0.0718	0.6696	2.027
GHANA OIL COMPANY	**14**	2012	0.6464	2.2538	0.0668	0.233	0.7132	2.4868
GHANA OIL COMPANY	**14**	2013	0.6869	2.5693	0.0458	0.1712	0.7327	2.7405
GHANA OIL COMPANY	**14**	2014	0.7329	3.2489	0.0415	0.1838	0.7744	3.4327
GHANA OIL COMPANY	**14**	2015	0.7878	4.3846	0.0325	0.1808	0.8203	4.5654
GHANA OIL COMPANY	**14**	2016	0.6236	1.7273	0.0153	0.0424	0.6389	1.7697
GHANA OIL COMPANY	**14**	2017	0.6472	1.9074	0.135	0.0398	0.6607	1.9472
GHANA OIL COMPANY	**14**	2018	0.6213	1.9556	0.061	0.1921	0.6823	2.1477
GHANA OIL COMPANY	**14**	2019	0.6021	2.0267	0.1009	0.3395	0.7029	2.3662
GHANA OIL COMPANY	**14**	2020	0.5679	1.8933	0.1321	0.4403	0.7	2.3335
GHANA OIL COMPANY	**14**	2021	0.6956	2.9416	0.0679	0.287	0.7635	3.2286
PBC LIMITED	**15**	2008	0.7781	11.219	0.1129	1.0362	0.891	8.175
PBC LIMITED	**15**	2009	0.7811	6.6651	0.1017	0.8678	0.8828	7.5329
PBC LIMITED	**15**	2010	0.8101	5.7963	0.0501	0.5862	0.8602	6.1549
PBC LIMITED	**15**	2011	0.7693	4.4551	0.058	0.3358	0.8273	4.791
PBC LIMITED	**15**	2012	0.7683	4.5432	0.0626	0.3704	0.8309	4.9136
PBC LIMITED	**15**	2013	0.8245	6.8186	0.0545	0.4509	0.8791	7.2695
PBC LIMITED	**15**	2014	0.8867	21.088	0.0713	1.6958	0.958	22.784
PBC LIMITED	**15**	2015	0.8944	19.802	0.0604	1.3383	0.9548	21.141
PBC LIMITED	**15**	2016	0.9097	108.2	0.0912	10.964	0.9917	119.17
PBC LIMITED	**15**	2017	0.4386	4.7627	0.1063	0.6851	0.8449	5.4478
PBC LIMITED	**15**	2018	0.6625	-9.9	0.4044	-6.043	1.0669	-15.94
PBC LIMITED	**15**	2019	0.3348	-0.971	1.0098	-2.93	1.3446	-3.902
PBC LIMITED	**15**	2020	0.4494	-1.366	0.8795	-2.674	1.3289	-4.041
PBC LIMITED	**15**	2021	0.5019	-1.554	0.821	-2.543	1.3229	-4.097