

**AKENTEN APPIAH-MENKA UNIVERSITY OF SKILLS TRAINING AND
ENTREPRENEURIAL DEVELOPMENT, KUMASI.**

**EXAMINING THE IMPACT OF CAPITAL STRUCTURE ON PROFITABILITY OF
MANUFACTURING INDUSTRY IN GHANA:
A STUDY OF SELECTED FIRMS.**

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MASTER OF BUSINESS ADMINISTRATION (ACCOUNTING)

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**A Thesis in the Department of Accounting Studies Education, submitted to the School of
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requirements for the Degree of Master of Business Administration (Accounting)
In the Akenten Appiah-Menka University of Skills Training and Entrepreneurial
Development, Kumasi.**

SEPTEMBER, 2023

DECLARATION

STUDENT'S DECLARATION

I, **SAKYIWAA MANU FELICIA**, declare that this thesis, with the exception of quotations and references contained in published books which have all been identified and dully acknowledged, is entirely my own original work, and it has not been submitted, either in the or whole, for another degree elsewhere.

SIGNATURE:

DATE:

SUPERVISOR'S DECLARATION

I hereby declare that, the preparation and presentation of this work was supervision of thesis as laid down by the Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development, Kumasi.

SUPERVISOR'S NAME: **MR. WILLIAMS KWASI BOACHIE**

SIGNATURE:

DATE:

DEDICATION

I dedicate this work to God Almighty for His guidance and protection on campus and also to my sweet husband, Augustine Kyeremeh and our kids, Alexandria Nhyira Sakyi Tania and Joy Ohemaa Kyeremeh for their love, understanding and care throughout this journey in life.

ACKNOWLEDGEMENT

A study of this could not have been successful without the help of God. I therefore, wish to express my sincere gratitude to the Most High God without whom we would not have been what we are today.

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ABSTRACT

The overarching purpose of the research was to assess the impact of capital structure on profitability of manufacturing industry in Ghana using some selected firms as the case study for a period of eight (8) years: 2005-2012. Fifteen (15) firms were selected from different sub-sectors of the manufacturing industry. Thirteen (13) of them were firms listed on the Ghana Stock Exchange (GSE) whilst the other two were from the private sector. Data for the study were obtained from the audited financial statements of the selected firms from the GSE and the individual firms website or obtained with permission. Return on equity (ROE) or profit after interest and tax was used to representing profitability, whilst capital structure was represented by the natural logarithms of short term debt (STD), long term debt (LTD) and equity (EQ). Panel data regression method, using both the fixed-effects and the random-effects, was used for the data analysis. Descriptive statistics and correlation analysis were also employed in the study. The result shows that STD and LTD were negatively related to profitability but the effect of the LTD was insignificant. Whilst EQ was positively related to profitability. This was consistent with previous empirical studies and also with literature. The study recommends that manufacturing firms in Ghana should use equity such as retained earnings to expand their business instead of debt. For future research it is recommended that a study should be done by considering increasing the sampled firms to cover other manufacturing sectors; by considering more firms in the private sector and also looking at the effect of total debt on profitability in the industries.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Every firm employs the use of capital to do its business. This capital employed may be consisting of equity (ownership contribution) and debt. Debt is any external funding which is repayable and has an associated cost. The cost may be direct such as interest payment or indirect such as agency cost. Debt could be short term (less than one year) or long term (more than a year). Firms may use different forms of debt such as taking a credit facility directly from a financial institution, issuing (warrants or convertible) bonds, using lease financing or taking a trade credit to finance their business. The debt may also be more complicated for example by using derivative instruments such as futures and forward contracts or by using swaps. The debt equity mix constitutes the capital structure of the firm (Brealey et al, 2008). According to Abor (2005) the appropriate debt and equity mix that would maximize returns to the business remains a crucial decision for corporate managers and a choice which they must strategically make (Gatsi and Akoto, 2010). Antwi et al (2012) therefore posited that a firm should target maximizing its value by assessing how its capital structure or financial leverage is made up and how that debt equity composition impact on the value of the firm.

For many years it was thought to be an advantage for a firm to borrow to finance its operation so long as the firm's ability to pay the debt and any associated cost remains unquestionable and the debt finance raised was invested sensibly. Though debt comes with cost to a firm, the amount of interest a firm pays on its debt (in most cases) is tax deductible, hence the firm's value is positively affected by the amount of tax savings it makes from the interest paid. This traditional theory also called trade off theory (Yan, 2009) assumes that there exists an optimal capital structure where if financial leverage is judiciously used by management the total

value of the firm can be increased. This optimal capital structure is where the firm's cost of capital is minimized and the firm's value is maximized (Van Home & Wachowicz, 2005). Yan (2009) stated that at this optimal capital structure debt serves to generate value for the firm through tax benefits, though the risk of financial distress is increased.

Modigliani and Miller (1958) popularly referred to as MM published what has come to be known as the modern theory on capital structure. MM demonstrated under a very restrictive set of assumptions that a firm's value is unaffected by its capital structure. This assertion by MM is based on some assumptions including the absence of taxes; market participants can borrow or lend at risk free rate; there are no brokerage or transaction charges; no bankruptcy cost among others. MM therefore, by implication point out that in real world, factors such as taxes and interest rate payment affect the debt equity composition of a firm's capital and the value of a firm. Since then, the study of capital structure and its debate has received a lot of attention from academicians, researchers on finance, financial analysts and practitioners; however, most of these studies have occurred in the developed countries or in the developed economies. Another theory on capital structure popularized by Myers and Majluf (1984) is the pecking order theory. It explains that corporate financial managers follow a certain order or sequence of financing sources when considering funding a project. Internal fund would first be used when available, and when it becomes scarce, they resort to debt until it becomes financially and economically, not advisable to secure or hold any additional debt, then equity is issued.

In Ghana, companies in the manufacturing industry needs capital to acquire machinery for the factories and for acquiring raw materials either locally or from abroad and transport them to their processing plants. Likewise, they also need facilities for storage (both raw materials and

finished products), marketing and transporting their finished products to their target markets either locally or abroad. Funds are also needed to pay wages and meet other financial obligations. For the firms to sustain their operations, become (more) profitable, and maximize the returns on their investment, strategic decisions are needed to be made on the choice of the appropriate mix of capital structure. Research findings have not agreed on the relationship between capital structure and profitability. Gatsi and Akoto (2010), Etu-Menson and Enyamful (2011) and Amidu (2007), in their various studies, all found an inverse relationship between profitability and leverage of banks in Ghana. Tornyiva (2013) also found an adverse relationship between profitability and leverage in insurance industry in Ghana. Salawu and Agboola (2008) also found a positive relationship between profitability and capital structure of large non-financial listed firms in Nigeria; it does make the study of capital structure an interesting area of research.

1.2 Statement of the Problem

Since Modigliani and Miller (1958) came out with their theory on capital structure, many researchers in finance carried out several studies on the relationship between capital structure and firms performance. However, most of these studies have been done in developed countries where economic conditions are relatively stable such as the United States and Britain. In Ghana where business economic environment are relatively volatile, scholars and researchers in finance have also carried out some studies on capital structure and its relations to firms performance or profitability to find out whether their findings would be consistent with those in the developed economies. In these regard, some studies on capital structure have been done on firms in the service industry in Ghana (Tornyiva, 2013; Atta-Doku, 2009; Amponsah, 2011); on some listed firms in Ghana (Akoto & Awunyo-Vitor, 2013; Abor, 2005) and also on firms in the banking industry in Ghana (Amidu, 2007, Gatsi & Akoto 2010).

It is believe that for economy to be developed much attention should be given to its manufacturing sector. In the Ghanaian economy, interest rates, foreign currency exchange rates, inflation are all high, make both the cost of finance and the cost of doing business relatively very high. However manufacturing firms in Ghana, like those in the other parts of the world, take external funding in the form of debt as part of their capital structure in order to expand their business and as part of their working capital management, and most especially, to take advantage of tax deductibility of interest payment. However, studies examining the impact of capital structure on the profitability of the firms in the manufacturing industries appear scanty. This places strong emphasis on the need to study how capital structure affects the financial performance or the profitability of the firms in the manufacturing industries in Ghana.

1.3 Objectives of the Study

The general objective of this thesis is to assess the impact of capital structure on the profitability of firms in the manufacturing industries in Ghana. The specific objectives of the study are;

1. to examine the effect of short-term debt/liabilities on the profitability of the firms.
2. to assess the effect of long-term debt/liability on the profitability of the firms.
3. to define the effect of equity on profitability on the selected firms.

1.4 Research Questions

In order to achieve the above stated objectives, the research sought to answer the following questions;

1. To what extend does short term debt/liability affect the profitability of the selected firms?

2. To what extent does long term debt/liability affect the profitability of the selected firms?
3. To what extent does equity affect the profitability of the selected firms?

1.5 Significance of the Study

In Ghana, studies on capital structure relating to the manufacturing industries are very scanty. The appropriate choice of capital structure for a company by its corporate and financial managers is very crucial, because capital structure affects the company's profitability and the long-term survival of the company depends on its profitability. The findings and recommendations of this research would go a long way to help financial managers of Ghanaian manufacturing firms to make such an important strategic decision on the debt equity mix for their companies. It could also guide investors and potential investors, on which category of firms in the manufacturing industry, to make their investment especially on the Ghana stock exchange. Other institutions who can benefit from this study are the Association of Ghana Industries the umbrella association for all service, processing and manufacturing industries in Ghana and the Ministry of Trade and Industry, which is the main industrial policies advisor and supervisor for both public and private sector in Ghana. Academically, it would contribute to literature on capital structure in the manufacturing industry and the findings and recommendations would serve as bases for further research.

1.6 Scope of the Study

The study was done using some manufacturing listed companies on the Ghana Stock Exchange and some few other companies which are not listed but the researcher was able to get data on them for the studies. The capital structure of these firms is deemed to be one of the underlying factors which can lead to their insolvency or otherwise. Thus, the research would unveil how

these firms have applied the concept of capital structure to their operations and by extension their success stories or otherwise Audited financial statements of the selected firms (annual reports) were used to collect data on turnover or sales, profit before interest and tax, current liability or short-term debt, long term liability/debt, total assets and the capital employed. A simple regression analysis was employed to find the correlation between return on equity (ROE), as a measure of profitability to that of the firms “current liability, long term liability and equity.

1.7 Limitations of the Study

The study was carried out using the manufacturing companies listed on the Ghana Stock Exchange and some few other non-listed firms because a complete coverage of all manufacturing firms in Ghana was not possible due to time and financial constraints. Another limitation was the difficulty with which data were obtained for the study, since firms (especially the private firms) were not willing to disclose their business information with the fear that once such relevant information is released, they might fall into the hands of their competitors.

1.8 Organization of the Work

This research has been organized into five chapters. Chapter one considered the general introduction for the research. Chapter two also looked at literature review of previous studies that other scholars have done which are related to this study. Chapter three is Research Methodology. Here the method and procedures used for the study have been systematically described. Chapter Four (Results and Discussions) also discussed the results obtained from analyzing the data collected for the studies with respect to what is already known in literature or in other previous works. Chapter Five also summarized the findings from the research, drawn conclusions for the study and made recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In corporate finance, capital structure remains one of the most puzzling issues (Brounen & Eichholtz, 2001). Many researchers, research on the performance of the firms, in which one is E-Bay (2009), determined the capital structure and performance of the firms. The main purpose of the study was to check the link between the debt and financial performance of the listed companies (Karachi stock exchange during the period 2008- 2012). The capital structure assessment has been important for the implications of the value of the industry and its cost of capital (Firer et al, 2008). This chapter looks at the various theories and works that have previously been done in relation to this study.

2.2 The Concept of Capital Structure

Capital structure is generally considered as the mixture of debt and equity that makes up the firm's total capital it uses for its business. Gajurel (2005) described it as the "different sources of funds that make up a firm's capital". According to Abor (2008) capital structure is the particular blend of equity and debt and equity a firm uses to finance its operations. However, it does not make sense to consider the capital structure of a firm or any business without taking into consideration the firm's or business's peculiar economic situation or environment. It is held by financial analysts and researchers that the firms which are exposed to high operational risk or hazards tend to have a low level of debt in its capital structure and vice versa.

The total of a companies' short-term liabilities and its long-term liabilities as a percentage of the firm's capital is referred to as the firm's financial leverage or gearing. Patricks (1998) posited that, the decision whether to incur long-term or short term debt can be recast as the decision whether to incur fixed-rate (long-term) or floating-rate (short-term) debt. A firm

chooses the debt/equity mix, or a combination of different sources of finance in different forms that will best maximize the value of the firm (Gajurel, 2005). The debt and equity combination that maximizes the value of the firm is the firm's optimal capital structure (Ross et al, 2008), and choosing a firm's capital structure remains a vital strategic choice that corporate managers have to make (Gatsi and Akoto, 2010). At the optimal capital structure the incremental tax benefit obtained from debt is the same as the incremental costs of financial distress (Patrick's, 1998). "Working capital management is also the administration of the firm's current assets namely; cash and marketable securities, receivables, and inventory and the financing (especially current liabilities) needed to support these current assets (Horne & Wachowicz, 2008). Again, it refers to all management decisions and actions that influence the size and effectiveness of the working capital. Again, Working capital management is our ability to effectively and efficiently control current assets and current liabilities in a manner that will provide our firm with maximum return on its assets and will minimize payment for its liabilities" (Adelman & Marks, 2007). "Pass and Pike (1984) indicated that, the two main objectives of working capital management are to increase the profitability of a company and to ensure that it has sufficient liquidity to meet short-term obligations as they fall due in order to continue as a going concern (See also Gitman & Hennessey, 2004) Gitman & Hennessey (2004) also indicated that, profitability in this sense can be related to the goal of shareholder wealth maximization, so that investment in current assets should only be made if an acceptable return is obtained.

There is always a conflict (trade-off) between these goals This is because as assets become more liquid they give rise to lower returns". "Working capital is that portion of a company's capital invested in short term or current assets to carry on its day to day operations smoothly (Kishore, 2008). There are two major concepts of working capital net working capital and gross

working capital. When accountants use the term working capital, they are generally referring to net working capital. Financial analysts on the other hand, mean current assets when they speak of gross working capital. Therefore, their focus is on gross working capital which is the firm's investment in current assets such as cash and marketable securities, receivables and inventory" (Horne & Wachowicz, 2008).

2.3 Capital Structure Theories

Modigliani & Miller (1958) established what has been known as the theoretical principles underlying the combination of debt equity mix or the capital structure of a firm. Theories on capital structure have been proposed by researchers and scholars of the subject. However, no single theory is capable of explaining all of the time-series and cross-sectional patterns associated with capital structure that, economists and researchers, have documented (Huang and Ritter, 2009).

However, there are many useful restrictive theories, each of which is very helpful to scholars to comprehend the structure of debt-to-equity ratio that firms choose; notable among them are the trade-off theory, the pecking-order theory, the signaling theory and the marketing theory.

2.3.1 The Trade-off Theory

The trade-off theory proposes that a firm's optimal capital structure is determined by a trade-off between the advantages and the disadvantages of borrowing or holding the debt if the firm's assets and future plans for expansion, investment and speculative arrangements are held constant. Usually, it is taken for granted that an inside arrangement is acquired so that tax (marginal) advantage of debt financing and the (marginal) costs of financial distress are balanced. Companies may alter their capital structure and aim at an objective debt to total capital ratio that is consistent with theories based on trade-offs between the advantages and

disadvantages of debt. However, empirical observational work by Hovakimian et al (2001), demonstrated that the targeted objective ratio may change over time as the firm's profitability and stock price or value change and the firm may confront obstructions as it moves toward the target ratio. The trade-off theory may be subdivided into static and dynamic theories.

The **Static trade-off model** considers, an unequivocally, decision of debt level (Harris and Raviv, 1990), which the firm sees as a desire debt to equity proportion and moves towards it gradually (Myers 1984). The theory gives the prediction that, there exists an optimal target financial debt ratio, at which point the value of the firm is maximized. Miglo (2010) however, brought out the argument that the static model could not explain whether or not firms “leverage is too low and whether or not firms move fast enough towards their target ratios as well as the negative correlation between debt and profitability.

The **Dynamic trade-off model** likewise considers the role of time in identifying the optimal or ideal capital structure. In a dynamic model, the proper financing decision typically hangs on the amount of funds the firm expects to receive in the next period whether it would pay or raise fund for a project. According to Miglo (2010), a firm which is profitable may have a lower leverage if it uses retain earnings to finance its projects and thus reduces the expenses associated with raising funds, as against comparable firms which may have a higher debt ratio in light of the fact that it needs to obtain finance to fund its undertakings. Dynamic trade-off models are, therefore, likely to give trusted contribution (that gives better clarification) to the trade-off theory than the static models (Yan, 2009).

The trade-off theory of the capital structure proposes that a firms optimal capital structure is determined by, the tax-shield benefits associated with debt use, bankruptcy cost (costs of financial distress), agency cost, information asymmetry and transaction cost.

2.3.1.1 Tax

Tax may generally be considered as the amount of money that firms and individuals pay to a state for doing business within the territorial boundaries of that state (Gatsi & Akoto, 2010). Though tax evasion is a criminal act, tax avoidance is allowable; hence, financial and corporate managers would always use legitimate means to minimize the amount of tax to be paid because tax reduces profit. One of the assumptions made by Modigliani and Miller (1958), popular publication was “there is no corporate or personal tax”. Relaxing this tax assumption, Modigliani and Miller (1963) concluded that the value of a firm could be enhanced by debt financing since interest paid on debt is tax deductible. Therefore, the net cash obtained, after tax payment, by a firm could be increased.

As explained by Modigliani & Miller (1963), if the financial leverage or a firm’s capital structure is increased, it would relatively reduce the amount of tax the firm has to pay. This implies that firms can use more debt to create value. As the debt of the firm increases its financial distress also increases. Therefore, according to Bauer (2004), “the optimal or the ideal capital structure is obtained when the marginal present value of the tax (the benefit associated with the use of debt) on additional debt is equal to the marginal present value of the costs of financial distress on additional debt”. Financial and corporate managers therefore, have the responsibility to determine the point in the capital structure of their firms where the benefit of interest tax shield is the same as impact of financial distress in order to derive the maximum benefit from debt usage. At the personal level interest income is taxed at a higher rate than dividend and capital gain, thus the tax advantage that debt holders has over equity investors has the possibility of been eroded by the higher personal tax they (debt holders) have to pay. Investors being rational and have particular interest in their after-tax profit would factor in such tax decisions, corporate managers, therefore, cannot think that they can always increase

the debt component of their capital structure, because investors would take advantage of the tax benefit associated it.

De Angelo and Masulis (1980) argued that the gains obtained from tax are lessened if a firm's anticipated sources of income, against which finance costs can be offset, is less than the firm's total finance cost, that is when the firm experiences losses. However if interest expenses results in a loss, a prudent tax planning would ensure that the loss is relieved, and the firm would not suffer.

2.3.1.2 Contracting costs

Irrespective of the benefit obtained from tax as a result of leverage, they should be matched against the greater chances and higher anticipated cost of financial distress. Thus, another capital structure theory that can be reviewed within the context of the "trade-off theory" as promulgated by Myers and Majluf (1984) is contracting costs. Contracting costs are the costs that firms bear because they issue high levels of debt in their operations and also the consequences that they may face due to the running of the firm by managers rather than the true owners of the firm. The two most prominent costs that can be identified under this are bankruptcy and agency costs.

2.3.1.3 Bankruptcy Cost

Bankruptcy cost, or cost of financial distress (Myers 1984), is the costs that a firm has to incur when it neglects to service its debt payments and thus faces the likelihood of being closed down (Titman, 1984). Abor (2008) likewise characterized it as the costs that a firm has to bear when the perception of the likelihood that the firm would not be able to meet its debt obligation is more than zero. Bankruptcy cost may be direct or indirect. The direct costs are those that

occur when the firm actually goes bankrupt, such as legal fees and administrative cost, and are usually small compared to the firm's market value. The indirect costs are exceptionally critical. They include moral hazard, evaluating assessing and monitoring and contracting costs which can reduce firm's value even if formal default is avoided (Myers, 1984), loss of goodwill from customers, loss of key and competent employees to competitors (Tornyiva, 2013) and the loss in profits incurred by the firm as a result of the unwillingness of stakeholders to do business with them (Abor, 2008). From the firm's business activities level, it turns out to be obviously clear to stake holders that a firm is getting closer to liquidation, key employees might leave the firm, for the apprehension of losing their employment. Suppliers will either vary their credit terms with the firm, or may be unwilling to extend trade credit at all. Customers may feel reluctant in purchasing the products for the danger that the company would not be able to honor its guarantee commitments.

According to Miglo (2010) large firms are expected to have greater percentage of leverage, since bigger companies have different business segments or income streams in operation and the chances that they may not be able to pay for their debt are very low. The value of tangible assets does not reduce so much when the company goes into distress; therefore, firms which has majority of its assets being tangible such as airplanes, automobile and airplane manufacturers would have higher leverage as compared to companies whose assets are mostly intangible assets such as research firms.

2.3.1.4 Agency Cost

The involvement of debt as part of the capital structure of a firm also leads to agency cost. Jensen and Meckling (1976) defined agency costs as the costs that arise due to the distinctions in light of a legitimate concern for the principals and agents of the firm, with each one

trying to expand their own particular goals to the detriment of the other. Agency costs emerges in light of the fact that managers do not necessarily or fundamentally act in the best interest of shareholders and shareholders do not necessarily act in the best interest of creditors (Miglo, 2010). According to Jensen and Meckling (1976), two main types of agency conflicts exist in a firm. These are conflict between debt-holders and equity-holders and conflict between managers and shareholders.

The conflict between equity holders and debt-holders is caused by moral hazard and risk taking (Abor & Biekpe, 2005). Shareholders are remunerated with the residue after debt holders had received the interest on their investment. Shareholders, therefore, want the firm to put resources into higher risk ventures that would yield a higher return and, in this manner, boosting the chances of maximizing the return on their investment. Debt holders would rather prefer the firm to invest in near to risk free activities or business investments, so that their investment is well protected, because the return on their investment is fixed.

Another cause of this conflict is that debt portfolios give equity holders an obligation or an inspiration to contribute or invest sub-optimally (Jensen and Meckling, 1976). Clarifying further, Gatsi and Akoto (2010) posited that fundamentally, what debt contracts does is that if the investment yields extensively above the face value of the debt a large portion of the profit goes to the equity investors who are entitled to the residual net cash flow, while debt-holders receive fixed and agreed return on their money invested in the firm. However, debt-holders bear all the consequences and stand a higher risk of losing all the monies invested in the firm, if the projects or the investments in which managers of the firm put the money into fizzles, since shareholders are covered by the veil of incorporation. As debt-holders are mindful of this development, they would consider it into their required returns to compensate for that risk, thus, making debt financing turning out to be more lavish.

Furthermore, Myers (1977) was of the perspective that the agency costs that emerge among debt-holders and shareholders could make serious and genuine “underinvestment issues”. Consider a well grown company that is having challenges in meeting its debt obligations. The worth of such a firm will be based much more on its capability to execute its long-term income yielding projects. To secure the firm against the costs of financial distress the firm would need an introduction of more equity capital. However, the acquisition of this type of capital becomes rather expensive since the providers (Shareholders) think it would go to better debt-holders position. Consequently, managers may rationally go without both the capital and the investment opportunity which is detrimental to the survival of the firm.

Generally shareholders “objective is to maximize their wealth. Conflicts between managers (who are the agents) and the shareholders (the principals) happen in the light of the fact that managers may seek a goal which is very divergent to that of the shareholders. Shareholders would, therefore, prefer that their agents embark on ventures whose return would maximize their wealth. However, managers would rather undertake projects that would promote their interest and secure their jobs, because they are responsible for the whole risk of their activities, especially the risk of losing their jobs, whilst any gains resulting from their activities go to the shareholders.

Jensen (1986) for example, argues that, managers may use available “free cash flow” to sustain growth at the expense of profitability, either by overinvesting in their core businesses or, perhaps worse, diversifying through acquisition into unfamiliar ones. To curb this unwarranted behaviour on the part of managers, shareholders can demand that more debt be introduced into the firm’s operations so as to increase managerial performance(Myers,1977). The debt covenant should include payments of interest and principal so as to perform the role

of dividend payments (which are not mandatory) in squeezing out excess capital. Another way of resolving the conflict between managers and shareholders is by giving managers performance related incentives (such as share options) so that managers can also benefit from any value they add to the firm.

2.3.1.5 Information Asymmetry Cost

In corporate finance, information asymmetry is said to occur in a situation where one party in a transaction has more or superior information compared to the other(s). Firm insiders (managers) typically have superior knowledge than other investors on the value of their firms' assets and investment opportunities (Klein et al, 2002). In sourcing external funding, information asymmetry can lead to two main problems or risk: adverse selection and moral hazard. Adverse selection is said to occur when the lending financial institution fails to select a good credit worthy firm and advance credit to it. The lending financial institution may have failed to do a proper credit worthy assessment on the firm or the information provided by the firm (on which the assessments were done) when applying for the fund were falsified.

Moral hazard, on the other hand, occurs when the firm who borrows the fund engages in (riskier) activity which is different from the one for which the fund was borrowed. Moral hazards can be mitigated by using loan covenants and ensuring effective and efficient monitoring team by the lending financial institutions. These situations occur probably because only those who are dearth of funds would solicit external funding. Uninformed investors may demand a return premium to invest in companies where they have an information disadvantage (Choi and Yan, 2013). Therefore the relative costs of finance vary among the various sources of outside finance available to a firm due to information asymmetry (Abor2008). However, Hughes et al (2007) argued that in a large market, uninformed investors

can diversify away such information risk, rendering information asymmetry irrelevant for the cost of capital.

2.3.1.6 Transaction Cost

The choice of financing method is determined by the relative costs (direct and indirect) of different financing options. Transaction cost is potentially very important to financially distressed firms. The debt adjustments, contemplated by these firms are quite large and may push financial distressed firms far away from their optimal capital structures. To get their debt levels down, financially distressed firms must either persuade creditors to write down their claims or retire the debt by selling asset and new securities (Stuart 1997). Giannetti (2003) and Fan et al. (2008) find that firms in countries where stock markets are more developed have lower leverage and that, firms in countries offering better protection for creditors have more long-term debt in their capital structure. According to Li and Tam (2011) transaction costs affect capital structure rebalancing. Past market-timing activity has a significantly negative impact on the current debt ratio, and this impact is stronger for firms facing lower transaction costs of external financing, as defined by legal origin, capital-market development, and securities rules in their home countries. Further analysis indicates that firms in countries with lower transaction costs also rebalance their capital structure more quickly after a deviation from the target, but the rebalancing does not eliminate the market-timing effect on capital structure completely.

2.3.2. Pecking Order Theory

Pecking order theory was first suggested by Donaldson (1961) and made popular by Myers and Majluf (1984). The theory suggests that management follow a preference order when it comes to financing. The order is as follows: Firms prefer internal finance. However, if external

finance is required, firms issue the safest security first. That is, they start with debt, then, possibly, hybrid securities such as convertible bonds, then perhaps equity as a last resort. Each firm's observed debt ratio that reflects its cumulative requirements for external finance.

This Pecking Order Theory suits large firms with high profitability and which has enough internal funds in the form of retained earnings and depreciation. Miglo (2010) posited that, good quality firms would use internal funds to avoid adverse selection problem and value loss. According to Myers (1984), Firms that follow this theory target their dividend payout ratios to their investment opportunities although the dividends are sticky and target payout ratios are only gradually adjusted to shifts in the extent of valuable investment opportunities. The sticky dividend policies, plus unpredictable Fluctuations in profitability and investment opportunities, mean that internally generated cash flow may be more or less than investment outlays. If it is less, the firm first draws down its cash balance or marketable securities portfolio. The pecking order theory predicts that high-growth firms, typically with large financing needs, will end up with high debt ratios because of a manager's reluctance to issue equity. Relating to the pecking order theory are the signaling, or asymmetric information and the market timing theories which attempt to explain the pecking order theory.

2.4 The Signaling, or Asymmetric Information Theory

The signaling, or asymmetry information theory was proposed by Myers and Majluf (1984) when they contended that equity is a less preferred means to raise capital because when managers (who are assumed to know better about true condition of the firm than investors) issue new equity, investors take it as a signal that the managers think that the firm is overvalued, so they (managers) are taking advantage of this over-valuation. As a result, investors will place a lower value to the new equity issuance. Asquith and Mullins (1983),

Masulis and Korwar (1986) empirically observed that announcements of new equity issues are greeted by sharp declines in stock prices. This is a major reason why equity issues are comparatively rare among large established corporations. Debt also plays an important role in allowing investors to generate information useful for monitoring management and implementing efficient operating decisions. Ross (1977) model suggests that the value of firms will rise with leverage, since increasing leverage increases the market's perception of value. Ross (1977) argued that, debt and equity give different signals to rational investors as important insider information. Debt is a contractual obligation to repay interests and the principal. Failure to make these payments can lead to insolvency and managers may lose their jobs. However, equity is more relaxing, because managers have more discretion in deciding how much and when to pay dividends, and can even cut them in times of financial distress, although shareholders expect dividends at least to be maintained (Gajurel, 2005). Ross (1977) therefore concludes that investors take larger levels of debt as a signal of higher quality and that profitability and leverage are thus positively related. However, when debt goes beyond the optimal leverage level, the cost of debt and financial distress threatens the very survival of the firm.

2.4.1 The Market Timing Theory

This theory expresses that the present capital structure of a firm is the cumulative outcome of past attempts to time the equity market (Baker & Wurgler, 2002). Market timing means that companies will issue new stocks when they see the stocks to be overvalued and that firms repurchase their own shares when they consider them to be undervalued consequently, the current capital structure is unequivocally linked to historical market values.

Managers have more information than any other stakeholder to know the, “actual” future value of the firm and of any venture that it may embrace and they are expected to perform to the benefit of the current and existing shareholders Myers and Majluf (1984). Therefore, managers should critically study the capital market and exploit the information asymmetry that exists and only issue new shares when they trust that those shares are overpriced by the market and vice versa (Gatsi & Akoto, 2010). According to Barclay and Smith (2005), companies that have better opportunities to utilize capital but think that their shares are actually being priced lower than they ought to be will generally choose to issue debt as oppose to equity to avoid diluting the value of existing shareholders claim.

2.5 Determinants of Capital Structure

Considering the views of the various capital structure theories (talked about above), various firm level qualities have been identified by empirical literature as factors that decide the firm’s capital structure or leverage. Some of these qualities considered here are profitability, age, the firm’s size and the structure of the firm’s asset. Others are the growth of the firm, how risky its business is, its tax and ownership structure.

2.5.1 Profitability

Explanation on how capital structure is related to the profitability of a company could be given by using the pecking order theory as previously explained above. The theory states that companies would firstly use internally generated fund (IGF) rather than funds obtained from outside the company when it comes to funding its business projects or activities. The order of choice is as follows: the company would use the source of funds that is least risky to the one that is most risky, this happens for the fact that managers of a firm are well informed on the (financial) issues of the firm than the other stakeholders outside, so there is information

asymmetric, as Myers (1984) puts it, between the managers who are inside stakeholders and the less informed other stakeholders including market participants. From the point of view of this assertion, therefore, it is sufficient to say that firms that are more profitable and which can easily get the IGF would depend on them, as against firms whose retain earnings are very limited and have to depend on external sources (debt). Retain earnings are therefore, the main source of finance and the most reliable which has the least cost. Therefore, Titman and Wessels (1988) and Barton et al (1989) concurred that companies which make very high profit, under normal circumstances, would keep moderately lower to debt ratios because they are able to obtain the needed funds for the business activities or operations from internal sources.

Firm performance is one of the most striking concepts in business studies due to the fact that, the study of firm performance focuses on why certain companies out performing their competitors (Butler, Martin, Perryman & Upson, 2012). Steigenberger (2014) declared that firm performance is an imprecise, elusive and abstract concept to apply in a technological rigorous way. Steigenberger acknowledged that firm performance serves as the ultimate dependent variable of interest in strategic management. Boyd, Bergh, Ireland, and Ketchen (2013) declared that the key problem regarding the measurement of firm performance is a misfit between construct specification in theory and operationalization of the construct in empirical analysis. While firm profitability specifications require a broad understanding of firm success, empirical studies often centers on one or a few distinct aspects of firm performance. Venkatraman and Ramanujam (1987) conceptualized firm performance as a multidimensional construct concerning primary and secondary sources of measurement as well as objective and subjective measures. Likewise, Butler et al. (2012) conceptualized firm performance as consisted of the dimensions of operational, financial and business performance. Butler et al. also stated that profitability measure focuses on outcome-based objective indicators making it

the narrowest conceptualization of economic performance. In theory, studies of firm performance should include financial and non-financial measures as well as objective and subjective measures (Venkatraman & Ramanujam, 1987). In addition, nonfinancial measures could indicate organizational effectiveness and efficiency.

2.5.2 Size of a firm

The firm's size has been recognized to be one of the vital determining factors of firm's capital structure or leverage, the bigger the firm in terms of sales or turnover, the more debt it will use. This is, on account of the fact that, larger companies have more business segments or streams of income and therefore experience lower fluctuations of income, causing them to be capable of tolerating high debt ratios. External fund providers generally prefer to give credit to bigger firms because; these bigger companies are seen to have lower business or operation risk. In addition to that, with increasing levels of turnover which can be translated into profit, repayment or servicing of loans and interest should not be a challenge. However, smaller firms generally find it more expensive to deal with issues with asymmetric information with external fund providers, thus constraining their capability to take external credit for their business (Oppong-Boakye et al 2013). Larger firms have bigger capital structure since much revenue has to be fused into various branches with multi-national companies with a high level of turnovers but for smaller firms, their capital structure is not huge.

2.5.3 Asset structure

The nature of a firm's assets is a leading factor in deciding its debt equity mix employ as the capital of the business. Titman & Wessels, (1988), supported by Harris & Raviv, (1991), posited that the extent to which the companies' assets are tangible is likely to ensure that the firm will have more prominent value on liquidation. According to Abor (2008), companies that spend vigorously in tangible assets, generally, have a tendency to have easier access to finance

at lower cost, and therefore may have higher leverage or external funds in their capital structure, because the firm can easily use those tangible assets as collateral to secure credit. Therefore the problem of moral hazards and adverse selection that usually goes with such loans is minimized. What is more, increasing tangible assets signifies high operating efficiency and could attract investors (Oppong-Boakye et al, 2013). In supporting this view, Myers (1984) argued that firms holding specialized or intangible assets are likely to borrow less because Specialized or intangible assets lose value easily in times of financial distress hence as the probability of the occurrence of financial distress increases in the firm, the chances that the firm's assets would be impairment increases. With the fixed assets of multi-national companies, much is invested in fixed assets due to its larger size and branches.

2.5.4 Growth

According to the pecking order theory, developing firms may utilized retain earnings to bolster the growth or developmental activities of the firm, in the short term. Nonetheless, pressure on the retain earnings would imply that the firm has to look out for external funds to finance its growth as the internally generated funds get depleted. Research findings relating to the linkage that exist between leverage and chances for growth appears mixed. Myers (1977) and Auerbach (1985) contended that leverage is negatively linked to growth rate, for the advantage gained from the tax deductibility of finance cost is of less value to fast growing companies as they normally do not have any tax shields. According to Michaelas et al (1999), there is a positive linkage between future growth and development of a firm and its leverage and long-term liabilities. Oppong-Boakye et al, (2013) also found a negative correlation between growth and debt. However, Tornyiva (2013) found a positive relationship between growth and leverage in the insurance industry of Ghana and concluded that the growing insurance companies depend more on debt to finance their growth.

2.5.5 Firm risk

The amount of risk in a firm's business has been identified as some of the essential determining factors of the capital structure of a firm. The best debt equity mix of any company is seen as a function of its operational hazard which, according to Catanias (1983), can be explained by the tax shield bankruptcy cost theory. Considering what a firm has to pay as a result of agency and bankruptcy issues, there are no motivations for a company to completely use the 100% tax advantages found in the static model framework. As the probability of a company facing these costs becomes higher, the higher the motivation for the company to lessen the leverage in its debt equity mix or capital structure. Operating risk remains one of the variable factors that influence the firm's exposure, because as the company's profit stream becomes more unpredictable the probability that the company would not be able to meet its financial obligations and become exposed to such costs increases. Companies with more volatility in its earnings growth are more likely to encounter circumstances where the cash flow may not be enough to service their debt. Kim and Sorensen (1986) observed that companies which have high probability of business risk have low capacity to contain financial risk and, therefore, would utilize less debt. Contrarily, Oppong Boakye et al, (2013) suggested that firm whose operational risk is very high is more prone to have high level of gearing, because equity investors feel reluctant to invest in businesses whose operational risk is high. Management of such companies tends to rely on debt than equity.

2.5.6. Taxation

Several studies have been done on how taxation affects the financing decision of a firm. Some of these studies concerned directly with tax policy. Variations that occur in the marginal tax rate for any company could influence its financing decisions (MacKie-Mason, 1990. Amidu, 2007). A firm that has a huge tax cover, for instance, having a greater possibility of facing a

zero tax rate or with loss carry forwards, has low motivation to use debt to finance its operations, because tax cover reduces the effective marginal tax rate on finance cost deduction (MacKie-Mason, 1990). However, there exists different ways of tax cover which could also be taking advantage of, this include depreciation and/or amortization, expenditures on research and development, and cost of investments, etc. which can easily take the place for the role of debt (De Angelo & Masulis, 1980).

Analyzing it from research point of view, alternative placement is not easy to determine empirically. How to determine the exact variable that can be used to replace tax reduction that may not be influence by economic depreciation and inflation remains very difficult (Titman and Wessels, 1998). Oppong-Boakye et al, (2013) also stated that, firms that get listed on stock exchanges tend to benefit from tax reduction contrasted with unlisted firms. Thus, a general appreciation on corporate tax rate would be linked with the introduction of more equity capital since the companies would be motivated to get listed so as to take advantage of the special tax rebate.

2.5.7 Firm's Age

A firm's age is considered as an acceptable yardstick to assess social image in its capital structure models. As the firm stays in operation for longer period, it continuously build for itself a good business image, that is, the reputation or the goodwill it acquires in terms of its management and administration, products, and more particularly its capacity to meet its commitments to its stakeholders in a timely manner as recognize by the market (Diamond, 1989) and its credit worthiness can easily be assessed by external fund providers. Therefore as firm ages it expands its capability to acquire more debt; therefore age can be said to be positively related to debt (Abor, 2008). Hall et al (2004) concurred that age is positively

related to long term debt but negatively related to short-term debt. Pfaffermayr et al, (2008). Nonetheless, argued that a firm's leverage might change over the duration of the life of a firm. However, since more youthful firms are not able to raise funds from outside the company they exhibit higher debt ratios. Additionally, the age of a company poses a negative influence on the capital structure on debt ratios, which shows that more established companies are not depending more on debt as compared to the more youthful ones.

2.6 Relationships between Firms Leverage and Profitability

Various research works have been carried out on the relationship between firm's debt and its performance or profitability. Researchers, scholars, practitioners and experts, finance and economic analysts in the various industries have expressed divergent views on the effect of debt or leverage on the performance or profitability of a firm.

2.6.1 Positive association between leverage and firm profitability

Some scholars and researchers in their studies on debt and firms performance found a direct relationship between debt and profitability. For example, Abor (2005), in his work "The effect of capital structure on the profitability: an empirical Analysis of listed firms in Ghana", found a marked positive relationship existing between the percentage of short-term liabilities to total capital employed and profitability, and on average a significant and direct relationship between overall liability and financial performance.

Though there was negative linkage between the ratio of long-term liabilities to total capital employed and the financial performance in the same studies. Abor (2008). Hall et al (2004) in different studies all concluded that the relationship that exists among long term liability and the financial performance of a company is positive. Taub (1975) in a regression analysis of

four profitability metrics against debt ratio observed a significantly positive linkage existing between leverage and financial performance. Champion (1999) in his work “finance: the joy of leverage”, argues that companies can use leverage to improve their financial output because of the fact that managers are able use debts to increase production efficiency and avoid the cost of bankruptcy.

2.6.2 Negative association between capital structure and company’s profitability

So many scholars and researchers have done empirical studies on the relationship between capital structure of a firm and the firm’s financial performance. From these various works conducted by the finance and economic researchers, most of them pointed out a negative relationship among profitability and capital structure. These include Amidu (2007), in his work, “determinants of the capital structure of banks in Ghana”: Abor’s (2005) studying the “effect of capital structure on the profitability of listed firms in Ghana” Graham’s (2003) study on tax and corporate finance big. Others are: “Determinants of the capital structure of European SMEs” by Hall et al, (2004), Fama and French’s (1998) study on taxes, financing decisions and firm value and determinants of capital structure choice by Titman and Wessels (1988), all found a negative relationship between leverage and firms profitability.

Amidu’s (2007) work revealed that there exist an inverse linkage between a firm’s short-term liabilities and its financial performance. Abor’s (2005) work, likewise, also revealed an inverse relationship between company profitability and its long term liability. A Graham (2003) study also drew the same conclusions as Abor (2005) on the relationship between total debt and profitability. He also pointed out that big and more performing firms have lower leverages.

2.7 Brief Historical Overview of Manufacturing Firms in Ghana

Manufacturing in Ghana dates back to the early days of the Ghana's independence. Just after independence, the then government under the leadership of the first president of the Republic of Ghana, Dr. Nkrumah, embarked on nationwide industrialization drive and built factories for food and agro processing, aluminum smelting, saw milling and timber processing, mineral processing, oil refinery, textiles and glass making among others. The objectives of this mission, among others, were for the factories to utilize the readily available raw materials in the country; to add value to the raw materials before they are exported; to produce goods and products for local consumption (and probably with some surplus for export) in order to minimize their importation; to provide employment for Ghanaians especially the youth and to open up the country and ensure rapid infrastructure development in all parts of the country. Under this policy the following production plants were built by the government, Pwalugu Tomato Factory and the Meat Factory all in Bolegatanga in the Northern Parts of Ghana. The Kumasi Jute Factory, the Kumasi Shoe Factory and the Wenchi Tomato Factory in the mid Ghana were also built. In the western region, there were the BonsaTyre Manufacturing Company at Bonsaso, the Aboso Glass Factory, the Prestea Gold Processing Factory and the Takoradi Paper Mill. There were also the Kade Match Factory and the Nsawam Cannery in the Eastern Region, the Central Region had the Komenda Sugar Factory and the Saltpond Ceramics Limited. The twin cities of Accra and Tema were the hub of this industrialization policy. Most of the industries were located there due to their closeness to the then newly built Akosombo Dam to Provide Hydroelectric power to power the industries, the presence of the Tema harbour which facilitated movement of machinery and other materials from abroad for the factories and also the export of goods and other materials abroad, and the availability of the necessary human capital, at that time, to work and manage the factories. Most of these state owned companies were given protection by the government to survive.

After the overthrow of the Nkrumah regime, successive governments could not provide enough supervision and protection for the companies. Corruption, poor management, political influences (especially during the military regimes) in the state sector and other economic reasons led to stagnation for the growth of these companies from 1970 to 1977 and then to a decline from 1977 to 1982. Thereafter, the manufacturing and processing industry in the country could not regain their vibrancy, and performance remained weak into the 1990s. Most of these companies also suffered underutilization in terms of their industrial capacity in the 1960s, which increased alarmingly in the 1970s. Under the Economic Recovery Program (ERP) in the 1980s, government intended to revive some of these state-owned manufacturing companies so that the reasons for which they were set up could be realized. Many challenges faced by the companies made their revival difficult, government, under the auspices of Divestiture Implementation Committee (DIC), either fully or partially diverted most of the companies and cited various reasons for that. Though the development of the manufacturing sector was spearheaded by the State, other multi-national companies such as UAC, PZ Cussons Plc, Lever Brother, and some few individual Lebanese, Indian and Ghanaian industrialists also set up manufacturing companies.

2.7.1 Current view of manufacturing in Ghana

According to the Commonwealth of Nations report on Ghana, currently, there are around 25,000 registered firms, doing business in agro processing, mining and mineral processing, light manufacturing, aluminum smelting, food processing, cement making and small commercial boat building. Others are also into alcoholic and beverages production. There are also companies producing chemicals, drugs and other pharmaceuticals textiles, timber and wood processing, furniture making, iron and steel as well as clothing and textiles. Ceramics and glass-making companies also exist in relatively small quantities. Over eighty per cent (80%)

of these firms are small to medium size enterprises (with less than 50 employees) and around fifty five per cent (55%) of them can be found in the industrial hub of Accra/Tema metropolis. The Association of Ghana Industries (AGI), the mother association that seek the welfare for manufacturing companies, has about 1200 members (including service providers). Manufacturing contributed about six per cent (6%) of Ghana's gross domestic product (GDP) (2011) and offer jobs to over 250,000 people (2009).

According to the Commonwealth of Nations report, on the global economies of 185 countries, Ghana is rated 67th by the World Bank for relative ease of operating a business in Ghana a ranking based on how easy the regulatory environment in the country with respect to the opening and operation of a local firm. Generally manufacturing firms in Ghana use simple and unsophisticated technologies in their production processes. On a scale of 1- 7, with 7.0 representing a country in which the world's best and most efficient process technology prevails and 1 being the least. The World Economic Forum's Global Competitiveness Report scored Ghana 3.2 and rated her 107 out of 144 world economies in their (2012-13) report, this score placed Ghana below the world mean of 3.9 out of 7.0. In 2013-14 report Ghana was on position 114, whilst she placed 111 in their 2014-15 report (WEF Reports, 2013, 2014, 2015). This means that Ghana is counted among the world economies where technologies for manufacturing and processing are least developed.

2.7.2 Challenges in Manufacturing in Ghana

The manufacturing industry in Ghana faces a lot of challenges, which threatens the survival of firms in the industry. The manufacturing industry is persistently experiencing reduction in size and Ghana is likely to lose its manufacturing factories base if the policies of Ghana government do not immediately resolve these problems to resuscitate the manufacturing subsector. Some of these challenges are discussed below. Probably the most challenging factor is insufficient

power supply for the factories. Ghana's power crisis which has been christened "Domsor" locally has reached its crescendo, forcing the main generators and distributors, the Volta River Authority (VRA) and the Electricity Company of Ghana respectively, to ration the power such that the available power is not sufficient to feed the industries. The industries have to generate their own power to support what they get from the national grid. However, high cost of fuel in Ghana has made the use of generators to produce electricity very expensive such that most of these companies produce at a loss.

Another challenge facing these firms is the cost of credit in Ghana. In Ghana interest rates are very high; indeed, the Bank of Ghana's Treasury bill rate is over 20%. Most commercial banks have their base rate between 22.5% to 25%. Thus the risk of borrowing money to do business is very high due to the high cost of capital. Relating to the high cost of credit is access to credit. Because of high interest rates charge by the commercial banks, firms are not able to access the needed capital to support their business, because repayment of the loan plus the interest becomes a burden to firms and greatly affect their profitability and the risk of default also becomes high. Not only that, the rate of inflation is also very high. Ghana has, for a very long time, been experiencing a double digit inflation figure which means that prices of goods and services are not stable but increase rapidly. As inflation increases the cost of doing business, it reduces the purchasing power of consumers (especially for fixed income earners such as salary workers), hence the aggregate demand for goods and services decreases such that manufacturers in a competitive market cannot transfer all the cost to consumers but have to absorb part, which also negatively affect their profitability.

Relating to inflation is the high rate of depreciation of the cedi. The national currency, the cedi, has suffered massive depreciation against all the major currencies (the US dollar, Pound Sterling, Euro etc), therefore the cost of material inputs imported from abroad for the firms

keeps on rising which also increases production cost. It could be argued that as the cedi depreciates, firms which export their products are better off, however, since relatively, the cost of all other inputs for production also increases as the cedi depreciates the net effect is rather negative on the firm. Another challenge which is also of much concern is lack of appropriate technology for the firms. Most of these manufacturing firms (especially the small to medium size companies) still use old and outmoded machinery in their production process. This is because they either lack the initial capital to acquire modern machinery and technology or the cost of operating and maintaining these modern machinery and technologies are too high for their sizes and capacity. The result is that production efficiency in most of these firms is very low with a lot of waste products. Ghana is endowed with a lot of natural resources and agricultural products, so if government could provide the enabling micro economic environment, and other technical and technological support for the manufacturing and processing companies, their contribution to the economic development of the country would be great.

CHAPTER THREE

METHODOLOGY OF THE STUDY

3.0 Introduction

The purpose of the study was to assess the impact of capital structure on profitability of manufacturing firms in Ghana. Manufacturing firm refers to any company that uses any material processes or converts it to a finished product for consumption or semi-finished product to be used by another firm. This chapter describes in details and systematically how the research was conducted. It describes specific issues such as the study population, study period and source of the data for the research and definitions of terms used for the study, it also contains the model used for the regression and the names of companies used in the study and ends with an overview of the Ghana stock Exchange where most of the firms for the study were sampled.

3.1 Research Design

The research employs panel survey which is usually used to measure change in the population studied overtime since it is a combination of both time series and cross-sectional data This study consisted of longitudinal dimension coupled with cross sectional observations for a period of seven years since panel data was used for the study. More data points are obtained using the panel data method. The method of estimating panel data for the study was the pooled OLS regression which deals with the pooling regression was used to investigate the impact of working capital on the financial performance of listed manufacturing companies. The pooled OLS regression deals with the pooling of all the entities together and running the regression model by not taken into consideration the cross-section and time series in nature The fixed effect model on the other hand allows for heterogeneity among the entities by allowing them to have their intercept value. For random effect model the discrepancy across entities is

assumed to be random and uncorrelated with the explanatory variables. The random effect model also allows for heterogeneity among the entities, but the entities have a common mean value of the intercept. The regression was used to investigate the impact of working capital on firm financial performance.

3.2 Study Population

The population for the study consists of (large) manufacturing firms in Ghana. I used manufacturing companies on the Ghana Stock Exchange (GSE) because of the ease of access to data. Two unlisted firms in the wood processing industry were selected because none of the firms in that industry was listed on the (GSE).

As such, the population of this study comprised a general population, a target population and an accessible population. Chaudhury (2010) defined the general population as “an entire group about which some information is required to be ascertained”. Participants in the general population must share at least a single attribute of interest. Creswell (2013) pointed out that, the part of the general population left after its refinement is termed target population, which is defined as the group of individuals or participants with the specific attributes of interest and relevance. The target population is more refined as compared to the general population on the basis of containing no attribute that controverts a research assumption, context or goal. On a further note, the accessible population is reached after taking out all individuals of the target population who will or may not participate or who cannot be accessed at the study period (Bartlett, Kortlik & Higgins, 2001). It is the final group of participants from which data is collected by surveying either all its members or a sample drawn from it. It represents the sampling frame (Bartlett et al, 2001), if the intention is to draw a sample from it.

3.3 Sample Size and Selection

In all 15 companies were selected from the following manufacturing and processing subsectors: Agro processing, Pharmaceuticals, Aluminum and iron fabrication. Others are Food and Beverages, Household consumables, Paper and Printing and the Wood processing industries. The following conditions were ensured to exist in all the selected companies. All the selected companies have been in an active business in the past 20 years, so if a huge credit was taken during the acquisition or establishment of the company, it might have been paid off, none of them has been earmarked for sale, which could have effect on its asset value. All the financial statements are in Ghana cedis. Where a firm's presentation currency is not the Ghana cedis, the figures are translated to the Ghana cedis using the yearly average exchange rate quoted by the World Bank.

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3.4 Study Period, Data Source and Definitions of Variables

The study covered the period from 2005 to 2012. Data from fifteen (15) companies of different sub sectors of the manufacturing and processing industry were used. The reason for restricting to this period was that the latest data for investigation was available for this period. The data extracted included the following:

Sales: the total revenue the firms receives from the sale of its manufactured or processed products (less value added tax where applicable).

Income/earnings after tax: the profit the firm made for the year after interest or finance cost and tax has been deducted.

Total Assets: The combination of both non- current and current assets, or the total of both equity and liabilities, employed by the firm to do business.

Debt/Liability: Any fund that has been used by the firm to do business, which is repayable and at a cost.

Short term debt/liability: Debt/ Liability that crystallizes (due for repayment) within one year.

Long term debt/Liability: Debt/liability that is due for payment after one year.

Shareholders' equity: The total of stated capital, capital surplus accounts and reserves as well as the surplus/deficit from the income statement for the period.

The study was done using secondary data. Audited financial statements of the selected companies were retrieved from the GSE Website. Where the financial statements of a particular period for a selected company were not available at the GSE website, they were retrieved from the websites of that particular company. For the unlisted companies access to their financial statements were granted with permission. However, because the data are from different firms which not the same are in terms of sizes, their figures cannot be compared directly, so the natural logarithms of the figures were used for the regression analysis.

3.5 Profitability Measurement

Every firm is generally assessed by how profitably that firm has performed relative to its own previous performance or that of its competitors. Profitability is usually assessed using ratios. Profitability ratios are financial metrics which are used to compare how efficiently a firm has been able to generate earnings relative to its expenses and other relevant associated costs

incurred during a specific period of time. Commonly use ratios to assess profitability are: Gross Profit Margin, Operating Profit margin and Net Profit Margin. Others are return on Assets (return on capital employed) and return on equity.

Various researchers on capital structure and profitability (e.g Abor, 2005, 2007, Gatsi & Akoto, 2010, Duyen, 2012, Shubita & Maroofalsawalhah, 2012) used Return on Equity (ROE) as the measure for profitability for their studies. Return on equity is perhaps the most important of all financial ratios to investors in the firm. It measures the return on the amount the investors have put into the company and gives an idea on the residual amount left for investment for the period under review.

3.6 Study Period, Data Source and Definitions of Variables

The study covered the period from 2005 to 2012. Data from fifteen (15) companies of different sub sectors of the manufacturing and processing industry were used. The reason for restricting to this period was that the latest data for investigation was available for this period. The data extracted included the following:

Return on Assets (ROA) is one of the traditional performance measures to use to represent the financial performance of firms. ROA is the key measure of firm profitability (Dietrich & Wanzenried, 2011; Pasiouras & Kosmidou, 2007). Therefore, return on Assets (ROA) is given as: $ROA = \text{Earnings Before Interest and Tax} / \text{Total Assets}$ “Return on Equity (ROE) is profit available to ordinary shareholders divided by equity and reserves This is an accounting measure of firm performance and it widely used by investors” $ROE = \text{Earnings After Interest and Tax} / \text{Total Equity}$ Independent variables “In this research 5 features for measuring the management of working capital these independent variables include Average Collection Period, Average Payment Period, Cash Conversion Cycle, and Net Trading Cycle have been investigated as the independent variables of working capital management”

Sales: the total revenue the firms receives from the sale of its manufactured or processed products (less value added tax where applicable).

Income/ earnings after tax: the profit the firm made for the year after interest or finance cost and tax has been deducted.

Total Assets: The combination of both non- current and current assets, or the total of both equity and liabilities, employed by the firm to do business.

Debt/Liability: Any fund that has been used by the firm to do business, which is repayable and at a cost.

Short term debt/liability: Debt/Liability that crystallizes (due for repayment) within one year.

Long term debt/Liability: Debt/liability that is due for payment after one year.

Shareholders' equity: The total of stated capital, capital surplus accounts and reserves as well as the surplus/deficit from the income statement for the period.

The study was done using secondary data. Audited financial statements of the selected companies were retrieved from the GSE website. Where the financial statements of a particular period for a selected company were not available at the GSE website, they were retrieved from the websites of that particular company. For the unlisted companies access to their financial statements were granted with permission. However, because the data are from different firms which not the same are in terms of sizes, their figures cannot be compared directly, so the natural logarithms of the figures were used for the regression analysis.

3.7 Data Sourced

Data collection plays a very crucial role in the statistical analysis. In research, there are different methods used to gather information, all of which fall into two categories that is primary and secondary data (Douglas, 2015). Wikipedia (2016) defines data as a set of values

of qualitative or quantitative variables. Data is facts or figures from which conclusions can be drawn. Before one can present and interpret information, there has to be a process of gathering and sorting data. Just as trees are the raw material from which paper is produced, so too, can data be viewed as the raw material from which information is obtained. Data as a general concept refers to the fact that some existing information or knowledge is represented or coded in some form suitable for better usage or processing. Data is collected and analyzed; data only becomes information suitable for making decision in some fashion. Gathering data can be accomplished through a primary source (researcher is the first person to obtain the data) or a secondary source (the researcher obtains the data that has already been collected by other sources, such as data disseminated in a scientific journal) (Mesly, 2015).

Data on firm working capital and financial performance were collected from secondary sources. Secondary data is data that has been extracted from the manufacturing companies' financial data in their annual reports, websites etc. Data was gathered heavily from Annual report Ghana, a data base website that harbors all annual reports of listed companies up to date. Data for the study gathered was from all available source and the ex-post factor variables of standard performance indicators including Return on Assets (ROA) and Return on Equity (ROE).

3.8 Data Collection Procedures

I employed a panel data set of fifteen (15) companies listed on the GSE from nine (9) industries, namely Health care, Consumer goods, Oil and Gas, Services, Basic materials, Telecommunications, Financial, Technology and Industrial. I chose the final sample of my study by dropping financial industries. Out of the twenty-four non-financial companies listed on the Ghana Stock Exchange, three companies (MTN Ghana, Meridian-Marshalls Holdings

and Digidut Advertising and Production Limited) did not have financial statement (data) at all from 2005 to 2012 and so were not included in the study. The study included the following firms: Agro processing; Cocoa Processing Company limited, Golden Web limited and Benso Oil Palm Plantation limited. Pharmaceuticals; Starwin Products Limited and Ayrton Drugs Manufacturing Company Limited. Household and built Industry: Aluworks limited and Pioneer Kitchenware Limited. Food and Beverages: Fan Milk Limited and Guinness Ghana Brewery Limited. Household consumables: Unilever Ghana Limited and PZ Cussons Ghana Limited. Paper and Printing: African Champion Industries and Camelot Ghana Limited. Wood Processing: A.G Timbers Limited and Naja David Veneer and Plywood Limited. The following conditions were ensured to exist in all the selected companies.

3.9 Profitability Measurement

Every firm is generally assessed by how profitably that firm has performed relative to its own previous performance or that of its competitors. Profitability is usually assessed using ratios. Profitability ratios are financial metrics which are used to compare how efficiently a firm has been able to generate earnings relative to its expenses and other relevant associated costs incurred during a specific period of time. Commonly use ratios to assess profitability are: Gross Profit Margin, Operating Profit margin and Net Profit Margin. Others are return on Assets (return on capital employed) and return on Equity.

Various researchers on capital structure and profitability (e. g Abor, 2005, 2007, Gatsi and Akoto, 2010, Duyen, 2012, Shubita and Maroofalsawalhah, 2012) used return on Equity (ROE) as the measure for profitability for their studies. Return on equity is perhaps the most important of all financial ratios to investors in the firm. It measures the return on the amount the investors have put into the company and gives an idea on the residual amount left for investment for the

period under review. Profitability means that companies with higher proportion of debt tend to have low profitability and vice versa.

3.10 Research Model

I used panel regression model for analyzing my work. Panel data approach uses pooled observations on a cross-section of units over several time periods. Panel data approach is more helpful and offer many advantages over singly using either the timeseries data or the cross section. According to Baltagi (2005), the advantages include the following:

- More complex behavioral models can easily be constructed by the researcher as compare to time series or cross section data.
- If there is any dynamics of adjustments, it offers a better chance to study it.
- Using Panel data the possibility of collinearity among variables is very less; degree of freedom is enhanced, with more variability and efficiency as well as the data being more informative.
- Individual heterogeneity among variables that results from hidden factors is controlled.
- It offers the researcher a better opportunity to detect effects that could not have been simply detected using pure cross-section or pure time-series data.

Both Fixed-effects and the Random-effect techniques of Panel Data analysis were employed for the estimations in this study.

3.11 The Models

The general forms for the fixed -effect and the random-effect models can be specified as $Y_{it} = \alpha + \beta X_{it} + e_{it}$ Equation 1 (Fixed- Effect Model).

$Y_{it} = \alpha + \beta X_{it} + e_{it}$ Equation 2 (Random-Effect Model).

Where subscript i represent the cross-sectional dimension and t representing the time-series dimension. The left hand variable, Y_{it} represents the dependent variable in the model, which is the firm's profitability, X_{it} , contains the set of explanatory variables in the estimation models, whilst α is the constant and β represents the coefficients of the independent variables. Whilst e represents the error term, or differences within variables (fixed- effect) and the difference within variables and also the difference between firms (random -effect).

Using equation 1 and equation 2 (as above) therefore, the models for the empirical investigation for both the fixed effect and the random effects is expressed as written below,

$$ROE = \beta_0 + \beta_1 \ln STD_{it} + \beta_2 \ln LTD_{it} + \beta_3 \ln EQ_{it} + e_{it} \dots \dots \dots \text{equation 3 (fixed- effect)}$$

$$ROE = \beta_0 + \beta_1 \ln STD_{it} + \beta_2 \ln LTD_{it} + \beta_3 \ln EQ_{it} + e_{it} \dots \dots \dots \text{equation 4 (random-effect)}$$

Where:

ROE: Return on Equity (income after tax/ total equity) for firm i at time t

$\ln STD$: Natural logarithm of Short-term debt for firm i at time t $\ln LTD$: Natural logarithm of Long-term debt for firm i at time t $\ln EQ$: Natural logarithm of equity for firm i at time t

e : error term or differences within variables for firm i at time t (fixed-effect) and also differences Within variables for firm i at time t and also among firms at time. $\beta_0, \beta_1, \beta_2, \beta_3$: represent the constant and the coefficient of $\ln STD, \ln LTD$ and $\ln EQ$ respectively.

3.12 Data Reliability and Validity

Validity refers to the quality that an instrument used in research is accurate, correct, true and meaningful and right (Kothari, 2004). The term validity seeks to address the question as to whether a study truly measures what it is supposed to measure; therefore, the validity of this study was rooted in the close alignment of research questions, frame of reference, the design and purpose of the question administered. To ensure research validity, pilot testing was

conducted where by a sample of questions was tested before going to the field directly to collect the data required. Additional to ensure validity, instrument which was used in this study was presented to experts and peers for discussions and comments. The measure of reliability illustrates the degree to which the instrument is error free and, therefore, certifies constancy in measurement over time and through items in the research instrument Sekaran and Bougie (2013). It is additionally characterized as the steadiness and stability of the outcomes and recurrence of the testing process Golafshani (2003). Sekaran and Bougie (2013) stated that validity concerns are internal, content, external, criterion and construct related. For reliability, the stability of measures can also be monitored by the test-retest and parallel-form reliability while the internal consistency of measures can be evaluated using inter-item consistency and split-half reliability approach Sekaran and Bougie (2013).

3.13 Data Processing and Analysis

The data were analyzed according to the research questions. Data collected were cleaned, coded and entered into the computer processed using the Statistical Product and Service Solutions (SPSS) version 20.0 and the Microsoft Excel (2010). Data were analyzed using both descriptive and inferential statistical tools like frequencies, percentages and mean. A descriptive statistic was used to present the findings of the various variables under study. The regression model was employed in testing the effect of working capital composition variables and firm performance.

3.14 Overview of Manufacturing Industry in Ghana

The manufacturing sector in Ghana covers 16 of the 33 sub-sectors in the international standard classification of industries (ISIC). Manufacturing Value Added (MVA) was 5.8% of GDP in 2013. The sector has experienced a sustained decrease in its share of GDP throughout the past

decade, losing more than 40% of its 2006 share of 10.2%. Services and, recently, oil have grown at the expense of manufacturing and agriculture. Average growth rate for the manufacturing sector from 2006 to 2013 was about 2%, if we leave out a 17% growth rate reported for 2011. In 2013, MVA amounted to US\$2,703 million (Table 2). Ranked by value added, the top five subsectors were food and beverages (30%), paper and paper products (19%), chemicals and chemical products (13%), other non-metallic products (9%), and textiles (9%). Ghana does not report a great deal of manufacturing output or employment statistics to international agencies. In 2003, the last time an industrial census was conducted in Ghana, there were about 26,000 manufacturing establishments employing about 243,500 persons. About 55% of the establishments were micro-businesses, employing less than 4 persons; 40% were small businesses, employing between 5 and 19 persons; 5% were medium businesses, employing 20-99 persons; and only 1% were large businesses, employing 100 or more persons. Micro businesses accounted for 15% of manufacturing employment; small and medium enterprises contributed 51% of employment; large businesses accounted for 34% of employment. Most of the establishments were located in the Greater Accra and Ashanti regions; Greater Accra had 25.7% of establishments and 27.9% of employees while Ashanti had 24.7% of establishments and 24.3% of employees. According to the 2003 Industrial Census, almost 50% of manufacturing employees were apprentices or unskilled workers. About 5% were professional and managerial staff and 40% were skilled workers.

3.15 Names of Companies and their Manufacturing Sector

The names of the companies used for the study and the various sub sub-sector of the manufacturing and processing industry are given below.

Agro processing; Cocoa Processing Company limited, Golden Web limited and Benso Oil Palm Plantation limited. Pharmaceuticals; Starwin Products Limited and Ayrton Drugs

Manufacturing Company Limited. Household and built Industry: Aluworks limited and Pioneer Kitchenware Limited. Food and Beverages: Fan Milk Limited and Guinness Ghana Brewery Limited. Household consumables: Unilever Ghana Limited and P Z Cussons Ghana Limited. Paper and Printing: African Champion Industries and Camelot Ghana Limited. Wood Processing: A.G Timbers Limited and Naja David Veneer and Plywood Limited. The following conditions were ensured to exist in all the selected companies.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.0 Introduction

The chapter presents the results of the data analysis and discussion. It is grouped into three (3) main sections. The first section will highlight the descriptive summary of the data and correlation analysis conducted. The second section then focuses on the regression results of the fixed and random effect models. The last section then presents the discussion of results.

4.1 Descriptive Summary and Correlation Analysis

4.1.1 Descriptive Analysis

Descriptive statistics has been used to vividly describe the distribution and behaviour of all the variables, Tables 4.1 and 4.2 present the descriptive summary of the observed variables and percentage contribution to total assets calculated as the sum total of total liability and equity. The summary statistics is conducted in two forms. First, the descriptive statistics was executed on the overall data (combined) to observe for general patterns among the sampled firms (see Table 4.1). Second, the firms were segregated in terms of industry and analysis conducted. The purpose was to observe for industry characteristics. Some interesting observations are made from the summary results.

Table 4.1: Summary Statistics - Combined. All figures in thousands of Ghana cedis

Variables	N	Mean	Std. dev.	Median	Max	Min
Short Term Debt (in GH¢)	120	19068.84	32098.3	6411.5	180534	231
Long term Debt (in GH¢)	106	8657.896	21441.13	1431.5	125051	0
Equity (in GH¢)	120	16000.38	20420.61	7633.5	138957	-2198
ROE	119	-0.14857	2.076143	0.047628	3.716418	-20.5893
Ratios						
Equity /Total Asset (EOA)	120	0.429813	0.35856	0.475693	0.955285	-1.45563
Short-term Debt/Total Assets (SDA)	120	0.423289	0.241397	0.397393	1.394027	0.044715
Long-term Debt/Total Assets (LDA)	106	0.167052	0.269091	0.062393	1.661095	0

As indicated, the first line of descriptive analysis was conducted on all the firms combined. Results as shown on Table 4.1 indicate short-term liabilities are higher than long-term debts. Mean statistics indicate that on the average the sampled firms acquired about 220% (mean of short-term debt/ mean of long-term debt = 19068.84 / 8657.896) of short-term liabilities than long-term liabilities to run their business activities. Mean of equity is also lower than the mean of short-term liabilities for all firms; this is suggestive of the fact that business operations among the sampled firms is on the average financed by short-term loans and debts. Further examinations using ratios shows that the ratios of short-term debt, long-term debt and equity to total assets were about 42.3%, 16.7% and 42.9% respectively.

This suggests that firms accumulate as much debts in the short-term as the total equity to finance their assets. Hence, they were operating at riskier thresholds than their equity could allow for. It is therefore not surprising to observe that the average profitability (ROE) of all the firms was negative; about -14.8%. This suggests that the average investor in the manufacturing and processing industry in Ghana lost about 14.80 pesewas for every cedi invested. However, these findings contradict that of Abor (2005) on listed firms in Ghana, with ROE averaging 37%, Shubita and Maroofalsawaihah (2012) finding of 9% of ROE in Jordanian firms (though not significant) and 26% of ROE in manufacturing and service firms in the United states by Gill, et al (201 1). The standard deviations, minimum and maximum values of all the variables also show high spread and significant differences among the firms. It is therefore expected that though profitability may averagely be low, some firms and or industries may actually be operating at positive returns.

Descriptive analysis was issued again to observe for industry characteristics. Table 4.2 demonstrated that except for the Agro processing industry, which averagely finance their operations with long term credit; in almost all the industries, the firms finance their operations

mostly through short term credits. Mean liability-assets ratio show that the ratio of short-term debts to total assets is high for such industries including the Timber and Wood (64%); Iron and Moulding (60%), Household products (41%) and Paper and Print (41%). Meanwhile, among the industries with high mean size of short- terms liabilities include Food and Beverages, Household products and Agro processing. Industries with relatively huge average long-term liabilities are Agro processing, Household products and Timber and Wood in that order in that order. Interestingly, firms in the Pharmaceutical and Paper and Print industries were found to be the group of firms with small amount of both short-term and long-term debts.

Three possibilities are demonstrated with this result; first, it is possible that both the agro processing and household product industries are more lucrative for credit financiers and investors than the paper and print and pharmaceutical firms. Secondly, the high mean sizes of liabilities for the agro processing industry might be the results of government policies and support for those firms which has led to high credit availability for agro-based firms in the country. Therefore, It is likely that whilst the support to household product may be due to commercial viability, that for agro-based businesses may be driven largely by government policy and attention. Thirdly, it is also possible that firms within the Pharmaceutical and Paper and Print industries are able to finance their assets with equity so much so that they are less proportionately induced to go for loans or run on credit basis. Consequent examination of their equity asset ratio shows that that EOA (73% and 35% respectively) is among the highest and therefore gives ample support for this inference.

Focusing on the level of profitability, it is found that performance is not homogenous across industries. The mean results for ROE shows that the pharmaceutical (11%), food and beverages (24%), household products (22%) and paper and print (3%) industries have positive returns to equity; whilst agro processing (-106%), timber and wood (-11%) and iron and

moulding (-1.5%) attained negative average profitability. This indicates that whilst food and beverages industry may be more lucrative; agro processing industry is more risk prone.

Table 4.2: Descriptive Summary -Industry Analysis

Industry	Variables	N	Mean	Std.dev.	Median	Max	Min
1	Short-Term	24	24183.96	47013.24	1887	180534	296
	Long-Term	16	34583.06	44255.85	11898.5	125051	97
	Equity	24	13451.17	14292.25	14614.5	50518	-2198
	ROE	24	-1.06234	4.456124	0.045114	2.765101	-20.5893
	EOA	24	0.0322409	0.625334	0.297805	0.955285	-1.45563
	SDA	24	0.312257	0.261195	0.279584	1.085431	0.044715
	LDA	16	0.551905	0.453118	0.392686	1.661095	0.063028
	2	Short-Term	16	1399.25	539.2327	1377	2335
Long-Term		16	100.6875	131.0016	40	402	0
Equity		16	6582.063	6002.003	2766.5	19224	1781
ROE		16	0.117682	0.106067	0.160055	0.253677	-0.08647
EOA		16	0.735072	0.157862	0.757892	0.922678	0.476458
SDA		16	0.240804	0.137306	0.222275	0.498395	0.077322
LDA		16	0.024124	0.035837	0.009725	0.107429	0
3		Short-Term	16	12675.44	12641.93	9170.5	35538
	Long-Term	16	5563	8212.837	368.5	28833	9
	Equity	16	8917	9793.27	4070.5	26445	-830
	ROE	16	-0.01532	1.123019	-0.24935	3.716418	-1.72802
	EOA	16	0.299118	0.251578	0.348372	0.624477	-0.39981
	SDA	16	0.602855	0.28296	0.5485	1.394027	0.318235
	LDA	16	0.099104	0.122692	0.018351	0.391838	0.005685
	4	Short-Term	16	46140.31	44384.42	28864	139502
Long-Term		16	12113.31	15409.76	3854	52277	501
Equity		16	47750.94	30519.3	47179	138957	8624
ROE		16	0.248009	0.150675	0.284674	0.440946	-0.10274
EOA		16	0.528136	0.173326	0.557578	0.762176	0.223794
SDA		16	0.386162	0.141443	0.339543	0.699718	0.212455
LDA		16	0.085701	0.081413	0.038273	0.265256	0.024591
5		Short-Term	16	32708.38	29583.85	24159	115329
	Long-Term	16	2712.625	2137.889	1695	6614	201

	Equity	16	28550.19	13395.26	29695.5	48893	3114
	ROE	16	0.228461	0.163403	0.19606	0.524022	-0.00755
	EOA	16	0.536745	0.163508	0.527346	0.878173	0.206674
	SDA	16	0.419082	0.171457	0.439233	0.750298	0.065144
	LDA	16	0.044173	0.015922	0.04232	0.082017	0.010598
6	Short-Term	16	11043.25	4649.945	11236.5	17785	3913
	Long-Term	14	1580.643	1742.81	1225.5	7146	224
	Equity	16	4488.188	2786.569	4881	7984	-1840
	ROE	16	-0.11635	0.571139	-0.18804	1.77337	-0.81177
	EOA	16	0.28262	0.194073	0.276099	0.536572	-0.13438
	SDA	16	0.640948	0.208789	0.644421	1.134375	0.36553
	LDA	14	0.08735	0.068863	0.081258	0.278141	0.010713
7	Short-Term	16	2773.75	2679.046	2361	11441	447
	Long-Term	12	1203.75	790.8707	1222	2581	258
	Equity	16	3537.688	5963.721	1732	24473	247
	ROE	16	0.033393	0.178572	0.025948	0.295154	-0.29745
	EOA	16	0.35829	0.224841	0.297089	0.701233	0.085114
	SDA	16	0.416429	0.155108	0.375789	0.700998	0.178352
	LDA	12	0.300375	0.25103	0.136155	0.722456	0.067048

Note: 1. Agro processing 2 Pharmaceutical 3. Iron and Moulding 4. Food and Beverages 5. Household products 6. Timber and Wood 7. Paper and Print.

4.1.2 Correlation Analysis

Correlation analysis is then conducted to observe the relationship between the independent variables (STD, LTD, and EQ) and the dependent variable (ROE); and also to determine the relationship among the independent variables to check for the existence of multicollinearity among the independent variables. Results are shown on Table 4.3.

Table 4.3: Correlation Results

	1	2	3	4
1. Short-term debts	1.00			
2. Long-term debts	.504**	1.00		
3. Equity	.470**	.228*	1.00	
4. ROE	-.475**	-.475**	.079	1.00

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

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

Note: 1=Short-term debt; 2=Long-term debt; 3=Equity and 4=ROE

Table 4.3 above show that there is a significant negative relationship between short term liabilities ($r = -0.475$), long term debts ($r = -0.384$) and returns on equity. This implies that increases in long term and short term liabilities may lead to a resultant fall in profitability by 38.4% and 47.5% respectively. Meanwhile there was no significant relationship between equity and ROE; though the correlation coefficient was positive ($r = 0.079$). It is also shown that correlation among the independent variables was moderate and always below 0.504; suggesting the absence of a multicollinearity problem. Having observed the patterns in terms of overall firm and industry characteristics and relationships between the explanatory variables and ROE, an attempt is now made, at this critical junction to conduct the regression analysis to estimate the individual impact of the independent variables on profitability.

4.2 Regression Results

Based on the nature of study and the data set, panel data regression models (fixed effect and random effect) were estimated to observe the impact of the explanatory variables on profitability. The first section of the regression analysis involved the specification of a fixed effect model to examine for temporally constant individual level effects. In the second enquiry, the variation across entities is assumed to be random and uncorrelated with the predictors; hence a random effect model was specified. The purpose was to find out if the impact of the

predictors would vary or not based on the assumptions adopted; whilst checking for the model that best fits the dataset. “The crucial distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model, not whether these effects are stochastic or not” [Green, 2008, p.183].

4.2.1 Fixed Effect Model Results

As indicated earlier, fixed effect models were estimated to explore the relationship between the independent variables and ROE within an entity. To estimate these models, it is assumed that individual variations or effects within a firm or an industry may impact or bias the predictor or outcome variables and hence must be controlled. Again, these individual characteristics are assumed to be unique to the entity and should not be correlated with other individual characteristics. Table 4.4 reports the results of the fixed-effect models.

The significance of the F- test, $F(3, 16) = 19.15$, at less than 1% significance level shows that the model is robust and fits the data well. Again the adjusted R-squared coefficients show that independent variables explain about 43.05% of the total variance in ROE in model. Focusing on the individual impact of the explanatory variables, it is demonstrated that both short-term debts and long-term debts have a negative impact on profitability. Results show that any unit increase in long term debts can reduce profitability by about 0.001%; albeit not statistically significant. Meanwhile, for short term liabilities, results indicate that any unit per cent age increase will reduce ROE by 0.010%, though the figure looks insignificant, it is statistically significant even at the 1.57% level. Evidence also shows a positive impact of the size of equity on profitability.

Estimated results indicate that any 1% increase in equity will lead to a significant 0.019% enhancement in profitability. In other words, when equity is doubled, profitability will also be increased by approximately a fifth.

Table 4.4: Results of Fixed Effect Model

Explanatory Variable	Coefficients (t-ratios)
In Long-term Liability	-.0955818 (0.40)
In Short-Liability	-1.014608 (-3.93)***
In Equity	1.91654 (7.16)***
Constant	-7.407014 (-2.53)**
No. of observations	93
No. of firms	14
Rho	.51584758
R ² within	0.4305
F test: $u_i = 0$	F(13, 76)= 2.68**
F test: model fitness	F(3, 16)= 19.15***Prob>F – 0.0038

Notes: t-ratios parentheses; * and ** denote significance at the 10%, 5% and 1% levels in respectively.**

The estimated amount of the interclass correlation coefficient, rho, and the significance of its F-test shows that differences in entities accounts for 51.584% in total variance at Prob> F = 0.0038. It would therefore not be erroneous to assume that differences across entities may have some influence on profitability. Hence, a random-effects model is estimated as a fully efficient specification of the individual effects under the assumption of random and normal distribution.

4.2.2 Random Effect Model Results

Table 4.5 reports indicate that even when the individual effects are assumed to be random, both short term and long term liabilities have a negative impact on profitability. Results show that increases in long term debts reduce ROE by 0.001%; albeit insignificant. For short term debts, it is shown that any unit increase will negatively and significantly impact on ROE by 0.011%. For equity size, it is revealed that for the random model, increases in equity also insignificantly lead to a 0.013% incremental change in profitability. The chi-square results ($\chi^2(3) = 48.50, p < 1\%$) shows the strength of the model to capture for heterogeneities in the dataset.

Table 4.5: Results of Random Effect Model

Explanatory Variable	Coefficients (t-ratios)
In Long -term Liability	-.1092621 (0.49)
In Short-term Liability	-1.054635 (-4.52)***
In Equity	1.287889 (6.53)***
Constant	-1.423033 (0.360)
No. of observations	93
No. of firms	14
Rho	.11331559
R2	0.3999
F rest: $u_j = 0$	F (13,76) = 2.68***
Wald Chi square	$X^2(3) = 48.50$ ***

Notes: t-ratios in parentheses; *, and *** denote-significance at the 10%, 5% and 1% levels respectively.**

Because the individual coefficients of the independent variables are different between the fixed and random effect models, the study attempted to check which model best fits the datasets. Indeed, the direction and impact of the explanatory variables are parallel; however for purposes

of parsimony, it is critical to choose one model for further discussions. Conventional examination of the within units variations and the high levels of correlation between the independent variable and the unit effects expose that the fixed effect model must be preferred. However because this may not be a necessary and sufficient condition for the rejection of the random effect model, the Hausman test is performed. The Hausman test basically tests whether the unique errors (u_i) are correlated with the regressors; the null hypothesis is they are not. Where they are correlated, preference is made for fixed effect model; otherwise a random effect model is selected.

Table 4.6: Hausman Test Results

Variables	Fixed (<i>b</i>)	Random (<i>B</i>)	Difference (<i>b-B</i>)
In long-term	-0.955818	-0.1092621	.0136802
Liability	(0.40)	(0.49)	
In Short-term	-1.014608	-1.054635	.0400275
Liability	(3.93) ***	(-4.52) ***	
In Equity	1.91654	1.287889	.182932
	(7.16) ****	(6.53) ***	
Chi Square	Chi2(3) = 13.78		
Test			
Prob>chi2	0.0032		

The results of the Hausman test with a chi square value of [chi2 (3) = 13.78; $p < 5\%$] supported the choice of the fixed effect model. The study therefore selects the coefficients of the fixed effect model for further discussions.

4.3 Discussion of Results

The results portray that the sampled firms averagely do not finance their assets with the size of their equity. Usually sampled firms across the industries use short term debts to finance their activities. An exception for this rule can be made for firms in the agro-processing industry and household products industries (table 4.2). Descriptive analysis shows that the long term debt components of their capital employed is relatively to the other high.

It is possible that the financing entities and investors may be offering more short term credit than long term facilities due to the possible risks involved with the latter. Moreover, because cost of finance is very high in Ghana, firms would rather prefer short term credit so that it can be paid off immediately when their cash flow situation improves. It is also possible that financial managers in these firms manage their working capital such that while giving debtors shorter days to settle their obligations to the firms, they also relatively delay in settling their financial. It is also possible that financial managers in these firms manage their Working capital such that while giving debtors shorter days to settle their obligations to the firms, they also relatively delay in settling their financial obligations, such as making payment to staffs pension contributions, payment of utility bills, and for raw materials among others. Though, this cumulatively increases their short term liabilities, it makes cash available for operations. It is also likely that due to exchange rate losses and macroeconomic shocks, businesses are not incentivized to obtain and or offer long term facilities among themselves. These could account for the high percentage of short-term liabilities among the observed units. With that notwithstanding, it can be concluded that once firms generally incubate a lot of short-term liabilities in their business, they are operating at a risk. Indeed, the evidence shows that whilst firms operating in the agro-processing and household industries are more liable to go for debts instruments; firms in the pharmaceutical and paper and print industries are less likely to do

same. What is interesting is that the profitability of the firms in the agro-processing industry is the worst whilst that of the pharmaceutical firms is the highest among the group of firms. The impression this gives is that what matters is not the degree or the accessibility to debts instruments but sound financial management. Though it cannot be said that agro- processing firms mismanage the amount of debts instruments obtained; what can be said is that the pharmaceutical firms are able to manage their equities averagely and relatively better. It is also possible that differences in industrial environment and shocks may greatly affect the effectiveness of these debts facilities. Regression results revealed that whilst increases in equity enhances profitability, increases in short term debts and long term debts are detrimental to profitability; though the impact of long term debt is insignificant. This result supports the conclusions of Duyen (2012) and Zeitun and Tian (2007) who found that increases in debts reduces profitability. Pratheepkanth (2011) also concludes that there is a negative relationship between net profit and capital structure. Duyen (2012) observed that the impact of short term debt on profitability though negative, it is not insignificant. Ebaid (2009) also indicates that long term debts do not have any significant impact on ROE; an assertion which is strongly supported by results of this study. Although this result agrees with Duyen (2012) on the negative impact of short term debt of profitability, its insignificant impact on profitability as observed by Duyen (2012) is in contrast to the findings of this study.

It can be concluded that the impact of the size of equity improves profitability more than the injurious effect of any of the debts instruments, equity poses as an offsetting variable. This could also explain the reason why the firms might still go for the liabilities although they have a negative impact. It could be that the manufacturing firms goes for the liabilities, especially the short term liabilities to finance their projects with the expectation that such foreseen loses will be eventually compensated by the consequent increase in equity. It is also possible that

they are unable to monitor the losses due to increase in liabilities because the automatic increase in equity serves to swallow these losses.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The present chapter presents a summary of the thesis and the results, which answered the research questions, and makes specific policy recommendations. This chapter also links the results of the major findings to the general and specific objectives outlined by the study.

This research has explored the impact of capital structure on profitability of manufacturing firms in Ghana, using annual financial data from 15 manufacturing firms operating in various industries from 2005-2012. A review of the existing literature on manufacturing firms revealed a dearth of empirical research concerning the capital structure on profitability in the sub-region of Africa, particularly, in Ghana. Though there have been several interventions and efforts to provide the needed credit support and macroeconomic framework that ensures that manufacturing firms thrive and improve on the operational capacity, efficiency, and productivity, there is relatively little or very scanty studies that evaluates how their capital structure affects their profitability. One of the contributions of this study is, therefore, to fill the knowledge gap in empirical literature consistent with other empirical studies.

The study used the panel data regression models to estimate the observed relationships. The objectives were to specifically find out the effect of short term and long term liabilities on profitability and lastly, to examine the effect of equity on the profitability of manufacturing firms in Ghana. The summary of key findings of the study has been presented in Section 5.1. Section 5. 2 outlines the recommendations of the study results. The limitations and the suggestion for future research have also been dealt with in Section 5. 3.

5.1 Summary of Key Findings

5.1.1 The effect of long term debts on profitability

The evidence shows that long term debt has a negative impact on profitability; although it is insignificant. It is revealed that for every unit increase in long term debts, profitability is expected to reduce by about 0.001%. Results portray that the sampled manufacturing firms relatively do not engage in long term debts instruments. Firms that usually go for such facilities were found to be those that operate in the agro-processing, households and timber and wood industries. These firms acquired large long term debts sizes.

Long-term debts has a huge impact on the profitability since the profit from the company's sales which could have been invested in the company through expansion projects and programs will be used to settle the debt which in the long run affect the profitability of the company.

5.1.2 The effect of short term debts on profitability

The evidence shows that short term debts significantly negate the profitability thresholds of the manufacturing firms. It is shown that for every unit increase in short term debts, profitability will fall by close to 0.010%. It is further shown that most manufacturing firms averagely finance their assets through short term debts. Liability asset examination across the industries showed that the Timber and Wood (64%); Iron and Moulding (60%), Household products (41%) and Paper and Print (41%) were the worse culprits. This therefore makes their activities highly risky. Meanwhile in terms of absolute amount, firms in the Food and Beverages, Household products and Agro-processing averagely access huge short term debts.

5.1.3 The effect of equity on profitability

Results portray that equity also draws a significant impact on profitability, though this may offset the detrimental impact of the debts facilities on the profitability of the manufacturing firms. Results show that an increase in equity enhances profitability by only 0.019%.

5.2 Conclusion

Industrial firms do conduct their business in highly complex and competitive business environment today. Financial problems persisted before and will always be there, and if an industry has to move on, it should prepare its self to tackle such challenges. In this context it may be said that holding an optimum capital structure is among pre-requisites of company staying fit and maintaining profitability in its complex business world. In an attempt to analyze capital structure and profitability of listed firms in Ghana. Over five year period, the present study shows that firms under consideration do not have sound debt-equity composition in their capital structure and hence failed to enjoy benefits of leverage properly. So focus should be given on these areas to improve the existing capital structure so that, companies can enjoy the benefits of leverage.

- These firms have scope to increase debt level in their existing capital structure so that, companies can enjoy the benefits of leverage.
- Management should focus on internal factors like production policy, HR policy, and marketing policy so that the fluctuation in profitability can be reduced.

5.3 Recommendations

Managing a manufacturing business can be a very difficult venture, especially in Ghana; in the face of the deteriorating economic conditions. Again developed global markets may be shrinking on account of the financial and economic crises prevailing; and an increasing liberalized Ghanaian market, transportation difficulties, and high inflations rates are some of

the problems which have to be overcome. Therefore, there is the need for the manufacturing firms to obtain enough capital so as to take advantage of any opportunity that may be available and stay afloat of the highly competitive markets both internally and globally. This work has shown that usually the manufacturing firms in Ghana look for short term debts instruments to finance their activities; although it degrades profitability. However, there is a portion of the capital structure that can instigate superior impact on profitability.

Firms must look at increasing the size of their equity either through retained earnings or by looking at the stock exchange market for funds. This kind of financing is less risky and has shown to be more profit enhancing than looking for debts instruments in the capital markets. The choice of a debt facility should be a last resort.

However, if the firm does not have a choice but to go for a debt instrument, it is highly recommended that such an engagement must be pursued with strict financial discipline. The study recommends the use of long term debts as oppose to short term debt facilities in this instance, because though the long term debt impact negatively on profitability, the effect is not significant. In the extreme case where taking a short term debtor facility becomes inevitable, and must be acquired, managers are advised to ensure that the overall intake of these short-term debts (current liabilities) as a percentage of the capital structure, is less than portions of non-current liabilities and equity in total assets. Because the negative effect of the short-term liability on profitability though significant it could be offset by the positive effect of the equity on the profitability.

Finally, it is also recommended that corporate financial managers should ensure effective and prudent management of their working capital so as to ensure that there is enough cash for the day to day running of the firm. Cash availability would reduce the need to go for debt (especially the short term facilities).

5.4 Limitations and Suggestions Future Research

The researcher advises that the results of this study must be interpreted with caution. First, it focuses on only manufacturing firms in Ghana. Focusing on only manufacturing firms in Ghana was however justified on the grounds that little attention has been offered to this line of inquiry; although Ghanaian firms are faced with a lot of difficulty in attempting to find out ways by which they can finance their operations.

Secondly, the study centres on only 15 manufacturing firms. This is however compensated for by the panel data used; crowning with the use of 120 observations. For future research, the number of sampled firms used can be increased to see if the results will be similar to the results obtained in this study.

Again, this study cut across different sectors of the manufacturing industries and so the results can be said be holistic. However, there are other sectors such as rubber and plastic manufacturing, oil refinery and mineral processing which were not covered. It is therefore recommended that future research could look at these and other industries so as to cover more of the manufacturing sub sectors.

Moreover, all the sampled firms are from within Ghana. For future research more firms could be sampled from outside Ghana, especially from other African countries, in addition to the Ghanaian firms to find out if the same findings could be made.

Lastly, one other limitation of the study was that it did not focus on the effect of total debts on profitability. One can say that focusing on both short term and long-term debts captures the overall effect of total debts. This view though valid, may be too simplistic. Future research can look at the effect of total debts whilst monitoring other vital variables that may influence profitability such as macroeconomic variables.

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APPENDICES

Appendix 1

DISTRIBUTION OF FIRMS PER INDUSTRIAL SUB SECTOR

INDUSTRIES / SECTORS	Dummies	No. of Firms
AGROPROCESSING	1	3
PHARMACEUTICALS	2	2
IRON AND MOULDING	3	2
FOOD AND BEVERAGES	4	2
HOUSHOLD PRODUCTS	5	2
TIMBER AND WOOD	6	2
PAPER AND PRINT	7	2

APPENDIX 2

NAMES OF SAMPLED FIRMS

COCOA PROCESSING COMPANY (CPC)	1
GOLDEN WEB	2
BENSO OIL PALM PLANTATION LTD	3
STARWIN COMPANY LTD	4
ARTON DRUGS	5
ALUWORKS	6
PIONEER KITCHENWARE LTD	7
FAN MILK LTD	8
GUNINESS GHANA BREWERIES	9
UNILIVER	10
PZ CUZZONS LTD	11
NAJA DAVID VENEER	12
AG TIMBERS LTD	13
CAMELOT GHANA LTD	14
AFRICAN CHAMPION INDUSTRIES	15