

# **The Effects of Capital Structure on The Performance of Private Listed Businesses.(A Case Study of Benso Oil Palm Plantation, Cocoa Processing Company and Ayrton Drug Manufacturing Company)**

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## **-----ABSTRACT-----**

-The study set out to evaluate the effects of capital structure on the performance of some selected private listed Ghanaian firms. This was pursued through analyzing the profitability, debt to capital ratios, and the relationships between the capital structure of the firms and their performance. An analytical research design was adopted to study three companies namely; Benso Oil Palm Plantation (BOP), Cocoa Processing Company (CPC) and Ayrton Drug Manufacturing (ADM) which are listed on the Ghana Stock Exchange. The study covered the period from 2008 to 2012 and the data used were analyzed with both descriptive statistics and inferential statistical tools like ANOVA, Kruskal Wallis, H test, and regression analysis. The study found that BOP performed better in terms of ROA, ROE and EPS. Thus, the most impressive performance in terms of the three profitability indicators was made by BOP. CPC and ADM struggled with maintaining high ROE, ROA and EPS, with CPC making negative ROE and ROA for most parts of the data series. Moreover, while CPC's dependence on debts grew, ADM maintained its level of dependence on debts and BOP on the other hand reduced its dependence on debts. Also, all the performance indicators had strong, negative and significant relationship with the debt to capital ratios (STD, LTD and TD). The study recommended to management of the firms to attach much importance to internal finance, which can lessen the debt burden and reverse some of the negative effects that external funding has imprinted on the profitability of the firms. **Keywords:** Assets, Capital, Equity, Liquidation, profitability,

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## **I. INTRODUCTION**

### **1.1 Background to the study**

Capital structure refers to how a company or a firm finances its assets through some combination of debt, equity, or hybrid securities. The capital structure of a firm is therefore the 'structure' or composition of its liabilities. For instance, a firm that sells GHC40000.00 in equity and GHC60000.00 in debt is said to be financed with 40% equity and 60% debt. Capital structure can take any form ranging from 100% equity, 0% debt or 100% debt, 0% equity.

Capital structure stands to be the most controversial subject among scholars in the field of finance. The argument on capital structure began in the late 1950s with the studies by Lintner, (1956); Modigliani and Miller, (1958); Hirshleifer, (1958); Chakraborty, (2010). Although Modigliani and Miller (1958) suggested that in the perfect capital market financing strategies do not affect the value of the firm, yet in 1963, they argued that firm value can be increased by changing the capital structure because of tax advantage of debts. In recent times the capital structure has become one of the most controversial issues in the corporate finance literature (Karadeniz et al., 2009; and Chakraborty, 2010). Whether capital structure has effect on the performance of a firm still remains unanswered question in finance because finance scholars still have diverse view on the subject.

The studies have showed contradictory results about the relationship between increased use of debt in capital structure and firms performance. The studies of Taub, (1975); Roden and Lewellen, (1995); Champion, (1999); Ghosh et al., (2000); Hadlock and James, (2002); Berger and Bonaccorsi di Patti, (2006) showed positive relationship whiles that of Kester, (1986); Friend and Lang, (1988); Fama and French, (1998); Gleason et al., (2000); Simerly and Li, (2000); Booth et al., (2001); Ibrahim, (2009) also showed negative or weak or no

relationship between firms performance and leverage level. That notwithstanding, little research has been carried out on firms that find themselves in developing countries like Ghana.

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

Even though capital structure theories stand to be the most controversial subject in the field of finance, little research has been carried out in the developing world, of which Ghana is no exception. Financing decision is one of the critical decisions of firms, especially, when it comes to the mix of debt and equity in the capital structure. The study of capital structure has been carried out by many researchers in the finance field; however, their results have been of mixed reaction. Some results show positive relations between capital structure and firm performance whilst others show negative relationship. The impact of capital structure on the performance of firms listed on the Ghana stock exchange remains a question under consideration by researchers.

Kochar (1997) argues that, poor capital structure decisions may lead to a possible reduction or loss in the value derived from strategic assets. Hence, the capability of a firm in managing its financial policies is important, if the firm is to realize gains from its specialized resources. The raising of appropriate fund in an organization will help the firm in its operations. It is therefore important for firms in Ghana to know the debt-equity mix that gives effective and efficient performance. Also, investors in Ghana least consider the cost of agency on the performance of their firms.

The managers (agents) of firms tend to take financing decisions which will serve their personal interest than that of the shareholders (principal). To mitigate these problems organizations incur extra cost in monitoring the operations of the managers (agents). Since the seminal paper by Jensen and Meckling (1976), a vast literature on such agency-theoretic explanations of capital structure has developed including (Harris and Raviv, 1991; Myers, 2001). Greater financial leverage may affect managers and reduce agency costs through the threat of liquidation, which causes personal losses to managers of salaries, reputation, perquisites, (Grossman and Hart, 1982; Williams, 1987), and through pressure to generate cash flow to pay interest expenses, Jensen (1986). Higher leverage can mitigate conflicts between shareholders and managers concerning the choice of investment Myers (1977) the amount of risk to undertake, (Jensen and Meckling, 1976; Williams, 1987), the conditions under which the firm is liquidated, Harris and Raviv (1990), and dividend policy Stulz (1990).

In Ghana, investors and stakeholders do not take into consideration the effect of capital structure in measuring their firm's performance as they may be ignorant and assume that attributions of capital structure are not related to their firms' performance. Indeed, a well attribution of capital structure will lead to the success of firms; hence the issues of capital structure which may influence the corporate performance of Ghana firms have to be resolved. Also, the capital structure choice of a firm can lead to bankruptcy and have an adverse effect on the performance of the firm if not properly utilized. It is also important for investors to be aware of how high leverage can mitigate the conflict between shareholders and managers. The research problem therefore is to find an appropriate mix of debts and equity through which a firm can increase its financial performance more efficiently and effectively.

### **1.3 Objectives of the Study**

The objectives of the study are as follows:

- to examine the profitability performance of the three (3) listed firms on the Ghana Stock exchange;
- to analyze the debt ratios to total capital incurred by the three (3) firms;
- to analyze the relationship between capital structure and performance of the three (3) firms listed on the Ghana stock exchange

### **1.4 Research Questions**

- a. How are the firms performing in terms of profitability on the stock market?
- b. What is the nature of the debt to capital ratios of the firms?
- c. What relationships exist between the capital structure and their profitability?

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

The importance of getting in-depth knowledge about the dynamics of capital structure cannot be over-emphasized. Good financing decisions critical and hold the key to the success of every organization. In Ghana, investors and stakeholders do not take into consideration the effect of capital structure in measuring their firm's performance as they may be ignorant and assume that the nature of firms' capital structure has no effect or relationship with the firms' performance. The knowledge on this subject may help finance managers and other key

stakeholders adjust and reposition themselves well to improve the performance of their organizations. Also, the capital structure choice of a firm can lead to bankruptcy and have an adverse effect on the performance of the firm if not properly utilized. It is also important for investors to be aware of how high leverage can mitigate the conflict between shareholders and managers.

### **1.6 Methodology**

In this study, a sample of firms listed on the Ghana Stock Exchange for the period 2008-2012 was used. The study concentrates on the best five companies on the Ghana stock exchange. In order to increase comparability, the companies which have different accounting or calendar years are omitted. Finally, the sample was further reduced because of the lack of some company data.

Panel data were used for the study as it increases efficiency by combining time series and cross-section data. The data were collected from different sources including audited accounts of the listed companies as well as from the fact book of the Ghana Stock Exchange published from 2008 to 2012. The Fact book provides reports of the income statement and balance sheet as well as other relevant statistics of all the listed companies. Performance measures and capital structure are dependent and independent variables, respectively. Four financial performance indicators including earnings per share (EPS), return on assets (ROA), return on equity (ROE) and the Tobin's Q (the q ratio) are used as proxies for firm performance. EPS indicates how much earning is created on per share basis and it is calculated by dividing net income to the average number of common shares outstanding. ROA is calculated by dividing profit before tax but after interest expenses with total assets. ROE is also defined by dividing net income by equity. Market capitalization is used as proxy for the market value of equity and is obtained from the GSE's trading list from 2010 to 2012.

Furthermore, three measures of leverage including the ratio of short-term debt to total assets (STD), the ratio of long-term debts to total assets (LTD) and total debts to total assets (TD) are employed. In addition, sales growth which is the percentage change in net interest income, and size of the firm, which is measured by logarithm of total assets, are considered as control variable.

### **1.7 Limitations**

Due to financial constraints, the researcher could not use all the businesses listed on the Ghana stock exchange, which otherwise, would have been beneficial for the analysis and eventually yield a better conclusion. It is also time consuming since the researchers had to travel a lot to the companies before getting access to their data. .

## **II. LITERATURE REVIEW**

**2.1 Introduction** This section reviews the various literatures supporting the different theories developed on capital structure. The reviews of literature have been sub-divided as follows:

### **2.2 The Modigliani and Miller (mm) theory**

Capital structure stands to be the most controversial subject among scholars in the field of finance. The argument on capital structure began in the late 1950s with studies of Lintner, (1956); Modigliani and Miller, (1958); Hirshleifer, (1958); and Chakraborty, (2010). Although Modigliani and Miller (1958) proposed that in the perfect capital market financing strategies do not affect the value of the firm, they later argued that firm value can be increased by changing the capital structure because of tax advantage of debts Modigliani and Miller, (1963).

The Miller and Modigliani theory forms the basis for modern thinking on capital structure, though it is generally viewed as a purely theoretical result since it disregards many important factors in the capital structure process. According the theory in a perfect market, how a firm is financed is irrelevant to its value. This result provides the base with which to examine real world reasons why capital structure is irrelevant, that is, a company's value is affected by the capital structure it employs. Some other reasons include agency cost, information asymmetry bankruptcy cost, and taxes. This analysis can then be extended to look at whether there is in fact an optimal capital structure: the one which maximizes the value of the firm.

Modigliani and Miller (1963) argued that due to tax deductibility of interest payments the appropriate capital structure for a firm is composed entirely of debt. Brigham and Gapenski (1996), however, asserted that the Miller-Modigliani (MM) model is probably true in theory, but in practice, bankruptcy costs exist and they increase when equity is traded off for debt. Hence, they argued on an optimal capital structure that is reached when the marginal cost of bankruptcy is equal to the marginal benefit from tax-sheltering provided by the increase in the debt ratio. The task of efficient managers is thus to recognise when this optimal capital structure is achieved and to

maintain it over time. In doing so, they would be able to minimize the weighted average cost of capital (WACC) and financing costs, which would hence maximize firm's performance and value.

In theory, modern financial techniques would allow top managers to calculate accurately optimal trade-off between equity and debt for each firm, in practice; however, many studies found that most firms do not have an optimal capital structure, Simerly and Mingfang, (2000). This is due to the fact that managers do not have an incentive to maximize firm's performance because their compensation is not generally related to it.

In recent times the capital structure has become one of the most contentious issues in the corporate finance literature (Karadeniz et al.; 2009 and Chakraborty, 2010). However, these considerations led to the development of two main capital structure models, namely the static trade-off theory and the pecking-order theory.

### **2.3 The Pecking Order Theory**

This model explains how firms use internally generated funds (retained earnings) to initially finance their operations instead of external borrowings. Myers and Majluf noted in (1984), that the pecking order theory deliberates on how firms will initially rely on retained earnings than funds from external sources to finance their operations.

Gatsi and Akoto (2010) remarking on the model, argued that raising external finance is more expensive because insiders have more information about the firms' prospects than outside investors, and outside investors know this fact and would thus request for higher returns on their investments. Thus from the point of view of outside investors, equity is riskier than debt and therefore request for a higher result premium for equity than for debt. Thus, insiders perceive debt to be a better source of funding than equity, and internal funding is even better.

Myers and Majluf (1984) argue therefore that firms prefer retained earnings to debt and would only issue equity as a last resort. Abor (2008) buttressed this by saying that debt financing will only be used when there are insufficient retained earnings, and equity will only be used as a last resort.

### **2.4 Effects of the Pecking Order Theory**

Barclay and Smith (2005) contended that firms with few investment opportunities and substantial free cash flow will have low (or even negative) debt ratios because the cash will be used to settle part of the debt. It may also suggest that high-growth firms with lower operating cash flow will have high debt ratios because of their unwillingness to raise new equity. It should be noted that in the absence of information asymmetry, the firm will then turn to debt if extra funds are needed, and finally issue equity to cover any remaining capital requirements. It is obvious that firms would prefer internal sources to costly external finance. Thus, according to the pecking order theory, firms that are profitable and therefore generate high earnings are expected to use less debt capital than those that do not generate high earnings.

### **2.5 The Static Trade-Off Theory**

According to Ross et al., (2008), firms borrow up to the point where the tax benefit from an extra dollar in debt is exactly equal to the cost that comes from the increased profitability of financial distress. They further noted that the static theory is called static theory simply because it assumes that the firm is fixed in terms of its assets and operations and it only considers possible changes in the debt – equity ratio. They also stated that the model is incapable of finding a precise optimal capital structure, but it does point out two of the more relevant factors, namely taxes and financial distress.

The static trade-off model has been probed by many authors, including Miller (1977), who argued that the static trade-off model implies that firms should be highly leveraged than they really are, as the tax savings of debt seem large while the costs of financial distress seem minor.

#### **2.5.1 Effects of the Static Trade-Off Theory**

The static trade-off model, therefore, implies that the tax benefit from debt is apparently only essential to firms that are in a tax – paying position. As a result, firms with large accumulated losses will get little value from the interest tax shield. Likewise, firms that have substantial tax shields from other sources, such as depreciation, will get less value from leverage Ross et al, (2008). It should further be noted that not all firms have the same tax rate. The higher the tax rate the greater the incentive to borrow Ross et al, (2008).

The static trade-off model also implies that firms with a greater risk of experiencing financial distress will borrow less than firms with a lower risk of financial distress. For instance, all things being equal the greater the instability in earnings before interest and tax (EBIT), the less a firm should borrow. It should also be noted that financial distress is more costly for some firms than for others. The cost of financial distress depends primarily on

the firm's assets. In particular, financial distress costs will be determined by how easily ownership of those assets can be transferred.

## **2.6 Cost of Information Asymmetry**

Myers, (1984) and Myers and Majluf, (1984) contended that the concept of optimal capital structure is based on the notion of asymmetric information. They said that the existence of asymmetric information between the firm and prospective investors or funds providers causes the relative costs of finance to vary among different sources of finance.

More so, they further argued that an internal source of finance (retained earnings) where the funds provider is the firm, will have more information about the firm than new equity holders, thus these new equity holders will expect a higher rate of returns on their investments. This means it will cost the firm more to issue new shares than to use retained earnings. In like manner, this argument holds when it comes to retained earnings and new debt holders. Gatsi and Akoto (2010) also indicated that the existence of this information "gap" between managers (agents) and investors (owners) has led to the formulation of two distinct but related models of financial decisions, called signally theory and market timing theory. Barclay and Smith (2005) also argued that business managers often have access to better information about the value of their firms than outside investors.

Klein, O'Brien and Peter (2002) contend that in corporate finance information asymmetry refers to the idea that insiders of a firm, for example managers have superior knowledge than other market participants on the value of their firms' assets and investment opportunities. Information asymmetry usually creates an avenue for market participants to price firms' claims incorrectly, thus providing a positive rate for corporate financing decisions.

## **2.7 Agency Theory**

The concept of agency theory was originated by Berle and Means (1932), who debated that due to a continuous dilution of equity ownership of large companies, ownership and control become more and more separated. This results in a situation where professional managers get opportunity to pursue their own interest in lieu of that of shareholders Jensen and Ruback, (1983).

Theoretically, equity holders are the only owners of a company, and the task of its directors is merely to ensure maximization of the equity holders' interests. Precisely, "The 'duty' of directors is to run the company in a way which maximizes the long term return to the shareholders, and thus maximizes the company's profit and cash flow" Elliot, (2002).

In their seminal work, Jensen and Meckling (1976) argued that agency costs occur due to incomplete alignment of the agent's and the owner's interests. The separation of control and ownership may bring about agency costs. Two types of agency costs are identified in the paper by Jensen and Meckling (1976): agency costs resulting from conflicts between outside equity holders and owner-managers, and conflicts between equity holders and debt holders. Subsequently, a lot of research has been conducted to establish the relationship between agency costs and financial decisions, governance decisions, dividend policy, and capital structure decisions.

Jensen and Meckling (1976), however, saw that managers do not always manage the firm they work for to maximize wealth of shareholders. Subsequently, they developed their agency theory, which considered the principal-agent relationship as a key factor in determining firm performance. According to their definition, "An agency relationship is a contract under which one or more persons (the principal[s]) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent Jensen and Meckling, (1976).

The problem is that the interest of the principal and the agent are never exactly the same, and thus the agent, who has the role taking decisions, always tries to pursue his own interests instead of those of the principal. It stands to reason that the agent will always try to spend the free cash flow available to fulfill his need for self-aggrandisement and prestige instead of returning it to shareholders Jensen and Ruback, (1983).

As a result, the main problem encountered by shareholders is to make sure that managers will return excess cash flow to them (e.g. through dividend payouts), instead of having it invested in unprofitable projects Jensen, (1986). If the principal (the owner) wants to make sure that the agent acts in his interests he must undertake some Agency Costs (e.g. the cost of monitoring managers). The more the principals want to control manager decisions the higher their agency costs will be.

Nevertheless, recent research has revealed that capital structure can somewhat cope with the principal-agent problem without substantially increasing agency costs, but simply by trading off equity for debt, Pinegar and Wilbricht, (1989). Lubatkin and Chatterjee (1994) debate that firms can discipline managers to run businesses well by increasing their debt to equity ratio. Debt creation guarantees that managers will return excess cash flow to

investors instead of investing it in project with negative Net Present Values (NPV). This is due to the fact that high degree of debt results in high interest expenses, which force managers to focus only on those activities necessary to ensure that the financial obligations of the firm are met.

Therefore, by having less cash flow available, managers of highly indebted firms see their ability of using the firm's resources for discretionary – and often useless – spending, dramatically reduced. Therefore, firms which are mostly financed by debt give managers less decision power than those financed mostly by equity, and thus debt can be used as a control mechanism, in which lenders and shareholders become the principal parties in the corporate governance structure.

Managers who are not able to meet debt obligations can easily and promptly be displaced in favour of new managers who can better pursue stakeholders' interests. Leveraged firms, therefore, are somehow better for shareholders because they ensure that managers do not have the ability (and the cash) to waste the company's resources in useless expenses. The ultimate outcome of debt creation is thus to transfer wealth from the organization and its managers to the investors Jensen, (1989).

This reasoning may lead to the conclusion that debt financed firms are always better for investors than equity financed firms. It is logical, therefore, to wonder why not all the firms are mostly financed by debt. The answer lays in the fact that debt financing increases the cost of capital and other costs: highly leveraged firms are more likely to face cash problems, which increases their likelihood of bankruptcy, and thus increases also all the costs related to bankruptcy. Moreover, highly leveraged companies, which are generally considered risky companies, tend to be low-rated by rating agencies. This classification as risky companies increases their overall cost of capital, since they must guarantee higher returns than those guaranteed by well-rated firms if they want to attract investors.

It can be argued that when debt is increased the resulting benefits does not flow to the equity holders but the debt providers. At a certain level of debt, decision and control of equity holders are restricted resulting in conflicts between equity holders and debt holders. It is quite obvious that using debt as remedy for agency cost is another problem in disguise.

It is clear that using debt is a way of the transferring the agent's interest (using available funds for selfish interest) to investors (interest of getting better returns from investment). Instead of the manager to pursue his selfish interest with free cash flow, these funds are transferred to investors or lenders in the form of interest on principal. It is therefore a weak approach of solving the agency problem (that is the agency problem has been disguised).

## **2.8 Market Timing Theories**

This theory claims that managers analytically observe the funds market and taking advantage of the information gap, would only issue new shares when they are certain that shares are overvalued by investors and vice versa, (Abor, 2008; and Amidu, 2007). (Abor, 2008; and Amidu, 2007) further explain that pertinent problems within the firm may not be known immediately to outside investors (unless there is a presence of insider – trading) and thus would not reflect in the share prices of the firms. This statement is true because in the real world, capital market is not efficient.

As a result, firms that have gainful uses for more capital but believe their shares are underrated or undervalued will generally choose to issue debt rather than equity to avoid diluting the value of existing shareholders claim Barclay & Smith (2005). (Myers,1984; and Myers and Majluf ,1984), also argue that firms will always use the cheapest source of funding to stimulate their operations. This is based on the assumption that managers would act in best interest of shareholders. Gatsi and Akoto (2010) remarking on the performance of the firm, stated that investors are aware that mangers know more than they do about the future performance of the firm, and they also understand management's motivation to issue overpriced shares and to avoid issuing undervalued ones.

They further argued that this well known propensity of companies to “tie” their share often is evident with decreases in share prices after the release of some amount of new shares. As a result, the issues may be relatively expensive all things being equal, and managers would reasonably avoid them and rather use internally generated funds. Thus, by choosing the timing of new share, managers have the advantage of controlling to some level the informational disadvantage of the market. It has also been suggested that firms should issue shares to invest in growth opportunities to avoid the cost of financial distress, (Lucas and McDonald, 1990; Korajczyk, Lucas and McDonald, 1992). It should be noted that the issue of new equities become rather expensive as investors are not aware that firms would only issue equity when it is overpriced and would thus demand higher returns as compensation. They further mentioned that astute managers would prefer to use internally generated funds rather than issuing new shares.

The same notion, according to them would also inform debt – holders to demand higher returns in these investments to pay-off. As a result, internally generated funds become a cheaper source of funding companies' debt. Therefore, it is necessary to note that firms may not necessarily issue new equity as they believed it is overvalued or use internal funds because their existing shares are undervalued. This explains why information asymmetry can be costly to firms as investors may misinterpret manager behaviour and charge them unfairly.

From the fore-going discussion it can therefore be concluded that firms maximize value by steadily choosing to finance new investments with the “cheapest available” source of funds. It can also be seen that managers would prefer internally generated funds (retained earnings) to external fund and, if outside funds are needed, they prefer debt to equity because of the lower information costs associated with debt issues.

### **2.9 Free Cash Flow Theory**

The Free cash flow argument advanced by Jensen (1989) states that when top managers have free cash flow available, they tend to invest it in projects with negative Net Present Values (NPV) instead of paying it out to shareholders as dividends. This is due to the fact that managers' salary increase with increase in turnover and thus managers have an incentive to acquire other companies or investing in operations to increase the size of the company they work for even when these investments have a negative NPV. Some studies have shown that for 10% increase in company turnover, managers' compensation tend to increase on average by 20-30% Lambert and Larcker, (1986).

However, since free cash flow is defined as the amount of money left after the firm has invested in all available projects with positive net present values Jensen, (1986), calculating the exact amount of free cash flows is extremely complicated because it involves a perfect knowledge of all available investment opportunities of a firm. Testing the Jensen free cash flow argument is thus very cumbersome. Past empirical studies have used very different proxies for the quality of investment opportunities, and as a consequence, their results were very different and often contradictory. The empirical research conducted by Lang, Stulz and Walking (1991).

It is, however, probably one of the most reliable since it uses the proxy for the quality of investment opportunities that is believed to be the more accurate among most economists, namely Tobin's  $q$ . Tobin's  $q$  is defined as the ratio of the market value of the firm's assets to their replacement cost. Under the hypothesis of the study of Lang, Stulz and Walking (1991), firms with high ' $q$ ' are likely to have investment opportunities with positive NPV, and thus they are likely to use their funds productively. Firms with low ' $q$ ', on the contrary, are likely to have only investment opportunities with negative NPV and thus they should pay excess funds out in dividends to shareholders. The results of their empirical study support the free cash flow hypothesis: their regression show that an increase of free cash flow of 1% decreases the value of common stock of about 1%. As a result, it can be concluded that cash flow increases the agency costs of firms with poor investment opportunities.

### **2.10 Signaling Theory**

This theory is based on the idea that managers have more superior information than outside investors on the performance of the firm, and would thus communicate this potential to investors by increasing leverage.

Barclay and Smith (2005) however argued that in contrast to market timing, where securities often are seen as an attempt to raise “cheap” capital, signaling model assumes that financing decisions are designed basically to convey future prospects to outside investors. This is usually done to raise the value of shares when managers think they are undervalued.

Gatsi and Akoto (2010) argued that debt mandates firms to make a fixed set of cash payments to debt-holders over the term of the debt security. They also mentioned that firms could be forced into bankruptcy, if they default in honouring their debt obligations, and this may affect the managers as they could lose their jobs. Managers may be aware of this and do everything possible to maintain their positions, all things being equal.

Barclay and Smith (2005) contend that, dividend payments are not obligatory and managers have more judgment over their payments and can reduce or omit them in times of financial difficulty. Ross (1977) also argued that adding more debt to the company's capital structure can show as a credible signal of higher expected future cash flows.

From the fore-going discussion, it can be seen that higher – value firms would use more debt in their capital structure to signal this value relative to their low – value counterpart and this is based on the premise that inefficient firms cannot manage debt and any attempt to use more debt would jeopardize the financial health of the firm due to bankruptcy and its associated costs.

### **2.11 The Problems Associated with Debt Financing**

Basically, debt financing is associated with the risk of bankruptcy on one, and changes in corporate governance structure of the organization on the other hand. It is apparent that increase of debt in the capital structure may make debt-holders become key players in the governance of the firm. The more equity is traded off for debt the more debt-holders may exercise undue influence on the corporate strategies to be pursued by the organisation. The relationship between shareholders and debt-holders may become difficult and generate conflicts because the two groups of stakeholders have conflicting interests.

Shareholders are obviously interested only in the return above the amount required to meet debt expenses: if income before interests is equal to the interest expense, debt-holders will be able to collect their money, and thus they will be satisfied, however, nothing would be left for shareholders. This implies a conflict of interests because on average shareholders will seek investment opportunities with higher expected return, and thus riskier than debt-holders would prefer.

Debt-holders, on the other hand, are only interested in making sure that the interest and principal payments they should receive are due, as specified in the contract with the firm. As a result, when managers will pursue riskier activities with higher expected returns, debt-holder will charge higher prices for debt in order to establish a greater control on top managers, preventing them from investing funds in risky projects. This conflict of interest might render the governance of the firm extremely awkward, because managers, shareholders, and debt-holders will try to impose different corporate strategies.

Nevertheless, the greater external control exercised by debt-holders may also cripple the firm's performance and on its overall value: debt-holders control may interfere with the firm's ability to invest. Firm desiring to engage in profitable undertaken or in investment that will enhance the long-term ability of generating cash, might not be able to do so because debt-holders prefer to invest in less risky, though less profitable, projects.

However, the bigger problems with debt holders will be faced by those managers who are not able to meet their debt obligations. Companies that cannot honor their liabilities with banks are very likely to lose their independence completely.

For example, the banks to which the interests are due might force the company to accept some of their officers in the board of directors of the company. The bank officers will interfere in the decisional process and in extreme cases they can also set a new corporate strategy. This decrease in managers' decisional power will almost certainly lower the overall value of the firm.

In addition, external forces will exert a significant impact on firm's market value: when deciding to invest in the share of a given company, investors will also take into account any potential bankruptcy costs. As a result, the firms which are more likely to go bankrupt have it reflected in their share price. Employee's lack of motivation can be considered as another indirect cost of bankruptcy: the employees of risky companies tend to perceive their future as precarious and their pensions in danger, and thus they will demand far higher wages to compensate their risk. This factor will not only dramatically increase the company's wage expenditures, but also decrease productivity – since such employees will tend to work more in the aim of achieving short-term goals than long-term uncertain ones.

Bankruptcy cost include also those related to deteriorating credit terms with customers and suppliers: on one hand, customers will be less willing to buy the products of a firm with financial problems because warranties and other after sales services are at risk; on the other hand, suppliers do not want to take the risk of entering in long-term contracts with firms likely to go bankrupt. Considering the shortcomings of both equity financing and debt financing, it could be argued that debt financing should be preferred every time firms have free cash flows available.

### **2.12 Capital Expenditures**

Free cash flow theory argued that the cash flow of firms with poor investment opportunities should be minimised in order to prevent managers from wasting firm's resources in unprofitable investments. Nevertheless, it could be argued that free cash flow theory considers only the positive effects resulting from a reduction of free cash flow, but neglect to put into account the negative signaling effect that a reduction in investments are likely to exert on shareholders.

Many recent studies have tried to fill this gap in the free cash flow theory by investigating the effects of announcements of corporate capital expenditure on the market value of the firm. Their results, however, are very unclear and not always in agreement with each other, leaving financial literature with very little evidence on the effect of corporate investment decisions on firms' market value, Vermaelen, (1981; Brickley, 1983). The difficulty in finding a definite relationship between the two variables is probably due to the fact that it changes with the industry being examined. In fact, McConnel and Muscarella (1985) provide statistical evidence that announcements of increases in planned capital expenditures increase the market value of common stock only in industrial firms,

while for public utility firms, which are on average far less investment opportunities with positive NPV, neither announcements of increases nor announcements of decreases in planned capital expenditures have an impact on market value of common stock.

### **2.13 Performance and Equity Concentration**

Obviously, managers tend to pursue their own interests instead of those of shareholders, and thus they tend to use companies' resources to fulfill their own needs and desire for prestige. It has been proved by some studies that these kinds of management actions is particularly true in companies with a high percentage (%) of equity financing, where there are many shareholders with very small shareholding Lambert and Larcker, (1986). In such a situation, no shareholder has enough power to control managers; reaching an agreement, thus, is extremely difficult, and when shareholders are not happy on the way the company is ran, they tend to sell their shares instead of trying to cope with the problem.

On the other hand, companies with definite majority shareholders, who can easily meet together and reach an agreement on how the firm should be ran, tend to have managers with less power. However, the only way to ensure that managers will act in the interest of shareholders is to give them shares of the company they are in charge of, so that they will become shareholders themselves. A past research on American companies has shown that linking management and ownership increase the company's profitability dramatically Dolmat-Connel, (2002).

In *The Prince*, the Italian writer Niccolò Machiavelli stated that it is in the human nature to seek one's own benefit and profit even when it implies somebody else ruin. In the light of this precious Renaissance teaching, I would argue that the interest of shareholders and managers should be linked together. In doing so, managers could seek for their own profit and at the same time increase that of shareholders. It is probably due to this reflection that Management Buyouts (MBO) has increased dramatically over the last twenty years. In an MBO, senior managers take private a firm by purchasing its shares using funds borrowed by banks or other lenders. The change in corporate ownership structure following the MBO is expected to enhance the firm's operating performance. This is due to two main factors: firstly, the increase in the equity holdings of managers increases the opportunity cost of shirking and of wasting firm's resources in useless expenses. Secondly, the larger concentration of shares owned by non-executive board members and other few main investors consent a closer monitoring of manager's behavior.

In addition, the large liability derived from the debt incurred to finance the buyout forces managers to increase future cash flows in order to be able to pay high interest expenses. The empirical study conducted by Smith (1990) on 58 Management Buyouts (MBO) of publicly traded companies completed during 1977-1986 provided the evidence of the positive correlation between firm's performance and management ownership. The operating returns of the firms examined by Smith increased significantly from the year before the buyout and it remained at a higher level also during the subsequent years.

Moreover, the study of Smith (1990) also proved that the increase in operating income was not merely due to cuts to advertising expenses or research and development, but to reductions in operating costs and improvements of the working capital management. After the MBO firms were on average reducing the account receivable collection period and the holding period of inventories. Similar results are found in the studies of Kaplan (1989), and of Lichtenberg and Siegel (1990), which conclude that the increase in operating returns that follows management buy-outs (MBOs) is almost exclusively due to an increase in operating efficiency.

### **2.14 Correlation (Relationship) between Debt and Performance of Firms**

Studies showed inconsistent results about the correlation between increased use of debt in capital structure and firms performance. Some studies (Taub, 1975; Roden and Lewellen, 1995; Champion, 1999; Ghosh et al.,2000; Hadlock and James, 2002; and Berger and Bonaccorsi di Patti, 2006) showed positive correlation and some (Kester, 1986; Friend and Lang, 1988; Fama and French, 1998; Gleason et al., 2000; Simerly and Li, 2000; Booth et al.,2001; and Ibrahim, 2009) showed negative or weak or no correlation between firms performance and leverage level. In a study of listed firms in Ghana, Abor (2005) found that Short-term and Total Debt are positively related with firm's ROE, whereas Long-term Debt is negatively related with firm's ROE.

While examining the correlation between capital structure and performance of Jordan firms, Zeitun and Tian (2007) found that debt level is negatively related with performance. In a similar study on microfinance institutions in sub-Saharan Africa, Kyereboah-Coleman (2007) found that high leverage is positively related with performance (i.e. ROA and ROE) and Abor (2007) on small and medium-sized enterprises in Ghana and South Africa showed that long-term and total debt level is negatively related with performance. A study by Ibrahim El-Sayed Ebaid, (2009) based on a sample of non-financial Egyptian listed firms from 1997 to 2005 reveals that capital structure choice decision, in general terms, has a weak-to-no impact on firm's performance.

Result of some studies (Myers, 2001; Eldomiaty, 2007) show that capital structure is not the only way to explain financial decisions. Probably this explains the contradictory results of the studies that empirically tested the predictions of correlation between leverage and firm's performance. As explained by Jermias (2008), only the direct effect of financial leverage on performance is examined by prior studies however leverage-performance relationship may be affected by some other factors like competitive intensity and business strategy.

There is enormous existing literature that examines the relationship of capital structure and performance of firms in developed nations but very less established empirically for developing economies. As compared to the developed markets like Europe, America etc. it is found by the Eldomiaty (2007) that capital markets are less efficient and suffers from higher level of asymmetry in terms of information in emerging or developing markets than capital markets in developed countries.

### **2.15 Capital Structure and the Issue of Tax Benefits**

Capital structure of the firm is also explained in terms of the tax benefits associated with the use of debt. It should be noted that tax policy has an important effect on the capital structure decisions of firms. Tax can generally be said to be a payment to support the cost of government. It can also be seen as a compulsory payment from households and firms to government to enable government to finance its projects and programmes. According to Ross et al. (2008) the benefits associated with tax is called tax shield.

Modigliani and Miller (1963) argue that corporate tax laws allow firms to deduct interest payments but not dividends in computing taxable profits. According to them, this suggests that tax advantages derived from the introduction of debt into a firm would lower the firm's expected tax burden and thereby increase its after-tax cash flow.

Brownlee, Ferris, and Haskins (2001) also state that every major business decision is affected in one way or other by taxes. They believe that when managers are tasked to make corporate business decisions, they try to minimize taxes within the confines of the tax laws of that country. Modigliani and Miller (1963) and Miller (1977) mentioned that a tax benefit is created, as the interest payments associated with debt are tax deductible, while payments associated with equity, such as dividends are not tax deductible. Therefore, this tax effects encourage the use of debt by the firm, as more debt increases the after tax proceeds to the owners.

Abor (2008) further reveal that while there is corporate tax advantage resulting from deductibility of interest payments on debt investors receive this interest as income. He also point out that the interest income received by the investors is also taxable on their personal accounts, and the percentage income tax effect is negative.

Modigliani and Miller (1963) argue that, usually, the basic corporate profit tax law allows companies to subtract interest payments but disallow dividends in their computation of taxable income. In effect, introducing debt into a firm's capital structure can lower its expected tax burden and thereby increase its after-tax cash flows. Miller (1977) also contends that if there were only a corporate tax and no individual taxes on the returns from corporate securities, the value of a leverage firm would equal that of an identical all-equity firm plus the percentage value of its interest tax shield.

This is expressed as  $MV = Vu + Dt$  Where  $MV$  is the market capitalization of the leveraged or geared firms (i.e. market value of debt and market value of equity);  $Vu$  is market capitalization of the un-leveraged or un-g geared firms (i.e. value of equity of un-leveraged or un-g geared);  $D$  is market value of the geared or leveraged firm's debt;  $t$  is the corporate tax rate and  $Dt$  is the tax shield.

Gatsi and Akoto (2010) pronounced that the present value represents the contribution of debt financing to the market value of the firm. This could be valued basically by multiplying the tax rate by the principal amount of outstanding debt, (provided the firm expects to maintain its current debt level).

According to them, the above illustration showing the benefits of debt usage over equity can certainly not be true. They went further to explain that holders of debt and equity must pay taxes on the intended income and the dividend or capital gains that they receive respectively. However, debt-holders do know that they pay higher taxes than equity holders thus debt-holders being rational will therefore demand high returns on their investments relative to equity holders. This is meant to compensate for the risk that debts –holders take.

Barclay and Smith (2005) therefore stated that it is the equity holders that bear all the tax costs of the firm's operations, whether the company pays the taxes directly in the form of corporate income tax or it pays it indirectly in the form of required returns on the debt it sells. Miller (1977) and Myers (2001) argue that as the supply of debt from all corporations' increases, investors with higher and higher tax brackets have to be lured to hold corporate debt and to receive more of their income in the form of interest rather than capital gains.

Abor (2008) also indicated that interest rates rise as more and more debt is issued, so corporations face rising costs of debt relative to their cost of equity. Miller (1977) and Myers (2001) resolved that the tax benefits

rising from the issue of more corporate debt may be offset by a high tax on interest income. It is the trade-off that eventually determines the net effect of taxes on debt usage. Modigliani and Miller (1963) suggest that the implication of the tax theory on capital structure therefore suggests that, firms must use more debt to create value.

It should however be noted that managers must not be misled to introduce very high levels of debt into their setups because of the associated tax benefits. It should further be accepted that the tax advantage has an eminent possibility of being dashed away by the higher tax that debt-holders pay on their interest income compared to what equity-holder pay on their dividends and capital gains. It is worth stating that investors in general, and debt – holders in particular being interested in their after tax profits would incorporate this loss value in their expected returns to pay off this making the eventual cost of debt higher than equity. The conclusion therefore is that firms that can derive maximum benefit from debt usage are those whose managers can accurately determine the point where the advantages of interest tax shield ends and where the costs of financial distress starts.

### **2.16 Contracting Costs**

Notwithstanding the tax benefits associated with high leverage, they must be set against the greater probability and higher expected costs 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 as a result of using 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 cost and agency cost.

### **2.17 Bankruptcy Cost**

Bankruptcy cost are the costs incurred when the perceived probability that the firm will default on financing is greater than, zero Abor (2008). Titman (1984) also maintains that bankruptcy cost refers to cost that occurs when a firm fails to honour its debt obligations and stands on the possibility of being closed down. He states that the cost of bankruptcy may be both direct and indirect. The direct bankruptcy cost includes, among other things, the legal and administrative costs in the bankruptcy process. However, the loss in profits incurred by the firm as a result of the unwillingness of interested parties to do business with them is an example of indirect bankruptcy costs.

Warner (1977) pronounced that the direct costs are often small in relation to corporate market value while indirect costs are substantial. Titman (1984) also argues that customer reliance on a firm’s goods and services and the high probability of bankruptcy affect the solvency of firms. Abor (2008) also stated that: “if a business is perceived to be close to bankruptcy, customers may be less willing to buy its goods and services because of the risk that the firm may not be able to meet its warranty obligations”. He further point out that employees might be less motivated to work for the business or suppliers are less likely to extend trade credit.

Kim, Heshmati and Aoun (2006) indicated that such constraints or limitations can affect a firm’s value and its performance, as they ultimately may have to forge attractive investment opportunities leading to underinvestment. This could unfavorably impact on the profitability and survival of the firm.

Modigliani and Miller (1963) argue that firms may be unable to pay their debts if they over-borrow and become financially distressed. Nevertheless, it is sound for firms to increase value because of tax deductibility of debt. It should be noted that bankruptcy cost increases with increased debt use thus reducing the value of the firm Warner, (1977).

As a result, managers of financially distressed firms would advocate for less debt in their capital structure relative to their low-debt counterparts so as to safeguard against underinvestment and associated problems. Finally, Grossman and Hart (1982) argue that if bankruptcy is costly to managers, perhaps because they would lose benefits of control or reputation then debt finance should rather create incentives for managers to work harder, consume fewer prerequisites and make better investment decisions.

### **2.18 Agency Cost**

Debt usage in the capital structure of the firm also results in agency costs. According to Jensen and Meckling (1976), agency cost arises as a result of the relationships between shareholders and managers, and those between debt-holders and shareholders. They stated further that the relationships can be characterized as principal agent relationships. As the manager of a firm is seen as the agent, both the shareholder and debt-holders are noted to be the principals. Conflict usually arises when the agent decides not to maximize the principals’ wealth.

Harris and Raviv (1990) indicated that the conflict between shareholders and managers arises because managers hold less than 100% of the residual claim. As a result, they do not capture the entire gain from their profit enhancing activities but they do bear the entire cost of these activities. The whole idea is about separation of

ownership and control. This may result in managers exerting unsatisfactory work, indulging in perquisites, and choosing inputs and outputs that suit their own preferences. Another issue is that managers may invest in projects that reduce the value of the firm but enhance their control over its resources. For example, it may be optimal for the investors to liquidate the firm and managers may choose to continue operations to enhance their position Abor,(2008).

Harris and Raviv (1990) supported the idea and thus indicated that managers have an incentive to continue a firm's current operations even if shareholders prefer liquidation. Abor (2008) further stated that the conflict between debt-holders and shareholders is due to moral hazard. Chittenden, Hall and Hutchinson (1996), pronounced that Agency theory suggests that information asymmetry and moral hazard will be greater for smaller firms. Jensen and Meckling (1976) however noted that the conflict between debt- holders and equity – holders comes about because debt control gives equity – holders' incentive to invest sub optimally.

According to Abor (2008), in the event of an investment yielding large returns, equity – holders receive the majority of the benefits. He further showed that in the case of the investment failing, because of limited liability, debt-holders bear the majority of the consequences. The agency problems associated with information asymmetry, managerial (stockholder) risk incentives and forgone growth opportunities can be resolved by means of the maturity structure and call provision of debt Barnea, Haugen and Snebet, (1980). They state that, shortening the maturity structure of the debt and the ability to call the bond before the expiration date can help reduce the agency costs of underinvestment and risk-shifting. They also demonstrated that both features of the corporate debt serve identical purposes in solving agency problems.

Abor (2008) contends that the agency costs of debt can be resolved by the entire structure of the financial claim. As a result, to effectively reduce agency problems, there is a need to change the debt equity ratio of the firm. Barnea et al. (1980) also contends that this provision would inevitably allow debts to be withdrawn between their maturity, an act which is capable of changing the capital structure of the firm by reducing the debt levels and reducing the agency costs.

From the above discussion, it can be concluded that firms with higher agency costs due to conflict between the firm and the debt-holders should have lower levels of debt in their capital structure to maximize value. Amidu (2007) established an inverse relationship between short-term debt and firm profitability. Abor (2005) in his studies also established an inverse relationship between company profitability and long-term debt. Graham (2004) concluded that there is an inverse relationship between total debt and profitability. He further indicated that big and profitable companies present low debt levels.

Titman and Wessels (1988) argued that firms with high profit levels, all things being equal, would maintain relatively lower debt levels since they can realize such funds from internal source. (Cassar and Holmes, 2003; and Hall, Hutchinson and Michaels, 2004) all found a negative relationship between profitability and both long-term debt and short-term debt ratios. Kester (1986) also established a considerably negative relationship between profitability and debt to asset ratios.

More so, Rajan and Zingales (1995) also witness a significantly negative correlation between profitability and leverage in their work. According to Fama and French (1998), debt usage does not necessarily grant tax benefits; high leverage may rather generate agency problems among shareholders and debt-holders that predict negative relationship between leverage and profitability. The above empirical evidences, seems to be consistent with the pecking order theory.

## **2.19 Positive Relationship between Leverage and Firm Profitability**

Despite the above empirical evidence on debt and profitability, other scholars are of a different view. These scholars in their studies found a positive association between profitability and debt. For instance, in a study designed to examine the effect of capital structure on profitability of listed firms in Ghana, Abor (2005) observed a significantly positive correlation between the ratio of short-term debt to total assets and profitability, but a negative correlation between the ratio of long term debt to total assets and profitability.

It should be noted, however, that on average, Abor (2005) reported a considerably positive relationship between total debt and profitability thus supporting the above previous works. Studies conducted by Peterson and Rajan (1994) to examine the relationship between profitability and debt, also revealed a considerably positive association between profitability and debt ratio.

Taub (1975) in a regression analysis of four profitability metrics against debt ratio found a significantly positive relationship between debt and profitability. Champion's (1999) study on finance: the joy of leverage and Leibenstein's (1966) study on allocative efficiency versus x-efficiency, contend that companies can use more debt to enhance their financial performance because of debts capability to cause managers to improve productivity to avoid

bankruptcy. Moreover, Roden and Lewellen (1995) in a study to find the percentage of total debt in leverage buyout observed a significantly positive relationship between profitability and total debt. (Nerlove, 1968; and Baker 1973) also supported the notion that there exist a significantly positive relation between profitability and firm leverage. Gatsi and Akoto's (2010) study on capital structure and profitability of Ghanaian Banks, revealed a significantly negative relationship between short-term debts and net interest margin. This indicates that as deposits increase in the banking sector, net interest margin falls. In their study, long-term debts was negative but insignificant in determining net interest margin in the banking sector

With respect to total debts, it was significant and negatively related to net interest margin. They finally revealed that bank size was significantly and negatively related to both returns on equity and net interest margin in the banking sector. However, there was a positive and statistically significant relationship between sales growth and both returns on equity and net interest margin in the banking sector. Gatsi and Akoto (2010) resolved that short-term debts, long term-debts, and total debt are insignificant in determining returns on equity (ROE) in the banking sector of Ghana. They attributed this to increase cost of doing the business of banking in Ghana coupled with underutilization of deposits due to high lending rates.

In this chapter the researcher reviewed theories and some empirical studies on capital structure. Of all the theories and empirical studies reviewed in the study, the picture that emerges is that all the various writers agreed that strategic choice of corporate managers on either debt finance or equity finance becomes the watch word for profit maximization of a firm.

It is evident that apart from the Modigliana and Miller's (1963) proposition I which emphasizes on the fact that the value of the firm is independent of its capital structure, and proposition II which however states that although changing the capital structure of the firm may not change the firm total value, it does causes important changes in the firm's debt and equity finance. As a result two main theories, the pecking order theory and the static trade-off theory were considered in the study.

Regarding the pecking order and static trade-off theories, all the writers argued that whereas the Pecking order theory emphasizes how firms initially uses internally generated fund to finance its operations, instead of external borrowings, the static trade-off theory considers firms that are highly leveraged and recognizes the benefits associated with tax payments. As a result, the higher the profit and consequently the tax rate, the greater the incentives to borrow. The discussions of the writers indicate that embedded in the Static Trade- off model and the pecking order theory are six other theories that explain the capital structure decisions. These are based on asymmetric information, tax benefits associated with debt use, bankruptcy cost, agency cost, market timing theory and signaling theory. The asymmetric information, market timing theory and signaling theory, according to Abor (2008), are rooted in the pecking order frame work, while bankruptcy cost, agency cost, and the benefits of tax savings are in terms of the static trade -off choice.

Finally it should be noted that empirical studies has proved that studies to determine the relationship between leverage and firms' profitability are inconclusive. Whereas some studies show a positive relationship between leverage and profitability, others show a negative relationship between leverage and profitability. The present study was interested on the effect of leverage on profitability as mentioned in the literature. The study was therefore designed to investigate the effect of capital structure on the performance of firms listed on the Ghana Stock Exchange, with a view to testing the agency theory.

### **III. METHODOLOGY**

#### **3.1 Research Design**

The methodology used in the study was purely quantitative and panel data approach. Abor, (2005) said that panel data comprises of the pooling of observations on cross-section of units over several time periods. Since this study involved the pooling of observations on cross-section of units over a period of seven years with available data, it provides itself to the panel data approach. Regression and correlation matrix were specifically used to find out the relationship between the dependent and independent variables.

#### **3.2 Quantitative Research Method**

Cooper and Schindler, (2001) stated that quantitative research methodology relates to numbers and measuring of observed facts. They also explained that it comprises dependence on observable hard facts for which data is gathered, analyzed and described in terms of numbers. They further argued that quantitative research methodology permits specification of dependent variable and allows for longitudinal measures of subsequent performance of the research subject.

The quantitative method is also compatible with this research in that it allows the research problem to be conducted in a very specific and set terms. It also plainly and distinctively specifies both the dependent and the

independent variables under review. It follows purposefully the original set of research objectives, arriving at more objective conclusions, testing hypothesis, determining the issues of connectedness and removes or reduces subjectivity of judgments.

### **3.3 Population**

The target population for this study is made up of all the 36 firms currently listed on the Ghana stock exchange.

### **3.4 The Sample and Sampling Procedure**

The study purposely select three best performing companies listed on the Ghana Stock Exchange namely; Benso Oil Palm Plantation, Cocoa Processing Company, and Ayrton Drug Manufacturing from the periods 2008 to 2012. The selected firms are shown in Appendix D. the five year period is chosen based on the regression assumption that, the larger the data in terms of time frame, the more suitable the model for forecasting or prediction. Moreover the available data conveniently covered the five year period.

### **3.5 Sources of Data**

Secondary data, precisely the financial statement of the companies listed on the Ghana Stock Exchange between 2008 -2012 provided information for the research work. The data was gathered from the data file of the 5 listed firms. Besides, scholarly articles from relevant text books on the subject, academic journals and the internet search engines were used.

### **3.6 Variables Used**

Four dependent variables, namely, return on asset (ROA), return on equity (ROE), earnings per share (EPS), and Tobin's q were used as proxies for performance and three independent variables, including the ratio of short-term debt to total assets (STD), the ratio of long-term debts to total assets (LTD) and total debts to total assets (TD) are employed as measures of leverage. In addition, size of the firm, which is measured by logarithm of total assets, is considered as control variable.

### **3.7 Return on Asset (ROA)**

Return on asset (ROA) is calculated as the ratio of net income that is pre-tax profit to total asset Van Horne and Wachowicz (2008). This ratio measures after tax profit per cedi of assets. It is also called return on investment (ROI).

### **3.8 Return on Equity (ROE)**

Van Horne and Wachowicz (2008) defined return on equity (ROE) as the ratio of net income to total stock of equity. It was also defined as the ratio of pre-tax profit to total equity capital. The use of return on equity (ROE) as a profitability measure is suitable due to the fact that ROE represents the return that goes to the owners of the firm. This will help the researcher to differentiate the returns specifically due the owners from returns to the whole firm.

Notwithstanding that ROA is embedded in ROE Saunders et al, (2004), it is necessary to determine the profitability of the firm in terms of their investments and thus measure the profitability linked to the asset size of the firm.

### **3.9 Earnings per Share (EPS)**

Earnings per share (EPS) are the portion of the company's distributable profit (profit after preference dividend) which is allocated to each outstanding equity share (ordinary shares). EPS is a very good sign of the profitability of any firm, and it is one of the most widely used measures of profitability. It is a useful measure of profitability, and when compared with EPS of other similar firms, it gives a view of the comparative earning power of the firms. When it is calculated over a number of years it indicates whether the earning power of the firm has improved or worsened. Investors or prospective investors including shareholders alike usually look for firms with steadily increasing earnings per share.

Growth or increase in EPS is an important measure of management performance because it displays how much money the company is making for its shareholders, not only due to changes in profit, but also after all the effects of issuance of new shares (this is especially important when the growth comes as a result of acquisition) The EPS is calculated by dividing net profit after taxes and preference dividends by the number of outstanding equity shares. This can be expressed as follows:

Earnings per share =  $\frac{\text{Net Profit after Taxes} - \text{Preference Dividends}}{\text{Number of Equity Shares}}$

If the capital structure changes (i.e. the number of shares changes) during the reporting period or the financial year, a weighted average number of equity shares is used for the calculations of EPS. The diluted earnings per share (Diluted EPS) expand on basic EPS and comprise the shares of all convertible securities if they were exercised. Convertible securities comprises of convertible preferred shares, stock options (usually employee based), convertible debentures and warrants.

Obviously, two different firms could generate the same earnings per share (EPS) but one could do so with a lesser equity. All things being equal (*ceteris paribus*), this company is better than the other one because it is more efficient at using its capital for generating profits. It is essential that investors do not depend solely on the measure of earnings per share for making investment decisions. They should, however, use it in conjunction with other measures and financial statement analysis.

### **3.10 The Ratio of Short-Term Debt to Total Capital**

Van Horne and Wachowicz (2008) explained the ratio of short-term debt to total capital as the ratio that measures the extent to which the listed firms under study use short-term debt to finance their operations and how this kind of debt associates with the firm's profitability for the chosen period of the study. They further showed that settlement of the short-term debt is within a period of one year. That is debt finance payable within one accounting period.

Literature on the relationship between short-term debt to capital and firms' profitability has proved to be inconclusive. While some research revealed a positive relationship between profitability and short-term debt, other results showed a negative relationship between firms' profitability and short-term-debt. It is expected in this research that there is a significantly positive relationship between short-term debt and the four profitability matrices. This relationship is expected so as to meet the dictates of theoretical and durational matching viewpoints in the five best performing firms listed on the stock exchange in Ghana.

### **3.11 The Ratio of Long-Term Debt to Total Capital**

In relation to the ratio of long-term debt to total capital, Van Horne and Wachowicz (2008) maintain that, the ratio measures the extent to which the five best performing firms use long-term debt to finance their operations and how this type of debts associates with the firm's profitability for the period under study. They additionally defined it as debt finance payable in more than one accounting period. It is obvious that while some studies revealed a positive relationship between profitability ratios and long-term debt, other results showed a negative relationship between firms' profitability and long-term-debt. In this study, the researcher also expects a positive relationship between long-term debt and the four profitability matrices.

### **3.12 The Ratio of Total Debt to Total Capital**

This is the ratio of total liabilities to total capital. It is mainly the proportion of the sum of short term debts and long term debts of the firms to their total capital. This ratio measures the extent to which the operations of the firms have been funded with total debt relative to equity and also how leverage associates with firms' profitability in Ghana. Like the other ratios many studies have been inconclusive to conclude the relationships between leverage (TD) and profitability. In this study, the researcher expects a negative relationship between total debt and firm's profitability.

### **3.13 Firm Size**

Size has been viewed as a determinant of a firm's capital structure Abor, (2005). Larger firms tend to be more diversified and hence have lower variance of earnings, making them able to tolerate high debt ratios (Castanias, 1983; Wald, 1999). Smaller firms on the other hand may find it relatively more costly to resolve information asymmetries with lenders thus may present lower debt ratios Castanias, (1983). Studies conducted on the relationship between firm size and capital structure revealed varying findings. Most of the studies support a positive relationship between firm sizes and leverage (Marsh, 1982; Friend and Lang 1988; Rajan and Zingales, 1995; Cassar and Holmes, 2003). It should be noted that, Fischer, Heinkel and Zechner (1989) however found a negative relationship between size and debt ratio.

Firm size has been taken as the logarithm of the total asset of selected non-financial firms. The use of logarithm enables us to get the real total asset of the firms due to its capabilities to standardize values thus, bringing them on the same platform for a more efficient analysis to be done. It is statistically noted that, the regression model

is the line of best fit for the data under study. Generally in plotting the data points, some data will fall slightly above or below the line of best fit, thus to reduce this effect a logarithm of total asset is considered for firm size. In this study, firm size and profitability relationship is expected to be positive.

### 3.14 Sales Growth

The relationship between capital structure and sales growth can also be explained by the pecking order theory. According to Abor (2005) growing firms place a greater demand on the internally generated funds of the firm. Marsh (1982) also argues that firms with high growth will capture relatively higher debt ratios. He further indicated that, there is also a relationship between the degree of previous growth and future growth. Michaelas, Chittenden and Poutziouris (1999) pronounce that future opportunity will be related to leverage, in particular short term leverage. They maintain that agency problem and consequentially the cost of financing are reduced if the firm issues short term debt rather than long term debt. On the other hand Myers (1977) argues that firms with growth opportunities will have smaller proportions of the debt in their capital structure. This is because, the conflict between debt and equity holders are especially serious for assets that give the firm that option to undertake such growth opportunities in the future.

Empirical evidence from research conducted on sales growth and the dependent variables are reasonably varying with respect to conclusions. Some scholars established positive relationship between sales growth and leverage (Kester, 1986; and Titman and Wessels, 1988). Other evidence revealed that higher growth firms use less debt, as such indicated negative relationship between growth and debt ratio (Kim and Sorenson, 1986; Rajan and zingales, 1995; Al-Sikran, 2001). In this study, a positive relationship is expected between sales growth and the dependent variables. The positive relationship between the dependent variables and sales growth indicates that, the best performing firms in Ghana really gain much from their core businesses. The summary of the variables used and the expected impact of the dependent variables on the explanatory ones are shown in Table 1.

In the study, Pre- tax profit has been used instead of net income or after tax profit for the computation of the profitability ratio so as to prevent the result of the estimation from being misleading by the influence of tax payment. Profit making firms normally pay taxes proportional to the profit made for the period. This means that the higher the profit the higher the tax charge, and the lower the profit the lower the tax charged. As a result the researcher is certain that using after tax profit as a numerator in computing the profitability ratios for the best performing firms in Ghana for the period under review may therefore not give the true picture of the firms' profitability.

**Table 1: Dependent and Independent Variables Used for the Study**

Category	Variable	Measurement or ratio used	Expected Relationship
<b>Dependent variables</b>	1. Return on assets (ROA)	$\frac{\text{Pre-tax profit}}{\text{Total assets}}$ (Pretax profit to total assets)	positive
	2. Return on equity (ROE)	$\frac{\text{Pretax profit}}{\text{Total equity}}$ (pretax profit to total equity)	positive
	3. Earnings per share (EPS)	$\frac{\text{Net Profit after Tax} - \text{Pref. Div}}{\text{Number of Equity Shares}}$	positive
<b>Independent variables</b>	1. Short term debt	$\frac{\text{Short term debt}}{\text{Total capital}}$	positive
	2. Long term debt	$\frac{\text{Long term debt}}{\text{Total capital}}$	positive
	3. Total debt	$\frac{\text{Short-term debt} + \text{long-term debt}}{\text{Total capital}}$	positive
	4. Size	Log total assets	positive
	5. sales growth	% change in net interest income	positive

### 3.15 Panel Data

Panel data involves the pooling of observations on a cross-section of units over several time periods. Panel data method is more suitable than either cross-section or time series data alone. One advantage of using panel data set is that, because of the several data points, degrees of freedom are increased and collinearity among the examining variable is reduced. Thus the efficiency of the economic estimates is improved. Besides, panel data can control for individual heterogeneity due to hidden factors which, if ignored in time series or cross section data will lead to biased results Baltagi, (1995).

3.16 Model Estimation and Specification

The study adopted generalized Least Squares (GLS) panel model for the estimation. The panel regression equation differs from regular time-series or cross-section regression by the double subscript attached to each variable. The general form of the model can be written as:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + U_{it}$$

Here  $U_{it}$  is a random term and  $U_{it} = U_t + V_{it}$ , where  $U_t$  is the firms' specific effect and  $V_{it}$  is the random term. The choice of the model estimation which was random effect depends on the underlying assumption that model  $U_1$  and  $V_1$  are random with unknown disturbances. For most panel applications a major error compound model for the disturbances is adopted with  $U_{it} = U_t + V_{it}$ , where  $U_t$  accounts for any unobserved firm-specific effect that is not included in the regression model, and  $V_{it}$  represents the remaining disturbances in the regression which varies with individual firms and time.

Considering the dependent variables (return on asset, return on equity and net profit margin), the independent variables (short-term debt, long-term debt and total debt) and the control variables sales growth and firm size, the relationship between debt and the performance of the five best performing firms' in Ghana is thus estimated in the following regression models:

$$Y_{it} = \beta_0 + \beta_1 STD_{it} + \beta_2 FS_{it} + \beta_3 SG_{it} + \epsilon_{it} \dots\dots\dots(1)$$

$$Y_{it} = \beta_0 + \beta_1 LTD_{it} + \beta_2 FS_{it} + \beta_3 SG_{it} + \epsilon_{it} \dots\dots\dots(2)$$

$$Y_{it} = \beta_0 + \beta_1 TD_{it} + \beta_2 FS_{it} + \beta_3 SG_{it} + \epsilon_{it} \dots\dots\dots(3)$$

Where:

$Y_{it}$  Represents Return on Assets, Return on Equity and earnings per share and Tobin's q for firm  $i$  in time  $t$ .

STD Represents Short Term Debts for firm  $i$  in time  $t$

LTD Represents Long Term Debts for firm  $i$  in time  $t$

TD Represents Total Debt for firm  $i$  in time  $t$

FS Represents Firm Size for firm  $i$  in time  $t$

SG Represent Sales Growth for firm  $i$  in time  $t$  is the error term

$\epsilon_{it}$  Represents the error term

The error term represents other factors that might have effect on the dependent variables, but for the purpose of the study were not accounted for.

3.17 Test of homogeneity

In some data analysis such as ANOVA, t-tests and univariate linear models, it is often assumed that the variances in the data are equal, that is:

$H_0 = X_1 = X_2 = X_3$ , where  $X_1, X_2, X_3$  represents the study variables. The alternate hypothesis:  $H_1 \neq X_1 \neq X_2 \neq X_3$  represents heterogeneity of the variances and a violation of the homogeneity assumption. The decision rule is that when the p-value is less than the alpha level, we reject  $H_0$ , which mean that the data is heterogeneous or it violates the homogeneity assumption. In this case the data is analyzed using non-parametric measures, since parametric analyses will distort the results. The non-parametric alternatives are proposed because they focus of the medians rather than the mean and thus, do not assume homogeneity (Pallant, 2005). On the other hand, when the p-value is greater than or equal to the alpha level, we fail to reject  $H_0$ , which means that the data is homogeneous.

The study variables including return on assets (ROA), return on equity (ROE) and earnings per share (EPS), short-term debt to total assets (STD), long -term debt to total assets (LTD), total debt to total assets (TD) were tested for homogeneity. Table 2 shows the tests of homogeneity of variances for the study variables. The Levene test was used for normally distributed data and the Brown-Forsythe test was applied skewed data. Based on the skewness statistics, ROA and ROE were normally distributed and the rest of the variables were not normally distributed. According to the p-values, and at an alpha of 0.05, all the variables violated the homogeneity assumption, thus indicating that the optimal results for the study can be obtained by non-parametric analysis

. Table 2: Homogeneity test

Variable	Skewness	F-statistic	df1	df2	p-value
ROA	-0.010	6.902	2	12	0.010
ROE	-0.390	13.250	2	12	0.001
EPS	-1.214	39.482	2	4.743	0.001
STD	1.879	7.729	2	4.048	0.041
LTD	1.308	90.370	2	7.142	0.000
TD	0.877	184.405	2	4.212	0.000

#### IV. DATA ANALYSIS AND RESULTS

##### 4.1 Data analysis

The quantitative data from the financial statements of the best three (3) listed firms between 2008 -2012 were used for the study. The two main ratios, profitability and the leverage ratios were computed using the raw data (financial statements) from the listed firms. .

The profitability ratios computed were return on assets (ROA), return on equity (ROE) and earnings per share (EPS). The leverage ratios computed were short –term debt (STD) to total assets (TA), long –term debt to total assets (TA), and total debt (TD) to total assets (TA). Firm size and sales growth were the other variables computed. The data obtained after the computation of the ratios, were fed into excel programme. This was then imported into software called Statistical Package for the Social Sciences (SPSSVersion 17) for the model estimations to establish the relationship between four dependent variables, three independent variables and two control variables. Due to the quantitative nature of the study four main sections were considered for discussion under the analysis column. First, the descriptive statistics of the variables were considered. This was followed by reports on the correlation matrix. Finally, the results of the regression estimate of profitability (performance) and debt relationship concludes the discussion.

##### 4.2Results

The results of statistical significance and practical implications are presented and discussed in relation to the specific objectives. Three companies, which are listed on the Ghana Stock Exchange, were studied on their performance and their capital structure. They were, the Benso Oil Palm Plantation (BOP), Cocoa Processing Company (CPC) and Ayrton Drug Manufacturing (ADM). The first section of the analysis presented the descriptive statistics of the study variables and also discussed the trends in the capital structure and performance of the firms from the year 2008 to the end of the accounting year of 2012.

##### 4.2.1Descriptive statistics

The summary of the descriptive statistics of the dependent and independent variables are shown in Table 3. The results represent the average values of the performance indicators computed from the financial statements of CPC, BOP and ADM from 2008 to 2012.

Table 3: Descriptive statistics of the study variables

Variable	Mean	Std. deviation	Maximum	Minimum	
ROA	11.06	15.480	32.00	-9.00	15
ROE	14.86	13.239	34.00	-.95	15
EPS	-.33	.688	.390	-2.000	15
STD	20.60	22.500	75.00	6.00	15
LTD	15.60	25.238	66.00	.00	15
TD	36.20	40.331	100.00	6.00	15
FS	6.61	1.655	8.28	4.34	15
SG	14.73	36.309	85.00	-57.00	15

Source: GSE Annual Report, 2008 to 2012

The study showed that the mean value for the performance indicators, ROA, ROE and EPS, were 11.06 percent, 14.86 percent, and -0.33 percent respectively. The indication was that the average profitability margins for all the firms, with respect to the ROA, ROE and EPS, and over the specified period (2008 to 2012) were 06 percent, 14.86 percent, and -0.33 percent respectively. It was also shown that the debt variables, STD, LTD and TD averaged at 20.60 percent, 15.60 percent, and 36.20, respectively for all the firms. This indicated that 36.2 percent of the total assets of the firms were financed by debts. Moreover, 15.6 percent and 20.6 percent of the total value of the firms' assets were, respectively financed by debts that were due within one accounting year (STD) and debts with repayment dates over one accounting year (LTD). Therefore, on the average, about 63.8 percent of the firms' assets were financed from either equity finance or other internal sources. Thus, the companies were not heavily reliant on leverage. This contradicted Turkson's (2011) indication that Ghanaian firms are mostly financed by leverage, especially short-term debts (STDs).

##### 4.2.2 The profitability performance of CPC, BOP and ADM on the capital market

The assets of the firms were first described with respect to their total asset value at the end of the accounting years from 2008 to 2012. This comprised the total liabilities and the total equity. The rationale for this

analysis was to understand the trends in the performance of the firms with respects to their assets and the associated returns on assets over the stated time period. Table 1 presents the total asset value of the companies with the percentage change statistics from 2008 to 2012.

**Table 4: Change in equity, liability and assets from 2008 to 2012**

Company	2008 (Base year)	2009	%Δ	2010	%Δ	2011	%Δ	2012	%Δ
<b>Equity</b>									
CPC	50,517,883	18,791,249	-168	155,224	-12000	3,609,051	95.6	497,675	-625.1
BOP	19,984,000	20,300,000	150	21,813,000	6.93	19,901,000	-9.6	30,906,000	35.6
ADM	9,323,959	11,741,463	20.5	14,520,354	19.1	17,016,433	14.6	19,223,709	11.4
<b>Liabilities</b>									
CPC	12,502,118	46,244,967	72.9	63,319,753	26.9	145,364,196	56.4	100,296,941	-44.9
BOP	19,984,000	20,300,000	15.0	23,191,000	12.46	26,811,000	13.5	31,900,000	15.9
ADM	10,448,845	12,725,548	17.8	1,937,144	-556.9	2,174,286	10.9	2,335,317	6.8
<b>Assets</b>									
CPC	182,031,835	197,059,573	0.076	187,651,883	-0.05	202,417,309	0.072	133,650,517	-0.514
BOP	21,898	22,160	0.011	23,884	0.072	31,513	0.242	43,261	0.271
ADM	10,448,845	12,725,548	0.178	16,457,498	0.226	19,442,862	0.153	21,632,380	0.101

All figures under the column for the years are in GH¢

Source: Financial records from CPC, BOP and ADM from 2008 to 2012

This was necessary in order to understand further relationships and regression models that would later be presented in the study. The results showed that in 2008, the total equity for CPC, BOP, and ADM. were, respectively, GH¢50,517,883, GH¢19,984,000 and GH¢93, 23,959. This showed that, ADM had had the highest total value of shares, which are spread among its stockholders. In 2009, the results showed that the total worth of CPC's shares or its total equity reduced by a margin of 168 percent and further reduced by a margin of 12,000 percent in 2010. By the end of the year 2012, CPC's total equity was 0.9 percent of its initial value in 2008. The study therefore inferred that CPC performed poorly with regards to increasing the total value of equity form 2008 to 2012.

BOP's total equity increased by a margin of 150 percent, on top of the value from the year 2008, to GH¢20,300,000. It further increased by 6.93 percent in 2011 and by 2012, the total equity of BOP had grown by a margin of 35.3 percent, over the value in the base year of 2008. The study therefore inferred that BOP performed better than CPC in terms of the margin of growth in its total equity from 2008 to 2012. The total equity increased over 20 percent in 2009, and further increased by 19.1 percent and 14.6 percent in 2010 and 2011 respectively. It peaked at GH¢19,223,709 in 2012, which represented an increment of 51.49 percent over the total equity value in 2008. It was therefore shown that, ADM was most effective in increasing its total value of equity, in comparison to BOP and CPC.

The liabilities of the firms were also described and the trends in their growth were also discussed, as shown in Table 4. This was to assist in the analysis of the total value of assets, which comprise the total equity and the total liability of the firms. It was also to assist in establishing and understanding the solvency and the current ratio of the firms. The study showed that total value of the companies' liabilities, in 2008, were, respectively GH¢12,502,118, GH¢19,984,000 and GH¢10,448,845, for CPC, BOP, and ADM. In the subsequent year, 2009, the liabilities of the firms increased by a margin of 72.9 percent for CPC, 15 percent for BOP, and 17.8 percent for ADM. This showed an accumulation of increasing debts by the firms. By the year end of 2012, the percentage change in the liabilities of the firms over the figures of the base year, 2008 was 87.5 percent for CPC, 37.5 percent for BOP, and -3.47 percent for ADM. It was therefore realised that form 2008 to 2012, only ADM reduced its current liabilities from higher figures recorded in 2008. On the other hand, the debts of CPC had risen as high as 87.5 percent of figures of the base year and that of BOP had risen by a margin of 37.5 percent of the current liabilities in 2008.

The total assets for CPC, BOP, and ADM, in 2008 were, respectively, GH¢182,031,835, GH¢21,898,000 and GH¢10,448,845. This showed that, in terms of total assets, CPC had more value or in other words, had the highest total value as compared to BOP and ADM. In the subsequent year, that is in 2009, the total value of the companies' assets were, respectively 197,059,573, 21,898 and GH¢12,725,548, for CPC, BOP, and ADM. This

represented a percentage increase of 7.6, 1.1, and 17.8, indicating that the ADM had the highest increment margin in its total assets value over figure of the base year of 2008.

The accounting year of 2010 saw a reduction in the total assets of CPC by a margin of -5.0 percent, but the total assets of BOP and ADM further increased by 7.2 percent and 22.6 percent. This showed that contrary to CPC, BOP and ADM continued to grow in terms of investment in the year 2010. At the close of the accounting year of 2012, and using the base year of 2008 as the reference year, the percentage change in the total assets of CPC, BOP and ADM were, respectively, -36.1, 49.3, and 51.6. Thus, from the year 2008 to 2012, CPC's total value decreased by -0.361 percent and ADM had the highest increment by a margin of 51.6 percent.

#### 4.2.3 Solvency of the firms

In further analysis of the performance of the firms, the study examined the state of solvency of the firms by using the current ratio and the difference between the liabilities and the assets value of the firms. Table 5 therefore complements the analysis in establishing the solvency and current ratio as performance indicators of the firms.

**Table 5: Current ratio analysis from 2008 to 2012**

Company	2008		2009		2010		2011		2012	
	CA-CL GH¢	Current Ratio								
CPC	46861968	4.74	-10,280,072	0.77	-58252239	0.08	-75999836	0.47	-58070307	0.42
BOP	-12611000	0.36	-13835000	0.31	-15658000	0.32	-13600000	0.49	-10951000	0.65
ADM	-3037994	0.70	-3075154	0.75	10243537	6.28	12247537	6.63	13877393	6.94

CA = Current Assets; CL=Current Liabilities

Source:

The discussion of the CA-CL and the current ratio are based on Roden and Lewllen's (1995) assertion that the acceptable current ratios are generally between 1.5 and 3 for good businesses performance. The assertion is that when a company's current ratio is in this range, then it generally indicates good short-term financial strength. On the other hand, if current liabilities exceed current assets (CL > CA), or the current ratio is below 1, then the company may have problems meeting its short-term obligations Sounders & Cornett, (2004). Yet, if the current ratio is too high, that is above 3, then the company may not be efficiently using its current assets or its short-term financing facilities. This may also indicate problems in working capital management. The results show that, in 2008, the CPC's CA was in excess of its CL by GH¢46,861,968 and this corresponded to a current ratio of 4.74.

The statistics showed that for the subsequent accounting years, that is, from 2009 to 2012, CPC's CL exceeded its CA, and were corresponded by current ratios below the value of 1. Thus, based on source's indication, it could be asserted that the company could have been facing some liquidity problems.

The situation was much the same for BOP from 2008 to 2012, where the firm recorded current ratios below the value of 1, for each accounting year. On the other hand, ADM recorded surpluses amounting to GH¢10,243,537 which corresponded to a current ratio of 6.28 and by the end of the 2012 accounting year, the current ratio was 6.94. This was above the theoretical range of 1.5 to 3, which according to Sounders and Cornett (2004), could reflect some inefficiencies in the use of the company's current assets or its short-term financial facilities. The results therefore, showed that none of the firms could maintain its CA to CL liability ratio at optimum levels. This suggested general inefficiencies among the companies.

#### 4.2.4 Return on assets (ROA)

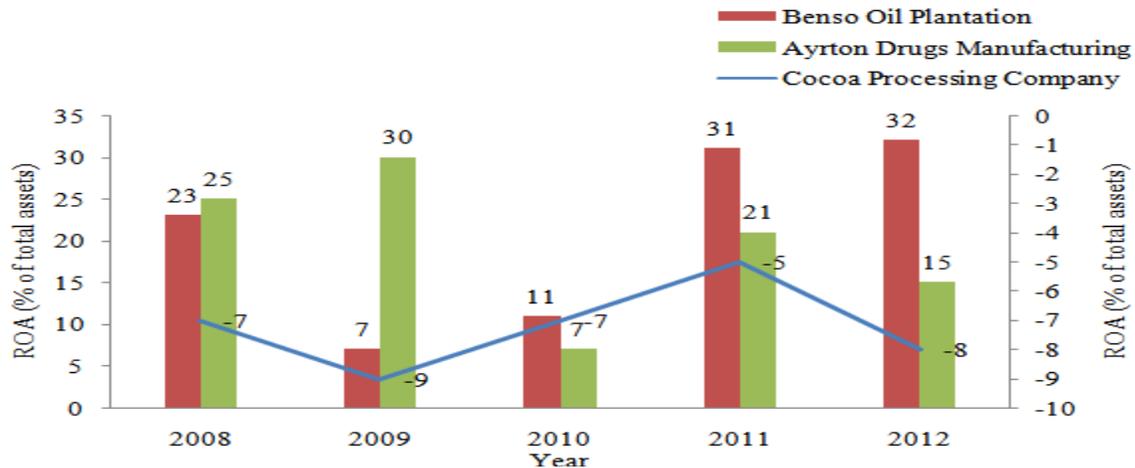
The study also described the return on assets (ROA), which indicated how profitable the companies were in generating revenue with each cedi of asset they owned. The purpose of this analysis was to gain a further insight into the performance of the firms with respects to their profitability over the period considered for the study. Figure 1 presents the results on the ROA for CPC, BOP, and ADM. The Figure shows two axes, primary axis has positive ROA values and the secondary axis has negative ROA values.

According to the results, BOP and ADM recorded positive ROA from 2008 to 2012, but CPC on the other hand recorded negative ROA over the same period. This indicated that generally, CPC sustained financial losses

from 2008 to 2012, while BOP and ADM made profits of varying magnitudes. The study noted that while the ROA for BOP and ADM were 23 percent and 25 percent respectively, for the year 2008, the ROA for CPC was -0.21 percent.

This indicated that BOP made 23 percent profit on every invested cedi and ADM made 25 percent profit on every invested cedi, but CPC made losses amount to 7 percent on every invested cedi. In the subsequent years, BOP's ROA fell to 7 percent (in 2009), but rose to 31 percent (in 2010) and peaked at 32 percent in 2012. The statistics showed that from 2008 to 2012, the ROA of BOP increased by a margin of 0.391.

**Figure 1: Trends in ROA from 2008 to 2012**



Source: GSE Annual Report, 2008 to 2012

The analysis also showed that the ROA of ADM peaked at 30 percent of every invested cedi in 2009, but at the end of the accounting year of 2012, it had dropped to 15 percent. The study therefore indicated that from 2008 to 2012, ADM's ROA fell by a margin of 0.667. This showed a dip in the performance of the firm over the study period. In the case of CPC, the firm was making losses amounting to 7 percent of every invested cedi in 2008 and the losses further increased to 9 percent of investments in 2009. At the close of the year 2012, the ROA of CPC was placed at -8 percent. Thus, from 2008 to 2012, the margin of losses increased by 0.125 percent.

In the discussion of the results, it was shown that BOP performed best, among the three firms, over the period from 2008 to 2012. The ROA does not however, represent the money value of profits made, but only the margin of profits made. Thus, although BOP performed better than the other firms, in terms of the margin of profits made, its actual value of profits may be lesser than the profits made by the other firms.

Table 6 shows the differences in the averages of the ROA for CPC, BOP and ADM. Based on the fact that the data violated the homogeneity assumption, the non-parametric analysis, Kruskal Wallis H Test, was used to test for the differences in the ROA of the firms, since the test is designed for non-homogenous or skewed data. This was to prevent for any distortions in the results that might be underlain by the violation of the homogeneity of variances underlying One-Way ANOVA.

It was shown that BOP had the highest average ROA of 25 percent while ADM and CPC followed suite with -7.00 percent and -0.79 percent respectively. Thus, over the 2008 to 2012 accounting years, BOP gained the highest ROA among the three firms. It was found that the differences were statistically significant at an alpha of 0.01 (Chi-square = 9.454; df = 2; p-value = 0.009). This showed that BOP had a significantly higher ROA than CPC and ADM.

**Table 6: Differences in the ROA of CPC, BOP and ADM**

Company	ROE			Skewness		Observations
	Mean	Median	Mode	Stat.	Std Err.	
CPC	-0.59	-0.79	-0.60	-0.467	0.913	5
BOP	22.40	25.00	22.00	-0.329	0.913	5
ADM	-7.20	-7.00	-7.00	0.552	0.913	5
Total	11.06	11.00	-7.00	-0.039	0.580	15

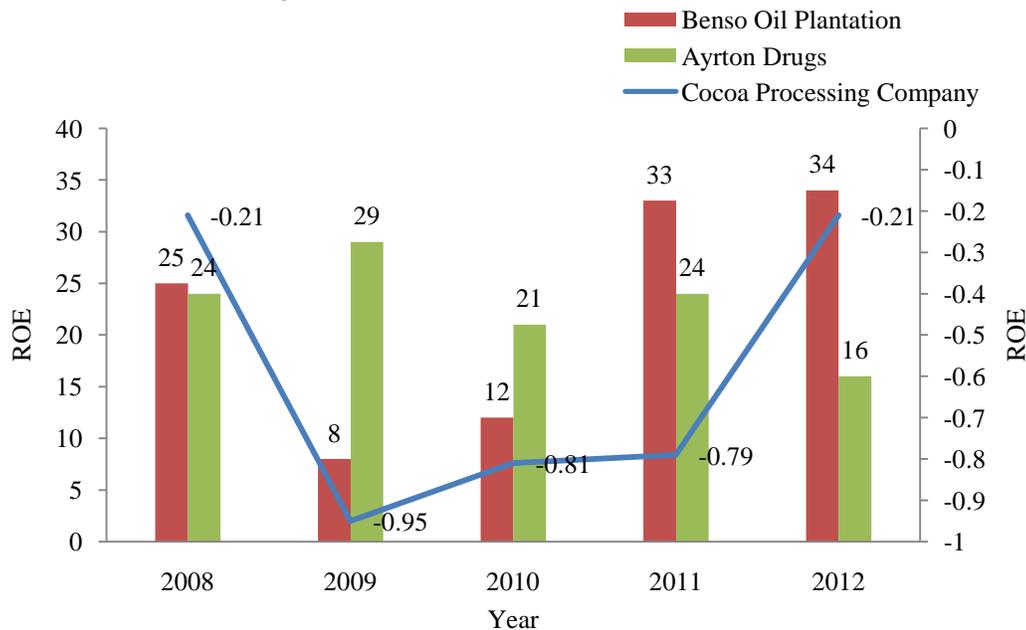
Chi-square = 9.454; df = 2; p-value = 0.009  
 Source: GSE Annual Report, 2008 to 2012

**4.2.5 Equity and return on Equity (ROE)**

The study also described the performance of the firms with regards to the total value of equity and the return on equity (ROE). According to source, the equity of the firm represents the value of the firm that are in shareholdings and the return on equity is a measure of the rate of return on the ownership interest of the common stockholders. The ROE therefore measures a firm’s efficiency at generating profits from every unit of shareholders’ equity Wald, (1999). Figure 2 presents the ROE for CPC, BOP and ADM.

The Figure shows two axes. The primary axis has positive ROE values and the secondary axis has negative ROE values. BOP and ADM recorded positive ROE from 2008 to 2012, but CPC on the other hand recorded negative ROE over the same period. The trends in the performance of the firms showed that BOP recorded an ROE of 25 percent in the based year, 2008, but this reduced to 8 percent in 2009. In the subsequent years, the ROE increased and peaked at 34 percent at the end of the 2012 accounting year.

**Figure 2: Trends in ROE from 2008 to 2012**



Source: GSE Annual Report, 2008 to 2012

ADM, similarly, had an ROE of 24 percent in 2008, and peaked at 29 percent in 2009, but by the year end of 2012, the ROE had dropped to 16 percent. This represented a drop in investors’ equity and profitability, as well as

a drop in the performance of the firm. CPC on the other hand, sustained negative ROE figures throughout the 2008 and 2012, but the lowest value of ROE the firm sustained was in 2009, when its ROE was -0.95 percent of investors' shareholdings. By the year end of 2012, the ROA of CPC was -0.21 percent.

According to Wald (1999), positive ROEs is a measure of high efficiency in profit generation, given that, higher values represent higher levels of efficiency. On the other hand, negative ROE represents potential indebtedness arising when the market value of shares fall below the outstanding amount at which the shares were purchased. Thus, the results indicated that, from 2008 to 2012, the value of CPC shares fell below the initial price at which the shares were floated.

Table 7 shows the differences in the averages of the ROE for CPC, BOP and ADM. Based on the fact that the data violated the homogeneity assumption, the non-parametric analysis, Kruskal Wallis H Test, was used to test for the differences in the ROE of the firms, since the test is designed for non-homogenous or skewed data. This was to prevent for any distortions in the results that might be underlain by the violation of the homogeneity of variances underlying One-Way ANOVA.

It was shown that BOP had the highest average ROE of 20.8 percent while ADM and CPC followed suite with 21 percent and -7.00 percent respectively. Thus, over the 2008 to 2012 accounting years, BOP gained the highest ROE among the three firms. It was found that the differences were statistically significant at an alpha of 0.01 (Chi-square = 9.489; df = 2; p-value = 0.009). This showed that BOP had a significantly higher ROE than CPC and ADM.

Company	ROA			Skewness		Observations
	Mean	Median	Mode	Stat.	Std Err.	
CPC	-7.20	-7.00	-7.00	0.552	0.913	5
BOP	20.80	23.00	23.00	-0.306	0.913	5
ADM	19.6	21.00	21.00	-0.475	0.913	5
Total	14.86	16.00	22.00	-0.10	0.580	15

Chi-square = 9.489; df = 2; p-value = 0.009

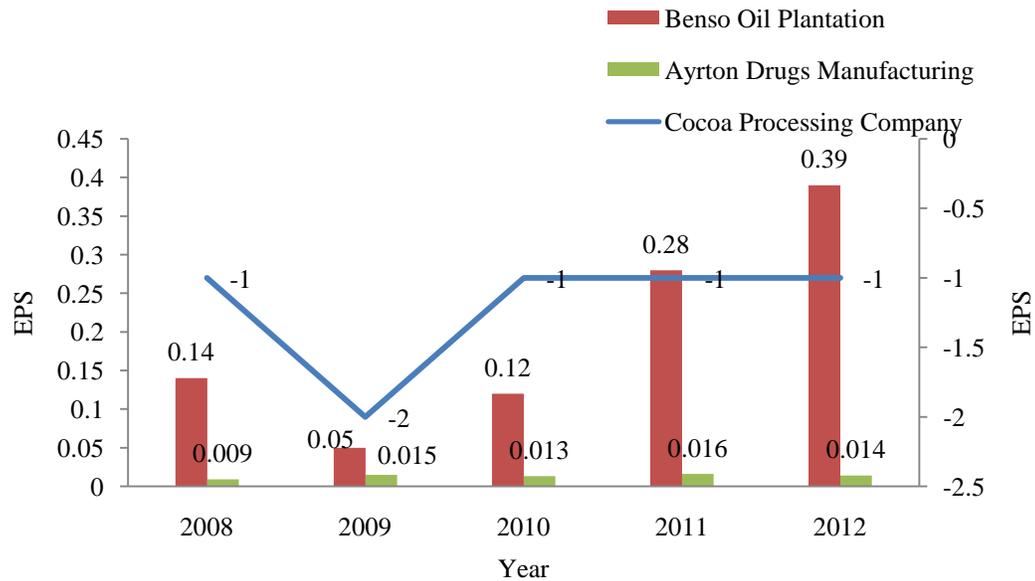
Source: GSE Annual Report, 2008 to 2012

**Table 7: Differences in the ROA of CPC, BOP and ADM**

#### 4.2.6 Earnings per share (EPS)

The performance of the companies were also analysed on the basis of their earnings per share traded on the stock market (EPS). The EPS is the portion of a company's profit allocated to each outstanding share of common stock (Van Horne & Wachowicz, 2008). In the other words, it is the amount of the company's profit that can be allocated or attributed to one share of its stock. Thus, the EPS is also a measure of profitability and also a measure of the attractiveness of the firm to investors. Figure 3 presents the EPS of BOP, ADM, and CPC from 2008 to 2012.

Figure 3: Trends in EPS from 2008 to 2012



Source: GSE Annual Report, 2008 to 2012

The Figure shows a primary and a secondary axis. The primary axis presents the positive EPS and the secondary axis shows the negative EPS. According to the results, BOP's earnings per share, as at the year 2008, was Fourteen Ghana Pesewas (Ghp14) on every share and by 2012, the EPS was Thirty-nine Ghana Pesewas (Ghp39), representing an increment of 179 percent over the EPS of 2008. In comparison with BOP, ADM recorded lower EPS from the year 2008, through to 2012. Yet, CPC had negative EPS throughout the same period. This indicated that BOP performed better than ADM and CPC with regards to the EPS. Moreover, the results also indicated that CPC sustained negative growth on its shares from the year 2008 to 2012, which showed a poor performance on the stock market in the specified period.

Table 8 shows the differences in the averages of the EPS for CPC, BOP and ADM. Based on the fact that the data violated the homogeneity assumption, the non-parametric analysis, Kruskal Wallis H Test, was used to test for the differences in the EPS of the firms, since the test is designed for non-homogenous or skewed data. This was to prevent for any distortions in the results that might be underlain by the violation of the homogeneity of variances underlying One-Way ANOVA.

Table 8: Differences in the EPS of CPC, BOP and ADM

EPS						
Company	Mean	Median	Mode	Skewness Stat.	Std Err.	Observations
CPC	-1.20	-1.10	-1.10	-2.236	0.913	5
BOP	0.19	0.14	0.14	0.667	0.913	5
ADM	0.01	0.014	0.014	-1.339	0.913	5
<b>Total</b>	<b>-0.330</b>	<b>0.014</b>	<b>-1.00</b>	<b>-1.214</b>	<b>0.580</b>	<b>15</b>

Chi-square = 12.727; df = 2; p-value = 0.002

Source: GSE Annual Report, 2008 to 2012

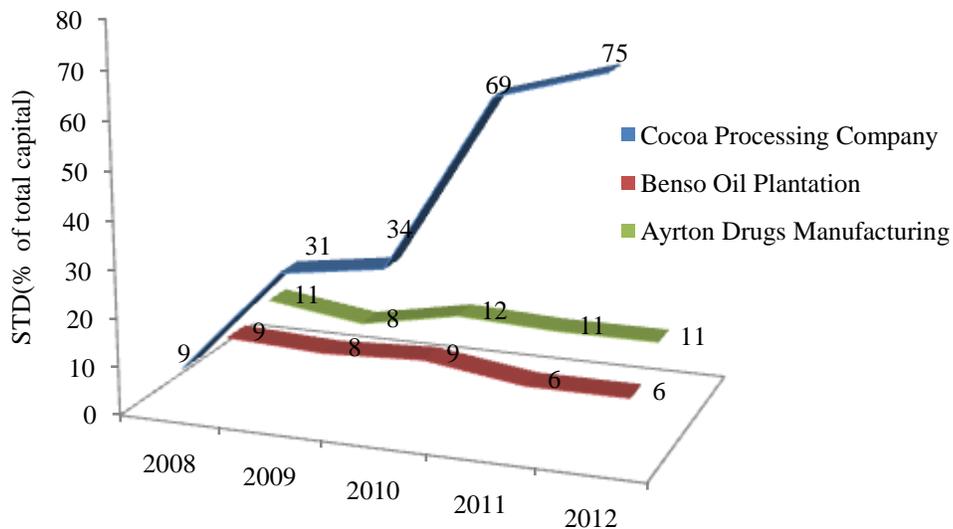
It was shown that BOP had the highest average EPS of Nineteen Ghana Pesewas (Ghp19) while ADM and CPC followed suite with One Ghana Pesewa (Ghp1) and negative One Hundred and Twenty Ghana Pesewas (-Ghp120) respectively. Thus, over the 2008 to 2012 accounting years, BOP gained the highest EPS among the three firms. Kruskal Wallis H test was used to test for the statistical significance of the differences in the EPS of the firms. It was found that the differences were statistically significant at an alpha of 0.01. This showed that BOP had a significantly higher EPS than CPC and ADM.

#### 4.2.7 Debt to capital ratios of CPC, ADM and BOP

The independent variables of the study included the ratio of short-term debt to total assets (STD), the ratio of long-term debts to total assets (LTD) and total debts to total assets (TD). These were employed as measures of leverage and the specific relationship between the variables and the performance measures were established. Prior to that, the trends in the independent variables over the period under study were examined. This was to provide further insight into the behaviour of the variables in association with the firms' performance indicators.

The STD was described first and the results of the analysis are shown in Figure 4 below. The STD was measured as the ratio to total capital and it represented the percentage of the capital which is financed by short-term borrowings. The study found that CPC's STD had risen from 9 percent to 75 percent over the period from 2008 to 2012. At the year end of 2012, the STD of CPC had peaked at 75 percent. This indicated that, in a period of less than one year, the company had to finance a 75 percent of its total assets as debts. Thus, the company was not liquid in the short-run and was likely to be making losses in the short-run. In the short-run therefore, CPC was not likely to sustain its debts. On the other hand, ADM maintained its STD from figures from the 2008 through to 2012, with some slight fluctuations.

**Figure 4: Trends in STD from 2008 to 2012**



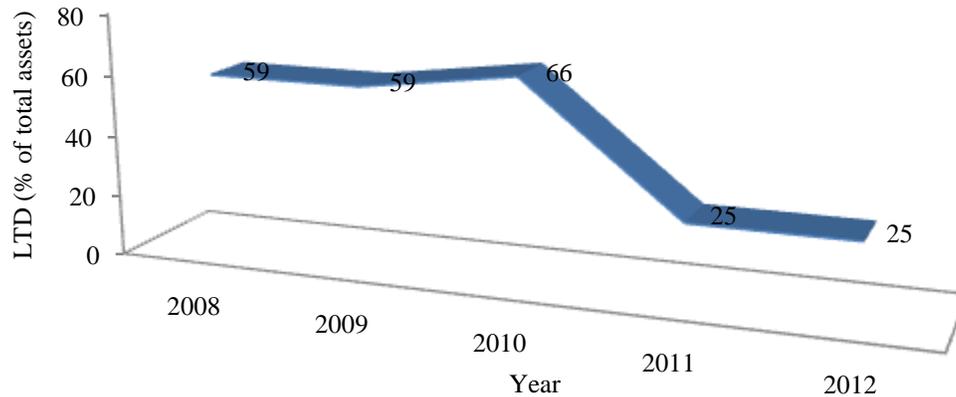
Source: GSE Annual Report, 2008 to 2012

BOP on the other had reduced its STD from 9% to 6%, respectively from 2008 to 2012 accounting years. It was therefore shown that, BOP had the lowest STD and thus, had the lowest debt service ratio to capital in the short term. On the other hand, CPC had grown more dependents on debts to finance their growth in the short-term term.

The study proceeded to examine the ratio of long-term debts to total assets (LTD). According to Van Horne and Wachowicz (2008), the LTD measures the long-term debt service to total asset ratio. Van Horne and Wachowicz (2008) also assert that, the ratio measures the extent to which the firms use long-term debt to finance their operations and how this type of debts associates with the firm's profitability for the period under study. Figure

5 shows the trends in the LTD as they relate to the study organisations, over the designated period, which the study covers. Given the lack of data of LTD for BOP and ADM, the LTD for BOP was used for analysis.

**Figure 5: Trends in STD from 2008 to 2012**

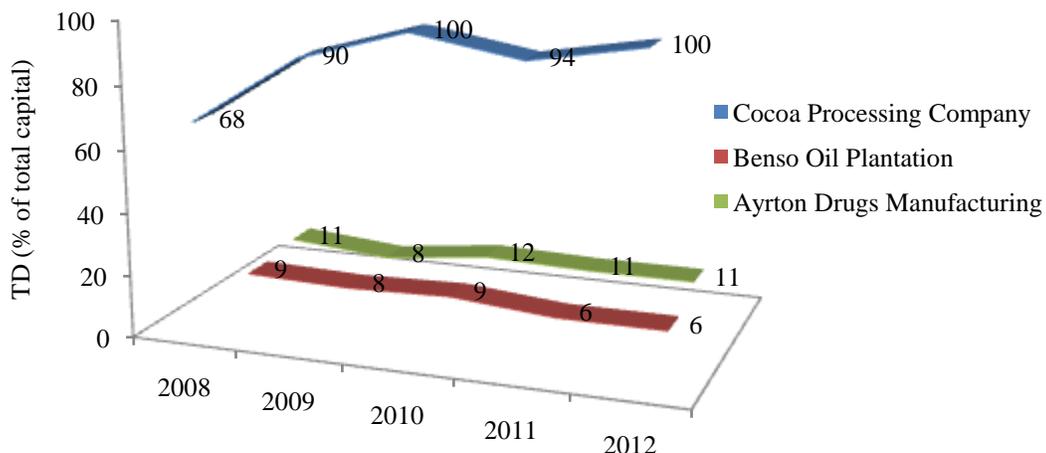


Source: GSE Annual Report, 2008 to 2012

According to the results, BOP's LTD in 2008 was 59 percent, which showed that for every cedi that BOP had in assets, it had to pay 59 percent to service debts which were due for more than one year. The analysis is based on Warner's (1977) description of a long-term debt as loans and financial obligations lasting more than one year, and the fact that a year-over-year decrease in the LTD would suggest that, the company is progressively becoming less dependent on debt to grow their business. In the case of BOP, the LTD was reduced over half, to 25percent at the end of the 2012 accounting year, which suggested that the company had become less dependent on debts to finance their growth in the long term.

The total liabilities of the companies were also examined as shown in Figure 6 below. This was to show the trends in the debt accumulation or the firm's assets that are held as liabilities. The analysis was also based on the fact that the higher total debt ratios would suggest a general dependence on debts for the firms.

**Figure 6: Trends in TD from 2008 to 2012**



Source: GSE Annual Report, 2008 to 2012

According to the results, CPC's total debt to total capital ratio (TD) was 68 per cent in 2008, which depicted that, for every cedi of asset that the company owned, it had to service it with a debt of 68 per cent. CPC's dependence on debt further grew in the subsequent years and peaked at 100 per cent in the year 2012. Contrary to the high debt ratio found with CPC, ADM's TD was 11 per cent in 2008 and it followed through, with some slight variations, to the year 2012 where the CPC was 11 per cent. In the case of BOP, the TD, at the base year, 2008, was lower than the TD of its counterparts in any other year, and at the end of the year 2012, the TD for BOP was 6 percent. This showed that BOP maintained the lowest debt to capital ratio through the entire period of the study. The study therefore indicated that while CPC dependence on debts grew, ADM maintained its level of dependence on debts and BOP on the other hand reduced its dependence on debts.

**4.2.8 Description of control variables**

Abor (2005) maintains that the size of a firm often influences its capital structure, such that larger firms tend to be more diversified and hence have lower variance of earnings, making them able to tolerate high debt ratios (Castanias, 1983; Wald, 1999). Smaller firms, on the other hand, may find it relatively more costly to resolve information asymmetries with lenders thus may present lower debt ratios. Given the fact that some studies support a positive relationship between firm size and leverage (Marsh,1982; Friend and Lang ,1988; Rajan and Zingales, 1995; Cassar and Holmes, 2003), this study tested for the statistical differences in the size of the study organisations. This was to inform the study of the need to control for the size of the firms over the study period. Table 9 shows the differences in the firm size for CPC, BOP and ADM.

Company	Firm size			Skewness	Std Err.	Observations
	Mean	Median	Mode	Stat.		
CPC	8.21	8.25	8.00	-0.551	0.913	5
BOP	4.43	4.38	4.00	1.237	0.913	5
ADM	7.19	7.23	7.00	-0.438	0.913	5

Chi-square = 12.522; df = 2; p-value = 0.002  
Source: GSE Annual Report, 2008 to 2012

**Table 9: Differences in the firm size of CPC, BOP and ADM**

The results present the mean, median and mode of the firm size, which are all measures of central tendency. In order to determine the representative average, the distribution was subjected to a test of normality. According to Pallant (2005), the theoretical skewness statistic for normality is a value of 0.000, which indicates that the mean, median, and mode, calculated for the distribution has the same statistical value. However, given the fact that a skewness of 0.000 may not always be achievable, a value of  $\pm 0.5$  is often statistically accepted as normality. In the case of CPC and BOP the distribution was not statistically normal. Thus, the medians were adopted as the representative averages and the Kruskal-Wallis H test was used to test for the statistical significance of the differences in the firm sizes.

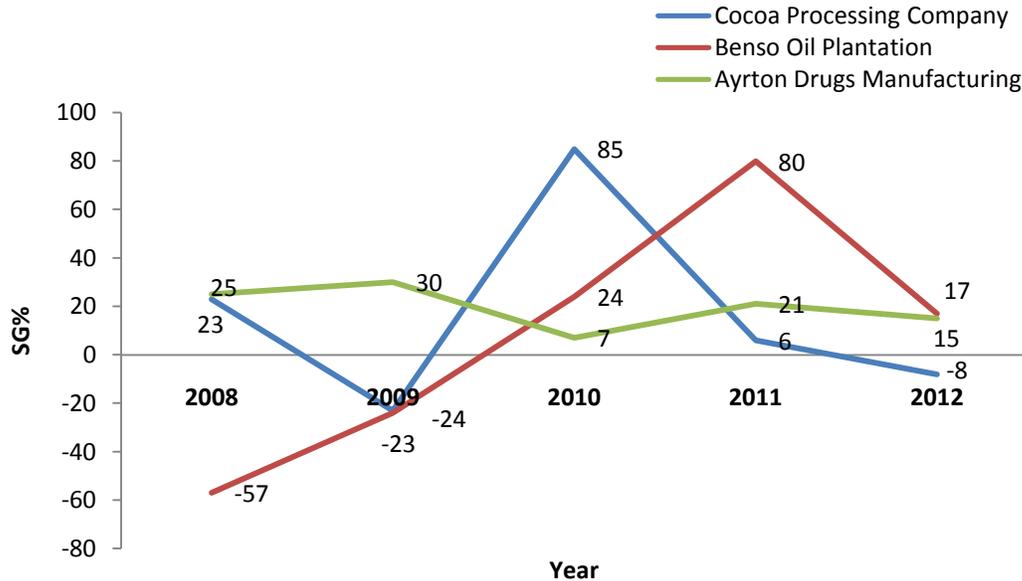
The results showed that the average size of CPC, BOP and ADM from 2008 to 2012 was respectively, 8.25, 4.38 and 7.23. This showed that CPC had the highest average size over the study period. The chi-square value (12.522; df =2), which was obtained from the Kruskal Wallis H test was associated with a p-value of 0.002. It was therefore found that the differences in the firm size were statistically significant at an alpha of 0.01. This justified the resolve to control for the firm size in the regression analysis.

In further analysis, the sales growth of the firms was also examined. Sales growth, according to Weston and Brigham (1992), is an indicator for the percentage increase of sales between two reference periods. In this study, the sales growth is used as an independent variable which explains the market performance of a company.

7 shows the sales growth of CPC, BOP and ADM for period covering 2008 to the year 2012. The study found that the sales growth for CPC, BOP and ADM, in the year 2008, was respectively, 23 percent, -57percent and 25 percent. Thus, BOP stands out as the firm which recorded a reduction in sales over the figures from the previous

accounting year. Moreover, in the following year, 2009, CPC recorded a reduction in sales by a margin of 23 percent and BOP's sales further dipped by 24 percent of the sales figures in 2008. In the same period, ADMs sales still increased by 30 percent of the sales volumes in 2008. Further examination of the results indicates that, generally, ADMs sales growth pattern least fluctuated and it maintained a positive growth rate over the entire study period.

**Figure 7: Sales growth from 2008 to 2012**



Source: GSE Annual Report, 2008 to 2012

Sales growth was also controlled for the study on the basis that firms with high growth will capture relatively higher debt ratios and that there is also a relationship between the degree of previous growth and future growth Marsh, (1982). Thus, the influence of sales growth can distort actual effects of the capital structure on a firms' performance.

**4.2.9 Relationship between capital structure and performance of CPC, BOP and ADM**

There are controversies about the relationship and the effects of capital structure on a firm's performance. For example, Modigliani and Miller (1958) suggested that in the perfect capital market financing strategies do not affect the value of the firm, but they later argued that firm value can be increased by changing the capital structure because of tax advantage of debts (Modigliani and Miller, 1963). Moreover, studies, such as (Taub, 1975; Roden and Lewellen, 1995; Champion, 1999; and Berger and Bonaccorsi di Patti, 2006) showed positive relationship between a firm's performance and capital structure. Other studies, such as (Simerly and Li, 2000; Booth et al., 2001; and Ibrahim, 2009) found contradicting evidence, which suggests negative, weak or no relationship between firm's performance and capital structure. This section is therefore devoted to clarifying this argument with respects to the chosen study institution, within the context of the study period (2008 to 2012). Table 10 shows the correlation matrix of the study variables.

The Table shows the relationship between the independent variables (STD, LTD and TD) and the dependent variables (ROA, ROE and EPS), while controlling for sales growth (SG) and firm size (FS). It was found that ROE was strongly, negatively and significantly correlated with STD (at 0.05 alpha level), LTD (at 0.05 alpha level) and TD (at 0.05 alpha level). The inverse relationship indicated that any increment in the STD, LTD and TD will decrease the ROE significantly. The findings contradicted Abor's (2005) assertion that Short-term Debt and Total Debt are positively related with a firm's ROE, but the results confirmed Abor's (2005) findings that Long-term Debt is negatively related with a firm's ROE. The findings also contradicted Gatsi and Akoto's (2010) findings that, Short-term Debts (STD), Long-term Debts (LTD), and Total Debt (TD) are insignificant in determining returns on equity (ROE).

Table 10: Correlation matrix of the study variables

	SG	ROE	ROA	EPS	STD	LTD	TD	FS
SG	1							
ROE	.135 (.631)	1						
ROA	.138 (.623)	.972** (.000)	1					
EPS	.106 (.707)	.838** (.000)	.853** (.000)	1				
STD	-.111 (.694)	-.656** (.008)	-.658** (.008)	-.643** (.010)	1			
LTD	.165 (.558)	-.775** (.001)	-.790** (.000)	-.887** (.000)	.426 (.114)	1		
TD	.041 (.884)	-.851** (.000)	-.862** (.000)	-.914** (.000)	.824** (.000)	.863** (.000)	1	
FS	.140 (.619)	-.586* (.022)	-.630* (.012)	-.733** (.002)	.555* (.032)	.649** (.009)	.716** (.003)	1

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

\*. Correlation is significant at the 0.05 level (2-tailed); p-values are in parenthesis

Source: GSE Annual Report, 2008 to 2012

The study also found that ROA was strongly, negatively and significantly correlated with STD (at 0.05 alpha level), LTD (at 0.05 alpha level) and TD (at 0.05 alpha level). The inverse relationship indicated that any increment in the STD, LTD and TD will decrease the firms' ROA significantly. The findings were contrary to Kyereboah-Coleman's (2007) indication that high leverage positively related with ROA and ROE in institutions. On the other hand, the results of the study corroborate with Abor's (2007) assertion that, long-term and total debt level is negatively related with performance, in small and medium scale enterprises in Ghana.

Moreover, the results show that EPS was strongly, negatively and significantly correlated with STD (at 0.05 alpha level), LTD (at 0.05 alpha level) and TD (at 0.05 alpha level). The inverse relationship indicated that any increment in the STD, LTD and TD will decrease the firms' EPS significantly. These findings support Rajan and Zingalas' (1995) as well as Wald's (1999) indication that, there is a significantly negative correlation between profitability and leverage. It also contradicts several other studies, such as (Ghosh et al. 2000; Hadlock and James, 2002; and Berger and Bonaccorsi di Patti, 2006), which found positive relationships between leverage and profitability.

With respect to the control variables, SG was weakly and positively correlated with ROE, ROA, EPS, LTD, TD and FS, but it was negatively correlated with STD. There was no statistically significant relationship between sales growth and any of the other variables. The findings contradict earlier studies that found negative relationship between growth and debt ratio (Kim and Sorenson, 1986; Rajan and zingales, 1995; Al-Sikran, 2001). However, in the case of LTD, the findings support these studies. In this study, a positive relationship was expected between sales growth and the dependent variables (ROE, ROA and EPS). Although this expectation was confirmed, the associations were not statistically significant. This showed that sales growth has little or no relations with the firms' performance on the capital market.

On the other hand, the FS was strongly and negatively correlated with ROA, ROE and EPS. The association between the variables were statistically significant. However, there was positive, strong and significant relationship between the firm size and STD (at an alpha of 0.01), LTD (at an alpha of 0.05) and TD (at an alpha of 0.05). Thus, the study showed that, larger firms had higher debt ratios and smaller firms had lower debt ratios. The

findings contradicted the assertion that smaller firms have higher debt ratios Fischer, et al., (1989). However, the results confirmed the fact that most of the studies support a positive relationship between firm sizes and leverage (Marsh, 1982; Friend and Lang, 1988; Rajan and Zingales, 1995; Cassar and Holmes, 2003).

**4.2.10 Regression analysis**

Ordinary Least Squares (OLS) regression was used to analyse the relationship between capital structure and profitability. Measures of profitability (ROA, ROE and EPS) were regressed against measures of debt (STD, LTD and TD). Given that the data for the TD of the control variables were firm size (FS) and sales growth (SG). Table 11 presents the change statistics for the model, showing the changes in the relationships and effects of the study variables on the dependent variables with and without the effects of the controlled variables.

**Table 11: Summary model for effects of debt ratio variables on ROA**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics				
					Change	F Change	df1	df2	Sig. F Change
1	.670 <sup>a</sup>	.449	.357	12.41038	.449	4.891	2	12	.028
2	.891 <sup>b</sup>	.794	.711	8.31577	.345	8.363	2	10	.007

a. Predictors: (Constant), FS, SG

b. Predictors: (Constant), FS, SG, STD, LTD, TD

c. Dependent Variable: ROA

Source: GSE Annual Report, 2008 to 2012

The Table shows under Model 1 row that, the coefficient of correlation of the model when the control variables (FS and SG) are entered into the model is 0.670 which shows a strong positive relationship between the control variables (FS and SG) and the dependent variable (ROA). The strength of the correlation increases to 0.891 when all the debt variables and the control variables are entered. Similarly, it shows that the control variables alone explains 44.9 percent of the changes in the ROA, thus, by controlling for FS and SG, this effect will be taken out of the model.

The next step was to examine the individual effects of the independent variable on the dependent variable ROA. Table NUMM presents the results on the relationship between the ROA and the measures of debt (STD, LTD and TD).

**Table 12: Effects of debt variables on return on investment**

Predictors	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Std. dev.
	B	Std. Error	Beta			
(Constant)	24.111	11.207		2.151	.057	
SG	.093	.064	.217	1.447	.178	36.30
FS	-.541	1.950	-.058	-.277	.787	1.65
STD	-.174	.181	-.284	-.965	.357	22.50
LTD	-.398	.117	-.650	-3.395	.007*	25.23
TD	-.315	.079	-.820	-3.987	.002*	40.33

\*significant at an alpha of 0.01

Dependent variable: Return on Assets (ROA)

Source: GSE Annual Report, 2008 to 2012

The results showed that the TD had the highest standardized coefficient (in terms of the absolute numbers) of 0.820, which indicated that TD had the most effect on the changes in ROA. Specifically, any unit increase in the TD would lead to a decrease in ROA by 0.820 and vice versa. On the other hand, any unit increase in the LTD would lead to a decrease in ROA by 0.650 and vice versa. This was statistically significant at an alpha of 0.01. On

the other hand, the STD did not have any statistically significant effect on ROA. Thus, the most important variables that explained ROA were the Total Debt (TD) and the Long-term Debt ratio (LTD). Based on the standard deviation of 40.33 and the standardized beta of -0.820, the study calculated the effect size of STD in actual monetary units (by 1 standard deviation) as the product of the standard deviation and the standardized beta Pallant, (2005). The product of 33.076 showed that, an increase in the TD by one standard deviation will decrease the ROA by 33.08 percent units and vice versa. On the other hand, an increase in the STD by one standard deviation will decrease the ROA by 14.63 percent and vice versa.

The total effect size of the model was calculated using Cohen’s  $f^2$  which is given as:

$$f^2 = \frac{R^2_{AB} - R^2_A}{1 - R^2_{AB}} \dots\dots\dots(4)$$

Where  $f^2$  = effect size

$R^2_{AB}$  = the coefficient of determination of all the predictors

$R^2_A$  = the coefficient of determination of the control variables

From the model, an effect size of 1.674 was calculated. By convention, effect sizes of 0.02, 0.15, and 0.35 are termed small, medium, and large, respectively Cohen, (1988). Thus, the effect size of 1.674 showed that the predictors had a large effect on the dependent variable. The results of the study corroborated with findings from Al-Sikran (2001) that found inverse effects of debts on returns.

The effects of the debt ratios on the ROE were also analysed, while controlling for the effects of the FS and SG. Table 13 presents the change statistics for the model, showing the changes in the relationships and effects of the study variables on the dependent variables with and without the effects of the controlled variables.

**Table 13: Summary model for effects of debt ratio variables on ROE**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.626 <sup>a</sup>	.392	.290	11.15390	.392	3.863	2	12	.051
2	.877 <sup>b</sup>	.770	.678	7.51370	.378	8.222	2	10	.008

a. Predictors: (Constant), FS, SG

b. Predictors: (Constant), FS, SG, STD, LTD, TD

c. Dependent Variable: ROE

Source: GSE Annual Report, 2008 to 2012

The Table shows under Model 1 row that, the coefficient of determination of the model when the control variables (FS and SG) are entered into the model is 0.392 which shows a strong positive relationship between the control variables (FS and SG) and the dependent variable (ROE). The strength of the explanatory variables increases to 0.770 when all the debt variables and the control variables are entered. Similarly, it shows that the control variables alone explains 39.2 percent of the changes in the ROE, thus, by controlling for FS and SG, this effect will be taken out of the model.

The next step was to examine the individual effects of the independent variable on the dependent variable ROE. Table 14 presents the results on the relationship between the ROE and the measures of debt (STD, LTD and TD).

**Table 14: Effects of debt variables on return on investment**

Predictors	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Std. dev.
	B	Std. Error	Beta			
(Constant)	22.618	10.126		2.234	.050	
SG	.074	.058	.202	1.277	.231	36.30
FS	.149	1.762	.019	.085	.934	1.65
STD	-.350	.106	-.667	-3.302	.008*	22.50
LTD	-.212	.111	-.360	-1.906	.086	25.23

TD	-.284	.071	-.865	-4.018	.002*	40.33
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\*significant at an alpha of 0.01  
 Dependent variable: Return on Equity (ROE)  
 Source: GSE Annual Report, 2008 to 2012

The results showed that the TD had the highest standardized coefficient (in terms of the absolute numbers) of 0.865, which indicated that TD had the most explanatory effect on the changes in ROE. Specifically, any unit increase in the TD would lead to a decrease in ROE by 0.865 (p-value = 0.002) and vice versa. This was statistically significant at an alpha of 0.01. Similarly, the STD also significantly and inversely explained the changes in ROE (p-value = 0.008). Based on the standardized beta, the study showed that a unit increase in the STD would decrease the ROE by 0.667. The effect size of the TD and STD on the ROE showed that an increase in TD by one standard deviation would reduce the ROE by GH¢34.88 and vice versa. On the other hand, an increase in the STD by one standard deviation would reduce the ROE by GH¢15.00. Generally however, the effect size of 1.643 showed that the predictors had a large effect on the dependent variable. The results of the study corroborated with findings from Al-Sikran (2001) that found inverse effects of debts on returns.

The effects of the debt ratios on the EPS were also analysed, while controlling for the effects of the FS and SG. Table 15 presents the change statistics for the model, showing the changes in the relationships and effects of the study variables on the dependent variables with and without the effects of the controlled variables.

**Table 15: Summary model for effects of debt ratio variables on ROA**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics				
					Change	F Change	df1	df2	Sig. F Change
1	.762 <sup>a</sup>	.581	.511	.481096	.581	8.328	2	12	.005
2	.964 <sup>b</sup>	.929	.900	.217373	.348	24.390	2	10	.000

a. Predictors: (Constant), FS, SG  
 b. Predictors: (Constant), FS, SG, STD, LTD, TD  
 c. Dependent Variable: EPS  
 Source: GSE Annual Report, 2008 to 2012

The Table shows under Model 1 row that, the coefficient of determination of the model when the control variables (FS and SG) are entered into the model is 0.581, which shows that the control variables alone explains 58.1 percent of the changes in the ROE. The debt variables and the control variables have a combined effect of 0.929, which indicates that 92.9 percent of the changes in the EPS are explained by the combined effect of FS, SG, STD, LTD and TD. Without the controlled variables, other variables STD, LTD and TD explain 46.9 percent of the changes in EPS. The effect size of STD, LTD and TD was calculated as 4.901 and it showed that the predictors had a large effect on the dependent variable.

The next step was to examine the individual effects of the independent variable on the dependent variable EPS. Table 16 presents the results on the relationship between the EPS and the measures of debt (STD, LTD and TD).

**Table 16: Effects of debt variables on return on investment**

Predictors	Unstandardized Coefficients		Standardized Coefficients		Sig.	Std. dev.
	B	Std. Error	Beta	T		
(Constant)	.544	.293		1.858	.093	
SG	.004	.002	.225	2.554	.029	36.30
FS	-.075	.051	-.181	-1.478	.170	1.65
STD	-.020	.003	-.716	-6.364	.000	22.50
LTD	-.007	.003	-.213	-2.029	.070	25.23
TD	-.013	.003	-.779	-5.079	.000	40.33

\*significant at an alpha of 0.01  
Dependent variable: Earnings per share (EPS)  
Source: GSE Annual Report, 2008 to 2012

The results showed that the TD and STD significantly explained the changes in EPS at an alpha level of 0.05. Specifically, any unit increase in the TD would lead to a decrease in EPS by 0.779 (p-value = 0.002) and vice versa. Similarly, a unit increase in the STD would decrease the EPS by 0.716. The effect size of the TD and STD on the EPS showed that an increase in TD by one standard deviation would reduce the EPS by 31.41 percent. Similarly, an increase in the STD by one standard deviation would reduce the ROE by 16.11 percent. The results of the study corroborated with findings from Al-Sikran (2001) that found inverse effects of debts on returns.

## V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Summary

The study set out to evaluate the effects of organisational capital structure on the performance firms in Ghana. An analytical research design was adopted to study three firms namely, the Benso Oil Palm Plantation (BOP), Cocoa Processing Company (CPC) and Ayrton Drug Manufacturing (ADM) that were listed on the Ghana Stock Exchange. The study covered the period from 2008 to 2012 and the data used were analysed with both descriptive statistics and inferential statistical tools like ANOVA, Kruskal Wallis H test, and regression analysis.

The first objective is to examine the profitability performance of the firms. The study showed that:

1. ADM was most effective in increasing its total value of equity, in comparison to BOP and CPC.
2. In terms of total assets, CPC had more value as compared to BOP and ADM.
3. None of the firms could maintain its current assets to current liability ratio at optimum levels.
4. In terms of ROA, BOP performed best, among the three firms, over the period from 2008 to 2012. The differences in the ROA of the firms were statistically significant at an alpha of 0.01.
5. From 2008 to 2012, BOP performed best in terms of the percentage increase in ROE. The value of CPC shares fell below the initial price at which the shares were floated. The differences in the ROA of the firms were statistically significant at an alpha of 0.01.
6. BOP performed best in terms of the percentage increase in ROE, but CPC sustained negative growth on its shares from the year 2008 to 2012.
7. BOP had the highest average EPS of 0.19 percent while ADM and CPC followed suite with 0.01 percent and -1.20 percent respectively.

The second objective is to analyse the debt to capital ratios of the firms. The major findings were:

1. BOP had the lowest STD and thus, had the lowest debt service ratio to capital in the short term. CPC had grown more dependents on debts to finance their growth in the short-term term.
2. BOP's LTD was reduced over half, to 25 percent at the end of the 2012 accounting year, which suggested that the company had become less dependent on debts to finance their growth in the long term.
3. BOP maintained the lowest debt to capital ratio through the entire period of the study.

The final objective is to analyse the relationships between the capital structure of the firms and their profitability.

The summary of the major findings are that:

1. ROE was strongly, negatively and significantly correlated with STD, LTD and TD.
2. ROA was strongly, negatively and significantly correlated with STD, LTD and TD.
3. EPS was strongly, negatively and significantly correlated with STD, LTD, and TD.
4. SG was weakly and positively correlated with ROE, ROA, EPS, LTD, TD and FS, but it was negatively correlated with STD.
5. FS was strongly and negatively correlated with ROA, ROE and EPS.

### 5.2 Conclusions

For the first objective, the study concludes that BOP performed better in terms of ROA, ROE and EPS. Thus, the most impressive performance in terms of the three profitability indicators was made by BOP. CPC and ADM struggled with maintaining high ROE, ROA and EPS, with CPC making negative ROE and ROA for most parts of the data series.

For the second objective, the study concludes that while CPC dependence on debts grew, ADM maintained its level of dependence on debts and BOP on the other hand reduced its dependence on debts. Thus, it was found that

CPC's debt burdens grew over the years and as such had implications for the firm's solvency, which was denoted by the CA to CL ratio.

For the third objective, the study concluded that all the performance indicators had strong, negative and significant relationship with the debt to capital ratios (STD, LTD and TD). Thus, the study maintains that increased debt burden of the firms is likely to result in poorer performance on the stock market. Thus, the debt burdens that were laid within the capital structure of the firms were not sustainable.

### 5.3 Recommendations

From the findings, the following recommendations would be useful to the management of the firms and policy makers in general.

1. The firms should attach much importance to internal finance which can lessen the debt burden and reverse some of the effects that external funding has imprinted on the profitability of the firms.
2. There should be reforms in the financial markets to reduce cost of short-term debts for firms in Ghana.

### Areas for further study

Considering the findings of this study, it would be useful to also consider the following direction for future research:

- A comparative study of non-financial firms listed on the Ghana stock exchange and other African countries in terms of capital structure and profitability.
- A comparative study of financial and non-financial firms listed on the GSE in terms of capital structure and profitability.

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