# CASH FLOW RATIO AS A MEASURE OF PERFORMANCE OF LISTED COMPANIES IN EMERGING ECONOMIES:

# THE GHANA EXAMPLE

By

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### **DECLARATION**

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any University; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person where due reference is not made in the text.

# **DEDICATION**

This research is dedicated to the Almighty God for his guidance and protection.

In addition, it is dedicated to my immediate family, Netoline, Mildred, Maxwell Jnr. and Kelvin.

### **ACKNOWLEDGEMENT**

I wish to record my appreciation for the guidance, support and comments to my supervisor, Dr. Yasmin Yusof for her effective supervision.

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Finally, to God be the Glory.

Maxwell Samuel Amuzu St. Clements University 2010

#### **ABSTRACT**

This document discusses a research project regarding the use of cash flow analysis in determining enterprise competitiveness. Cash flow analysis is thought to be more effective in determining enterprise effectiveness and competitiveness in the market because it is a more dynamic examination of actual return on assets and equity. Additionally, this unique use of cash flow analysis is applied to the concept of emerging markets and the proposal that cash flow analysis is a better measure of performance and competitiveness for firms that are competing in emerging markets. This research project relies on a qualitative methodology and employs the action research methodology to address the problem statement and rationale.

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#### **CHAPTER ONE**

#### **GENERAL BACKGROUND**

#### **1.1 INTRODUCTION**

Cash flow information assists its financial statement users in obtaining the relevant information concerning the use and source of virtually the entire financial resources over a given time period (Rose et al, 2007). Specifically, the kind of information that the cash flow statement contains include details of operating, investing, and financial activities (Macve, 1997). Financial investment ratios have proved vital for purposes of financial analysis over several decades ago, with the effect that the traditional ratio analysis techniques have become quite well established in literature. Traditionally, financial analysis, for a long time, depended on accounting performance via profitability measures such as return on assets and net sales to income, among others. These forms of ratios, however, are affected by the fundamental drawbacks that are characteristics of 'accrual based accounting' (Albrecht, 2003).

This research study is concerned with the analysis of cash flows ratios as a measure of performance in emerging economies. By definition, an emerging economy is seen as one that has been or is in the process of globalizing (Pereiro, 2002). What this means is that such an economy should have, or is in the process of opening its borders for purposes of permitting investment and international trade. This is in addition to permitting managerial practices that are world-class. For this reason, an emerging economy by extension, symbolizes a perfect ground for private companies, investment projects, as well as quoting firms to entice prospective investors with a view to attaining superior profits and productivity.

From the perspective of investments, emerging markets occupy an intermediate position between, on one hand, the developed economies and on the other hand, those that are less active (Pereiro, 2002). Ghana is located on the west coast of the African continent. The country, like many other African countries, has suffered from a long history of economic and social upheavals that significantly impaired its developmental progress. The country was originally formed from a British colony on the Gold Coast and the Togoland trust territory during 1957 (Ghana, 2007). Since its early independence, the country has experienced numerous changes of governments mainly through coups. Currently, Ghana is a constitutional democracy and economically relies on its abundant natural resources. Subsistence agriculture supplies approximately 37.2% of the nation's gross domestic product (GDP) and provides for nearly 60% of the country's labor market. Currently, industry forms approximately 25.3% of GDP while service makes up 37.5% (Ghana, 2007). The country is extremely interested in diversifying its economic base. As such, understanding how companies can become more productive and competitive in the market is critical if Ghana is going to reduce its reliance on subsistence agriculture as the foundation of its economic basis. Cash flows and the related cash flow analysis relative to company performance is viewed as one method to contribute to this economic objective in the market. As per the above qualifications, Ghana qualifies as an emerging economy hence the reason why it was considered for this particular research study. Specifically, a number of companies trading on the Ghana Stock Exchange shall be evaluated on the basis of their financial statement performances, relative to those in the United States, on an industry versus industry basis.

Different categories of professionals have time and again utilized financial ratios as a planning and analysis tool. Key amongst these groups includes auditors and accountants. For example, accounting departments in various institutions of higher learning have introduced fraud examination courses following the results of such corporate scandals such as the one which afflicted Enron. Such a course is designed in such a manner so as to help students learn and appreciate the importance of financial ratios. Wells (2005) and Albert (2003) have separately recognized the importance of ratio analysis as a vital tool for the detection of red flags within a business entity.

In order to completely comprehend the viability of an organization as an on-going concern, the auditor or any analyst of a company will be well advised to compute several simple ratios based on available data of the statement of cash flow for their clients. In the absence of such data, an auditor or analyst who issues a firm with a spurious report will be faced with high tendency for the company to declare bankruptcy several months down the line. With regard to liquid analysis, information on cash flow tends to be more reliable in comparison to information from either an income statement, or a balance sheet. Data from a balance sheet tends to be static in nature, meaning that they measure only one point at a given time period (Albrecht, 2003). On the other hand, income statement is characterized by a lot of random non-cash allowances, for instance, contributions to pension, amortization and depreciation.

Conversely, a statement of cash flow records the observable changes from financial statements. At the same time, it also nets out the deception of bookkeeping, hence, it lays more emphasis on what is of more concern to the shareholders, which is the amount of available cash for both investments and operations. For many years now, both Wall Street and Credit analyst experts have been utilizing ratios for purposes of examining statements of cash flow for convenient disclosures. Principal agencies for credit rating also prominently use the ratios of cash flow in arriving at their rating decisions. Bondholders, especially, those investing in 'junk bonds', along with specialists in leveraged buyout, make use of free cash flow ratios to ascertain the risks that could be connected to their investments (Paterson & Drake, 1999). The reason for such a

practice is because free cash flow ratios over time, help individuals to assess the ability of a company to overcome price wars or cyclical downturns.

#### **1.1.1 Importance of cash flow ratios**

The study of cash flow ratios gained prominence as early as 1966, following studies by H. W. Beaver. His studies indicated that cash flow as a function of total debt was the most effective way of forecasting the failure rate of a given corporation (Diamond, 2006). Indeed, Beaver made a surprising finding to the effect that the current ratios were turning out to be one of the least useful ratios in predicting impending collapse (Mulford & Comiskey, 2005). The significance of cash as an index of a firm's increased financial health status comes as no surprise since it occupies a significant position within any given business entity. Consequently, a firm with a strong cash flow is best placed to witness a faster recovery following a temporary financial crisis. On the other hand, exhibition of negative cash flows in future would, even in the case of the most seemingly sound business entities, experience liquidation episodes (Helfert, 2001).

A failure by accounting textbooks to lay emphasis on cash flow-based ratios is especially surprising. This is because they do not only play a significant role in the credit rating of evaluation, but also forecast the failure of a corporation. However, this does not by any means indicate that traditional ratios are no longer relevant. Traditional ratios, if anything, help to reveal significant associations and trends that may not be obvious upon an assessment of individual figures that appear in the books of account (Macve, 1997). Nevertheless, because cash flow

ratios are endowed with at least a single factual element (the denominator, numerator, or even both), their lack in importance, from accounting literature, may be regarded as quite puzzling.

A majority of auditors, as well as a number of corporate financial managers, have not been quick to embrace the use of cash flow ratios. Traditionally, auditors have tended to rely more on transaction cycle or a balance sheet approach (Epstein et al, 2007). Sadly, none of these two approaches place emphasis on either cash flow statements, or even cash itself. Auditors do not only fail to utilize statements of cash flow in conjunction with income statement and balance sheet as a way of tracing top cash flow statement common items, they also use extensively the analysis of current ratio and the quick ratio (McClure, 2008). As such, it is important to accord cash flow statement the importance that it deserves. A good example is the filing for bankruptcy by W. T. Grant. In this case, analysis of the firm, based on the use of traditional ratios, failed to identify severe liquidity problems that eventually led to a collapse of the firm. The firm reflected positive cash ratios, in addition to exhibiting positive earnings. However, in the actual sense the company was riddled with profound negative cash flows. As a result, the firm was not in a position to meet its current debts along with its numerous commitments to creditors. Integration of cash flow data with traditional ratios would provide a superior measure of performance over accrual accounting data alone (Carslaw & Mills, 1991:63).

Sadly, it is not just the professionals that fail to place a lot of emphasis on the use of cash flows in organizations. Educators also, have been noted for their laxity towards the use of cash flow ratios, preferring instead to rely on other forms of financial analysis, possibly, the traditional current ratios (Bodie et al, 2004). For this reason, many of the auditing textbooks often include

just those ratios that bear a correlation with cash statement and the balance sheet. In this case, cash ratios receive little, if any, attention. Thus, there is a need for the upcoming generation of auditors to learn and appreciate the need of using cash flow ratios while carrying out the financial audit of firms. This is because these kinds of measures are proving to be quite significant as the years go by and, in addition, it is becoming more relevant to the marketplace. Consequently, an increasing number of investors, creditors and other stakeholders to various business entities have come to appreciate cash flows and as a result, rely more on them instead of the traditional ratios.

The information contained on a cash flow statement stresses the existing differences between on one hand, the operating profits of a firm and on the other hand, the decrease or increase in bank/cash balance over a similar accounting period. Due to this, a cash flow statement is important to shareholders, suppliers, creditors as well as other stakeholders to a business entity (Knechel et al, 2007). This is because a cash flow statement shows whether activities of investing have either been financed externally (for example, borrowing) or internally (for example, working capital management, or generated profits). In addition, a cash flow statement assists in the evaluation of the ability of a company to generate in future positive cash flows. This is in addition to helping to expand or maintain capacity of operations, with regard to investing in fixed assets. There are also the issues of fulfilling such future obligations as liabilities repayment, as well as dividends payment (Knechel et al, 2007).

Increased working capital investment, coupled with elevated fixed assets replacement costs, lead to an added pressure in as far as the cash flow of a firm is concerned. Recession and inflation have seen users and management of financial statement paying more attention to information contained in cash flows. In the case of inflation, a lot of businesses located in the developed nations have now been accustomed to the practice of comparatively low rates of inflation with respect to the inclusion of "very low inflation into their cash flow forecast" (Ward, 2003).

While it is vital to assess the amount of cash that a business in question actually generates, nevertheless, a majority of the investors opt to instead lay more emphasis on the net income of such a company. Given that such historical and projected company's earning figures may be accessed with relative ease, there is every temptation to utilize data on net income, as opposed to cash flow data. Nonetheless, earnings, like all other metrics of finances, are not without their problems (Knechel et al, 2007). In the real sense, earnings are more of an accounting measure, as opposed to actual cash received by a given company.

Unlike what is popularly believed, earnings, in themselves, are not a representation of the actual cash that a firm may generate over a given time period. For instance, such items as depreciation are quite evident on the income statement of a company and yet in the actual sense, these are not a reflection of cash exchange within any period of time. Thankfully, cash flow statements can help business entities to overcome several of the problems that may be inherent in measures of their earnings. Cash flow is an index of the money that is actually received by or paid out by a firm for a certain time period (Albrecht, 2003). This index is not inclusive of non-cash accounting charges such as depreciation. It is also important to note that cash flows are generally objective in nature. As such, no value judgment exists as to how and when revenues may have been recognized (Knechel et al, 2007). What the cash flow statement appears to recognize

instead, is the exact cash that is seen to pass either out of, or into a company. In other words, profit is opinion but cash is fact.

#### 1.1.2 Use of cash flow ratios as a predictor to failing business

The significance of a cash flow analysis towards a bankruptcy prediction of a firm has been augmented by a study carried out by Terry Ward and Benjamin Foster. These two authors compared the trends in the various components of a cash flow statement - operating cash flow, investing cash flow and financing cash flow. This was more of a comparative study that consisted of healthy companies on one hand, and firms that had consequently filed for bankruptcy, on the other hand (Wells, 2005). The observation by these authors was that healthy companies have a tendency towards comparatively stable association amongst the three components of a cash flow: operating, investing and financing activities.

In this case, healthy companies were seen to rectify a deviation from the norm within a period of one year. In addition, the authors noted that unhealthy companies were characterized by depreciating cash flows from operating, investing and financing cash flows about one or two years before they filed for bankruptcy. Moreover, unhealthy companies had a tendency to expend large amounts of sources in comparison to what these sources brought to a company, just before they were declared bankrupt (Berry et al, 2005). These studies are vital as they portray the significance of assessing cash flow information while examining a company's financial condition.

Cash flow could be seen as a corporation's lifeblood as well as the very essence of the survival of such a corporation. There are many empirical studies that have dedicated themselves to using measures of accounting to forecast the performance of businesses (that is, failure or success). This is in addition to stressing the significance of the information of a cash flow statement in forecasting either the non-bankrupt or bankrupt companies (Mulford & Comiskey, 2005).

A lot of the studies have arrived at a conclusion that cash outflow and inflow levels from different business activities share a high level of correlation. In case one part of a system fails to function, this could result in a failure, if not endangerment, to the whole firm (Mulford & Comiskey, 2005). The prediction criteria for business failure are often made use of for two basic reasons. First, the success or failure of a business has to some extent, been fundamentally associated with the net outflow and inflow cash elements from a number of business activities (Bernstein & Wild, 1999). For instance, the failure by a company to obtain sufficient cash from a number of its operations could result in such a firm having to borrow extra cash, or even be forced to do away with several of its capital investments as a solution of meeting its obligations. Should such a situation go on for a longer time period, such a firm may be faced by a state of imminent bankruptcy. Secondly, as an empirically tested criterion, the analysis of cash flow for firms has been applied by several studies in the assessment of accounting information usefulness with success (Bernstein & Wild, 1999).

The practice of predicting future cash flows is one that is normally portrayed in various accounting texts as an interest in predicting the amount, timing and uncertainty of future cash flows (Mulford & Comiskey, 2005). This kind of formulation is accorded merit. This is because it provides in simple and clear terms the rationale of what people should hypothetically be concerned about regarding the financial situation of the business entities in which they may have an interest. This is regardless of whether such people are directly involved in the management of an entity or outsiders. As such, what the shareholders will eventually be concerned with is the dividends that are likely to accrue from a given business entity. On the other hand, the employees of an organization are concerned more with their salaries, accruing pensions and wages, not to mention the conditions under which they work. On their part, the suppliers will be looking at the ability of their customers to repay for the goods delivered. In other words, all the various stakeholders to a business entity have questions regarding the cash that such an entity is capable of generating, managing and distributing.

As it is evident that it is now almost a universal practice amongst advanced economies to utilize cash as an exchange medium for various economic resources, it is thus possible for one to describe the impact of a majority of the economic activities regarding the ensuing cash outflows and inflows. In a similar manner, it is also possible for one to look at financial management within the context of ensuring that the short-term and long-term budgets of a given business entity exhibit a fitting relationship between cash inflows and cash outflows. It is also possible for such notions such as choosing the most profitable course of action to be expressed, with regard to making a choice over an action with a potential to offer the most desirable pattern of future cash flows (Damodaran, 2002).

Furthermore, there is a possibility of describing survival financial conditions, financial success and the financial connection of businesses to people interested and involved in the activities of such an entity, with regard to their current as well as future cash flows (Damodaran, 2002). Ultimately, what is really of interest to all the stakeholders of a business entity is its potential to generate cash at such a time as is needed, in addition to the necessary amount. However, it does not necessarily imply that the financial elements of cash flows are the only components that we should be concerned about. Nevertheless, this plays a central role in as far as the successful management of any given organization is concerned. This is notwithstanding the objectives of such an organization and the best way to describe these is on the basis of their probable cash impacts. As such, people are in need of information that shall guide them while formulating their assessment of probable future cash flows.

Macve (1997) noted that such information ought not to be a predicting factor of the future cash flows of a firm. Relevant information, be it about the past, current, or future forecasts, is data that a decision maker relies on for purposes of enhancing his/her own forecasting regarding the future. This is more of feed back information and it might very well contain predictive value. At the moment, it would be truly helpful if all accounts would generate information that could, in one way or another, aid in predicting future business cash flows. At the same time, it would also help if this could be done in a much better way compared to the already available sources.

#### 1.1.3 Relative performance evaluation using ratios

A ratio is the quotient of a number or a sum divided by another numerical figure. This is used in this study to concisely express the relationship among selected items of financial statement information.

Financial analysts have time and again utilized ratios while forecasting financial variables in addition to assessing relative performance. As such, they often categorize ratios into profitability and liquidity classes to forecast loan defaulting probabilities, bankruptcy, as well as the process of stocks (Stein & DeMuth, 2003). Relative performance assessment usually presumes the comparison of a firm's performance relative to that of another chosen industry. Alternatively, benchmark ratio filters out the effect of performance of common improbabilities, leaving just the performances that are specific to a given company under assessment (Stein & DeMuth, 2003). In these forms of evaluations, the performances of either companies yield information regarding the performance of a specific company. Though current studies have tended to record ambiguous results, nevertheless, a majority of the studies on cash flows indicate cash flow data value. Such a scenario is especially possible in a case whereby a firm is faced with either a financial distress or bankruptcy (Feldman, 2005).

#### 1.1.4 Accounting for and reporting cash flows

A modest way of approaching the performance of a business is that such a business should be capable of generating revenue, along with profits. In the event that a business realizes real profits, chances are that such a business shall also experience an operating cash flow (Ferris et al, 2002). In case this profit is one of creative accounting, then such a business will be lacking in terms of operating cash flow. It is important to note that the comparison here has a lot to do with the operating cash flow of a business since this form of cash flow bears reconciliation with a company's profit. This is the linkage point between the cash flow and the profit or loss that a business makes. Other than the preparation of statement of cash flows that are fraudulent in nature, cash flow may only be manipulated through an arrangement of the time to make payments and receipts. Nevertheless, this form of manipulation proves difficult in terms of continuance in a given specific direction over a period of time.

There are two risks that cash flows are not in a position to cover. The first of which is missing liabilities. With liabilities being unpaid items, they could therefore be omitted completely on the statement of cash flow. Liabilities that have not been recorded often tend to be unconsidered while the profit of a business entity is being calculated. Over-evaluated of assets is the second risk that a cash flow cannot account for (Ferris et al, 2002). Previously, the stewardship function of financial statement was deemed as a dominant characteristic. This view provides that a company's management ought to be entrusted with the financial control of a firm's resources that capital suppliers provide. In line with this, the role of financial statements is that of reporting to relevant parties to pave way for the assessment of management stewardship.

Cash flow should not merely be viewed as a financial activity but rather as cash flow results from a company's operations. The sales activities of a company generate cash. In return, this cash is mainly used for running the various operations of an organization. All the stakeholders in a given company have a role to play, both in the use as well as conservation of cash. As such, this should not be the sole responsibility of the management of an organization to plan and monitor for the uses and sources of cash. When everyone within an organization assumes the role of minimizing expenses, maximizing income and optimizing the anticipated company results, then such a company stands a better chance to thrive and survive (Ferris et al, 2002). The most important thing, which is of great relevance to this research study, is that an organization should be in a position to enjoy a continuous positive flow of cash.

#### 1.1.5 Financial statements information and the role of cash flow statements

#### **Balance sheet**

As we witness a steady change in terms of assets and liabilities valuation from the conventional values to fair values, the information on balance sheet is losing its relevance and reliability. It is possible to reduce the problem of reliability through a disclosure of the historical values. However, the accounting information elements of feedback value, predictive value and timeliness shall still be suffering (Carton & Hofer, 2006). A significant starting point for ensuring that the items of balance sheet are presented in a fair manner, more especially in an

inefficient market, would be to take the recoverable amount as a present value of estimated future cash flows (Helfert, 2001). Such a move would of course have to be augmented by financial instruments.

In a bid to ensure that there are representational, verifiable and reliable information in the balance sheet, the statement of cash flow that is projected ought to be accounted for while making a disclosure of information in the balance sheet. This should be fulfilled by taking into consideration a projected carrying amount on the basis of the expected cash flow (Carton & Hofer, 2006). This way, accounting information users shall be in a position to project information neutrality unaided. A comparative assessment of the information contained in a balance sheet becomes quite limited by the various frameworks of financial reporting. Extra problems may be due to an introduction of novel principles of accounting and changes in the estimates and policies of accounting.

#### **Income statement**

Expenses and revenues presentation on the basis of accruals means that number of assumptions have to be considered. This would be based on reporting framework that has already been defined, in addition to the estimates and policies of accounting in question. Accordingly, the relevance and reliability of accounting information with respect to the statement of income tends to be far much worse than that of a balance sheet (Carton & Hofer, 2006). This is despite the fact that several items of the income statement relies on the value of items from a balance sheet. In

addition, the practice of comparing information from an income statement appears far much worse, relative to a similar practice in the case of a balance sheet. This is as a result of two key reasons.

To start with, comparing the information of a statement of income that has emanated from diverse frameworks of financial reporting gets restricted by the dissimilar techniques of acknowledging changes in assets and liabilities value. Secondly, information comparability of statement of income resulting from similar frameworks of financial reporting at various periods is quite scarce. This is because expenses and revenues are often influenced by novel principles of accounting, in addition to changes in the estimates and policies of accounting (Carton & Hofer, 2006). It then follows that the impact of these forms of changes on the items of statement of income is often large, in comparison to items from a balance sheet since the ensuing changes impact on a different expenses and revenue recognition. Extra comparability limits get presented at such a time as when the entire effect of the changes get acknowledged within the change period.

#### **Cash flow statement**

With the promulgation of the cash flow statements (CFS) as an integral part of financial statements by the accounting profession, the quality and content of financial reporting have increased considerably. A standard structure format has been provided not only for deriving useful ratios to complement the traditional ratio analysis, but also makes comparison between companies more realistic. Accrual accounting does not measure cash flows. Hence, lack of cash

flow data has created problems for investors and other stakeholders in assessing a company's performance, liquidity and operating capability (Figlewicz and Zeller, 1991).

Accounting information attributes of quality rarely accompany each other. Those attributes that have not been assured by a given financial statement ought to be incorporated in another statement of finance. What this means is that the shortcomings that come as a result of the application of both a balance sheet and income statement may be rectified by the cash flow statement (Feldman, 2005). The cash flow statement contained in the financial accounting standards by GAAP (Generally Accepted Accounting Practices) bears a strong correlation to the income statement and the balance sheet items. For this reason, it is also in a position to be impacted upon by estimates and policies of accounting. Moreover, its timeliness hinges upon the income statement and balance sheet timeliness. As a result, information from cash flows tend to appear less relevant contrary to what the case should be; in as far as a discovering of a firm's liquidity problems are concerned.

The level of relevance of the information contained in a cash flow from a particular firm may be considerably enhanced by way of ensuring that a direct statement of cash flow is prepared. The indirect method of preparing cash flow statement which deals with cash flows that emanate from operating expenses, is by and large, an alteration with regard to a firm's financial position which is often expressed in the form of a cash position. Besides, the changes in statements with regards to a company's financial position just happen to be a methodical presentation of alterations within the balance sheets of a company for two consecutive periods of accounting (Feldman, 2005). On the basis of a direct method of cash flow statement, the ultimate position of cash

comes about due to changes emanating from both the income statement and the balance sheet for a given accounting period in question. On its own, a cash flow statement is less likely to shed more light in as far as the accounting information of a company is concerned, in comparison to other financial statements. Actually, what a cash flow statement appears to illustrate is similar sets of information, albeit from different perspectives.

Various reasons have been put forth as to why the solvency and profitability of different companies located in different countries ought to be compared. Perhaps the reason that bears a lot of significance includes mergers and acquisitions, capital market efficiency, monopoly regulation, tax policy and competition (Bragg, 2002). However, it appears like some solvency and profitability phenomena of different companies may not exhaustively be explained by way of substantial cash flow presentations, within the context of accounting solutions, that are in existence. According to the cash flow definition that has been provided by GAAP, a company is required to disclose the entire amounts as well as individual cash items, in addition to cash equivalents. The stated cash flow definition appears quite reasonable, since in a world where novel financial instruments seems to be growing at a rapid pace, it becomes quite difficult to itemize all the various types of cash equivalents.

Due to existing principles of accounting solutions, cash flows from the operating, investing and financing activities, when considering indirect cash flow method, tend to be presented in adjusted amounts. Statistics show that a majority of the firms in the United States have a tendency to prepare their cash flow statements in an indirect manner (Bragg, 2003). This form of approach has received various justifications to back it up. First, companies prefer applying

indirect method of cash flow for the reason that these have been applied to the formerly prescribed statement of changes in the financial position (Mulford & Comiskey, 2005). In addition, the procedure that the direct method requires in terms of cash flows preparation with regards to operating activities are, on the whole, a bit complex. Also, firms may possibly be unaware of the extra information that emanates from cash flows dues to operating activities, and which have been prepared by using the direct method (Mulford & Comiskey, 2005). Finally, firms have the notion that not a lot of extra information may be obtained through a statement of cash flow prepared in a direct method manner.

#### 1.1.6 Cash flow classification

According to GAAP (Generally Accepted Accounting Principles) requirements, the alteration in the amount of cash between two accounting periods may be categorized into three major classes: cash used or provided by operating, investing and financing activities. These three classes signify three very different uses and sources of cash.

#### **Operating cash flow**

Within the context of financial accounting, operating cash flow is used in reference to that flow of cash made available by core operations of a business entity. Net cash flow from operating activities represent the net increase or decrease in cash and cash equivalent resulting from operations shown in the income statement in arriving at operating profit. In view of the fact that it adjusts for receivable, depreciation and liabilities, operating cash flow may be seen as a more accurate measure of how much a company has generated, in comparison with the conventional profitability measures like net income (Fabozzi & Markowitz, 2006). For instance, a business entity characterized by many fixed assets within its books of account, such as machinery and equipment, are more likely to reduce net income as a result of depreciation. Nevertheless seeing that depreciation is not a cash expense, the business entity's operating cash flow would therefore provide a more accurate picture of the company's current cash holdings than the artificially low net income (Fabozzi & Markowitz, 2006).

Cash generated as a result of operating activities is basically a reflection of the transactional effect of cash that helps to determine an entity's net income, or cash received from customers, following a service provision or sale of a product (Berry et al, 2005). Payment of cash to suppliers, employees and taxes on income are also incorporated when computing operating cash flow. On the other hand, cash flows as a result of investing activities entails loans processing and collection, in addition to equity investment, debt dispensing, plant, property and equipment investment (Berry et al, 2005). As such, an inventory purchased by, for example, a jeweler shall normally appear as an operating use of cash on a cash flow statement.

Nevertheless, a showcase payment that displays a jewelry inventory often gets reported as an investing activity. Cash flows emanating from financing activities entail principal amounts that could either have been borrowed, or are being repaid to a certain lender. This is in addition to issuance of cash received and the payment of cash towards equity repurchases. It is only the debt that results from actual borrowing transactions that will usually get reported as financing cash flow (Berry et al, 2005). For this reason, vendor financing by, for example, a jeweller to

reschedule inventory purchases payment would normally be categorized as an operating source of cash.

A useful method to examine a statement of cash flow structure is to classify the amounts of cash payable for investments purposes which should take into account plant, property, equipment, as well as cash received following the sale of an investment (Bragg, 2003). Any form of income that may be obtained from such investments, for example, cash revenue minus cash invested in plant and property, shall be incorporated in the computation of the operating cash flow. Even though investments sales usually yield losses and gains, nevertheless such losses and gains do not get reported on a statement of cash flow operating section. Instead, sales proceeds which include investment before recovery minus sales loss or plus a gain, usually get reported in the statement of cash flow's investing section.

Just like net income is usually taken as a source of earning to shareholders, operating cash flow also gets measured from the point of view of a shareholder (Bragg, 2002). What this means is that, net income is only determined following a deduction of interest expenses but prior to the payments of dividends. In the same way, operating cash flow shall be determined following payment of interests, prior to dividend. The latter is of course considered to be a financial activity.

Business cash, as a result of the operating activities within a cash flow statement, indicates the amount of cash in contrast with accrued operating profit that has been generated by the operations of a business entity. Normally, net income happens to be the most significant cash

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source, as a result of business operations. There are two main classes of adjustments that can be made to the net income of a company, and these are in turn applicable at a time when the cash flow of a business is being assessed. On one hand, those non-cash expenses that had previously been deducted while computing net income would be added back. These include depreciation and amortization. On the other hand, profit on sale of tangible fixed assets is treated as a deduction from net income whilst loss is treated as an addition. Other adjustments are effected as a result of changes in current liabilities and current assets.

#### Investing cash flow

Investing cash flow is amongst the three cash flow elements that bears a direct correlation with a given business entity. These are those cash flows often received by a business out of general investments, or even following an acquisition. According to Epstein et al (2007) there is a need to be mindful that investment cash flows can also be used in reference to those cash flows that have hitherto been expended or received. For example, a capital expenditure may be regarded as a cash flow that has been expended through the purchase of a given tangible asset, such as property or building. In addition, an investment cash flow could also be used in reference to that flow of cash that has been used for purposes of purchasing a given form of investment, or even cash that has been acquired as a benefit, following an investment sale. It could be that an investment may have been sold, in which case the firm acquires the sales proceeds in the form of revenue. This therefore should not be confused with loss or profit which represents the deficit between the purchase price of an investment and its selling price.

Bodie et al (2004) opine that investment cash flows should be regarded as vital elements of an organization's statement of cash flow, considering that this component may be a deciding factor in terms of the financial future of a given organization. On the other hand, investment cash flows, following an acquisition may tend to differ slightly as it encompasses both the solid assets of that investment which has been acquired, along with the existing cash flow of the acquisition investment balance sheet. Bodie et al (2004) further adds that an investment cash flow could also encompass liabilities. An ideal acquisition situation is one in which positive cash flows are reflected, as these go a long way into augmenting the financial position of a given company. Conversely, the act of acquiring a company already plagued with a negative cash flow is often seen as an act of bad bargain. Consequently, it is important that a manager pays close attention to the balance sheet of a company, prior to its acquisition. Furthermore, an investment cash flow is one way through which the strengths and weaknesses of a company may be assessed.

The act of getting more detached from a company's activities may be seen as the start of a proportionate diminishing of the connection between the execution of a supply chain to a company and the financial considerations of such a business entity. Due to the connection between execution and outcome, coupled with a realization that investments in the future are, to a lesser extent, reliant on a company's bottom line results, further depicts how vital it may be to tie strategic decision of a company to its performance (Epstein et al, 2007). In this regard, the investing activities of a cash flow statement may be seen as a window of opportunity to the ensuing long-term element of the management supply chain to a company. Additionally, it also

pays close attention to the impact that the long-term investments of a company's cash may have in the short-term. This may be seen as a collection of strategic moves and operating performance and in effect establishing an ideal outlook towards a business entity. While exploring the issue of investing activities of a cash flow, such an assessment ought to be carried out from the perspective of how a company in question has evolved over time.

#### **Financing cash flow**

This is a term that is used in reference to cash accruing from equity, debt issue, payment of dividends, debt repayments and a repurchase of shares. The implication here is that dividends, loans and debt are often accounted for in the form of cash from financing. Following a rise in capital, changes in cash emanating from Financing are termed as "cash in" whilst following payments of dividends are termed "cash out" (Bragg, 2002). As such, the action of a company issuing its bond to members of the public increases its cash in. On the other hand, interest payment to bondholders results in cash out of such a company.

#### 1.1.7 Sustainable cash flows

The term sustainable cash flow refers to the recurring cash. Usually, this form of cash flow is derived from the profitable operations of a company. It is possible to generate positive operating cash flow on occasions where a business entity does not record any profits (Feldman, 2005). The generation of sustainable cash flow, however, demands that profitable operations should be in place. A case in point here is the Eastern Airlines, Inc., that underwent an extended demise
during the later part of the 1980s. Prior to its liquidation, the airline had witnessed a losing streak period for a couple of years. Nevertheless, the company was still in business and occasionally recorded positive operating cash flow, despite its loss recording.

The operating cash that a company generates emanates from massive non-cash expenses which include equipment depreciation, working capital accounts and liquidation. In addition, the company can utilize its capability to persuade various groups of its employees to acknowledge equity claims in place of payment of their services. Ultimately, there may arise the need to end operations, at a time when the company could no longer generate meaningful revenue and by extension, profits. This could lead the company to rule out any prospects towards an attainment of its objectives. It is worth of note here that operating cash flow that has been augmented by profitable operations may prove to be unsustainable in the long-term (Feldman, 2005). For instance, operating cash generated from an inventory wholesale liquidation or a massive reduction with regard to accounts receivable may not be sustainable.

Alternatively, an increment on time taken to pay-off debts owed to vendors will help in enhancing operating cash flow. Nonetheless, such a cash flow increase is not generated from a source that is recurring, hence, in the long-run; vendors will shy away due to a rise in the risk in such payment terms. In spite of potential problems, among the three classes of statements of cash flows, operating cash flow, without doubt, reveals the core operations of an entity (Carton & Hofer, 2006). As a result, operating cash flow fits to be the starting point for sustainable cash flow identification.

# **1.1.8** Cash flow and equity investors

Naturally, equity investors shall be interested in cash flows that are sustainable. Common shareholders, as residual interest holders, are considered last with regard to cash flow, after lenders and other shareholders have received a preference from a firm in question. Operating cash flow, as the initial point in the determination of available cash for a firm's common shareholder, is an important yardstick since it is computed following a deduction of interest payments (Carton & Hofer, 2006). These kinds of disbursements symbolize the needed cash to pay off lenders. Nevertheless, equity investors normally are more interested in creating other forms of deductions from cash flows meant for operations (Stein & DeMuth, 2003). As such, capital expenditure deduction is a common practice. However, there is lack of consensus as to the amount of capital expenditure that may have to be deducted from the cash flow. For instance, whilst some investors opt for gross capital expenditure to be deducted, others prefer deduction on the basis of net capital expenditure as a more realistic measure.

Replacement capital expenditure refers to the amounts that are required to replace the consumed productive capacity of a company over a financial reporting period (Ferris et al, 2002). The implication is that before cash payment is made to the shareholders, the priority of a company is the maintenance of its productive capacity. If this is not done, there could be an eventual operations termination.

It is for purposes of reflecting this form of charge that replacement capital expenditure have been formulated. Other than capital expenditure, any overriding claim on cash flow, relative to

common shareholders claims, which may not have been deducted prior to the attainment of net income, needs to be deducted from a business entity's operating cash flow (Stein & DeMuth, 2003). This is especially the case when free cash flow is being calculated. Specifically, a dividend of preferred stocks happens to fall in this category.

# 1.1.9 Cash flow and lenders

The interest claims of lenders on cash flow take precedence over the equity investors' claims on the same. Since it attracts a tax deduction, interests usually are paid with cash flow from operations which are calculated prior to interest. Earnings before interest, tax, depreciation and amortization, (EBITDA), is a crude estimation of pre-tax, pre-interest operating cash flow (Damodaran, 2002). The reason for referring to it as a crude measure of cash flow is that, despite its computation before two principal non-cash expenses, amortization and depreciation, it also fails to approximate for other items that are non-cash. This includes especially, changes due to working capital. For this reason, to perform the role of a working capital measure, it will be better brought about by operations prior to taxes and interests.

Operating working capital does not constitute cash derived from operations. Sales increments that are not claimed may be added to EBITDA due to the related rise in earnings (Damodaran, 2002). Nonetheless, these kinds of sales may not result in a rise in the operating cash flow. Likewise, cash payment to inventory purchases, which remains at hand, may result in a reduced EBITDA, although it leads to the lessening of the operating cash flow. Therefore, except for the

willingness of a lender to a company to agree to an inventory or accounts receivable over a loan, EBITDA in this case, will fail to yield an accurate assessment of the capacity of debt-service.

# 1.1.10 Use of cash flow ratios in solvency testing

Lenders and creditors have started utilizing cash flow ratios since they provide more information regarding the ability of a company to fulfill its payment obligations. In comparison to working capital ratios, such as the quick and current ratios, that are a characteristic of the traditional balance sheet, cash flow ratios are more realistic. Balance sheet ratios can only provide a specific time perspective, whereas cash flow statement represents activity for a continuous period of time. In other words, balance sheet is static in nature whilst cash flow statement is a moving picture of performance. Furthermore, added to the fact that cash flow ratios compare such amount of cash to near-term obligation, it helps in the development of a vibrant picture of the kind of resources that a company possesses for purposes of fulfilling its obligations.

### **1.1.11 Drawbacks of a cash flow analysis**

Although cash flow analysis has proved a useful financial analysis tool, nevertheless, the concept is not without its limitations. Given that the utilization of the performance ratios of cash flows are not common practice; an interpretation of what these indicate is also a novel undertaking. To start with, statements of cash flow may not be equated to statements of income. The latter incorporates both the non-cash and cash items (Helfert, 2001). For this reason, net cash flow for a firm may not necessarily translate into net earnings for such a given business entity. Secondly,

cash balance as revealed by the statement of cash flow may fail to symbolize the apparent liquid position of a given business. This is because it easily gets influenced by purchases postponement, along with other kinds of payments.

Finally, a statement of cash flow substitutes both the statement of funds and the income statement, but each one of them plays distinct roles (Knechel et al, 2007). These limitations notwithstanding, cash flow statements could be seen as vital supplementary tools. This is an important observation, as it enables the management of a company to know the capital amount that could be tied up in a given business segment. When combined with the cash flow ratio analysis, cash flow analysis technique acts as a barometer in terms of evaluating the financial and profitability position of a given business. Additionally, the power of cash flow analysis (CFA) is enhanced by comparing ratio results to industry averages or to a selected group of comparable organizations (Giacomino & Mielke, 1993: 56; Siegel, 1998:52). This is the primary point being employed within this research project relative to Ghanaian industry competitors.

# 1.1.12 Cash flow data ratios

The ratios that may be obtained from data on cash flow have been categorized into several classes. According to suggestions by Mielke and Giacomino (1988), they are: quality of earnings, management financial decisions, discretionary cash flows, and mandatory cash flows. The details are enumerated as follows:

# **Quality of earnings (QOE)**

In accounting terms, quality of earnings is used in reference to the overall reasonableness of reported earnings (Knechel, Salterio & Ballou, 2007). Quality of earnings is a criterion that evaluates how controllable or bankable the earnings of a firm may be (McClure, 2008). The term is alive to the realization that a given transaction's economic impact shall often differ amongst firms, relative to the fundamental business characteristic of such firms (Financial education, 2008). Other authors elsewhere have defined the term as the level at which earnings of individual firms reflect the fundamental effects of economics (Revsine, 2005).

The quality of earnings concept has been rooted in accounting's judgmental nature. This is quite evident in the form of various parties tending to interpret underlying economic factors of a firm in various ways and in addition, to the fact that various firms are characterized by various characteristics of business. Quality of earnings bears an inverse relationship with earnings management (Knechel et al, 2007). What this means is that as the earnings management increases, the quality of earnings of a firm correspondingly decreases.

The management to a firm is responsible for its financial statement and for this reason, seeks to structure its transactions in such a manner as to attain the preferred accounting results (Knechel et al, 2007). This can be achieved through a choice of economic transactions that are fundamental to their business, yet dissimilar from all other firms. As a result there is a possibility for a firm to manipulate their quality of earnings. Quality of earnings has often been attributed to the utilization of policies of conservative accounting. Nevertheless, researchers have noted that at this period of global economic crisis, an act of conservatism could pave way for period of

aggressiveness over financial periods in the near future. This means that the act of management with regards to conservative decisions over a single period need not be taken as quality of earnings proof.

### **Sufficiency ratios (SR)**

This refers to the adequacy cash flow that directly determines the ability of a company to generate sufficient cash to offset the available debts and facilitates operations reinvestment initiative. Additionally, at the same time, adequate cash should be available to management to issue dividends to the company's owners (Knechel et al, 2007). In this regard, a company that manages to record a sufficiency ratio of one for a number of years is a clear sign of an adequate ability to cater for these primary cash requirements. Dividend payout, payment of long-term debts and the reinvestment ratios offer an additional insight for creditors and investors into appreciating the significance of the aforementioned components.

Combined in the form of a percentage, the three ratios indicate that cash percentage as a result of operations is accessible for optional purposes. Although it is quite possible for a company to utilize cash that has been generated from investing and financing activities as a means of retiring debts, nevertheless, cash emanating from operations symbolizes the principal source of long-term funds (Knechel et al, 2007). On the other hand, the ratios of debt coverage may be looked at as a payback period. This means that it provides an estimate in terms of years that shall be necessary to enable the retirement of all debts at the prevailing level of cash from the operations.

# Capital expenditure coverage ratio (CECR)

The purpose of this ratio is to provide information to a financial analyst regarding how flexible a company is, and is especially vital for utilities and capital-intensive companies (Paterson & Drake, 1999). The larger this ratio is therefore, the higher shall be the financial flexibility of such a firm. Nevertheless, it is important that an analyst carefully assesses the reasons that could cause this ratio to be altered as time goes on. Furthermore, an analyst must also know why this ratio could be out of line with comparable firms in the industry (Paterson & Drake, 1999). For instance, a depreciating ratio could be an indication that the firm has ultimately encounter difficulty with regard to the addition of capacity, by way of capital expenditure, in the absence of borrowed funds. The formula for calculating this ratio is cash flow divided by capital expenditure.

### **Efficiency ratios (ER)**

Creditors, investors as well as other stakeholders to a business entity are concerned more with the cash flows of a company, especially, its earnings measures and statements on income. The ratio of cash flow to sales indicates the percentage sales amount that may be realized, in this case, cash from operations. This is a ratio that ought to be equal to the sales returns of a company over a certain time period. A company's operations index seek to compare cash as a result of operations relative to income due to continuing operations. In this case, the operations index acts as a yardstick for cash generating productivity of continuing operations (Knechel et al, 2007).

# **Amortization-depreciation impact ratio (ADIR)**

This ratio indicates the percentage, in terms of cash, from operations that comes about due to amortization and depreciation add-backs. A comparison of this ratio relative to the reinvestment ratio gives an insight into the adequacy of a business entity's maintenance and reinvestment of available asset base. Reinvestment ratio ought to exceed the amortization-depreciation impact ratio over a couple of years, in order that a sufficient assets replacement may be attained at an elevated current costs. Furthermore, this ratio could also be useful for purposes of efficiency assessment. A business entity might be termed more efficient when amortization and depreciation impact less on operations based cash.

The denominator to this ratio entails all the current liabilities that have been obtained from a balance sheet. It is important to note that the ratios of operating cash flow shall often radically differ on the basis of an industry. For instance, the gaming industry, as a result of the nature of its operations, will normally create considerable operating cash flows as compared to heavy duty machinery industry.

Funds flow coverage ratio (FFCR)

The FFC ratio numerator is made up of earnings prior to taxes and interest deductions, plus amortization and depreciation (EBITDA), and this varies from that of operating cash flow. In the case of operating cash flow, it takes into consideration the amount of cash payable in the form of taxes and interest. On the other hand, EBITDA fails to make allowance for such an inclusion (Epstein et al, 2007). FFC ratio underscores if a company is capable of creating enough cash so as to fulfill the commitments of such a company (that is, taxes and interest).

The denominator is made up of interests in addition to 'tax-adjusted repayment', plus the preferable dividends whose taxes have also been adjusted. To accomplish tax adjustment, analysts often divide the preferred component, for example dividends, by the rate of tax component. In the case of an FFC ratio, all the figures that are contained in the denominator of the ratio are commitments that cannot be avoided. It is quite possible for an auditor to make use of the FFC ratio as a risk evaluation tool with regard to the possibility of a given company to default on its most immediate financial commitments (Epstein et al, 2007).

Such commitments may entail preferred dividends and short-term debts. In a case whereby the FFC ratio of a company is not less than zero, the company, at such a time, barely manages to fulfill its obligations. In order to enjoy a long-term survival, it is necessary that a company should have sufficient cash flow for purposes of maintaining its equipment and plant. A healthy company is one that reinvests cash for growth (Epstein et al, 2007). For that reason, in the event that the FFC ratio of a company is below zero, it is necessary for such a company to raise extra resources to fulfill existing operating obligations. To overcome bankruptcy, raising new capital is a necessity.

# Capital expenditure ratio (CER)

The numerator for this ratio is made up of operations cash flow while capital expenditure makes up for the denominator.

A company that is string financially is one that manages to finance its growth. The capital expenditure ratio is an index of available capital for reinvesting internally, along with offsetting of existing debts. Should this ratio be greater than one, what this means is that a company has sufficient funds to fulfill various capital investments, in addition to fulfillment of debt requirements as a result of surplus cash. A high value indicates that the amount of spare cash that a company is in control of, is also high (Revsine, 2005). As such, a company is in a better stead not only to service its existing debts, but also repays them as well.

Furthermore, appropriate value for this ratio, similar to the majority of the other ratios, differ from one industry to another. For example, autos and housing industry, often referred to as cyclical industries, indicate a wide difference of their ratios, as opposed to such non-cyclical industries such as the beverages and pharmaceuticals.

**Total debt ratio (TDR)** 

This is a ratio that indicates the ability of a company to cater for its future obligations to debt. The numerator from this ratio represents operations cash flow. On the other hand, the denominator accounts for total debts (that is both the short-term and the long-term debts). This type of a cash flow debt is especially of great concern to loan decision officers and credit-rating agencies alike (Ward, 2003). In addition, this ratio is an index of time taken for a give company to offset its debts.

The assumption here is that the entire operating cash flow has been dedicated to the repayment of such debts. A lower ratio here is an indication that a company is less flexible in financial terms (Albrecht, 2003). For this reason, there is a higher likelihood that in the future problems are bound to arise. It is important therefore that auditors, at the time of planning, should consider reducing financial flexibility of a company at a time when they are classifying audit areas that are high risk.

#### Cash flow adequacy ratio (CFAR)

The mathematical formula for this ratio is as follows:

Cash flow adequacy ratio = (EBITDA – taxes paid- interest paid- capital expenditures) (Average annual debt maturities scheduled over next 5 years) In this ratio, the numerator represents earnings prior to taxes, interest, amortization and depreciation (EBITDA) minus payable taxes (cash taxes) minus payable interest (cash interest) less capital expenditure. On the other hand, the denominator to this ratio represents average annual debt maturities scheduled over the subsequent five years. The cash flow adequacy ratio assists in the smoothening out of several cyclical factors which could handicap the ratio (Ward, 2003). Additionally, the ratio allows for a balloon payment impacts. A company that exhibits an elevated cash flow adequacy implies that the credit quality of such firm is high.

# **Debt coverage ratio (DCR)**

A fundamental component of solvency is a company's ability to offset its debts. Debt coverage ratio assists with the measurement of such ability. The ratio compares reported earnings to scheduled amounts following principal payment and tax deductions to ascertain the availability of sufficient income for covering payment. In the event that the debt coverage ratio falls below one, it implies that a company may perhaps be unable to fulfill its debt payment obligation (Ward, 2003). This measure is especially of interest to a company's lenders, as they are keen on whether or not a company is capable of repaying back the loan that had been issued to them. Its mathematical formula is:

#### Earnings before interest + taxes

Interest + scheduled principle payments

(1-tax rate)

# Net free cash flow ratio (NFCF)

NFCFR is a ratio that draws attention to the viability of a company as a going concern. Although the term is yet to be fully defined, nevertheless, bankers are committed to come up with standardized computations in such a manner as to make comparisons easy across both industries and companies (Macve, 1997). All the same different deviations of NFCF are in existence. One of these is the total free cash ratio (TFC). The Nevada First Interstate Bank is credited for its development. The bank also employs this ratio while arriving at loan decision as well as covenant agreements on loans. The calculation of the TFC ratio provides the benefit of integrating off-balance-sheet financing impact, through a consideration of rental payments and operating lease. The formula for this ratio is as follows:

(Net income + Accrued and capitalized interest expense + Depreciation and amortization <u>+</u> <u>operating lease and rental expense- Declared dividends - Capital expenditures)</u>

(Accrued and capitalized interest expense + Operating lease and rental expense + Current portion of long-term debt + Current portion of capitalized lease obligations)

TFC ratio reflects the ability of company to fulfill cash commitments in the future. For the calculation of these ratios, a company's net free cash flows are required (Macve, 1997). Again, the NFCF may differ from one industry to another or from one company to another. For this reason, the formulas are often taken as a recommendation, as opposed to absolute.

## **Depreciation writes -off ratio (DWOR)**

The formula for this ratio is as follows:

#### Depreciation + Amortization + Amounts written off

Cash generated from operations

Written off amounts are inclusive of losses due to asset sales, as well as, impairments losses on the non-current and current assets. The impact of depreciation write-off, is an illustration of the cash flow (in percentage) emanating from operating activities, that comes about due to adding back adjustments, depreciation, as well as other forms of write-offs. The ratio, in conjunction with the reinvestment ratio, could be applied in the assessment of whether or not reinvestment could take place at a lower or higher level, compared to assets depreciation/writing-off (Macve, 1997).

Again, a comparative assessment of the write-off ratio with the reinvestment ratio yields useful insight into the adequacy of the asset structure reinvestment and maintenance of a given enterprise (Macve, 1997). As the years go by, it is important that the reinvestment ratio be greater than the write-off/depreciation ratio impact. This would then imply that there exists within a firm sufficient assets replacement at the value of current assets.

## Cash flow return on total assets (CFROTA)

The formula for this ratio is as follows:

### Net income + non-cash expenses - non-cash sales

Total assets

The ratio of cash flow return against assets evaluates cash returns against used assets. The ratio is used while making a comparison between companies with regard to the cash they are able to generate from available assets, instead of generated cash against earned profit. Should this ratio be calculated for several years, it ought to yield from funds invested quality cash flows in the years to come (Berry et al, 2005). It is important to note that the return of cash flow against assets for a given enterprise could be lesser than what may be expected from the norm, or even lesser, in comparison with that of other enterprises. The reason behind such a phenomenon could be due to increased reinvestment.

#### **Operating index ratio (OIR)**

This ratio gives a comparison of operating cash from that of continuing operations. In other words, the ratio acts as a yardstick of the ability of continuing operations to generate cash. This is the rate at which a business realizes cash (Berry et al, 2005). The formula for this ratio is as follows:

Profit before investment income, interest and taxation on continuing activities

The ratio is an index of the level to which non-cash transactions are incorporated while computing profits due to operations. As the years go by, one would anticipate that cash flow as a result of continuing operations approximates profits that result from continuing operations.

# **Earnings Quality ratio (EQR)**

With regard to the quality ratio, both net income as well as operating cash flow (OCF) are adjusted in line with income and interest taxes that emanate from differences between cash payments and deferrals and accruals. This is seen as a more practical suggestion of the operating cash flow devoid of deviation, relative to the reported earnings (Mulford & Comiskey, 2005). Such non-cash items as amortization, depreciation, gains and losses are all a distinctive basis for any potential, substantial or atypical deviations that requires an assessment.

As such, at the evaluation phase, there is a need to recognize the existence of such a difference, in addition to monitoring its size and direction. Besides, it is also important that the underlying causes should be identified. For instance, on the basis of comparisons with time, the quality ratio of a given earning that could gradually be falling below the index of one may be an indication of a probable problem, such as payables that may not have been recorded or even fictitious receivables (Bragg, 2002).

## **Asset Efficiency Ratio (AER)**

This ratio gives an indication of how well a company's assets have been utilized for purposes of generating returns in terms of cash flow. Plant, property as well as other assets may be used as the denominator to the ratio. This will reflect the ability of a company to reduce waste in cash flows generation from operations, on the basis of the investments that such a company may have made in operational assets (Bragg, 2002). Should these measures be tracked over a considerable period of time, they would give valuable insights, especially in a case whereby results are obtained on a comparative basis with companies within the same industry.

### Interest Coverage ratio (ICR)

Interest is usually taken as an expense that is subject to tax deduction. As such, the computation of interest coverage ratio is arrived at by adding back income taxes and payments of interests to operating cash flow (OCF), followed by a division of interest paid in cash. Cash payments often entail total interests that are paid for both the long-term as well as the short-term interest-bearing-debt. The conventional "time-interest-earned ratio" fails to provide a valuable benchmark with regard to debt service due to accruals and non-cash items adjustments needed for an assessment of the earnings reported (Diamond, 2006).

Conversely, the interest coverage ratio, which lays emphasis on cash flows, acts as a better liquidity indicator. In addition, it shows that a given company is in a position to service the debts that it has assumed. In case this ratio is extremely low, it is an indication that a company could be lacking sufficient cash to fulfill its debt and interests payment obligations (Bragg, 2002). Consequently, it becomes important that the interest coverage ratio of a company is both monitored and tracked over time.

# Cash Generating Power ratio (CGPR)

The ratio of cash generating power demonstrates the ability of a company to generate cash. In addition, it illustrates the amount of cash that the operations of a business single-handedly generate vis-à-vis the entire cash flow of a business entity (Bragg, 2002). The recommendation is that the cash generating power of a company should be evaluated on an annual basis, in addition to comparing these values from one year to the other. Moreover, suggestions have also been put forward to the effect that the cash generating power of a company power of a company within a similar industry should also be carried out.

Profound reductions in this ratio relative to time might be the reason for financial analysts to get concerned about initiating investigations. The external financing index is another ratio that bears a correlation with the cash generating power ratio. This ratio compares those cash flows that financing activities provide and further compares these with the ratio of cash generated as a result of operations (Bragg, 2002). This ratio is therefore an index of the level of dependence by a given company on external financing sources. The greater this ratio, the greater also is the level

of dependency of a company to external sources of finances. Consequently, this acts as a perfect recipe for elevated financial risk levels to a company.

### Long Term Debt Coverage ratio (LTDCR)

In computing this ratio, available operation cash flow, less payments of dividends, divided by long-term debt such as bonds payable, mortgage notes payable, along with other important obligations. This ratio is an index of a company's solvency. This is because it illustrates the amount of time that a company would take to repay debts on an assumption that such a company does not incur additional long-term debts (Bragg, 2002).

In addition, such a company ought to exclusively utilize its operating cash in the repayment of debts. In case a company exhibits a debt coverage ratio that is exceedingly decreasing from one year to the other, that would be a sign of how extremely risky the business environment in which the company operates. This could compel management of a company to resort to inappropriate actions for purposes of raising capital, or even other financing sources, in a bid to avoid filing for bankruptcy.

### **Cash Flow Per Share ratio (CFPSR)**

This is a ratio that lays emphasis on the amount of cash flow from operations that is available to the common shareholders after payments of dividend. However, only preferred shareholders of a company are entitled to this cash. Cash flow per share includes a similar denominator as used for calculating earnings per share. These are the common stock shares, in terms of average weighted numbers, following a retroactive adjustment for any form of split stock dividends (Helfert, 2001).

Nevertheless, cash flow for every one share, compared to the traditional earnings per share, reduces the impacts of numerous alternatives of accounting for assessment of reported income. As a result, cash flow per share yields an appropriate starting point for tracking profound changes that could be taking place within a company over a given time period (Helfert, 2001). This ratio may appear as if it arouses a greater interest on the part of the investors as opposed to both auditors and accountants. Nevertheless, there is still a need to track this ratio since a profound ratio fluctuation that may not have been anticipated may very well be an indication of a red-flag. For this reason, there is a need to often initiate a follow-up.

# Capital Asset Ratio (CAR)

Capital assets often include plant, property as well as the operational equipments. Cash flow information on capital assets is usually provided for within a cash flow statement on the investing section. The capital asset ratio is an indication of the ability of a company to fulfill its capital expenditure requirements based on the cash that the operating activities are able to generate, as opposed to financing activities. A ratio that equals or exceeds one is an indication that a company does not need to embark on debt financing for purposes of its capital expenditure (Damodaran, 2002).

The ability of a company to update or replace its capital assets eventually verifies if a company is in a position to compete successfully or not with other players in the same industry (Damodaran, 2002). A majority of the organizations are usually faced with a potential risk in the name of decreasing or stagnant capital spending levels. As a result, there is a need to monitor the amount of money that a company expends towards the acquisitions of new equipment, along with advances in technology.

#### **Operating Cash Margin ratio (OCMR)**

This ratio bears a resemblance with the conventional profit margin ratio except that it uses cash flow from operations, in place of either net income or operating income, as a numerator in determining the ratio (Stein & DeMuth, 2003). For this reason, the ratio gives a more profound performance indication on the basis of the ability of a company to generate cash, relative to a ratio of profit margin, which lays emphasis on accounting income with a bias for accruals.

In addition, this ratio tends to highlight cash flow timings as opposed to sales timing. As a result, the ratio may be quite valuable if incorporated into a process that is meant to assess a company's performance on cash management. Besides, the ratio may also prove useful in as far as credit granting policies and receivable are concerned (Ferris et al, 2002). Nevertheless, as margins of cash flow are bound to indicate profound variations in companies found in different industries, the most effective way of utilizing this ratio is by concentrating on a comparative assessment of companies that are found within a similar industry.

#### **1.2 CONCEPTUAL FRAMEWORK**

A conceptual framework of a study is often taken as a possible roadmap to such a study. This is made possible by way of laying out the probable courses of action that such a research study wishes to take. Alternatively, it could also refer to a thought or an idea. In accounting, for instance, a conceptual framework seeks to identify the nature, subject, purpose and broad content of general-purpose financial reporting and the qualitative characteristics that financial information should possess (Deegan, 2005).

Within the context of this research study, the main objective of conducting this research is for purposes of assessing cash flow ratios as a measure of performance in the emerging economies. To accomplish this, the nine cash flow ratios as recommended by Giacomino and Mielke (1993) shall be employed for this particular research study. The results of these cash flow ratios shall then form the basis of comparing the financial performance of Ghanaian companies that have been listed on the Ghanaian stock exchange. For purposes of comparison with the developed economies, selected companies listed on the New York Stock Exchange (NYSE) shall also have their cash flows ratios examined.

Cash flow statements have been used as comparative studies among various companies within the same industry. Cash flow statements can be used to evaluate the solvency, liquidity, financial adaptability and viability of a company. Furthermore, Everingham et al (2003) opine that cash flow ratios serve as performance indicators. They are an index of the level to which a company in question has amassed enough funds for loan repayment, operating capabilities maintenance, dividends payments, in addition to novel investment, without resorting to external forms of financing.

Over the years, management of companies, as well as external auditors that may have an interest in a given business entity, have recognized the importance of a statement of cash flow. Completely mindful of the fact that the information contained in a cash flow statement occupies a vital part of the decision making process for an enterprise to either assume credit or invest, the Standard Board on Financial Accounting (FASB) has seen it fit to release a statement of cash flows, dubbed statement No. 95. According to this pronouncement, it has become mandatory for enterprises to make an allowance for a cash flow statement while preparing their statements of finances. In this case, a cash flow statement may be said to report on payments, cash receivables, as well as net change experienced by cash on hand (Deegan, 2005). This is the cash that emanates from operating, investing and financing activities that a given enterprise may be engaged in over a stipulated period of time. To a relationship manager, cash flow is quite significant since lack of cash calls for its replacement. In addition, loans that a business entity may have assumed are repayable with cash.

The construction of statement of cash flow occurs by way of taking into account the ensuing changes on the accounts of a balance sheet for a stipulated period of time. In this case, depreciation and net profit have to be accounted for. In addition, it is also important that the entire cash accounts be reconciled. In the statement of cash flow analysis exercise, a loan officer,

for example, from a commercial bank, would consider the consistency and quality of data, the type of company, the market and industry that a company belongs and objectives of the management before approval of a loan (Deegan, 2005).

Once the results findings have been generated, conclusive findings to the study shall be arrived at. Here, the objective will be to determine whether or not companies in the merging markets and in this case, Ghana, have better cash flow statements in comparison with those from the United States.

#### **1.3 OBJECTIVE OF THE STUDY**

The aim of this research study is to assess cash flows as a measure of performance in emerging economies. Specifically, companies listed on the Ghana stock exchange shall be evaluated on the basis of their cash flow ratios. The results shall then be compared with those calculated for companies listed on the stock market in the United States. The idea is to use the results from cash flow ratios as a yardstick to the financial performance of companies from the emerging markets. By comparing companies from the emerging economies with those from the developed world, will further help to shed light on whether or not companies from the emerging markets are in a position to operate competitively on the global market.

The traditional methods of financial analysis that companies have been using for a long term to assess their financial performance are plagued by a number of drawbacks. The income statement and balance sheet can not sufficiently evaluate the financial performance of a firm as the cash flow statements have proved to be. Furthermore, accounting information from both a balance sheet and an income statement is also less reliable with regard to the liquid analysis of a company (Bernstein & Wild, 1999). For this reason, a company could easily be faced with bankruptcy or insolvency without a timely prior warning of such a development when using traditional approach.

In the case of a cash flow, however, the various ratios that may be computed have been shown to act as a pointer to the 'red areas' of a firm's financial position. For example, the cash flow sufficiency ratio determines the ability of a company to generate sufficient cash to offset the available debts and facilitates reinvestment initiative. Furthermore, it enables management to pay dividends to the company's owners (Bragg, 2002). If this ratio is not impressive, then what this means is that a company may have to sacrifice on the payment of dividends.

On the issue of data handling, the balance sheet is characterized by static data, which indicates that data can only be measured at a given point in time. The presence of random non-cash allowances on income statements is another drawback (Fabozzi & Markowitz, 2002). Besides, these traditional methods of financial analysis appear not to give priority to the amount of cash that is readily available within a given business entity, even though cash happens to be the main concern to virtually all the stakeholders of a business entity. With these observations in mind, this research study hopes to break away from the conventional use of accounting systems for the evaluations of the performance of companies. In their place, the cash flow statement ratios would be used for the performance analysis.

# **1.4 WORKING HYPOTHESIS**

H1: The financial performances of companies in the merging markets are comparable to those from the developed economies.

H2: cash flow ratios are better tools for the assessment of the financial performance of a business entity in comparison with the use of an income statement or a balance sheet.

# **1.5 RESEARCH SCOPE AND METHODOLOGY**

### **Research Scope**

This research study is concerned with the use of cash flow as a measure of performance in emerging markets. Even though there are numerous ways through which cash flow may be used as a yardstick for the financial performance of companies, nevertheless this research study is more concerned with the use of cash flow ratios as described by Giacomino and Mielke (1993).

With regard to the emerging economies, the case of companies from the Ghanaian stock exchange shall be dealt with. As such, companies from amongst those listed at the Ghanaian stock exchange shall have a total of nine cash flow ratios examined. These ratios are two fold. First, we have the sufficiency ratios that include the long-term debt repayment, cash flow adequacy, reinvestment, dividend pay-outs, impact of depreciation write-offs, and debt coverage. On the other hand, there are also the efficiency ratios that consist of the operating index, cash flow to assets, and cash flow return on assets.

# **Research methodology**

Research methodology has been defined as the application of science-based procedures with a view to acquiring solutions to a number of research questions (Adams & Schvaneveldt 1991). A research methodology supplies the necessary tools to aid in the carrying out of a research, whose goal is to obtain the needed information.

A research methodology entails the whole conceptualization process, an observation of the problems that needs to be studied, research questions formulation, the collection of data, data analysis, and the eventual generation of the research findings. Nevertheless, there are a number of authors who have come up with alternative methods of research (Ghauri et al., 1995; Yin 1994).

The availability of literature as regards the methods of research assists in the process of classifying the suitable and appropriate methods necessary to conduct a specific kind of research. Moreover, Ghauri et al (1995) opine that the method often selected for use in a given research study is determined by the objectives and problems that such a research presents.

Furthermore, selecting a desirable method of research is determined by the context of the potential research. In addition, the availability of adequate literature material to warrant such a study shall also determine the research method that will be adopted for a given research study, so that the relevant topic can be adequately assessed. In a situation where this does not happen, then there will be a need for conducting further studies so as to fill in the remaining gap.

# **1.6 PREVIEW OF SUBSEQUENT CHAPTERS**

Review of relevant literature in which the ratios of the cash flow statement shall be highlighted. After that, there shall be a data collection and presentation section, in which the various methods that this research study hopes to utilize, for purposes of collecting relevant data. It is important to note here that both the descriptive and quantitative data shall be collected. Once data has been collected, it shall then be analyzed, along with a testing of the study hypotheses. Data analysis shall be based on quantitative means. Ultimately, the findings of the research study shall be reported and a conclusion drawn from the study. In line with the objective of this research, recommendations will then be issued. Additionally, the limitations that were faced with in the study shall be highlighted.

#### **CHAPTER TWO**

#### LITERATURE REVIEW

### 2.1 Introduction

Cash flow analysis is certainly part of traditional financial analysis in which management, executives, investors and other stake holders, can utilize to determine the effectiveness of a company's overall strategy. To fully comprehend a company's viability as an on-going concern, a researcher would do well to calculate a few simple ratios from a company's financial data on its cash flow statement (Bhalla, 2004). This financial data can be found in the quarterly or annual financial reports that publicly trading companies are required to disclose to their particular market's regulatory agency as well as the general public and shareholders.

The financial document provides aggregate data regarding all cash inflows and outflows pertaining to a business operations and investments during a given reporting period (Adams, 1986, P.31). The statement of sources and uses of cash tend to quantify all of a company's cash inflows and outflows in a manner that the typical financial balance sheet and the income statements do not. Cash flow reports are not prepared under accounting conventions but they specifically report movements of cash, hence profit is opinion whilst cash is fact. According to David Tweedie, one time chairman of the Accounting Standard Board, "you cannot fiddle cash flow reports. Cash is the life blood of a business, if it dwindles, the business will die". Thus the cash flow report adds a particular valuable source of information to the interested users of

accounts. Consequently, all pretensions that might be invoked by the use of cosmetic accounting procedures are dispensed with.

The utilization of cash flow ratios for the prediction as well as the understanding of the performance of businesses is an exercise that is slowly gaining prominence, if the number of research publications in the same area is anything to go by. Probably the main challenge that faces the researchers and scholars alike in this area is how difficult it is to access sufficient data for purposes of analysis. This is because a majority of these studies relied on less than 50 firms in their quest to analyze their cash flow ratios. The significance of financial ratios, especially, cash flow ratios analysis of a firm as a predictor for the performance of a firm is an area that began to be analyzed as early as 1966 by Beaver.

Hence, this particular research field and the associated theoretical perspective, by and large have come to be regarded as having been initiated by Beaver in 1966. He sought to put to test a total of 30 accounting ratios with a view to predicting the possibility that a business may fail five years upon inception. Of the 30 ratios that he adopted, four of them were based on the cash flow statement. The basis for the testing of these 30 ratios was a collection of 79 firms that had been sampled from a group of firms.

The conclusion that Beaver arrived at was that the application of ratios, especially, those ratios that assess debt coverage through cash flows, were capable of forecasting business failure for a period of five years on average, before the business actually collapses. In a later study that was carried out by Altman in 1981, this researcher sought to enhance the analysis of conventional

ratios through the application of multivariate analysis. After having identified a number of manufacturing companies, a total of 105 firms were declared bankrupt, whilst another 2,058 survived. These authors discovered that there was a relationship between, on one hand, the size of a firm and on the other hand, the financial performance of such a firm. In this case, those firms whose sizes were deemed smaller were also more likely to experience failed performance when compared with their larger counterparts.

Since then, there have been a lot of studies that have endeavored to illustrate, through the utilization of a number of techniques, the predictive value for the assessment of business performance.

In another survey that was carried out by Zavgren in 1985, the author revealed that out of a sample of 90 firms that the study considered, 45 of them were declared bankrupt and the other 45 survived. The failed firms were more likely to be those that were smaller in size. Furthermore, their overall revenue and net profits were also likely to be less, relative to their larger counterparts.

Nevertheless, literature review that seeks to address the techniques and theories for the assessment and forecasting of the performance of a firm indicates that such techniques appear to get complicated as the years go by. Consequently, few researchers are in a position to address such a challenge quite adequately. Additionally, there are other problems that some researchers appear to encounter when it comes to the forecast of the performance of a firm (Pagalo & Volpin 2005).

## 2.2 Importance of cash flows in predicting the performance of a firm

The importance of cash flows cannot be overemphasized, mainly because the information that they contain is, to a great extent, very valuable when it comes to the execution of economic decisions in a firm. For instance, the investors of a firm shall often require information regarding the future cash projections of a company. This is because the worth of their investment at the current value is a pointer of how much they are likely to be worth in the future. Likewise, a firm's ability to accumulate cash flows is usually depicted by its share value. According to a research study that was undertaken by Narktabtee (2000) in Thailand concerning cash flow information, the researcher indicated that the information contained in a cash flow was to a great extent, quite relevant to the prices of the stocks of the firms that had been listed at the Thai stock market. Consequently, a projection of the cash flows of a company in the future enabled potential investors, as well as the existing ones, to forecast with certainty the prices of stocks. With regard to the assessment of investment decision, a survey of investors revealed that their appreciation for the value of the cash flow information had increased significantly (Epstein and Pava, 1992).

Additionally, the Financial Accounting Standard Board (FASB) has offered a suggestion to the effect that the reporting of financial information of a firm may very well assist the users of financial information to explore future cash flows of a firm. In as far as these issues are concerned, it has since emerged that cash flows play a very significant role. A majority of researchers have endeavored to explore the predictive ability, with respect to the earnings of a firm, based on accrual earnings and cash flows, in a bid to forecast the future cash flows of a

company. Narktabtee and others (2002) opined that earnings serve as a better forecasting tool of the ensuing cash flows of a firm when compared with the actual cash flows.

Nonetheless, prior studies into the same area have been seen to arrive at inconclusive results. A number of other research findings appear to have reached a conclusion that suggests that, as far as the predictive ability of a firm's earnings are concerned, they outperform the earnings that emanate from the cash flows, when predicting future cash flows (Kothari & Watts 1998). On the contrary, a number of studies have tended to indicate conflicting results that cash flows are a better tool for forecasting future cash flows. Some of such research studies were carried out by Percy and Stokes (1992), and subsequently in 1994 by Finger.

On the other hand, a study that was concluded by McBeth (1993) appeared to have rejected the findings of the prior studies. The author instead claimed that both earnings of a firm as well as its cash flows were not good predictive tools for a firm's future cash flows. Over and above single variable testing, it has been the desire of a number of researchers to emphasize on a multitude of variables, for example, earnings components that entail data on accrual accounting, as well as cash flow information (Barth, Cram & Nelson 2001; Stammerjohan & Nassiripour 2000/2001).

Barth and others utilized a modest model of time series in a bid to put to test the connection between future cash flows and the accrual elements of earnings of a firm. The conclusion that was reached by these authors was that each of the individual aspects of accrual accounting of the earnings yielded divergent information as regards the future projections of the cash flows of a firm. In contrast, Stammerjohan & Nassiripour (2000/2001), endeavored to reproduce the research study that had been undertaken by Barth and colleagues. They concluded that the two studies yielded evidence to the fact that models that bore a correlation with both total accruals and cash flows were more likely to forecast future cash flows of a firm with an enhanced level of assurance, when compared with those models whose basis was just the earnings of a company. However, the study that Stammerjohan and Nassiripour undertook was seen to yield weak evidence when it was related to the issue of predictive models that utilize both cash flows and accrual earnings.

## 2.3 Assessment of the application of operating cash flows by creditors

According to the findings of research studies that have been carried out lately, the significance of operating cash flows has been demonstrated, in as far as the evaluation of a credit risk is concerned (Billings & Morton 2002). By instinct, it may be expected that a creditor would be more interested in an evaluation of cash flows as a result of business operations. This is due to the fact that a majority of the agencies that deal with the rating of credit, for instance, Standard and Poor's, make use of cash flow as a credit quality measure (Billings & Morton 2002).

Based on the findings of a survey that was carried out in 1995 by Jones and others, these authors assessed several users of financial statements and the group that was surveyed was made up of investors, managers, and creditors. The aim of the survey was to assess what information

contained in a financial statement could be of prime importance to these individuals. Based on the responses of the creditors, whose members were increasingly higher than that of the managers and the investors, they claimed that they relied on the applications of the operating cash flows for purposes of arriving at sustainable decision.

By and large, the available research that appears to have explored the findings of creditors with regard to the use of information from operating cash flows appears to be quite scarce. Research findings of surveys that were carried out separately first by Ali in 1994 and then later by Sloan (1996) revealed that cash flows were often viewed as permanent components of accrued earnings (Cote 2005). On the other hand, Barth and others (2001) revealed related findings by way of illustrating that the components of cash flow with respect to the earnings of a firm tended to have profound persistence when compared with a firm's accruals, with regard to future cash flows estimations.

In the event that both cash flows and the earnings of a firm are positive, what this means therefore is that the future cash flows for such a firm may as well be expected to assume a positive figure. This is because operating cash flows have been seen to be more of a confirmatory test for a firm's positive earnings. When both appear negative, a firm can then expect to be confronted with future cash flows that are also negative. As White and colleagues (1997) have found out, negative earnings by and large appears to be non-transitory.
When there is consistency between the earnings of a firm and its cash flow, the ensuing confirmatory signals will result in the realization of a market reaction that is quite strong, when compared with a scenario where both of these directions seem to be mixed (Quirin et al 1999). Disagreement often occurs at a time when these two directions oppose each other. Available theoretical studies appear to contend that operating cash flows are the stronger of the several signals of the performance indicators of a business in future. On the other hand, empirical evidence from archival research studies indicate that the earnings of a firm are more dominant when it comes to the decision models that inform an investor (Hayn 1995).

The appreciation of transitory aspects seems to be more of a challenge to the users of a financial statement as opposed to a benefit. Ettredge and Fuller (1991) were able to arrive at a conclusion that several firms that were confronted with a loss had a higher chance of going back to a stream of positive earnings in the years ahead. Additionally, these two authors were able to discover that the market in several ways appeared to expect a gradual decline in terms of the earnings of the firm. They further illustrated how it was possible to develop a trading strategy of buying the stocks of a firm during the periods of negative earnings.

These are sentiments that have also received the backing of the National Investors Association (NAIC), which have supported the idea of bypassing those stocks of firms which have only of late recorded negative earnings (O'Hara and Janke, 1998). In addition, Hayn (1995) was able to discover that there existed symmetry with regard to the level to which a firm was able to attain

persistency, in terms of its earnings. In this case, negative earnings of a firm have been seen to be largely transitory, but positive earnings are by and large persistent. This kind of an asymmetry appears to bring about a state of ambiguity for those users that rely on financial statements and want to utilize earnings with a view to forecasting the future performance of a firm in which they have a stake.

## 2.4 The functions of cash flow as a result of operations

The predictive value as it impacts on the cash flows of the operations of a firm is an area that has been extensively investigated, when compared to the information that is contained in the earnings of a firm (Neiil et al 1991). These studies that have been undertaken have amassed a rich body of knowledge, with the result that quite a number of reliable research findings have come up. When the components of a firm's earnings are viewed as being highly transitory, the confirmation that may be found from the operating cash flow of such a firm seeks to give a strong signal as regards the future performance of a firm (Cheng et al 1996). For example, at a time when the earnings of a company are recorded as being negative, they are also by extension, highly transitory.

Therefore, users of the financial statement require placing a lot of emphasis on the cash flow operations when they wish to undertake analysis of a firm. In the same way, at a time when a firm has been plagued by a financial distress, it has emerged that operating cash flows have proved to be better predictors of whether or not a firm shall remain solvent, in the years to come (Catanach 2000). It is important, however, to note that the operating cash flows of a firm do not under any circumstances seek to dominate the earnings of a firm, as a way of forecasting its future performance. What these cash flows, instead, hope to achieve is to cement an interrelationship that exists amongst the various variables that are involved, in addition to accruals compositions and future performance signals (Barth et al 2001).

DeFond and Hung (2003), through an illustration of the trend by a financial analyst to release forecast on operating cash flows, serve as an indication that the cash flows play a significant role in as far as the forecasting of the future performance of a company is concerned. Hence, it has been observed that analysts have a tendency to release forecasts on operating cash flows at a time when it has become quite clear that earnings per se could not prove reliable in terms of evaluating the future of a firm. For example, high volatility earnings, coupled with a poor financial heath of a firm act as a signal that the firm in question could be faced with a certain amount of distress and this therefore calls for a keen assessment of the cash flows.

Accounting choices that may at best be said to be heterogeneous, along with high accruals are a pointer that a firm has potential earning. This is again an illustration of the necessity for a firm's financial analyst to corroborate their findings by a further exploration of the cash flows due to operations (Narktabtee 2000). The behavior of the various investors appears to have dominated the attention of the different researchers that have dedicated their time and efforts into the field of its cash flows study. Nevertheless, the goals and motivations of both creditors and investors

seem to be diverse in nature, with the result that each of the two groups calls attention to a number of financial variables when they seek to undertake their analysis.

The apparent indications by recent events are such that earnings per se may not be taken as a reliable and consistent indicator of the future performance of a firm. Whereas operating cash flows have proved to be quite in high demand from a multitude of financial statement users, nevertheless, not a lot of the investors have managed to utilize this tool in an effective manner (Hayn, 1995). It is important to note that not a lot of effort has been dedicated towards the assessment of probable explanations as to why investors seem to ignore inherent signals that though minute, they are, nevertheless, significant when it comes to data on cash flow.

From a historical point of view, data on cash flows has tended to be more episodic. Hence, the only time that researchers and scholars alike have appeared to put a lot of emphasis on cash flow ratios is when assessing the future projections of a business, such as, when a major corporation is doomed to fail. For example, the filing for bankruptcy in 1975 by W. T. Grant, a leading retailer, came as a surprise to a majority of the investors, even those that already had a large stake in the firm. Following this bankruptcy declaration, however, this act alone sought to generate improved interest in terms of the reporting and analysis of cash flows. Up to the time that the W. T. Grant was declared bankrupt, it had steadily reported improved earnings in growth. However, behind these impressive earnings lay inventory levels that were not only obsolete, but were also increasing by the minute. Furthermore, the amounts payable by the firm was also seen to stretch, literary far beyond the tolerable levels by the vendors (Cote 2005).

What is surprising to note is the fact that even the insider analysts of the firm were shocked beyond reason when W. T. Grant announced that it was filing for bankruptcy. As a result of this historic event, there resulted a number of modifications in terms of the way in which cash flows were being reported by companies, not to mention the analysis techniques adopted by investors (Cote 2005). Progressively, cash flows and their associated ratios started to gain prominence and at the same time, there was a resultant waning of the decision models that were adopted by the investors. About 30 years later, and in the wake of a global financial crisis, we may very well be confronted with yet other form of corporate scandals that are high-profile. This may act to calls for a speedy and serious harmonization of data on cash flows; in as far as the models for equity evaluation are concerned.

Contrary to the behavior of investors, there exist strong reasons to suggest the notion that creditors are more than willing to explore cash flows that are associated with the operations of a firm, as a measure that signifies that the firm in question is creditworthy (Cote 2005). It is worthy of note that the investment that creditors put into a firm seems to be somewhat more conservative, when compared with the investment decision that are made by investors into a firm. Following a distribution of funds into a firm, the returns that creditors stand to gain shall often be based on regular interest expectations, in addition to the principal payments by the firm.

## 2.5 Corporate governance vs. the valuation and performance of a firm

The significant role that is played by corporate governance, in terms of assessing the valuation and the performance of a firm, is an area that has lately received a lot of attention. This is due to the demise of some high profile firms that have been riddled with scandals and an eventual collapse. These included WorldCom and Enron in the United States (US). In 2002, the United States sought to ratify the Sarbanes-Oxley Act (SBA), which is arguably the single most sweeping corporate governance regulation that the country has ratified within a period of over 70 years (Bynes et al 2003). The SBA Act is firmly rooted in the practices of corporate governance that usually result in the collapse of a firm (Li, Pincus & Rigo 2004). Moreover, it has been the argument of Jensen (1993) that there has been a certain level of ineffectiveness when it comes to the internal mechanisms that dictate corporate governance of firms.

Relative efficacy, which affects the systems of corporate governance of firms, both in the United Kingdom and the United States, has been raised by a number of authors (Bynes et al 2003). Consequently, the act of dispersing the shareholders in a firm, coupled with the prominence of trading the shares of a firm in a secondary market, when compared with the systems of corporate governance in other countries such as Germany and Japan, have arisen. The latter two countries have in place a system of corporate governance that is characterized by shareholdings that at best, may only be regarded as being more concentrated, in addition to the outstanding role that is played by the various banking institutions in these countries.

A number of empirical studies that have been carried out have revealed that the level of quality with which firms in a given economy is governed tend to impact greatly on the valuation of such

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companies. This is based on several indicators of measurements, such as Tobin's Q (Gompers et al 2003; Bebchuk & Cohen 2005; Cremers & Nair 2005). The available literature on this issue appears to pinpoint fundamental governance measures which emphasize the connection with the valuation of a firm. These measures include an annual selection of the members of the board to a corporation, option re-pricing, and the level of attendance to the annual general meetings by the various directors of a firm.

As depicted, the importance of corporate governance, in as far as the valuation and the performance of a firm is concerned, cannot be overemphasized. Corporate governance may be viewed as a mechanism that has been enacted with the aim of handling the issue of separating the control of a firm from its ownership, not to mention the agency problems that appear to crop up, once a corporate governance mechanism is in place (Bebchuk & Cohen 2005). On the basis of the various members who have a stake within the company, there will often be a variation with regard to the agency problem, on one hand and the conflicts of interests, on the other hand.

Within a corporation, corporate governance is concerned with those mechanisms that enable the various stakeholders of a corporation to assert a controlling effect on its management as well as the other insiders, in such a manner as to ensure that their various interests are well taken care of (Senbet and John, 1998). In this case, creditors, equity-holders, suppliers, consumers, employees, management, the government, among others have a certain stake in a firm. The daily decisions of a firm are often taken care of by professional managers and a number of corporate insiders. As such, there is a need to separate between the control of a firm, and its ownership. Therefore,

corporate governance is a measure of the manner in which the stakeholders of a firm are able to manage and control a firm in which they have a stake in.

## 2.6 The performance and valuation of a firm with its corporate governance

The utilization of accounting ratios for purposes of measuring the performance of a firm is an exercise that has become quite entrenched in many of the literature that have sought to address the issue of corporate governance (Pagano & Volpin 2005). Specifically, the main areas that the accounting ratios employed seem to target are equity and capital returns. The existing association between a firm's economic performance and its corporate governance has also attracted the attention of policy makers. Consequently, the fundamental question that appears to be the top priority for such policy makers is to determine if corporate governance mechanisms that are put in place by a firm are capable of driving the economic value of such a firm.

Some of the mechanisms that comprise the corporate governance of a firm include the competitive environment surrounding a firm, the structure of ownership, capitalist legal protection acts, the composition of the board to the firm and also the financial policy that such a firm may have put in place (Li et al 2004). Thus far, only a handful of researchers have sought to explore the connection between, on one hand, the governance of a firm and on the other hand, its economic performance.

Available empirical evidence on the same is rather inconclusive, if not missed. This has been the case partly due to the fact that corporate governance is an issue that is quite new within the

academic field. Again, it is partly because of the difficulty in obtaining data that is high-quality and necessary in exploring the connection between governance and performance of a firm. However, it is quite possible to distinguish the various systems of corporate governance, on the basis of the concentration levels of ownership, as well as the ability to identify the shareholders who have a controlling stake in a firm. Corporate governance impacts on the function as well as the development of the capital markets, in addition to its role towards putting pressure on those charged with the responsibility of resource allocation in a firm (Lehn & Zhao 2006). We are living in an era in which globalization and enhanced capital mobility is the order of the day. For this reason, corporate governance has turned into a vita framework condition that impacts on the economies as well as the competitiveness of industries and by extension, the firms that are affiliated with specific industries.

The mechanism that affects corporate governance has been seen to differ on the basis of 129 sectors of the industry, as well as by the type of productive activities that are carried out by these various sectors. It is quite possible for the framework of corporate governance to impact on equity markets development, the innovative activities, research and development and playing an active role concerning the economic growth of a firm (Holmstrom & Kaplan 2001).

The act of identifying issues which make up the practices of corporate governance ideal and the circumstances, under which this is carried out, is a task that has time and again proved to be quite daunting. This is especially the case partly due to the fact that the effectiveness of the systems of corporate governance shall often be impacted upon by the regulatory and legal frameworks that

differ from one country to another. This is in addition to the cultural and historical factors as well as the product structure and the market factors to the extent that they affect a firm.

The users of the various financial statements of a firm find cash flows to be a useful piece of information, especially as a way of knowing how cash, a vital resource in a business entity, comes into a firm and how it is utilized (Rose et al 2007). The use of cash flow is important not only to the professional that manages a business entity. Also, the rest of the stakeholders of the company who will be impacted upon by the utilization of cash flow ratios as well as the planning and analysis tools. A cash flow statement categorizes all the cash that flows into and out of a business into three classes, which are, operating activities, investing activities as well as financing activities.

A majority of organizations prepare their statement of finances in an indirect method, so that their operating expenses are often presented as a reconciliation of accrual-based net income to net cash flows from operations (Wells, 2005). The indirect reconciliation method commences with net income amount as opposed to cash, and then followed by adjustments, such as deprecation and amortization that impact on net income reported.

Available literature has sought to draw a correlation between the performance and the valuation that a firm can receive to the level of corporate governance that is at play. Earlier studies that have been conducted in this area were able to discover an association between the individual provisions of internal governance, as well as Tobin's Q (Bhagat & Black 2002). Whereas the study that was carried out by Bhagat and Black failed to realize a connection between Tobin's Q and a number of outside directors to a given firm, Callahan and colleagues (2003) managed to realize a positive correlation between Tobin's Q and a firm's board sizes.

Furthermore, a number of research studies have explored corporate governance summary measures, along with their relationship with the valuation of a firm. According to a study that was carried out by Gompers and others (2003)., it emerged that those firms that had less shareholders rights tended to have reduced firms valuations, in addition to experiencing reduced returns on their stocks. Gompers et al managed to categorize into five classes a total of 24 governance factors. These were state laws, hostile takeover delaying tactics, voting rights, the protection of officer/director, and additional takeover defenses. These authors then went ahead and came up with a G-Index after adding up the aforementioned 24 factors of governance.

The resulting G-Index has since found wide application in those studies that wish to represent governance. A study that was undertaken by Bebchuck and Cohen (2005) indicated that those corporate boards that were somewhat staggered had a tendency of impacting in a negative way on a firm's valuation. It is the argument of Cremers and Nair (2005) that in order for a firm to realize effective corporate governance, it is important that both the external as well as the internal measures must be in place. This will facilitate the taking into account of the activism of the shareholders to a firm and also their proxies as far as the issue of internal governance is concerned.

Even though existing number of systems may be characterized by an ownership regime, otherwise referred to as outsider systems that are quite widely dispersed, nevertheless, there are

still other systems that enjoy a concentrated ownership, known in this case as insider system. On the basis of surveys that have been comprehensively carried out, specifically in both the UK and the United States, it has been the conclusion of Gugler (2001) that those firms whose owners have a larger controlling stake in them are able to outperform the firms that have a manager as the controller in more significant ways.

By using a sample of manufacturing companies that had been listed on the stock exchange in Germany, Roe (2004) was able to make a significant discovery. He discovered that, with respect to the rate of growth, those firms that were under the management of a manager outperformed significantly the firms that were under the control of their owners. Conversely, the owner-manager firms, according to this author, were more likely to outperform their counterparts under the management of a manager; in as far as the realization of profits are concerned.

Nevertheless, the ability of firms that are under the management of their owners to perform better than those under the management of managers shall also be influenced by the nature of the industry under which they have been categorized. For example, Gugler (2001) discovered that the industries that were characterized by low asset specificity, its constituent firms, which were also being managed by their owners, tended to have a more superior performance, relative to the firms under the management of managers. On the other hand, those firms that were in an industry that was characterized by an asset specificity that is relatively high, for instance, computers, exhibited no significant difference between owner-managed firms and those under the control of a manager.

## 2.7 A preview of Ghana as an emerging economy

The macroeconomic stabilization that Ghana has enjoyed over the years has enabled the country to attain a profound success in the development of its key sectors, especially as far as the financial sectors are concerned. This kind of development has largely been fuelled by liberalization policies into the key sectors of the economy, enhanced competition and also a steady liberalization of capital account. The success with which Ghana has managed to accomplish the various ambitious financial reforms may largely be as a result of solid buy-in by key stakeholders of the economy (Anokye & Tweneboah 2009). They include members of the private sector and donor assistance that have been well coordinated.

As the country continues to bask in the glory of advancing financial health, a lot still needs to be accomplished. Initially, there is a need for the country to deepen the various secondary capital markets that serve it. For example, the initiation of financial reforms into the small as well as medium-sized firms, rural banking and microfinance institutions. The enhancement of the role that is played by the private sector in the provision of insurance and pension systems are also worthy of implementation. Furthermore, it is also important that Ghana will be able to develop its equity market, with a view to attracting more investors, especially the foreign based ones, into the country.

## 2.8 Economic reforms in Ghana

To-date, there has been quite a number of reforms that the financial system in Ghana has undergone, since the initiation in 2000 of the Financial Sector Assessment Program (FSAP). This was started jointly by the World Bank (WB) and the International Monetary Fund (IMF). These reforms were later updated in 2003 and since then, the country has gained immensely following their implementation (IMF 2008). Initially, the FSAP sought to identify fundamental aspects of a medium-term strategy that was directed at the financial sector of the country.

However, following an implementation of these key reforms, there are now in place useful indicators to serve as a pointer to the success of these reforms. For instance, the reforms have since led to a growth of 6.3 percent in the economy of the country by 2007. This was against 4.5 percent in 2002, at the time when these reforms began. In addition, GDP-to-money ratio which is traditionally used as an index of the financial deepening of the country, doubled. In 2004, the ratio increased two folds and by 2007 it reached a level that was equivalent to 43 percent of the country's GDP. For the most part, this increase may be attributed to enhanced savings and demand deposits (Yartey & Adjasi 2007).

There has also been a rapid growth for the banking sectors in Ghana and this has mainly been fueled by credit facilities that are expanding at a fast rate. At the moment, banks comprise nearly 70% of the entire financial sectors in Ghana. Furthermore, the vulnerabilities that were on the verge of crippling the financial sector in Ghana have to a great extent, been reduced (Yartey & Adjasi 2007).

To ensure sustainability, supervision of financial institutions priority is now given to capital adequacy and risk management. On her part, the Ghanaian government has made the effort of passing a majority of the bills that had in 2003 been recommended by the FSAP, in a bid to enhance legal basis and prudential supervision, to enable intervention measures for financial institutions to be enacted.

### 2.9 Assistance to Ghana by Donors

The development of the financial sector in Ghana appears to have been guided by the strategic plan for the country's financial sector under the guidance of the government. The stipulations of this plan are such that legislative and policy reforms have been earmarked as the tools for, not only deepening the country's financial sector, but also for aiding in the establishment of capital markets and ensuring stable economy for Ghana. It is also the intention of this plan to enhance both access and outreach to the various financial services, with a view to boosting the growth and development of the key sectors in the economy (International Monetary Fund 2008).

These reforms have enjoyed the support of key stakeholders of the economy such as the government and members of the private sector. Synchronized donor assistance has also proved to be quite beneficial in as far as the implementation of institutional developments, as well as the training programs meant to benefit players in the economy, is concerned.

## 2.10 Ghana's capital market

The capital market in Ghana is poised to witness enhance activity, following the release into the market of a couple of planned issues. Such issues come hot on the heels of a 10-year Eurobond worth \$ 750 million that was issued in September 2008 and expected to provide an 8.5 percent yield. It is worthy of note that this particular Eurobond was characterized by a four fold oversubscription. In May 2009, another firm, State Insurance Corporation (SIC), launched an Initial Public Offering (IPO). This IPO was meant to enable the corporation realize a required amount of investment by listing its shares on the Ghana Stock Exchange (Anokye & Tweneboah

2009). According to estimate by financial analyst, it is expected that the issue of SIC shares shall be a success. This is mainly due to the fact that investors in the Ghanaian market have had a sound history as far as IPOs are concerned.

Additionally, in March 2009, Ghana Commercial Bank had its rights issues at the floor of the stock market, while Ghana Oil Company Ltd floated its shares in April, with the result of oversubscription for these shares (Anokye & Tweneboah 2009). What this means is that Ghana, as an emerging market, has managed to put in place financial structures that are sound enough. Furthermore, there is a lot of confidence in the economy of the country, if the recent oversubscription rates are anything to go by.

In 2006, Ghana sought to bring forth what was referred to as Foreign Exchange Act, which was more of a partial liberalization of capital account. Following this watershed development, it acted to enhance and speed up the domestic capital markets in Ghana, especially the bond market. Consequently, it enabled the non-resident investors that were on the lower end of the financial market to access them. Nevertheless, the country's secondary bonds in the market that are held by the government still remain illiquid. This is due to the fact that the majority of these kinds of bonds, which are outside the control of the central government of Ghana, are purchased by the other banks. From such perspective, a key priority shall be to widen the base for local private investors to purchase shares in state corporations.

Even though the Ghana Stock Exchange (GSE) was recording low activity, nevertheless, an active trading of the shares of the various firms that had listed at the stock market was observed.

It is important to note that ten of the equities that have been seen as being the most active at the GSE for the first financial quarter of 2009, contributed enormously to the cumulative values and volumes on the stock market. At the close of the first quarter of 2009, the All-Share Index at the GSE was around 9,247.17 points. This represented an 11.35 drop in points when compared to similar period in 2008, when the stock market was seen to have gained a factor of 18.92 percent (IMF 2008). As a result of this observed downward trend, the stock market was momentarily seen to trail behind both inflation and interest rates.

Just as the GSE has acted as financial source of a number of corporations, nevertheless, this source is both illiquid and small. Furthermore, trading at the GSE is more or less discontinuous and that the cumulative value that is traded on the floor of the GSE does not exceed 1 percent of the entire GDP of the country. Again, the turnover for the GSE does not go beyond 4 percent. After having completed the regulatory reforms targeted at the GSE, the priority of the government at the moment is to ensure that the investor base is expanded. This can be achieved by educating the public of the need to invest on the stock market as well as through fiscal incentives that target both the private and mutual pension funds (Yartey 2008).

While the financial crisis that has hit the globe is anticipated to impact greatly on the economy of Ghana, nevertheless, a certain sense of optimism with regard to the stock exchange still holds. There is an indication that both the potential as well as the existing investors can still enjoy periods of financial stability and manage to create wealth, in the years to come. Analysts contend that the performance that was registered by Ghana Stock Exchange during the first quarter of this

year is quite normal by any standards and that sooner than later, the market shall realize a full recovery before 2009 comes to a close (Anokye & Tweneboah 2009).

# 2.11 Conclusion

Several authors have explored cash flow ratios as a predictor for the performance of a firm, for example, Giacomino & Mielke, 1993. Such authors have sought to highlight the importance of cash flow ratio when it comes to the evaluation of whether an organization is making a profit or not. When compared with other accounting information sources, such as the balance sheet, cash flow have proved to be a good indicator of the failure of a business, even when a firm may be recording profits (Narktabtee, 2000). For firms that have enlisted on a stock market, the use of cash flow ratios is of particular importance to existing and potential investors, as it helps them to forecast with certainty the prices of stocks.

The significant role that is played by corporate governance in terms of assessing the valuation and the performance of a firm is an area that has lately received a lot of attention (Bynes et al 2003). The relevance of the same to cash flow ratios cannot therefore be ignored. Consequently, there are a number of mechanisms that are brought to play in that direction. These include the competitive environment surrounding a firm, the structure of ownership, capitalist legal protection acts, the composition of the board to the firm and the financial policy that such a firm may have put in place (Li et al 2004). All of these have been found to greatly incline towards the nature of the corporate governance of a firm. As an emerging economy, Ghana has over the years instituted a number of economic reforms, under the guidance of both the World Bank and the International Monetary Fund. This is to ensure that Ghana becomes a force to reckon with economically, not only in Africa, but also to the rest of the developing nations (Yartey & Adjasi 2007). Perhaps this may be the reason why there has been a rise in the number of companies wishing to enlist on the Ghana Stock exchange, through an Initial Public Offering (IPO), with a majority of these experiencing an oversubscription, even as the global financial crisis deepens.

## **CHAPTER THREE**

# **DATA COLLECTION & PRESENTATION**

#### 3.1 Introduction

What counts as data and what to do with, is considered to be an extremely important step in research design. No research can be undertaken without data. All researchers look for data which help them to answer their research questions and achieve their research objectives. Often the quality, quantity, adequacy and appropriateness of the data determine the quality of research. To a great extent the data collecting methods affect the quality, quantity, adequacy and appropriateness of data. Also since there are several data collection and presentation methods, generally researchers attempt to employ the most appropriate data collection methods in their research projects, though they are not free to choose a method which they like. Researchers' selection of data collection and presentation methods are often dictated by practical considerations such as the nature of the research problem, cost in terms of time and availability of data as well as access to them. However, sometimes researchers do choose a method because they like it and have worked with it earlier, irrespective of whether or not such chosen methods are the most appropriate to the research problem. This is a practice that must always be avoided. This chapter discusses the importance and relevance of data collection, presentation methods, strategies and their place in a whole research enterprise. The present study employs various quantitative tools for data collection and analysis. Because of the deductive nature of the present research that is dependent on the comparative effect of certain quantitative variables (in this case cash flow ratios); longitudinal research approach has been adopted as a suitable methodology. The quantitative approach gives the researcher the opportunity to make deductive assumptions

using derived data in the required format. These assumptions while they are subjective in nature, nevertheless, are directly corroborated using logical deductions which cannot be refuted owing to their dependence on factual data rather than merely subjective observations. Hence, when the hypotheses of the present study are analyzed, conclusions deduced will have both a firm basis in the literature as well as are corroborated by actual raw data analysis. This is an important aspect that distinguishes economic research.

The chapter starts with the setting of the present research, where the environment of the research has been described. This is followed by a detailed description of data as pertain to the present research along with the approaches for data selection where fieldwork and desktop research methods are described along with the rationale behind the choice for the present research paper. Once this is clear, the chapter moves on to discuss the various issues in sampling as it pertains to the present research and the logic behind such a selection. This is followed by a description of the data presentation methods used for the present research study. Since researchers need to follow certain moral codes of conduct when collecting and using data for their research, the final part of the present chapter discusses the ethics in research, their importance and the difference between anonymity and confidentiality.

## **3.1.1** Setting of the present research

## The descriptive industrial data about Ghana

The Ghana stock Exchange was formed on 25<sup>th</sup> July, 1989 and superseded the Accra stock Exchange. The exchange opened for trading on 12<sup>th</sup> November 1990. The exchange was

established to assist with the country's economic recovery program by mobilizing funds for long-term capital development by the corporate sectors. In addition, the exchange would ease pressure on bank credit. By 1994, the Ghana Stock Exchange has become one of the top ten stock exchanges in the world's emerging markets. The Ghana stock exchange currently has 25 listed equities and 5 corporate bonds. Sectors represented on the exchange include Banking, Brewery, Consumer Goods, Distribution and Trading, Manufacturing, Mining and other nonbank financial institutions. The total market capitalization is about \$ 1.2 billion. The market in 1998 recorded an impressive 62% dollar return. This was however followed by two years of poor performance in 1999 and 2000 when the dollar returns were 43% and -41% respectively. In 2001, the market return was 6%. However, the years 2002 and 2003 have been very good years for the Ghanaian Stock Market and the best performers being banks' shares. While some major world markets were stumbling, the Ghanaian stock market posted 27% return in dollar terms in 2001. As of September 2003, the market had posted an 80% return in dollar terms with eight out of 25 listed companies outperforming the market (Belda, 2005:83).

From the above discussion, it is clear that the Ghana Stock Exchange is functioning, although it is still at a rudimentary stage of development. The Ghanaian stock exchange is representative of many others on the African continent. Out of the 25 companies, only one is a non-Ghanaian company that is Trust Bank Ltd. from Gambia. A single mining firm, Ashanti Goldfields Company, (whose shares are also traded on the London and New York Stock Exchange) accounts for two-thirds of the value of shares quoted. Excluding the aforementioned mining company, the market capitalization of the Ghanaian stock Exchange listed companies is only about 5% of the GDP, less than half the average for other low-income developing countries. The

market for debt is similarly thin and as seen above, there are only 5 publicly traded corporate bonds in Ghana which are all dollar-denominated (Leite, 2000:38).

### The present research aims to achieve:

- 1. Calculate the 9 cash flow ratios for each of the selected companies on the Ghanaian Stock Exchange. Consequently, one company is selected from one industry, excluding the banking & other financial institutions as well as Mining companies. Banking and financial institutions were left out because the monetary and economic policy that affects the corresponding shares will have to be taken into account, but this is outside the scope of the present research. On the other hand, Mining companies such as the Ashanti Goldfields Company is unique among other Ghanaian companies listed on the stock exchange, since it is also listed on foreign exchanges, hence was also left out.
- 2. Find similar companies in the US stock exchange and calculate the cash flow ratios for these selected companies. One comparative company has been chosen for each industry.
- 3. The 9 cash flow ratios have been calculated for the 3-year period (2003-2005) for each of the companies. The values and the change in the trends have been compared between each pair of company in a particular industry. This comparison is done so as to evaluate whether cash flow ratios can be used as a measure of performance in emerging economies.

Ghanaian Stock exchange is typical of the stock exchange in many low-income developing countries. Some distinguishing characteristics of the firms are very high mean and median profit range (i.e. profit as a share of the installed capital stock is high), probably due to the low level of installed machinery and equipment. It is further seen that, the Ghanaian firms financed a large proportion of their growth of total assets from external sources and therefore rely to a much smaller extent on internal finance. Hence, it can be said that the stock market plays an important role in providing finance for Ghanaian firms. This being true, the performance of the listed companies could be gleaned from the data available on the stock exchange reports. The basic idea behind the present project is to investigate the financing activities of the companies to ascertain whether they form a true indicator of the performance of companies in emerging countries, in this case Ghana.

## The purpose of collecting and presenting industrial data about Ghana

Being rich in natural resources, Ghana shows twice the per capita out-put of the poorest countries in West Africa. Even though it is rich in natural resources, it is considered as a developing country due to her over dependency on the international financial and technical assistance. The primary sources of her foreign exchange are Gold, cocoa export and individual remittances from residents abroad. In 2002, Ghana decided to opt for debt relief under the heavily indebted poor country (HIPC) program and also gained help from Multilateral Debt Relief Initiative, implemented in the same year.

Furthermore, in 2006, Ghana signed for a Millennium challenge Corporation (MCC) compact. These concerns were aimed at growth and the reduction of poverty strategy, which includes the structure for development partner assistance, private sector competitiveness, human resource development, good governance and civic responsibility. The good macroeconomic administration, including the high prices for gold and cocoa, helped to maintain the GDP growth in 2008 (CIA, 2009).

The stock market is a very important source of finance for funding the large corporations' improvement in some African countries. In between 1995 and 2000, the new equity instalments are accounted for 18 percent of total assets growth in South Africa. In all the regions of Africa, the stock market is the very necessary source of the long term external investment. (Adjasi and Yartey, 2007).

The African stock exchange faces lots of trails before the phase of rapid growth. In the test of stock market integration, as the method of tracking the low liquidity problem, several analysts have argued for the regionalization of the stock markets in Africa. The preconditions include effective regional tactics which involves synchronization of legislations such as bankruptcy and accounting laws, trade establishments, the challenge of demutualization to solve the authority and prosperity issues and the need to eliminate existing barriers to institutional development. These include a wider distribution of information on these markets, the execution of healthy electronic trading systems, and the implementation of central depository systems. (Adjasi & Yartey, 2007).

#### The purpose of collecting and presenting industrial data about the United States

The United States having a per capita GDP of \$48,000 makes it a technological strong economy in the world. The private individuals and business firms' take most of the decisions, whilst the federal and the state governments buy required goods and the services mainly in the private

market place. The United States companies are in the technological progression in the fields of computers, medical, aerospace and military equipment (CIA, 2009). Since the year 1975, almost all the increase in the house holds income gone down cresting the 20% of the households. The increased oil prices between the year 2005 and the first half of the 2008 exposed people to inflation, due to the higher prices of gasoline which went into the consumers' resources. The commodities trade deficit reached a record of \$847 billion in the year 2007, but declined to \$810 billion in 2008. This was attributed to the downgrade exchange rate for the dollar against most major currencies which depressed United States imports and encouraged United States exports to be more competitive abroad (CIA, 2009).

The crash of universal finance, the sub prime mortgage catastrophe, investment bank collapses, tight pressed the United States into the recession by mid 2008. To help improve financial markets, in October 2008, the United States Congress launched a \$700 billion Troubled Asset Relief Program (TARP). The government consumed some of these resources to acquire equity in United States banks and other industrial corporations.

# The purpose of comparing Ghana and United States industrial data with reference to cash flow ratios

As stated earlier, according to David Tweedie, one time chairman of the Accounting Standard Board, "you can not fiddle cash flow reports. Cash is the life blood of a business and if it dwindles, the business will automatically die". To fully understand a company's viability as a going concern, a researcher would do well to calculate a few simple ratios from a company's financial data on its cash flow statement (Bhalla, 2004). The cash flow statement is a statement of sources and uses of cash that tend to quantify all of a company's cash inflows and outflows in a manner that the typical income statement and the balance sheet do not. Without cash flow data, a company and its executives could potentially end up in a worst possible position and ultimately collapse. In term of liquidity analyses and examination, cash flow information is more reliable than income statement and balance sheet information. This is because whilst cash flow information is based on actual cash streams, the others are based on accrual concepts. Additionally, balance sheet data are static since they measure a single point in time whilst the income statement contains several fixed and non-discretionary non cash allocation such as pension contributions and depreciation or amortization (Kremer, Rizzuto & Case, 2000, p. 33-5). In contrast, cash flow statement records the changes in all the other statements relative to cash movements and nets out the book-keeping structure, thereby focusing on what stakeholders are most concerned about, which is cash available for operations and investments (Rujoub, Cook & Hay, 1995).

For several years, credit analysts and other professionals have been using ratios to mine cash flow statements for practical business data and analysis. The major credit agencies also utilise cash flow ratios prominently in their rating decisions in order to more accurately assess performance.

Furthermore, investors have long relied on cash flow analysis as a method used to determine an investment target's long-term potential. For example, bondholders and leveraged buyout specialists use free cash flow ratios to determine the overall risk associated with their

investments or companies in which they are considering to invest (Peters, 2007). This is because, over time, a free cash flow ratio analysis assists professionals to gauge a company's ability to withstand cyclical downturns, price competition or other pronounced market events. Practically, cash flow analysis is also useful in a sense that it can help company's executives determine if a major capital expenditure is feasible in an otherwise financially tight situation (Mulford, 2005).

Many company executives and certainly corporate financial officers have been slow in learning how to use cash flow ratios as a useful tool to determine business performance. Conventional wisdom and certainly those industries auditors, traditionally, use either a balance sheet or a financial transaction cycle approach to determine business performance. Neither approach emphasizes or relies on cash or the statement of cash flows in order to arrive at its primary findings (Mcmenamin, 1999.p.87). Even when business researchers and others do use the cash flow statement to verify the balance sheet and the income statement to determine accuracy and trace common financial items to the cash flow origin, the use of ratios for cash related analysis has been limited, in the past and primarily still, to traditional ratios such as the current ratio. This ratio indicates a company's ability to pay its short-term obligations, which is calculated by dividing current assets by current liabilities (Culpan,2002,p.121).Essentially, the current ratio is used for comparing similar companies within the same industry where the higher the ratio, the more liquid the company is regarded, hence greater access to ready capital.

Additionally, the other traditional ratios that can be determined from the balance sheet and are used by investors, bankers and venture capitalists as representation of the strength and health of an enterprise are as follows:

100

**Cash Ratio** – it is the measure for the amount of cash available to balance the current debt (cash/Total Current Liabilities). You will be having cash flow problems if you are having a ratio below .5, which can be attributed to a remarkable backlog in the accounts receivable.

**Quick Ratio** – the amount of liquid assets are available as a measure to balance the current debt (Cash + Accounts Receivable / Current Liabilities). This ratio will always be maintained by a healthy enterprise at 1.0 or higher.

**Current Ratio** – it is the measure of degree to which current assets cover current liabilities (Current Assets/ Current Liabilities). A high ratio represents a good possibility that the enterprise can retire current debts. For majority of the enterprises a ratio of 2.0 is a comfortable financial position.

**Current Liabilities to Net Worth** – the measure of degree for which to finance the business either by the enterprise utilizing creditor funds or their own investment. Current **extended accounts payable period for the ratio is .5 or higher.** 

**Total Liabilities to Net Worth** – it measures the degree that the net worth of the enterprise can balance the liabilities (Total Liabilities/ Liabilities +Equity). A ratio which is greater than 1.0 should be avoided because it shows that when compared to the owners the creditor's have a greater stake in the business.

**Fixed Assets to Net Worth** – an enterprise's investment in non liquid and frequently overvalued fixed assets. (Fixed Assets / Liabilities + Equity). As it shows possible over investment and leads to a greater annual depreciation charge that will reduce the profit from the income statement, a ratio of .75 or higher is usually undesirable. **Fixed Assets to Total Assets** –It measures the extent that the fixed assets are financed with owners' equity (capital). A high ratio of .5 or more shows an ineffective use of the working capital that reduces the enterprise's capability to carry accounts receivable and maintain inventory and commonly means a less cash reserve. To respond to the increased demand for your products or services, it will frequently limit your capability.

Cash flow ratios are more helpful in evaluating a company's financial power and stability of business continuation in the near and far future. One of the financial accounting tools in assessing the performance of company in the economy is investigating financial ratio analysis reports. Ratio analysis for financial assessment computing dates back to late 19th century. Since then, these financial ratios were widely used by economists, financial analysis in the financial assessment practices (Giacomino & Mielke, 1993).

To further boost its usage, a recent advancement in this area has been put forth by the Financial Accounting Standards Board that calls the businesses organizations to present their cash flow statements. But till recently, much of the advantages of cash flow ratios have not been used to its full capacity to evaluate financial performance. When the empirical evidence is scattered as drawn from published studies, it may not be sufficient to produce complete set of functional ratios. As Relative <u>performance assessment</u> is one of the principal uses of cash flow ratios, which can be viewed in terms of sufficiency and efficiency of the company's cash flows, the current study tries to use the Cash flow ratios in evaluating the company performances in Ghana. Sufficiency describes the capability of cash flows of meeting a company's requirements and efficiency describes how well a company generates cash flows relative both to other years and to other businesses (Giacomino & Mielke, 1993).

In financial appraisals, the performance of other companies in the same industry and economy will also share some information on the performance of the individual company businesses which provides information about a specific company's accomplishments. Though proved with conflicting results in assessing the financial performance, cash flow research has become one of the mostly adopted tools in the performance evaluation area. This is particularly accurate in forecasting bankruptcy and <u>financial disturbances</u>. However, little has been accomplished with regard to utilizing cash flow ratios for relative performance estimation (Giacomino & Mielke, 1993).

Cash or highly liquid assets mechanisms can be divided into three types of generalised business activities. They are operational, investing and financial in character (Kremer, Rizzuto &Case 2000, p.183). The objective of the categorisation is to highlight the significant components of cash flow and also aid comparison between companies. Furthermore, users of a company's cash flow statement will be helped in their assessment of a company's liquidity, viability and financial adaptability. However, a single transaction may include cash flows that are classified differently. For instance, when a cash payment of a loan includes both principal and interest, the former element may be classified as operating activity and the latter classified as financial activity.

When the cash flows are derived from the operating activities classification on the statement of cash flows, they generally summarize the cash effects of transactions and other incidences concerned in calculating net income. Operating patterns involve organizational major principal activities like the manufacturing and distribution of goods and other logistic services. These activities call forth the primary focus and the primary variable of interest by the company's financial management. Cash derived from such operations will be the factor of each of the nine

significant ratios, which can further be understood as sufficiency or efficiency to portray their potential use in relative performance evaluation (Giacomino & Mielke, 1993).

The value of cash flow ratios has been evident in the collapse of many companies in the past where if analysts and company executives had relied on it more, they might have more rapidly recognized a legitimate concern. Traditional ratios analysis during an organization's annual audit does not necessarily reveal the severe liquidity problems that more often than not result in a bankruptcy filing or similar severe business dysfunction such as a take-over or liquidation (Throop, 2004). While several companies can demonstrate positive current ratios as well as positive earning, in reality, they can often have serious negative cash flows that can make the company unable to meet its current debts and other commitments as they fall due. Consequently, financial professionals as well as company executives should take a key interest in how to use cash flow ratios both in audit and other relevant fields as such measures are becoming increasingly important to the market place as well as during regular operations. This could go a long way to enable them identify serious flaws in the company's strategy for the necessary amendments to be made.

The comparative analysis of cash flow ratio of companies in different countries especially between a developing and a developed country was the primary objective of the present report. This would shed light on whether a developing country could be in the position to operate competitively in the global market. With this objective in mind, Ghana was chosen as the indicative developing country while USA was chosen as the standard developed country. This meant that the companies with their base in Ghana and listed on the Ghanaian stock exchange were compared with companies based in the US and listed on the US stock exchange either on NYSE (New York Stock Exchange) or NASDAQ (National Association of Securities Dealers Automated Quotations). Cash flow ratio analysis was the chosen method of comparison. This is because the method is considered throughout the international community as an excellent way to gain an overview of an organization's activities, as they provide a comprehensive view of a company's financial activities.

The cash flow ratio methods chosen were given by Giacomino and Mielke who consider that these ratios should serve as a starting point for the development of a comprehensive set of ratios for the analysis and interpretation of financial statements. Currently there is a little agreement of precisely which ratios represent the most applicable measurement and the presence of a large number of such ratios complicates the task further. For the purpose of the present research, the original nine cash flow ratios proposed by Giacomino and Mielke were shortlisted as these ratios sufficiently cover the efficiency and sufficiency aspects of an organization (Koen, Oberholster, 1999:30). The research was hence entirely based on the one conducted by these researchers and submitted in their report in 1993.

In their paper "*Cash Flow ratios: Another Approach to ratio Analysis*", Giacomino and Mielke mentioned that they had selected the companies based on an analysis of the FORTUNE 500 companies and chosen the representative companies that belonged to the industries that were the most prevalent in the list: Electronic, Food and Chemical Industries. The present research also followed a similar approach. However, before selecting the industries, a research was first made of the Ghanaian stock exchange to find the companies that fell under the above mentioned

industries which did not overlap in their operations. Hence, the companies: Starwin product (Pharmaceuticals), Fan Milk (Food & non-alcoholic beverages), Guinness Ghana limited (Alcoholic Beverages) and Clydestone Ghana (Electronics and Telecommunications) were shortlisted. The next step was to find comparative companies based in the US in the similar industry. At the first glance it might seem that finding such companies would be easy and scores of companies might fit the bit. However, this was not the case. The companies that were selected needed to be in the similar industry, with a similar countrywide reach and not too diversified in their operations. Watson Pharmaceuticals was hence chosen above Amgen Inc., Biogen Idec Inc. among others, despite similar industry reach. This was because the company was almost entirely into genetic drug manufacturing, unlike the remaining top-line companies. Similarly Dean Foods was chosen over Kraft Foods Inc. and ConAgra Foods Inc. because the company was entirely into dairy based operations like her Ghanaian counterpart, Fan Milk, but unlike the other two companies which had a much wider base of food & beverage operations. Anheuser Busch was forgone for Boston Beer because of its entirely international operational coverage. Finally Ciena was chosen after comparing the operations of Clydestone with numerous other US-based companies. Similarity of operations was an important aspect in choosing the companies. This is because developing either an international focus, or target on innovative product line using extensive R&D means an additional drain on the operational expenses in the short term which would mean that the performance of the company and hence the corresponding financial ratios may be different for the period of the analysis.

# 3.2 <u>Methods of Data Collection/Presentation</u>

The collection, organization, and presentation of data are basic background material for learning descriptive and inferential statistics and their application. After identifying a research problem and selecting the appropriate statistical methodology, researchers must collect the data that they will then go to analyze. There are two sources of data: primary data and secondary data. *"Primary data are the data collected specifically for the study in question and may be collected from methods such as personal investigation or mail questionnaires. In contrast secondary data are not originally collected for the specific purpose of study at hand, but rather for a different purpose."* (Lee et al., 1998:14). Examples of secondary sources used in finance and accounting include the Wall Street Journal, Barron's, Value line Investment Survey, Financial Times, and company annual reports. Although the data provided in these publications can be used in statistical analysis, they were not specifically collected for that use in any particular study (Lee et al., 1998:15).

The main advantage of primary data is that the investor directly controls how the data are collected; therefore he or she can ensure that the information is relevant to the problem at hand. This makes the data collected, using primary methods, as best suited for answering the research process as part of the consultancy dissertation or project. The disadvantage of the method is that developing appropriate surveys or questionnaires requires considerable time, money and experience. In addition, mail questionnaires are usually plagues by a low response rate (Lee et al., 1998:15).

Secondary data, on the other hand, already exists in some forms or other which was not primarily collected, at least initially for the purpose of the consultancy exercise at hand. In fact, secondary data is often the start point of data collection. In as much as it is the first type of data to be collected in answering the research question or help in making a decision, they may be useful in developing the collection process for the primary data. Secondary data are sometimes the only data that are available to address a particular research question that are even moderately suited to that question. Also, secondary data are almost always less expensive than primary data in terms of money, time, and effort. Even when secondary data cannot help in answering the research question or help in making a decision, they may be useful in developing the collection process for the primary data cannot help in answering the research question or help in making a decision, they may be useful in developing the collection process for the year always makes a thorough check up of all available secondary data sources before undertaking primary data collection (Lancaster, 2005:65-66).

Finally the amount of data available by secondary analysis is immense hence it provides an opportunity for a greater dept of research by the analyst which primary data cannot provide (Wren, Stevens, Loudon, 2002:65). A major disadvantage of secondary data is that the data may not be as recent as desired. In addition, since the data is meant for some other purpose, the relevance may also be less than ideal for the questions proposed by the researcher. The accuracy of the data is always in question. The quality of data is similarly a moot point and the researcher must be extremely careful about the reputation and capability of the collection agency, or at least the credentials of the past researcher. Sometimes it may be possible that the secondary data cannot be subjected to further manipulation or may be at the right level of aggregation. Hence, the selection of secondary data must take into account the degree of manipulation possible, if it is
required for the purpose of analysis. In case multiple sources of secondary data are being used, it might be possible that combining different sources could lead to errors of collection and introduce bias. In these cases, an analyst must always check the conflicting aspects of a data source before using a particular data source (Wegner, 2007:27).

### 3.2.1 Secondary Data Types

Secondary data can be further divided into raw secondary data, where there have been little, if any, processing and compiled secondary data which has received some degree of selection or summarizing. Secondary data can also be divided according to the sources from which the data has been selected. There are two types according to this mode of categorization:

- Survey-based Secondary Data Survey data is the published or at least accessible results of survey in the form of quantitative, mainly questionnaire-based study done by other researchers. A national census is a good example of such a research. There are multiple sources of such type of data such as academic archives, government agencies, public opinion research centres, and any other organization that stores such type of data (Quinton, Smallbone, 2006, p 68-69). The best part of such a data is that the sample in this case is fairly large and in many cases it has been carefully selected to represent the population.
- Documentary Secondary Data There is a great deal of information already published, which can be used without the researchers collecting data themselves. This is called documentary evidence. This type of data has been usually collected for a purpose other

than evaluation of a particular project. Such material may not have been previously accessed for research purposes, and was not created specifically for such purpose. Hence, in such cases it is necessary to identify any biases or other factors that might limit the utility of some secondary sources (Sim, Wright, 2000, p. 60). Various forms of documentary data can be used for exploratory studies. This may be collected from a number of sources, and can be classified in terms of whether they were collected for formal or informal purpose, and whether they were intended for public or private consumption. Although documentary sources are usually textual, the term is also sometimes applied to oral narrative and certain non-textual objects, such as works of art. In case of exiting studies or datasets, a re-analysis is carried out often after they have been synthesized or aggregated. Documentary data is often historical i.e. they were created before the time at which the research is taking place (Sim, Wright, 2000:61). The present research uses documentary data for the purpose of analysis. The financial health of Ghanaian has been taken from the Fact Book published by the Ghana stock exchange. The corresponding US-based companies have been taken from the websites of the companies.

#### **3.2.2** Approaches to Data Collection

Before selecting the data one must ensure that they are purged of possible problems and defects. Variables and data that are not relevant to the research question are likely to produce findings that cannot be used meaningfully to draw conclusions about management problem. Furthermore, the available data are often dirty when captured. That is, the data can be incomplete, come in varying formats, or contains errors or extreme values, for examples, outliers. Clean data is essential for valid statistical findings. In exploratory data analysis, outliers must be retained in the analysis and be included as part of the discussion of the profile of the data. They may represent opportunities to be exploited by the organization for strategic advantages or problem areas requiring closer examination and intervention. In inferential statistics, however, outliers must be identified, treated by removing and/or replacing with the average value for the related variable or grouped into a sub-sample, if sufficiently large and analysed separately. This ensures that the inferential statistical findings are not distorted by a few extreme values in the data set. Alternatively, the sub-sample can be more closely examined with a view to appropriate action. However, outliers must always be reported in findings. Data can often be made more relevant to the problem by transforming into more meaningfully measures. For instance, turnover and size of store can be expressed more meaningfully as turnover per square meter, while closing share prices can be more usefully analysed as daily percentage returns. Data enrichment can also take place by combining categories or by aggregating values (Wagner, 2007:33-34). For the present research, data enrichment is achieved by calculating ratios from combination of figures from all the constituents of the financial statement, although the emphasis is on the cash flow statement. For example, in the case of cash flow to sales ratio, cash is obtained from the cash flow statement whilst sales are obtained from the income statement. Additionally, cash flow returns on assets is based on information from cash flow statement and the balance sheet.

The data gathering method is critical to any research project because it determines the character of the overall research study. This factor is no less relevant within business research as it is within any other academic or professional topic.

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The approach to be adopted for conducting a research depends on the nature of the investigation and the type of data and information that are required and actually available. The selection of a research approach is based on what kind of information is sought, from whom and under what circumstances. The approaches are decided at an early state in the research design. The most rational approach is to consider the research questions at hand and then decide upon the research strategy and finally come up with the particular data collection and analysis approaches to be taken. While the research question does not directly affect the data collection approach, the research strategy is a practical aspect of the research that is intimately related to the approaches taken by the researcher in order to collect data. Hence, while selecting the research approaches, researcher has to be always aware of the practicalities (Naoum, 2007:43; Robson, 2002:223-225).

The research is based on firms and data that are in developed markets because the preponderance of existing data and information is on firms that are currently in such developed markets. The cash flow ratios are part of an established methodology by which companies keep track of their financial performance. However, they have been traditionally relied on to fulfill a reporting and accounting role rather than a strategic or a performance determinant role. Therefore, the data gathered are primary and secondary research materials to ensure that the study is both academic and empirical in nature.

It is worthy of note that cash or cash flow is not simply physical money, but also short-term and highly liquid investments that can quickly be converted to cash within a short period of time - 3

months or less. The characterisation of cash flow components will therefore include investments such as treasury bills, money market funds as well as some types of commercial paper.

While searching for the most appropriate data to compare the present financial and manufacturing activities of both countries, it is required to review the accurate sources of the information like the scholar journals, sources of academic research and financial reports of businesses. Additionally, documentation of associated trading strategies regarding the cash flow ratios of firms that are competing in an emerging market will be reviewed. The research method followed in the present research is Desk study research.

**Desk study research** – As this type of research approach is much quicker and cheaper to access than the fieldwork research and may further provide information such as the demographic trends, the method has been adopted for the study. This research approach is also known as secondary research, which relies on the studies conducted by other researchers for different purposes that may have nothing to do with the present research. However, many times when the answers to questions are required quickly, the only practical alternative is the desk study research approach. In fact, it is always suggested to check for the availability of secondary data before embarking on a fieldwork research. The precise sources to be consulted depend upon the nature of the problem. Most of these sources are published, whilst some are available through business libraries, but other specialized sources such as the business and financial databases may require a special subscription. All these sources are updated regularly. Some of these sources provide useful data for publishers and other information providers (Rowley, 2006:178-179). For the present research, desk research is chosen as the research approach, because all the required financial information can be easily obtained from the secondary sources.

### **3.2.2**Archival Data Sources

As the study needs historical financial data, which are from industry reports, accessing public data is assumed as the suitable method for the accuracy of the data.

As Public data is accessible to every one; the study makes use of the financial performance data which are of interest to the present research.

<u>Financial Statement data</u> are various databases containing financial information on both the listed and non listed organizations. The Databases that can be used for the current search is Hooversonline, Yahoo Search and MsnMoneycentral. Furthermore, some companies listed their financial data on the company's website for the investors as well as for the media. The firm's internal data is appropriate for the current research and has been used for the analysis purpose. The study also makes use of the Company's internal data which is a detailed archival data on the financial performance, which is provided by the firms themselves. These data may not be always proprietary for the public listed firms.

The gathering of relevant desk research was done through reviews of various authoritative works of writers and professionals on cash flows. The reference materials were obtained from the British Council Library, Accra; the Institute of Chartered Accountants Library, Accra; Attending various seminars on financial ratios and financial performance; Browsing Internet websites and reviewing stock exchange related information.

# 3.2.3 Collection of industrial data on Ghana and the United States

Since the present research is concentrated on using financial analysis sources, these information need to be studied to shortlist the websites/information sources from where data could be collected. There are many information sources available. One source of information is the company itself, preparing data on financial performance and the ratios for discussions with the investors and capital financiers. This was used as the primary source of information for US-based and Ghanaian companies. Still another source is information prepared by financial service firms that compile, analyze, and report financial and other information about the company, the industry and the economy (Peterson, Drake & Fabozzi, 1999:4).

The basic information about a company can be gleaned from publications, both print and Internet, annual reports, and sources such as the federal government and commercial financial information providers. The basic information about a company consists of the following:

- Type of business e.g. manufacturer, retailer, service, utility
- Primary products
- Strategic objectives
- Financial condition and operating performance
- Major competitors, domestic and foreign
- Competitiveness of the industry, domestic and foreign

- Position of the company in the industry, e.g. market share
- Industry trends, domestic and foreign
- Regulatory issues, if applicable and
- Economic environment

(Peterson, Drake & Fabozzi, 1999:4-5)

A thorough financial analysis of a company requires the examination of events that can help to explain the firm's present condition and effect on its future prospects. Current event scan provide useful information to the financial analyst. A good place to start is the company itself and the disclosures it makes both financial and otherwise. Most of the company-specific information can be picked up through company annual reports, press releases, and other information that the company provides to investors and customers about itself. Information about competitors and markets for the company's products must be determined through familiarity with the products of the company and its competitors. Information about the economic environment can be found in many available sources (Peterson, Drake & Fabozzi, 1999:5). Documents prepared by a company can be divided into two groups:

- Disclosures required by regulatory authorities, including documents that a corporation prepares and files with the Securities and Exchange Commission
- Documents that a corporation prepares and distributes to its shareholders (Peterson, Drake & Fabozzi, 1999:5)

Though both types of documents provide financial and related information about the company, the documents prepared for the regulator differ from those prepared for shareholders in terms of depth of information and form of presentation (Peterson, Drake & Fabozzi, 1999:5). Hence, different types of financial ratios are collected on financial performance from the company data.

### 3.2.4 Sampling and its types

The quality of a piece of research stands or falls not only by the appropriateness of methodology and instrumentation, but also by the suitability of the sampling strategy that has been adopted. Questions of sampling arise directly out of the issues of defining population on which the research will focus. The researchers must take sampling decisions early in the overall planning of a piece of research (Boyatzis, 1998:59). Sampling is the process of selecting a few samples from a bigger group - the sampling population. Hence, it becomes the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group (Kumar, 2005:164). A sample is a subgroup of the population that one is interested in. This process of selecting a sample from the total population has advantages and disadvantages. The advantages are that it saves time as well as financial and human resources. However, the disadvantage is that one does not find out the information about the population's characteristics of interest but only estimate or predict them. Hence, the possibility of an error in the estimation exists. Sampling is thus a trade-off between certain gains and losses (Kumar, 2005:164). For the present research, sampling was used to select a few companies out of the total listed companies on the US and Ghanaian stock exchanges.

Identifying and defining a sample from a target population are done scientifically based on theory or experience over a long period. Where the sample is a true reflection of the target population, it is referred to as **population validity**. Thus it is important when choosing a sample to ensure the population validity. It must be determined accurately if the end results of the research are to be acceptable as a true picture of the target population. When the sample is doubtful and inaccurate, the results from the inquiry will not be acceptable for generalization of the target population.

# **Selecting a Sample**

What should one consider in selecting a sample?

- The key and important point here is that it must be a true representation of the target population.
- It must have all the key characteristics of the target population.
- It must be large enough to capture all the key features of the entire population.

<u>Sampling Size</u> – The main thing that has to be noticed in the sampling is the size of the survey population. A sampling size depends on a number of factors, which include the following:

- the research design, (i.e. what will the research be used for)
- data analysis techniques that will be used, and
- the number of variables in the inquiry.

The larger the sample the better the result. A large sample gives a high confidence level. This suggests that another inquiry as large a sample as what was first carried out is more likely to yield similar results. Thus, large samples are more acceptable and preferable statistically than small ones. The variations in the two – the sample and the target population – is what is referred to as <u>sampling error</u>. Often, these errors are unavailable from the researchers end because they are inherent in the methodology of random sampling. Small samples have a high tendency of introducing huge sampling errors. In situations where the target population is homogeneous, a large sample may not be necessary, and vice versa when the target population is heterogeneous.

A number of authors on research methods have put the minimum number of sample size at 32 or more. Others use 30 or more. Another suggests 10% sample size for descriptive research. However, the sampling size actually depends on many factors.

The current research includes the survey population of US based companies, limited to the ones that were listed on NYSE and NASDAQ, which represent all the major companies in the US. In Ghana, the survey includes all the companies on the Ghana stock Exchange as part of the survey population. The survey, however, does not include the banking and financial related companies, because of the variations in the principles of the accounting and disclosure requirements in each country, which might create unfair analysis.

<u>Sampling frame</u> – A sample size has to be determined before attempting to select cases to be included in it. To select a sample that will be representative, it is important to first have what is

known as **a sampling frame.** This is a list of cases from which a sample can be selected. Examples, list of students, national census list, list of District Assemblies, housing census list, hospital attendant list for a particular hospital, etc. this list is also referred to as an index or directory.

Cases selected from the sampling frame form the units of observation. The accuracy of the sampling frame is very important if a sample is to be used for generalization. For example, the case of census results in 2000 in Ghana, which became highly debatable because of the many reasons provided by those who challenged the accuracy of the census. Similarly, election results in 2000 in the US were also very controversial. It is also important to note that it is not in all cases that a sampling frame exists and in that case one cannot think of using it for selecting a sample. Where a sampling frame does not exist, the method that is used instead, needs to be described in detail to authenticate it.

The utilization of the sampling frame is important in the current research, because it is an objective list of the population from which the research is undertaken by the researcher. It contains not only an up to date list of all those that comprise the population for research, but also gives access to the individual elements of the population through sampling units. The sample is a collection of elements drawn from the units that are set from a sampling frame. For the present research, the list of Ghanaian companies has been taken from the Ghanaian Stock Exchange Fact Book for the year 2005, where the information is given about the companies for the period 2003-2005. In the case of the US companies, Yahoo Finance was chosen as the source list for the companies listed on NYSE and NASDAQ (http://finance.yahoo.com/). In order to make an

accurate comparison of the companies based in Ghana and US, Google finance was chosen as the source of information (http://www.google.com/finance).

**Bias in sampling** – The study experiences a sampling bias in the selection of the companies. It is not 100% sure that the sample in comparison is similar in all terms. According to the priority of the major ratios, the selection was done which may have minor to major hidden limitations if observed closely. As it is not possible to avoid the bias completely from the current research, it may influence the sampling and the research methods.

<u>Sampling types</u> – Due to the complexity involved in maintaining the large financial data, the study considered to include 8 samples, with four companies from each country. The cost, time, accessibility factors, and the language issues, will make it difficult to obtain measures from the population every time. The researchers consider the small set of members in such a way that the knowledge gained is representative of the total population under study. This smaller group of subset is a sample. (Cohen, Manion, & Morrison, 2007:211). The sub set of the sample is considered from different industries in both countries.

There are two broad sampling methods, which are probability and non-probability sampling.

The objective of probability sampling is to select a sample that is representative of the subjects to be included in the sample. For subjects that are too large to research, probability sampling provides reliable information about them. Additionally, it encapsulates variations and heterogeneity of the target population efficiently. The following are some of the sampling methods that fall under probability sampling.

### 1. Simple Random Sampling

This involves numbering all subjects and putting them in a container to be selected randomly. The main characteristic of this method is that every subject has an equal chance of being selected. There is also a table of random numbers that can be used for simple random sampling. These days' random numbers can be computed using a computer programme. The first number is determined randomly. If the process brings up numbers that have already been selected, these numbers should be ignored.

#### 2. Systematic Random Sampling

In this sampling method, every n<sup>th</sup> case in the target population frame has the chance of being selected and included in the sample. The **nth** case is selected from a randomized sample frame. The **sampling interval** is determined by the researcher based on the sample size. The starting point is determined in this procedure. The sampling interval is the space between the first selected case in the sample and the next, i.e. the space between the **nths**.

### 3. Stratified Sampling

This sampling procedure has sub-groups in the target population. The essence of this method is to reproduce the subgroups in the sample too. The subgroups in a class could be those belonging to different clubs, such as yellow, green, red and blue clubs. To stratify the members of this class to ensure representativeness of all the sub-groups the class will need to be stratified into four to represent all the sub-groups made up of the four clubs before the sampling is done from each sub-group randomly. In a community, stratification could be done based on income levels or ethnicity. It is important to note that a decision has to be first taken about how the stratification should be done before the cases that will be covered within each stratum is selected.

### 4. Cluster Sampling

This is used when it is not easy to get a sampling frame due either to large/sparse/scattered population over a large geographical area. It is the sub-group within the cluster that is randomly selected but not the individual units/cased within the sample. The method assumes that the clusters are similar in characteristic. This procedure involves selection of a group within the population that is **intact** or **can represent the whole** and every member of this sub-group is included within the sample. Cluster validity is high where there is a high level of similarity among the clusters. Where clustering is done more than once, it is referred to as multi-stage sampling. Clustering however makes generalization quite difficult.

Non-probability sampling or biased sampling is used when the researcher carrying out the inquiry is not interested in a representative sample but with focus mainly on in-depth and descriptive studies. Sampling techniques used in non-probability sampling include the following.

### 1. Snowball Sampling

This method allows for the initial subject(s) with the required characteristics to be determined using purposeful sampling techniques. These initial indentified subjects then lead the researcher on to other similar subject with the same or similar characteristics.

This method is useful when a population is not known or cannot easily be approached; however the few that are identified could help in the identification of others with similar characteristics.

# 2. Quota Sampling

Similar to stratified random sampling. It allows for inclusion of various sub-groups within of the population. The selections of units to include in this method are purposively selected and included in the quota. Thus the method does not involve random selection.

### 3. Accidental Sampling

Selection of units to be observed is done as and when they are available, hence, the name accidental. Representativeness is not key when using this method.

### 4. Purposive Sampling

Here the method allows for units to be observed to be purposefully hand picked because they may not be easy to come by on the issue under study could make it such that they can only be picked purposively. Criteria for selection the units for observation should however be described in detail.

The study adopts *probability sample* and as the term implies, the probability of selection of each sampling unit is known. The technique follows the guidelines of mathematical probability. Some researchers refer to probability sampling techniques as EPSEM (Equal Probability of Selection Method). By using probability sampling, the researcher can legitimately calculate how accurately the sampled findings reflect the entire population (Smith, 2002:262).

*The stratified sampling* is the sampling method which is used in the current research. This is a modification of random and systematic techniques, where the population is stratified and then random samples are taken from each of the selected groups. The technique involves ranking elements on list in order to categorize it. This ensures that the researcher has a sample that is representative of the population. One problem with the method is that the subsets may indicate more than they appear to. Stratified sampling may be proportionate with research sizes based on their proportion in the population or disproportionate (weighted) if particular attention is given to underrepresented members of a population (Smith, 2002:263). As such the study has chosen the companies under study from the carefully selected industries like, food, beverage and Pharmaceuticals, among others.

The method used for this research is inquiry method; it is based on basic quantitative analysis of secondary data. The sampling which is used for the current research is based on stratified sampling. The survey population, which are the Ghana based companies listed on the Ghanaian stock exchange, was first divided into the consequent industries such as food, electronic and beverages etc. The US companies were selected by using Google Finance and Yahoo Finance.

The criteria behind the selection and the reasons for doing so are discussed in the next section where the companies and their profiles are also discussed in detail.

### 3.3 Descriptive Data

#### **3.3.1 Descriptive Statistics**

*Descriptive Statistics*: These are techniques used to organize and summarize the research data in the present research. They include numerical values that describe the characteristics of a sample such as frequencies, means, medians, and standard deviations, which is a measure of the variability of the data. The functions of descriptive statistics are:

- Assess the data for their adequacy and potential usefulness
- Present information about the data in a manner that is substantially better than anecdotes and general impressions, and
- Lay the groundwork for comparisons, inferences and hypothesis testing (Sheskin, 2004:35)

Descriptive statistics are fairly simple to calculate and are the method used for analysis in the present research. The main focus of the descriptive statistics is to summarize and display data. Descriptive statistics play an important role when the data available is large. Being able to accurately summarize all the data and look at the big picture either graphically or numerically is the job of descriptive statistics. They are an important part of the initial examination of data IDA. It consists primarily of calculating statistics and constructing appropriate graphs and tables. These form the most familiar and the easiest part of the statistics. Descriptive statistics is a branch of statistics in which data are only used for descriptive purpose and are not employed to make predictions. The procedures most commonly employed in descriptive statistics are the use of tables and graphs and the computation of measures of central tendency and variability. There are many examples of descriptive statistics, but the most common is the average. Descriptive

statistics can be used with both sample and the entire population and can be applied to either single variables or to relationships between variables (Sheskin, 2004:35).

#### **3.3.2 Data Presentation**

### Method of presenting the Data

After deciding the type of data to be collected and having collected the required data for analysis, the main step is to look at the data themselves to ascertain the relationships between the variables. Even when more sophisticated analyses are planned, looking at the data and the relationships between variables are extremely valuable in deciding what analyses would be appropriate. It is also useful as an aid to interpretation after the analyses have been carried out. The data in the present research can be represented in the form of tables, pie charts, bar charts/histograms, scatter diagrams and line graphs. Tables and histograms together can convey the same information, with tables emphasizing particular numerical values, while histograms show the overall patterns. All of the above mentioned output formats can be produced using statistics/graphics packages such as SPSS. The present research uses tables in order to present the data (Cormack, 2000:369).

*Using Tables*: Descriptive statistics are the procedures designed to organize set of data in a concise manner for the present research, so that the information can be more readily communicated. This is accomplished through the use of tabular and graphic presentations and through the calculation of summary statistics. In fact, tables and graphs are about the only way that data on a large number of subjects can be presented. Tables are preferable to show precise

values, because a tabular presentation allows data values to be recorded in a precise way that exactly maintains the accuracy to which the data values were measured. In other words, in table the data values are written down exactly as measured. Tables can also be presented to portray more than one set of data (Cormack, 2000:369; Altman, 1991:42).

*Constructing tables*: In the present research consideration is given to the format, the number of tables and the type of values that will go into the body of the tables, for example, counts, totals and percentages. While percentages are to be presented, the number and total should also be stated. The columns within the tables should be clearly labeled and the total size of the data set being presented should also be indicated. When a large number of different values exist for a variable being presented, a grouped frequency table can be used, where the different values are organized into a smaller set of groups and the frequency of each grouping or class interval is presented. Size and spacing in a table with a limited number of data points can effectively convey a scientific message. Ideally, a table would contain no more than 20 items in the field. Highlighting with colours can draw attention to an important column or item in a table, but the researcher must avoid over use of this attention-getting device. Furthermore, the researcher must also ensure that the table should communicate, or stand alone, without the text or the author having to explain the meanings (Davis & Fry, 2005:200).

For the present research, the cash flow ratios were represented in a tabular format. Since, the analysis is done for the 9 cash flow ratios that Giacomino and Mielke have proposed, the total number of tables are nine. Each table has 5 columns. The first column shows the companies' names, the next three columns are the cash flow ratios for the years 2003, 2004 and 2005

respectively. The last column gives the average value of the cash flow ratio over the three years for each company. The companies are sorted according to the industries, as will be discussed in the next section. One company each from Ghana and US are represented from each industry as a pair, with the row for the Ghanaian company being shown in gray colour for differentiation.

### **3.3.3** Profiles of the selected companies for comparison

# 1. Starwin Products Ltd. versus Watson Pharmaceuticals Inc.

**Brief Company Profile of Starwin Products Ltd** - Starwin Products Limited (SPL) evolved from Sterling Products International Limited, which interestingly was an American company. The company was first established in Ghana in 1960 as Sterling Products Ghana Limited and was renamed as Starwin Products Limited in 1993. This happened primarily because Sterling Products Ghana Limited was bought by Kodak in 1987. Prior to this, the share of the American company was reduced through an initiative of the government in 1976 which resulted in selling 50% of the company stock to different entrepreneurs in Ghana. In February 2004, a resolution of the shareholders transformed the company into a Public Limited Liability Company. The company is in the business of manufacturing of pharmaceutical drugs and is headquartered in Ghanaian capital Accra (Ghana Stock Exchange, 2006:86).

**Brief Company Profile of Watson Pharmaceuticals Inc** – Watson Pharmaceuticals Inc.( WPI) is an American company with headquarters in New York that manufactures and distributes over 25 branded and 150 generic pharmaceutical products. Generic products accounted for roughly 77% of the net sales in 2006. Watson Pharmaceuticals brand business segment develops, manufactures, markets, sells and distributes products primarily through two sales and marketing groups and nephrology. To lessen its dependence on the volatile generic market, WPI plans to build branded drug business over the coming years. Much of Watson's growth stems from acquisitions and investments in pharmaceutical joint ventures. It owns half of Somerset Pharmaceuticals and ANCRIC Pharmaceuticals (Plunkett, 2007).

### 2. Fan Milk Ltd. versus Dean Foods Co.

**Brief Company Profile of Fan Milk Limited** – Fan Milk Limited was incorporated on 6<sup>th</sup> January 1960 and has Danish origins from its sister concerns based in Nigeria. The company is a Ghanaian dairy retailer. The company is headquartered in Ghanaian capital of Accra and has since spread into operations in countries like Benin, Togo, and Burkina Faso. The company was previously known as Ghanaian Milk Company and was initially into pasteurized milk. By 1962 the company had diversified its operations into the manufacture of ice cream, yoghurt and ice lollies. In 1967, the company became the first Ghanaian foreign invested company that became a Public Limited Liability company (Ghana Stock Exchange, 2006:53; Fan Milk Limited, 2008).

**Brief Company Profile of Dean Foods Company** – Dean Foods began in 1925 in Illinois and is the largest fluid milk processor and distributor, selling branded and private-label dairy products in United States as well as Mexico. The company was the first dairy to package milk in waxed paper cartons in 1930s and then plastic jugs in 1970s. The dairy

division has expanded extensively through acquisitions which brings in about two-thirds of the sales. In 2000, Dean Foods acquired land O'Lakes milk operations and in 2001 the company merged with Suzia Foods, a Texas-based milk processor. In 2004, Dean Foods acquired Horizon Organic Dairy, at that time the nation's largest organic milk producer. Dean Foods presently controls approximately 20 percent of the fluid milk sales in the United States and has more than 130 plants (Allen, Albala, Nestle, 2007:122; Strange, 2008: xxv).

# 3. Guinness Ghana Breweries Limited versus Boston Beer Company Inc.

**Brief Company Profile of Guinness Ghana Breweries Limited** – Guinness Ghana breweries Limited was incorporated on 29<sup>th</sup> August 1960. The company manufactures sells and deals in beer, stout and mineral water and their ancillary products. It also carries on such other activities that may conveniently be carried on in connection or together with or incidental or ancillary to any of the foregoing. Diageo and Heineken hold 51% and 20% respectively in Guinness Ghana Limited. The company has been quoted on the Ghanaian Stock Exchange since 1970 and has played an important role in boosting Ghanaian economy. In 1987, the company introduced Malta Guinness, a soft drink that dominates the Malt drink market with 81.4% market share. All in all, Guinness products capture 42% of the market. In 2004, Guinness Ghana bought 99. 6 percent of Ghana Breweries, though the latter still remains a listed company (Ghana Stock Exchange, 2006:59, eBizguides, 2008:158-159).

**Brief Company Profile of Boston Beer Company Inc** – The Boston beer Co. Inc. is a speciality brewer and one of the largest brewer overall in the US. The company currently sells a total of 15 beers under the Samuel Adams brand name, three flavoured malt beverages under the twisted tea brand and one cider product under the name HardCore Cider. The firm produces these beverages at its company-owned breweries in Boston, Massachusetts, Cincinnati, Ohio as well as under contract. It maintains a supply of proprietary yeasts for use in its brews. Boston Beer's products are primarily positioned in the better beer category of the beer industry. This includes craft or specialty beers and most imports are distinguished by higher price, quality, image and taste compared with regular beers. Samuel Adams is in fact the third-largest brands in this category in the United States. In August 2007, Boston Beer agreed to acquire Pennsylvania brewery at \$55 million. The products of the company are sold primarily in US, but are also available in Canada, Europe, the Caribbean and the Pacific Rim (Plunkett, 2009).

#### 4. Clydestone Ghana Limited versus Ciena Corporation

<u>Brief Company Profile of Clydestone Ghana Limited</u> – Clydestone Ghana Limited, an Information Communication and Technology (ICT) company, was incorporated on  $15^{\text{th}}$ June 1989. The company is into systems integration, outsourcing systems, Network design and installation, image-based document processing, transaction switching and ATMs supply and installation. Clydestone Ghana Limited is the primary Ghanaian company that lays cables and improves telecommunication infrastructure. The company became a public limited liability company on  $26^{\text{th}}$  August 2003. The company is headquartered in Ghanaian capital of Accra and has been listed on the Ghanaian stock exchange since 19<sup>th</sup> May 2004, and is the first ICT Company to be listed. Clydestone Ghana Limited also owns 83.3% of Remittance Processing Ghana Limited, which is its subsidiary and specializes in the collection and processing of utility bills (Ghana Stock Exchange, 2006:41).

**Brief Company Profile of Ciena Corporation** – Ciena Corporation is a supplier of communications networking equipment, software and services that support the transport, switching, aggregation and management of voice, video and data traffic. Its product portfolio includes a range of communications networking equipment and software that it utilizes from the core of communications networks to metropolitan network infrastructure to the network edge, where end users gain access to communication services. Through the FexiSelect architecture, the company specializes in transitioning legacy communications networks to converged next-generation architectures. Products include transport and switching platforms, packet interworking products, access products, network and service management tools and global services such as consulting and support services. Ciena relies on contract manufacturers to perform majority of the manufacturing of its products. In 2008, the company acquired World Wide Packets Inc., a provider of carrier Ethernet solutions (Plunkett, 2009).

### 3.4 **Quantitative Data**

Quantitative methods allow the researcher to cover the wide area of scope to enhance the richness of the results. Quantitative research is generally defined as the interpretation of the statistical and numerical data. It is perceived as the scientific approach of research employing

'experimental' and 'quasi-experimental' strategies. Harvey (2002) describes quantitative data as data which can be sorted, classified, measured in a strictly objective way. They are capable of being accurately described by a set of rules or formulae or strict procedures which then make their definition (if not always their interpretation) unambiguous and independent of individual judgments. Quantitative research can be conducted in an artificial environment to exercise a level of control upon the experiment. Such control will allow the researcher to compare the lab results with the results drawn from the real world. Also the results allow the researcher to know the variance between different dependents and independents of the study. In addition preset answers will not only necessarily reflect consequences of a variable but also can elicit an entirely new outcome in some instances.

In general, scientific research applications do make use of such results. Quantitative methods help to identify what, when, who and where aspects of the study. The use structured and standardized methods allow much accuracy and objectivity of results. These will further help to analyze, replicate or compare the other studies with the present study. Usually, quantitative methods are designed to provide summaries of data that support generalization about the phenomenon under the scope of study.

To accomplish this, quantitative research employs a set of predefined procedures to prove reliability and validity. Kruger (2003) (cited by Bryman) confirms that quantitative methods allow the researcher to summarize vast sources of information and ease comparisons across categories over time. The development of standard questions by researchers can lead to structural bias and false representation, where the study actually expects the view of respondent or participating subject instead of the researcher. However, personal bias can be reduced by researchers keeping a distance from the study population.

The results of the quantitative research are limited, as they provide numerical descriptions rather than detailed narrative of the entire research perception. Additionally, these statistics yield insignificant results. Quantitative methods only deal with issues known at the beginning of the research project as this is when the questions are decided and documented McCullough (1995) (cited by Ion Ivan & et.al.,). They can also be complex process and require considerable investment for proper understanding and usage, Kruger (2003). Hence, Kruger (2003) discusses how difficult it can be to get the real meaning of an issue by observing numbers. In Quantitative analysis, the methods administer an enquiry on a population not less than 200 people by questioning them and making the answers quantifiably easy. Kruger also advises that there can be instances when researchers try to tune the elaborated statistics to prove hypothesis under this method. As highlighted by Honey and Mumford (1986) (cited by Mohammad Issack Santally) all learning styles have their own advantages and disadvantages and therefore no single style can be considered the best method to undertake. Hence, the current research study adopts the usage of hybrid method of using both quantitative as well as qualitative to find out the answers to the research questions. The qualitative approach relied on the reviews of the literatures to determine (1) the earlier efforts made at developing effective performance analysis strategy vis-à-vis the cash flow ratios analysis and (2) the actual practicability of going about it. On the other hand, the quantitative analysis process is used to gather and compile data from the reports and to analyze it so as to suggest the best online. The results obtained in the survey will be analyzed using quantitative analysis methods.

The data produced from the industry reports will be presented in a clear form of representation using tabulation against the identified factors for further analysis. The further interpretation of results through quantitative analysis can help in identifying the prioritized list of quantified factors to understand the facts. The industry reports on the financial ratios can be called as the Data in the current study.

# Validity of Data

The validity and more importantly, the reliability of the data can not be questioned. This is because the cash flow ratios are highly researched and very familiar to most or all parties within any particular industry. Certainly the cash flow ratios have been utilized by accountants and other professionals to track report and assess financial performance of companies and thus, all these data and information are verifiable and reproducible. However, the interpretation of what performance related analysis might be achieved may be open to some criticism, but this fact is the topic of this research study. All the data, both qualitative and quantitative are gathered from reliable sources which are both primary and secondary in nature. The quantitative data are all market based and are real and accurate historical figures. The validity of the data ensures that the results of the study at least have applicability into the foreseeable future. Nevertheless, the possible foreseeable market event that may make the current data non-valid is the onset of some type of macro-economic event that might interfere with firm performance during a particular analysis period. Considering cash flow ratio as a measure of firm performance in emerging

markets as the topic of this research study there is considerable chance for such a macroeconomic event to occur.

#### **3.4.1** Data, Information and Knowledge

Data is pure and unprocessed facts and figures without any added interpretation or analysis. For the present study, data will consist of the financial figures for all the companies that have been collected from various sources. Examples are the operational figures, cash flows, debt figures, dividends, among others. Since data provide the raw material to build information, they must also have to be accurate, as any inaccuracies within the initial raw data will magnify as they aggregate upwards. This will seriously corrupt the validity of any conclusions that are drawn from such data or decisions one bases upon them. Another aspect that can affect accuracy is where the data are obtained from; hence, the reputation of the data source is of extreme importance. Data is the product of observation, but it is of no use until it is in a usable and relevant form (Elearn Limited, 2005:1-2; Rowley, Hartley, 2008:5). The present research is based on firms and data that are in developed markets - stock exchange market- hence, the reliability and accuracy of data are not in doubt.

Information is more than data. The difference between data and information is functional and not structural. Information systems generate, store, retrieve and process data. Information is hence inferred from data (Rowley, Hartley, 2008:5-6). With regard to the present research, the cash flow ratios that were derived from the financial raw data comprised the information. The critical aspect is that for information to exist, a person must gather and ponder on data and arrive at

some decisions that usually result in an action being taken or at least a choice being made. Hence, for the selection of the particular cash flow ratios, various research papers were referred to before zeroing upon the cash flow analysis method proposed by Giacomino and Mielke. The same set of data can be used to produce different kinds of information, depending on how it is applied and who applies it (Elearn Limited, 2005:2). Hence, similar raw data figures such as operational cash flow figures, debt figures, among others, gave rise to different cash flow ratios (based on the formulas that were used) that signified different aspects of the company's performance.

Just as information is built from data, so is knowledge built from information. In case of the present research, the knowledge was the result of comparative analysis of cash flow ratios and the trends of the change for these ratios in the given period of time. Knowledge is information that is personalized and hence it is neither data nor information though it is related to both (Rowley, Hartley, 2008:5-6). This is evident in the present research, as the cash flow ratio comparisons and trends were clearly a part of both data and information, but was much more than that. Knowledge is of two types: instinctive, subconscious, tacit or hidden knowledge and the more formal, explicit, or publicly available knowledge (Elearn Limited, 2005:3). In case of the present research, the first part of the analysis gave rise to formal knowledge from which tacit information was gleaned by applying the principles from the literature review.

### 3.4.2 Type of Data used

The purpose of most studies is to collect data to obtain information about a particular area of research. The data comprise of observations on one or more variables and any quantity that varies is called a variable. Data is usually obtained from a sample of individual units that represent the population of interest. The aim of the researcher is to condense these data in a meaningful way and extract useful information from them. Statistics encompasses the methods of collecting, summarizing, analyzing and drawing conclusions from the data, whilst on the other hand, statistical techniques are used for analyzing and drawing conclusions. Data may take many different forms. It is necessary to consider the type of data being dealt with in the research since the statistical methods used and the presentation of the data will depend upon this. This is because a researcher needs to know what form every variable takes before making a decision regarding the most appropriate statistical methods to use.

**Numerical or quantitative data**: These occur when the variable takes some numerical value. Quantitative inputs are obtained numerically in an objective way. This is the reasons why quantitative data are also known as hard data, as in description of hard facts. Typical examples of quantitative inputs are not only financial ratios, but also macroeconomic variables and market information such as equity prices volatility and spreads. Needless to say, the present research used quantitative data, as it consisted of both financial figures as well as financial ratios, both of which are quantitative in nature.

Quantitative data are usually considered to be vitally important and are easier to evaluate statistically. However, quantitative data can be obtained only when the following three conditions have been satisfied:

- It is clear what has to be measured.
- An accurate and validated means of measuring it has been developed
- The method is practicable for use in the environment to be studied.

For the present research, the paper of Giacomino and Mielke mentioned exactly the data that was to be measured and the formulas for the ratios were also extremely clear. The data was taken from reputable sources and cash flow ratio formulas were available in multiple books, which meant that the means of measuring data was both accurate and validated. Finally, as the research was econometric in nature based on accounting research methods, the method was practically tailor-made for the present research. Hence, quantitative data was obtained and evaluated for the present research.

The quantitative/numerical data can be subdivided into the following categories:

- *i. Discrete data:* This is a type of a quantitative data where variables can only change by finite steps such as number of children. Thus, the number of children in a family can not be 2.35, for example.
- *ii. Continuous data*: This type of data occurs when there is no limitation on the values that the variable can take. Here, the data can take any value within a range i.e. data are measured on a continuous scale and the value of that measurement is limited only by the degree of precision (van Gestel, Baesens & Thomas, 2008:235-236). Examples of

this type of data include the cash flow ratios and other financial ratios of a company. For the present research, the data is entirely quantitative and continuous in nature, as the data is in the form of ratios, which can have any value. Also the values are only positive because the trend factor has not been taken into account while calculating the cash flow ratios, only the value is important here.

### 3.4.3 Derived quantitative data

Data can be further divided into primary or raw data and derived data. In most of the cases, primary or raw data include the raw experimental or observational results. Derived data result from further analytical transformation of raw data or even other derived data, such as application of analysis techniques or even using simple mathematical operations. Derived data may simply be a refined form of the original data or it can be in an entirely different form. Some types of derived data are percentages, ratios, rates or even at times scores. All these variables are treated as numerical variables for most analyses. Where variable is derived from more than one value e.g. numerator and denominator of a percentage or ratio, it is important to record all of the values used (Petrie & Sabin, 2005:8-9). For the present research, the raw data consisted of the financial figures available in the cash flow statement, income statements and balance sheets of the different companies. The derived data that was used for the purpose of analysis consisted of cash flow ratios that were calculated with the help of pre-defined formulas. Further, these data have also been converted into averages and percentages, so a second level of derived data is also used for the purpose of analysis.

### **3.4.4** Other classifications of quantitative data

### 3.4.4.1 Cross Sectional and Time-series data

Cross-sectional data are used in the present research, as they represent the situation of a group of variables at any one point in time. Lists of share prices, interest rates or exchange rates published in the business pages of newspapers are also examples of cross-sectional data because the data relate to the process or rates of a number of variables, for example, shares or currencies at a particular point in time. Time-series data, on the other hand, reflect changes over time of one particular variable. For example, data giving the price of a share, a currency exchange rate, or the level of an index each day for two years, would be a daily time series (Watsham & Parramore, 1997:42). As regard the present research, cross-sectional data are used as cash flow ratios of the Ghanaian companies for one particular year is compared with that of the corresponding US-based companies for that particular year. While time-series data are not part of the present research, the data have eventually been averaged over a three-year period and compared, as well as the trend of the evaluation of the ratios change over the three year period, which means that time-series method of analysis too is a part of the present research.

### 3.4.4.2 Benchmarking using Quantitative data

The purpose of benchmarking is to compare the activities of one company to those of another, using qualitative or quantitative measures, in order to discover ways in which effectiveness could be increased. Needless to say, benchmarking forms the core of the present research as the cash flow ratios are hypothesized to be the benchmarks on which performance of firms can be decided accurately. Benchmarking using quantitative data is often referred to as financial benchmarking, since this usually involves using financial measures (Wang, 2003:26). Financial benchmarking is the core methodology used in the present research.

The following can be classified as the benefits of quantitative data:

- The researcher can look at a large number of populations than he can with qualitative research. This is because quantitative research provides the tools for evaluating very large population very fast.
- The quantitative research enables a reseacher to better judge the magnitude and priority of an effect, which is difficult to do with qualitative research.
- Quantitative research enables more flexibility with what the researcher can do with the data. Because quantitative data are numeric instead of textual in nature, they are more pliable and can be linked and compared to other pieces of numeric information, giving a more complete view of the event or situation than what would be possible with qualitative data.(Mulder & Yaar, 2006:79-80).

At a high level, quantitative research is particularly good at three things:

• *Testing Hypothesis*: Quantitative research is a perfect tool, when the researcher wishes to validate something, because it gives statistically significant evidence to prove or disprove the hypothesis.
- Looking for patterns: Quantitative research can also be effective at refining hypotheses, because it provides a large sample size of data for the researcher to look for patterns using techniques such as cluster analysis. The researcher can generate persona segmentation out of the quantitative data itself, even when he has only the most basic understanding of what drives the segmentation.
- *Gaining new insight*: Because quantitative data is numeric, it enables the researcher to build upon his validated hypothesis to gain new insight into the research area. Some analysis that was not previously thought of can be possible and certain inferences can be gathered without planning for it in the first place. (Mulder & Yaar, 2006:81).

#### 3.4.5 Financial Statements Analysis

The methodology used for the present research is based on financial statements analysis where analytical tools and techniques are applied to general-purpose financial statements and related data to derive estimates and inferences in order to prove the research hypotheses and answer the research questions. Financial statements report a company's past financial performance and current financial position, hence, are the core information source for the present research. Financial statements are end-of-period statements that are prepared typically in quarterly or annually in practice. These statements update listings of financial and investing activities, and summarize operating activities for the most recent periods. Financial statement reporting of financing and investing activities occurs at a point in time, whereas operating activities are reported for a period of time. For the present research, annual financial statements have been used as a source, since the quarterly financial information was both cumbersome to handle as well as not always available for all the Ghanaian companies for the period of interest. Generally companies prepare four primary financial statements: the balance sheet, the income statement, the statement of shareholders' (owners') equity, and the statement of cash flows. All of the financial statements, except the statement of shareholders' (owners') equity, have been used as a basis for the analysis of cash flow ratios. Each of the financial statement, is described below to get an understanding of the data that is available from one particular statement (Bernstein & Wild, 1999:6, 17).

- *Balance sheet*: A balance sheet summarizes the financial position of a company at a given point in time. Most companies are required under accepted accounting practices to present a classified balance sheet. In a classified balance sheet, assets and liabilities are separated into current and noncurrent accounts. Current assets are expected to be converted into cash or used in operations within one year of the operating cycle, whichever is longer. Current liabilities are obligations that the company must settle in the same time period. The difference between current assets and current liabilities is working capital (Bernstein & Wild, 1999:18). The fixed assets and long-term liabilities, on the other hand, are assets that can be used beyond one accounting period and liabilities payable beyond one accounting period respectively.
- *Income statement*: An income statement measures a company's financial performance between balance sheet dates and hence reflects a period of time. It lists revenues, expenses, gains, and losses of a company over a time period. The bottom line or net

income shows the increase (or decrease) in net worth of a company (assets less liabilities), before considering distributions to and contributions from shareholders. In practice, net income is determined using the accrual basis of accounting. Under this method, revenues are recognized when a company sells goods and/or renders services independent of receiving cash. Expenses in turn, are recognized when related revenue is recorded, independent of paying cash (Bernstein & Wild, 1999:19-20).

- *The statement of shareholders' (owners') equity*: The statement of shareholders' equity reports changes in component accounts comprising equity. This statement is useful in identifying reasons for changes in shareholders' claims on the assets of a company. Accepted practice excludes certain gains and losses from net income that, instead, are directly reported in the statement of shareholders' equity. The primary use of this financial statement would have been glaring if the company was paying dividends. However, the dividends in case of Ghanaian companies was simply calculated in the income statements, while all the US companies that were analyzed did not historically pay any dividends nor were planning to pay any in the future (Bernstein & Wild, 1999:20-21).
- *Cash flow statements*: Under accrual accounting, net income does not typically equal net cash flow except over the life of a company. Since, accrual accounting yields numbers different from cash flow accounting, and cash flows are important, there is a need for periodic reporting of cash inflows and outflows. For example, analyses involving reconstruction and interpretation of business transactions often require the statement of cash flows. The statement of cash flows details cash inflows and outflows related to a

company's operating, investing, and financial activities over a period of time (Bernstein & Wild, 1999:21-22).

Financial statements are linked at points in time and across time. Points-in-time balance sheets are explained by the period-of-time in income statement, statement of cash flows, and statement of shareholders' equity (Bernstein & Wild, 1999:22, 24).

Comparative financial statement analysis are done by setting consecutive balance sheets, income statements, or statements of cash flows side by side and reviewing changes in individual categories on a year-to-year or multi-year basis. The most important item revealed by comparative financial statements analysis is trend. A comparison of statements over several years reveals direction, speed, and extent of a trend. Comparative financial statement analysis is also referred to as horizontal analysis given the left-right or right-left movement of the eyes as they review the comparative statements. While trend analysis is the primary goal and result of the present study, also the methods used are cash flow ratios derived from the various values of the financial statements (Bernstein & Wild, 1999:32). Carslaw & Mills (1991:63) note that the balance sheet and Income statement used in conjunction with the cash flow statement should lead to a better understanding of the financial strength and weakness of an entity.

<u>Ratio analysis of financial statements</u> – Ratios are among the most popular and widely used tools of financial analysis. While the computation of a ratio is a simple arithmetic operation, its interpretation is far more complex. To be meaningful, a ratio must refer to an economically important relation. Ratios are tools providing the analysts with clues and symptoms of underlying conditions. They can, if properly interpreted, identify areas requiring further

investigation. Analysis of a ratio can reveal important relations and bases of comparison in uncovering conditions and trends difficult to detect by inspecting individual components comprising the ratio. Ratios, like other tools, are future oriented, and the analysts must adjust factors affecting a ratio for possible future trend and magnitude. In addition, factors potentially influencing future ratios must also be analyzed. Furthermore, they must be interpreted with care since factors affecting the numerator can correlate with those affecting the denominator. Additionally, analysts must remember that many ratios have important variables in common with other ratios. Consequently, it is not necessary to compute all possible ratios to analyze a situation. Ratios, like most techniques in financial analysis, are not significant in themselves and are interpretable only in comparison with (1) Prior Ratios, (2) Predetermines standards, or (3) Ratios of competitors. The last one, which is the comparison of cash flow ratios of competitors, is the basis of analysis for the present research. Finally, the variability of a ratio over time is often as important as its trend (Bernstein & Wild, 1999:40-41).

Before using financial ratios, the analyst should be aware of their limitations. Financial statements serve as the primary source of data for computing ratios. Because of their flexibility in choosing some of the accepted accounting principles, ratios among firms may not be comparable unless appropriate adjustments are made to the financial statements. Moreover, comprehensive financial rates analysis is constrained by the lack of standard accepted computational rules. In fact, with the exception of computations of earnings per share, regulatory agencies have refrained from enacting or even suggesting guidelines. As a result, there is no consensus on the computational methodology of the ratios (Belkaoui, 1992: 109-111).

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#### **3.4.6** Description of the 9 financial ratios calculations (Giacomino and Mielke)

Having commended a list of 9 cash flow ratios to be used for relative performance assessment-Giocomino & Mielke (1993:55-58)- they also proposed categorisation of relative performance into efficiency and sufficiency ratios. Whilst the former ratios determine the extent to which an entity generates cash flows vis-a-vis other years as well as other entities, the latter ratios evaluate the adequacy of cash flow to meet an entity's financial needs. As the operating activity section of an entity's cash flow statement entails its primary activities- the production and delivery of goods and services- cash flow from operating activities are components of each of the ratios proposed.

In the present research paper, the researcher has undertaken a three year comparison of the ratios for the years 2003, 2004 and 2005 for the Ghanaian companies and has compared it with the ratios for the corresponding years for the American companies. Also for Ghanaian companies, the turnover & cash flow figures for a particular company varies from being in millions of cedi to thousands of cedi or even directly in cedi. Hence, while taking the ratios for a company the amount is directly taken in whichever format the amount is given. The individual revenues/cash flows etc. should hence not be taken as absolute values without confirming from the stock exchange data sheet, the ratios are only the values that are to be considered. Cash flow ratio analysis is simple because the analyst does not need to bother about the factors such as currency exchange. For instance, in the present case, as the companies from two countries are being analyzed, Ghana and US, the currencies of both companies would come to the fore. Added to this, there is the obvious problem that the currency exchange rate might have changed from year to year, which means additional complications. However, since ratios have been used as the comparison aspect, there is no need to worry about the situation. This is because, firstly, the company's financial measured under one head has been compared with the same of another company's financial measured in the same year. Secondly, when the company prepares a financial statement, the factors such as foreign exchange risk for long and short term are usually taken care in the annual financial statement, which means that there is no need for any special provisions in the ratio for the analysis.

## 3.4.7 Absolute and Relative Information

Accounting information can be used in absolute values and ratios, for example, total assets and return on total assets, or irrelative values where the values are compared to the mean or median of the benchmark population. Absolute values are easy to apply and calculate. Relative values are more difficult to define, apply and calculate, but they may have more information value. In a global model for firms, one may for instance, compare return on total assets to the sector average. Such a relative measure indicates how good a firm performs as compared to its sector and competitors. Disadvantages of relative variables are the more complex variable definition and calculation, as well as the difficulty of incorporating the effect of a global stratum that becomes distressed. Indeed, one needs to find homogenous strata that are relevant to define peer groups for comparison. Clear definitions need to be made to allocate each counterpart to one of the strata. All these choices need to be statistically and financially relevant. Although more complex, relative ratios are often financially meaningful and also allow development of global models that are valid for multiple homogenous groups within similar but not exactly equal characteristics. The uses of such global models have advantages in terms of data requirements to

estimate the model development maintenance and management and consistency of rating assignment across different sectors. The disadvantage of one global stratum in distress can be handled by combing both relative and absolute ratios in the same model (van Gestel, Baesens & Thomas, 2008:237-238). Regardless of the advantages of the relative ratios, the present study uses absolute ratios for the purpose of comparison. This is because absolute ratio comparison of a developed and an emerging economy is the primary aim of the research, and so relative ratio generation would be a superfluous activity.

#### 3.4.8 Time Aspects

Ratios and financial indicators evolve in time. Some figures tend to be quite volatile and evolve quickly over time. Others are stable and evolve smoothly. Accounting information provides a yearly snapshot of the counterpart's behaviour that can be extended with quarter or semester results (van Gestel, Baesens & Thomas, 2008:238).

*Average method* – Mean or average is the sum of the score of all the individual parameters in the sample divided by the number of such score. The formula for mean is as given below:

$$Mean(Average) = \frac{Sum of Scores}{Number of Scores} = \frac{\sum X}{N}$$

 $\sum$  (called sigma) is the statistical symbol for sum, x stands for scores (in this case the cash flow ratio values) and N stands for the number of scores (in this case the number of years).

Mean is probably the most used statistic and is simply the arithmetic average of a distribution of score. Researchers tend to like it because it provides a single, simple number that gives a rough

summary of the distribution. It must however be remembered that while mean provides a useful piece of information, it does not tell anything about how spread out the scores are i.e. variance or how many scores in distribution are close to mean. It is possible for a distribution to have very few scores at or near the score. Also mean is not useful when the distributions are open-ended. If scores representing infinity in either direction are possible, the mean cannot really be defined. Also it is tedious to compute mean by hand (Denscombe, 2007:260-261).

For the present research study, the analysis was covered for a period of three years. A crossborder financial analysis between two companies presents many cultural and accounting differences both of which have close ties to economic, social and political conditions prevailing in the countries. A three year window would give a better financial picture than choosing any one year at random. Furthermore, the analysis in the present research is not merely limited to taking an average value, it also analyses where these ratios were maintained over the period, the corresponding trends between the two companies being compared and the deviations if any. Finally, when the values of ratios were calculated, they were truncated to three digits after the decimal. This excluded the cash flow efficiency ratios, which as the name suggests would be expressed in percentages. In this case, the truncation was three digits after the percentage figure, i.e. truncation of five digits after the ratio.

*Trends* – Trends indicate the evolution of the counterpart in the past. The growth of the key financial variables and ratios allow analysis of whether profitability, liquidity, capitalization, revenues, cost debt values, or other ratios have been increasing or decreasing in the past. The past evolution may indicate the strengths or weaknesses that may evolve in a similar way in the

future. The trend can either be mentioned as increasing or decreasing or can be expressed in absolute numbers or relative with respect to the original value. Absolute trends are useful for ratios, while relative trends can be used for both size variables and ratios. For size variables, the distribution of absolute trends may need to be corrected. Relative trend s of size variables are growth indicators e.g. total assets growth. Relative trends have the disadvantage that the definition may imply problems with sound ratio interpretation and fat-tailed distributions in the case when the denominator becomes close to zero or even when it can change its sign. As the present analysis is restricted to measurement of cash flow ratios, the absolute trend has been used (van Gestel, Baesens & Thomas, 2008:240-241).

## 3.5 Ethics in Research

Research ethics refer to the application of moral standards to decisions made in planning, conducting and reporting the results of research studies. The fundamental moral standards involved are those that focus on what is right and what is wrong. Beyond this, however, Mitchell in 1998 has identified four practical ethical principles that shape morality in research-truthfulness, thoroughness, objectivity and relevance.

As the current research uses the publicly available industry reports, the cur- rent research proves the practice of the ethics like truthfulness, reliability and validity. By making the inclusion of the following, the research has proved the adaptability of thoroughness.

- o Definitions for all key concepts used in the study
- o Selection of appropriate samples or group participants, including full description

- o Identification of all limitations of the research design
- A description of the analysis and design

However, thoroughness is not a simple concept and can cause a great deal of difficulty for a researcher. The main problem is the exact meaning of thoroughness in the actual conduct of research (McNabb, 2004:56). Furthermore, by being methodologically thorough, all the results and findings are reported to guarantee the acknowledgement.

As the study has adopted quantitative approach, the numerical data give much objectivity to the study. In this, the researcher has a choice to remain objective and impartial throughout all aspects of the study. The researcher never happened to interject his or her own personal feelings or biases into the design of a study, selection of participants, writing and/or asking questions, or interpreting results.

Also the using of probability methods to select a sample, wording questions in such a way as to avoid any hint of leading the subject to give a desired answer and not allowing the researcher's own values to colour the results.

As the study has carefully selected the financial ratios from the similar industries from both countries, the data have relevancy to the scope of the study.

Researchers are most concerned with ethics four times in the research process:

While planning to gather data: A key activity in planning a research project is deciding who or what will constitute as the participants in the study. Hence, the use of proper sampling design is a critical design factor. Also, in all the research design, special care must be taken to ensure that the participants voluntarily agree to participate, that their privacy is protected, and that they are not physically or mentally harmed in any way. Also consent must be informed and participants must not be forced or coerced, and must be aware that they can withdraw from the research at any time. Choice of sampling methods is necessary whether positivist or interpretative research approaches are used (McNabb, 2004:59-62).

- While gathering data: The following five key points in the research are identified when an ethical concern for the respondents is particularly important: when seeking consent from the subject; when providing incentives to participate, if any; when seeking sensitive information or information that might embarrass or otherwise cause discomfort to the subject; and while maintaining confidentiality for the respondent. The data gathering methods that are selected also affect the methods chosen for the research. The ethics of data gathering in all forms continue to raise controversial questions among researchers. The two problems that cause the most difficulty are the potential for bias on the part of the researcher and the corresponding response distortion that such biases can cause. Most researchers however concede that it is impossible to eliminate all bias and the only way for bias to be reduced is experience and conscientious training (McNabb, 2004: 62-63).
- While disseminating the results of the research: Researchers are faced with two broad classes of ethical considerations when disseminating their findings. First, ethical considerations come into play with the distribution and/or publication of the findings. Second, researchers have the moral obligation to protect the privacy of the participants of the research. Three participant ethical issues are of particular importance when disseminating the results of a research study: protecting the privacy of participants; ensuring the anonymity of the participants; and respecting the confidentiality of

individuals involved in the study. Furthermore, researchers must consider several factors when communicating the results of their research: telling entire story rather than just a few significant portions; presenting insignificant, adverse or negative findings; and contributing to the general storehouse of disciplinary knowledge. Researchers also have a moral obligation to avoid incomplete research results, issuing misleading reports as well as biased reports. Incomplete reports are more likely to be disseminated when the researcher uncovers misleading or negative information. Even when they are not a lie, misleading results which are released to intentionally mislead an audience are considered to be ethically incorrect. Biased result is often conducted to provide justification for a preconceived notion or solution. It occurs when the researchers do not follow the required steps in a research process. It can also happen when the research problem is incorrectly defined. Finally ethical decisions during the dissemination of research findings arise with questions regarding disclosure of the limitations of the study. The sponsoring agency, respondents, and the recipients of the research report are justified in their right to know how much credence they can give to the findings (McNabb, 2004:63-65).

## 3.5.1 Anonymity and Confidentiality

A common part of the ethical agreement made between researchers and informants is that the data will be published or presented in a way that preserves the informants' anonymity and confidentiality. This is sometimes difficult to accomplish when the demands of confidentiality are balanced with the need to present detailed information about the informants. Hence, this detail is an important part of conducting the research (McLaughlin, 2007:61). In preparing a

research report, it is commonly seen as a good practice to assure research participants and organizations of their anonymity and of the confidentiality of the data selected. This can mean changing or hiding the names of both individuals and organizations. In larger studies, this may be straightforward, but in small or localized studies this can be quite challenging. Similarly, it is important to acknowledge that some styles of research demand that individual names and roles are made clear or the text is meaningless. It is important to maintain academic integrity here, which can mean writing things that may be critical or painful for some. Provided that sound evidence is offered for interpretations and conclusions to be drawn, then the researcher should write about real events in their proper context (Long & Johnson, 2007:203).

It is also extremely important for the research to recognize the difference between anonymity and confidentiality, as both terms are sometimes confused in research. Research participants are anonymous when their study responses cannot in any way be identified with them – by the researcher or anybody else. For instance, in many questionnaire surveys, it is impossible to identify the person who completed any particular survey. This assumes, of course, that the participants did not put their names on the questionnaire and any other personal information – such as sex and age – could not be used to identify a given individual. In a confidential survey however, the identity of the participant is written into a record, though the researcher and any other person involved may not reveal the information in the record (without the participant's permission) to anyone other than the participant and the researcher (for the specific purpose of the research) (Mark, 1996: 46-47).

In case of the present research, participants were not people, they were companies and the data that was used for the research was for public consumption and so the hazards due to anonymity and confidentiality conditions do not arise here.

## 3.6 Conclusion

After the research problem has been identified and the appropriate statistical methodology has been decided, the researchers must collect data that they would analyze. There are many methods available for gathering information and a wide variety of sources of information. The most important role of the researcher hence is to select the most appropriate source of information. Furthermore, the researcher must also think ahead about how this information would be organized, analyzed, interpreted, and finally reported to various audiences. This chapter starts by explaining what is the reason behind the collection and presentation of the industrial data of both Ghana and US countries and the purpose of comparing them and how the industrial data of both countries are collected. The data collection and presentation methods are explained in detail and proceed to mention the method used for the present case study and the rationale behind the selection of the particular method. Needless to say, there are multiple ways of collecting the information and the ideal solution is to collect more than one type of information. The selection of a particular method for collecting information is a result of a balance of several concerns that include the availability of resources, credibility analysis and reporting resources as well as the skill of the evaluator.

For this particular case study, the information required is the detailed income & financial statements of the companies in US and Ghana. In case of US companies, the information is easily available from multiple sources such as the websites of the companies in question and various commercial financial websites such as Google Finance and Yahoo Finance. The corresponding information for the Ghanaian companies is not as freely available hence the researcher had to contact the Ghana stock market for the information. The detailed quantitative economic, business and financial data compiled in this chapter regarding the national industries of the United States and Ghana have been successfully gathered in order to provide a clear overview of the setting, populations, business activities, and evolution of each economy in regard to the production of certain commodities and services. As the present research was entirely quantitative in nature and desktop research was used for the collection of data, these aspects were explained in detail. The choice of data collection method has a considerable impact on the identification of the population from which the sample is drawn. Hence, the different sampling methods as well as analysis methods were discussed in detail along with a description of the analysis of the method used in the present study and the rationale behind the choice. The last part of the chapter gave a bird-eye view of the companies that are selected, the reason behind selecting the companies and a brief profile. These aspects would be of much use in the results section, where the interpretation does not always depend upon the value but also the reason behind the fluctuations. As mentioned, cash flow ratios were used as the method of comparison by analyzing the financial statements of the selected companies from both countries. There are many ratios that can be computed using a company's financial statements. Hence, the blueprint for the present research is based on the nine cash flow ratios given by Giacomino and Mielke in their seminal paper. However, not all financial ratio calculations are possible as some of them are

specific to certain circumstances or industries. Because some of the cash flow ratios varied widely, while arithmetic mean was used as a basis for calculation, the result interpretation included the individual values too, chiefly concentrating on the trends of change.

However, by closely examining the ratio analysis between the U.S. and Ghanaian companies, the study will try to analyse the financial performance of companies in similar industries in different socio economic conditions. It is assumed that certain types of ratios will give idea as to whether the U.S. companies have more liquid cash than Ghanaian companies or if invested, which companies are best and quick to give maximum returns.

Whose current liabilities are holding the money more, whose current assets are much valuable, whose non-current assets are quickly convertible to current assets and whose debt payout capacity is high. This will help the industry to choose between Ghanaian and U.S. Companies for further reference with investment, financing, opting for stocks, or to make amalgamations or mergers.

#### **CHAPTER FOUR**

#### 4.0 Analysis of Data and Test of Hypothesis

#### 4.1 Introduction

The conduct of any research activity must be designed in a way that the action will be able to address questions regarding the characteristics, relationships, patterns, and influences in a certain instance or event, collectively defined as the process of analysis. As the data is collated, the action of determination on the parameters on the questions on the research action can be defined, as tackled and discussed in the previous chapter. Present chapter will concentrate on the analyses the data that has been accumulated. Data analysis is one step and an important one. In some cases, the testing of theoretical hypotheses, that is, possible answers to 'why' through research questions is an intermediary step.

In other cases, the research questions will be answered directly by an appropriate method of analysis. The present research study follows the former method – evaluating the hypothesis and then drawing conclusions based on the results and answering the research question. Also, as stated in the previous chapter, quantitative data has been used for research purposes. The numerical analysis of data is central to quantitative studies and hence is an integral part of the present research. Statistics uses data from a sample to make estimates and test hypotheses about the characteristics of a population through a process known as statistical inference – used in the present research.

## 4.2 Quantitative Data Analysis

## **Theory of Quantitative Data Analysis**

Quantitative data analysis is an effective research form, often associated with large scale research, but it can also serve smaller scale investigations such as case studies action research, correlation research, and experiments (Cohen, Manion, and Morrison 2007: 501).

Quantitative methods of data analysis can be divided into four main types:

## 4.2.1.1. Univariate descriptive analysis

Univariate descriptive analysis is concerned with the characteristics of phenomena in terms of distributions on variables (Blaikie 2003: 29). Blaikie (2003: 47-48) enumerated the ways in which univariate analysis can be done:

- o By counting the frequency with which a characteristic occurs
- By grouping scores of a certain range into categories and presenting these frequencies in pictorial or graphical form
- By calculating measures of central tendency
- By graphing and/or calculating the spread of frequency around this centre point

#### 4.2.1.2. Bivariate descriptive analysis

Using this mode of analysis, the relationships between two variables can be determined (Blaikie 2003: 29). According to Blaikie (2003: 30, 47-48), bivariate analysis can be done by:

- Comparing categories in terms of average
- o Establishing the strength of the relationship between two characteristics

## 4.2.1.3. Explanatory analysis

In this mode, the concept is concerned with the act of establishing the direction and strength of influences between variables. Explanation is achieved by pointing to prior events in the sequence, and prediction is achieved by knowing what follows in the sequence that a specific cause must generate a specific effect of necessity. In this view, it is the nature of the entities themselves that generate the relationship. An entity, by its very nature and being a particular type, must possess particular properties that determine the manner in which it must, of necessity, behave under a given set of circumstances (Blaikie, 2003: 30-31, 47-48).

#### 4.2.1.4. Inferential analysis

Scientists also use statistics in another way. If the entire population of interest is not accessible to them for some reason, inferential statistics is often used, when they often conduct random sampling and utilize statistical data to answer questions about the whole population (Dowdy, Weardon, and Chilko 2004: 1). The process deals with estimating whether the characteristics or relationships found in a sample, or difference between samples, could be expected to exist in the population, or populations, from which the sample or samples were randomly drawn (Blaikie, 2003: 31-32, 47-48).

## Description of how the calculation for individual ratios was done

## 4.2.1.5. Efficiency ratios

*Efficiency ratios* can be defined as a standard of measurement for the quality of a particular businesses' receivables and the efficiency by which that business utilizes its assets; the consistency that the company can settle financial obligations with their suppliers, and to determine if the company is 'over trading' or 'under trading' on the company's equity; or the company using funds sourced outside the revenue generating (Internal) sources of the company (Dun and Bradstreet 2009). For the banking sector, it is used as a gauge on the efficiency on the level of operations of a particular bank (Investopedia 2010). But the banking sector does not use a particular or standardized formula for its calculation. Banks usually compute this ratio in four ways, which are:

- a) Non-interest expenditure divided by total revenue minus the interest expenses;
- b) Non-interest expenditure divided by net interest income before provision of the losses on loans;
- c) Non- interest expenditure divided by the bank's revenue, and;

 d) Operating expenditure of the bank divided by income generated from fees plus the tax equivalent net interest income.

In all the modes of the ratio, it is to be understood that an increase in the ratio will mean that the company is losing a bigger share of the income to expenditure. In the same vein, if the number shown is lower, then the bank is gaining more and is considered as a positive sign for the bank and the shareholders. As with banking, industries that keep expenses down are the ones that usually grow and survive in the business. Also, efficiency ratios are used as a benchmark on the profitability of a company (Investopedia 2010).

#### 4.2.1.5.1. Cash flow to sales ratio

This ratio gives the cash flow as a percentage of the sales ratio. The cash flow used for this ratio (in fact, for all cash flow ratio analyses) is the cash flow from operations (CFO). The other two cash flows, i.e., cash flow from financing (CFF) and cash flow from investments (CFI), are not involved. The sales used for the calculation purpose is Net sales, which are basically the revenues a company earns. Hence, the calculations can be done by directly taking values from the financial statements using the formula given below:

Cash flow to Sales ratio =  $\frac{Operating \ Cash \ Flow}{Net \ Sales}$  Revenue Operating Cash Flow/Sales Ratio. Source: Richard Loth 2010. The ratio determines the capacity of the company to incur cash from net operations, which can be equated to the sales amount generated by the company. The more cash attributed to the sales generated, the more is a positive investment indicator for the company and can also be deemed as an indicator in the quality of management decisions regarding variable costs that may be attributed to operational costs.

The term 'revenue' is interchangeably used with 'turnover' in some countries. This has to be taken into account as Ghanaian stock market report uses this term instead of the standard term 'revenue'. The ratio provides the data on the transformation of sales into cash over a period of time and is expressed as a percentage of the Revenue (Investopedia 2009). However, an indication that the company has improved the ratio or has at least sustained it is considered to be a positive investment quality. For instance, during the three years 2002, 2003 and 2004, Microsoft's operating cash flow to sales revenue was 50%, 49%, and 40%, respectively, whereas during this same period, sales increased by 22%. This could be taken as an indication of the difficulty that Microsoft faced in creating new avenues for revenue in relation to its new products at that time (Stolowy and Lebas 2006: 517).

Regardless, this ratio also allows us to indicate the company's capacity to manage its collections and payments (Nikolai, Bazley, and Jones, p. 286). A positive and concurrently increasing cash flow to sales ratio however would need one to obtain and understand the receivables to sales ratio to credit the efficiency of the company in its facilitation of turning the sales to cash.

#### 4.2.1.5.2. **Operations index**

The operations index compares the operating cash flow with the profit of the company before payment of income tax. The operating cash flow has been described in the previous ratio and the operating profit as an integral part of the income statements of the company. The formula for the ratio is below:

Operations Index =  $\frac{Operating \ Cash \ Flow}{Operating \ profit \ before \ Income \ Tax}$ 

The operating cash flow takes into account the changes in working capital such that the disclosures (or the lack thereof) determine the oversight or the attention of the company of subject in the quality of their business decisions that will turn potential earnings. Again, this goes back to the receivables turnover and inventory levels. Also, it allows us to address the quality accounting policies and standards adopted by the company.

## 4.2.1.5.3. Cash flow returns on assets

The formula displays the amount of cash that a company is generating in proportion to its asset. In this case, the cash flow from operations (CFO) has been used for the calculation purposes. The total assets pertain to the sum total of the fixed assets, current assets, and other assets such as goodwill of the company. This calculation can also be done directly using the financial statements of the company through the formula: Cash flow return on Assets =  $\frac{Operating Cash Flow}{Total Assets}$ Cash Return on Assets Ratio formula. Source: Investopedia ULC 2010.



Financial Statements: Cash Flow. Source: Investopedia ULC 2010.

The total amount derived from the cash flow from financing (CFF), investing (CFI) and operations (CFO) is termed as *net cash flow (NCF)*. But net cash flow is an inferior performance indicator for companies (Investopedia 2010). The ratio is often used to compare the performance of a business among other competitors in the industry. However, the ratio cannot be taken as any sort of an indication regarding future commitments with regard to assets and also does not include the cost of replacing the older assets. The presence of a higher return can be taken as an indication of higher returns in future (Investopedia, 2009).

The indication of the Cash Flow return on Assets allows us to assess the company's business decisions regarding capitalization. The utilization of the assets in relation to cash flows generated purely from operations in comparison to the current amount or percentage of the company to finance its capital will result in either the productivity or the efficiency of the company. Also, the comparison of the Cash Flow return on Assets as to the cost of capital and the industry average

indicates a company's realized returns on the capital invested by their shareholders (Investopedia 2009).

## 4.2.1.6. Sufficiency Ratios

*Sufficiency* can be defined as the capacity of the business to settle it financial requirements. The formula is considered as a predictor of when the company might run into insolvency issues, as the first ratio (Debt Settlement Period in years is calculated via the equation Total liabilities/ available liquidity from operating activities, or CAOA= the number of years the company can settle its debts) will estimate the period in years that a company will be able to repay all standing financial obligations basing from the current cash flow that the company is generating from the activities of the company. If the length of time that the company will use up is longer, then it is assumed that the company is in a weaker position to settle its debts to the creditors. In this calculation, the premise is that all the monies that is generated by the operations of the company will be used to settle all debt and no provision is made for the acquisition of additional assets and payments for dividends (M. Koen, J.G.I Oberholster 1999: 24).

Several research initiatives have been done in the past to establish an acceptable figure in this norm, and at current research, the company that will yield a period of seven (7) years to repay its financial obligations is deemed to be in a weak position to settle all its debts. If the company declares that it has the capacity to pay off its debts within the period of five (5) years, then the company can be considered to be financially stable. Companies can achieve an improved cash

flow position by restraining expansion activities, increasing the margin of profit, reducing overhead expenditure and the issuance of shares (Koen, Oberholster 1999: 24).

Given the definition of sufficiency, a *cash flow sufficiency ratio* can be construed as the ability of a particular company to generate a sufficient amount of funding (Cash) to meet the company's basic obligations. These include the payment of the company's long term debts, acquisition of assets and the payment of share holders' dividends. If the ratio registers a figure of one (1) then this statistics can be considered as a reasonable goal to be set by the company. Also, the ratio can be utilized as a measurement of the percentage of the flow of cash which can be used on a discretionary basis. The formula is divided into three individual ratios that will compose the elements in the denominator of the cash flow sufficiency ratio s (Koen, Oberholster 1999: 24).

#### 4.2.1.6.1. Long-term debt payment

Long term debt repayment formulas monitor the adequacy of the flow of cash to settle the long term financial liabilities and payments of the instalments of the company's debt obligations on a yearly basis. In short, this evaluates the ability of the company to pay off their debts as they mature in the fiscal year. Though a particular business can source funding from investor activity and financing options to pay off the company's debt obligations, the cash flow that is generated from in-house activities is to be considered as the primary source of funding the obligations on a long term basis. If there is an increase in the repayment to debt equation, it may be an indicative in a fall in the repayment of the long-term debt and thereby increase the load of debt shouldered by the company (Koen, Oberholster 1999: 25).

The formula can be construed as an indicator of a company's gearing and leverage in relation to its capacity to pay off its long term indebtedness. Gearing can be defined simply as how much debt one company owes, whereas leverage is the amount of debt that is financially sustaining a company rather than the amount of shareholder equity (International Trade Centre 2008). Needless to say, the ratio will be valid only when the companies take a long-term debt, which is not usually the case with Ghanaian companies.

# Long Term Debt repayment= $\frac{Long-term \ Debt \ Payments}{Operating \ Cash \ Flow}$

The greater the ratio deemed from the above calculation, it is concluded that the company has the capacity to withstand the possibility of, for example, a debt forfeiture, which is the decision of the company's financing bank or institution to call off certain terms of their financing contract and at the same time, fund the necessary assets of the company for investment to further company operations (Bragg, year, p. 59). It allows investors, management and other interested parties a foresight to the ultimate stress test: which is the measurement of the company's strength in facing the inducement of current debts, that is, the measurement of the company's safety net

## **Dividend payout**

In the light of the bull market environment in recent times, majority of investors may have forgotten about becoming updated with the returns that they may have accumulated with regards to their investments in shares of stocks and the payments of the dividends due them. In the history of corporations, dividends only form less than half (40%) of the collective stock portfolio of any one investor on his/her returns. Dividends are one of the accepted measures stable

companies get to share their profits with company investors that patronize their shares. But it is also understood that some of the profits can be plough back into the business to acquire modern means of production. This will also fund research and development initiatives of the company as well as other endeavours needed to ensure the long term viability of the company (Thomson Reuters 2009).

This ratio is found by dividing the dividend per share by the earnings per share and is expressed as a percentage. It is a standard of measurement of the percentage of the company's profits it is giving back to the share holders in the form of the dividends. A number of companies exert significant efforts to increase the dividends that the company gives out to their shareholders, even if the amount of earnings that the company actually collects might slightly decrease. This will result in a temporary spike in the amount of payouts to the company shareholders (Thomson 2009).

Dividend Payout Ratio =  $\frac{Dividends \ per \ Common \ Share}{Earnings \ Per \ Share}$ 

or

= <u>Yearly Dividend per Share</u> Earnings per Share

or equivalently:

Dividends

Net Income Dividend Payout Ratio: Source: Investopedia 2010 The process is a device often used by investors to determine if the company will generate a return on their investments for a long term duration. A ratio of greater than one indicates that existing dividends are at a level that cannot be sustained over a long term. This is because a greater than one dividend payout ratio means that the company is dipping into its cash reserves in order to pay dividends, which is not a sustainable trend. However, if a small portion of earnings are being paid back as dividends, one can assume that the remaining cash is being ploughed back into operations, which should result in an increase in the stock price. If the stock price is stagnant or declining, then investors have a valid concern regarding the proper use of corporate earnings (Investopedia, 2009).

Examining the pay out ratio will aid in the focus on the companies that have adequate internal rates of growth to afford the shareholders with the provision of the dividends that is sought at the end of each year. This will also aid the income derived from the portfolio to offset inflation and will afford shareholders with a stable income when retirement finally sets in. Analysts prefer companies that will provide for a 40-60% payout ratio on dividends. This will give a fair amount of the profits of the company to be given to the shareholder and give the company with a sizeable amount of the profits to be ploughed back into the company for internal growth stimulation (Personal Finance 2007).

## 4.2.1.6.2. Cash flow adequacy ratio

The process is one of the most detailed in the determination if the cash flow of a particular company is enough to meet current commitments, particularly in the area of asset acquisition,

payout of dividends and payment of financial obligations (Accounting and Tax 2009). The formula is shown below:

Cash Flow Adequacy Ratio= <u>FixedAssets Long-term Debt paid+Cash Divide</u> Table 1: Cash Flow Adequacy Ratio. Source: Accounting and Tax 2009

It must be noted that not all the expenses listed in the denominator would be a part of the company's balance sheet as far as this study is concerned. For instance, in this case, the US-based companies that are being analysed never paid any dividends while many Ghanaian companies do not undertake long-term debts. Hence, only the expenses that are applicable will be analysed here. Needless to say, a ratio exceeding the value of 1 indicates that the company has good financial health, while a ratio less than 1 might indicate that the company has liquidity problems.

#### 4.2.1.6.3 Reinvestment Ratio

This ratio determines the amount of cash that the company intends to pour back into its business. Unlike other ratios, the value of this ratio does not determine a company's financial health. For instance, a high ratio might indicate a mismanagement of funds due to poor planning, which means a lot of cash is being spent on acquisition of assets that are not really required, or it might also demonstrate the company's strong commitment towards its investors regarding its long term plans. The formula for the ratio is shown below with both the values available in a company's cash flow statement

In the period of several years, the reinvestment ratio must overtake the depreciation-amortization impact ratio to be able to adequately replace depreciating assets at higher costs. The formula for

depreciation-amortization ratio displays the ratio of cash from operations (CFO) resulting from add backs to the balance sheet of the company (David Mielke 1993). Add backs are used to determine the real state of the profitability of the company by adding back expense items to the net tax operating profit (Value Adder 2010). While all the four US-based companies had these components, none of the corresponding Ghanaian companies did. Hence, while the ratio was calculated for US-based companies, a comparison was not possible. Its formula is as follows:

Depreciation – amortization Ratio = Depreciation expenses+Amortization Expenses
Operating Cash Flow
Table 2: Debt-amortization ratio. Source: Pearson Education 2010

#### 4.2.1.6.4 Debt coverage ratio

The *Debt Coverage* formula can also be termed as *Debt Service Coverage Ratio (DSCR)*. This standard is a commonly used benchmark which rates a certain asset's capacity to adequately cover the monthly financial obligations, arrived at by calculating the net operating income of a property divided by the annual debt of that asset or property. *Annual Debt Service* can be defined as the sum of all the interest payments and the principal amounts that the company has paid for loans related to the aforementioned asset. If the ratio is below the value of one (1), this will indicate that income generated by the company's asset is inadequate to cover the payments and the operating expenditures related to the particular asset (Advantage Software LLC 2009).

If the equation bears out a figure of 0.9, this will indicate a negative amount of income for the asset. That means that the asset will only generate income that is sufficient to cover 90% of

the yearly financial obligations for each month if the numbers generated bears out a figure of 1.25. Then the asset will generate an amount that is 1.25 times the annual income as the annual debt obligations for the asset. Lending companies usually require the establishment of a minimum amount for the debt coverage ratio for companies that wish to avail of loans to be able to avail of their loan facilities. In short, companies must attain a certain level of their debt coverage ratio to get a loan from banks or other lending institutions (Advantage 2009).

This ratio measures the capability of the company to pay the annual interest and principal on its debt. Obviously, the ratio will come into picture only for companies who actually rely on debts. This ratio is the least analysed one, as most of the companies did not have this component.

Debt Coverage Ratio =  $\frac{Total \ Operating \ Income}{Total \ Debt \ Service}$ Table 3: Debt Coverage Ratio. Source: Investopedia ULC 2010

Lending companies use the formula to establish whether an income generating asset will provide adequate income to cover the expenses for the operation of the asset and service of the debts of the particular asset. For a company to be able to avail of loan services of a bank or lending institution, the ratio figures must generate a statistic of at least 1.1, while a majority of lenders adhere to the rule that a particular company must generate statistics of at least 1.2 (Advantage 2009).

## Calculating the nine cash flow ratios for the company pairs

#### 4.2.1.7. Starwin Products Ltd. versus Watson Pharmaceuticals Inc.

#### 4.2.1.7.1. Cash flow to sales ratio

Starwin Products Limited, the ratios are as follows:

Year 2003:  $\frac{2945919}{12419041} = 0.23721$  or 23.721%

Year 2004:  $\frac{1227007}{14603729} = 0.08402 \text{ or } 8.402\%$ 

Year 2005:  $\frac{1618321}{16540183} = 0.09784$  or 9.784%

(Ghana Stock Exchange, 2006:87, 88)

Average ratio during the period (2003-2005):  $\frac{0.41907}{3} = 0.13969$  or 13.969%

Watson Pharmaceuticals Inc., the ratios are as follows:

Year 2003:  $\frac{262517}{1457722} = 0.18009 \text{ or } 18.009\%$ 

Year 2004:  $\frac{308269}{1640551} = 0.18790$  or 18.790%

Year 2005:  $\frac{325503}{1646203} = 0.19773$  or 19.773%

(Watson Pharmaceuticals 2006: 8)

Average ratio during the period (2003-2005):  $\frac{0.56572}{3} = 0.18857$  or 18.857%

## 4.2.1.7.2. Operations index

Starwin Products Limited, the ratios are as follows:

Year 2003:  $\frac{2945919}{1885647} = 1.562$ Year 2004:  $\frac{1227007}{1029286} = 1.192$ Year 2005:  $\frac{1618321}{3038921} = 0.533$ (Ghana Stock Exchange, 2006:87, 88)

Average ratio during the period (2003-2005):  $\frac{3.287}{3} = 1.096$ 

## Watson Pharmaceuticals Inc., the ratios are as follows:

	262517	
Year 2003:	338913	= 0.774

Year 2004:  $\frac{308269}{265940} = 1.159$ 

Year 2005:  $\frac{325503}{218512} = 1.490$ 

(Watson Pharmaceuticals, 2006:8)

Average ratio during the period (2003-2005):  $\frac{3.423}{3} = 1.143$ 

## 4.2.1.7.3. Cash flow returns on assets

Starwin Products Limited, the ratios are as follows:

Year 2003: $\frac{2945919}{967942} = \frac{2945919}{7198869} = 0.36072 \text{ or } 36.072\%$
Year 2004: $\frac{1227007}{1485050} = \frac{1227007}{26768874} = 0.04584 \text{ or } 4.584\%$
Year 2005: $\frac{1618321}{8706836}$ $\frac{14538674}{14538674} = \frac{1618321}{23245510} = 0.06962 \text{ or } 6.962\%$
Average ratio during the period (2003-2005): $\frac{0.47618}{3} = 0.15873 \text{ or } 15.873\%$

(Ghana Stock Exchange, 2006:87)

Watson Pharmaceuticals Inc., the ratios are as follows:

Year 2003:  $\frac{262517}{3268134} = 0.08033 \text{ or } 8.033\%$ 

Year 2004:  $\frac{308269}{3231956} = 0.09538 \text{ or } 9.538\%$ 

Year 2005:  $\frac{325503}{3077187} = 0.10578$  or 10.578%

(Watson Pharmaceuticals, 2006:8)

Average ratio during the period (2003-2005):  $\frac{0.28149}{3} = 0.09383$  or 9.383%
## 4.2.1.7.4. Long-term debt payment

Starwin Products Limited, the ratios are as follows:

For year 2003:  $\frac{1096140}{2945919} = 0.372$ 

For year 2004:  $\frac{519139}{1227007} = 0.423$ 

For year 2005:  $\frac{0}{1618321} = 0$ 

(Ghana Stock Exchange, 2006:87, 88)

Average ratio during the period (2003-2005):  $\frac{0.795}{3} = 0.265$ 

# Watson Pharmaceuticals Inc., the ratios are as follows:

Year 2003: 
$$\frac{722535}{262517} = 2.752$$

Year 2004:  $\frac{587653}{308269} = 1.906$ 

Year 2005:  $\frac{587935}{325503} = 1.778$ 

(Watson Pharmaceuticals, 2006:8)15

Average ratio during the period (2003-2005):  $\frac{6.436}{3} = 2.145$ 

## 4.2.1.7.5. Dividend payout

Starwin Products Limited, the ratios are as follows:

Year 2003:  $\frac{74.99}{305.01} = 0.24586 \text{ or } 24.586\%$ 

Year 2004:  $\frac{0}{1.55} = 0$  or 0%

Year 2005:  $\frac{0}{31.26} = 0 \text{ or } 0 \%$ 

Average ratio during the period (2003-2005):  $\frac{0.24586}{3} = 0.08195$  or 8.195%

(Watson Pharmaceuticals, Inc. has never paid any dividends; hence, its dividend payout ratio is 0.)

## 4.2.1.7.6. Cash flow adequacy ratio

## **Starwin Products Limited**

Year 2003:  $\frac{2945919}{159993 \ 2021599 \ 559} = 1.350$ 

Year 2004:  $\frac{1227007}{762737}$  4723988 133475 = 0.218

Year 2005:  $\frac{1618321}{7741855}$  142306 5855 = 0.205

(Ghana Stock Exchange 2006: 87, 88)

Average ratio during the period (2003-2005):  $\frac{1.773}{3} = 0.591$ 

## Watson Pharmaceuticals Inc.

Year 2003:  $\frac{262517}{151359 \ 0 \ 0} = 1.736$ 

Year 2004:  $\frac{308269}{69209 \ 0 \ 0} = 4.464$ 

Year 2005:  $\frac{325503}{78833 \ 0 \ 0} = 4.132$ 

(Watson Pharmaceuticals, 2006:8)

Average ratio during the period (2003-2005):  $\frac{10.332}{3} = 3.344$ 

## 4.2.1.7.7. Reinvestment ratio

## **Starwin Products Limited**

Year 2003:  $\frac{159993}{2945919} = 0.054$ 

Year 2004:  $\frac{762737}{1227007} = 0.006$ 

Year 2005:  $\frac{7741855}{1618321} = 4.784$ 

(Ghana Stock Exchange, 2006:87, 88)

Average ratio during the period (2003-2005):  $\frac{4.844}{3} = 1.615$ 

#### Watson Pharmaceuticals Inc.

Year 2003:  $\frac{151359}{262517} = 0.576$ Year 2004:  $\frac{69209}{308269} = 0.224$ 78833

Year 2005:  $\frac{78833}{325503} = 0.242$ 

(Watson Pharmaceuticals, 2006:8)

Average ratio during the period (2003-2005):  $\frac{1.042}{3} = 0.347$ 

## 4.2.1.7.8. Depreciation/amortisation impact ratio

Financial data reported from Starwin will not necessitate the use of the formula as the company has indicated no amount towards this expense. Again to reiterate the definition, amortisation as well as depreciation are essentially debts paid against tangible and intangible assets. While the company has some loans and overdrafts, it does not indicate any amount specifically under these headings.

The following information on Watson Pharmaceuticals, Inc. is listed below in the tables:

## Watson Pharmaceuticals Inc.

Year 2003: 
$$\frac{28478}{262517} = 0.382$$
  
Year 2004:  $\frac{34379}{308269} = 0.234$   
Year 2005:  $\frac{42787}{325503} = 0.635$ 

(Watson Pharmaceuticals, 2006:8)

Average ratio during the period (2003-2005):  $\frac{1.251}{3} = 0.417$ 

## 4.2.1.7.9. Debt coverage ratio

## **Starwin Products Limited**

Year 2003:  $\frac{1855647}{2021599} = 0.918$ 

Year 2004:  $\frac{526645}{4723988} = 0.111$ 

Year 2005:  $\frac{2410304}{142306} = 16.938$ 

(Ghana Stock Exchange, 2006:87, 88)

Average ratio during the period (2003-2005):  $\frac{17.969}{3} = 5.989$ 

During the period mentioned, i.e., 2003-2005, Watson Pharmaceuticals, Inc. did not pay any amount for interest or principal on its long term debt.

## 4.2.1.8. Fan Milk Ltd. versus Dean Foods Co.

4.2.1.8.1. Cash flow to sales ratio

#### **Fan Milk Limited**

Year 2003:  $\frac{40857}{168867} = 0.24195 = 24.195\%$ 

Year 2004:  $\frac{59994}{255369} = 0.23493 = 23.493\%$ 

Year 2005:  $\frac{60685}{312464} = 0.19421 = 19.421\%$ 

(Ghana Stock Exchange, 2006:54, 55)

Average ratio during the period (2003-2005):  $\frac{0.67109}{3} = 0.22340$  or 22.340%

## **Dean Foods Co.**

Year 2003:  $\frac{524770}{8146103} = 0.06441$  or 6.441%

Year 2004:  $\frac{528597}{9725548} = 0.05435$  or 5.435%

Year 2005:  $\frac{559660}{10174718} = 0.05500 \text{ or } 5.500\%$ 

(Dean Foods, 2006:22)

Average ratio during the period (2003-2005):  $\frac{0.17376}{3} = 0.05792$  or 5.792%

# 4.2.1.8.2. **Operations index**

## Fan Milk Limited

Year 2003:  $\frac{40857}{29028} = 1.407$ 

Year 2004:  $\frac{59994}{38682} = 1.551$ 

Year 2005:  $\frac{60685}{48602} = 1.249$ 

(Ghana Stock Exchange, 2006:54, 55)

Average ratio during the period (2003-2005):  $\frac{4.207}{3} = 1.402$ 

## Dean Foods Co.

Year 2003:  $\frac{524770}{395574} = 1.327$ 

Year 2004:  $\frac{528597}{344679} = 1.533$ 

Year 2005:  $\frac{559660}{420548} = 1.331$ 

(Dean Foods, 2006:22)

Average ratio during the period (2003-2005):  $\frac{4.191}{3} = 1.397$ 

4.2.1.8.3. Cash flow returns on assets

#### **Fan Milk Limited**

Year 2003:  $\frac{40857}{30884} = \frac{40857}{72658} = 0.56232 = 56.232\%$ Year 2004:  $\frac{59994}{71749} = \frac{59994}{119028} = 0.50403 = 50.403\%$ Year 2005:  $\frac{60685}{96016} = \frac{60685}{157983} = 0.38412 = 38.412\%$ (Ghana Stock Exchange, 2006:54, 55)

Average ratio during the period (2003-2005):  $\frac{1.45047}{3} = 0.48349$  or 48.349%

## Dean Foods Co.

Year 2003:  $\frac{524770}{6992536} = 0.07505 \text{ or } 7.505\%$ 

Year 2004:  $\frac{528597}{7756368} = 0.06815$  or 6.815%

Year 2005:  $\frac{559660}{7050884} = 0.07937$  or 7.937%

(Dean Foods, 2006:22)

Average ratio during the period (2003-2005):  $\frac{0.22257}{3} = 0.07419$  or 7.419%

#### 4.2.1.8.4. Long-term debt payment

Data for <u>Fan Milk Limited</u>, did not require the use of the equation as the company's income statement shows that the company did not have any long term loan in the period 2001-2005

## **Dean Foods Co.**

Year 2003:  $\frac{2777928}{524770} = 5.294$ 

Year 2004:  $\frac{3214269}{528597} = 6.081$ 

Year 2005:  $\frac{3386848}{559660} = 6.052$ 

(Dean Foods, 2006:22)

Average ratio during the period (2003-2005):  $\frac{17.427}{3} = 5.809$ 

## 4.2.1.8.5. Dividend payout

#### Fan Milk Limited

Year 2003:  $\frac{192}{974.2} = 0.19712$  or 19.712%

Year 2004:  $\frac{300}{1390.0} = 0.21583 \text{ or } 21.583\%$ 

Year 2005:  $\frac{400}{1780.7} = 0.22463$  or 22.463%

Average ratio during the period (2003-2005):  $\frac{0.63758}{3} = 0.21253 \text{ or } 21.53\%$ 

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**Dean Foods, Co**. has, historically, not paid dividends on its common stock, and financial calculations assume that the company has reinvested earnings for the period 2003 to 2005. Hence, its dividend payout ratio is 0.

## 4.2.1.8.6. Cash flow adequacy ratio

## Fan Milk Limited

Year 2003:  $\frac{40857}{14798 \ 806 \ 2811} = 2.219$ 

Year 2004:  $\frac{59994}{58502 \ 8866 \ 3799} = 0.843$ 

Year 2005:  $\frac{60685}{46454 \ 11311 \ 5545} = 0.961$ 

(Ghana Stock Exchange, 2006:54, 55)

Average ratio during the period (2003-2005):  $\frac{4.023}{3} = 1.341$ 

#### **Dean Foods Co.**

Year 2003:  $\frac{524770}{271576}$  180158 0 = 1.162

Year 2004:  $\frac{528597}{333804}$  = 1.113

Year 2005:  $\frac{559660}{306837 \ 108243 \ 0} = 1.348$ 

(Dean Foods, 2006:22)

Average ratio during the period (2003-2005):  $\frac{3.623}{3} = 1.208$ 

## 4.2.1.8.7. Reinvestment ratio

#### **Fan Milk Limited**

Year 2003:  $\frac{14798}{40857} = 0.362$ 

Year 2004:  $\frac{58502}{59994} = 0.975$ 

Year 2005:  $\frac{46454}{60685} = 0.765$ 

(Ghana Stock Exchange, 2006:54, 55)

Average ratio during the period (2003-2005):  $\frac{2.102}{3} = 0.701$ 

## **Dean Foods Co.**

Year 2003:  $\frac{271576}{524770} = 0.517$ 

Year 2004: 
$$\frac{333804}{528597} = 0.631$$

Year 2005:  $\frac{306837}{559660} = 0.548$ 

(Dean Foods, 2006:22)

Average ratio during the period (2003-2005):  $\frac{1.696}{3} = 0.565$ 

# 4.2.1.8.8. Depreciation/amortisation impact ratio

Data collated from **Fan Milk Limited**, as collated, did not require utilization of the ratio as the company did not incur or defer liabilities/ accountabilities with regards to payment of income taxes.

**Dean Foods Co.**, the ratios are as follows:

Year 2003:  $\frac{176668}{524770} = 0.337$ 

Year 2004:  $\frac{206589}{528597} = 0.391$ 

Year 2005:  $\frac{221291}{559660} = 0.395$ 

(Dean Foods, 2006:22)

Average ratio during the period (2003-2005):  $\frac{1.123}{3} = 0.374$ 

## 4.2.1.8.9. Debt coverage ratio

## Fan Milk Limited

Year 2003:  $\frac{28486}{806} = 35.424$ 

Year 2004:  $\frac{37013}{8866} = 4.174$ 

Year 2005:  $\frac{46941}{11311} = 4.150$ 

(Ghana Stock Exchange, 2006:54, 55)

Average ratio during the period (2003-2005):  $\frac{43.778}{3} = 14.593$ 

## **Dean Foods Co.**

Year 2003:  $\frac{634433}{180158} = 3.521$ Year 2004:  $\frac{587401}{141227} = 4.159$ Year 2005:  $\frac{607091}{108243} = 5.609$ 

Average ratio during the period (2003-2005):  $\frac{14.289}{3} = 4.763$ 

## 4.2.1.9. Guinness Ghana Breweries Limited versus Boston Beer Company Inc.

4.2.1.9.1. Cash flow to sales ratio

#### **Guinness Ghana Breweries Limited,**

Year 2003:  $\frac{129146}{362080} = 0.35668$  or 35.668%

Year 2004:  $\frac{126638}{527211} = 0.24020 \text{ or } 24.020\%$ 

Year 2005:  $\frac{211145}{632981} = 0.33357$  or 33.357%

(Ghana Stock Exchange, 2006:60, 61)

Average ratio during the period (2003-2005):  $\frac{0.93045}{3} = 0.31015$  or 31.015%

# **Boston Beer Company Inc.**

Year 2003:  $\frac{15870}{230103} = 0.06897$  or 6.897%

Year 2004:  $\frac{19485}{239680} = 0.08129$  or 8.129%

Year 2005:  $\frac{23316}{263255} = 0.08857$  or 8.857%

(Boston Beer Company, 2006:39)

	0.23883	
Average ratio during the period (2003-2005):	3	= 0.07961 or 7.961%

# 4.2.1.9.2. Operations index

Year 2003:  $\frac{129146}{65188} = 1.981$ 

Year 2004:  $\frac{126638}{77314} = 1.638$ 

Year 2005:  $\frac{211145}{111212} = 1.898$ 

(Ghana Stock Exchange, 2006:60, 61)

Average ratio during the period (2003-2005):  $\frac{5.517}{3} = 1.839$ 

## **Boston Beer Company Inc.**

Year 2003:  $\frac{15870}{16974} = 0.935$ Year 2004:  $\frac{19485}{20078} = 0.970$ Year 2005:  $\frac{23316}{25519} = 0.932$ 

(Boston Beer Company, 2006:39)

Average ratio during the period (2003-2005):  $\frac{2.837}{3} = 0.946$ 

#### 4.2.1.9.3. Cash flow return on assets

# **Guinness Ghana Breweries Limited**

Year 2003:  $\frac{129146}{106495} = \frac{129146}{230429} = 0.56046 \text{ or } 56.046\%$ Year 2004:  $\frac{126638}{318623} = \frac{1214144}{1144} = \frac{126638}{459767} = 0.27544 \text{ or } 27.544\%$ 

Year 2005:  $\frac{211145}{693029} = \frac{211145}{863501} = 0.24452 \text{ or } 24.452\%$ 

(Ghana Stock Exchange, 2006:60, 61)

Average ratio during the period (2003-2005):  $\frac{1.08042}{3} = 0.36014$  or 36.014%

#### **Boston Beer Company Inc.**

Year 2003:  $\frac{15870}{87354} = 0.18167 \text{ or } 18.167\%$ Year 2004:  $\frac{19485}{107462} = 0.18132 \text{ or } 18.132\%$ Year 2005:  $\frac{23316}{119054} = 0.19584 \text{ or } 19.584\%$ (Boston Beer Company, 2006:39) Average ratio during the period (2003-2005):  $\frac{0.55883}{3} = 0.18628 \text{ or } 18.628\%$ 

## 4.2.1.9.4. Long-term debt payment

For <u>Guinness Ghana Breweries Limited</u>, the company did not incur any long term debt obligations, hence negating the use of the formula in this instance, as the company only relied on short and medium term loans to raise cash.

The **Boston Beer Company, Inc.** obtained a credit line that provides up to \$20 million in revolving credit involving payment of a commitment fee of 0.15% for the unused portion of the facility in addition to the responsibility of maintaining and disclosing the specified levels of tangible net worth and net income. However, the company, while complying

with all the requisite terms of usage of the credit facility, had no outstanding borrowings during the period of analysis, i.e., 2003 to 2005. Hence, the debt-related ratios for this period do not apply.

# 4.2.1.9.5. Dividend payout

#### **Guinness Ghana Breweries Limited**

Year 2003:  $\frac{250.00}{4309.75} = 0.05801 \text{ or } 5.801\%$ 

Year 2004:  $\frac{300.00}{540.45} = 0.55093$  or 55.093%

Year 2005:  $\frac{99.17}{0.52} = 190.711$  or 19071.1%

Average ratio during the period (2003-2005):  $\frac{191.31994}{3} = 63.773 \text{ or } 6377.3\%$ 

**Boston Beer Company Inc**., since its inception, has never paid dividends and does not anticipate paying any dividend on its common stock in the foreseeable future.

## 4.2.1.9.6. Cash flow adequacy ratio

## **Guinness Ghana Breweries Limited**

Year 2003:  $\frac{129146}{88096 \ 0 \ 22806} = 1.164$ 

Year 2004:  $\frac{126638}{166388 \ 0 \ 28469} = 0.650$ 

Year 2005:  $\frac{211145}{424637 \ 0 \ 38969} = 0.455$ 

(Ghana Stock Exchange, 2006:60, 61)

Average ratio during the period (2003-2005):  $\frac{2.269}{3} = 0.756$ 

# **Boston Beer Company Inc.**

Year 2003:  $\frac{15870}{1729 \ 0 \ 0} = 9.174$ 

Year 2004:  $\frac{19485}{4559 \ 0 \ 0} = 4.273$ 

Year 2005:  $\frac{23316}{13973 \ 0 \ 0} = 1.669$ 

(Boston Beer Company, 2006:39)

Average ratio during the period (2003-2005):  $\frac{15.116}{3} = 5.039$ 

## 4.2.1.9.7. Reinvestment ratio

#### **Guinness Ghana Breweries Limited**

Year 2003:  $\frac{88096}{129146} = 0.688$ 

Year 2004:  $\frac{166388}{126638} = 1.314$ 

Year 2005: 
$$\frac{424637}{211145} = 2.011$$

(Ghana Stock Exchange, 2006:60, 61)

Average ratio during the period (2003-2005):  $\frac{4.013}{3} = 1.338$ 

#### **Boston Beer Company Inc.**

- Year 2003:  $\frac{1729}{15870} = 0.109$
- Year 2004:  $\frac{4559}{19485} = 0.234$

Year 2005:  $\frac{13973}{23316} = 0.599$ 

(Boston Beer Company, 2006:39)

Average ratio during the period (2003-2005):  $\frac{0.942}{3} = 0.314$ 

# 4.2.1.9.8. Depreciation/amortisation impact ratio

<u>Guinness Ghana Breweries Limited</u>, did not defer on payment of income taxes, which is one of the elements for use of depreciation-amortization equations. As earlier mentioned in the paper, amortisation, as well as depreciation, is essentially composed of debts paid against tangible and intangible assets, and the company, while it had some loans and overdrafts, did not indicate amounts specifically under these entries.

## **Boston Beer Company Inc.**

Year 2003:  $\frac{7106}{15870} = 0.448$ Year 2004:  $\frac{5025}{19485} = 0.258$ Year 2005:  $\frac{4521}{23316} = 0.194$ (Boston Beer Company, 2006:39)

Average ratio during the period (2003-2005):  $\frac{0.9}{3} = 0.3$ 

## 4.2.1.9.9. Debt coverage ratio

For <u>Guinness Ghana Breweries Limited</u>, The Company did not acquire any loans on a long term basis, as the business relied on short and medium term loans to raise needed capital requirements. In addition, the bank overdrafts and loan amounts are lumped into a single numeral, which further makes the analysis difficult. Hence, debt-related ratios were not taken into account for this company.

**Boston Beer Company, Inc.** has a credit facility that provides for as much as \$20 million revolving line of credit which involves paying a commitment fee of 0.15% for the unused portion of the facility in addition to the responsibility of maintaining and disclosing the specified levels of tangible net worth and net income. However, the company, while complying with all the requisite terms of using the credit line facility,

had no outstanding borrowings during the period of the analysis, i.e., 2003 to 2005. Hence, the debt-related ratios for this period do not apply.

## 4.2.1.10. Clydestone Ghana Limited versus Ciena Corporation

# 4.2.1.10.1. Cash flow to sales ratio

#### **Clydestone Ghana Limited**

Year 2003:  $\frac{1806236}{8942474} = 0.20198$  or 20.198%

Year 2004:  $\frac{2886037}{12834755} = 0.22486$  or 22.486%

Year 2005:  $\frac{4080407}{18471352} = 0.22090$  or 22.0904%

(Ghana Stock Exchange, 2006:42, 43)

Average ratio during the period (2003-2005):  $\frac{0.64774}{3} = 0.21591$  or 21.591%

## **Ciena Corporation**

Year 2003:  $\frac{283136}{1611467} = 0.17570$  or 17.570%

Year 2004:  $\frac{298707}{1268823} = 0.23542$  or 23.542%

Year 2005:  $\frac{427257}{1093487} = 0.39073$  or 39.073%

(Ciena, 2006:33)

Average ratio during the period (2003-2005):  $\frac{0.80185}{3} = 0.26728$  or 26.728

## 4.2.1.10.2. Operations index

## **Clydestone Ghana Limited**

Year 2003:  $\frac{1806236}{1057129} = 1.709$ 

Year 2004:  $\frac{2886037}{1873983} = 1.540$ 

Year 2005:  $\frac{4080407}{2775827} = 1.470$ 

(Ghana Stock Exchange, 2006:42, 43)

Average ratio during the period (2003-2005):  $\frac{4.719}{3} = 1.573$ 

# \* Ciena Corporation

Year 2003:  $\frac{283136}{73045} = 3.876$ 

Year 2004:  $\frac{298707}{71753} = 4.163$ 

Year 2005:  $\frac{427257}{136190} = 3.137$ 

(Ciena, 2006:33)

Average ratio during the period (2003-2005):  $\frac{11.176}{3} = 3.725$ 

## 4.2.1.10.3. Cash flow returns on assets

The reports for the company are listed in the table as follows:

# **Clydestone Ghana Limited**

1806236 _ 1806236				
Year 2003: $1252337 \ 2641169 = 3893506 = 0.46391 \text{ or } 46.391\%$				
2886037 _ 2886037				
Year 2004: $3426395 \ 6823260 = 10249655 = 0.28157 \text{ or } 28.157\%$				
4080407 _ 4080407				
Year 2005: $2959448  12975775 = 15935223 = 0.25606 \text{ or } 25.606\%$				
(Ghana Stock Exchange, 2006:42, 43)				
1.00154				
Average ratio during the period (2003-2005): $3 = 0.33385$ or 33.385%				

# **Ciena Corporation**

Year 2003:  $\frac{283136}{2378165} = 0.11906$  or 11.906%

Year 2004:  $\frac{298707}{2317054} = 0.12892$  or 12.892%

Year 2005:  $\frac{427257}{1675229} = 0.25504$  or 25.504%

(Ciena, 2006:33)

Average ratio during the period (2003-2005):  $\frac{0.50302}{3} = 0.16767$  or 16.767%

## 4.2.1.10.4. Long-term debt payment

# **Clydestone Ghana Limited**

Year 2003:  $\frac{0}{1806236} = 0$ 

Year 2004: 
$$\frac{0}{2886037} = 0$$

Year 2005:  $\frac{0}{4080407} = 0$ 

(Ghana Stock Exchange, 2006:42, 43)

Average ratio during the period (2003-2005):  $\frac{0}{3} = 0$ 

# \* Ciena Corporation

Year 2003:  $\frac{730428}{283136} = 2.580$ 

Year 2004:  $\frac{690000}{298707} = 2.310$ 

Year 2005:  $\frac{648752}{427257} = 1.518$ 

(Ciena, 2006:33)

Average ratio during the period (2003-2005):  $\frac{6.408}{3} = 2.136$ 

## 4.2.1.10.5. Dividend payout

#### **Clydestone Ghana Limited**

Year 2003:  $\frac{0}{28.75} = 0$  or 0%

Year 2004:  $\frac{20.00}{40.18} = 0.49776 \text{ or } 49.776\%$ 

Year 2005:  $\frac{33.92}{51.40} = 0.65992$  or 65992%

Average ratio during the period (2003-2005):  $\frac{1.15768}{3} = 0.38539$  or 38.589%

In its report for the year, <u>Ciena Corporation</u> mentioned in its Annual Report that it had not paid cash dividends on its capital stock, since the company intends to retain its earnings for use in the business. Also, the company does not anticipate paying any cash dividends in the foreseeable future. Hence, the dividend payout ratio is 0.

#### 4.2.1.10.6. Cash flow adequacy ratio

Clydestone Ghana Limited, the ratios are as follows:

Year 2003:  $\frac{1806236}{1811910} = 0.903$ 

Year 2004:  $\frac{2886037}{630665 \ 0 \ 0} = 4.576$ 

Year 2005:  $\frac{4080407}{519381 \ 0 \ 64871} = 6.984$ 

(Ghana Stock Exchange, 2006:42, 43)

Average ratio during the period (2003-2005):  $\frac{12.463}{3} = 4.154$ 

Ciena Corporation, the ratios are as follows:

Year 2003:  $\frac{283136}{11315 \ 0 \ 0} = 25$ Year 2004:  $\frac{298707}{32999 \ 0 \ 0} = 9.058$ Year 2005:  $\frac{427257}{29544 \ 0 \ 0} = 14.472$ (Ciena, 2006:33)

Average ratio during the period (2003-2005):  $\frac{48.53}{3} = 16.177$ 

# 4.2.1.10.7. Investment ratio

**<u>Clydestone Ghana Limited</u>**, the ratios are as follows:

Year 2003:  $\frac{1811910}{1806236} = 1.003$ 

Year 2004:  $\frac{630665}{2886037} = 0.281$ 

Year 2005:  $\frac{519831}{4080407} = 0.127$ 

(Ghana Stock Exchange, 2006:42, 43)

Average ratio during the period (2003-2005):  $\frac{1.411}{3} = 0.470$ 

Ciena Corporation, the ratios are as follows:

Year 2003:  $\frac{11315}{283136} = 0.0400$ Year 2004:  $\frac{32999}{298707} = 0.1104$ Year 2005:  $\frac{29544}{427257} = 0.0691$ (Ciena, 2006:33)

Average ratio during the period (2003-2005):  $\frac{0.2195}{3} = 0.0731$ 

# 4.2.1.10.8. Depreciation/amortization impact ratio

For <u>Clydestone Ghana Limited</u>, this ratio was not taken into account as analyses of the income statement, balance sheet, and cash flow statement specifically show that the company has not deferred income tax liabilities, one of the components of which are the expenses due to depreciation and amortisation. Amortisation, as well as depreciation, is composed essentially of debts paid against tangible and intangible assets. The company, while it had some loans and overdrafts, did not indicate amounts specifically under these entries.

Ciena Corporation, the ratios are as follows:

Year 2003:  $\frac{11948 \ 80842}{283136} = 0.328$ Year 2004:  $\frac{26924 \ 72213}{298707} = 0.332$ Year 2005:  $\frac{13636 \ 33377}{427257} = 0.110$ (Ciena, 2006:33)

Average ratio during the period (2003-2005):  $\frac{0.77}{3} = 0.257$ 

#### 4.2.1.10.9. Debt coverage ratio

Clydestone Ghana Limited, the ratios are as follows:

Year 2003:  $\frac{1806236}{188133} = 9.600$ 

For the years 2004 and 2005 no loans were repaid, hence this ratio does not apply.

(Ghana Stock Exchange, 2006:42, 43)

For <u>Ciena Corporation</u>, this ratio was not taken into account as analyses of the income statement, balance sheet, and cash flow statement show no indication of debt payments as part of the current liabilities. The company paid the amount as a lump sum depending on its capability in a financial year. The liabilities of the company are in terms of loan restructuring and unfavourable leases.

## 4.3 Test of the Hypothesis

## 4.3.1 Theory of Quantitative Data Analysis

## 4.3.1.1. The Scientific Method

The natural, physical, and social scientists that use statistical methods to reach conclusions all approach the problems by the same general procedure, *the scientific method*. The steps involved in this method are:

- 1. State the problem
- **2.** Formulate the Hypothesis
- 3. Design the Experiment or Survey
- 4. Make Observations
- 5. Interpret the Data
- 6. Draw Conclusions

## 4.4 Role of Hypotheses in a Research Study

The inception point of any process is a theoretical domain, varying between abstract approaches and fairly low-level theories to explain a specific phenomenon. By and large, the theories that are most likely to receive direct empirical attention are those which are at a fairly low level of generality. Merton (1967) referred to these as *theories of the middle range*, denoting theories that

stand between general, abstract theories and empirical findings. Once a theory has been formulated, it is likely that researchers will want to test it. Does the theory hold water when faced with empirical evidence? However, it is rarely possible to test a theory as such. Instead, researchers are more likely to find that a hypothesis that relates to a limited facet of the theory, will be deduced from the theory and submitted to a searching enquiry. Hypotheses very often take the form of relationships between two or more entities (Bryman and Cramer 2005: 5).

It is a commonly held view that research should be directed towards testing hypotheses. Clearly stated, hypotheses can be extremely useful in helping to find answers to 'why' questions. In fact, it is difficult to answer a 'why' question without having some idea of where to look for answers. Hence, hypotheses provide possible answers to 'why' question. In some types of research, hypotheses are developed at the outset to give this direction; in other types of research, the hypotheses may evolve as the research proceeds. When research starts out with one or more hypotheses, they should ideally be derived from a theory of some kind, preferably expressed in the form of a set of propositions. Hypotheses that are plucked out of thin air, or are just based on hunches, usually make limited contributions to the development of knowledge because they are unlikely to connect with the existing state of knowledge. Hypotheses are normally not required to answer 'what' questions. 'What' questions seek descriptions; hence, they can be answered in a relatively straightforward way – by collecting relevant data. Thus, theoretical use of hypotheses should not be confused with their statistical use (Blaikie 2003: 13-14).

In order to assess the validity of a hypothesis, it is necessary to develop measures of the constituent concepts. This process is often referred to as *operationalisation*, following

expositions of the measurement process in physics. In effect, what is happening here is the translation of the concepts into variables; attributes on which relevant objects (individuals, firms, nations etc.) differs. In experimental research, especially in the field of psychology, the measurement of concepts is achieved through the observation of people rather than through the administration of questionnaires. Another way in which concepts may be operationalised is through the analysis of existing statistics (Bryman and Cramer 2005: 6).

If the analysis of data suggests that a hypothesis is confirmed, this result can be fed back into the theory that prompted it. To refute a hypothesis can be just as important in that it may suggest that the theory is faulty or at the very least in need of revision. Sometimes, the hypothesis may be confirmed in some respects only. For example, a multivariate analysis may suggest that a relationship between two variables pertains only to some members of a sample, but not others. Such finding will require a reformulation of the theory. Not all findings will necessarily relate directly to the hypothesis (Bryman & Cramer 2005:8).

#### 4.4.1 Analysis of ratios

The use of cash flow ratios for our study is with the intention of understanding the financial statements of our subject companies. To indicate the scope of our understanding, we understand the financial statements of companies in an investors' standpoint, which is that earnings accompanied by cash flows are worth more than earnings that are not (Friedlob, and Welton, year, p. 164).

The variances of cash flow ratios obtained in our study allow us to understand managerial decisions and implications that reflect the companies' performances in a particular economy.

The first hypothesis of the present research study is given below:

*H1: The financial performances of companies in the merging markets are comparable to those from the developed economies.* 

In order to judge the validity of the hypothesis, four Ghanaian companies in different consumer sectors were compared with four US-based companies on the nine cash flow ratios proposed by Giacomino and Mielke. The conclusions from the analysis for each ratio are as follows:

## 4.4.1.1. Cash Flow to sales ratio

This is the primary cash flow ratio and measures the ability of a company to convert its revenue into its cash flow. Comparing Starwin with Watson pharmaceuticals, it can be seen that Watson Pharmaceuticals with a mean of 0.18857 is consistent during the period. However, Starwin starts with a high ratio in 2003 and slumps behind during the following year but with a slight increase in 2005. Consequently, it ended with a mean of 0.13969. Comparing Fan Milk with a mean of 0.22340 and Dean Foods recording a mean of 0.05792, it can be seen that Fan Milk has a better value of ratio as compared to Dean Foods even though the Ghanaian company has her ratios for the period under study- 2003 to 2005- declining yearly. This trend is echoed when Guinness Ghana is compared with Boston Beer with the former recording a mean of 0.31015 and the latter having a mean of 0.07961. The reason for this might be because of the immense competition

pressures and the corresponding expenditure on advertising, sales promotion as well as effective credit control. With regard to Comparing Clydestone and Ciena however, shows comparative and sustained ratios for the period under study. However, the latter achieved a mean of 0.26728 which is slightly higher as compared to 0.21591 recorded by the former. This might be because the pressures on the B2B industry are similar across the world.

With Ghanaian companies performing better in the milk & milk products as well as in the alcoholic beverages industries, the US companies dominated the pharmaceutical and telecommunication industries as far as cash flow to sales ratios are concerned. On the country level, the industries in the US pooled a lower overall mean ratio of 0.14835 as against that of 0.22229 for Ghana.(Table 1).

Industry	Company	2003	2004	2005	Average
Pharmaceuticals	Starwin Products	0.23721	0.08402	0.09784	0.13969
Pharmaceuticals	Watson Pharmaceuticals	0.18009	0.18790	0.19773	0.18857
Milk & Milk Products	Fan Milk	0.24195	0.23493	0.19421	0.22340
Milk & Milk Products	Dean Foods	0.06441	0.05435	0.05500	0.05792
Alcoholic Beverages	Guinness Ghana	0.35668	0.24020	0.33357	0.31015
Alcoholic Beverages	Boston Beer	0.06897	0.08129	0.08857	0.07961

Telecommunications	Clydestone Ghana	0.20198	0.22286	0.22090	0.21591
Telecommunications	Ciena Corporation	0.17570	0.23542	0.39073	0.26728
Ghana Companies					0.22229
US-Based Companies					0.14835

## **4.4.1.2. Operations Index**

This ratio measures the profits of the company in comparison to the revenue generated. Comparison between Starwin and Watson Pharmaceuticals indicates that the ratios during the three year period have been on the decline for the former company whilst the latter records increasing ratios for the same period. Consequently, average ratios of 1.096 and 1.143 are recorded for Starwin products and Watson pharmaceutical respectively. For Fan Milk and Dean Foods, they have almost similar ratios that are maintained consistently over the three-year period in focus. However, the former company achieved a slightly higher average of 0.005 over the latter. As regard the corresponding ratios for Guinness Ghana, they are double to that of Boston Beer which is the only company among all the four US-based companies to have a consistent ratio and an average ratio of less than 1 at 0.946. Ciena, on the other hand, is the only one among the four US-based companies to have extremely high ratios with an average of 3.725. While

Clydestone Ghana is nowhere near 50% of this value, it still maintained a healthy ratio above 1 at 1.573 despite the fact that it experienced declining ratios over the period under study.

With the Ghanaian companies in the milk product and the alcoholic industries out- performed their US counterparts in the same industries, the pharmaceutical and telecommunication industries are dominated by the US.

Over-all, the US industries, on the average, performed better under the operating Index ratio than the Ghanaian industries which achieved 1.478 as against 1.803.(Table II)

Industry	Company	2003	2004	2005	Average
Pharmaceuticals	Starwin Products	1.562	1.192	0.533	1.096
Pharmaceuticals	Watson Pharmaceuticals	0.774	1.159	1.490	1.143
Milk & Milk Products	Fan Milk	1.407	1.551	1.249	1.402
Milk & Milk Products	Dean Foods	1/327	1.533	1.331	1.397
Alcoholic Beverages	Guinness Ghana	1.981	1.638	1.898	1.839
Alcoholic Beverages	Boston Beer	0.935	0.970	0.932	0.946
Felecommunications	Clydestone	1.709	1.540	1.470	1.573

Table II – Opera	ating Index Ratio Com	parison of Companies
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	Ghana				
Felecommunications	Ciena	3.876	4.163	3.137	3.725
	Corporation				
Ghana Companies					1.478
US-Based					1.803
Companies					

#### 4.4.1.3. Cash flow return on assets

This ratio is used to compare the business performances among various companies in the industry. The ratio is generally expected to be higher for a good company. Comparing Starwin and Watson pharmaceuticals, it can be seen that the Ghanaian company after making a high ratio of 0.36072 in 2003 experiences a declining ratios in the subsequent years. Notwithstanding this, it chalks an average of 0.15873 as against that of 0.09383 for Watson pharmaceutical which ratios are on the ascendency during 2003-2005. Comparing Fan Milk and Dean Foods, it reveals that Fan Milk seems to have a better value of ratio than Dean Foods, which stands at an average of 0.48349 and 0.07419 respectively. On the part of Guinness Ghana and Boston Beer, yet again, gives the result that the Ghanaian company has better value for the ratio; though in this case, the values are not too far apart from each other as compared to the prior case. Similar results are seen on comparing the values of ratios for Cydestone and Ciena. An interesting aspect, however, is that all the US-based companies have similar values for their ratios between 0.05 and 0.2.
Unlike the results depicted in the above ratios, all the Ghanaian companies in the industries concern out-performed their counterparts in the US. This culminated into Ghana recording an overall average of 0.33428 as compared to 0.13049 for the US.(Table III)

Industry	Company	2003	2004	2005	Average
Pharmaceuticals	Starwin Products	0.36072	0.04584	0.06902	0.15873
Pharmaceuticals	Watson	0.08033	0.09538	0.10578	0.09383
	Pharmaceuticals				
Milk & Milk Products	Fan Milk	0.56232	0.50403	0.38412	0.48349
Milk & Milk Products	Dean Foods	0.07505	0.06815	0.07937	0.07419
Alcoholic Beverages	Guinness Ghana	0.56046	0.27544	0.24452	0.36104
Alcoholic Beverages	Boston Beer	0.18167	0.18132	0.19584	0.18628
Telecommunications	Clydestone Ghana	0.46391	0.28157	0.25606	0.33385
Telecommunications	Ciena Corporation	0.11906	0.12892	0.25504	0.16767
Ghana Companies					0.33428
US-Based Companies					0.13049

Table III – Cash Flow return on Assets ratio comparison of companies

# 4.4.1.4 Long term debt payment

Long term debt is usually paid from the cash flow generated and these measures the company's capability of solvency by analysing the ratio. The Ghanaian companies and US-based companies

differ a lot on this ratio probably due to their financial backgrounds. While Watson Pharmaceuticals has this ratio at more than 1, Starwin has a ratio even below 0.5, where 2005 being the year when no long term debts were paid probably due to the company becoming a public limited liability company the previous year. Fan Milk does not have any long term debt commitments while Dean Foods also maintains a high ratio comparable to Watson Pharmaceuticals at 5.809. Both Guinness Ghana and Boston Beer do not have any long term debts. Clydestone, too, does not have any long term debt during the period under study while Ciena maintains a ratio above 2.

Overall, the US has a stronger ratio of 0.2.567 as against 0.066 for Ghana (Table IV).

Industry	Company	2003	2004	2005	Average
Pharmaceuticals	Starwin	0.372	0.423	0	0.265
	Products				
Pharmaceuticals	Watson	2.572	1.906	1.778	2.145
	Pharmaceuticals				
Milk & Milk Products	Fan Milk	NA	NA	NA	NA
Milk & Milk Products	Dean Foods	5.294	6.081	6.052	5.809
Alcoholic Beverages	Guinness Ghana	NA	NA	NA	NA
Alcoholic Beverages	Boston Beer	NA	NA	NA	NA
Telecommunications	Clydestone	NA	NA	NA	NA
	Ghana				

Table IV – Long-term Debt Payment Ratio Comparison of Companies

Telecommunications	Ciena	2.580	2.310	1.518	2.316
	Corporation				
Ghana Companies					0.066
US-Based					2.567
Companies					

# 4.4.1.5 Dividend payout

The ratio shows the portion of earnings that is paid out to investors. For all the four US-based companies, this ratio was not valid as none of the companies have ever paid any dividends but instead reinvesting the earnings back into the company. This may be the cause for the low cash flow return on assets since its denominator is likely to be high as a result of the reinvestment. Not all Ghanaian companies paid dividends for all the three years in the period of study. Also, Clydestone Ghana, Fan Milk and Starwin had healthy ratios, less than 0.5, showing the capability of the company to pay dividends. The problem company surprisingly happened to be the largest of the four - Guinness Ghana, which had dividend pay outs much more than 1, indicating that the company was dipping into its cash reserves for paying out the dividends. Also for the year 2005, the ratio reached an astonishingly uncomfortable value of 190, which might be either due to an error in the values published in the Stock Exchange Report; or the company's financial situation is really vulnerable.

Obviously, since on the National level, the average dividend payment ratio for Ghana is far above 1, she has performed poorly in this direction. (Table V).

Industry	Company	2003	2004	2005	Average
Pharmaceuticals	Starwin Products	0.245860	0	0	0.08
Pharmaceuticals	Watson Pharmaceuticals	NA	NA	NA	NA
Milk & Milk Products	Fan Milk	0.19712	0.21583	0.22463	0.21253
Milk & Milk Products	Dean Foods	NA	NA	NA	NA
Alcoholic Beverages	Guinness Ghana	0.05801	0.55093	190.711	63.773
Alcoholic Beverages	Boston Beer	NA	NA	NA	NA
Telecommunicatio ns	Clydestone Ghana	0	0.49776	0.65992	0.3859
Telecommunicatio ns	Ciena Corporation	NA	NA	NA	NA
Ghana Companies					16.1129
US-Based Companies					N/A

 Table V – Dividend Payment Ratio Comparison of Companies

# 4.4.1.6. Cash flow adequacy ratio

As the name suggests, this ratio analyses the adequacy of the cash flow for various core financial payments. Cydestone, in the year 2003, faced some problems as can be seen from a below 1 ratio. However, the company rallied in the next two years with a ratio above 5. Ciena has an extremely high ratio, though it dipped in the year 2004 and then bounced back in 2005 to give an average ratio of 16.177 during the period under study. Guinness Ghana had an erratic performance as can be seen by many ratios even later on. Even for this ratio, the company started with a ratio above 1 which dipped in 2004 and has still gone down in 2005. Boston Beer's ratio dipped considerably in 2005. However, the ratio was still above 1 and the average ratio for the period under study was a healthy 5.039. Fan Milk too saw an insufficient cash flow to cover its need for the period 2004-2005 while Dean Foods ratios were consistent and above 1 for the period under study. Starwin's adequacy ratio value dipped alarmingly in 2004 to 0.218 and has still gone down slightly in 2005 whereas Watson Pharmaceuticals showed an increase in the ratio during this period by almost three times and had an average ratio of 3.344.

As a result of the sterling performance of the US companies in three industries, namely, pharmaceuticals, alcoholic and telecommunication, an overall average of 6.442 is achieved. This is an indication that the US industries on the average performed better than their Ghanaian counterparts under this ratio (Table VI)

Industry	Company	2003	2004	2005	Average
Pharmaceuticals	Starwin	1.350	0.218	0.205	0.591
	Products				
Pharmaceuticals	Watson	1.736	4.464	4.132	3.344
	Pharmaceuticals				
Milk & Milk	Fan Milk	2.219	0.843	0.961	1.341
Products					
Milk & Milk	Dean Foods	1.162	1.113	1.348	1.208
Products					
Alcoholic Beverages	Guinness Ghana	1.164	0.650	0.455	0.756
Alcoholic Beverages	Boston Beer	9.174	4.273	1.669	5.039
Telecommunications	Clydestone	0.903	4.576	6.984	4.154
	Ghana				
Telecommunications	Ciena	25	9.058	14.472	16.177
	Corporation				
Ghana Companies					1.7105
US-Based					6.442
Companies					

 Table VI – Cash Flow Adequacy Ratio Comparison of Companies

# 4.4.1.7. Reinvestment ratio

This ratio determines the ability of the company to purchase equipments and other tangible assets in a comfortable and planned manner. In analysing this ratio, experts always advice to compare the ratio with similar companies in the industry since the value of this ratio is entirely dependent on the requirements of the business. Comparing Guinness Ghana and Boston Beer, it was seen that the ratios for both companies progressively increased (doubled) for each year. However, Boston Beer managed to keep the ratios under 1 unlike Guinness Ghana which exceeded this mark in 2004. Comparing Starwin and Watson Pharmaceuticals, it can be seen that the ratios are extremely dissimilar. Watson Pharmaceutical had a consistently moderate ratios while the corresponding ratios for Starwin are extremely erratic, dipping to as low as 0.006 to as high as 4.784. This is because the company has recently become a public liability company in 2004 and the corresponding restructuring and other similar requirements might have been higher in the initial few years. Comparing Fan Milk and Dean Foods, it was seen that the ratios were extremely similar with both of the companies maintaining the ratio under 1. The reason for this may be two fold. First, the operations of Dean Foods are diverse and cannot be directly compared with Fan Milk. Second is that Dean Foods has always been a pioneer company with operations extending across the country which might require more asset purchases. Comparing Clydestone Ghana with Ciena, it can be seen that usually a very small ratio is desirable and Clydestone achieved that in the latter two years of the period under study even though the ratio for the year 2003 was greater than 1.

Table VII – Reinvestment ratio comparison of companies	5
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Industry	Company	2003	2004	2005	Average
Pharmaceuticals	Starwin Products	0.054	0.006	4.784	1.615
Pharmaceuticals	Watson	0.576	0.224	0.242	0.347
	Pharmaceuticals				
Milk & Milk Products	Fan Milk	0.362	0.975	0.765	0.701
Milk & Milk Products	Dean Foods	0.517	0.631	0.548	0.565
Alcoholic Beverages	Guinness Ghana	0.688	1.314	2.011	1.338
Alcoholic Beverages	Boston Beer	0.109	0.234	0.599	0.314
Telecommunications	Clydestone Ghana	1.003	0.281	0.127	0.470
Telecommunications	Ciena Corporation	0.0400	0.1104	0.0691	0.0731
Ghana Companies					1.031
US-Based Companies					0.325

# 4.4.1.8. Depreciation/amortisation impact ratio

As mentioned earlier, this ratio indicates the financial strength of the companies. However, this ratio could not be used for the purpose of analysis as the Ghanaian companies' financial statements did not have any amounts specifically under the depreciation and amortization entries. A conclusion that can be drawn is that, probably, the government supported companies against purchases of tangible assets and their corresponding depreciation; which is usually the case for developing countries. In case of amortization, the conclusion can be drawn that, probably, the companies did not spend any amount towards product rights. This is a distinct possibility in case

of Guinness Ghana and Clydestone Ghana which used existing technology to service the customers. For Fan Milk as well as Starwin, the absence of amortization either points towards the lack of proper intellectual rights or the use of generic technology to build products. On the other hand, all the four corresponding US-based companies had extremely small ratios, mostly less than 0.5, which pointed towards their financial stability and showed that the operating cash flows were not too dependent on the non-cash addition to the operating income.

Table VIII – Depreciation-Amortisation Impact Ratio Comparison of Companies

Industry	Company	2003	2004	2005	Average
Pharmaceuticals	Starwin	NA	NA	NA	NA
	Products				
Pharmaceuticals	Watson	0.382	0.234	0.635	0.417
	Pharmaceuticals				
Milk & Milk Products	Fan Milk	NA	NA	NA	NA
Milk & Milk Products	Dean Foods	0.337	0.391	0.395	0.374
Alcoholic Beverages	Guinness Ghana	NA	NA	NA	NA
Alcoholic Beverages	Boston Beer	0.448	0.258	0.194	0.3
Telecommunications	Clydestone	NA	NA	NA	NA
	Ghana				
Telecommunications	Ciena	0.328	0.332	0.110	0.257
	Corporation				
Ghana Companies					NA

US-Based			0.337
Companies			

## 4.4.1.9. Debt coverage ratio

This ratio is used to determine whether the company is generating enough revenue to pay its debts. As different companies have different financial backgrounds, it is not always a comparable ratio. This is all too clear in the comparisons made in the present case study. No debts were repaid by Watson in the period mentioned while Starwin's ratios once again indicated its conversion into a public limited liability with high ratio in the year 2005. Both Guinness Ghana and Boston Beer have not utilized any loans. Guinness Ghana took care of these issues using bank overdrafts while Boston Beer has a long term credit facility in place but had no reason to use it. Comparing Fan Milk with Dean Foods, it can be seen that usually the ratios have been similar except for the year 2003. Other ratios, too, have been different for the company for this year suggesting some major and successful restructuring. After the restructuring, the ratios of the company matched that of Dean Foods, one of the largest and best companies in the industry, fairly closely. This year, Clydestone had paid the debt with one against a short term loan in the year 2003 while Ciena preferred to handle debts via debt notes which it sometimes purchased in the open market; the last one being one in the year 2005.

Industry	Company	2003	2004	2005	Average
Pharmaceuticals	Starwin Products	0.918	0.111	16.938	5.989
Pharmaceuticals	Watson Pharmaceuticals	NA	NA	NA	NA
Milk & Milk Products	Fan Milk	35.424	4.174	4.150	14.593
Milk & Milk Products	Dean Foods	3.521	4.159	5.609	4.763
Alcoholic Beverages	Guinness Ghana	NA	NA	NA	NA
Alcoholic Beverages	Boston Beer	NA	NA	NA	NA
Telecommunications	Clydestone Ghana	9.6	NA	NA	-
Telecommunications	Ciena Corporation	NA	NA	NA	NA
Ghana Companies					5.145
US-Based					1.190
Companies					

# 4.5 Cash Flow ratios against Income Statements (Hypothesis II)

The second hypothesis of the present research study is given below:

H2: Cash flow ratios are better tools for the assessment of the financial performance of a

business entity in comparison with the use of an income statement or a balance sheet.

The cash flow statement reconciles the income statement to the actual cash flow of the business. The importance of analysing both statements cannot be overstated. However, when investors decide to look for a company worth investing into, cash flow ratios come as the best choice. As already stated in the introduction, cash flow ratios are used to analyse and examine the adequacy of a company's cash flows and the quality of its earnings. Utilization of the ratios shows the degree at which the net income is backed by a liquid source of funds. Comparing the income and balance sheet statements of two companies would give the size of operations but not the status of liquidity or its capability for expansion or even continuing its present state.

An interesting aspect comes from the analysis of balance sheets of the four Ghanaian companies which showed no specific entries for amortization and depreciation. This can be understood in several ways. It may be considered that the tax savings due may be under a special tax relief from the Ghanaian government that explains the absence of the entries in all the companies. This means that simple loans may take care of this aspect without going into the details of where the money is being spent; as is the case with all the four corresponding companies under analysis. Yet, another interesting aspect is the presence of bank overdrafts which are comparable to operating income. Bank overdrafts were never an option of the 4 corresponding US-based companies. Also, the absence of long term debts for the Ghanaian companies shows that their financial operations are different from the usual practice in the US. Finally, while all the four Ghanaian companies declared regular dividends, none of the US-based companies ever done so since their inception and also do not plan to do the so in foreseeable future. This shows that the companies are, in general, lucrative enough for the investors without offering additional

incentives. Instead these companies prefer reinvesting the earnings back into the operations instead of investor pay outs.

The detailed analysis of the cash flow ratios done in the previous section showed that the companies in the developed countries, in particular the US, operate in a similar way while Ghanaian companies have their own peculiar mode of operations. Merely examining the income statements, balance sheets and cash flow statements will not give these views. Only the basics of the cash flows would be clear if such an action is undertaken. A company does not need to be financially immense to be robust. For instance, all the four Ghanaian companies that were analysed can be seen to be very erratic as far as their financial stability is concerned. That to say, the companies have shown an increase in cash flow over the analysed period of 2003-2005, but the capability of the companies to sustain operations are doubtful. Some companies have spent an extremely large amount in the acquisition of assets, using cash, which almost but not quite, places the company in a vulnerable position.

The first hypothesis would have been totally negative if only the balance sheets & income statements were analysed. The analysis of cash flow ratios brought the differences in operational norms in both the countries and simultaneously analysed the operational characteristics of the companies in Ghana and the US showed a far better comparison.

Cash Flow is the lifeblood of any corporate or business endeavour. Revenues will determine if the company will be able to provide their customers with continued products or services patronized by the market when revenues are inadequate to fulfil company obligations. As such, the company is faced with the possibility of either cutting or stripping off some operations, or ceasing altogether. Hence, the concern on cash flow is an area looked upon with great interest by financial and economic analysts as a credible indicator on the strength, or riskiness, of a particular company (Carlos Correia, David Flynn Enrico Uliana and Michael Wormald 2007: 5-19).

If a particular company states that it has earned an amount, for example, of \$1 billion, it does not mean that the company has that amount in the bank. This is because that companies issue their financial statements using accrual accounting, which records non-cash items such as depreciation and receivables. This is done so that the true financial standing of a particular company can be ascertained. But this may lead to the generation of what is termed as accounting noise, which will need to be harmonized so that the actual cash flows may be determined (Investopedia 2010).

Accrual accounting is a practice used to monitor the performance and the position of a business by the recognition of certain economic indices regardless of the time that the transactions done in cash occurred. The operating premise in this practice is that events that are economic in nature are acknowledged by the comparison of revenues to expenditures, the matching principle in the practice, at the period at which time the transaction is consummated rather than when the actual payment is made, This will allow for the combination of the current cash inflow/outflow with the expected cash inflows/outflows to render a more precise picture of the company's financial state at the present time (Investopedia 2010). For many businesses, the practice of accrual accounting is the present operating scheme. As earlier stated, the practice will allow for the provision of an accurate picture of the financial health of a company, but is more costly to implement. This practice is considered as the exact opposite of cash accounting, when the transaction is recorded only after an exchange of cash is completed. This practice was crafted after issues on the increasing complexity of the transactions being consummated in the area of business coupled with a desire for the provision of accurate information on company finances (Investopedia 2010).

Credit sales and company initiatives that are designed to provide a long term cash stream to the company will have an effect on the company's financial state at the time that the transaction was completed. Thus, it would make sound financial sense to record that such instances at the time that the transaction was completed. In the practice of accrual accounting, it believes that the practice of cash accounting does not provide a clear picture of the financial position of the company since the event that the company will receive cash in the future is due to the completed sale. The act of a product being sold on credit will increase the revenue of the company since this will be recorded as "accounts receivables" (Investopedia 2010).

For the purpose of definition, cash flow can be defined as the amount of cash that is generated by a company or business in a given period of time (David Logan Scott 2003: 54). One of the formulas used to calculate is the earnings before interest, taxes, depreciation and amortization (EBITDA). This is an indicator on the financial output of the company using the following formula (Investopedia 2010).



Revenue-Expenses (excluding taxes, interest, depreciation and amortization)

Illustration 1: Cash Flow Cycle. Source: Steve Lange 2010.

Cash flows occur when one business transfers cash to another, either by electronic or physical means. These flows are conducted in the payment of employees, creditors and suppliers or to acquire assets or investments for the long term. Purchases done on credit are not recorded as a cash outflow. Cash inflows are the opposite of cash outflows; it is money that flows into the coffers of the company. Traditionally, these come from income generated from the businesses' clients, lenders and investors who buy stock and equity from the company (Investopedia 2010).

The forecast for cash flow will identify the sources and the amounts of cash that will enter the business and the specific provisions in the corporate budget that the specific amount of cash will be allocated to. In accomplishing the forecast, two columns are assigned listing the forecast and the amount received in the transactions. The forecast can be accomplished by preparing weekly or monthly or quarterly of yearly reports. If the cash situation for a company is considerably difficult, then the provision for a daily cash flow report is usually undertaken by the company. In

the furnishing of the report, it is suggested to accomplishing the report when most of the fixed expenditures of the company-salaries, for instance, is traditionally dispensed (Institute of Chartered Accountants 2010).

In the listing for the forecasts, the following elements are found in the listing;

- Receipts;
- Payments;
- The excess of the receipts over the amount of payments-with the negative figures generated to be shown in brackets'
- The opening bank balance of the company, and;
- The closing balance in the bank of the company (Institute 2010).

Cash flow must not be interchanged with profit. Though profit and cash flow do share a relationship in the business setting, the two are different from each other. Profit is a concept in accounting that measures the overall performance of a company or business, a vague concept subject to various methods of techniques of measurement and practices that will produce differing results, which are also open to differing evaluations. For cash flows, this is not a measure for the total performance of a particular company. The issue of vagueness is not present in the case for cash flows; either the company has a certain amount of cash on hand or it does not have it (Andrew Potts).

If the company is in dire need of cash, then the financial position of the company is endangered. Companies can incur losses for a period of time without incurring substantial damage to the organization, but if a company has a dearth of cash for operations and obligations is considered insolvent and is considered a candidate for bankruptcy. Planning for cash flows requires both long term and short term forecasts by the company. Short term forecasts will establish periods of cash shortages that are temporary in nature or periods of cash surpluses and the methods and the strategies that will address these instances. Long term forecasts establish the goals and objectives of the business and to craft a financial plan designed to attain the target set by the company (Potts).

The overriding logic in the creation and establishment of any business concern is the generation of a profit for the business. Profits are the main drivers of the business to expand, affording added value to the owners of the business. The rate of which that profit is attained, or profitability and profit are commonly used as a gauge of the success of a business concern. But it is still the amount of cash that is recognized as the crucial resource in the short, medium and long term life of any business (Barry Minnery 2006).

It is accepted therefore that a company will need to generate a profit over a long term time frame. If the company does not generate sufficient cash reserves for its daily operations and also for the generation of a profit for the owners, then the company is a failure. But there is no established academic foundation to say that a profitable business also generates cash. The reason is that there are entirely different factors for profitability and cash so that the reasons for them to be conjunctive is not entirely academic or will follow one another (Minnery 20063). As defined, profit is the net sum of the changes in the values in the balance sheet and is therefore highly subjective. On the other hand, cash is an objective value. While it is true that statements from banks will need to be harmonized, the cash position of the company in the bank is not a matter of opinion but a matter of fact. But it is also possible for a completely profitable business to actually not have cash in its possession. There are companies that are considered as highly profitable businesses but are devoid of any cash, and eventually run into liquidity issues (Minnery 2006).

Thus it can be stated that a company can still have an image of profitability and still be in danger of running into bankruptcy. This is because many people think of the profits that the business will generate rather than planning on managing cash. But profits are not the means that businesses use for the expenses of the company; it is still cash. Many companies that are profitable go under as their liquid assets, cash, are all tied to assets, thus lacking the needed cash to settle financial obligations. Working or operating capital, and adequate sums of it, is primary to the health of a particular business (Lange 2010).

Many studies that utilize financial and accounting principles to determine the performance of a particular business, whether the business will be a success or a dismal failure, stress the need on information of cash flows to predict bankrupt and solvent businesses. Many of the studies bear out the fact that the rate of inflows and outflows of cash from the many business activities show a high degree of interrelation. If one part of the system breaks down, this might imperil the life of the company, and may ultimately lead to the collapse of the company itself (Cook 1995).

So the discussion focuses on what is to be considered to be of more value, whether cash flow or earnings should be given more importance. Investors often hear that cash flow is more useful with regard to the attractiveness of the investment than the earnings of the potential investment business. How do earnings and cash flow differ? In the common market scheme, businesses receive income by the sale of a certain item or a provision of a certain service by the company to customers. The company would then add the expenses in the provision of the product or service, like labour costs and the materials used in production (Gary Forsythe 2006).

The amount between the sum of the costs to produce that product and the income derived from the product will be the company's income or earnings from that transaction, If the company is paid immediately with cash for the transaction and pays out the costs in cash, then the cash flow of the company would be parallel to each other. If a company plans to construct a new facility, the total capital outlay would reduce the cash flow but would not immediately affect earnings. As time goes on, the depreciating effects on the facility will reduce the earnings that the company derives from the facility but would not impact the cash flow of the company (Forsythe 2006).

In the definition of the FASB, or the Financial Accounting Standards Board, creditors are defined as the first ones that utilize the information listed in the financial statement reports in their conceptual structures, and focuses their discussion regarding the qualities of the report on equal terms to investors and creditors alike (Jane Cote 2005). The banking industry was instrumental in the advocacy for the use of financial statements that have been verified and audited, and this information has been used at a high level for decisions by banks and other lending institutions on whether to approve or reject applications for loans by companies (Cote

2005). To fully comprehend the viability of a particular company, auditors must be able to calculate simple information supplied by data on the company's cash flow statement. Without the accomplishment of the calculations of the data given, the auditor might be prone to error in giving his nod to a company to avail of loans then run shortly into bankruptcy (American Institute of Certified Public Accountants 2010).

The study of financial indicators of a particular company must always address the evaluation of the company's cash flow position. Though there are many indicators that can be used in the examination of the cash position of a particular company, cash flow measures the actual expense that the company incurs in doing business in the market. The means that the cash flow of the company is unique and it is left to the accountant and the various sets of measuring formulas the particular industry that the company operates in to craft the guidelines and the usage of the guidelines to determine the arrival at the figures for the company. The variations mat arises from the various expenses that are deducted from the revenues of the company. Also, there is the presence of the need for some companies to be loaded with a higher rate of debt compared to other companies (Stock Market Investors 2008).

In terms of analysing liquidity for companies, the information that is afforded by cash flow statements is more dependable than the information on a company's balance sheet or the company's income statement. This is because the information on the balance sheet is considered as static information, meaning that the flow is measured using a single point of time. On the other hand, the data on the income statement is inclusive of a host of unilateral non cash items in the data such as pension contributions of the companies, depreciation, and amortization expenditures are normally included in the calculation in the listing. The information in the cash flow statements are therefore considered to be superior to the other above mentioned listings since the information contained herein chronicles the changes in the other two statements and filters out the accounting jargon in the task, displaying the needs and the information most desired by shareholders. That is the money that is dispensable for the operations of the company and money that will be used for investment purposes (Jeanne Yamamura 1998).

In most instances, the information that the cash flow ratios display is seen as a more precise measurement of the value of the company's stocks than the price to earnings ratio, or P/E. The capacity of a particular company to generate substantial amounts of cash or have a stable rate of cash flows is one of the primary indicators that reflect the general state of health of the company. Since cash flow ratios will indicate the health of the company in terms of the financial soundness of a particular company, then it is construed also that the company with a decreased amount of cash coming into its coffers is an accurate gauge to identify which companies are on unstable financial footing. Likewise, it can be used to identify the companies with trading weak shares (Candle Stick Forum LLC 2009).

Creditors and Wall Street practitioners have been practising the use of ratios to actually dig deeper into the data in cash flow statements for more practical discoveries with regards to the financial condition of companies. Also large and major credit rating organizations utilize the data culled from cash flow statements to decide in the determination of their ratings of various companies. Individuals that hold bonds-particularly junk bonds- and leveraged buyout analysts use the data in the cash flow ratios to clear up the risks associated with the investments to be poured into the company. This is because the data collected from free cash flow ratios aid individuals in the assessment of a particular company's free cash flow ratio (FCF) to determine the strength of a company to be able to stand against cyclic decreases or in the event of a price war in the particular industry sector. It is noted that many corporate financial managers and auditors have been remiss in their duties to learn the various factors and elements that go into the utilization of the cash flow ratios (Yamamura 1998).

As already stated, Free Cash Flow (FCF) can be defined as a measurement of the financial output that is determined by the calculation of the operating cash flow (OCF) minus the capital financial outlays of the company. The equation is representative of the amount of cash that a company will be able to source or generate after the allocation of capital that the company will utilize for the maintenance of the company's asset base or for the expansion of the same. The determination of the statistic is considered as crucial to the operation of the company since this will allow the company to take hold of opportunities that will improve the value of the shares in the possession of the shareholders. Without the provision of a ready amount of cash in its hands, the company cannot implement programs designed for research and development of new products or the creation of new services. This could impair the ability of the company to settle the financial obligations and liabilities that they may have incurred in the course of operations. Again, it could hinder the payment of dividends to the company shareholders (Investopedia 2010).

Below is the formula used in the arrival at the figures for free cash flow (FCF):

Net Income + Amortization/Depreciation - Changes in Working Capital - Capital Expenditures

<sup>=</sup> Free Cash Flow

It must be understood however that the figures that will be arrived at using the formula will register an amount, not a ratio figure. This is often initiated with the determination of the amount of cash that is recorded in to the statement of cash flows (SCF). Then the total amount of capital expenditure, derived from the investing activities portion of the SCF taken in the same time frame, is deducted to determine the actual amount of free cash flow (Accounting Coach LLC 2010). In essence, the amount of free cash flow will display the amount of money that will be at the discretion of the company's stockholders (Value Based Management LLC 2009).

Company auditors have commonly used the balance sheet or use principles of the transaction cycle approach that does not put any sort of emphasis on the cash flow statement, let alone the information therein or the amount of cash the company has in its possession. While the use of cash flow statements have been sparingly used by auditors in the verification process of the balance sheet and the definition of the common factors to the statement of cash flow, the use of the cash flow statement as a whole has been limited to the current ratio, or the criteria of current assets over the current liabilities of the company, or to the quick ratio, which is defined as current assets minus the current liabilities of the company. In the collapse of W.T. Grant, the importance of the correct evaluation and appreciation of cash flow statements came to the fore. The common analysis of the ratios of the company in the annual auditing of the company did not reveal the significant problems in liquidity that the company was experiencing at that time. While the company did post a positive figure in terms of its current ratios as well as a strong earnings capacity, in fact the company had run into severe cash flow issues. Consequently, the company was unable to settle its financial obligations to meet its debt and various financial commitments to the creditors (Mills and Yamamura 1998).

If the use of the cash flow system is done efficaciously, a forecast on cash flows can become a valuable tool in the determination of the success or failure of a particular company. Establishing accurate cash flow will aid in the assurance that a company can achieve a stable pattern of growth without the company falling into over trading. The company will be able to state that they can undertake additional business opportunities and also see the time that the company will need to consolidate operations, if circumstances warrant. The company will also have an advantage of being able to predict the 'peaks' and 'troughs', or simply the highs and lows of their cash balance (Chartered 2010).

Company creditors have begun utilizing the cash flow ratios since they are as stated earlier, afford more sources of information on the capacity of a company to meet and settle the financial obligations that it may have incurred as a result of conducting business in the market. This is deemed more effective than the use of the common current or quick ratios, as these tend to only display the amount of cash that a particular company may have had in the past rather than the present cash position of the company (Mills and Yamamura 1998).

In an ideal business setting, the amount of cash that is flowing into a company should be more than the amount that is flowing out of the business. The setting will allow the company to establish their balance of cash that will provide the company with stop gap measures to seal gaps in the cash flow. It will also aid to expand the company's business activities and calm the concerns of the company's creditors, the shareholders and investors with regards to the financial health of the company. For the purposes of classification, *cash inflows* are inclusive of the following factors: The payment of goods and services by the clients of the company;

The receiving of a loan from a bank;

Interests derived from the savings and investments of the company;

Investments of the company's shareholders, and;

Increasing bank overdrafts and loans of the company (Chartered 2010)

On the other hand, *cash outflows* are made up of the following:

Acquisition of raw materials, equipment or tools for the company's operations;

Rental fees, wages and other daily company expenditures;

Repayments on loans;

Payments of dividends of investors and shareholders;

Income, corporation, Value Added Tax payment as well payment of other tax obligations, and;

Reduction of overdraft facilities (Chartered 2010)

In this regard, it is more important for a business to identify potential areas where cash flow problems may occur to avert a possible financial crisis for the company. As such, it has been the practice of many companies to craft cash flow plans and policies designed to avert a possible financial problem. Nevertheless, even if this is practised with the explicit intention, many still are remiss in being alert for the rise of potential warning signs. It is understood therefore that the sooner that the warning signs are seen and addressed, the more time that policies and programs can be created to avoid falling into the problem (Chartered 2010).

These plans and programs must be crafted with the intent of steering the company away from a possible collapse. With budget the cash inflows and outflows of the company can be planed to ensuring the life and the long term viability of the company. What must be done is to create a mechanism by which the actual data can be effectively used in the crafting and implementation of these programs as they bear out. However, it must be noted that the data can become outdated and unreliable. Consequently the monitoring of the data as it moves into the listing of cash flows must be followed in order to maintain the sound financial health of the company (Chartered 2010).

If a company wishes to improve the cash flow figures, several steps must be addressed and considered by the company. These may include the following:

The company may request their customers to pay ahead of the time set for their payments; Collect debts and obligations to the company with all possible speed: Control the inventory of the company, and; Improve the profitability of the company (Chartered 2010).

#### 4.6 Conclusion

This chapter presented a detailed analysis of the data used for the case study and also attempted to answer the research question based on the testing of the hypothesis method. Each section of the chapter began with a complete description of the type of analysis possible for the data and then mentioned why the particular method was chosen. The next part of the section used the method to analyse the data. The first hypothesis cannot have a 'yes' or 'no' answer outright as there are nine cash flow ratios that were analysed. However, a cursory look shows that for most part, the hypothesis held true. The second hypothesis used both quantitative assessment as well as the literature review to demonstrate why the statement was correct.

Cash Flow Statements and Ratios should be used in the decision for investments as this would dictate activity. Activity is the very gauge of movement within an order. In business, the more movements there are in the cash flow the more transactions would be occurring. With more transactions engaging, the organization will be alive and active. With cash flow recurrences, it is safe to infer that the inflow will be greater than its outflow movement. This is true due to the fact that, if, the inward flow is less than the outflow then the sustainment of corporate life will be in peril. That is something investors would like to know – whether the ratio of the inflow and the outflow (cash flow ratio) is in a possible investment. With that knowledge, it will be safer to decide to invest in a corporation that has more inflows than outflows rather than the reverse. Inactivity will result to non-profit and cost will spell doom. Movement, therefore, of the cash flow will reveal its ratio. That is the best window for investment.

#### **CHAPTER FIVE**

# 5.0 Findings, Conclusions and Recommendations

# 5.1 Introduction

The previous chapter methodically discussed the analytical comparison of the Cash Flow metrics under study for the given US and Ghanaian companies in four different industries. From the results of the previous chapter, conclusions and answers to our research questions will be drawn. Furthermore, recommendations, opportunities for improvement of case studies similar to this will be presented.

This chapter will report the findings and results obtained on comparing the Cash Flow Ratio indices between the Ghanaian and US companies. Furthermore, answers and conclusions to the research questions will be provided in this chapter.

Consequently, further improvements on the research and study of this case will be provided. Recommendations will be given in order to improve some areas of the study. Furthermore, recommendations will be provided to further strengthen the validity of the hypothesis tested. Future researchers may use this case study in carrying out bigger case research similar to this study.

Lastly, further research on the subject matter of Cash Flow Ratios as powerful business indices and comparison between emerging markets and developed countries will also be presented.

# **5.2 Findings**

#### **5.2.1** Comparison of Cash Flow Ratios

# 5.2.1.1 Cash Flow to Sales Ratio

This is the primary cash flow ratio and measures the ability of a company to convert its revenue into its cash flow.

Ghanaian companies perform better in the Milk & Milk Products as well as in the Alcoholic Beverages industries. On the other hand, US companies dominated the Pharmaceutical and Telecommunication industries as far as cash flow to sales ratios are concerned. On the country level, the companies in the US pooled a lower overall mean Cash Flow Ratio of 0.14835 as against that of 0.22229 for Ghana.

#### **5.2.1.2 Operations Index**

This ratio measures the profits of the company in comparison to the revenue generated.

The Ghanaian companies in the Milk Product and the Alcoholic industries out- performed their US counterparts in the same industries. The Pharmaceutical and Telecommunication industries are still dominated by the US companies for this Cash Flow Ratio Index.

Generally, the US companies recorded better financial performances under the Operating Index ratio of 1.803 compared to the Ghanaian companies which achieved an Operating Index of 1.478.

#### 5.2.1.3 Cash Flow Return on Assets

This ratio is used to compare the business performances among various companies in the industry. The ratio is generally expected to be higher for a good company.

In terms of this Cash Flow Ratio index, it was evident that the Ghanaian companies in all industries outperformed their US counterparts. The Ghanaian companies recorded a mean ratio of 0.33428 which is much higher than the US mean ratio of 0.13049.

#### 5.2.1.4 Long-Term Debt Payment

Long term debt is usually paid from the cash flow generated and these measures the company's capability of solvency by analysing the ratio.

The Ghanaian companies and US-based companies differ a lot on this ratio probably due to their financial backgrounds. We also note that data for this index is insufficient due to many missing values. Only the Pharmaceutical industry recorded complete data for both US and Ghana companies. Watson Pharmaceuticals had a ratio at more than 1 while Starwin obtained a ratio

below 0.5, where 2005 being the year when no long term debts were paid probably due to the company becoming a public limited liability company the previous year.

Based on the data given (considering the missing values), the US has a stronger Long-Term Debt Payment ratio of 2.567 as against 0.066 for Ghana.

#### **5.2.1.5 Dividend payout**

The ratio shows the portion of earnings that is paid out to investors. For all the four US-based companies, this ratio was not valid as none of the companies have ever paid any dividends but instead reinvesting the earnings back into the company. This may be the cause for the low cash flow return on assets since its denominator is likely to be high as a result of the reinvestment.

Not all Ghanaian companies paid dividends for all the three years in the period of study. Also, Clydestone Ghana, Fan Milk and Starwin had healthy ratios, less than 0.5, showing the capability of the company to pay dividends. The problem company surprisingly happened to be the largest of the four - Guinness Ghana, which had dividend pay outs much more than 1, indicating that the company was dipping into its cash reserves for paying out the dividends. Also for the year 2005, the ratio reached an astonishingly uncomfortable value of 190, which might be either due to an error in the values published in the Stock Exchange Report; or the company's financial situation is really vulnerable.

Obviously, since on the National level, the average dividend payment ratio for Ghana is far above 1, she has performed poorly in this direction.

#### 5.2.1.6 Cash Flow Adequacy Ratio

As the name suggests, this ratio analyses the adequacy of the cash flow for various core financial payments

The US companies in the Pharmaceuticals, Alcoholic and Telecommunication industries outperformed its Ghanaian counterparts in this ratio. An overall average Cash Flow Adequacy ratio for US companies was recorded at 6.442. This is an indication that the US industries on the average performed better than their Ghanaian counterparts with a much lower Cash Flow Adequacy Ratio of 1.7105.

# 5.2.1.7 Reinvestment ratio

This ratio determines the ability of the company to purchase equipments and other tangible assets in a comfortable and planned manner. In analysing this ratio, experts always advice to compare the ratio with similar companies in the industry since the value of this ratio is entirely dependent on the requirements of the business. Comparing Guinness Ghana and Boston Beer, it was seen that the ratios for both companies progressively increased (doubled) for each year. However, Boston Beer managed to keep the ratios under 1 unlike Guinness Ghana which exceeded this mark in 2004.

Comparing Starwin and Watson Pharmaceuticals, it can be seen that the ratios are extremely dissimilar. Watson Pharmaceutical had a consistently moderate ratios while the corresponding ratios for Starwin are extremely erratic, dipping to as low as 0.006 to as high as 4.784. This is because the company has recently become a public liability company in 2004 and the corresponding restructuring and other similar requirements might have been higher in the initial few years.

Comparing Fan Milk and Dean Foods, it was seen that the ratios were extremely similar with both of the companies maintaining the ratio under 1. The reason for this may be two fold. First, the operations of Dean Foods are diverse and cannot be directly compared with Fan Milk. Second is that Dean Foods has always been a pioneer company with operations extending across the country which might require more asset purchases.

Comparing Clydestone Ghana with Ciena, it can be seen that usually a very small ratio is desirable and Clydestone achieved that in the latter two years of the period under study even though the ratio for the year 2003 was greater than 1.

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# 5.2.1.8 Depreciation/amortisation impact ratio

As mentioned earlier, this ratio indicates the financial strength of the companies. However, this ratio could not be used for the purpose of analysis as the Ghanaian companies' financial statements did not have any amounts specifically under the depreciation and amortization entries. A conclusion that can be drawn is that, probably, the government supported companies against purchases of tangible assets and their corresponding depreciation; which is usually the case for developing countries. In case of amortization, the conclusion can be drawn that, probably, the companies did not spend any amount towards product rights.

#### 5.2.1.9. Debt coverage ratio

This ratio is used to determine whether the company is generating enough revenue to pay its debts. As different companies have different financial backgrounds, it is not always a comparable ratio.

This is all too clear in the comparisons made in the present case study. No debts were repaid by Watson in the period mentioned while Starwin's ratios once again indicated its conversion into a public limited liability with high ratio in the year 2005. Both Guinness Ghana and Boston Beer have not utilized any loans. Guinness Ghana took care of these issues using bank overdrafts while Boston Beer has a long term credit facility in place but had no reason to use it. Comparing Fan Milk with Dean Foods, it can be seen that usually the ratios have been similar except for the year 2003. Other ratios, too, have been different for the company for this year suggesting some major and successful restructuring. After the restructuring, the ratios of the company matched

that of Dean Foods, one of the largest and best companies in the industry, fairly closely. This year, Clydestone had paid the debt with one against a short term loan in the year 2003 while Ciena preferred to handle debts via debt notes which it sometimes purchased in the open market; the last one being one in the year 2005.

#### **5.2.2** Cash Flow ratios against Income Statements (Hypothesis II)

The cash flow statement reconciles the income statement to the actual cash flow of the business. The importance of analysing both statements cannot be overstated. However, when investors decide to look for a company worth investing into, cash flow ratios come as the best choice. As already stated in the introduction, cash flow ratios are used to analyse and examine the adequacy of a company's cash flows and the quality of its earnings. Utilization of the ratios shows the degree at which the net income is backed by a liquid source of funds. Comparing the income and balance sheet statements of two companies would give the size of operations but not the status of liquidity or its capability for expansion or even continuing its present state.

The detailed analysis of the cash flow ratios done in the previous section showed that the companies in the developed countries, in particular the US, operate in a similar way while Ghanaian companies have their own peculiar mode of operations. Merely examining the income statements, balance sheets and cash flow statements will not give these views. Only the basics of the cash flows would be clear if such an action is undertaken. A company does not need to be financially immense to be robust. For instance, all the four Ghanaian companies that were analysed can be seen to be very erratic as far as their financial stability is concerned. That to say,
the companies have shown an increase in cash flow over the analysed period of 2003-2005, but the capability of the companies to sustain operations are doubtful. Some companies have spent an extremely large amount in the acquisition of assets, using cash, which almost but not quite, places the company in a vulnerable position.

The first hypothesis would have been totally negative if only the balance sheets & income statements were analysed. The analysis of cash flow ratios brought the differences in operational norms in both the countries and simultaneously analysed the operational characteristics of the companies in Ghana and the US showed a far better comparison.

Cash Flow is the lifeblood of any corporate or business endeavour. Revenues will determine if the company will be able to provide their customers with continued products or services patronized by the market when revenues are inadequate to fulfil company obligations. As such, the company is faced with the possibility of either cutting or stripping off some operations, or ceasing altogether. Hence, the concern on cash flow is an area looked upon with great interest by financial and economic analysts as a credible indicator on the strength, or riskiness, of a particular company (Carlos Correia, David Flynn Enrico Uliana and Michael Wormald 2007: 5-19).

Cash flow must not be interchanged with profit. Though profit and cash flow do share a relationship in the business setting, the two are different from each other. Profit is a concept in accounting that measures the overall performance of a company or business, a vague concept subject to various methods of techniques of measurement and practices that will produce

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differing results, which are also open to differing evaluations. For cash flows, this is not a measure for the total performance of a particular company. The issue of vagueness is not present in the case for cash flows; either the company has a certain amount of cash on hand or it does not have it (Andrew Potts).

If the use of the cash flow system is done efficaciously, a forecast on cash flows can become a valuable tool in the determination of the success or failure of a particular company. Establishing accurate cash flow will aid in the assurance that a company can achieve a stable pattern of growth without the company falling into over trading. The company will be able to state that they can undertake additional business opportunities and also see the time that the company will need to consolidate operations, if circumstances warrant. The company will also have an advantage of being able to predict the 'peaks' and 'troughs', or simply the highs and lows of their cash balance (Chartered 2010).

### **5.3 Conclusion**

Generally, for most Cash Flow Ratios, it is observed that the Ghanaian company is as competitive as its US counterparts. The comparison of the individual data points from 2003-2005 for all the companies verified that the Ghanaian companies could measure as well to the US companies in the same industries. For some of the Cash Flow Ratios measured, the Ghanaian companies did better as compared to their US counterparts. It was also evident that Ghana is competitive when it comes to the Milk Products and Alcoholic Beverages industry. On the other hand, US evidently have a stronghold on the Telecommunications Industry.

However, given a small data set for this study, one cannot completely say that the emerging markets are as competitive as those from the developed countries in terms of financial performance measured by the different Cash Flow Ratios. Further studies on this area involving larger number of samples and data would prove helpful. The use of in-depth statistical analysis in further research would also better improve the results and answers presented for further studies.

When it comes to liquidity analysis, cash flow information is more reliable than balance sheet or income statement information. Balance sheet data are static--measuring a single point in time--while the income statement contains many arbitrary noncash allocations--for example, pension contributions and depreciation and amortization. In contrast, the cash flow statement records the changes in the other statements and nets out the bookkeeping, maintenance of systematic and convenient records of money transactions in order to show the condition of a business enterprise. The essential purpose of bookkeeping is to reveal the amounts and sources of the losses and profits for any given period.

Creditors and lenders began using cash flow ratios because those ratios give more information about a company's ability to meet its payment commitments than do traditional balance sheet working capital ratios such as the current ratio or the quick ratio. When a loan officer evaluates the risk she is taking by lending to a particular company, her greatest concern is whether the company can pay the loan back, with interest, on time. Traditional working capital ratios indicate how much cash the company had available on a single date in the past. Cash flow ratios, on the other hand, test how much cash was generated over a period of time and compare that to nearterm obligations, giving a dynamic picture of what resources the company can muster to meet its commitments.

Cash flow is just one measurement for evaluating a company, but it is important because it focuses on actual operations and eliminates one-time expenses and non-cash charges. Cash flow is one of the most important measurements used by investors in valuing a company. You will hear the term used in the context of understanding how much a company is really growing (or not) after accounting conventions are stripped out of the income statement. The reason investors are interested in cash flow is that it gives them a clearer picture of what the company is truly doing.

Cash Flow Statements and Ratios should be used in the decision for investments as this would dictate activity. Activity is the very gauge of movement within an order. In business, the more movements there are in the cash flow the more transactions would be occurring. With more transactions engaging, the organization will be alive and active. With cash flow recurrences, it is safe to infer that the inflow will be greater than its outflow movement. This is true due to the fact that, if, the inward flow is less than the outflow then the sustainment of corporate life will be in peril. That is something investors would like to know – whether the ratio of the inflow and the outflow (cash flow ratio) is in a possible investment. With that knowledge, it will be safer to decide to invest in a corporation that has more inflows than outflows rather than the reverse. Inactivity will result to non-profit and cost will spell doom. Movement, therefore, of the cash flow will reveal its ratio. That is the best window for investment.

# **5.4 Recommendations**

To further improve the analytical area of this case study, future researchers may consider doing the following:

# 5.4.1 Conduct new study with bigger sample sizes

5.4.1.1 Involve more companies under each industry for each country (i.e, assign five companies under each industry for each country). It would also be helpful if the researcher would choose the industries with the highest economic impact in developed countries. It would be interesting to see how these industries perform on lower-scaled economies.

5.4.1.2 Involve more countries from the emerging markets and as well as those from the developed countries. In doing this, the researcher would find it informative if the state of economies of each country under study is presented. This would significantly help erase ideas of bias and/ or disparity in the characteristics of the present samples.

5.4.1.3 Obtain needed sample (# of companies under each industry) based on a valid statistical sampling test. Using the correct sample size improves the precision of estimates, results and measurements obtained from statistical tests. The better precision obtained, the more valid and credible are the end results of research. Hence, using the correct sample size is a must for all research and case studies.

5.4.2 Conduct new study with more data points based on the year covered (*i.e. study cash flow ratios from 1999-2009*)

5.4.3 Conduct study and test hypothesis using appropriate Statistical tests

Chapter 4 covered Analysis and Test of Hypothesis but lacks testing on statistically significant results. Research Hypotheses involving quantitative variables are best tested using appropriate statistical tests to significantly validate the researcher's case hypothesis. In the process of answering research questions, comparisons are made between alternative methods associated with different levels of measurement. This is achieved by working with a set of variables in both their categorical and metric forms, where this is possible. In real research, the aim would be to work at the highest level of measurement in order to obtain the benefits of more sophisticated procedures. (Norman Blaikie 2003).

#### **5.5 Further Research**

Since, we have concluded that Cash Flow Ratios are better tools in assessing a company's financial performance; it would be interesting to see if these indices could significantly and accurately predict a company's financial status in the most realistic manner. If Cash Flow Ratios accurately present the company's financial performance, it would be relevant to learn if Cash Flow Ratios can also predict business failures and long-term performances of companies. Assessing the Cash Flow Ratios would greatly contribute to many corporate and management decisions of firms interested in studying their financial performance periodically.

Two relevant studies will be presented as reference for future researchers who shall find interest in assessing Cash Flow Ratios to answer queries relevant to financial concerns of certain firms. Each study methodically covered the use of Cash Flow Ratios to measure the financial ability of companies as well as their staying power in the industry.

5.5.1 A study published on The Journal of Managerial Issue conducted by Mohamed A. Rujoub, Doris M. Cook and Leon E. Hay in 1995 suggests the use Cash Flow Ratios in predicting business failures. The primary objective of the study was to assess the usefulness of cash flow disclosures as required by Statement of Financial Accounting Standards No. 95 (SFAS 95) in the prediction of bankruptcy, and whether cash flow data provide a superior prediction of business failure over the models employing conventional accrual accounting data. The business failure prediction criterion was used for two reasons:

(1) Business success or failure has been causally linked to the volume of net cash inflow and outflow components from various activities (Gentry, 1985). For example, the inability of a firm to generate enough cash from its operations may force the firm to borrow more money or to dispose of its capital investments to meet its obligations. If this situation persists over an extended period of time, it may lead to an involuntary bankruptcy.

(2) This criterion, which is empirically testable, has been successfully used for investigating the usefulness of accounting information in other studies (Altman and Spivack, 1983).

A second objective of this study is to present some new financial ratios derived from cash flow data and to highlight their potential use in financial analysis and prediction of business performance. Some of these are new ratios which have not been used in other studies.

The motivation for this study came from two important developments in the business world:

(1) The multitude of business failures across all types of business, and

(2) The emphasis placed on cash flow information by the Financial Accounting Standards Board in SFAS 95.

Could the use of cash flow data help predict business failure and thus help prevent business failure?

The link between cash flow data and corporation net worth has been established in earlier research (Rayburn, 1986). However, these studies were done before the issuance of SFAS 95 and used different measures of cash flow from operations. Numerous studies show that financial ratios based on accrual accounting data possess significant ability to predict bankruptcy (Altman and Spivack, 1983; Beaver, 1966, 1968; Libby, 1975; Ohlson, 1980). Most of these studies concluded that companies with weak and unstable financial indicators (ratios) are more likely to fail than those companies with stronger and more stable financial indicators (ratios). However, these models did not emphasize cash flow data.

The case study provides evidence on the usefulness of cash flow data in the prediction of business failure and whether the integration of cash flow data with accrual accounting data can provide a superior measure over accrual accounting data alone for predicting bankruptcy. It should be noted that this study does not suggest overlooking these earlier predictive methods, but rather it addresses whether cash flow information can complement the information already provided by accrual accounting data.

There are at least four key differences between the prior studies and this study. First, financial ratios based on conventional accrual accounting are modified to include cash flow information. Second, while prior studies use different approaches to measure cash flow from operations, this study base its measure of cash from operations on those criteria required by SFAS 95. Third, this study uses the format in SFAS 95 requiring cash flow data to be divided into cash from operations, cash from investing and cash from financing activities. None of the preceding studies has used this approach. Fourth, none of the previous studies used the cash flow ratios which have been emphasized in this study.

For testing the major objective of the research, three hypotheses, stated in the alternative form, have been examined. These include:

Ha1: The discriminate ability of cash flow data, in the form of financial ratio models, to predict bankruptcy is significant.

Ha2: The classification accuracy of cash flow information, in the form of financial ratio models, to predict bankruptcy is greater than the classification accuracy of accrual accounting information, in the form of financial ratio models.

Ha3: The use of cash flow data in conjunction with accrual accounting data, in the form of financial ratio models, can improve the overall classification accuracy of accrual accounting models to predict bankruptcy.

The Wall Street Journal Index (WSJI), the Standard and Poor's Compustat (SPC) Industrial Annual Research File of Companies, and the Compustat Industrial Files (CIF) were employed to choose a sample consisting of 33 failed firms and 33 non-failed firms for a five year period following the issuance of SFAS 95. The sample was limited to those companies who provided a statement of cash flows or sufficient data for the statement for at least three years prior to failure. Failure of firm was defined as the act of filing a petition for Chapter 11 bankruptcy (Zmijewski, 1984). Failed and non-failed firms were identified and matched on the basis of their industry and asset size. The sample cut across various types and sizes of firms. Because there are many more non-failed firms than failed firms equal sized groups were used. Similar sampling techniques have been used in other studies (Zmijewski, 1984; BarNiv, 1990).

The approach used in this study involves the use of financial ratios in the prediction models. Ratios are used for two key reasons:

(a) financial ratios have been successfully used in other empirical studies (Largay and Stickney, 1980; Ohlson, 1980; Giacomino and Mielke, 1995) and

(b) the use of financial ratios can make comparisons of corporations of different sizes more meaningful than the use of absolute figures.

The financial ratios used in the tests were divided into two groups: (a) those ratios derived from cash flow data, and (b) those ratios based on conventional accrual accounting.

The ratios derived from cash flow data are classified under the following groups as suggested by Mielke and Giacomino (1988): (1) management financial decisions, (2) quality of earnings, (3) mandatory cash flows, and (4) discretionary cash flows. These ratios used data as classified in the Statement of Cash Flows required by SFAS 95 (FASB, 1987). This classification is: (1) cash inflows and outflows for operating activities (primarily income statement ordinary activities), (2) cash inflows and outflows from investing activities (sale or purchase of plant assets, long-term investments, etc.) and (3) cash inflows and outflows from financing activities (increase or decrease in financing from owners or long-term creditors).

The ratios selected for this study are:

# (1) External financing index ratio = Cash from operations/Total external Financing sources(debt)

This ratio shows a firm's ability to provide sufficient cash from its operations to meet its external obligations when they mature. Generally speaking, the higher the ratio, the stronger the firm's liquidity, the greater the firm's ability to meet its obligations as they become due, and the greater the probability of success of the firm. This ratio is significant because it is important to view the liquidity of a firm from an external conservative point of view.

# (2) Cash sources component percentages ratio = Cash from financing/Total sources of cash

This ratio relates the cash from financing activities to total cash sources during the period. In this computation, the cash generated from financing activities is compared with the total cash generated from all activities. This ratio also indicates how much the firm relies on debt and investment by owners rather than cash generated internally from operating activities or from investing activities. In general, the lower the ratio, the better the firm's financial position and the greater the probability of success of the firm. This ratio may be compared with industry average and competitive firms or be analyzed by trend analysis over time. For example, it may be used in assessing and comparing the use of outside financing versus internal financing over time.

# (3) Financing policies ratio = Cash from financing activities/Total Assets

This ratio shows the percentage of assets that were funded by creditors and owners during the period. This ratio also helps accounting information users to evaluate a firm's financing policies. In general, the lower this ratio, the better the firm's financial position. A high ratio may indicate that the firm is not using its resources (assets) effectively or to best advantage. A high ratio also may indicate that the firm faces a problem due to additional cash burden in the future as the interests and loans repayments become due.

#### (4) Operating cash index ratio = Cash from operations/Net income

This ratio assists current or potential investors and creditors in evaluating the "quality" of a firm's earnings. It compares accrual net income and the related cash from operations. Earnings are judged to be of high quality if they are stable, the major source appears to be the operating activities, and the methods used in determining earnings are conservative. Determining net income under accrual accounting requires the use of judgmental decisions in measuring depreciation, estimating bad debts, etc. Cash flow from operations is considered to be a more objective measure. Generally, the higher this ratio, the better the quality of earnings. This ratio also indicates a firm's ability to produce cash internally from its ongoing operations. Further analysis may be made by comparison with industry data and by trend analysis over time.

# (5) Operating cash inflow ratio = Cash from operations/Total sources of cash

This ratio indicates what proportion of cash inflows is generated internally from operating activities. In general, the larger the ratio, the greater will be the firm's ability to withstand adverse changes in economic conditions. A high ratio generally indicates a strong financial position for the company. In this case, the firm will probably be less dependent on external sources of funds.

#### (6) Operating cash outflow ratio = Cash used in operations/Total sources of cash

This ratio indicates what proportion of total cash generated from all sources is used in operations. This ratio also helps users of accounting information in evaluating a firm's ability to control and contain costs. In general, the lower the ratio, the higher the profitability and the greater the probability of success of the firm.

# (7) Long-term debt payment ratio = Cash applied to long-term debt/Cash supplied by longterm debt

This ratio compares a firm's cash disbursements to pay long-term liabilities with cash receipts from long-term liabilities. Generally, the higher the ratio, the stronger the firm's ability to settle

its long-term liabilities as they become due. This ratio may be used by current or future longterm creditors who must evaluate the probability of obtaining repayment in the future for any funds loaned to the company.

# (8) Productivity of assets ratio = Cash from operations/Total assets

This ratio shows the percentage of cash generated from operating activities on each dollar of asset invested and measures the productivity of assets. It also helps accounting information users in assessing a firm's financial flexibility and management's ability to generate cash and control costs. Financial flexibility may be viewed in terms of a firm's ability to produce enough cash internally to respond to unforeseen problems and utilize profitable opportunities. An evaluation of a firm's ability to survive an unexpected drop in revenues, for example, may include a review of its past cash flows from operations. In general, the higher the ratio, the greater the efficiency of the use of assets and the better the firm's financial position.

#### FINANCIAL RATIOS BASED ON CONVENTIONAL ACCRUAL ACCOUNTING

Thirty financial ratios based on conventional accrual accounting have been used in earlier studies for predicting business failure (Beaver, 1966, 1968; Altman and Spivack, 1983). These were divided into six "common elements" groups. Only one ratio from each group was found to be a significant predictor of bankruptcy in the previous studies.

These six ratios were thus selected for use in the final bankruptcy models in this study. These ratios are:

(1) Net income to total assets

(2) Cash flow to total debt

(3) Current assets to current liabilities

(4) No credit interval (defensive assets minus current liabilities to fund expenditures for operations)

(5) Working capital to total assets

(6) Current liabilities plus long-term liabilities to total assets

In testing the research hypotheses, it was found that (a) cash flow data predict bankruptcy better than accrual accounting data, and (b) the use of cash flow data in conjunction with accrual accounting data improves the overall predictive power of accrual accounting data used in previous studies for predicting business failure. These findings, as in other studies, may be subject to some limitations because a limited number of firms were used and selected in a nonrandom sample. Additional research in this area might be useful to add credence to the results.

In summary, the results lead to the conclusion that cash flow data, in the form of financial ratios, are useful by themselves or as a supplement to accrual accounting data in predicting bankruptcy.

The implications of the study from the standpoint of management or other users are many. For example, the volume of net cash inflows from operations may indicate whether an enterprise can generate funds internally and meet its current and future obligations. Therefore, measuring the change in the volume of the cash flow components is considered to be critical in determining the future success or failure of a corporation. The inability of a corporation to generate cash from its operations over time may cause a default on its debt and bankruptcy. This situation indicates a basis for discriminating between financially successful and financially troubled enterprises.

The models used in this study may help users of accounting information to detect the deterioration of a firm's financial position. Management may use this information to forecast business failure and take the necessary action to avert a potential failure. Management may also use cash flow information as a planning tool. Some of the significant ways in which management may use this information for planning and managing purposes encompass: (1) to establish goals and allocate internal resources effectively by integrating this information into the budgeting process, (2) to coordinate cash dividends policy with other actions of the company, (3) to evaluate investment opportunities such as financing of new product lines, additional machinery, or acquisition of other competitors, (4) to evaluate the efficiency and effectiveness of managers and units, and (5) to find ways of strengthening a weak cash position or credit lines.

External users such as investors, creditors, auditors and others may use cash flow information to make more effective decisions. For example, investors may use this information to evaluate the

quality of management and whether it is pursuing corporate goals stated by stockholders. Investors may also use this information to update their prior beliefs regarding their current and future investments. Creditors such as bank loan officers may use this information to aid in improving critical lending decisions and monitoring loans. Improvements could be exhibited in many areas, such as a reduction in loans made to potential defaulters, and an increase in loans made to clients that repay their debt in a timely manner. Cash flow data may provide valuable information to auditors. It might help auditors in determining the analytical review (audit) procedures and in making critical and necessary decisions as to whether the firm is solvent and will stay in existence for awhile as a going concern.

Finally, the ratios emphasized in this study, based on cash flow data, may be useful as individual ratios. Management or investors may use these ratios, perhaps with other analytical procedures, to detect problems in various areas of the firm and take corrective action. For example, the External Financing Index Ratio shows the firm's ability to provide sufficient cash from its operations to meet its external obligations when they mature. Generally speaking, the higher the ratio the stronger the firm's liquidity, and the greater the probability of success of the firm. The Cash Sources Component Percentages Ratio relates the cash from financing activities to total cash sources during the period. In general, a lower ratio is an indication of a better financial position and greater probability of success of firms. The Financing Policies Ratio helps accounting information users to evaluate a firm's financing policies. Likewise the previous, the lower this ratio, the better the firm's financial position. Operating Cash Index Ratio assists current or potential investors and creditors to evaluate the "quality" of the firm's earnings. Unlike

the earlier ones, generally, the higher this ratio, the better the quality of earnings. Operating Cash Inflow Ratio indicates what proportion of cash inflows is generated internally from operating activities. A high ratio generally indicates a strong financial position for the company. Operating Cash Outflow Ratio indicates what proportion of total cash generated from all sources is used in operations. In general, the lower the ratio the higher the profitability. Long-Term Debt Payment Ratio compares a firm's cash disbursements to pay long-term liabilities with cash receipts from long-term liabilities. Generally, the higher the ratio the stronger the firm's ability to set off its long-term debt. Productivity of Assets Ratio measures the productivity of assets and the higher the ratio the greater the efficiency of use of assets.

5.5.2 Another study using the Cash Flow Ratios was conducted by Joseph D. Vu in the year 2000. This case study assessed how the large levels of free cash flow impacts the long-term performance of business firms. Free Cash Flow was defined as cash flow in excess of that was required to fund all positive net present value projects. Free cash flow must be paid to shareholders if the firm is to maximize value.

Jensen's (1986) free cash flow hypothesis suggests that market pressures (e.g., the market for corporate control) will encourage managers to distribute free cash flow to shareholders or risk losing control of the firm. Consequently, Jensen's hypothesis suggests that stock prices of firms with positive free cash flow should increase over time as management is pressured to increase payouts to corporate shareholders. Conversely, if management fails to increase payouts and

instead wastes free cash flow on unprofitable investment spending, the free cash flow hypothesis predicts further deterioration of firm value.

Research has generated several lines of evidence supporting the free cash flow hypothesis. First, increases in cash payouts are met with positive short-term share price responses, often in a manner consistent with the free cash flow hypotheses. Charest (1978) found that stock returns are negative when the company cuts the dividend and are positive when the dividend is increased. Brickely (1983) found that common stock prices react favorably to increases in specially designated dividends. While both studies provide evidence consistent with Jensen's hypothesis, they are also consistent with the view that managers signal positive information through changes in payout policy. Lang and Litzenberger (1989) provided stronger support for the free cash flow view when they found that the positive share price response associated with dividend increases was concentrated in firms having poor investment opportunities as measured by Tobin's Q. Recently, however, Denis et al. (1994) have challenged the Lang and Litzenberger (1989) study's interpretation. Finally, Nohel and Tarhan (1998) find that the operating performance of firms subsequent to tender offer share repurchases improves only in low-growth firms, and these improvements are generated by more efficient use of assets rather than improved investment opportunities. They suggest that share repurchases are used as part of an overall restructuring package aimed at removing inefficiencies associated with free cash flow rather than as a signal of new investment opportunities.

A second line of evidence supporting the free cash flow hypothesis is that capital spending increases are negatively associated with short-term stock price responses among firms with poor investment opportunities. McConnell and Muscarella (1985) found that announced capital spending increases by oil and gas exploration firms between 1975 and 1981 exhibited negative short-term stock price responses. Lang et al. (1991) found that bidder firm stock returns around corporate mergers and acquisitions were negatively related to the free cash flow of those bidders having poor investment opportunities. Szew-czyk et al., (1996) found that stock returns of firms announcing research and development spending were negative for firms with poor investment opportunities. Finally, Vogt (1997) found that positive stock price responses to announce capital spending decisions were concentrated in firms with favorable investment opportunities as measured by Tobin's Q. All of the above studies report results are consistent with the free cash flow hypothesis.

Despite this previous research, no studies have analyzed the long-run stock returns of firms generating consistently large levels of free cash flow, or the influence of other theoretically important variables on these firms' long-run returns. This study attempts to fill that gap by analyzing the long-run price performance of firms appearing on Value Line's weekly "Largest Free Cash Flow Generators" list. Our basic hypothesis is that managers of large free cash flow firms face market pressures to distribute free cash flow to shareholders, which ultimately improves market performance over the long run. One implication of this hypothesis is that large free cash flow generators should outperform market averages over time. The "Largest Gash Flow Generators" list, published weekly by Value Line, facilitates our analysis by providing a more

timely list of firms that have generated high levels of free cash flow than other data sources such as S&P COMPUSTAT. Therefore, using the Value Line list allows a more accurate mapping between stock market valuation and the point in time when free cash flow information first becomes available. In fact, we find that much of the market value response associated with large free cash flow firms results during the first month these firms make the Value Line list.

In addition to measuring long-run stock performance, we also control for the impact of several theoretically important variables that have been shown to explain long-run performance. First, we subdivide the sample into groups based on: 1) their book-to-market ratios (B/MV), 2) the level of Tobin's Q, and 3) their magnitudes of free cash flow. We then measure each sub-group's stock performance. Finally, we perform cross-sectional regression analysis while controlling for the above variables to test whether the capital spending, dividend payout, and share purchase policies of these firms have an influence on their long-run stock performance in a manner consistent with the free cash flow hypothesis. Our findings are consistent with the free cash flow hypothesis and indicate that firms divesting themselves of free cash flow, rather than those reinvesting it, enhance value over the long run.

The remainder of the article is organized as follows. We first describe the data and statistical methods used to measure market performance over the long run. Next we analyze the empirical evidence on long-run firm performance, taking care to control for certain market "anomalies" that might also influence long-run performance. Additionally, we perform cross-sectional

regression analysis to test whether the magnitude of long-run market performance is influenced by factors associated with the free cash flow hypothesis. Finally, we discuss our results and draw conclusions from our analysis.

The study collected firms generating the largest ratios of free cash flow from the "Largest Free Gash Flow Generators" list, published weekly by the Value Line Investment Survey. First published on October 5, 1979, this list contains the 100 firms that currently have the highest ratios of net income plus depreciation to capital expenditures plus dividends (CFRATIO) over the past five years. We consider in the following analysis only additions to the list. All stocks appearing on the initial list published on October 5, 1979 are excluded from the sample since the date they first become large free cash flow generators is not known. Firms that reappear on consecutive weekly lists are tracked from their first appearance and are only allowed to reappear in the sample after a two-year hiatus from the list. Finally, firms are excluded if cumulative returns, dividend yields, and changes in shares outstanding cannot be calculated because of missing data from the Center for Research in Security Prices (CRSP) monthly tapes, or if there is insufficient data on the COMPUSTAT tapes to calculate the firm's average book-to-market ratio, its Tobin's Q ratio, or its ratio of capital expenditures to property, plant and equipment for three prior and two years after they are listed on Value Line. These screens left a final sample size of 362 stocks distributed over the period, October 12, 1979 to December 31, 1995, most of which trade on the New York Stock Exchange (NYSE).

The types of business conducted by the 362 firms in our sample are varied. Forty-eight industries identified by 2-digit SIC codes are represented.

However, the heavy manufacturing industries tend to dominate the sample. The six most heavily represented industries are: SIC #73 Business Services (38 firms), SIC #35 Industrial, Commercial Machinery, Computer Equipment (34 firms), SIC #38 Measuring Instruments (33 firms), SIC #36 Electrical, Other Electrical Equipment, excluding Computers (24 firms), SIC #27 Printing, Publishing and Allied Products (21 firms), and SIC #28 Chemicals and Allied Products (17 firms). As indicated by their presence on the Value Line list, our sample firms also exhibit large ratios of cash flow to dividends and capital expenditures. While the CFRATIO exhibits considerable range from a minimum of 1.04 to a maximum of 19.17, the majority of firms have a CFRATIO greater than 2.0. The mean CFRATIO is 2.93 and the median is 2.24. (These data and results are not provided here in the interest of brevity, but are available from the authors upon request.)

To measure relative performance of our sample firms, we employ market-adjusted and sizeadjusted excess return calculations. Excess return calculations using the market model, as in Fama et al. (1969), were not performed due to instability in the parameter estimates of the model over time. The market-adjusted return is the monthly raw return minus the monthly return of the value-weighted CRSP index in the same period. Size-adjusted returns are defined as the raw monthly return on the stock minus the equally weighted average return on a portfolio of stocks that belong to the same decile of market capitalization. Market capitalization deciles are calculated each year based on price and shares outstanding data on the last trading day of March. The earliest month in which the stock is identified by Value Line as the biggest free flow cash generator is defined as month 0 in event time. Common stock returns are analyzed from 24 months before the event date until 24 months after. Stock returns are collected from the Center for Research in Security Prices (CRSP) tapes. For stocks that are acquired or liquidated, the CRSP liquidating return is included in the return calculation. Finally, the CRSP value-weighted index of NYSE, AMEX and NASDAQ firms is used as a proxy for the market portfolio.

Consistent with our hypothesis, the results indicate that large free cash flow firms provide higher rates of return for up to one year from the time they are identified by Value Line. The excess returns remain significant for longer periods when the returns are adjusted for the market. In other words, these firms outperform the market benchmark of all NYSE, AMEX, and NASDAQ firms. However, large free cash flow firms only outperform firms that have similar size (market capitalization) in a short period up to one year from the time they are identified by Value Line. For the entire two-year post-event period, the cumulative size-adjusted return is positive, but not statistically significant.

Next, the performance of this sample of high free cash firms is affected by forming sub-samples using variables identified in the literature to explain stock returns. We perform these tests to determine whether we will need to control for these factors to measure the independent effect of free cash flow on market performance. In particular, firms are divided by their book-to-market ratios, magnitude of free cash flow, and Tobin's Q. We discuss the relevance of each variable below.

Many academic studies find that firms with high ratios of book value of equity to market value of equity (B/MV) experience abnormally high stock returns (Rosenberg et al., 1985; Fama and French, 1992; Capaul et al., 1993; Harris and Marston, 1994). Fama and French (1993) suggest that high book-to-market ratios identify firms undergoing significant financial distress. Thus, the B/MV ratio represents a risk factor to be included in a multi-factor asset pricing model. Lakonishok et at. (1994) suggest that high B/MV are firms that are out of favor with investors, and represent a contrarian investment opportunity that outperforms the market, on average, as these firm's prospects improve.

Based on the empirical evidence, we hypothesize that firms with large free cash flow and high book to market values (B/MV) will have high excess returns. We split the sample into three portfolios according to the book-to-market ratio, where B/MV is defined as book value per share divided by stock price. Firms are grouped into the high, medium, and low B/MV groups if their B/MV ratios are at least 0.67, between 0.67 and 0.38, and less than or equal to 0.38, respectively. This grouping criterion is used to insure that each group contains approximately the same number of firms.

In the event month (month 0) only the medium and high B/MV sub-samples experience a significant increase in size-adjusted returns. For the entire 24-month post-event period, the cumulative size-adjusted return of the high B/MV rises about 14%, which is statistically significant at the 1% level. This result is consistent with our hypothesis that firms with large free

cash flow and high B/MV experience subsequent high excess returns. We also examined the cumulative market-adjusted returns for three sub-samples. The results are very similar; only the high B/MV sub-sample experiences significantly positive excess return in the post-event period.

Tobin's Q defined as the ratio of the market value of a firm's assets divided by the replacement cost of those assets, has important implications for the free cash flow hypothesis. Lindenberg and Ross (1981) show that firms facing positive net present growth opportunities will exhibit Q ratios greater than unity if these firms are selecting investments to maximize value. Alternatively, firms that continue to invest after all positive net present value opportunities have been exhausted will exhibit Q values below unity since the cost of acquiring those assets exceeds the value they generate. The free cash flow hypothesis predicts that these "overinvesting" firms will incur pressure from investors to distribute cash flow to shareholders rather than reinvest it in the firm. Consequently, we hypothesize that low Q, high free cash flow firms should exhibit superior performance post-listing as they are forced to be more efficient with their use of cash flow.

Excess returns for the high Q group rise substantially in the pre-listing period and remain unchanged in the post listing period. Conversely, the low Q sub-sample exhibits relatively flat returns in the pre-listing period, but a positive and statistically significant rise in returns (13%) in the post-listing period. This evidence is consistent with the hypothesis that low Q firms undergo pressure to be more efficient with the use of cash flow. The evidence so far indicates that free cash flow is an important variable influencing long-run market performance. If high free cash flow firms are indeed pressured to be more efficient, then the firms with the highest levels should receive the most pressure and hence be the most likely to respond. The magnitude of the CFRATIO variable also is a proxy for the length of time the firm stays on the Value Line list. Firms with very high CFRATIO levels tend to remain on the Value-Line list longer and are therefore exposed to longer periods of this negative publicity. Consequently, the longer a firm stays on the list, the greater the visibility, and the greater the pressure to change. We hypothesize that firms with the highest levels of free cash flow will have larger excess returns than those with lower free cash flow. We divide the sample into three sub-samples of high (CFRATIO at least 2.5), medium (2 [less than] CFRATIO [less than] 2.5) and low (CFRATIO less than or equal to 2) free cash flow firms.

Although the highest free cash flow sub-sample has significant positive size-adjusted returns of 3.34% during the event month, the increase of 8% in the entire 24 month post-event period is not significant. The medium and lower free cash flow sub-samples do not experience a significant increase in stock returns in either month 0 or the post-event period. The results provide weak support of our hypothesis that firms with the highest free cash flow have larger excess returns.

#### **Regression Analysis**

According to Jensen's free cash flow theory, firms that generate substantial cash flow have two options. They can reinvest the cash in the firm, or they can pay it out either through dividends or

by repurchasing shares. Jensen argues that if free cash flow is reinvested in negative net present value projects, share value will suffer. Alternatively, if free cash flow is paid in dividends or used to repurchase stock, share value should rise.

To capture these effects we construct three variables that measure each firm's reinvestment and payout behavior and regress them against their 24-month post-listing cumulative excess returns.

(1)The average of capital expenditures in gross property, plant and equipment to total assets (over three years prior to the Value Line listing date.

(2) The three-year average dividend yield

(3) The three-year average percentage increase in shares outstanding measured prior to the listing date.

Both variables were constructed from the CRSP database. These variables capture firm behavior during the time the firm is generating a significant amount of free cash flow. Firms with high dividend yields are paying out a significant amount of cash to shareholders relative to stock price. If distributing free cash flow to shareholders is more efficient than reinvesting in the firm, excess returns should be positively related to the three-year average dividend yield. Firms with high levels of capital expenditures generally were reinvesting a lot of cash into the business. Since continued capital spending with free cash flow is likely to be value destroying, under Jensen's hypothesis, capital expenditures should be negatively related to excess returns. Firms with high values of three-year average percentage increase in shares were issuing new shares even though they were generating a lot of cash flow. Alternatively, firms with negative levels of three-year average percentage increase in shares have a history of repurchasing shares with free cash flow. Because share repurchases are an alternative to dividends for distributing cash, threeyear average percentage increase in shares should be negatively related to excess returns.

The results show that the parameter estimates on the three variables of interest retain the same sign predicted by the free cash flow theory even after dummy variables enter the regression. The parameter estimates on capital expenditures and three-year average dividend yield are almost always significant while the estimate on three-year average percentage increase in shares is often not statistically significant, though it has the proper sign. Consequently, the predictions of the free cash flow hypothesis regarding long-run market performance appear to hold even after controlling for alternative factors previously determined to affect performance.

As a final test of the free cash flow hypothesis, we consider how firms change their capital spending, dividend, and share issuance/repurchase behavior in response to appearing on the Value Line list, and how that behavior influences post-listing performance. In particular, we are interested in whether or not behavior changes by firms are influenced by their over-investing behavior as measured by Tobin's Q.

The pre-listing period, as before, encompasses the three years prior to the firm appearing on the Value Line list while the post-listing period includes the year the firm first appears on the list and

the subsequent two years after. Consistent with the free cash flow theory, dividend yields rise and capital spending and net share issuance fall in the post-listing period. This result is consistent with the hypothesis that firms, after being identified by Value Line, respond by increasing cash flow payouts to shareholders and reducing potentially excessive capital spending. Panel B provides additional support for the free cash flow hypothesis. While both low Q (Q[less than]1) and high Q (Q[greater than or equal to]1) firms exhibit behavior changes consistent with the free cash flow hypothesis, the changes in capital expenditures and three-year average percentage increase in shares are only statistically significant in high Q firms. Results provide clear evidence that firms who investors believe make better use of free cash flow (i.e., high Q firms) are those that significantly reduce capital spending and repurchase shares when free cash flow is plentiful.

Managers of firms that generate a significant amount of cash flow in excess of their capital needs find themselves in the fortunate position of managing the effective use of those excess funds. Paradoxically, Jensen (1986) has warned that these excess funds can lead to waste and inefficiencies that destroy firm value unless otherwise checked. The implication of Jensen's (1986) free cash flow hypothesis is that managerial decisions, even in prosperous times, require diligence and a degree of humility. Excess cash flow is generally best paid out to shareholders who can make their own investment decisions rather than have management "go looking" for profitable investment opportunities that may not actually exist. The degree to which free cash flow leads to inefficient managerial decision making, and the degree to which these inefficiencies are mitigated by activities of investors in the financial markets are, of course, empirical questions.

This study provides evidence that free cash flow and managerial decisions over its use do have important implications for long-run shareholder value. We find that a timely sample of firms identified in Value Line Investment Survey's weekly list of "Largest Free Cash Flow Generators" produce positive raw, market-adjusted and size-adjusted rates of return for up to one year after these firms appear on Value Line. Results are less pronounced over a two-year horizon, and only raw and market-adjusted returns are statistically significant. Consistent with previous literature, we also find that excess returns of high free cash flow firms are larger for: (1) high book-to-market firms (consistent with Fama and French, 1992) and (2) firms with Tobin's Q ratios below unity. Consistent with Jensen's hypothesis, managers of high free cash flow firms do, on average, respond to market incentives to manage free cash flow in a value-maximizing way.

We also document that the magnitude of excess returns observed in large free cash flow firms varies in a manner consistent with the free cash flow hypothesis. Cross-sectional regression analysis indicates that high free cash flow firms with a history of high levels of capital spending are associated with low levels of excess returns. Conversely, firms with a history of high dividend yields or a high percentage of stock repurchases are associated with positive excess returns two years after making the Value Line list of large free cash flow generators. These results lend further support for the free cash flow hypothesis. Firms that plow back considerable free cash flow into the firm tend to be penalized by the market for doing so. Conversely, firms that distribute excess cash to shareholders appear to reap benefits in the form of higher market valuations in the long run.

Finally, we show that the publicity associated with making the Value Line list of largest free cash flow generators is related to subsequent behavior changes by firms. In particular, firms reduce capital spending, increase dividends, and slow the rate of net share issuances in the years following their appearance on the Value Line list. Moreover, the stock price performance of firms most likely to be mismanaging their free cash flow (i.e., low Q firms) responds positively to share repurchases after being listed, while capital spending adds no additional market value. Conversely, more efficient (high Q) firms appear to benefit most from additional capital spending as it marginally improves their market value.

The bulk of the evidence presented here supports our initial hypothesis that large free cash flow firms face market pressures to efficiently distribute free cash flow over time. Our results also highlight the importance to investors of having clear and timely information on which to make decisions that ultimately embody themselves in these market pressures that lead to changes in managerial behavior. Despite other more institutional checks on managerial behavior (e.g., corporate boards, independent auditors), this study reaffirms the role that the marketplace has in serving as the final check on, and important means to influence change in, managerial decision making.

Given the two studies above, future researchers may extend the scope of the study on Cash Flow Ratios presented. Similar to the discussion presented in this paper, future researchers may conduct above studies and compare the responses between industries in emerging markets and developed countries. Such studies would be helpful in assessing the feasibility of new investments or establishments of companies in countries that share similar economic status as that of Ghana. Furthermore, studies of Cash Flow Ratios could also greatly impact improvement of corporate management of existing firms in both emerging markets and developed countries.

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## APPENDIX A

## FINANCIAL STATEMENT OF LISTED COMPANY

## NAME OF COMPANY NO. OF NOUGHTS ELIMINATED

CONSOLIDATED PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED 31 <sup>ST</sup> DECEMBER in¢'000	2005	2004	2003	2002	2001
Turnover Cost of Sales					
General & Administration Expenses		·	·····	·····	·····
Operating Profit/(Loss) Other Income		<u></u>			<u></u>
Profit/(Loss) before tax					
National Reconstruction Levy					
-	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
Profit/Loss after tax	·····	·····			
Profit/(loss) Transfe'd to Shareholders' Acc't	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
BALANCE SHEET AS AT 31 <sup>st</sup> DECEMBER,	1				
Fixed Assets					
Investments Deferred Expenditure					
CURRENT ASSETS					
Inventory Trade Accounts Receivable					
Other Accounts Receivable					
Cash & Bank Balances	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
CURRENT LIABILITIES					
Trade Accounts Payable Other Account Payable					
Taxation					
Dividend Payable					
Short-term Loan	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>
Net Current Assets					
LONG-TERM LIABILITIES Loan from Shareholders					
			<u></u>	·····	
Net Assets	<u></u>	<u></u>		<u></u>	<u></u>
Represented By:					
Stated Capital					
Capital Surplus Income Surplus					
Minority Surplus	<u></u>	<u></u>	<u></u>	<u></u>	<u></u>

#### OTHER STATISTICS

Issued no of shares (million) Aggregate Earning (¢ million) Aggregate Dividends:	 	 	
Final (¢million)	 	 	
Debt/Equity Ratio	 	 	
Earnings per share (Cedis)	 	 	
Dividend per share (Cedis)	 	 	
Net Assets per share (Cedis)	 	 	
Return per Equity %	 	 	

#### MARKET STATISTICS

CASH FLOW STATEMENT FOR THE YEAR ENDED 31 DECEMBER. (<"000)

Market Price Dec. 31	 	 	
Dividend Yield	 	 	
Price Earnings Ratio	 	 	

2005 2004 2003 **Cash flow from operations** ..... ..... ••••• Changes in assets and liabilities Inventory Trade accounts receivable ..... Other account receivable Trade account payable ..... Other account payable <u>.....</u> <u>.....</u> <u>.....</u> ..... Tax Paid Corporate ..... National Reconstruction Levy <u>....</u> <u>.....</u> <u>.....</u> ••••• ••••• ..... Net cash used in operating activities ••••• **INVESTMENT ACTIVITIES** Purchase of Fixed Assets ..... **Deferred Expenditure** ..... **Dividend Paid-Minority** ..... Investment Net cash used in investing activities ...... CASH FLOW FROM FINACING ACTIVITIES Proceeds from issue of shares ..... Short-term loan ..... Dividend Paid-Members Net cash provided by financing activities ••••••••••••••••••••••• **INCREASE IN CASH & BANK BALANCES** ..... CASH AND CASH EQUIVALENTS: At beginning of the year ••••••••••••••••••••••• At end of the year ••••••••••••••••••••••••

# APPENDIX B

## THE GHANA STOCK EXCHANGE LISTED COMPANIES

Listed Company	Share Code	Classification
<u>First List</u>		
Accra Brewery Company Limited	ABL	Food & Beverages
AngloGold Ashanti Ltd.	AGA	Mining
AngloGold Ashanti Depository Shares	AADs	··
Aluworks Limited	ALW	Manufacturing
British American Tobacco Gh. Ltd.	BAT	Manufacturing
Benso Oil Palm Plantation	BOPP	Agro-Processing
CAL Bank Ltd.	CAL	Banking & Finance
CFAO Ghana Ltd.	CFAO	Distribution
Clydestone (Ghana) Ltd.	CLYD	ICT
Camelot Ghana Ltd.	CMLT	Printing
Cocoa Processing Co. Ltd.	CPC	Manufacturing
Enterprise Insurance Co. Ltd.	EIC	Insurance
Fan Milk Ltd.	FML	Food & Beverages
Ghana Commercial Bank Ltd.	GCB	Banking & Finance
Guinness Ghana Breweries Ltd.	GGBL	Food & Beverages
Golden Web Ltd.	GWEB	Manufacturing
HFC Bank (Ghana) Ltd.	HFC	Banking & Finance
Mechanical Llyod Co. Ltd.	MLC	Distribution
Mobil Oil Ghana Ltd.	MOGL	Distribution
Pioneer Kitchen Ware Ltd.	PAF	Manufacturing
Produce Buying Company Ltd.	PBC	Distribution
PZ Cussons Ghana Ltd.	PZ	Manufacturing
Standard Chartered Bank Gh. Ltd.	SCB	Banking & Finance
Starwin Products Ltd.	SPL	Pharmaceuticals
Supper Paper Products Co. Ltd.	SPPC	Manufacturing g
SG-SSB Limited	SSB	Banking & Finance
Sam Woode Ltd.	SWL	Publishing
Trust Bank Ltd. (The Gambia)	TBL	Banking & Finance
Unilever Ghana Ltd.	UNIL	Manufacturing