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## **Liquidity Management and Its Effect on Profitability in a Tough Economy: (A Case of Companies Listed on the Ghana Stock Exchange)**

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### **ABSTRACT**

Liquidity management, especially at the wake of the global financial crisis, has become a major source of concern for business managers as bank loans are becoming too expensive to maintain as a result of tightening of both the local and international financial market and the reluctance of the public to invest in the share of companies as a result to the crash of the capital market. This research work measures the relationship between liquidity and profitability and its effect on profitability in a tough economy using data from all the 33 companies listed on the Ghana Stock Exchange. The result of the study was obtained using descriptive analysis and the finding shows that liquidity measured in terms of the companies Cash Conversion Cycle, Average Collection Period and Average Payment Period have no statistical significant on profitability and it is concluded that managers can increase profitability by putting in place good credit policy, short cash conversion cycle and an increase in current ratios.

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### **BACKGROUND OF THE STUDY**

Entrepreneurs set up enterprises with the aim of making profit. According to Pimentel et al, (2005), Profitability can be defined as the final measure of economic success achieved by a company in relation to the capital invested in it. This economic success is determined by the magnitude of the net profit.

Owolabi and Obida (2012) also defined profitability as the ability to make profit from all the business activities of an enterprise. It measures management efficiency in the use of organizational resources in adding value to the business. Profitability may be regarded as a relative term measurable in terms of profit and its relation with other elements that can directly influence the profit. Profitability is the relationship of income to some balance sheet measure which indicates the relative ability to earn income on assets.

According to Shim and Siegel (2000) accounting liquidity is the company's capacity to liquidate maturing short-term debt (within one year). Maintaining adequate liquidity is much more than a corporate goal, it is a condition without which the continuity of a business is at risk.

Liquidity is defined by the relative ease, cost, and speed with which an asset can be converted into cash (Bodie & Merton, 2000). The objective of liquidity management, in the words of Gallinger & Healey (1991), is "to provide for adequate availability and safekeeping of corporate funds under varied economic conditions in order to help achieve the desired corporate objectives of shareholder's wealth maximization".

The management of Liquidity involves managing inventories, accounts receivable and payable, and cash (Kishore, 2008).

Liquidity Management refers to all management decisions and actions that influence the size and effectiveness of liquidity. It emphasizes the management of current assets, current liabilities and the relationship that exist between them. The effect of liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of the inability to meet due short term obligations.

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## **Emmanuel Opoku Ware “Liquidity Management and Its Effect on Profitability in a Tough Economy: (A Case of Companies Listed on the Ghana Stock Exchange)”**

The main objective of companies operating in capitalist economies is to achieve an appropriate return over the amount of risk accepted by the shareholders. After all, profit is the propulsive element of any investments in different projects.

The assessment of profitability is usually done through the ROA (Return on Assets = Net Income / Total Assets) and ROE (Return on Equity = Net Income / Equity), which is the ultimate measure of economic success (Damilola, 2007).

Liquidity is a necessity for the survival of the firm. While comparing liquidity with profitability, liquidity gets higher priority. No firm will continue to exist if it has no liquidity. Firms which do not make profit may be treated as under par but not having liquidity may cease to operate over a period (Agarwal & Mishra 2007).

According to Assaf Neto (2003), the greater the amount of funds invested in current assets, the lower the profitability, and by the same time the less risky is the working capital strategy. In this situation, the returns are lower in the case of a greater financial slack, in comparison to a less liquid working capital structure. Conversely, a smaller amount of net working capital, while sacrificing the safety margin of the company, by raising its insolvency's risk, positively contributes to the achievement of larger return rates, since it restricts the volume of funds tied up in assets of lower profitability. This risk-return ratio behaves in a way that no change in liquidity occurs without the consequence of an opposite move in profitability.

Marques and Braga (1995) confirmed the inverse relationship between liquidity and profitability for a sample of food companies. Blatt (2001), also confirmed a negative relationship between liquidity and profitability, measured by Dynamic Model and profitability.

However, Perobelli et al. (2007) argued that on the long-term, there is a necessity to achieve a balance between the financial and economic profile. For these authors, liquidity and financial position reflected in return on equity, which also contains the effect of financial leverage, are two sides of a coin which is the economic and financial health of companies. One thing to note is that the appropriate return allows the self-financing of business operations through the retained portion of net profit. Thus, good profitability increases the liquidity and marketability promotes proper growth and future profitability.

Liquidity management is a concept that is receiving serious attention all over the world especially with the current financial situations and the state of the world's economy. The concern of business owners and managers all over the world is to devise a strategy of managing their day to day operations in order to meet their obligations as they fall due and increase profitability and shareholder's wealth. It is on this note that the study is being carried out to ascertain the relationship between liquidity and profitability of companies listed on the Ghana Stock Exchange.

### **Statement of the Problem**

Business financing, especially at the wake of the global financial crisis, has become a major source of concern for business managers as bank loans are becoming too expensive to maintain as a result of tightening of both the local and international financial market and the reluctance of the public to invest in the share of companies sequel to the crash of the capital market. These situations compel business managers to devise various strategies of managing internally generated revenue to enhance their chances of making profit and meeting existing shareholders expectations.

Liquidity management and profitability are very important issues in the growth and survival of business and the ability to handle the trade-off between the two a source of concern for financial managers.

One of the major reasons that may cause liquidation is illiquidity and inability to make adequate profit. These are some of the basic ingredient of measuring the “going concern” of an establishment. For these reasons companies are developing various strategies to improve their liquidity position. Strategies which can be adapted within the firm to improve liquidity and cash flows concern the management of working capital, areas which are usually neglected in times of favorable business conditions (Pass & Pike 1984). The problem to be addressed by this study is to evaluate the relationship between liquidity management and profitability of institutions listed on the Ghana Stock Exchange.

### **Purpose of the Study**

The purpose of the study is to determine the relationship between Liquidity and Profitability of institutions listed on the Ghana Stock Exchange.

Specifically, the research seeks to:

1. Determine the relationship between Liquidity measured by Cash Conversion Cycle, Average Receivable Period and Average Payment Period on the profitability of listed institutions on the Ghana Stock exchange.
2. To determine the direction of the relationship between Liquidity and Profitability. That is whether there is a positive or negative relationship between them.

### **Significance of the Study**

The relationship between Liquidity and profitability of institutions listed on the Ghana Stock Exchange is being researched into since it is of critical importance and it will consistently help institutions maintain proper balance between current assets and current liabilities to enable them meet their day to day financial obligation.

The study is intended to broaden existing knowledge and also serve as a basis for other research in this area of study.

### **Research Question and Hypotheses**

#### ***Research question***

The research question for the study is;

What is the relationship between Liquidity and the Profitability of institutions listed on the Ghana stock exchange?

#### ***Hypotheses***

**Ho:** There is a statistically significant relationship between profitability of institutions listed on the Ghana Stock Exchange.

**H1:** There is no statistically significant relationship between profitability of institutions listed on the Ghana Stock Exchange.

### **Methodology**

#### ***Research Approach and Design***

In this study, the researcher will apply quantitative approach and correlation design in ascertaining the relationship between institutions listed on the Ghana Stock Exchange. Owolabi&Obida ( 2012) in ascertaining the relationship between liquidity and profitability on some manufacturing companies listed on the Nigerian Stock Exchange used the same approach. They stated that according to Damilola, 2007 the liquidity management of a company could be measured in term of it Debtors Collection Period (DCP), Creditors Payment Period (CPP) and Cash Conversion Cycle (CCC). Profitability in the other hand could be measured using the Return on Investment Ratio (ROI), Return on Equity (ROE) and Return on Asset (ROA). Return on Asset, Return on equity and Return on investment are part of the group of ratios called the profitability and efficiency ratio. These classes of ratios judge the relative profitability and efficiency of utilization of resources of a business.

Renato (2010) used qualitative approach and he also used the correlation design in evaluating the relationship between liquidity and profitability of airline companies.

We will therefore use both quantitative and descriptive techniques for the study. This will involve a cross sectional collective data from the annual financial report of all listed institutions on the Ghana Stock Exchange. The researchers will use secondary data to establish the relationship between liquidity and profitability.

#### ***Data source and collection***

Time series data will be extracted from the financial statements of the listed institution over the period 2005 to 2009. The financial data used in the study will be acquired from the Ghana Stock Exchange (GSE).

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The population of the study will be institutions listed on the Ghana Stock Exchange. In all there are thirty-three (33) institutions on the Ghana Stock Exchange.

### ***Analytical Technique***

The regression, descriptive statistics and correlation analysis will be used. The regression model will be estimated with the ordinary least squares technique by pulling together the data. The usual assumption of linearity and no presence of multicollinearity will be made and tested. The summary statistics to be used to describe the data includes mean, standard deviation, mode and median. The hypothesis will be tested using the t-values and the associated probability. The SPSS will be used for the estimation.

### **Limitations of the Study**

The study is challenged by the following limitations;

#### ***Access to data***

The researcher has problems with accessing data for the project work. For this reason the study may not portray a fair picture of the problem.

#### ***Time Constraints***

The time frame for this project work is very limited coupled with the fact that the researcher has other academic responsibilities.

### **Scope and Organization of the Study**

The research will be written and presented in Five Chapters:

Chapter One gives an overview of the background of the study and also outlines the research question and the null hypothesis of the study and defines the purpose, the aim, the significance of the study, the condensed mythology and the condensed literature. It also outlines the research question and the null hypothesis of the study.

Chapter Two contains the literature review thus both theoretical and empirical literature as well as operational definitions. This chapter outlines relevant theories from different authors based on the research topic and also relevant empirical works.

Chapter Three is the methodology. It contains the plan that outlines the various activities needed to do an analysis in order to address the research question.

Chapter Four comprises the data analysis and interpretation.

Chapter Five contains the summaries, discussions, conclusion and recommendations.

## **LITERATURE REVIEW**

### **Introduction**

This chapter reviews existing theoretical and empirical literature on the relationship between liquidity and profitability of institutions listed on the Ghana Stock Exchange. The theoretical literature provides information on the concept of liquidity management, debtors' collection period, creditors' payment period and cash conversion cycle and some relevant principles on liquidity management from various authors. Theoretical literature also provides the concept of profitability using the return on investment ratios, return on equity and return on assets. The empirical literature on the other hand gives the practical studies conducted by some researchers on the relationship between liquidity and profitability of institutions listed on the stock exchange.

### **Theoretical Literature**

#### ***Definition of Liquidity***

Liquidity is defined by the relative ease, cost, and speed with which an asset can be converted into cash (Bodie & Merton, 2000).

Mayo (2003) also defined liquidity as the ease with which assets can be converted into cash with little risk of loss of principal.

Brigham & Houston (2001) added on that liquidity is the ease of selling the asset and converting it to cash at a fair market value.

Shim and Siegel (2000) on the other hand defined accounting liquidity as the company's capacity to liquidate maturing short-term debt (within one year). Maintaining adequate liquidity is much more than a corporate goal, it is a condition without which the continuity of a business is at risk.

### 2.1.2 Liquidity management

Liquidity Management refers to all management decisions and actions that influence the size and effectiveness of liquidity. It emphasizes the management of current assets, current liabilities and the relationship that exists between them. Liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of the inability to meet due short term obligations.

he firm's liquidity management is considered best if it is based on the principle of cash collecting from debtors early and holdup the payments of current debts and obligations/liabilities as much as possible (Muneeb&Kashif 2012). When a business firm is not able to manage its liquidity position it will definitely face difficulty in paying its short term debts and therefore the business may be forced to resort to external financing to clear its short term debts.

Management will use a combination of policies and techniques for the management of liquidity. These policies aim at managing the current assets (generally cash and cash equivalents, inventories and debtors) and the short term financing.

When a business firm is not able to manage its liquidity position it will definitely face difficulty in paying its short term debts and therefore the business may be forced to resort to external financing to clear its short term debts(Muneeb&Kashif 2012). They stated that the efficiency of liquidity management is based on the principle of expediting the collections from debtors' as much as possible and delaying down the cash payments as much as possible.

### **Current Asset Management**

In financial Accounting, assets are economic resources tangible or intangible that is capable of being owned or controlled to produce value and that is held to have positive economic value.

According to Adelman and Marks (2007), a current asset is an asset on the balance sheet which is expected to be sold or otherwise used up in the near future, usually within one year, or one operating cycle whichever is longer and continually change. They are listed on the balance sheet in order of their liquidity or how fast they can be converted into cash. Current Assets include: cash, debtors, prepaid expenses and account receivables.

### **Cash Management**

In ordinary language cash refers to money in the physical form of currency, such as banknotes and coins.

In bookkeeping and finance, cash refers to current assets comprising currency or currency equivalents that can be accessed immediately or near-immediately (as in the case of money market accounts). Cash is seen either as a reserve for payments, in case of a structural or incidental negative cash flow or as a way to avoid a downturn on financial markets.

Brigham & Houston (2001) defined cash management as minimizing the amount of cash the firm must hold for use in conducting its normal business activities but yet having sufficient cash to take trade discounts, maintain credit rating and to meet unexpected cash needs. Cash and cash equivalents are the most liquid assets found within the asset portion of a company's balance sheet. Cash equivalents are assets that are readily convertible into cash, such as money market holdings, short-term government bonds or Treasury bills, marketable securities and commercial paper. Cash equivalents are distinguished from other investments through their short-term existence; they mature within three months whereas short-term investments are twelve months or less, and long-term investments are any investments that mature in excess of twelve months.

Another important condition a cash equivalent needs to satisfy is that the investment should have insignificant risk of change in value; thus, common stock cannot be considered a cash equivalent, but

preferred stock acquired shortly before its redemption date can be. Cash is managed by identifying the cash balance which allows for the business to meet day to day expenses, but reduces cash holding costs.

Effective cash management involves investing idle cash in those short-term marketable securities that offer not only safety of principal but also a positive rate of return. Cash management is a part of effective liquidity management that involves a trade-off between risk and return .

Other effective cash management as outlined by Brigham & Houston (2001) encompasses proper management of cash inflows and outflows which entails synchronizing cash flows, using float, accelerating collections, getting available funds to where they are needed and controlling disbursements.

### ***Debtors Management***

A debtor is an entity that owes a debt to someone else. The entity may be an individual, a firm, a government, a company or other legal person. The counterparty is called a creditor. Debtors are people or other firms who owe money to the firm. This will usually happen where the firm has sold goods with a period of credit. The firm sells the good or service but allows the purchaser a period of credit to pay - usually a month. During this month the purchaser owes the firm the money and is therefore a debtor.

If the firm has debts these are considered an asset, because when the debtors pay the firm will have converted the debt into cash in the bank. Because most debts are relatively short-term they are considered current assets.

Debtors are managed by identifying the appropriate credit policy, i.e. credit terms which will attract customers, such that any impact on cash flows and the cash conversion cycle will be offset by increased revenue and hence return on Capital or vice versa.

### ***Inventory Management.***

Inventory means stockbought by an institution in order to resell them. Inventory management involves the control of the assets that are used in the production process or produced to be sold in the normal course of the firm's operations (Keown et al 1996)

Thus company'smerchandise, raw materials, and finished and unfinished products which have not yet been sold are termed as inventory. These are considered liquid assets, since they can be converted into cash quite easily.

Inventory management is primarily about specifying the size and placement of stocked goods which are required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods.

This would include the monitoring of material moved into and out of stockroom locations and the reconciling of the inventory balances. Also may include ABC analysis, lot tracking, cycle counting support etc. Management of the inventories, with the primary objective of determining/controlling stock levels within the physical distribution function to balance the need for product availability against the need for minimizing stock holding and handling costs.

### ***Current Liabilities Management***

According to Williams et al (2005), a liability is a debt assumed by a business entity as a result of its borrowing activities or other fiscal obligations (such as funding pension plans for its employees); liabilities are paid off under either short term or long term arrangements. The amount of time allotted to pay off the liability is typically determined by the size of the debt, large amount of money are usually borrowed under long term plans.

Current liabilities are short term obligations that are paid off within one year or one current operating cycle, whichever is longer. Typical current liabilities include creditors, account payables, accrued expenses. Current liabilities management consists of minimizing firm's obligations and payments for short-term debt, accrued liabilities and accounts payable. Current liabilities management consists of short-term debt management, accrued liabilities management and accounts payable management.

### ***Creditors Management***

A creditor is a party (e.g. person, organization, company or government) that has a claim to the services of a second party. It is a person or institution to whom money is owed. The first party, in general, has provided some property or service to the second party under the assumption (usually enforced by contract) that the second party will return an equivalent property or service. The second party is frequently called a debtor or borrower. The first party is the creditor, which is the lender of property, service or money.

The term creditor is frequently used in the financial world, especially in reference to short term loans, long term bonds, and mortgage loans. In law, a person who has a money judgment entered in their favour by a court is called a judgement creditor.

The term creditor is derived from the notion of credit. In modern America, credit refers to a rating which indicates the likelihood a borrower will pay back his or her loan. In earlier times, credit also referred to reputation or trustworthiness.

Creditors can be classified as either "personal" or "real". Those people who loan money to friends or family are personal creditors. Real creditors (i.e. a bank or finance company) have legal contracts with the borrower granting the lender the right to claim any of the debtor's property used as collateral if the debtor refuses to pay back the loan.

### ***Account Payables Management***

Account payable represents the current liabilities towards suppliers from whom the firm has purchased raw materials on credit (Pandey 2004). It is sometimes referred to as trade payables. The account payable is a form of credit that suppliers offer to their customers by allowing them to pay for a product or service after it has already been received.

The largest portion of accounts payable normally consists of the obligations of a firm that were obtained by purchasing inventory on credit as well as other items such as travel expenses and maintenance services. The purpose of managing accounts payable is to minimize the cash paid for inventories and these other obligations. Because inventories comprise the largest portion of accounts payable, the firm can normally minimize these cash payments by taking advantage of the discounts that are offered by vendors.

### **Working Capital Management Policy**

Working capital policy is basically about how much working capital the company should maintain. Should they go in for a zero-risk arrangement, or can they try a bit of daredevilry in their liquidity management?

On this base the literature of Pandey (2004) classifies working capital policy into three categories, Matching, Aggressive and Conservative

#### ***Matching policy***

A company adopts a financial plan which matches the expectancy life cycle of assets with the expected life of the sources of capital raised to finance the assets. The justification for the exact matching is that, since the purpose of financing is to pay for assets, the source of financing and assets should have the same life cycle. However, it should be realized that exact matching will be impossible because of the uncertainty about the life expectancy of assets (Pandey 2004)

#### ***Aggressive policy***

A company can follow aggressive policy by financing its current assets with short term debt because it gives the low interest rate but the risk associated with short term debt is higher than the long term debt. This approach is very risky because the difference between short term or liquid assets and short term liabilities turns very little. Such a policy is adopted by the company which is operating in a stable economy and is quite certain about future cash flows. A company with aggressive working capital policy offers short credit period to customers, holds minimal inventory and has a small amount of cash in hand.

#### ***Conservative Working Capital Policy***

In this policy, you not only match the current assets and the current liabilities, but you also keep a little safety net just in case of any uncertainty. Undoubtedly, this is the lowest risk working capital

policy, but it reduces the money used in increasing the production some companies want neither to be aggressive by reducing the level of current assets as compared to current liabilities nor to be defensive by increasing the level of current assets as compared to current liabilities. So, In order to balance the risk and return these firms are following the moderate or conservative approach. This approach is a mixture of matching and aggressive policy. In these approach temporary current assets, assets which appear on the balance sheet for short period will be financed by the short term borrowings and long term debts are used to finance fixed assets and permanent current assets.

### **Liquidity Ratios**

#### ***Current ratio***

The current ratio is an indication of the extent with which current liabilities, which must be paid within is year, are covered by current assets by current assets (Mayo 2003). It is a firm's market liquidity and ability to meet creditor's demands. Acceptable current ratios vary from industry to industry. If a company's current ratio is in this range, then it is generally considered to have good short-term financial strength. If current liabilities exceed current assets (the current ratio is below 1), then the company may have problems meeting its short-term obligations. If the current ratio is too high, then the company may not be efficiently using its current assets or its short-term financing facilities. This may also indicate problems in liquidity management.

The current ratio is a financial ratio that measures whether or not a firm has enough resources to pay its debts over the next 12 months. It compares a firm's current assets to its current liabilities.

Low values for the current or quick ratios (values less than 1) indicate that a firm may have difficulty meeting current obligations. Low values, however, do not indicate a critical problem. If an organization has good long-term prospects, it may be able to borrow against those prospects to meet current obligations. Some types of businesses usually operate with a current ratio less than one.

For example, if inventory turns over much more rapidly than the accounts payable become due, then the current ratio will be less than one. This can allow a firm to operate with a low current ratio.

It is expressed as follows:

$$\text{Current ratio} = \frac{\text{Current asset}}{\text{Current liability}}$$

#### ***Quick Ratio***

Mayo (2003) defined current ration as an indicator of the company's ability to meet its current liabilities as they become due, hat determines whether a firm has enough short-term assets to cover its immediate liabilities without selling inventory. The acid-test ratio is far more strenuous than the working capital ratio primarily because the working capital ratio allows for the inclusion of inventory assets. Current assets includes inventory and prepaid expenses, which are relatively illiquid compared to cash, short-term investments, and accounts receivable hence, a better measure of liquidity for companies with large inventories or prepaid expenses is the quick ratio (acid-test ratio, quick asset ratio), which is the same as the current ratio, but without the value of inventory and prepaid expenses in the numerator.

Calculated by:

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$$

### **Measures of Liquidity Management**

The liquidity of a company is measured with use of some financial ratios refers to as liquidity ratios. These group of ratios measures the ability of the firms to meet its current obligations (Liabilities).Analysis of liquidity needs the preparation of cash budgets and cashflow statement; but liquidity ratio, by establishing a relationship between cash and other current assets to current obligations, provided a quick measure of liquidity (Pandy 2005). The most common ratios, which indicate the extent of liquidity or lack of it, are:

#### ***Cash Conversion Cycle***

The Cash Conversion Cycle (CCC) measures how long a firm will be deprived of cash if it increases its investment in resources in order to expand customer sales. It is thus a measure of the liquidity risk entailed by growth.



As cited by Muneeb&Kashif 2012, Besley and Brigham (2005) describe cash conversion cycle as “the length of time from the payment for the purchase of raw materials to manufacture a product until the collection of account receivable associated with the sale of the product.”

However, shortening the CCC creates its own risks: while a firm could even achieve a negative CCC by collecting from customers before paying suppliers, a policy of strict collections and lax payments is not always sustainable.

The term "cash conversion cycle" refers to the time span between a firm's disbursing and collecting cash. However, the CCC cannot be directly observed in cash flows, because these are also influenced by investment and financing activities; it must be derived from Statement of Financial Position data associated with the firm's operations.

Cash Conversion Cycle must be calculated by tracing a change in cash through its effect upon receivables, inventory, payables, and finally back to cash—thus, the term *cash conversion cycle*, and the observation that these four accounts "articulate" with one another.

Besley and Brigham (2005) acknowledged that to account for the efficiency of the firm's cash management, the practitioners and researchers use the cash conversion cycle (CCC) parameter by considering the variables of inventory conversion, debtors conversion and the payables conversion. The CCC is calculated by taking into account the

1. Debtors conversion period,
2. Payables conversion period, and
3. Inventory conversion period.

CCC = inventory conversion period + debtors conversion period – payables conversion period

### **2.6.2 Average Collection Period or Debtors Collection Period.**

This ratio shows number of days it takes an organization to recover its credit sales. The shorter the period, the better for the organization. Account receivables with longer recoverable period possess the risk of bad debt for the company and also affects liquidity in the short run (Owalabi and Obida 2012)

DCP ratio is calculated by dividing Trade debtors by Turnover and multiply by 365:

$$DCP = \frac{\text{Average Trade Debtors}}{\text{Turnover}} \times 365 \text{ Days}$$

The average collection period is the number of days on average that it takes a company to collection of its credit accounts or its accounts receivables. In other words, the average collection period of accounts receivable is the average number of days required to convert receivables into cash.

### **2.6.3 Average Payment Period (APP) or Creditors Payment Period (CPP)**

This ratio shows the number of days the company is required to settle its short term obligations. The longer the period the better for the company as it gives the company leverage to recover its receivables. Where the period is shorter than the debtors' collection period it exerts pressure on the liquidity of the company (Owalabi and Obida 2012)

CPP ratio is calculated by dividing Average Trade Creditors by Cost of Goods Sold and multiply the 365 days.

$$CPP = \frac{\text{Average Trade Creditors}}{\text{Cost of Goods Sold}} \times 365 \text{ Days}$$

It is a short-term liquidity measure used to quantify the rate at which a company pays off its suppliers. Accounts payable turnover ratio is calculated by taking the total purchases made from suppliers and dividing it by the average accounts payable amount during the same period. The measure shows investors how many times per period the company pays its average payable amount.

The average payment period ratio represents the number of days by the firm to pay its creditors. A high creditor's turnover ratio or a lower credit period ratio signifies that the creditors are being paid promptly.

## **The Relationship between Liquidity and Profitability**

Management of short-term assets and liabilities warrants a careful investigation since the liquidity management plays an important role in a firm's profitability and risk as well as its value (Smith, 1980). Efficient management of liquidity is a fundamental part of the overall corporate strategy in

creating the shareholders' value. Firms try to keep an optimal level of working capital that maximizes their value (DeLoof, 2003).

In general, from the perspective of Chief Financial Officer (CFO), liquidity management is a simple and straightforward concept of ensuring the ability of the organization to fund the difference between the short-term assets and short-term liabilities.

However, a 'Total' approach is desired as it can cover all the company's activities relating to vendor, customer and product. In practice, liquidity management has become one of the most important issues in the organizations where many financial executives are struggling to identify the basic working capital drivers and an appropriate level of working capital.

Consequently, companies can minimize risk and improve the overall performance by understanding the role and drivers of liquidity management. A firm may adopt an aggressive liquidity management policy with a low level of current assets as a percentage of total assets, or it may also be used for the financing decisions of the firm in the form of high level of current liabilities as a percentage of total liabilities.

Excessive levels of current assets may have a negative effect on the firm's profitability, whereas a low level of current assets may lead to a lower level of liquidity and stock outs, resulting in difficulties in maintaining smooth operations.

The main objective of liquidity management is to maintain an optimal balance between each of the working capital components. Business success heavily depends on the financial executives' ability to effectively manage receivables, inventory, and payables.

### **Profitability**

Owolabi&Obida (2012) defined profitability as the ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It measures management efficiency in the use of organizational resources in adding value to the business. Profitability may be regarded as a relative term measurable in terms of profit and its relation with other elements that can directly influence the profit. Profitability is the relationship of income to some balance sheet measure which indicates the relative ability to earn income on assets. Irrespective of the fact that profitability is an important aspect of business, it may be faced with some weakness such window dressing of the financial transactions and the use of different accounting principles.

#### ***Financial Effect on Profitability***

Business managers should understand not only how to make profit, but also the financial effects of making profit. Profit does not simply mean an increase in cash. Sales revenue and expenses affect several assets other than cash and operating liabilities.

Making profit involves additional transactions that are closely allied with sales and expenses. These tightly connected transactions include the following:

- Collecting cash from customers for credit sales made to them, which takes place after recording the sales revenue.
- Purchasing (or manufacturing) products that are put in inventory and held there until the products are sold sometime later, at which time the cost of products sold is charged to expense in order to match up with the revenue from the sale.
- Paying certain costs in advance of when they are charged to expense.
- Paying for products bought on credit and for other items that are not charged to expense until sometime after the purchase.
- Paying for expenses that have been recorded sometime earlier.
- Making payments to the government for income tax expense that has already been recorded.

These *allied transactions* are the “before and after” of recording sales and expense transactions. The allied transactions are not reported as such in a financial statement. However, the allied transactions change assets and liabilities, and they definitely affect cashflow.

#### ***2.8.2 Measures of Corporate Profitability***

A company should earn profit to survive and grow over a long period of time (Owolabi&Obida 2012). They further stated that profits were essential, but all management decision should not be profit centered at the expense of the concerns for stakeholders such as customers, employees, suppliers

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or social consequences. Owulabi and Obida (2012) further stated that profit is the difference between revenues and expenses over a period of time (usually one year). Profit is the ultimate ‘output’ of a company, and it will have no future if it fails to make sufficient profits. The profitability ratios are calculated to measure the operating efficiency of the company. Some of the profitability ratios include the following:

### *Return on Investment (ROI)*

According to Owulabi and Obida (2012) the term investment may refer to total assets or net assets. The funds employed in net assets are known as capital employed. Net assets equal net fixed assets plus current assets minus current liabilities excluding bank loan. The conventional approach of calculating return on investment is to divide profit after tax (PAT) by investment. Investment refers to pool of funds supplied by shareholders and lenders, while PAT represents residue income of shareholders. The formula of ROI is stated thus:

$$\text{Return on Investment} = \frac{\text{Profit After Tax}}{\text{Net Assets}}$$

### *Return on Equity (ROE)*

Mayo (2003) defined return on equity as the sum of stock, additional paid-in capital if any and retained earnings if any. He said it measures the amount that the firm is earning on stockholders investment. The rate of dividend is not fixed; the earnings may be distributed to shareholders or retained in the business. Nevertheless, the net profit after tax represents their return. A return on shareholder’s equity is calculated to see the profitability of owners’ investment. The shareholders’ equity or net worth will include paid up share capital, share premium and reserves and surplus less accumulated losses. The ROI is net profit after taxes divided by shareholders’ equity which is given by net worth. It is being computed as follows:

$$\text{Return on Equity} = \frac{\text{Profit After Taxes}}{\text{Equity (Net Worth)}}$$

### *Return on Assets (ROA)*

Return on Assets expresses the net income earned by a company as a percentage of the total assets available for use by that company (Owulabi&Obida 2012). ROA suggests that companies with higher amounts of assets should be able to earn higher levels of income. ROA measures management’s ability to earn a return on the firm’s resources (assets). The income amount used in this computation is income before the deduction of interest expense, since interest is the return to creditors for the resources that they provide to the firm. The resulting adjusted income amount is thereby the income before any distribution to those who provided funds to the company. ROA is computed by dividing net income plus interest expense by the company’s average investment in asset during the year.

$$\text{Return on Assets} = \frac{\text{Profit Before Taxes}}{\text{Total Assets}}$$

## **Empirical Literature**

Marques and Braga (1995) confirmed the inverse relationship between liquidity and profitability for a sample of food companies. Blatt (2001), also confirmed a negative relationship between liquidity and profitability, measured by Dynamic Model and profitability.

However, Perobelli et al. (2007) argued that on the long-term, there is a necessity to achieve a balance between the financial and economic profile. For these authors, liquidity and financial position reflected in return on equity, which also contains the effect of financial leverage, are two sides of a coin which is the economic and financial health of companies. One thing to note is that the appropriate return allows the self financing of business operations through the retained portion of net profit. Thus, good profitability increases the liquidity and marketability promotes proper growth and future profitability.

Lairodi and et.al (1999) studied in a research the relation between liquidity and leverage ratios and profitability in companies of London Stock Exchange in period of 1993-1997. The results of their research showed that cash conversion cycle, current ratio and liquid ratio have a negative and

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significant relationship with profitability ratios including net profit margin ratio, assets return ratio and equities return ratio. Also, there is a positive and significant relationship between cash conversion cycle and current and liquid ratios and accordingly the increase of current and liquid ratios must not be assumed as improved liquidity status since simultaneous increase of cash conversion cycle suggest that liquidity status become worse.

Liarodi&Lazaridis (2000) also studied in a research the relationship between liquidity and leverage ratios and profitability for 82 companies of Food Industry of Greece Stock Exchange in 1997 and found that there is a positive and significant relationship between cash conversion cycle and assets return ratio. Also, there is a positive and significant relationship between cash conversion cycle and current and liquid ratios.

A study carried out on the relationship between liquidity management and company profitability and value for Japanese and Taiwanese companies in period of 1985-1996 (Wang 2002). The results of his research showed that there is a negative and significant relationship between cash conversion cycle and profitability indices (equities return ratio and assets return ratio). Additionally, brave liquidity management occurring by decreasing cash conversion cycle results in improved company performance and accordingly increased company value.

Eljelly (2004) also confirmed in a study in a research the relationship between liquidity and profitability for 29 corporations of Saudi Arabia in period of 1996-2000 the negative and significant relationship between profitability and companies liquidity level having being measured by current ratio and cash conversion cycle.

Sharma and Kumar (2011) concluded that there is no significant relationship between cash conversion cycle and profitability (assets return) through studying the relationship between working capital management and profitability.

### **METHODOLOGY**

#### **Research Design**

The aim of the study was to determine the relationship between liquidity and profitability of institutions listed on the Ghana Stock Exchange and its effect on profitability in a tough economy. The research question for the study was: What is the relationship between Liquidity and Profitability of institutions listed on the Ghana stock exchange?

The research was a causal design based on an in-depth analysis of the relationship between Liquidity and Profitability of listed institutions in Ghana.

Both quantitative and descriptive techniques were used for the study. It was a cross sectional collective data from the annual financial report of all listed institutions.

The researcher used secondary data to establish the relationship between liquidity and profitability.

#### **Population of the Study**

The population of the study was institutions listed on the Ghana Stock Exchange. In all there were thirty-three (33) institutions on the Ghana Stock Exchange. Due to the small population size and large variations among these institutions listed on Ghana Stock Exchange, the researcher carried out a census study. Thus all the institutions listed on the Ghana Stock Exchange were used.

#### **Data Source and Collection**

Time series data was extracted from the financial statements of the listed financial institution over the period 2005 to 2009. The financial data used in the study was acquired from the Ghana Stock Exchange (GSE) and the individual companies.

The financial statements of listed institutions for the most recent five years were used to compute profitability and liquidity ratios for the regression and correlation analysis. The data extracted for the analysis covered a period of five years starting from 2005 to 2009.

#### **Model of Specification**

The model used for the estimation was adopted from Samiloglu and Demirgunes, (2008) which is presented as follows:

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$$ROA_{it} = \beta_0 + \beta_1 (WC_{it}) + \beta_2 (DEBT_{it}) + \beta_3 (FIX_{it}) + \beta_4 (SIZE_{it}) + \beta_5 (GROWTH_{it}) + \varepsilon$$

In the above model,  $WC_{it}$  represents the measures of Working Capital Management which are;

- Cash Conversion Cycle (CCC)
- Average Receivable Period (ARP)
- Average Payment Period (APP)

This model is re-written using the measures of Working Capital Management as;

$$\text{Model 1: } ROA_{Xt} = \beta_0 + \beta_1 (CCC_{Xt}) + \beta_2 (DEBT_{Xt}) + \beta_3 (FIX_{Xt}) + \beta_4 (SIZE_{Xt}) + \beta_5 (GROWTH_{Xt}) + \varepsilon$$

$$\text{Model 2: } ROA_{Xt} = \beta_0 + \beta_1 (ARP_{Xt}) + \beta_2 (DEBT_{Xt}) + \beta_3 (FIX_{Xt}) + \beta_4 (SIZE_{Xt}) + \beta_5 (GROWTH_{Xt}) + \varepsilon$$

$$\text{Model 3: } ROA_{Xt} = \beta_0 + \beta_1 (APP_{Xt}) + \beta_2 (DEBT_{Xt}) + \beta_3 (FIX_{Xt}) + \beta_4 (SIZE_{Xt}) + \beta_5 (GROWTH_{Xt}) + \varepsilon$$

Where;

$ROA_{it}$  is the return on asset of firm  $i$  at time  $t$

$ROA = \text{Net Income} / \text{Total Asset}$

$\beta_0$ : the intercept of the equation

$CCC = \text{Cash Conversion Cycle}$

$ARP = \text{Average Receivable Period}$

$APP = \text{Average Payment Period}$

$DEBT = \text{Debt Ratio}$

$SIZE = \ln_{\text{Total Assets}}$  Natural Logarithm of Total Assets

$FIX = \text{Financial Assets} / \text{Total Assets}$

$GROWTH = \text{Interest Received} - \text{Interest Received}_{t-1} / \text{Interest}_{t-1}$

$t$ : time = 1, 2...5 years.

$i$ : Financial Institutions = 1, 2, ..., 9 firms.  $\varepsilon$ : The error term.

Since we were researching on the relationship between liquidity and profitability, we intended to change the variables to suite our research. The model was presented as follows:

$$ROE_{it} = \beta_0 + \beta_1 (L_{it}) + \beta_2 (SIZE_{it}) + \beta_3 (GROWTH_{it}) + \varepsilon$$

In the above model,  $L_{it}$  will be represented by measures of Liquidity which are;

- Cash Conversion Cycle (CCC)
- Average Collection Period (ACP)
- Average Payment Period (APP)

This model was re-written using the measures of Liquidity as;

$$\text{Model 1: } ROE_{it} = \beta_0 + \beta_1 (CCC_{it}) + \beta_2 (SIZE_{it}) + \beta_3 (GROWTH_{it}) + \varepsilon$$

$$\text{Model 2: } ROE_{it} = \beta_0 + \beta_1 (ACP_{it}) + \beta_2 (SIZE_{it}) + \beta_3 (GROWTH_{it}) + \varepsilon$$

$$\text{Model 3: } ROE_{it} = \beta_0 + \beta_1 (APP_{it}) + \beta_2 (SIZE_{it}) + \beta_3 (GROWTH_{it}) + \varepsilon$$

Where;

$ROE_{it}$  is the return on equity of firm  $i$  at time  $t$

$ROE = \text{Profit after Taxes} / \text{Equity (Net Worth)}$

$\beta_0$ : the intercept of the equation

$CCC = \text{Cash Conversion Cycle}$

$ACP = \text{Average Collection Period}$

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APP= Average Payment Period

SIZE =  $\ln_{\text{Total Assets}}$  Natural Logarithm of Total Assets

GROWTH =  $\frac{\text{Interest Received}_t - \text{Interest Received}_{t-1}}{\text{Interest}_{t-1}}$

t: time = 1, 2...5 years.

i: Institutions = 1,2,...,36 firms.

$\epsilon$ : The error term.

**Analytical Technique**

In addition to the regression, descriptive statistics and correlation analysis were used. The regression model was estimated with the ordinary least squares technique by pulling together the data. The usual assumption of linearity and no presence of multicollinearity were made and tested. The summary statistics used to describe the data included mean, standard deviation, mode and median. The hypothesis was tested using the t-values and the associated probability. The SPSS was used for the estimation.

**DATA PRESENTATION, ANALYSIS AND FINDINGS**

**Introduction**

This report covers the statistical analysis and interpretation of fitting regression models between Liquidity and profitability of listed institutions in Ghana. The models are to identify which liquidity indicator has a strong influence in predicting the profitability of listed firms in Ghana. The return on equity (ROE) is used as a measure of the companies’ profitability and acts as the dependent variable in the regression model while the key predictive indicators of liquidity are CCC, ACP, APP, SIZE and GROWTH.

**Table1.** Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROE	165	-93.1244	106.5800	9.997224	26.3410032
CCC	165	-359.3667	445.7706	58.300907	123.8731447
ACP	165	.7289	359.1600	81.443793	62.2668549
APP	165	.6134	728.1070	102.883139	116.0901136
GROWTH	165	-.9568	11.3167	.236059	.9659804
SIZE	165	8.9947	26.0068	17.324035	3.3030107
Valid N (list wise)	165				
a. Dependent Variable: ROE					

**Source:** Field data, 2013.

Table 1 provides a summary of the descriptive statistics of the dependent and independent variables for the listed firms in Ghana. It shows the average indicators of variables computed from the financial statements. The profitability rate measured by the return on Equity (ROE) reveals an average of 9.99%. This indicates a poor return on Equity of the sampled firms during the five year period. This can be linked to the sharp economic downturn experienced by the global economy during this period.

The variable Cash Conversion Cycle (CCC) as a measure of Liquidity has an average of 58.3; the value indicates that, it takes an average listed firm approximately 58 days to convert their activities into cash.

The Average Collection Period (ACP) which is also a measure of Liquidity has an average of 81.44. This implies that, on the average it takes a listed firm approximately 81 days to receive money due it within a year.

The Average Payment Period (APP) also has average of 102.88. This indicates that, it takes listed companies approximately 103 days to make payments that are due to other entities in a year.

The average size and growth of the listed Ghanaian firms is about 17 and 24% respectively. Size and the growth of the firms were determined using the log of total assets and growth in income

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respectively. The average figures indicate that most of the sampled firms are large in nature. Also, it is indicative that Ghanaian firms saw an average growth over the period studied.

**Fitting the Linear Regression Models**

The proposed model is of the form;

$$\text{Model: } ROE_{it} = \beta_0 + \beta_1 (CCC_{it}) + \beta_2 (ACP_{it}) + \beta_3 (APP_{it}) + \beta_4 (SIZE_{it}) + \beta_5 (GROWTH_{it}) + \varepsilon$$

Where;

ROE<sub>it</sub> is the return on equity of firm i at time t

ROE = Profit After Taxes / Equity (Net Worth)

β<sub>0</sub>: the intercept of the equation

CCC = Cash Conversion Cycle

ACP= Average Collection Period

APP= Average Payment Period

SIZE =  $\ln_{\text{Total Assets}}$  Natural Logarithm of Total Assets

GROWTH = Interest Received-Interest Received<sub>t-1</sub>/Interest<sub>t-1</sub>

t: time = 1, 2...5 years.

i: Institutions = 1,2,...,33 firms.

ε: The error term.

**Test for Assumption of Linearity and Multicollinearity**

Linear regression model is based on the assumption that, there is a linear relationship between the dependent variable and the independent variable(s). Thus, the existence of significant regression model is largely based on the existence of linear relationship between the dependent variable and each of the independent variable.

Another condition that can be challenging is multicollinearity, which sometimes can lead to inaccurate and misleading results. Multicollinearity or collinearity occurs when there are high inter-correlations among some set of the predictor or independent variables. The existence of collinearity means that, two or more predictors contain much of the same information. In assessing the linearity and the collinearity of the data, a correlation matrix on all the variables is computed and the results are as summarized in table 2.

**Table2.** Correlation Matrix

Correlations

		ROE	CCC	ACP	APP	GROWTH	SIZE
ROE	Pearson Correlation	1	-0.117	-0.01	-0.103	0.069	0.037
	Sig. (2-tailed)		0.133	0.894	0.186	0.379	0.633
	N	165	165	165	165	165	165
CCC	Pearson Correlation	-0.117	1	-0.026	-.509**	0.01	0.014
	Sig. (2-tailed)	0.133		0.739	0	0.896	0.861
	N	165	165	165	165	165	165
ACP	Pearson Correlation	-0.01	-0.026	1	.454**	0.123	-0.145
	Sig. (2-tailed)	0.894	0.739		0	0.116	0.064
	N	165	165	165	165	165	165
APP	Pearson Correlation	-0.103	-.509**	.454**	1	0.085	-0.119
	Sig. (2-tailed)	0.186	0	0		0.278	0.128
	N	165	165	165	165	165	165
GROWTH	Pearson Correlation	0.069	0.01	0.123	0.085	1	0.016
	Sig. (2-tailed)	0.379	0.896	0.116	0.278		0.839
	N	165	165	165	165	165	165
SIZE	Pearson Correlation	0.037	0.014	-0.145	-0.119	0.016	1
	Sig. (2-tailed)	0.633	0.861	0.064	0.128	0.839	
	N	165	165	165	165	165	165

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		ROE	CCC	ACP	APP	GROWTH	SIZE
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	Sig. (2-tailed)		0.133	0.894	0.186	0.379	0.633
	N	165	165	165	165	165	165
CCC	Pearson Correlation	-0.117	1	-0.026	-.509**	0.01	0.014
	Sig. (2-tailed)	0.133		0.739	0	0.896	0.861
	N	165	165	165	165	165	165
ACP	Pearson Correlation	-0.01	-0.026	1	.454**	0.123	-0.145
	Sig. (2-tailed)	0.894	0.739		0	0.116	0.064
	N	165	165	165	165	165	165
APP	Pearson Correlation	-0.103	-.509**	.454**	1	0.085	-0.119
	Sig. (2-tailed)	0.186	0	0		0.278	0.128
	N	165	165	165	165	165	165
GROWTH	Pearson Correlation	0.069	0.01	0.123	0.085	1	0.016
	Sig. (2-tailed)	0.379	0.896	0.116	0.278		0.839
	N	165	165	165	165	165	165
SIZE	Pearson Correlation	0.037	0.014	-0.145	-0.119	0.016	1
	Sig. (2-tailed)	0.633	0.861	0.064	0.128	0.839	
	N	165	165	165	165	165	165

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

It can be observed from the correlation matrix that, none of the independent variables tends to have strong linear relationship with ROE, as indicated by their Pearson correlation coefficient which are less than 50% indicating insignificant associations.

However, it can be observed that there exist significant correlation among some of the independent variable especially between CCC and APP and that of ACP and APP. It can therefore be said that there exist the problem of multicollinearity.

To resolve this problem a stepwise regression has been adopted. The result is the three regression models below.

Model 1:  $ROE_{it} = \beta_0 + \beta_1 (CCC_{it}) + \beta_2 (SIZE_{it}) + \beta_3 (GROWTH_{it}) + \varepsilon$

Model 2:  $ROE_{it} = \beta_0 + \beta_1 (ACP_{it}) + \beta_2 (SIZE_{it}) + \beta_3 (GROWTH_{it}) + \varepsilon$

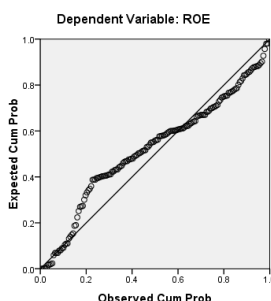
Model 3:  $ROE_{it} = \beta_0 + \beta_1 (APP_{it}) + \beta_2 (SIZE_{it}) + \beta_3 (GROWTH_{it}) + \varepsilon$

**Tests for the Assumption of Normality**

Assumption: The residual or the error term is normally distributed.

In testing the above assumption the probability plots is generated. The Probability plots are used to determine whether the distribution of a variable matches a given distribution. If the selected variable matches the test distribution, the points cluster around a straight line. The generated graph is as shown in chart 1 below.

Normal P-P Plot of Regression Standardized Residual



**Figure1.** The probability plot

It can be observed that, all the points are clustered around the straight line, which indicates that, the variables are normally distributed.

Table 3 is a component of the regression output which examines the extent to which the predictors combine to explain the variations in the dependent variable (ROE).



**Table3. Model Summary (b)**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.767 <sup>a</sup>	0.589	0.536	0.057125
2	.537 <sup>a</sup>	0.289	0.254	0.120682
3	.623 <sup>a</sup>	0.388	0.358	0.11196
a. Predictors: (Constant), CCC, ACP, APP, GROWTH, SIZE				

The R is termed as multiple correlation coefficients and measures the relationship between the observed and predicted values of the dependent variable. It ranges from -1.0 to +1.0. Larger values of R indicate stronger relationships and vice versa.

The model 1 produced an R figure of 0.767, indicating that, the regression model between the dependent variable and the set of independent variables is appropriate. The R Square figure of 0.589 indicates that, reliance on this model will account for 58.9% of the variations in the dependent variable (ROE).

The model 2 produced an R figure of 0.537, indicating the appropriateness of the regression model between the dependent variable and the set of independent variables. It also produced an R square figure of 0.289.

Again, the model 3 also produced R figure and R square figure of 0.623 and 0.388 respectively. It indicates that the model is appropriate and reliance can account for 38.8% of the variations in the dependent variable (ROE).

Table 4 summarizes the results of an analysis of variance.

**Table4. Analysis of Variance (ANOVA)**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	11497.64	3	3832.545	19.107	.000 <sup>a</sup>
Residual	32293.51	161	200.581		
Total	43791.15	164			
2. Regression	13077.38	3	4359.125	18.609	.000 <sup>a</sup>
Residual	37713.77	161	234.247		
Total	50791.15	164			
3. Regression	11820.74	3	3940.245	18.14	.000 <sup>a</sup>
Residual	34970.41	161	217.207		
Total	46791.15	164			
a. Predictors: (Constant), CCC, ACP, APP, GROWTH, SIZE					
a. Dependent Variable ROE					

This table illustrates two sources of variation; regression and residual. The regression sources of variation is the portion of the variation in the dependent variables (ROE) that is explained by relying on the regression model while the residual variation is what the model could not explain. A model which is reliable will have a higher regression mean sum of squares than the residual mean sum of squares. The mean square of each sources of variation is obtained by dividing their respective sum of squares by their degree of freedom. The F-value is obtained by dividing the regression mean square by the residual mean square. Hence, a large F-value indicates that the model account is reliable. Whenever the p-value is less than the selected 5%, it implies that, the F-value is large and vice versa. The analysis resulted in F-values 19.107, 18.609 and 18.14 for model 1, 2 and 3 respectively with corresponding p-values of 0.00. This confirms that, the models are significantly reliable. That means one can rely on the models to predict ROE with high accuracy.

Having established that the models are appropriate and reliable, the next step is to estimate the regression coefficients as indicated in the model on tables 5a, 5b and 5c.

### Estimated Regression Coefficients

**Table5a. Coefficients<sup>a</sup>**

Model		Unstandardized coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.77	11.006		0.524	0.601
	CCC	-0.025	0.017	-0.119	-1.521	0.13
	GROWTH	1.898	2.128	0.07	0.892	0.374
	SIZE	0.303	0.622	0.038	0.487	0.627
a. Dependent Variable: ROE						

**Table5b.**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.288	11.865		0.446	0.656
	ACP	-0.006	0.034	-0.014	-0.176	0.861
	GROWTH	1.913	2.16	0.07	0.886	0.377
	SIZE	0.274	0.634	0.034	0.432	0.666
a. Dependent Variable: ROE						

**Table5c.**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.752	11.424		0.766	0.445
	APP	-0.024	0.018	-0.107	-1.357	0.177
	GROWTH	2.119	2.139	0.078	0.991	0.323
	SIZE	0.187	0.628	0.023	0.299	0.766
a. Dependent Variable: ROE						

### Analysis of Results

This section evaluates the relationship between Liquidity and profitability of listed firms based on the result of Table 5(a, b, c). The CCC, ACP and APP are the measures of liquidity while the GROWTH and SIZE are control variables in the regression models.

From Table 5a: the Cash Conversion Cycle with a negative co-efficient of 0.025 is statistically insignificant (p-value = 0.130) on profitability. This implies that, the time lag that the firms convert its activities into cash has no influence on the profitability of listed firms in Ghana. Although, this finding contradicts with the findings of (Lyroudi&Lazaridis, 2000), which found that there is a positive and significant relationship between cash conversion cycle and assets return ratio and also a positive and significant relationship between cash conversion cycle and current and liquid ratios, it is however consistent with the findings of (Lairodi and et.al (1999)) on similar research.

Also from the regression result (Table 5b), it is apparent that the Average Collection Period (ACP) with co-efficient of -0.006 and a p-value of 0.861 has no statistical significance on profitability. This indicates that, the number of days it takes a firm to collect its receivables has no impact on the profit of the firm. This result contradicts the findings of (Wang, 2002), and (Deloof, 2003) who found a positive and a negative relationship between ACP and profitability respectively.

Again in Table 5c, the Average Payment Period (APP) with a negative co-efficient of 0.024 and a p-value of 0.177 has no statistical significance on profitability. This implies that the length of time the companies take to pay its debts has no influence on profitability.

The results from the entire three tables suggest that, growth in sales (GROWTH) and the firm size (SIZE) has no statistical significance on profitability. This may be attributed to the increase in cost on advertising and promotional activities which are mostly associated with higher sales.

These findings are however consistent with the research conducted by (Samiloglu & Demirgunes, 2008), which found that, the size of a firm and the financial asset to total asset ratio have no statistical significance on profitability.

### Conclusion

The study made use of three measures of liquidity, thus, Cash Conversion Cycle (CCC), Average Collection Period (ACP) and Average Payment Period (APP) and two Control variables, (Growth and Size), to reveal whether liquidity management has any significant relationship with profitability. The above findings indicate clearly that all the three measures have no significant relationship with profitability of companies listed on the Ghana Stock Exchange.

## SUMMARY, CONCLUSION AND RECOMMENDATION

### Introduction

This chapter deals with summary, conclusions and recommendations based on the findings of the study. It also reveals some limitations to the study and finally proposes topics for further studies

## **Summary**

Effective cash optimization is critical to all organizations, especially in a tough economy. Cash is the lifeblood of organizations. An organization having a proper set of liquidity management policies and procedures will improve profits, reduce the risk of corporate failure and significantly improve its chances of survival. It also provides a strategic advantage especially in difficult economic times. Effective liquidity management will enable an organization to derive maximum benefits at minimal cost.

In this study, the researchers examined the relationship between liquidity and profitability of companies listed on the Ghana Stock Exchange. The study concluded that, management of liquidity by companies as measured by Cash Conversion Cycle (CCC), Average Collection Period (ACP) and Average Payment Period (APP) has no significant impact on profitability of Companies listed on Ghana stock exchange.

## **Conclusion**

The study made use of three measures of liquidity, thus, Cash Conversion Cycle (CCC), Average Collection Period (ACP) and Average Payment Period (APP) and two Control variables, (Growth and Size), to reveal whether liquidity management has any significant relationship with profitability. The above findings indicate clearly that all the three measures have no significant relationship with profitability of companies listed on the Ghana Stock Exchange. The research therefore accepts the null hypothesis; that Liquidity Management has no significant positive relationship with profitability of companies listed on the Ghana Stock Exchange.

However, this conclusion does not disagree with the fact that liquidity management practices are vital. The conclusion is rather an indication of the fact that, using the above mentioned measures of Liquidity Management has no significant impact on profitability.

## **Recommendations**

After a careful study of the findings, the team of researchers came out with the following recommendations:

- Firm managers should concentrate on the reduction of cash convention cycle in order to improve shareholders wealth.
- Companies should endeavor to increase a higher current ratio to meet their day to day activities.
- Companies should assume effective and efficient methods for managing and maintaining optimal levels of liability.

## **Limitations of the Study**

- The research did not consider the organizational policies regarding the management of liquidity.
- The study was limited to a five year period (2005-2009). An extension of the period might give a slightly different result.
- The researchers did not have access to current information on companies. The available date was up to 2009.
- The study did not include economic indicators (inflation, GDP) which also have a great impact on profitability.

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**APPENDIX A**

COMPUTED RATIOS								
PROFITABILITY & LIQUIDITY RATIOS								
COMPANIES	YR	ROE	CCC	ACP	IT	APP	GROWTH	SIZE
ACCRA BREWERY	5	13.16	-7.174	132.001	32.2487	171.4237	0.0053	16.8317
	6	-2.42	5.4197	140.7133	57.317	192.6107	0.0035	16.8906
	7	3.2004	186.0993	114.919	270.045	198.8648	11.3167	17.0032
	8	7.9341	-81.0055	81.05	60.9026	222.9581	0.0292	17.1096
	9	-26.9782	-318.401	73.4535	73.177	465.031	0.334	17.8376
AFRICAN CHAMPION INDUSTRIES LTD	5	-18.24	182.5979	50.3192	182.597	50.3192	-0.1732	15.1634
	6	-29.75	56.4019	25.4884	56.4019	25.4884	0.1364	15.0544
	7	2.9964	53.6682	31.4262	53.6682	31.4262	0.1264	15.1137
	8	-11.2526	47.1721	123.4448	47.1721	123.4448	-0.0283	15.9574
	9	-8.3139	38.6591	136.3912	38.6591	136.3912	0.3121	15.9889
ANGLOGOLD ASHANTI	5	-6.01	-107.058	246.7117	0	353.7692	0.055	9.0232
	6	-0.46	-200.931	243.7028	0	444.6339	0.1274	9.0986
	7	-26.04	-229.917	240.5884	0	470.5055	0.1066	9.1922
	8	-46	-81.885	224.5068	0	306.3918	0.1034	8.9947
	9	-8.84	-359.367	131.6441	0	491.0108	0.0412	9.1888
ALUWORKS LTD	5	19.4	88.7464	38.6884	88.7464	38.6884	0.0432	17.092
	6	15.1	94.6851	56.4017	94.6851	56.4017	0.0308	17.1745
	7	-45.919	385.5342	69.5434	385.534	69.5434	0.0832	17.6291
	8	-13.2545	107.4021	63.4948	107.402	63.4948	0.0709	18.0755
	9	-32.1284	143.4821	31.6104	143.482	31.6104	-0.4001	17.9085
AYRTON DRUG MANUFACTURING LTD	5	25.37	15.3167	69.156	15.3167	69.156	-0.4869	17.423
	6	16.3	27.7733	92.4522	27.7733	92.4522	1.2953	20.4385
	7	18.874	110.3529	89.2957	110.352	89.2957	0.1919	22.8971
	8	19.1075	21.0212	71.0299	21.0212	71.0299	0.2554	23.0698
	9	24.2517	159.5202	99.0549	159.520	99.0549	0.3034	23.2669
BENSO OIL PALM PLANTATION LTD	5	0.14	13.8621	28.2272	15.3167	29.6818	0.0503	16.3039
	6	4.68	37.7584	35.4942	27.7733	25.509	0.1451	16.3189
	7	4.4603	148.5151	51.96	110.352	13.7978	0.4418	16.6944
	8	24.6898	68.2453	73.1276	21.0212	25.9035	0.2878	16.9019
	9	8.1379	64.096	59.3947	43.7351	39.0338	-0.0312	16.9138
CALBANK	5	14.6	0	121.6832	0	121.6832	-0.0447	18.3915
	6	21.9	0	69.298	0	69.298	0.4166	18.8718
	7	16.7294	0	77.2379	0	77.2379	-0.8713	19.2782
	8	24.2279	0	72.8574	0	72.8574	0.4907	19.6412
	9	14.2116	0	109.2306	0	109.2306	0.1344	19.931
CAMELOT GHANA LTD	5	3.73	118.1476	91.1777	118.147	91.1777	0.2714	18.8272
	6	8.72	79.1673	93.831	79.1673	93.831	1.3012	19.7609
	7	2.4902	182.853	83.025	182.853	83.025	-0.4023	21.973
	8	25.529	108.2877	21.4639	108.287	21.4639	0.2709	21.9033
	9	7.895	182.8389	92.5328	182.838	92.5328	0.2752	22.0167
CFAO (GHANA)	5	5.64	94.1295	40.7076	70.6733	17.2514	0.3679	22.8407
	6	25.75	65.4437	24.5121	54.1718	13.2402	0.3302	22.938
	7	31.339	-9.035	44.3591	65.4499	118.8439	0.3286	23.5859
	8	30.3505	20.8238	18.4348	86.6486	84.2596	0.4618	16.8575
	9	31.236	68.7546	40.7524	80.8025	52.8004	0.2324	17.1755
CLYDESTONE (GHANA)	5	18.42	27.1541	173.4708	25.4716	171.7883	0.064	21.2758
	6	8.23	93.0529	144.6284	38.4021	89.9776	0.1394	21.3007
	7	-68.5677	340.9756	201.3834	349.550	209.9584	-0.4814	21.0428

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	8	-82.6622	86.1578	123.8616	37.0576	74.7615	0.3308	21.0186
	9	-4.9806	52.7077	116.7095	60.8829	124.8847	0.4409	21.4011
<b>COCOA PROCESSING COMPANY LTD</b>	5	4.56	184.4215	134.538	184.4215	134.538	-0.1829	18.0112
	6	4.76	228.7459	68.0445	228.7459	68.0445	0.0386	18.1906
	7	2.0704	65.1588	184.6982	65.1588	184.6982	0.6602	25.3926
	8	-21.204	103.1713	108.8119	103.1713	108.8119	0.2291	25.8939
	9	-67.5151	167.7132	178.8429	167.7132	178.8429	-0.2316	26.0068
<b>ECOBANK GHANA LTD</b>	5	43.18	93.6306	108.275	0	14.6444	0.0226	19.2088
	6	38.91	87.597	102.7813	0	15.1843	0.2708	19.6745
	7	34.5607	56.4245	69.8077	0	13.3832	-0.8726	22.6028
	8	39.628	-129.515	66.1349	0	195.6499	0.6764	22.8403
	9	26.2169	-93.0021	105.1242	0	198.1263	0.5631	22.9212
<b>ENTERPRISE INSURANCE</b>	5	15.58	48.1673	211.5504	0	163.3831	0.0153	16.8117
	6	11.58	-0.7464	172.6248	0	173.3712	0.0256	17.055
	7	12.6108	-261.334	131.9009	0	393.2349	-0.0175	17.3977
	8	10.0487	-110.465	174.8036	0	285.2683	0.8608	17.9096
	9	4.1692	121.5681	359.16	0	237.5919	1.1383	18.118
<b>FAN MILK</b>	5	40.84	-25.5529	4.8501	33.6994	64.1025	0.0341	16.5754
	6	29.8	-0.4512	9.1795	58.2168	67.8475	0.0361	16.7222
	7	28.1012	177.1819	14.1581	239.481	76.4581	0.2685	16.9813
	8	32.9472	-13.976	14.1183	48.7666	76.8608	0.3402	17.3077
	9	43.2016	-24.4653	10.259	47.3465	82.0708	0.4984	17.7496
<b>GCB</b>	5	17.78	109.0226	119.8382	0	10.8156	-0.0305	20.194
	6	28.31	93.9151	102.535	0	8.62	0.2806	20.4738
	7	18.5899	44.9608	54.6785	0	9.7176	0.3237	20.8671
	8	18.0956	43.4148	60.9934	0	17.5786	0.2706	21.2242
	9	9.2678	37.801	76.7251	0	38.9241	0.0855	21.377
<b>GUINNESS GHANA</b>	5	24.7	-70.2131	36.6583	39.3109	146.1823	0.1269	18.4227
	6	28.9	-102.233	53.8065	69.599	225.6386	0.3104	18.6053
	7	21.8871	300.6339	54.6237	347.378	101.3686	0.1918	18.7031
	8	22.0269	14.7711	46.0705	100.492	131.7922	0.0878	18.8927
	9	17.9364	0.918	39.9893	102.825	141.8965	0.4798	19.1736
<b>GOIL</b>	5	16.12	-20.0717	110.7948	4.9899	135.8565	0.0696	18.039
	6	25.46	10.0177	68.6344	7.5966	66.2133	0.3917	17.8866
	7	18.3016	8.7391	56.9503	3.8521	52.0633	0.595	18.2144
	8	16.5988	7.2732	50.2744	5.8014	48.8025	0.4319	18.4182
	9	18.1569	-2.8611	47.0281	5.9115	55.8007	-0.0395	18.4178
<b>GOLDEN STAR</b>	5	-2.4	73.5125	25.0814	79.6906	31.2595	0.0265	11.7965
	6	9.75	68.9099	25.0159	98.3803	54.4863	0.348	11.4135
	7	4.59	64.0215	17.3943	97.4696	50.8424	0.3646	11.8902
	8	-27.8637	17.3344	6.1071	64.1647	52.9374	0.4655	11.4293
	9	3.1748	28.9486	6.3948	50.9409	28.3872	0.5571	12.2991
<b>GOLDEN WEB LTD</b>	5	-30.83	178.9015	55.4089	178.901	55.4089	-0.1381	13.9245
	6	2.74	312.7989	7.5646	312.798	7.5646	0.224	14.2606
	7	-20.8288	275.2042	14.1379	275.204	14.1379	-0.1383	14.3192
	8	-19.7566	296.6339	29.2127	296.633	29.2127	-0.0876	14.3973
	9	-15.32	295.7256	74.5077	295.725	74.5077	-0.4998	15.8384
<b>HFC</b>	5	7.41	60.1253	121.242	0	61.1168	0.2794	18.0788
	6	11.11	-334.255	70.3492	0	404.6044	0.3437	18.4987
	7	15.4048	21.8926	84.6184	0	62.7259	-0.8396	18.908
	8	21.0915	16.4055	92.0325	0	75.627	0.6344	19.752
	9	17.1164	29.9699	115.2214	0	85.2515	0.2535	19.3804
<b>MECHANICAL LLOYD</b>	5	10.35	-211.181	115.6219	401.303	728.107	0.1094	16.5187
	6	9.1	150.9254	109.6383	686.058	644.7715	0.121	16.5656
	7	13.053	445.7706	81.6357	488.982	124.8477	-0.8267	16.9178
	8	10.9651	98.9262	78.1055	23.8626	3.042	0.193	17.1893
	9	7.1663	78.6468	76.977	29.8138	28.1441	-0.1441	17.159
<b>PIONEER KITCHEN LTD</b>	5	-26.8	92.1898	90.5756	92.1898	90.5756	-0.1526	14.7827

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	6	-23.1	54.5003	20.4483	54.5003	20.4483	0.05	14.9155
	7	-29.3238	137.9124	16.2629	137.9124	16.2629	0.374	14.9325
	8	-44.9838	138.1786	0.7289	138.1786	0.7289	-0.099	14.6987
	9	-2.4677	56.3042	209.3731	56.3042	209.3731	1.7341	14.6912
<b>PRODUCE BUYING COMP</b>	5	-57.99	26.8275	17.3565	11.746	2.275	0.1365	17.2242
	6	-25.7	27.131	12.2792	16.0734	1.2215	0.0792	16.7595
	7	2.4963	19.2484	15.8927	5.0678	1.7121	-0.2231	17.4082
	8	28.7003	32.4732	18.5489	25.1627	11.2384	0.2707	18.0272
	9	45.895	38.13	26.9246	21.4887	10.2832	0.7818	18.3857
<b>PZ CUSSONS GHANA LTD</b>	5	8.08	154.4013	44.1358	154.4013	44.1358	-0.8873	16.7806
	6	15.25	156.2358	40.1848	156.2358	40.1848	0.1418	16.9962
	7	18.9733	201.8284	65.3441	201.8284	65.3441	0.3018	17.1852
	8	16.7288	194.7064	59.8749	194.7064	59.8749	0.4684	17.4625
	9	3.9037	206.3663	46.3855	206.3663	46.3855	0.0437	17.4643
<b>SAM-WOODE LTD</b>	5	63.5702	-42.4038	159.1041	95.8943	297.4022	0.2135	14.4256
	6	54.1706	116.6328	27.345	150.9008	61.6131	-0.0501	13.5056
	7	27.0848	55.2825	90.3129	97.0904	132.1208	-0.9568	13.704
	8	31.2775	184.617	187.5519	78.098	81.0329	2.0135	14.3181
	9	39.7378	198.7941	215.9945	51.483	68.6834	0.1937	14.5381
<b>SG-SSB</b>	5	23.38	67.4385	83.521	0	16.0825	0.2992	19.4904
	6	19.56	68.4883	81.4127	0	12.9244	0.1589	19.7167
	7	19.836	49.3731	59.465	0	10.0919	0.0408	19.8506
	8	22.2785	-11.5111	51.5252	0	63.0363	0.234	19.8949
	9	17.5084	-58.7828	63.4148	0	122.1976	0.1994	20.1757
<b>SIC INSURANCE COMP</b>	5	7.82	-7.2008	60.8768	61.7717	129.8493	0.0642	17.7866
	6	9.65	-80.2552	48.8249	45.5692	174.6492	0.5548	17.9758
	7	13.1689	-84.3466	6.5407	37.1902	128.0775	-0.273	18.8822
	8	13.3921	-156.044	6.1913	64.0845	226.3197	0.4304	19.1701
	9	9.6127	4.0505	6.0104	95.2356	97.1955	-0.1759	19.0379
<b>STANCHART</b>	5	35.81	82.542	98.313	0	15.771	0.3916	13.1505
	6	38.86	100.6715	115.7035	0	15.0319	0.1897	13.4581
	7	37.3758	99.6498	120.6194	0	20.9696	-0.8903	13.559
	8	37.0966	70.7528	87.5373	0	16.7844	0.2629	13.8003
	9	36.0307	123.1165	138.9212	0	15.8047	0.5583	14.155
<b>STARWIN PRODUCTS LTD</b>	5	11.03	-593.5	90.7526	315.5519	999.804	0.1326	14.8002
	6	4.12	349.2447	131.844	320.0466	102.6459	0.147	14.659
	7	1.2544	234.5612	19.437	319.1792	104.0551	-0.8926	15.0236
	8	-6.829	246.9854	93.4077	244.881	91.3033	0.2119	15.0217
	9	2.3214	195.5905	38.2647	224.122	66.7962	0.25	15.7517
<b>TOTAL PETROLEUM LTD</b>	5	26	-16.1016	41.1417	2.6187	59.862	0.0907	17.0972
	6	7	-22.4084	106.5107	11.1294	140.0485	0.4543	18.6528
	7	16.6799	25.9683	51.9172	46.0485	71.9974	1.274	18.7408
	8	11.1909	-9.2234	37.7948	9.5774	56.5956	0.4009	18.8137
	9	21.7948	-3.4027	39.6499	11.1031	54.1557	-0.0425	18.7842
<b>TRANSACTIONS SOLUTIONS GH LTD</b>	5	106.58	-0.1344	7.3316	5.6217	13.0877	0.0153	14.56
	6	22.4	12.8944	12.2938	7.0418	6.4412	0.7118	15.2713
	7	15.1584	15.7255	10.2792	6.0597	0.6134	0.1015	15.3983
	8	-93.1244	9.5638	14.5864	8.5573	13.5798	-0.6667	15.0882
	9	-47.2	-13.6779	17.1465	6.4767	37.301	-0.3947	14.7976
<b>UNILEVER GHANA LTD</b>	5	34.2	65.3451	59.3401	70.0386	64.0336	0.1657	17.9352
	6	31	20.2161	41.6622	35.5745	57.0207	0.1467	17.9778
	7	22.0499	28.1388	44.8119	53.5858	70.2589	0.1714	18.3755
	8	39.4549	-98.6137	86.3974	88.2573	273.2684	0.1908	18.679
	9	2.6766	-2.531	19.1071	93.1507	114.7888	-0.0104	18.5804
<b>UT BANK LTD</b>	5	61.3897	125.6838	184.0666	0	58.3828	0.0756	10.5581
	6	47.0331	122.1693	192.2364	0	70.067	0.6656	10.9208
	7	39.3732	180.8571	237.6511	0	56.794	0.5222	11.2378
	8	31.4018	105.6458	162.0767	0	56.431	0.17	11.7584
	9	26.5207	121.9015	203.0374	0	81.1359	0.5519	12.2686

APPENDIX B

CALCULATION OF ACP					
<b>ACCRA BREWERY</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	71695	76698	7715	5600	6770
SALES	198246	198949	24504	25219	33641
ACP	132.001	140.7133	114.919	81.05	73.45352
<b>AFRICAN CHAMPION INDUSTRIES LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	3334786	1916745	266596	1017612	1475271
SALES	24189489	27448262	3096382	3008861	3948012
ACP	50.31925	25.48839	31.42621	123.4448	136.3912
<b>ANGLOGOLD ASHANTI</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	1777	1979	2162	2226	1359
SALES	2629	2964	3280	3619	3768
ACP	246.7117	243.7028	240.5884	224.5068	131.6441
<b>ALUWORKS LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	50637	76098	10164	10672	2968000
SALES	477,727	492,463	53,346	61,348	34271000
ACP	38.68842	56.40174	69.54336	63.49482	31.6104
<b>AYRTON DRUG MANUFACTURING LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	4444321	2014771	2319504	2316269	4210124
SALES	23456787	7954284	9481076	11902564	15513573
ACP	69.15598	92.45225	89.29566	71.02992	99.05489
<b>BENSO OIL PALM PLANTATION LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	5663	8829	1867	4125	2539
SALES	73227	90792	13115	20589	15603
ACP	28.22722	35.49415	51.95997	73.12764	59.39467
<b>CALBANK</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	397,920	85680	113808	190938	214715
SALES	132658	16267	24083	38113	64256
ACP	121.6832	69.29803	77.23794	72.85739	109.2306
<b>CAMELOT GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	366924	868951	459563	150990	830080
SALES	1468860	3380196	2020362	2567625	3274288
ACP	91.17772	93.83095	83.02497	21.46394	92.53285
<b>CFAO (GHANA)</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	21360347	17109736	4113723	2499	6808
SALES	191524853	2.55E+08	33848938	49479	60976
ACP	40.70765	24.51205	44.35911	18.43479	40.75243
<b>CLYDESTONE (GHANA)</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	8778740	8339640	602229	492935	669268
SALES	18471352	21046830	1091518	1452599	2093084
ACP	173.4708	144.6284	201.3834	123.8616	116.7095
<b>COCOA PROCESSING COMPANY LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	103076	54144	24398993	17667707	22314412
SALES	279644	290436	48217223	59264796	45541422
ACP	134.538	68.04446	184.6982	108.8119	178.8429
<b>ECOBANK GHANA LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	1175251	162245	285772	401531	456159
SALES	348631	45687	54655	72754	131379
ACP	108.275	102.7813	69.80766	66.13489	105.1242
<b>ENTERPRISE INSURANCE</b>					
YEARS	2005	2006	2007	2008	2009



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ACCOUNT RECEIVABLES	24348294	30604	3935	5525	5750
SALES	14112029	14474	1422	2646	5658
ACP	211.5504	172.6248	131.9009	174.8036	359.16
<b>FAN MILK</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	4152	8142	1593	2129	2318
SALES	312464	323747	41068	55041	82471
ACP	4.850095	9.179483	14.1581	14.11829	10.259
<b>GCB</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	841026	1024054	750,663,543	1087118928	1265516727
SALES	2561574	3645385	112,452,442	181663097	266018982
ACP	119.8382	102.535	54.67847974	60.99335473	76.7251245
<b>GUINNESS GHANA</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	80292	154432	18684	17142	22018
SALES	799452	1047599	124848	135810	200968
ACP	36.65834	53.80654	54.6237	46.07047	39.9893
<b>GOIL</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	419136	361336	47821460	60448227	54313163
SALES	1380792	1921596	306492356	438863961	421542111
ACP	110.7948482	68.63443	56.95030417	50.27435564	47.02805242
<b>GOLDEN STAR</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	6560	8820	8369	4306	7021
SALES	95465	128690	175614	257355	400739
ACP	25.08144	25.01593	17.39431	6.107089	6.394848
<b>GOLDEN WEB LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	839278714	140242500	22664	42582	54322
SALES	5,528,659,726	6,766,833,904	585,119	532,044	266,114
ACP	55.40885961	7.564617844	14.13791041	29.2126779	74.50765461
<b>HFC</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	297,683,985	65934161	102465886	141506562	155869637
SALES	98881687	12707988	23754796	35680024	49204160
ACP	121.2420472	70.34920214	84.61841183	92.03254306	115.2214039
<b>MECHANICAL LLOYD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	35400486	37629039	4854832	5541197	4673930
SALES	111753711	1.25E+08	21706362	25894929	22162249
ACP	115.6219	109.6383	81.63568	78.10552	76.97705
<b>PIONEER KITCHEN LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	5491703	1301842	142266	5745	566543
SALES	22130367	23237764	3192970	2876993	987654
ACP	90.57561	20.44828	16.26294	0.72886	209.3731
<b>PRODUCE BUYING COMP</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	109568	83654	8411516	12474943	32265614
SALES	2304175	2486622	193182770	245478455	437405123
ACP	17.35646	12.27919	15.89274	18.5489	26.92458
<b>PZ CUSSONS GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	23697853	24635112	5214946	7016899	5673417
SALES	195,979,806	223,761,509	29,129,720	42,775,342	44,643,160
ACP	44.13575	40.18482	65.3441	59.87487	46.38554
<b>SAM-WOODE LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	7936579	1295695	184963	1157523	1591317
SALES	18207272	17294893	747529	2252688	2689099
ACP	159.1041	27.34499	90.31288	187.5519	215.9945
<b>SG-SSB</b>					

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YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	1,241,003	1,416,486	212,444,163	287,120,110	296,218,660
SALES	283,972	315,945	34,610,928	40,531,297	51,464,776
ACP	83.52097457	81.41268251	59.46498384	51.52520806	63.41478704
<b>SIC INSURANCE COMP</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	88233	171044	92822030	140270390	119070176
SALES	14716	22880	1663356	2379323	1960721
ACP	60.87677	48.82486	6.540742	6.191277	6.010432
<b>STANCHART</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	2,160,603	239,918	287069	460,338	408,538
SALES	581,960	76,053	94866	110,402	155,492
ACP	98.31302	115.7035	120.6194	87.53727	138.9212
<b>STARWIN PRODUCTS LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	153188	290989	230700	318517	166071
SALES	616109	805581	4332222	1244637	1584122
ACP	90.75258	131.844	19.43702	93.40772	38.26468
<b>TOTAL PETROLEUM LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	137833	518934	57520	58661	58925
SALES	1222824	1778327	404390	566514	542439
ACP	41.14169	106.5107	51.91721	37.79477	39.64985
<b>TRANSACTIONS SOLUTIONS GH LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	3877113	11128552	1024966	484826	344957
SALES	193020425	330403861	36394976	12131936	7343142
ACP	7.331588	12.29381	10.27924	14.58642	17.14652
<b>UNILEVER GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	168306	135502	17072	39196	8792
SALES	1035247	1187124	139054	165590	167952
ACP	59.34	41.662	44.812	86.397	19.107
<b>UT BANK</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	29,124	46,448	57,191	98,116	121,546
SALES	14,687	24,463	37,237	43,568	67,612
ACP	184.0666	192.2364	237.6511	162.0767	203.0374

<b>CALCULATION OF APP</b>					
<b>ACCRA BREWERY</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	85439	108996	13191	14488	45968
COST OF SALES	181919	206549	24211	23718	36080
APP	171.423738	192.6106638	198.8647722	222.9580909	465.031042
<b>AFRICAN CHAMPION INDUSTRIES LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	3334786	1916745	266596	1017612	1475271
COST OF SALES	24189489	27448262	3096382	3008861	3948012
APP	50.31924775	25.48838702	31.42620646	123.4448451	136.391155
<b>ANGLOGOLD ASHANTI</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	2583	3311	4794	4062	5350
COST OF SALE	2665	2718	3719	4839	3977
APP	353.7692308	444.633922	470.5055122	306.3918165	491.010812
<b>ALUWORKS LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	50637	76098	10164	10672	2968000
COST OF SALE	477,727	492,463	53,346	61,348	34271000
APP	38.68842456	56.40173983	69.54335845	63.49481646	31.6103995
<b>AYRTON DRUG MANUFACTURING LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	4444321	2014771	2319504	2316269	4210124
COST OF SALE	23456787	7954284	9481076	11902564	15513573

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APP	69.15598308	92.45224523	89.29566222	71.02992137	99.0548895
<b>BENSO OIL PALM PLANTATION LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	6176	6078	474	1146	1673
SALES	75947	86968	12539	16148	15644
ACP	29.68175175	25.50903781	13.79775102	25.90351746	39.0338149
<b>CALBANK</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	397,920	85680	113808	190938	214715
COST OF SALE	132658	16267	24083	38113	64256
APP	121.6831775	69.29802754	77.23793582	72.8573935	109.230561
<b>CAMELOT GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	366924	868951	459563	150990	830080
COST OF SALE	1468860	3380196	2020362	2567625	3274288
APP	91.177716	93.83095176	83.02497028	21.46394041	92.5328499
<b>CFAO (GHANA)</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	8874033	9002953	10470024	10571	8042
COST OF SALE	187753985	248190162	32156112	45792	55593
APP	17.2514157	13.24016157	118.8439311	84.25958683	52.8003526
<b>CLYDESTONE (GHANA)</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	4746066	3118059	393855	148786	353604
COST OF SALE	10084008	12648613	684693	726402	1033477
APP	171.7882503	89.9775758	209.9584412	74.76148193	124.884695
<b>COCOA PROCESSING COMPANY LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT RECEIVABLES	103076	54144	24398993	17667707	22314412
SALES	279644	290436	48217223	59264796	45541422
ACP	134.537984	68.0444573	184.6981616	108.8118662	178.842909
<b>ECOBANK GHANA LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	2510693	3356372	437951	14261	90127
COST OF SALE	100,733	139,628	16058	26605	48922
APP	14.64438105	15.18431807	13.38316387	195.6498778	198.126311
<b>ENTERPRISE INSURANCE</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	6316896	6875	1532	2068	3683
COST OF SALE	14112029	14474	1422	2646	5658
APP	163.3830996	173.3712174	393.2348805	285.2683296	237.591905
<b>FAN MILK</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	46632	52358	7398	9719	14272
COST OF SALE	265523	281671	35317	46154	63473
APP	64.10246947	67.84748874	76.45807968	76.86083546	82.0708018
<b>GCB</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	4729940	6345727	839382573	1030106198	1259470137
COST OF SALE	140157	149863	22,347,443	49610404	134311684
APP	10.81563508	8.619972936	9.717638842	17.57857345	38.9241183
<b>GUINNESS GHANA</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	266510	534588	30768	40349	68854
COST OF SALE	665444	864766	110787	111747	177113
APP	146.1823234	225.6386352	101.3685721	131.7922181	141.896473
<b>GOIL</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	503154	340987	42736213	57845273	63154812
COST OF SALE	1351803	1879687	299610900	432631641	413104548
APP	135.8564894	66.21328711	52.06325185	48.80254388	55.8006599
<b>GOLDEN STAR</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	9093	19012	26457	43355	28234
COST OF SALE	106174	127360	189936	298930	363030

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APP	31.25948914	54.48633794	50.84241534	52.93739337	28.3872132
<b>GOLDEN WEB LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	839278714	140242500	22664	42582	54322
COST OF SALE	5,528,659,726	6,766,833,904	585,119	532,044	266,114
APP	55.40885961	7.564617844	14.13791041	29.2126779	74.5076546
<b>HFC</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	280262315	55476168	63795343	85205063	117550877
COST OF SALE	46928007	61495626	10963336	17654263	27455873
APP	61.11675255	404.6044328	62.72585822	75.62703164	85.251543
<b>MECHANICAL LLOYD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	44335832	46298950	7162050	1005579	8195239
COST OF SALE	22225551	26209467	20938699	120658031	106283996
APP	728.1069738	644.771477	124.8476923	3.041955284	28.1440513
<b>PIONEER KITCHEN LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	5491703	1301842	142266	5745	566543
COST OF SALE	22130367	23237764	3192970	2876993	987654
APP	90.57561472	20.44828108	16.26294328	0.728859959	209.373115
<b>PRODUCE BUYING COMP</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	14680	8419	913601	7527478	12172977
COST OF SALE	2355304	2515609	194764813	244477475	432077349
APP	2.274950495	1.221547148	1.712138655	11.2383747	10.2831972
<b>PZ CUSSONS GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	23697853	24635112	5214946	7016899	5673417
COST OF SALE	195,979,806	223,761,509	29,129,720	42,775,342	44,643,160
APP	44.13575318	40.18481963	65.3440984	59.87487219	46.3855427
<b>SAM-WOODE LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	13474483	2504484	220224	453808	440316
COST OF SALE	16537157	14836737	608396	2044107	2339943
APP	297.402165	61.61305279	132.1207897	81.03290092	68.6834423
<b>SG-SSB</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	1787250	236604626	279940749	40543718	32319372
COST OF SALE	78749	8378026	7740083	7001987	10820137
APP	16.08246468	12.92442816	10.0918866	63.03628234	122.19761
<b>SIC INSURANCE COMP</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	278340	289967	210484	40543718	32319372
COST OF SALE	782400	606003	599845	65387403	121369500
APP	129.8493098	174.6492262	128.07752	226.3196945	97.1955127
<b>STANCHART</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	3,254,708	445,544	534840	742,290	833,084
COST OF SALE	140,630	18349	30727	34,134	36,073
APP	15.77098468	15.03192726	20.96955164	16.78442388	15.8047028
<b>STARWIN PRODUCTS LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	4530669	533511	580649	617439	564658
COST OF SALE	1654018	1897119	2036776	2468314	3085508
APP	999.8040439	102.6459363	104.0550777	91.30330866	66.7961872
<b>TOTAL PETROLEUM LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	200854	669559	78228	87070	79401
COST OF SALE	1224679	1745031	396587	561537	535149
APP	59.86198016	140.048535	71.99736754	56.5956473	54.1556931
<b>TRANSACTIONS SOLUTIONS GH LTD</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	6336958	5462801	57871	442468	744482
COST OF SALE	176730518	309559294	34433540	11892697	7284942
APP	13.08766418	6.441164596	0.613440123	13.57983139	37.3010423

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<b>UNILEVER GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	139670	14011	20075	101703	41535
COST OF SALE	796137	89687	104291	135843	132071
APP	64.034	57.021	70.259	273.268	114.789
<b>UT BANK</b>					
YEARS	2005	2006	2007	2008	2009
ACCOUNT PAYABLES	31,403	44,826	55,829	95,747	165,275
COST OF SALE	5,023	8,605	8,687	14,803	36,739
APP	58.38279782	70.06703699	56.79404969	56.43095867	81.1358947

<b>CALCULATION OF GROWTH</b>					
<b>ACCRA BREWERY</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	1982.46	1989.49	24504	25219	33641
SALES <sub>t-1</sub>	1,972	1982.46	1989.49	24504	25219
GROWTH	0.00530426	0.0035461	11.31672439	0.02917891	0.333954558
<b>AFRICAN CHAMPION INDUSTRIES LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	2,418,949	2,748,826	3,096,382	3,008,861	3,948,012
SALES <sub>t-1</sub>	2,925,580	2,418,949	2,748,826	3,096,382	3,008,861
GROWTH	-0.17317279	0.1363722	0.126437896	-0.028265569	0.31212841
<b>ANGLOGOLD ASHANTI</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	2629	2964	3280	3619	3768
SALES <sub>t-1</sub>	2492	2629	2964	3280	3619
GROWTH	0.054975923	0.1274249	0.106612686	0.103353659	0.041171594
<b>ALUWORKS LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	47772700	49246300	53346000	57127000	34271000
SALES <sub>t-1</sub>	45796000	47772700	49246300	53346000	57127000
GROWTH	0.043163158	0.0308461	0.083248894	0.070876917	-0.400091025
<b>AYRTON DRUG MANUFACTURING LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	3465433	7954284	9481076	11902564	15513573
SALES <sub>t-1</sub>	6754354	3465433	7954284	9481076	11902564
GROWTH	-0.486933465	1.2953218	0.191945875	0.255402235	0.303380767
<b>BENSO OIL PALM PLANTATION LTD</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	7595	8697	12539	16148	15644
SALES <sub>t-1</sub>	7231	7594.7	8696.8	12539	16148
GROWTH	0.050297331	0.1451144	0.441794683	0.287821995	-0.031211296
<b>CALBANK</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	128,535	182,086	23,435	34,934	39,628
SALES <sub>t-1</sub>	134555	128,535	182,086	23,435	34,934
GROWTH	-0.044740069	0.4166258	-0.871297079	0.490676339	0.134367665
<b>CAMELOT GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	1468860	3380196	2020362	2567625	3274288
SALES <sub>t-1</sub>	1155333	1468860	3380196	2020362	2567625
GROWTH	0.271372962	1.3012383	-0.402294447	0.270873735	0.275220486
<b>CFAO (GHANA)</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	19152	25477	33848.938	49479	60976
SALES <sub>t-1</sub>	14001	19152	25477	33849	49479
GROWTH	0.367936955	0.330244	0.328582691	0.461759302	0.232361204
<b>CLYDESTONE (GHANA)</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	1847135	2104683	1091518	1452599	2093084
SALES <sub>t-1</sub>	1736024	1847135	2104683	1091518	1452599
GROWTH	0.064003263	0.1394309	-0.481386033	0.330806272	0.440923476
<b>COCOA PROCESSING COMPANY LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	27964400	29043600	48217223	59264796	45541422
SALES <sub>t-1</sub>	34222091	27964400	29043600	48217223	59264796

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GROWTH	-0.182855308	0.0385919	0.660166887	0.229120889	-0.231560301
<b>ECOBANK GHANA LTD</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	497,186	631,836	80,472	134,902	210,862
SALES <sub>t-1</sub>	486186	497,186	631,836	80,472	134,902
GROWTH	0.022625086	0.2708242	-0.872637836	0.676384332	0.563075418
<b>ENTERPRISE INSURANCE</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	1411	1447	1422	2646	5658
SALES <sub>t-1</sub>	1390	1411	1447	1422	2646
GROWTH	0.015253885	0.0256498	-0.017548708	0.860759494	1.138321995
<b>FAN MILK</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	31246	32375	41068	55041	82471
SALES <sub>t-1</sub>	30215	31246	32375	41068	55041
GROWTH	0.034135363	0.0361098	0.268521407	0.340240577	0.498355771
<b>GCB</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	948,349	1,214,468	147,213,125	187,046,013	203,037,120
SALES <sub>t-1</sub>	978233	948,349	111,214,468	147,213,125	187,046,013
GROWTH	-0.030548959	0.2806129	0.323686816	0.270579733	0.085492905
<b>GUINNESS GHANA</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	79945	104760	124848	135810	200968
SALES <sub>t-1</sub>	70,944	79945	104760	124848	135810
GROWTH	0.126877537	0.3103964	0.191753715	0.087802768	0.479773213
<b>GOIL</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	138079200	192159600	306492356	438863961	421542111
SALES <sub>t-1</sub>	129088908	138079200	192159600	306492356	438863961
GROWTH	0.069644187	0.3916622	0.59498852	0.431892027	-0.039469748
<b>GOLDEN STAR</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	95465	128690	175614	257355	400739
SALES <sub>t-1</sub>	92998	95465	128690	175614	257355
GROWTH	0.026527452	0.3480333	0.364628176	0.465458335	0.5571448
<b>GOLDEN WEB LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	552866	676683	583119	532044	266114
SALES <sub>t-1</sub>	641415	552866	676683	583119	532044
GROWTH	-0.138052587	0.2239548	-0.138268584	-0.087589326	-0.499827082
<b>HFC</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	64,719,148	86,964,679	13,949,828	22,799,830	28,580,277
SALES <sub>t-1</sub>	50,587,219	64,719,148	86,964,679	13,949,828	22,799,830
GROWTH	0.279357697	0.3437241	-0.839592026	0.634416568	0.253530268
<b>MECHANICAL LLOYD</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	111753711	125271873	21706362	25894929	22162249
SALES <sub>t-1</sub>	100735244	111753711	125271873	21706362	25894929
GROWTH	0.109380457	0.1209639	-0.826725972	0.192964947	-0.144147142
<b>PIONEER KITCHEN LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	2213037	2323776	3192970	2876933	7865765
SALES <sub>t-1</sub>	2611700	2213037	2323776	3192970	2876933
GROWTH	-0.15264502	0.0500394	0.374043798	-0.098979007	1.734080008
<b>PRODUCE BUYING COMP</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	230417500	248662200	193182770	245478455	437405123
SALES <sub>t-1</sub>	202736866	230417500	248662200	193182770	245478455
GROWTH	0.136534783	0.0791811	-0.223111635	0.270705742	0.781847303
<b>PZ CUSSONS GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	19,597,981	22,376,151	29,129,720	42,775,342	44,643,160
SALES <sub>t-1</sub>	173,823,916	19,597,981	22,376,151	29,129,720	42,775,342
GROWTH	-0.887253829	0.141758	0.30181996	0.468443294	0.043665764

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<b>SAM-WOODE LTD</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	18207272	17294893	747529	2252688	2689099
SALES <sub>t-1</sub>	15003838	18207272	17294893	747529	2252688
GROWTH	0.213507637	-0.050111	-0.956777472	2.013512519	0.193729003
<b>SG-SSB</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	434,257	503,261	523,771	71,352,357	85,582,675
SALES <sub>t-1</sub>	334,257	434,257	503,261	57,823,771	71,352,357
GROWTH	0.299170997	0.1589013	0.040754201	0.233962361	0.199437252
<b>SIC INSURANCE COMP</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	1471600	2288000	1663356	2379323	1960721
SALES <sub>t-1</sub>	1382880	1471600	2288000	1663356	2379323
GROWTH	0.064155964	0.5547703	-0.273008741	0.430435217	-0.175933238
<b>STANCHART</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	710,754	845,595	92,738	117,115	182,500
SALES <sub>t-1</sub>	510,754	710,754	845,595	92,738	117,115
GROWTH	0.391577942	0.1897154	-0.890328112	0.262858807	0.5582974
<b>STARWIN PRODUCTS LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	16540183	18971186	2036776	2468314	3085508
SALES <sub>t-1</sub>	14603729	16540183	18971186	2036776	2468314
GROWTH	0.132599968	0.1469756	-0.892638447	0.211873078	0.250046793
<b>TOTAL PETROLEUM LTD</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	122282	177833	404390	566514	542439
SALES <sub>t-1</sub>	112113	122282	177833	404390	566514
GROWTH	0.090706698	0.4542788	1.273991229	0.400910013	-0.042496743
<b>TRANSACTIONS SOLUTIONS GH LTD</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	19302043	33040386	36394976	12131936	7343142
SALES <sub>t-1</sub>	19010292	19302043	33040386	36394976	12131936
GROWTH	0.015346976	0.7111756	0.101529985	-0.666659047	-0.394726283
<b>UNILEVER GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	103524700	118712400	139054000	165590000	163863000
SALES <sub>t-1</sub>	88811000	103524700	118712400	139054000	165590000
GROWTH	0.165674297	0.1467061	0.17135194	0.190832339	-0.010429374
<b>UT BANK</b>					
YEARS	2005	2006	2007	2008	2009
SALES <sub>t</sub>	14,687	24,463	37,237	43,568	67,612
SALES <sub>t-1</sub>	13,655	14,687	24,463	37,237	43,568
GROWTH	0.075576712	0.6656227	0.522176348	0.170019067	0.551872934

<b>CALCULATION OF SIZE</b>					
<b>ACCRA BREWERY</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	20414200	21650900	24232000	26954000	55,815,000
IN TOTAL ASSET	16.8317413	16.89055758	17.00318463	17.10964227	17.83755321
<b>AFRICAN CHAMPION INDUSTRIES LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	3849456	3451916	3,662,755	8,515,250	8787805
IN TOTAL ASSET	15.16344245	15.05444011	15.11372615	15.95736923	15.98887552
<b>ANGLOGOLD ASHANTI</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	8,293	8,943.00	9,820.00	8,060.00	9,787.00
IN TOTAL ASSET	9.023167064	9.098626382	9.192176401	8.994668836	9.188810253
<b>ALUWORKS LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	26481900	28761100	45314000	70808000	59921000
IN TOTAL ASSET	17.09197204	17.17453434	17.62912659	18.07548255	17.90853759
<b>AYRTON DRUG MANUFACTURING LIMITED</b>					
YEARS	2005	2006	2007	2008	2009

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TOTAL ASSET	36873700	752187100	8791826000	10448845000	12725548000
IN TOTAL ASSET	17.42300912	20.43849565	22.89708826	23.06975728	23.26687746
<b>BENSO OIL PALM PLANTATION LTD</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	12041300	12223800	17794000	21898000	22160000
IN TOTAL ASSET	16.30385297	16.31889543	16.69437188	16.90190587	16.91379942
<b>CALBANK</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	97128600	157008400	235727000	338,902,000	452,812,000
IN TOTAL ASSET	18.39154643	18.87180987	19.27818491	19.64122154	19.93098759
<b>CAMELOT GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	150155100	381983600	3489338000	3254572000	3645256000
IN TOTAL ASSET	18.82717932	19.76088823	21.97297787	21.90332661	22.01669243
<b>CFAO (GHANA)</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	8309414400	9158719800	17508429000	20947000	28788000
IN TOTAL ASSET	22.84065497	22.93797225	23.58594826	16.857506	17.17546919
<b>CLYDESTONE (GHANA)</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	1,737,638,500.00	1,781,505,200.00	1,376,456,000.00	1,343,528,000.00	1,969,627,000.00
IN TOTAL ASSET	21.27579284	21.30072446	21.04277792	21.01856483	21.40111002
<b>COCOA PROCESSING COMPANY LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	66402700	79443200	1.07E+11	1.76E+11	1.97E+11
IN TOTAL ASSET	18.01124828	18.19055286	25.39264831	25.89385697	26.00677192
<b>ECOBANK GHANA LTD</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	219,923,000	350,373,900	6,550,224,000	8,306,186,000	9,006,523,000
IN TOTAL ASSET	19.20878804	19.67451143	22.60276508	22.84026638	22.92121493
<b>ENTERPRISE INSURANCE</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	20009411.4	25519600	35951000	59986000	73884000
IN TOTAL ASSET	16.81171329	17.05495734	17.39766746	17.90962176	18.11800685
<b>FAN MILK</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	15,798,300.00	18,297,000.00	23,707,000.00	32,858,000.00	51,114,000.00
IN TOTAL ASSET	16.5754129	16.72224767	16.98128092	17.3077058	17.74956899
<b>GCB</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	589020100	779201600	1,154,719,385	1,650,220,348	1,922,666,249
IN TOTAL ASSET	20.19397087	20.47378036	20.86712319	21.22417466	21.37697873
<b>GUINNESS GHANA</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	100,197,800.00	120,271,100.00	132,627,000.00	160,321,000.00	212,323,000.00
IN TOTAL ASSET	18.42265679	18.60525892	18.70305123	18.89268861	19.17361926
<b>GOIL</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	68,269,700.00	58,620,900.00	81,358,068.00	99,756,446.00	99,710,535.00
IN TOTAL ASSET	18.0389766	17.88660185	18.21437056	18.41824223	18.4177819
<b>GOLDEN STAR</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	132,789.00	90,534.00	145,826.00	91,973.00	219,496.00
IN TOTAL ASSET	11.79651668	11.41348075	11.89016941	11.42925033	12.29908929
<b>GOLDEN WEB LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	1115117	1560640	1654799	1789253	7,559,859
IN TOTAL ASSET	13.92446958	14.26060635	14.31919011	14.39730877	15.8383631
<b>HFC</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	71042682.4	108116958.5	162794775	378,614,305	261,101,557
IN TOTAL ASSET	18.07879141	18.49872415	18.90800092	19.75202858	19.38042
<b>MECHANICAL LLOYD</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	14,926,812.80	15,643,694.70	22,248,306.00	29,188,106.00	28,319,090.00
IN TOTAL ASSET	16.51866967	16.5655785	16.91777643	17.18927186	17.15904669



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<b>PIONEER KITCHEN LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	2630534.9	3004165.8	3055776	2418619	2400444
IN TOTAL ASSET	14.78269777	14.91551048	14.93254413	14.69870727	14.69116428
<b>PRODUCE BUYING COMP</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	30,224,600.00	18,991,600.00	36,332,585.00	67,467,661.00	96,559,981.00
IN TOTAL ASSET	17.22416672	16.75950733	17.40822555	18.02715894	18.38567494
<b>PZ CUSSONS GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	19397279	24063836	29,070,499	38,360,544	38426283
IN TOTAL ASSET	16.78064334	16.99622069	17.18523444	17.46253999	17.46425224
<b>SAM-WOODE LTD</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	1,840,659.50	733,522.70	894,507.00	1,653,023.00	2,059,832
IN TOTAL ASSET	14.42563449	13.50561382	13.70402801	14.31811629	14.53813498
<b>SG-SSB</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	291452600	365461000	417856827	436,765,130	578,365,858
IN TOTAL ASSET	19.49038794	19.71667013	19.85064941	19.89490615	20.1757172
<b>SIC INSURANCE COMP</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	53042900	64091600	158645171	211573427	185374366
IN TOTAL ASSET	17.78661158	17.97582387	18.88218064	19.17008267	19.03788794
<b>STANCHART</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	514245.7	699473.6	773737	984944	1404213
IN TOTAL ASSET	13.15045645	13.45808333	13.5589873	13.80034007	14.15498756
<b>STARWIN PRODUCTS LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	2676887.4	2324551	3347223	3340626	6932048
IN TOTAL ASSET	14.80016526	14.65903746	15.0236416	15.02166877	15.75166585
<b>TOTAL PETROLEUM LTD</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	26619700	126122000	137727000	148151000	143835000
IN TOTAL ASSET	17.0971621	18.65276025	18.74078402	18.81374258	18.78417737
<b>TRANSACTIONS SOLUTIONS GH LTD</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	2105285.1	4287818	4868363	3570443	2670017
IN TOTAL ASSET	14.55996146	15.27128854	15.3982683	15.08820024	14.7975954
<b>UNILEVER GHANA LIMITED</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	61542100	64218500	95583000	129474000	117324000
IN TOTAL ASSET	17.93523205	17.97780189	18.37550554	18.67899065	18.5804499
<b>UT BANK</b>					
YEARS	2005	2006	2007	2008	2009
TOTAL ASSET	38489	55316	75946	127823	212903
IN TOTAL ASSET	10.55812777	10.920817	11.23777784	11.75840177	12.26859194