CHRISTIAN SERVICE UNIVERSITY COLLEGE

EFFECTS OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF BANKS: A CASE STUDY OF SOME SELECTED BANKS IN GHANA

BY

THEOPHILUS NKRUMAH

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DECLARATION

Candidate's Declaration

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

Candidate's Signature …….. Date ……

Theophilus Nkrumah
(Student)

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the Christian Service University College.

Supervisor's Signature …….. Date ……

Mr. Clement Oppong
(Supervisor)

ABSTRACT

This study sought to examine the effects of working capital management on profitability of banks with a case study of some selected banks in Ghana. The selected banks included the GCB Bank, Agriculture Development Bank (ADB), National Investment Bank (NIB), Standard Chartered Bank (SCB) and ECOBANK. The study covered a period range of 2006 – 2015 that is a maximum of ten years. The audited annual reports from a sample of five selected banking firms in Ghana were employed for the study. Descriptive analysis as well as correlation and regression analysis were all used to analyze the data. The findings of the descriptive statistics showed that the selected commercial banks had an average of 138.283 days in lieu of collected cash from credit sales. Also, accounts payable period recorded a payment policy of 573.106 days, with a standard deviation of 186.659. The findings further indicated that the commercial banks used for the study needed an average to172.29 days to sell their inventory. Moreover, the inventory holdings period for the selected banks ranged from 0 to 163.23day. Based on the findings, cash conversion cycle took an average of 123.685 days to convert asset into cash. According to the findings of the study, there is a negative relationship between return on asset and cash collection cycle. The findings demonstrated that there was a negative coefficient between return on asset and account receivable. Based on the findings, some of the recommendations suggested included; banks in Ghana should try to come up with drastic reduction in the number of days' accounts receivables are outstanding and cash conversion cycle. The reduction in the number of days resulted in high profit maximization for the banks. Hence it is also recommended that the banks should adopt effective working capital management practices which enable them to keep working capital at its optimal level.

DEDICATION

I dedicate this work to my wife Mrs. Evelyn Nkrumah and my children Aseda Boatemaa Nkrumah, Stanley Osei Nkrumah and Jayden Ayeyi Nkrumah who gave me the support in every step on the way to attaining this height.

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LIST OF ABBREVIATIONS

WCM	Working Capital Management
ROA	Returns on Assets
ROI	Returns on Investments
ROE	Returns on Equity
ADB	Agriculture Development Bank
NIB	National Investment Bank
SCB	Standard Chartered Bank
GBA	Ghana Bankers Association
NLB	Net Liquidity Balance
WCR	Working Capital Requirement

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

It is a salient fact that for any business, an efficient working capital management is a vital component to its success and survival. Again, in terms of both profitability and liquidity it is considered very relevant. The crucial part in managing working capital is required in maintaining its liquidity in day to- day operation to ensure its smooth running and meet its obligation. Hence working capital management (WCM) aims to maintain an optimal balance between each of the working capital components (Deloof, 2003). These include cash, receivables, inventory and payables. According to Lamberson (1995), working capital management has become one of the most significant issues in organizations with majority of management struggling to classify the basic working capital drivers and the suitable level of working capital to hold so as to minimize risk, effectively prepare for uncertainty and improve the overall performance of their businesses.

WCM affects liquidity and profitability of the company directly. It deals with current assets and current liabilities. Firms maintaining low current assets may incur shortages and challenges in their operations while maintaining excessive levels of current assets can result into sub-standardized return on investment (Horne & Wachowicz, 2000).

Working capital refers to the company's total investment in current assets or assets that a company expects to be converted into cash within a year or less (Keown et al. 2005). It can be referred to as the difference between current assets and current liabilities. It is one of the measures of the extent to which a firm is protected from liquidity perils. The investment in working capital encompasses carrying costs and shortages costs, such

that companies have to find the trade-off between them. According to Levy and Sarnat (1994), the working capital is calculated as current assets less current liabilities.

There are three types of policies that guide the working capital according to Mathur, (2003). These include defensive policy, aggressive policy and conservative policy. With the defensive policy approach, organizations use long term debt and equity to finance its non-current assets and major portion of current assets. According to Brigham and Weston (1979), the firm adopts a financial plan which matches the expected life of assets with the expected life of the sources of funds raised to finance assets. Inventory expected to be sold in 30 days could be financed with a 30- day bank loan. A machine expected to last for 5 years could be financed with a 5-year loan or a 20-year building could be financed with a 20-year mortgage bond and so forth (Brigham & Weston, 1979).

Arnold, (2008) asserted that the defensive policy reduces the risk by reducing the current liabilities but it also affects profitability since long term debt offers high interest rate which increases the cost of financing. Financial institutions are not willing to take risk and therefore keep cash, higher inventories and generous credit terms. This approach gives a longer cash conversion cycle for the company as well as provide shield against the financial distress created by the lack of funds to meet the short term liability.

The aggressive policy could be adopted by organizations through financing its current assets with short term debt because it gives low interest rate. However, the risk associated with short term debt is higher than the long term debt. The estimated requirement of current assets is financed from short term sources and also part of non-current assets financing is done from short- term sources (Paramasivan & Subramanian,

2009). This model makes the finance mix riskier, less costly but more profitable. Managers try to promote profitability by paying lesser interest rate but this approach can be proved very risky if the short term interest rate fluctuates or the cash inflow is not enough to fulfill the current liabilities (Brigham & Weston, 1979). Therefore, such a policy is adopted by the company operating in a stable economy and is quite certain about future cash flows. Consequently, working capital comprises of current assets and current liabilities. Current assets include inventory, account receivables and cash. On the other hand, current liabilities comprise of account payables and accruals. In banking business, being profitable and liquid are not negotiable, at least for two reasons. These are to meet regulatory requirement and also to guarantee enough liquidity to meet customers' unannounced withdrawals.

Consequently, proper working capital management would enable banks to sustain growth which in turn leads to strong profitability and sound liquidity for ensuring effective and efficient customer services.

Indubitably, the banking service contributes to economic growth by producing the financial means to facilitate production in other industries (Rajan & Zingales, 1998). However, the banking firms sometimes find it difficult to finance its operation. This financing problem also affects the management of working capital of the individual banks, which intends to affect their level of profitability (Goddard et al., 2004).

Moreover, bank failure in the banking industry is becoming a peculiar household word in Ghana, which cannot be overemphasized. It is a recurrent issue, which has caused untold hardship to collective individual(s) and stakeholders. This ugly scene has paved way for losses of staggering sum of money and investment by some banks.

The above supposition heightens the importance of studying the extent at which banks' working capital management affects their profitability levels.

1.2 Statement of the Problem

The concept of the working capital management has no empirical evidence to support its influence on the performance of banks, especially universal banks. The effects of the working capital management can currently be explained on a theoretical level. In Iran, Afza and Nazir (2007) conducted a study on the Tehran stock exchange between 1998 and 2005 to analyze, the relationship between working capital management policies and profitability. They proved that conservative strategies yielded great stock value and showed that investors were interested in companies with short-term credit policies.

Lazardids and Tryfonidis (2006) studied the relationship between working capital management and profitability in Athens stock exchange in the period between 2001 and 2004. They concluded that there is a significant relationship between the gross operational profit and the cash transformation cycle. They further noted that the firm's managers can generate more profit by practicing great management techniques for the cash transformation cycle.

Supervision of monetary aspect of an institution is significant in working capital management Lamberson (1995). Without effective management of working capital, the firm may not be able to meet its operational needs and risks failure.

These previous researches provided an inconclusive analysis since they based the studies on advanced and more developed countries. Hence, with Ghana being an unstable economy and a middle income developing country, it becomes imperative that

managers of banks cannot use those findings to make crucial decisions concerning working capital management. Harris (2005) stated that "working capital may be observed as the life blood of business" of which rural and community banks are no exemption. Therefore, there is need to conduct a study on the effects of working capital management on profitability of banks in Ghana so that results will be applicable to the Ghanaian economy and state of development. It is in this vain that this study looked at the effects of working capital management on profitability, a case of some selected banks in Ghana with specific reference to banks such as GCB Bank, Agriculture Development Bank (ADB), National Investment Bank (NIB), Standard Chartered Bank (SCB) and ECOBANK.

1.3 Research Objective

The main objective of the study was to examine the effects of working capital management of selected banks in Ghana and how it impacts their profitability for the period covering from 2006 -2015.

1.3.1 Specific Objectives

The specific objectives of the study included;

1. To analyze the effects of debtors collection period on banks profitability.
2. To determine the effects of cash conversion cycle on banks profitability.
3. To determine the effect of bank growth on profitability of banks in Ghana.

1.4 Research Questions

1. What are the effects of debtors collection period on banks profitability?

2. What are the effects of cash conversion cycle on banks profitability?

3. What is the effect of bank growth on profitability of banks in Ghana?

1.5 Significance of the Study

The researcher conducted the study with the aim of expanding knowledge about working capital management and to also provide crucial information that can be analyzed by students, the government, policy formulators, bank managers and stakeholders. For the students, the findings will provide auxiliary information about working capital management in universal banks.

The study will provide an insight to the stakeholders and the managers on how different levels of working capital management influences the profitability of the banks. The findings would serve as a guide to the management on the effective and most efficient ways to manage the cash flow of banks without relying much on the customer deposits. It would also provide in-depth analysis of the effects of the recent credit crunch on banks of developing countries.

On the part of the policymakers and regulators, the findings are expected to draw attention on the need to ensure strict adherence to policies that would promote improvement in working capital management practices of the financial institutions in Ghana. It will further provide great insight to the oversight agencies like the Ghana Bankers Association (GBA) in the regulation of activities of the associations in the area of working capital management. The study will also enable the government and its agencies to be aware of the challenges facing banks as far as risk management is concerned.

Apart from providing useful information to the bank and its stakeholders, the findings can also be used by the government to formulate policies that favor bank processes and of which will help banks grow and expand.

1.6 Delimitations of the Study

The work was limited to five listed banks on the Ghana Stock Exchange. The study was designed to analyze the annual financial reports of GCB, ADB, NIB, SCB and ECOBANK for the period 2006 to 2015. The choice of banks was as results of availability and easy access to their annual financial reports

1.7 Organization of the Study

The study is organized sequentially into five (5) chapters. Chapter one (1) highlights the background to the study, problem statement, research objectives, research questions of the study, delimitation of the study, significance of the study and organization of the study. In chapter two (2), the researcher focused on the related literature on the same subject matter with a brief historical background of GCB BANK, ADB, NIB, SCB and ECOBANK in Ghana. Chapter three (3) of the study explains the methods used for data collection and analysis of the same data. Chapter four (4) focuses on the analysis of the data collected using correlation and regression analysis. Finally, Chapter five (5) concludes the study with provision of the findings, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter considers and critically evaluates researches and other literature related to the effects of working capital management on profitability. This literature review allowed the researcher to appreciate the theoretical basis of the research topic. The chapter also sought to discuss financial performance of banks as well as the working capital management of the GCB, ADB, NIB, SCB and ECOBANK in Ghana.

2.2 Working Capital Models

There are several models used in the analysis of working capital, salient among them are the Baumol model, Miller-Orr and Continuous Review model.

2.2.1 Baumol Model

Baumol model of cash management provides a formal approach for determining an organization's optimal cash balance under certainty (Baumol, 1952). It considers cash management similar to an inventory management problem. This model makes the following assumptions:

- The firm is able to forecast its cash needs with certainty.
- The firm's cash payments occur uniformly over a period of time.
- The opportunity cost of holding cash is known and it does not change overtime.
- The firm will incur the same transaction cost whenever it converts securities to cash.

The optimum cash balance, C^*, is obtained as;

$$holding\ cost = k(c/2)$$

$$trading\ cost = c(T/c)$$

$$total\ cost = k(c/2) + c(T/c)$$

$$C^* = \sqrt{\frac{2cT}{k}}$$

2.2.2 Miller-Orr Model

The Miller-Orr model was developed to deal with the shortcomings of Baumol model. This model does not allow cash flows to fluctuate. Organizations in reality do not use their cash balance uniformly nor are they able to predict daily cash inflows and outflows. However, Miller-Orr model allows for daily cash flow variation (Miller & Orr, 1966). It assumes that the net cash flows are normally distributed with zero value at mean and standard deviation.

The model provides for two control limits which are the upper control limit and the lower control limit. When the organization's cash flows fluctuate randomly and it hit the upper limit, then it buys sufficient marketable securities to come back to a normal level of cash balance. Conversely, if the cash flow goes below the lower limit, the organization sells sufficient marketable securities to bring the cash balance back to normal level.

The difference between the upper control limit and lower control limit depends on the following factors: the transaction cost, the interest rate and the standard deviation(s) of

the net cash flows. The formula for determining the distance between upper and lower control limits called (Z) is as follows:

$$upper\ limit = lower\ limit + 3Z$$

$$return\ point = lower\ limit + Z$$

The net effect is that the organization holds the average cash balance equal to:

$$average\ cash\ balance = lower\ limit + \frac{4}{3}Z$$

2.2.3 Continuous Review Model

Continuous review model is easy to derive making it extremely popular. Lin (1980) asserts that the model frequently presented is the continuous review model (reorder point/ economic order quantity model). It assumes that a perpetual inventory is maintained so that it is practical to release a replenishment order on the day the re-order point is reached. Though the model is practical for a computerized inventory system collecting point of sale data, it is not considered practical for manual systems handling numerous different items. It assumes point of sale information is being collected.

There are numerous variations of the continuous review inventory model (Cox, 1985). For this study, the model considered has the following assumptions;

- The item under consideration is independent of all other items (no joint replenishment).
- Demand for the item is random.
- Lead time is known and constant.
- Average demand is constant overtime.
- Inventory position is maintained at all times.

- Holding costs and replenishment costs are known and constant.

With such assumptions, a continuous review model calls for an order, of size Q, to be placed whenever the reorder point, S, is reached.

$$S = Dk\ v$$

$$Q = \frac{2dr}{h}$$

Where;

d = annual demand for the item

r = replenishment cost per occurrence

h = holding cost per item per year

D =average demand during lead time

v = standard deviation during lead time

k = management determined variable.

The management factor determining the level of safety stock, k, should be set at a value of 2 or 3. A k value of 2 will result in a small number of stock outs during approximately 2.4 percent of all replenishment cycles. A k factor of 3 eliminates stock outs almost entirely (less than 1 percent), but causes considerably more inventory to be held as safety stock at all times.

2.3 Working Capital Management

In 1955, John Sagan, a former executive of Ford Motor Company, described the importance of effective cash management (Sagan, 1955). The auto manufacturer used to receive the payments for their cars given directly to the driver of the shipment. The driver would take the checks and drive it back to his home office. Depending on how long the drive was, this procedure could take up to ten days. Resourcefully, Ford realized that if their drivers sent the checks per mail before heading back, the company could instead transform the money from an accounts receivable item to usable funds in less than two days (Sagan, 1955).

Working capital management involves managing the organization's inventory, receivables and payables in order to achieve a balance between risk and returns and thereby improving the value of the organization. The working capital includes all the items shown on the firm's balance sheet as short term or current assets while net working capital excludes current liabilities. According to Harris (2009), the importance of maintaining an appropriate level of working capital and its contribution to business survival is a concept that should be understood by every company.

Hampton and Wagner (2008) asserted that working capital policy is a function of two decisions: the appropriate level of investment in current assets and the chosen methods of financing the investment. He continued to explain that the level of a firm's current assets and working capital, with respect to the total corporate structure and flow of funds, is a trade-off between profitability and risk. Therefore, if there is little risk, an aggressive working capital would be used whereby the firm maintains a minimum level of cash, securities, debtors and stocks. However, if there is stability, a more conservative policy will be called for that requires high cash balances and high stock reserves.

The liquidity position of a firm is a crucial issue that needs attention by the management. According to Visscher and Weinraub (2006), the liquidity state of a company can be recognized by their risk-return characteristics. Risk and return tradeoffs are intrinsic in alternative working capital policies. High risk, high return working capital investment and financing strategies are referred to as aggressive; lower risk and return strategies are called moderate or matching; still lower risk and return is called conservative (Kretlow, McGuigan & Moyer, 2010; Pinches 2012; Brigham & Gapenski, 2007). An organization may select an aggressive working capital management policy with a low level of current assets as 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 percentage of total liabilities (Afza & Nasir, 2007). Keeping an optimal balance among each of the working capital components is the main objective of working capital management. Company's success heavily depends on the ability of the financial managers to effectively manage receivables, inventory, and payables (Filbeck & Krueger, 2005). Lazaridis and Tryfonidis (2006) assert that the main challenges in financial management is to achieve the desired trade-off between liquidity, solvency and profitability.

Liquidity measures the capability of the organization to meet financial obligations as they become due, without disrupting the normal, ongoing operations of the business. Liquidity can be analyzed both operationally and structurally (Tangen, 2003). Structural liquidity refers to balance sheet measures of the relationships between assets and liabilities and operational liquidity refers to cash flow measures.

Profitability measures the extent to which a business generates profit from the factors of production: labor, management and capital. Profitability analysis focuses on the relationship between revenues and expenses and on the level of profits relative to the

size of investment in the business. Four useful measures of profitability are the rate of return on assets (ROA), the rate of return on equity (ROE), operating profit margin and net income (Hansen & Mowen, 2005).

Solvency measures the amount of borrowed capital used by the business relative to the amount of owner's equity capital invested in the business. It indicates whether a firm has the ability to repay all debts if all of the assets were sold. It also provides an indication of the business ability to withstand risks by providing information about the operation's ability to continue operating after a major financial adversity (Harrington & Wilson, 1989).

2.3.1 Relationship between Working Capital and Financial Performance

Effective and efficient working capital management plays an important role in the general corporate strategy that may lead to increase in shareholders' value by determining the composition and level of investments on current assets, the level, sources and mix of short term debts (Nwankwo & Osho, 2010). Effective working capital management can enable a firm to react quickly and genuinely to unexpected changes in economic environment and gain competitive advantages over its competitors (Alshubiri, 2011). WCM primarily purposes to ensure an optimum balance between profitability and risk (Ricci & Di Vito, 2000). This can be realized by continuous monitoring of working capital components such as accounts receivable, inventory and accounts payable. The success of a business greatly depends on the effective skills of financial managers (Afza & Nasir, 2007).

The correlation between the current liabilities and current assets determines the liquidity position of firms (Dong & Su, 2010). However, excessive levels of current assets may have a negative effect on the firm 's profitability while a low level of

current assets may lead to lower level of liquidity and stock outs resulting in difficulties in maintaining smooth operations (Van Horne & Wachowicz, 2000). This definition does not offer an accurate perception of corporate liquidity because the components of working capital have different levels of liquidity, as some of components (for example cash investment in marketable securities and treasury bills) have financial essence with a high liquidity. Other components have non - financial essence with a low liquidity (for example receivable, payable accounts and inventory).

Cox and Shulman (1985) defined financial items as net liquidity balance (NLB) and non-financial items as working capital requirement (WCR). However, the liquidity of NLB is different from liquidity of WCR but they are related to each other. For example, decreasing the period of receiving the receivable accounts, will decrease WCR and NLB as cash in value will increase. The profitability liquidity tradeoff is imperative because if WCM is not given due attention then the business is likely to fail and face bankruptcy (Filbeck & Krueger, 2005). The significance of WCM efficiency is unquestionable (Filbeck & Krueger, 2005). In many businesses today, liquidity position is therefore a major issue that must be put into consideration by financial managers. This liquidity state can be identified by their risk-return characteristics (Visscher & Weinraub, 1998).

2.4 Theoretical Review

There are theories that explain the concept of working capital and WCM and their overall influence on the financial performance of the organizations including banks. The various theories are discussed below.

2.4.1 Cash Conversion Cycle Theory

Cash conversion cycle (CCC) was developed by Gitman (1974) to determine the amount of cash needed for any sales level by looking at the interaction between the working capital components and the flow of cash within a company. It focuses on the length of time between the acquisition of raw materials and other inputs and the inflows of cash from sale of finished goods. This represents the number of days of operation for which financing is required.

The cash conversion cycle is a dynamic measure of ongoing liquidity management. Jose, Lancaster and Stevens (1996) are of the view that the CCC combines both the balance sheet and income statement data to create a measure with a time dimension. Though the analysis of an individual organization's CCC is helpful, industry standards are vital for a company to evaluate its CCC performance and assess opportunities for improvements because the length of CCC may differ from industry to industry. Hutchinson et al. (2007) opines that the appropriate way is to compare a specific firm to the industry in which it operates. The CCC is used as a comprehensive measure of working capital since it shows the time lag between expenditure for the purchase of raw materials and the collection of sales of finished goods (Padachi, 2006). Day-to-day management of a firm's short term assets and liabilities plays an important role in the success of the firm. Firms with growing long term prospects and healthy bottom lines do not remain solvent without good liquidity management (Jose, Lancaster & Stevens, 1996).

CCC is calculated by adding inventory period to accounts receivables period and then subtracting accounts payables from it.

$$CCC = Inventory\ days + Trade\ receivables - Trade\ payables\ days$$

The shorter the CCC, the fewer are the resources needed by the company (Arnold, 2008). So the longer the cycle the higher will be the investment in the working capital. Longer cycle could also increase sales, which could lead to higher profitability. However, the longer cycle may lead to higher investment that may increase at a higher rate than the benefits of the higher profitability. It is important for firms to shorten the CCC, since the financial management can create value for their shareholders by reducing the cycle to a reasonable minimum (Shin & Soenen, 1998). By shortening the CCC, the cash flows will have a higher net present value because cash is received quicker. They continued to explain that a longer cash conversion cycle might indicate a positive trend in the firm's sales and that the firm can comfortably compete by having sloppy credit policies or high inventories. Conversely, a higher CCC can negatively affect a company's profitability by increasing the time cash is tied to non-interest bearing accounts such as accounts receivables (Kumar & Sharma, 2011).

2.4.2 Net Trade Cycle Theory

The net trade cycle (NTC) theory is an equivalent of the cash conversion cycle (CCC). The three components of the cash conversion cycle which are, the receivables, inventory and payables are expressed as percentage of sales (Laughlin & Richards, 1980). This makes the NTC easier to analyze and calculate and also fewer complexes when comparing with the cash conversion cycle and weighted cash conversion cycle. Soenen (1993) assessed the relationship between the net trade cycle as a measure of working capital and return on investments in the US firms. The results of chi-square test indicated a negative relationship between the length of net trade cycle and return on assets. Additionally, this inverse relationship was found to be different across industries depending on the type of the industry. A significant relationship for about half of the industries studied indicated that results might vary from industry to industry.

2.4.3 Transaction Cost Economic Theory

The optimal level of inventory should be determined by considering the trade-off between costs and benefits associated with the inventory levels. Costs of holding inventory include ordering and carrying costs. Ordering costs is associated with acquisition of inventory which includes costs of preparing a purchase order or requisition form, receiving, inspecting, and recording the goods received. But, carrying costs are involved in maintaining or carrying inventory and will arise due to the storing of inventory and opportunity costs. There are several motives for lower or higher levels of inventories and highly depends on what business a company is in. The most widely and simple motive of managing inventories is the cost motive, which is often based on the Transaction Cost Economics (TCE) theory (Emery & Marques, 2011). To be competitive, companies have to decrease their costs and this can be accomplished by keeping the costs of stocking inventory to a reasonable minimum. This practice is also highly valued by stock market analysts (Sack, 2000).

2.5 Empirical Review

The previous studies on working capital management observed efficiency of cash management, efficiency of receivables management and efficiency of inventory management as determinants of financial performance model. Therefore, financial performance could be improved if efficiency levels of cash, receivables and inventory management practices were improved. The relaxed approach, with high cash reserves and high inventory, is associated with higher risk and return whereas the more aggressive approach, with minimized working capital, is associated with lower risk and return (Visscher & Weinraub, 1998).

The net trade cycle is preferred as a capital efficiency measure over the weighted cash conversion cycle and cash conversion cycle (Shin & Soenen, 1998). This is because it indicates the number of day sales the firm has to finance its working capital and therefore the financial management can easily use it to estimate the financial needs of working capital expressed as the fraction of the expected sales growth. This correlation can be examined using correlation and regression analysis and be applied for individual industries. In their study of firms, Shin and Soenen (1998) found that a strong negative relationship exists between the length of the firm's net trade cycle and its probability. They also noted that shorter net-trade cycles are associated with higher risk-adjusted stock returns. However, they suggested that by reducing the firm's net-trade cycle, a firm can increase the value of the shareholders' contribution.

Lazaridis and Tryfonidis (2006) examined 131 firms listed in the Athens Stock Exchange from 2001 to 2004 in order to investigate the correlation between profitability, cash conversion cycle and its components. In their study, profitability was the dependent variable while independent variables included fixed assets, natural logarithm of sales, debt ratio and cash conversion cycle and its components. The results indicated a negative relationship between cash conversion cycle, financial debt and profitability. However, the fixed assets had a positive coefficient. Subsequently, when the cash conversion cycle was replaced with accounts receivables and inventory, the relationship was negative with these two variables above, though accounts payable depicted a positive correlation (Lazaridis & Tryfonidis, 2006). They therefore concluded that firms can create more profits by effectively handling the cash conversion cycle and maintaining optimum levels of its components.

In Belgium, Deloof (2003) examined the relationship between working capital management and profitability by considering a sample of 1009 non-financial Belgian

companies for the period of 1992 to 1996. By applying correlation and regression analysis, he found out there existed a significant negative relationship between gross operating income and the number of days of accounts receivables, accounts payable and inventories of the firms. The negative relationship between profitability and accounts payable is consistent with the view that less profitable firms wait longer to pay their bills. Deloof (2003) suggested that the management can create value for their shareholders by reducing the number of days' account receivables and inventories to a sufficient minimum.

Afza and Nasir (2007) examined 208 public limited companies listed at Karachi Stock Exchange for a period of 1998 to 2005.Through cross-sectional regression models on working capital policies, profitability and risk of the firms, the results showed a negative relationship between the profitability measures of firms and degree of aggressiveness on working capital investment and financing policies. The findings showed companies yield negative returns if they follow an aggressive working capital policy by investigating the relative relationship between the aggressive or conservative working capital policies.

Demirgunes and Samiloglu (2008) studied the effects of working capital management on firm profitability in Turkey for a period of 1998-2007. The findings highlighted that, accounts receivables period, inventory turnover period and leverage had a significant negative effect on profitability. They also noted that cash conversion cycle, size and fixed financial assets had no statistically significant effect on profitability.

In Kenya, Nyakundi (2003) studied working capital management policies among the public companies. From a sample of 30 companies listed at the Nairobi Stock Exchange covering the period from 1998 – 2002, he concluded that most companies practiced the

aggressive working capital management policy. No significant differences were noted between the working capital management policies across the five sectors.

2.6 Factors Affecting Bank Profitability

Even though profitability does not necessarily mean liquidity, profitability ensures firm survival, growth and less debatably firm liquidity levels. Among the key factors that influence bank profitability are capital structure, size, growth, market discipline, risk and reputation.

2.6.1 Capital Structure

The relationship between capital structure and firm profitability has been shown to be bi-directional. Some findings reveal a positive relationship between debt and firm profitability (Abor, 2005 and Agyei, 2010) while others show a negative relationship (Inderst and Mueller, 2008).

2.6.2 Size

There is a long standing relationship between firm size and profitability because of economies of scale and increased bargaining power. Thus it is expected that larger banks that managed their size well and guard against diseconomies of scale are better able to outperform smaller banks.

2.6.3 Growth

Growth firms have more avenues to invest their funds and are likely to stay profitable than firms with little or no growth. Couple with the fact that companies with high growth options might exhibit shorter CCC (Emery, 1987; Petersen and Rajan 1997; and Cuñat, 2007) it is much more likely that banks with high growth prospects can increase their profitability.

2.6.4 Age

Banks that have existed for long are expected to have acquired economically beneficial loyalties from their suppliers of funds and customers. These loyalties, in addition to the wealth of experience gained over the years, are expected to translate to high profitability. However, this may hardly be the case for banks which have not consciously built their reputation over the years.

2.6.5 Credit Risk

One of the biggest challenges of banking business is the risk that borrowers may not be able to pay the principal and inte rest when the time is due. We assess the impact of credit risk (measured as loan loss ratio) on the profitability of banks in Ghana, as this risk is likely to influence the performance of banks.

2.6.6 Exchange Rate Risk

Foreign exchange trading is a principal activity of banks in Ghana. In fact, banks make gains/losses in periods of high exchange rate volatility. Also, some banks take funding from abroad and these loans are denominated in foreign currency. Thus, needless to say, their repayments should also be done in the same currency. Even though currently the cedi appears to be performing relatively well against the major trading currencies, the impact of foreign exchange risk on bank profitability cannot be overlooked.

2.7 Working Capital Levels

Working capital is the amount of funds which a company needs to finance its day to day operations (Nkwankwo & Osho, 2010). It is the difference between current assets and current liabilities. A company can maintain a high level of its working capital in relation to its total assets or may maintain its working capital at a low level. Whatever the level of working capital maintained by a firm, there is an opportunity cost that is

incurred. It may either be liquidity risk or reduced profit. The opportunity cost depends on whether the firm adopts a conservative or aggressive working capital policy. For the purpose of this study, aggressive investment, conservative investment, aggressive financing and conservative financing policies were considered.

2.7.1 Aggressive Investment Policy

An aggressive investment policy deals with the firm's active control and management of current assets with the aim of minimizing them (Hussain, Farooz & Khan, 2012). Under this policy current assets are only demanded as they are needed to facilitate the operation of the business. According to Al-shubiri (2011) aggressive investment policy results in minimal level of investment in current assets versus fixed assets. Aggressive investment policy indicates the smallest level of investment in short term assets versus long term assets (Nasir & Afza, 2009). The degree of aggressiveness of working capital investment policy is measured by ratio of current assets to total assets, where the lower value of this ratio shows more aggressiveness (Weinraub & Visscher, 1998; Nasir & Afza, 2009). Other things being the same, an aggressive investment policy results in lower current assets, lower expenses, a shorter cash conversion cycle, higher risk and higher required return to compensate the risk (Pinches, 1997). Hussain et al, (2012) found that firms that use an aggressive investment policy with low level of current assets increase profitability.

2.7.2 Conservative Investment Policy

Conservative assets management is a passive approach, in which current assets grow in size whatever the situation (Pinches, 1997). A conservative investment policy sets a greater proportion of funds in short term assets versus long term assets with opportunity cost of low level profit (Nasir & Afza, 2009). Conservative investment policy places a greater proportion of capital in liquid assets as opposed to productive assets (Al-shubiri,

2011). In managing current assets, the policy is more conservative, if the firm uses more current assets in proportion to total assets (Weinraub & Visscher, 1998). Al-mwalla (2012) found that a conservative investment policy has a positive impact on a firm's profitability and value.

Raheman et al (2010) found that firms follow a conservative working capital policy. However, Weiraub and Visscher (1998) had found that industries do not significantly follow either aggressive or conservative working capital policies. Therefore, some firms follow aggressive and others conservative working capital policies. There is no strong tendency that a more aggressive approach in one area is balanced by a more conservative approach in the other (Weinraub & Visscher, 1998). According to Sathymoorthi and Wally-Dima (2008) companies tend to adopt a conservative investment approach during the time of high business volatility and an aggressive investment approach in the time of low volatility.

2.7.3 Aggressive Financing Policy

According to Campsey, Brigham, Gilroy and Hutchinson (1994) current liability is a desirable source of financing because it is usually cheaper than long term liabilities. Aggressive financing policy utilizes higher levels of current liabilities and less long term debt (Nasir & Afza, 2009; Al-shubiri, 2011). Using aggressive financing policy the firm finances its seasonal and possibly some permanent requirements of current assets with current liabilities (Gitman, 2009). Other things remaining the same, the higher the current liabilities, the more aggressive the firm's financing policy and low level of current liability leads to conservative financing policy (Pinches, 1997).

Firms put the liquidity at risk, if they concentrate more on the utilization of current liabilities by using aggressive current liability policy (Nasir & Afza, 2009). The level of

aggressiveness of working capital financing policy is measured by ratio of short term liabilities to total assets, where the higher value of this ratio shows more aggressiveness (Weinraub & Visscher, 1998; Nasir & Afza, 2009). An aggressive financing policy results in higher shorter term liabilities, shorter cash conversion cycle, lower interest cost, higher risk and higher required return (Pinches, 1997). Hussain et al (2012) found that firms that use an aggressive financing policy with high level of current liabilities increase profitability. However, Al-mwalla (2012) found that an aggressive financing policy has a negative impact on firm's profitability and value.

2.7.4 Conservative Financing Policy

A conservative financing policy uses more long term debt and capital. In an aggressive financing policy, a firm uses high levels of short term liabilities and low level of long term debt (Weinraub & Visscher, 1998). According to Sathymoorthi and Wally-Dima (2008) companies tend to adopt a conservative financing approach during the time of high business volatility and an aggressive financing approach in the time of low volatility. Across the board firms use either an aggressive or conservative financing policy and there is no strong tendency that a more aggressive approach in one area is balanced by a more conservative approach in the other (Weinraub & Visscher, 1998).

2.8 Effect of Cash Conversion Cycle (CCC) on Profitability of Firms

2.8.1 Cash Conversion Cycle

The elapsed time between the points at which a firm pays for raw materials and at which it receives payment for finished goods is called the CCC (Megginson et al., 2010). The CCC, which represents the interaction between the components of working capital and the flow of cash within a company, can be used to determine the amount of cash needed for any sales level. The length of the CCC depends on the length of inventory conversion period (ICP), average receivable collection period (ACP) and

average accounts payable period (APP). The longer the CCC, the greater the amount of investment required in working capital (Singh & Kumar, 2014).

If the firm pays cash for its inventory, this period is identical to the firm's operating cycle. However most of the firms buy their inventory on credit, which reduces the amount of time between the cash investment and the receipt of cash from that investment. In order to maximize shareholder value, the firm should manage the short-term activities in a way that shortens the CCC, which will enable the firm to operate with minimum cash investment. The firm can find alternative uses for any cash that it is not using to fund the CCC like using the cash to pursue more productive long-term investments, using it to pay down expensive long-term financing or distributing it to the owners as dividends.

A positive CCC means that trade credit does not provide enough financing to cover the firm's entire operating cycle. In such circumstances, the firms seek other forms of financing like bank lines of credit and term loans. However, the cost of these financing sources tend to be higher that the costs of trade credit. Apparently, the firm will benefit by findings ways to shorten its operating cycle or lengthen its payment period. As a measure of the cash cycle, CCC is calculated as the sum of a firm's inventory days and accounts receivable days, less its accounts payable days.

At the outset of 21st century, Deloof's (2003) work recognize the relation between WCM and corporate profitability for a sample of 1,009 large Belgian non-financial firms for the 1992-1996 period. Number of day's accounts receivable, inventories and accounts payable are used as measures of trade credit and inventory policies. The CCC is used as a comprehensive measure of WCM. The study identified that the CCC and its components are negatively correlated with the Gross operating income. The results of regression analysis found very meaningful relationship between gross operating income

and the number of days of accounts receivable, inventory and accounts payable. The number of days of accounts receivable showed a high significant relationship whereas CCC negative relationship was not significant with gross operating profit.

2.8.2 Liquidity and Profitability

Liquidity refers to the amount of cash a company can put its hands on quickly to settle its debts (and possibly to meet other unforeseen demands for cash payments too). For the purpose of this research, current ratio (CAR) is used as a measure of liquidity and calculated by dividing current assets by current liabilities (Azam & Haider, 2011). Finance managers have to take various types of financial decisions like investment decision, finance decision, liquidity decision, and dividend decision at different times. In every area of financial management, the finance managers are always faced with the dilemma of liquidity and profitability, hence, they have to strike a balance between the two (Eljelly, 2004).

Most of the time, liquidity goals of a firm is to have adequate cash to pay for its bills and to make large unexpected purchases. Also to ensure the firm has an adequate cash reserve to meet emergencies in all time. Whereas, profitability goal on the other hand requires that funds of a firm are used so as to yield higher returns. Therefore, when one increases, the other decreases, Brigham and Houston (2003). Apparently, liquidity and profitability goals conflict in most of the decisions the finance managers make. Higher inventories are kept in anticipation of increase in prices of raw materials; hence, profitability goal is approached but the liquidity position of a firm is endangered. In reality, none of the managers choose any of these two extremes instead they want to have a balance between profitability and liquidity which fulfils their need of liquidity and gives required level of profitability (Arnold, 2008).

Mekonnen (2011) found that there is a significant negative relationship between liquidity and profitability. Similarly, Eljelly (2004) empirically examines the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of 929 joint stock companies in Saudi Arabia, found a significant negative relationship between the firm's profitability and its liquidity level. Raheman and Nasr (2007) on their study about the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability of Pakistani firms, selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of six years from 1999 – 2004. They found a strong negative relationship between liquidity (measured by current ratio) and profitability of the firm. In contrast, other studies (Naimulbari, 2012; Azam & Haider, 2011) show a positive correlation between gross operating profitability and current ratio. This shows that as the firm’s current ratio increases, the gross operating profitability also increases.

2.8.3 Relationship between Cash Conversion Cycle and Profitability

Cash conversion cycle equals the length of time between the firm’s actual cash expenditures to pay for productive resources (materials and labor) and its own cash receipts from the sale of products (that is, the length of time between paying for labor and materials and collecting on receivables) (Vural, Sökmen & Çetenak,2012). The cash conversion cycle thus equals the average length of time a shilling is tied up in current assets. It is calculated as; (Average Collection Period + Inventory turnover in days - Average Payment Period) (Azam & Haider, 2011).

Cash conversion cycle can be shortened in three ways: One, by reducing inventory conversion period by processing and selling goods more quickly. Secondly, by reducing

receivables period by speeding up collections from sales and thirdly by lengthening payables or deferral period through slowing down firm's own payments. Naimulbari (2012) in the study "The impact of working capital management on profitability" of pharmaceuticals sector in Bangladesh" showed that there is a negative relationship between cash conversion cycle and profitability. Saghir, Hashmi and Hussain (2011) added that as the cash conversion cycle has the negative relationship with the profitability, this cycle should be short as much as possible without hurting the operations.

This would improve profits, because the longer the cash conversion cycle, the greater the need for external financing, and that financing has a cost. The study by Dong (2010), reports that working capital management affects the firms‟ profitability and liquidity. From the research, it is found that the relationship between CCC and profitability is strongly negative. This denotes that decrease in the profitability occurs due to increase in cash conversion cycle.

Uyar (2009) examined the impact of CCC with firm size and performance for firms listed at Istanbul Stock. The Results showed that there is a considerable negative association between CCC and the firm performance. Gill et al. (2010) found significant association between the CCC and performance calculated through gross operating profit. They examined a negative correlation between performance and average days of accounts receivable and a positive correlation between CCC and performance. Raheman et al. (2010) discovered WCM has a significant negative impact on operating profitability of the firms and plays a vital role to generate value for shareholders. Mohamad and Saad (2010) unearth significant negative links between WC variables with firm‟s profitability of Malaysian listed companies. Dong and Su (2010) found

negative relationship between CCC and corporate performance in Vietnam and a positive link between number of days for accounts payable and performance. So managers can enhance profits by minimizing the number of days for accounts receivable and inventories and more profitable firms wait longer for payment of their bills.

Nobanee et al. (2011) came accros a astrong negative link between the CCC and ROA for all industries except for consumer goods and services in Japan.Karaduman et al. (2011) in Turkey finds CCC indisputably influences the performance of the firms measured in terms of ROA, listed in the ISE (Istanbul Stock Exchange). The results advocate that it may be possible to enhance performance by improving efficiency of WC. Hayajneh and AitYassine (2011) confirmed the link between the WC efficiency and performance of Jordanian manufacturing firms and found strong negative correlation between average receivables collection period, average conversion inventory period, average payment period and the performance measures. Gill (2011) finds the negative link between firm size and WC requirements as bigger firms have lower WC requirements than the smaller firms in Canada and efficient WCM is vital to create the higher profits. Vijayakumar (2011) observed link between liquidity and performance is one of the areas of performance of corporate enterprise. Empirical outcomes of the studies found a strong but negative correlation between performance and Accounts Receivable Period (ARP), Inventory Conversion Period (ICP) and Cash Cycle (CCC) for a sample of Indian automobile industry.

2.9 Conceptual Framework

A conceptual framework is a structure which the researcher believes can best explain the natural progression of the phenomenon to be studied (Camp, 2001). It is linked with the concepts, empirical research and important theories used in promoting and systemizing the knowledge espoused by the researcher (Peshkin, 1993). It is the researcher's explanation of how the research problem would be explored. The conceptual framework presents an integrated way of looking at a problem under study (Liehr & Smith, 1999). In a statistical perspective, the conceptual framework describes the relationship between the main concepts of a study. It is arranged in a logical structure to aid provide a picture or visual display of how ideas in a study relate to one another (Grant & Osanloo, 2014). Interestingly, it shows the series of action the researcher intends carrying out in a research study (Dixon, Gulliver & Gibbon, 2001). The framework makes it easier for the researcher to easily specify and define the concepts within the problem of the study (Luse, Mennecke & Townsend, 2012). Miles and Huberman (1994) opine that conceptual frameworks can be 'graphical or in a narrative form showing the key variables or constructs to be studied and the presumed relationships between them.' In this study the conceptual framework comprises of five independent variables and one dependent variable.

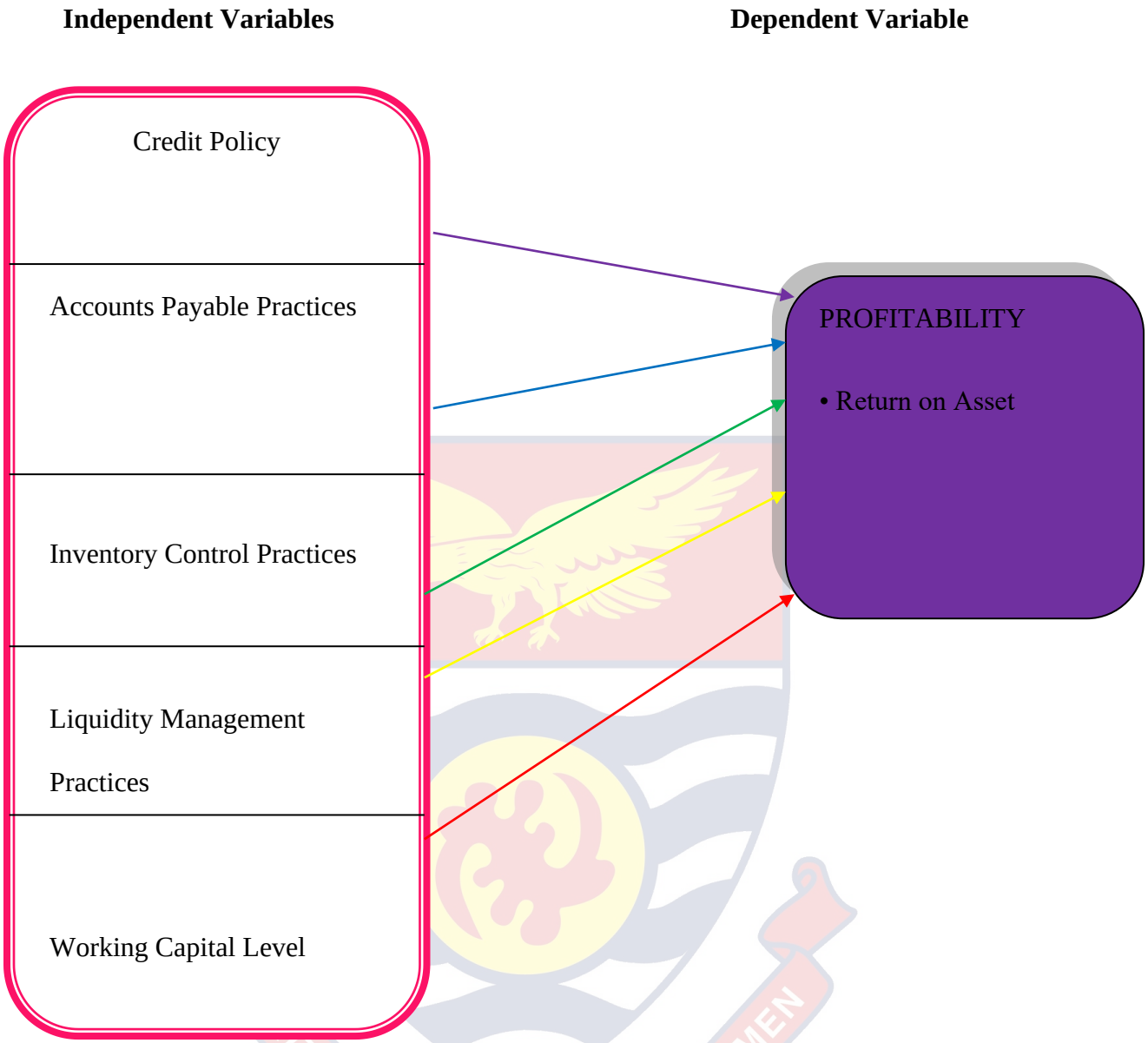

Figure 2.1: Conceptual Framework

Figure 2.1 shows the conceptualization of the dependent and independent variables of the related study. The independent variables of this study indicate the statistics that were used to measure effects of Working Capital Management. They include credit policy which was measured by credit standards, credit terms, collection efforts and creditworthiness of customers. Accounts payable practices were measured by relationship with suppliers, delays in payments and payment period allowed by suppliers. Inventory control practices were measured by inventory control system and

inventory levels. Liquidity management practices were measured using current ratio, quick ratio, and cash management. Working capital levels were measured using aggressive investment policy, conservative investment policy, aggressive financing policy and conservative financing policy. The dependent variable was the profitability which was measured by return on assets (ROA).

CHAPTER THREE

RESEARCH METHODOLOGY AND COMPANIES PROFILES

3.1 Introduction

This chapter addresses the methodology for the research. It examines the criteria for determining the appropriate methodology for the study. It discusses the description of the research design, target population, sample design, data collection methods, research procedures and data analysis and presentation.

3.2 Research Design

Research design is a plan and structure of investigation developed in order to guide the research towards achieving its objectives (Robson, 2002). It can be classified into three categories, namely descriptive, explanatory and exploratory (Lewis, Saunders & Thornhill, 2007).

Descriptive study is designed to collect data that describe the characteristics of the topic of interest (Arthur, 1992). The research problem is structured and well understood. The aim of descriptive study is to represent an accurate profile of persons, events or situations (Lewis et al., 2009).

Explanatory study, deals with the problems that are well structured as in descriptive studies but the researcher tries to explain the causes-and-effects of the situation (Lewis et al., 2009). The aim of such studies is to separate the causes and to state to what extent they lead to such effects. It explains the casual relationship between variables (Lewis et al., 2009).

Exploratory study; this study is considered when the researcher has insufficient information. It is especially useful if the researcher wishes to clarify their understanding

of a problem, such as if they are unsure of the precise nature of the problem (Lewis et al., 2009). Consequently, exploratory research must be flexible and adaptable to change. The researcher should be willing to change their perspective when they encounter new data and new insights that occur (Lewis et al., 2009).

The main objective of this study is to examine the effects of working capital management on profitability of banks in Ghana. Therefore, explanatory study will be appropriate for the research to determine if there exists any correlation between working capital management and performance. The aim is to find causes and effects (Ghauri & Gronhaug, 2005).

3.3 Population

Population is the entire group of individuals, events or objects that have common characteristics that are of interest to the researcher (Mugenda & Mugenda, 2003). The population of interest in this study constitutes all the five banks for the period of ten years from 2006 to 2015 (both years included). The purposes behind narrowing down the populace to cover just five listed organizations were the simple access to yearly financial reports that listed organizations offerred.

3.4 Sample

Lewis et al (2007) define a sample as a representative selection of the population that is under examination in order to gather statistical data or information about the whole population. Sampling is the process of selecting a group of items or cases to be used as a random or representative sample.

In this study five (5) selected banks in Ghana have been selected from the period of 2006 to 2015 that is, 10 years and it used 120 months observations for each bank to find

out the results. The financial year to the companies were at the end of 31st of December in each year and all companies were selected on the availability of data in the captured data up to 10 years.

3.5 Data Collection

Flick (1998) explains that data collection is the process of gathering empirical evidence in order to gain insights to be able to answer questions related to the objectives of the study. Data can either be classified primary or secondary data. Primary data is the first hand information collected directly from a respondent whereas secondary data is that data which has already been collected and passed through the statistical process (Chandran, 2004).

In this study, the secondary data have been used and the data was collected from the financial statements of five selected banks.

3.6 Data Analysis Model

This research examined the effects of working capital management on profitability of banks by using statistical package for social sciences (SPSS). Three Linear multiple regression models were used in this research by also using three categories of independent variables; Working Capital Management; Current Ratio (CR), Loan to Deposit ratio (LDR) and Cash Ratio (CSR). The dependent variables used in this research by including the Net Profit margin (NPM), Return on Assets (ROA) and Return on Capital Employed (ROCE). Based on the dependent variable, three multiple regression models have been formulated as follows:

$$CR = \alpha i + \beta 1 NPM + \beta 2\ ROA + \beta 3\ ROCE + €it$$

LDR= αi +β1NPM+β2 ROA+β3 ROCE + €it

CSR= αi +β1NPM+β2 ROA+β3 ROCE + €it

CR = Current Ratio

NPM = Net Profit Margin

LDR = Loans to Deposit Ratio

ROA = Return on Assets

CSR = Cash Ratio

ROCE = Return on Capital Employed

Where α, is constant, β1, β2, β3 are coefficients of variables, € is residual term.

In order to understand the effects of working capital management on profitability of banks, the researcher have calculated the following indicators for the selected banks in the sample:

Variable Measurement and Definition

Variable	Code	Measurement	Definition
Current Ratio	(CR)	Current Assets / Current Liabilities	The current ratio is a liquidity ratio that measures a company's ability to pay short-term obligations or those due within one year.
Loan to Deposit Ratio	(LSR)	Loans & advances / Deposits	This ratio is determined by dividing the bank's loan amounts by its total amount of deposits.
Cash Ratio	(CSR)	Cash and cash equivalents / Current Liabilities	Cash Ratio is the amount of cash and short term equivalents a company has over current liabilities.
Net Profit Margin	(NPM)	Profit after Tax (PAT) / Interest Income *100	It calculates the percentage of profit a company earns against its sales. The higher the value of return on sale the better the performance.
Return on Assets	(ROA)	Profit after Tax (PAT) / Total Assets * 100	The ratio explains how efficient a company utilizes its existing assets to generate profit.
Return on Capital Employed	(ROCE)	Profit before Tax (PBT) / Total Equity *100	It measures the earnings of the company against the investment of mutual stockholders

3.7 Corporate Profile of Some Selected Banks

3.7.1 Overview of Ghana Commercial Bank (GCB)

The Bank of the Gold Coast, the parent company of Ghana Commercial Bank Limited, was established by Legislative Instrument in 1952 and commenced operations in 1953. The Bank was set up as a semi government bank to cater for the needs of the Gold

Coasters and operate to the benefit of African industry, agriculture, commerce and trade (Anin, 2000).

The Bank of the Gold Coast undertook both central and commercial banking functions. The bank's name was changed to Ghana Commercial Bank in 1957 upon the attainment of independence when Central Bank activities were hived off to the newly created Bank of Ghana, leaving Ghana Commercial Bank to perform the functions for which it was set up (Steel and Andah, 2003).

At the time of independence, there were only three banks operating in Ghana, namely; British Bank of West Africa, Barclays Bank DCO (Dominion Colonial and Overseas), and the Bank of the Gold Coast. The Bank of the Gold Coast was the only indigenous bank as the other two were expatriate banks. (Anin, 2000). In 1996, Ghana Commercial Bank changed its legal entity from a statutory corporation to a company registered under the Company's code and subsequently floated shares on the Ghana Stock Exchange when a percentage of the Government of Ghana's ownership was divested to individuals and corporate business entities.

Ghana Commercial Bank operated as the only indigenous bank from independence until NIB and ADB were established in 1963 and 1965 respectively. The bank held the bulk of government accounts and had the greatest share of the industry's deposits.

From a modest beginning of three (3) banks at independence, there are as many as thirty five (35) universal banks operating in Ghana as at May 2018 with many more eager to secure operational licenses. The bank currently operates 214 branches and 21 agencies as at August 2017 nationwide and is exploiting its up to date technology, extensive branch network linked together by means of wide area network (WAN) to its

advantage, but it seems this ambitious expansion drive has not translated into any exceptional financial performance.

Mission of GCB

The Bank's mission is to be the established leader in banking, satisfying the expectations of customers and shareholders, providing a full range of cost efficient and high quality services through the optimization of information technology and efficient branch network."

Corporate Values

The stated corporate values of the bank are enumerated below;

Entrepreneurial Spirit - Passion for business.

Professionalism - Highest banking and ethical standards.

Maximization of profit and passion for superior performance resulting in achieving targets.

3.7.2 Overview of Agricultural Development Bank (ADB)

Agricultural Development Bank (ADB) Limited is a universal bank offering a full range of banking products and services in Consumer, Corporate, Parastal, SME, Agriculture, Trade and E-Banking services. Its business focus is universal banking with a developmental focus on Agriculture and more.

The Bank successfully listed on the Ghana Stock Exchange (GSE) on December 20, 2016. The new ownership structure of the Bank is:

1. Government of Ghana – 32.30%
2. Belstar Capital Limited- 24%,
3. Starmount Development Company Limited – 11%
4. SIC Financial Services-10%

5. Bank of Ghana – 9.50%
6. EDC Investment Limited – 6%
7. Retail investors and ADB staff – 7.20%.

Vision

ADB aims to be among the Top Tier performing Banks in Ghana, balancing market orientation with a development focus on Agric and more.

Mission

ADB is committed to growing a strong customer – centric Bank, providing profitable and diversified financial services for a sustained contribution to Agricultural development and wealth creation.

3.7.3 Overview of Standard Chartered Bank

Standard Chartered Bank (SCB) Ghana Limited is a market – leading financial services brand in Ghana, listed on the Ghana Stock Exchange. It has operated for 121 years in the country and is the oldest bank in the country. The Bank's focus and commitment to developing deep relationships with clients and customers have driven its consistent growth in recent years.

With a current network of 25 branches and 68 ATMs across the country, Standard Chartered offers exciting product propositions for clients as well as career opportunities for more than 1000 staff in Ghana.

It is committed to building a sustainable business over the long term in Ghana and is trusted worldwide for upholding high standards of corporate governance, social responsibility, environmental protection and employee diversity.

Purpose

Our purpose is to drive commerce and prosperity through our unique diversity. Our heritage and values are expressed in our brand promise, Here for good.

3.7.4 Overview of National Investment Limited

The history of National Investment Bank (NIB) Limited can be traced to the end of the Second World War, where agitations from the indigenes against foreign imports led to a general boycott by the local population led by Association of West African Merchants (AWAM). As a result, the colonial administration decided to establish an entity that would facilitate the involvement of private indigenous persons in business. The Gold Coast Industrial Development Corporation (GCIDC) was therefore established in 1952 with budgetary appropriations to enable it provide financial support to the indigenes for the establishment of their own businesses.

After independence, GCIDC became known as the Ghana Industrial Development Corporation (GIDC) with the Government of Ghana as the controlling body. The government transformed the GIDC into the National Investment Bank by an act of Parliament (Act 163). The NIB was therefore incorporated as an autonomous joint state-private institution on March 22, 1963. The Bank was established primarily to promote and strengthen rapid industrialization in all sectors of the Ghanaian economy. NIB was therefore the first development bank in Ghana.

The Act also enabled NIB to set up joint ventures because the Ghanaian manufacturers or the private sector lacked the required funding for start-ups. NIB on the other hand could lend to enterprises and put in equity. The set up over 100 joint enterprises including major existing industries such as Nestle Ghana Limited, Novotel, Kabel Metal, Aluworks, NTHC, Accra Markets etc.

NIB actively supported the agro-processing industry and as a result, in 1965, the Agricultural Department of NIB was transformed into the Agricultural Development Bank. Again, as the Bank's services to the corporate sector kept on expanding, NIB saw the need for a specialized banking and therefore set up Merchant Bank to concentrate on trade finance.

Until 1980, NIB was not mandated to mobilize deposits from the general public but rather was restricted to take deposit from only the companies it had financed. However, in the 1980's the economic situation was not conducive for the Bank to access external credit, and therefore to address the situation, it became necessary for the Bank to mobilize deposits from the general public.

NIB now operates as a universal bank focusing on development / commercial banking activities. Currently, 70% of the Bank's portfolio is made up of loans to the Ghanaian private sector. NIB is a major lender to the manufacturing, construction and agro-processing sectors as well as the service industry.

The Bank has undergone management, institutional and financial restructuring, which has strengthened the Bank and now, has forty-two (42) branches and three (3) agencies nationwide.

3.7.5 Overview of Ecobank Ghana Limited (EGH)

Ecobank Ghana Limited (EGH) was incorporated on January 9, 1989 as a private limited liability company under the company's code to engage in the business of banking. EGH was initially licensed to operate as a merchant bank by the Bank of Ghana on November 10, 1989 and commence business on February 19, 1990. However, following the introduction of Universal Banking by the Bank of Ghana in 2003, EGH, through to its form as a pacesetter, became the first bank to be granted the

Universal Banking license from the Bank of Ghana. The bank is a subsidiary of Ecobank Transnational Incorporated (ETI), a bank holding company which currently has fifty-two (52) subsidiaries across Middle Africa. The Ecobank Group is thus in more Countries in Africa than any other bank, making it the leading Regional Banking Group in Middle Africa.

EGH has grown consistently over the years to become one of the leading banks in Ghana and a well recognized brand in the Ghanaian Banking Industry. EGH acquired a Universal Banking license in 2003 and got listed on the Ghana Stock Exchange (GSE) in July 2006. The bank has embarked on a medium term strategy shift from a predominantly Wholesale Bank to Retail Bank, and 2008 marked the third year of its strategic transformation.

Mission

EGH's mission is to become a strategic part of a world-class African banking group.

Vision

The bank's vision is to provide its customers convenient, accessible and reliable banking products and service.

CHAPTER FOUR

PRESENTATION OF DATA, ANALYSIS AND DISCUSSION

4.1 Introduction

The objective of this study was to examine the effect of working capital management on profitability of banks in Ghana. The design of this research is a factor of working capital management, debtor's collection and cash collection cycle. In line with previous studies by Charitou, et al (2010), Makori and Jagongo (2013), they indicate that the profitability of organizations are measured by return on assets which includes three major components of working capital management; cash collection cycle, number of days' account receivable are outstanding and number of days' inventory are held.

4.2 Correlation Analysis

Correlation analyses were employed to examine the relationship between working capital management and profitability of banks in Ghana. Specifically, the relationship between working capital management on banks profitability, relationship between debtor's collection period on banks profitability and the relationship between cash collection cycle on the profitability of banks were analyzed. With the correlation analysis, the significant correlations are marked with an asterisk (*), thus the one asterisk meaning a correlation significant on the 0.05 level and two asterisks meaning the correlation is significant on the 0.01 level. From table 4.1 below, it can be observed that account receivable has a positive relationship (r=183**, $p < 0.0.1$) with cash collection cycle and profit ($r=.213^{*}$, $p< 0.05$). Also, account receivable has a positive relationship with working capital ($r=.225^{*}$, $p < 0.05$). This result is in line with a study by Lazarids and Tryfonidis (2009), which showed a positive relation between accounts receivable and a firm's profitability. This is because firm's receiving their payment

from creditors early increases their profit. This also implies that an organization's decision to collect money from customers faster increases their working capital hence increase in profitability. However, contrasting evidence is found in a study conducted by Falope and Ajilore (2009), which revealed that there is a negative relationship between accounts receivable and profitability of the firm.

On the issue of working capital, the correlation analysis indicated that working capital has a negative relationship on cash collection cycle ($r=-871^{**}$, $p< 0.01$) and also a positive relationship on profit ($r=.967^{**}$, $p < 0.05$). Studies done by Karaduman et al. (2011) and Zariyawati et al. (2009), showed a positive relationship between working capital of most organization and their profitability. In other words, working capital has a positive relationship with a firm's profit. With cash collection cycle, it was revealed that, cash collection cycle has a positive relationship on profit ($r=.967^{*}$, $p < 0.01$). This in line with a study by Deloof (2003), which reveals that most profitable organizations have shorter payables outstanding than less profitable organizations.

Table 4:1 Descriptive Statistics and Correlation Matrix

	1	2	3	4	5	6	7	8
1. **Return on Asset**	1							
2. **Interest Income**	.108	1						
3. **Interest payment**	-.122	-.137	1					
4. **Operating expense**	.008	-.153	.184	1				
5. **Account receivable**	.042	.086	-.010	090*	1			
6. **Working capital**	.005	-.076	-.166	.109	.225*	1		
7. **Cash collection cycle**	-.122	-.100	-.261**	.012	183**	.-871**	1	
8. **Profit**	-.059	-.089	-.222*	.064	.213*	.967**	.967**	1

Source: Research Findings (2018)

Note

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

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

4.3 Regression Analysis

The regression technique was used to explore the relationship between the study variables while testing for the study objectives. The regression analysis was done to examine the influence of bank growth on the profitability of banks in Ghana, the influence of debtors' collection period on profitability of banks in Ghana, the relationship between cash conversion cycle on profitability of banks in Ghana and determine the effect of bank growth on profitability of banks in Ghana. With the regression analysis, the value of F-ratio explains the overall significance of the model, whilst the adjusted R^2 value provides accurate estimation of the true population value. The value of R^2 determined the amount of variance in the dependent variables which is explained by the independent variable. It is the percent of the variance in the dependent explained by the independents variable.

4.3.1 The Effect of Bank Growth on Profitability of Banks in Ghana

Bank growth has no significant impact on profitability of banks in Ghana.

Table 4.2 Regression analysis between bank growth and profitability (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.418[a]	0.648	0.635	0.53562

a. Predictors: (Constant), Bank Growth

Table 4.3 Regression Analysis between Bank Growth and Profitability ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.091	1	1.091	24.803	0.004[b]
	Residual	21.804	76	0.287		
	Total	22.895	77			

Source: Research Findings

a. Dependent Variable: Profit
b. Predictors: (Constant), Bank Growth

Table 4.4 Regression Analysis between Bank Growth and Profitability Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.644	0.318		8.322	0.000
	Bank growth	0.162	0.083	0.218	1.950	0.055

Source: Research Findings

a. Dependent Variable: Profitability

From the summary model in table 4.2 above, it can be observed that an R^2 of 0.648, which implies that 64.8% total variance in bank growth can be used to explain the profitability of bank growth in Ghana. Also the ANOVA table 4.3 shows the overall significant of the regression model. It also shows that F-ratio and the significant of the p-value. An F-ratio of 24.803, showed that regression model is significant at (p-value 0.04 < 0.05). This implies that the regression model is statistically significant. In other words, bank growth has an influence on the profitability of the bank. According to Dawood (2014), as banks grow, they begin to expand their operations and perform a major function of accepting deposit from the general public which influences their profitability. Though, Javaid et al. (2011),

revealed that bank growth does not lead to any increase in profitability of the bank. However, a study conducted by Ani W.U et al (2012), examined the factors influencing the profitability of bank in Nigeria. Their study concluded with a positive influence of bank growth on the profitability of banks in Nigeria. The Beta parameter under standard coefficient shows positive value of 0.218. It shows a positive influence of bank growth on the profitability of banks in Ghana. The implication is that higher bank growth will result in more profit for banks.

4.3.2 The Relationship between Debtor's Collection Period on Profitability of Banks in Ghana

Debtors' collection period has no significant impact on profitability of banks in Ghana.

Table 4.5 Regression Analysis between Debtor's Collection Period on Profitability of Banks in Ghana (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.604[a]	0.592	0.581	0.49968

a. Predictors: (Constant), Debtor's collection period

Table 4.6 Regression Analysis between Debtor's Collection Period on Profitability of Banks in Ghana (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.956	1	1.956	227.832	0.000[b]
	Residual	19.226	77	0.250		
	Total	21.181	78			

a. Dependent Variable: Profitability of banks

b. Predictors: (Constant), Debtor's collection period

Table 4.7 Regression Analysis between Debtor's Collection Period on Profitability of Banks in Ghana (Coefficients)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.365	0.320		7.394	0.000
	Debtors collection period	0.264	0.094	0.304	2.799	0.006

a. Dependent Variable: Profitability of banks

From the summary model in table 4.5, an R^2 of 0.592, which implies that 59.2% total variance in debtor's collection period can be used to explain profitability of banks in Ghana. The ANOVA table 4.6 shows the overall significant of the regression model. It also shows that F-ratio and the significant of the p-value. An F-ratio of 227.832, shows that regression model is significant at (p-value 0.00 < 0.05). This implies that debtor's collection period has significant influence on profitability of banks in Ghana. This result is in line with a study by Defoof (2003), which stated that profitability of banks and other firms can increase through a reduction of debtors' collection period. Also a study by Angahar and Alematu (2014), indicated that accounts receivable has a positive influence on the profitability of banks. The implication is that credit customers meeting up with the payment conditions within mean length of time result in high profit margin for firms. The Beta parameter under standard coefficient shows positive value of 0.304. It shows a positive influence of debtor's collection period on profitability of banks. A study by Ani et al (2012), also revealed that debtor's collection period has a positive significant influence on profitability of banks.

4.3.3 The Relationship between Cash Conversion Cycle on Profitability of Banks in Ghana

Cash conversion cycle has no significant impact on profitability of banks in Ghana.

Table 4.8 Regression Analysis between Cash Conversion Cycle on Profitability of Banks in Ghana (Model summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.747[a]	0.558	0.534	0.36605

a. Predictors: (Constant), Cash Conversion Cycle

Table 4.9 Regression Analysis Cash Conversion Cycle on Profitability of Banks in Ghana (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.197	4	3.049	22.756	0.000[b]
	Residual	9.648	72	0.134		
	Total	21.844	76			

a. Dependent Variable: Profitability of banks

b. Predictors: (Constant), Cash Conversion Cycle

From the summary model in table 4.8, an R^2 of 0.558, which implies that 55.8% total variance in cash conversion cycle can be used to explain profitability of banks in Ghana. The ANOVA table 4.9 shows the overall significant of the regression model. It also shows that F-ratio and the significant of the p-value. An F-ratio of 22.756, shows that regression model is significant at (p-value 0.00 < 0.05). This implies that cash conversion cycle has significant influence on profitability of banks in Ghana.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents findings from the interpretations and discussions in the previous chapters, Moreover, conclusions from the major findings as well as recommendations have been drawn, based on the findings and the research objectives.

5.2 Summary of Findings

The key findings were discussed below based on the research objective of the study.

5.2.1 Correlation Matrix

The findings of the field study indicated that cash collection cycle has a positive influence on working capital and account receivable has a positive relationship with working capital. Thus firms receiving their payment from creditors early increased their profit. Also, the findings showed that working capital had a negative relationship on cash collection cycle and the findings further indicated that working capital had a positive relationship on profit. The findings further showed that cash collection cycle had a positive relationship on profit.

5.3 Regression Analysis

The study employed regression analysis to examine the relationship between the independent and dependent as well as examined the hypothesis in the study.

5.3.1 Relationship between Bank Growth and Profitability of Banks in Ghana

According to the results of the of regression analysis between bank growth and profitability of banks, it was discovered that bank growth had a positive and significant relationship on the profitability of banks in Ghana. The result had a direct relationship with a similar study conducted by Dawood (2014), which concluded that when banks grow, they begin to expand their operations and perform major function of accepting deposit from the general public which influence their profitability.

5.3.2 Relationship between Debtor's Collection Period on Profitability of Banks

Based on the findings of the regression analysis, it was revealed that debtor's collection period had a significant influence on profitability of banks in Ghana. It was also discovered that debtor's collection period had a positive influence on profitability of banks in Ghana. Also a study by Angahar and Alematu (2014), indicated that accounts receivable had a positive influence on the profitability of banks. A study by Deloof (2003), concluded that debtor's collection period had a significant influence on banks.

5.3.3 Relationship between Cash Conversion Cycle on Profitability of Banks

According to the results of the regression study, cash conversion cycle had a significant influence on the profitability of banks. A study by Ebenezer and Asiedu (2013) examined the relationship between working capital management and profitability of companies listed on the Ghana Stock Exchange. Again, the findings revealed a significant positive relationship between cash conversion cycle and profitability.

5.4 Conclusion

The following conclusions were made based on the findings:

It was concluded that cash collection cycle had a positive influence on working capital. Likewise, account receivable had a positive relationship with working capital. It can also be concluded that working capital has a negative relationship on cash collection cycle, and a positive relationship on profit. Also, it was concluded that cash collection cycle has a positive relationship on profit.

In addition, it was concluded that bank growth had a positive and significant relationship on the profitability of banks in Ghana. Likewise, debtor's collection period had significant influence on profitability of banks in Ghana. Cash conversion cycle also had a significant influence on profitability of banks.

5.5 Recommendations

The following recommendations were based on the finding of the study.

The research hence recommended that banks in Ghana should come up with measures that will drastically reduce the number of days' accounts receivables are outstanding as well as cash conversion cycle. It is recommended that the cash conversion cycle should be reduced to the maximum of fifteen days or less the reduction in days will result in high profit maximization for the banks. It is also recommended that banks should adopt effective working capital management practices which will enable them to keep working capital at its optional level.

Also, banks should decide to reduce investing in current asset. This can help them avoid high inventory cost and excess cash holding and account receivable. It is also

recommended that bank should always update their information on account receivable. This will help them to avoid additional financial costs. It is recommended that the regulatory body for banks, government and banks operating in the Ghana should fund either regional or nationwide research so that content specific data will be available to enrich decision making by managers to avoid financial cost.

5.6 Suggestions for Further Studies

The following are some of the areas that further research may be focused:

i. Similar study done on the same topic with different firm over an extended sample period of financial years.

ii. Similar study with an extended scope to cover other components of WCM for example company size, sales growth and current ratio.

iii. A study undertaken to cover on the effects of external factors on WCM.

iv. Similar study with an extended scope to cover more banks over an extended sample period of financial years.

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APPENDICE

APPENDIX I

Financial Data Derived from the Financial Statements

bank	index	roa	roe	eoi	car	aod	aq	niita	size	gdp	ms	infl
gcb	1	0.01	0.091	0.505	0.104	1.005	0.029	0.066	13.283	3.9915	10.0144	19.2507
gcb	1	0.03	0.182	0.273	0.124	1.055	0.008	0.062	13.216	8.4305	9.9184	16.5221
gcb	1	0.034	0.151	0.199	0.144	0.885	0.011	0.035	13.058	6.4597	9.7749	10.7327
gcb	1	0.05	0.287	0.146	0.115	0.574	0.005	0.043	12.89	6.4	9.6387	10.9152
gcb	1	0.039	0.181	0.167	0.12	0.542	0.029	0.041	12.768	5.9	9.4946	15.1182
gcb	1	0.042	0.284	0.22	0.103	0.491	0.047	0.034	12.746	5.6	9.4173	12.6246
gcb	1	0.042	0.198	0.24	0.093	0.551	0.064	0.036	12.705	5.2	9.3126	26.6749
gcb	1	0.047	0.156	0.391	0.185	0.651	0.042	0.048	11.987	5.9	9.4946	15.1182
gcb	1	0.05	0.194	0.488	0.193	0.628	0.026	0.059	11.917	5.6	9.4173	12.6246
gcb	1	0.056	0.291	0.562	0.121	0.649	0.034	0.073	11.768	5.2	9.3126	26.6749
adb	2	0.018	0.104	0.486	0.166	0.877	0.043	0.069	12.866	3.9915	10.0144	19.2507
adb	2	0.024	0.137	0.343	0.174	1.16	0.019	0.068	12.795	8.4305	9.9184	16.5221
adb	2	0.025	0.122	0.267	0.201	0.845	0.017	0.062	12.673	6.4597	9.7749	10.7327
adb	2	0.028	0.155	0.263	0.169	0.644	0.053	0.054	12.613	6.4	9.6387	10.9152
adb	2	0.024	0.121	0.319	0.181	0.696	0.05	0.052	12.536	5.9	9.4946	15.1182
adb	2	0.04	0.197	0.332	0.181	0.527	0.122	0.079	12.491	5.6	9.4173	12.6246
adb	2	0.029	0.17	0.319	0.155	0.57	0.11	0.047	12.476	5.2	9.3126	26.674
adb	2	0.024	0.156	0.65	0.127	0.803	0.016	0.037	12.654	3.9915	10.0144	19.2507
adb	2	0.031	0.225	0.57	0.105	1.183	0.011	0.05	12.526	8.4305	9.9184	16.5221
adb	2	0.028	0.156	0.508	0.129	0.958	0.014	0.045	12.37	6.4597	9.7749	10.7327
stan chart	3	0.06	0.36	0.232	0.114	0.49	0.037	0.045	13.147	3.9915	10.0144	19.2507
stan chart	3	0.045	0.371	0.309	0.091	0.62	0.004	0.042	12.993	8.4305	9.9184	16.5221
stan chart	3	0.053	0.374	0.324	0.109	0.537	0.006	0.035	12.908	6.4597	9.7749	10.7327
stan chart	3	0.066	0.381	0.241	0.113	0.538	0.006	0.038	12.852	6.4	9.6387	10.9152
stan chart	3	0.069	0.358	0.242	0.126	0.664	0.014	0.052	12.711	5.9	9.4946	15.1182
stan chart	3	0.069	0.435	0.265	0.101	0.532	0.004	0.057	12.643	5.6	9.4173	12.6246
stan chart	3	0.076	0.433	0.292	0.104	0.501	0.01	0.056	12.592	5.2	9.3126	26.6749
stan chart	3	0.012	0.138	0.611	0.073	0.738	0.008	0.032	12.531	3.9915	10.0144	19.2507

stan chart	3	0.024	0.276	0.499	0.057	0.803	0.004	0.034	12.449	8.4305	9.9184	16.5221
stan chart	3	0.021	0.285	0.46	0.047	0.643	0.02	0.027	12.385	6.4597	9.7749	10.7327
nib	4	-0.07	-0.852	0.492	0.082	0.945	0.165	0.06	12.614	8.4305	9.9184	16.5221
nib	4	0.018	0.082	0.376	0.169	0.793	0.037	0.049	12.561	6.4597	9.7749	10.7327
nib	4	0.012	0.113	0.416	0.14	0.811	0.008	0.037	12.447	6.4	9.6387	10.9152
nib	4	0.039	0.258	0.348	0.12	0.719	0.082	0.041	12.279	5.9	9.4946	15.1182
nib	4	0.048	0.303	0.305	0.115	1.745	0.046	0.056	12.168	5.6	9.4173	12.6246
nib	4	0.041	0.25	0.341	0.126	1.082	0.089	0.063	12.018	5.2	9.3126	26.6749
nib	4	0.033	0.169	0.665	0.131	0.401	0.056	0.067	12.744	3.9915	10.0144	19.2507
nib	4	0.033	0.245	0.538	0.101	0.405	0.009	0.038	12.589	8.4305	9.9184	16.5221
nib	4	0.003	0.113	0.599	0.034	0.44	0.013	0.04	12.19	6.4597	9.7749	10.7327
nib	4	-0.05	-0.415	0.433	0.111	0.25	0.01	0.02	11.811	6.4	9.6387	10.9152
ecob ank	5	0.051	0.262	0.372	0.148	0.495	0.021	0.057	13.142	3.9915	10.0144	19.2507
ecob ank	5	0.048	0.396	0.366	0.092	0.588	0.014	0.068	12.964	8.4305	9.9184	16.5221
ecob ank	5	0.045	0.346	0.31	0.097	0.659	0.002	0.043	12.825	6.4597	9.7749	10.7327
ecob ank	5	0.053	0.388	0.306	0.099	0.483	0.002	0.041	12.635	6.4	9.6387	10.9152
ecob ank	5	0.055	0.432	0.289	0.087	0.468	0.014	0.046	12.505	5.9	9.4946	15.1182
ecob ank	5	0.053	0.398	0.274	0.087	0.46	0.01	0.049	12.367	5.6	9.4173	12.6246
ecob ank	5	0.061	0.396	0.289	0.09	0.491	0.021	0.059	12.226	5.2	9.3126	26.6749
ecob ank	5	0.031	0.292	0.522	0.078	0.458	0.012	0.039	12.479	8.4305	9.9184	16.5221
ecob ank	5	0.011	0.078	0.553	0.091	0.547	0.022	0.038	12.174	6.4597	9.7749	10.7327
ecob ank	5	0.561	-0.055	0.495	0.114	0.33	0.057	0.035	11.822	6.4	9.6387	10.9152