UNIVERSITY OF CAPE COAST

EFFECTS OF WORKING CAPITAL MANAGEMENT POLICIES ON SHAREHOLDERS' VALUE: EVIDENCE FROM LISTED MANUFACTURING FIRMS IN GHANA

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis 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: 09/01/2017

Name: Edward Quansah

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

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ABSTRACT

Although working capital management decisions concern short-term assets and liabilities, they have both short-term and long-term implications on the profitability and shareholder value. The study sought to examine the effects of working capital management policies on shareholder value creation for six manufacturing firms listed at Ghana Stock Exchange for a period of 2000-2013. Data were gathered from the annual reports of the firms and the publication of Ghana Stock Exchange. Descriptive statistics, One-way ANOVA, panel fully modified ordinary least square and dynamic panel ARDL methodologies were used for analyzing the data. The results revealed that the firms were following moderate working capital management policies. The study found significant differences among the current asset investment policies across different firms. However, no significant differences were observed for financing policies.

The grouped Fully Modified OLS and Panel ARDL regression results indicated that conservative current asset investment policies increase ROE and EVA while aggressive current asset investment policies enhance market-to-book ratio and Tobin's Q in the long-run. On the other hand, aggressive current asset financing policies increase ROE while conservative current asset financing policies enhance market-to-book ratio, Tobin's Q and EVA in the long-run. Thus, a firm pursuing aggressive current asset investment policy should balance it with conservative current asset financing policy and vice versa in order to enhance profitability and create value for their investors.

KEY WORDS

Current asset financing policy

Current asset investment policy

Fully modified

Panel ARDL

Panel cointegration

Shareholder value

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DEDICATION

To my lovely wife, Alice and daughters, Gracelyn, Lawrencia, Esther and Sophelia.

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LIST OF ACRONYMS

ALUWKS	Aluworks Limited
ANOVA	Analysis of Variance
ARDL	Autoregressive Distribution Lag
CCC	Cash Conversion Cycle
CMLT	Camelot Ghana Limited
EVA	Economic Value Added
F&B	Food and Beverages Manufacturing Firms
FML	Fan Milk Ghana Limited
FMOLS	Fully Modified Ordinary Least Square
GGBL	Guinness Ghana Breweries Limited
GSE	Ghana Stock Exchange
HSD	Honestly Significant Difference
ISIC	International Standard Industrial Classification
LSD	Least Significance Difference
MBR	Market-to-Book Ratio
O. MFG	Other Manufacturing Firms
PMG	Pooled Mean Group
PZC	PZ Cussons Ghana Limited

ROE	Return on Equity
TA	Total Assets
TCA	Total Current Assets
TCL	Total Current Liabilities
UNIL	Unilever Ghana Limited

CHAPTER ONE

INTRODUCTION

Shareholder wealth maximization has become a widely accepted normative criterion to judge the financial decisions of corporate executives. These decisions include long-term investment, capital structure, dividend policy as well as working capital management. However, literature on corporate finance tends to focus attention on the long-term financial decisions to the neglect of working capital management even though working capital management affects profitability and shareholder value. There are scant empirical studies which had been undertaken in the area of working capital management and shareholder wealth creation albeit its importance hence creating a gap. Additionally, available empirical evidence suggests that earlier studies on the subject employed static Ordinary Least Squares (OLS) regressions without checking for stationarity or cointegration in their data series. Hence, the results obtained may be biased or spurious. This study therefore seeks to fill this gap by employing a recently developed econometric methodology in order to correct some of these methodological flaws.

Background to the Study

Following Rappaport's seminal paper on shareholder value over the past two decades, attention has now been focused on corporate managers to create a sustainable shareholder value by taking decisions that will maximize the firms' value. Gross (2006) argues that shareholder value has become the pre-eminent performance indicator for companies worldwide, and that maximizing shareholder value represents the ultimate directive for managerial decisions.

Narang and Kaur (2014) also stress that maximizing the shareholder value has become the widely accepted corporate objective the world over and thus, its enhancement has become the key responsibility of corporate executives and finance managers.

Corporate finance decisions that finance managers are required to make are investment decisions (capital budgeting), financing decisions (capital structure), dividend decisions (profit allocation) and short-term financial decisions such as working capital management. Onwumere, Ibe and Ugbam (2012) opine that none of these four decisions is more important than the other; hence a good financial manager should pay equal attention to each of these decisions as the firm strives to maximize its value. However, the corporate finance literature has traditionally focused on the study of long-term financial decisions particularly investments, capital structures, dividends and firm valuation decisions (Nazir & Afza, 2009).

Nevertheless, short-term financial decisions are an integral part of the overall corporate and financial strategy and thus among the short-term financial strategies, working capital plays an important role in increasing profitability and creating shareholder value (Pouraghajan & Emamgholipourachi, 2012; Shin & Soenen, 1998). Although working capital management decisions concern short-term assets and liabilities, they have both short-term and long-term implications on the profitability and shareholder value which warrant careful attention. Watson and Head (2007) argue that long-term investment and financing decisions will only yield their expected benefits for a company if attention is also paid to short-term decisions regarding current assets and liabilities. Decisions relating to working capital involve managing relationships between a

firm's short-term assets and liabilities to ensure a firm is able to continue its operations, and have sufficient cash flows to satisfy both maturing short-term debts and upcoming operational expenses at minimal cost thereby increasing corporate profitability (Barine, 2012).

The management of working capital is an important component of corporate financial management because it directly affects the profitability of firms. Smith (1980) concluded that working capital management is important because of its effect on firm's profitability and risk, and consequently its value. Similarly, Deloof (2003) suggests that the way in which working capital is managed will have significant impact on the profitability of the firms. Agarwal and Mishra (2007) also posit that proper management of working capital is necessary both to maintain profitability and liquidity. Improper management of working capital has been cited as one of the factors of corporate failure (Berryman, 1983). Sathyamoorthi and Wally-Dima (2008) stressed that a company that neglects its working capital will soon run out of cash and may even have to close down. Similarly, Singh (2008) argues that a firm will have to face serious problems relating to its long-term profitability and shareholders' wealth and may even fail to survive if it neglects the management of its inventories. For a firm to survive and avoid insolvency and consequently bankruptcy, it needs to pay particular attention to its working capital management.

According to Emery and Finnerty (1991), working capital management involves selecting the appropriate levels of cash, marketable securities, receivables and inventories, and the appropriate level and mix of short-term indebtedness. Working capital can be said to be the life blood of every business

entity and hence its efficient management is essential for the survival of the business (Padachi, Howorth & Narasimhan, 2012). As postulated by Watson and Head "working capital management is a key factor in the company's long-term success: without the 'oil' of working capital, the 'engine' of non-current assets will not function" (Watson & Head, 2007, p 68). Filbeck and Krueger (2005) opine that business success depends heavily on the financial manager's ability to manage the components of working capital effectively and efficiently. It is for this reason that financial managers spend considerable time and effort in bringing non-optimal levels of current assets and liabilities back toward optimal levels (Gitman & Zutter, 2012; Lamberson, 1995). According to Rahman (2011), the management of working capital plays an important role in maintaining the financial health of a firm during normal course of business. In the same vein, Marfo-Yiadom and Agyei (2011) noted that working capital management directly affects the firms' long-term growth and survival. This is due to the fact that higher levels of working capital are needed to support sales growth or production.

Efficient management of working capital means management of all the components of working capital so as to ensure that adequate amount of working capital is available for the smooth running of the business. According to Eljelly (2004), efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short-term obligations on one hand and avoid excessive investment in these assets on the other hand. This means efficient and effective management of working capital will ensure that unnecessary cash and other currents assets are not tied up, nor inability to meet short-term obligations when

they fall due. There is the need for corporate finance managers to maintain the right amount of current assets as well as current liabilities.

The components of working capital are inventory, account receivable, marketable securities and cash on one hand and account payable and other short term obligations on the other hand. These components account for a substantial investment of a firm's asset and financial structure. Kieschnicks, Laplante and Moussawi (2013) note that the median percentage of total asset accounted for by either operating working capital (accounts receivable plus inventories) or net operating working capital (accounts receivable plus inventories minus accounts payable) was 37.6% and 27.7% respectively and stressed the importance of working capital management for a firm's performance since they account for a substantial portion of their assets. Pandey (2010) is of the view that the consideration of the level of investment in current assets should avoid two danger points- excessive and inadequate investment in current assets. Pandey stressed that investment in current assets should just be adequate, not more, not less to the needs of the business firm. In this regard, when a firm has excessive investment in current asset, it reduces its profitability because idle investment earns no return. On the other hand, inadequate investment in current asset will increase profitability but increases the firm's liquidity risk as well. In the same line of thought, Van Horne and Wachowicz (2009) postulate that excessive levels of current assets may have a negative effect on the firm's profitability and hence firm's value, whereas a low level of current assets may lead to a lower level of liquidity and stock-outs, resulting in difficulties in maintaining smooth operations.

Shin and Soenen (1998) posit that efficient working capital management is an integral part of the overall corporate strategy to create shareholder value. Thus, shareholder value can be created if corporate financial managers efficiently manage the short-term assets and liabilities by adopting appropriate working capital management policies. Working capital management policies are guidelines that are helpful to direct businesses; the policies aim to manage the current assets, generally cash and cash equivalents, inventories and debtors, and to manage the short-term financing so that the cash flows and returns are acceptable (Kumar, 2010 as cited in Padachi et al., 2012). In order to deal with the twin problem of risk and reward, firms need to adopt an appropriate working capital management policy.

Alternative Policies for Managing Working Capital

Studies such as (Nazir & Afza, 2009; Salawu, 2007; Weinraub & Visscher, 1998) suggest that the concept of working capital management policy is based on a firm's current assets investing and financing decisions. Current assets investing decisions can be approached in three ways, such as conservative, moderate and aggressive current assets investing policies. On the other hand, current assets financing decisions can also be conservative, moderate (hedging or matching) and aggressive current assets financing policies. In the views of Weinraub and Visscher (1998), the use of conservative and aggressive are relative terms, which indicate the extent to which the total current assets and total current liabilities are being applied to acquire a portion of total assets of a firm. According to Jose, Lancaster and Stevens (1996), a company can use Cash Conversion Cycle (CCC) as a comprehensive measure of its working capital management, where a shorter cash conversion cycle

means an aggressive working capital management policy. This means minimum investment in current assets (inventory and account receivables) as well as high proportion of trade payables while a longer cash conversion cycle suggests conservative working capital management policy indicating a high proportion in stock of inventory and trade receivable whereas less delay in paying trade payables.

Firms can choose one of the three main strategies of working capital management regarding their relative benefits. A company is categorized as having a conservative working capital management policy if it has high proportion of its total asset as current asset and low proportion of its current liability relative to its total capital. On the other hand, an aggressive working capital management policy is where a company has low proportion of its current asset as a percentage of its total asset and high proportion of its current liability relative to its total capital. Therefore, more aggressive working capital management policies are associated with higher return and higher risk while conservative working capital management policies are concerned with the lower risk and return (Carpenter & Johnson, 1983; Gardner, Mills, & Pope, 1986; Weinraub &Visscher, 1998).

Statement of the Problem

Working capital management has become a major issue following the 2007-2009 financial crises that hit the world economy. A research conducted by CFO magazine in 2010 to find out the impact that the recession had on the working capital management revealed that, in Europe, effective management of working capital has assumed greater urgency as market demand was slow to

return and short-term credit remained both difficult to access and expensive. Similarly, in US finance executives are taking much more conservative approaches to managing working capital. According to Ernst & Young's working capital management report (2013), a high level comparative analysis indicates that the leading 2,000 U.S and Europeans companies still have up to US$1.3 trillion of cash unnecessarily tied up. This amount is equivalent to nearly 7% of their combined sales. Van Horne and Wachowicz (2009) posit that the management of working capital is important for several reasons. For one thing, the current assets of a typical manufacturing firm account for over half of its total assets and even more for a distribution company. Watson and Head (2007) opine that, profitability is related to the goal of shareholder wealth maximization, so investment in current assets should be made only if an acceptable return is obtained.

In an emerging economy like Ghana, efficient management of working capital cannot be over-emphasized. For example, the percentage of total current asset to total assets for Sam Woode Limited, a listed manufacturing firm in 2009 was 93% (2009 Annual Report). Similarly, the percentages of total current liabilities to total assets for Pioneer Kitchenware Limited, also a listed manufacturing firm in Ghana in 2011 and 2012 were 108% and 139% respectively (2012 Annual Report). A study conducted by Eleke-Aboagye (2014) in 2001 to compare key financial ratios that relate to working capital management of two firms within the food and beverages listed companies in Ghana revealed that, some differences exist among the way they manage their working capital. Majority of listed manufacturing firms in Ghana have exhibited dwindling returns as well as poor stock performance in the last few years.

On September 6, 2013, African Champion Industries Ltd, one of the listed manufacturing companies in Ghana closed down its manufacturing line as a result of persistent losses the company has been battling with over the years and consequently disposed of its assets (2013 company's annual report). According to Deloof (2003), the way in which a firm manages its working capital can have significant effect on its profitability and consequently its value. Can this development be attributed to the way in which working capital is being managed? There are inconclusive results with regard to working capital management policy and profitability as well as shareholder value creation.

In Ghana, it is also evident that in the manufacturing sector, the issue of working capital management policies and profitability as well as shareholder value has been significantly under-researched although this is not the case in other countries. Studies on the working capital management and profitability in Ghana mainly concentrated on the relationship between the working capital management components (inventory conversion days, account receivable days, account payable days and CCC) and firm's performance (Agyemang & Asiedu, 2013; Akoto, Awunyo-Vitor, & Angmor 2013; Korankye & Adarquah, 2013) without looking at the specific policies being pursued and their effects on firms' return and value. Furthermore, available empirical evidence suggests that earlier studies on the subject employed static Ordinary Least Squares (OLS) regressions without checking for stationarity or cointegration in their data series (see for example, Al-Shubiri, 2011; Deloof, 2003; Eljelly, 2004; Mohamad & Saad, 2010; Nazir & Afza, 2009; Shin & Soenen, 1998, etc.). Hence, the results obtained may be biased or spurious.

Several authors have identified theoretical drivers that are likely to affect shareholder value creation, namely: sales growth rates, operating profit margin, income tax rate, working capital investment, fixed capital investments, costs of capital, and period of competitive advantage (Black, Wright, Bachman & Davies, 1998; Rappaport, 1986). In the finance literature, studies empirically testing the other drivers of shareholder value creation abounds with the exception of working capital management practices (see for example Atiyet, 2012; Naccur & Goaied, 1999; Pandey, 2005).

Even though, a lot of academicians and practitioners have argued that efficient working capital management leads to profitability and an increase in firm's value and consequently shareholder value creation (Deloof, 2003; Eljelly, 2004; Gitman & Zutter, 2012; Kieschnick et al., 2013; Shin & Shoenen, 1998; Smith, 1980), not much empirical work have been undertaken in this regard. As submitted by Baños-Caballero, García-Teruel, and Martínez-Solano (2014), it is generally accepted that working capital management affects firm's value, there are scarce empirical evidence on the valuation effects of investment in working capital, hence creating a gap.

Additionally, previous empirical studies had focused on industrial level characteristics (Afza & Nazir, 2008; Filbeck & Kruenger, 2005; Salawu, 2007; Weinraub & Visscher, 1998). This is due to the fact that there are differences in industry setting. However, firms within the same industry may also have differences due to firm specific characteristics which might drive its working capital policy (Akinlo, 2012) as well as individual financial manager's risk preferences. A financial manager with a high appetite for risk and return would prefer aggressive policy. On the other hand, a risk averse manager would take

conservative approach with low risk and profitability. It is for these reasons that this study was undertaken to investigate whether there are differences in the working capital management policies being pursued by the selected listed manufacturing firms and their effects on shareholders' value creation.

Purpose of the Study

The purpose of the study was to determine the effects of working capital management policies on shareholders' value of the manufacturing firms listed on the Ghana Stock Exchange.

Research Objectives

The objectives of the study were to:

1. Determine if differences exist among the firms with regard to their current asset investment and financing policies.
2. Determine the effect of aggressive/conservative current assets investment policy on shareholder value of manufacturing firms listed on the Ghana Stock Exchange.
3. Determine the effect of aggressive/conservative current assets financing policy on shareholder value of manufacturing firms listed on the Ghana Stock Exchange.

Research hypotheses

The following hypotheses were tested in the study.

1. $H0_1$: There are no differences in the current asset investment and financing policies amongst the manufacturing firms listed on the Ghana Stock Exchange.
2. $H0_2$: Aggressive/conservative current assets investment policies have no significant effects on shareholder value of the manufacturing firms listed on the Ghana Stock Exchange.
3. $H0_3$: Aggressive/conservative current assets financing policies have no significant effects on shareholder value of the manufacturing firms listed on the Ghana Stock Exchange.

An alpha level of .05 was used for all statistical tests.

Significance of the Study

The outcome of the study would;

Help finance managers of the sampled firms to know the industry's working capital management policy benchmark when setting their individual working capital management policies as there is currently no known benchmark as far as working capital management policy is concerned in Ghana.

Help financial managers of the manufacturing firms in Ghana to make informed decisions with regard to working capital management.

Benefit existing and potential investors of the study firms greatly by highlighting on the impact working capital management decisions have on their wealth creation.

Contribute to the literature on working capital management in manufacturing companies in Ghana in particular and the extant finance literature generally, on the effects working capital management policies have

on shareholder value creation using recently developed econometrics methodology.

Delimitations

The study was restricted to only manufacturing firms listed on the Ghana Stock Exchange (GSE) from 2000 to 2013. Non listed manufacturing firms as well as other listed firms were not considered. Additionally, the study population consisted of only six manufacturing firms that reported positive equity in their statement of financial positions over the study period out of the total of the 12 manufacturing firms listed on the bourse. Firms listed on the GSE as at the end of 2013 but were not listed on or before the year 2000 were not considered for the study. Thus, the findings may not be generalized to all the manufacturing firms listed on the GSE. Other delimitations of the study were non-inclusion of other variables, for example, asset tangibility, sales growth, profitability, level of economic growth etc. which may have effect on the shareholder value.

Limitation of the Study

The study covers a very small number of firms thereby placing a limitation on the findings, results, interpretation and generalization of the findings. Quantitative research design normally requires data disaggregation in order to replicate the study for the subsamples. The number of observations required for a reliable estimate for each subsample should be relatively sufficient. However, this is not the case with the present study. Thus, the statistical power of the subsamples is limited. Although published financial

statements were subjected to independent verification, they may still be subject to manipulation to meet industry specific and accounting reporting requirements.

Organization of the Study

The thesis has been organized into five chapters. The first chapter discusses the background to the study, the statement of the problem, the purpose of study, the objectives, hypotheses tested by the researcher, significance of the study, the delimitations as well as limitations of the study. Chapter two discusses the relevant literature related to the study. It begins with an overview and concept of working capital management and also discusses the theories that underpin the study. Theoretical and previous empirical literature of other authors are also reviewed. Chapter three deals with the methodology and procedure adopted in carrying out the study. The data is analyzed and the findings and discussion presented in chapter four. The final chapter recapitulates the results and draws conclusion. Recommendations made for policy making and future research are also presented in this chapter.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter discusses the theoretical foundations that underpin the study and review of relevant empirical literature that are in line with the study. It highlights on the overview and concepts of working capital management. The chapter also discusses the theories that were considered in the study as well as the conceptual framework. It also reviews previous empirical works that are relevant to the current study. These empirical studies are discussed under relative relationship between aggressive/conservative working capital management policies of firms, working capital management policies and firm's profitability, working capital management policies and shareholder value creation and finally, working capital management and cointegration.

Overview of Working Capital Management

Working Capital Management is the administration of the firm's current assets and the financing needed to support current assets (Van Horne & Wachowicz, 2009). Van Horne and Wachowicz argued that for a sound working capital management, a firm need to determine the optimal level of investment in current assets and the appropriate mix of short-term financing used to support this investment in current assets. Thus, working capital management decisions involve how to optimize investment in current assets and how to finance these current assets.

Concept of Working Capital

Srivastava and Misra (2008) argue that the concept of working capital is perhaps, one of the most misunderstood issues in the finance literature as it is subject to multiple interpretations. There are basically two main concepts of working capital (Pandey, 2010). Working capital can be viewed from the accountant point of view or from the finance manager's perspective. Based on these two point of views, working capital concepts are gross working capital and net working capital. Gross working capital is the firm's investment in current assets like cash and marketable securities, trade receivables and inventory (Van Horne & Wachowicz, 2009). The gross working capital is referred to as finance manager's concept of working capital (Srivastava & Misra, 2008). Net working capital also referred to as accountant's concept of working capital (Srivastava & Misra, 2008), on the other hand, is the difference between the current assets and the current liabilities and it denotes the portion of current assets which is financed by long-term sources of financing. The gross working capital concept focuses attention on optimization of investment in current assets, and effective and economical financing of current assets (Pandey, 2010). This study focuses on the finance manager's concept of working capital management by looking at the policies adopted by firms in making investment in current assets as well as the policies use in financing these current assets.

Theoretical Foundation of the Study

Working capital management is a concept that is gaining much attention all over the world especially with the current financial situations and the state of the world economy. However, there are no robust and widely accepted theories

about working capital management (Palombini & Nakamura, 2012). Nevertheless, several finance and economics theories that apply to long-term investments and financing decisions can be used to explain the relationship between working capital management practices and corporate profitability as well as shareholder value creation. The study considers three of such theories namely: Fisher Separation Theory, Profitability Liquidity Trade-off Theory and Pecking Order Theory.

Fisher Separation Theory

The Fisher Separation Theory states that a firm's investment decision and financing decision should be made independently of its shareholders' financial decisions without compromising their wealth, providing that returns on investment at least equal the shareholder opportunity cost of capital. Although, these decisions themselves are inseparable. According to McLaney (2009), this proposition was first identified by Irving Fisher in the 1930s and was formally set out by Hirshleifer (1958). What this implies in theory is that a firm should be able to distinguish between decisions relating to an investment and those relating to financing the investment opportunities. Fisher's separation theory has to do with working capital because a firm should always separate how much they invest in working capital versus how they will finance the working capital.

Profitability-Liquidity Trade-off Theory

The trade-off theory postulates that firms decide their optimal level of working capital by considering the marginal costs and benefits of investment in

current assets. Each component of working capital has its own costs and benefits (Wasiuzzaman & Arumugam, 2013). Additional investment in inventory, granting of trade credits to customers and holding cash is expected to have positive effect especially for firms with low level of current assets (Aktas, Croci, & Petmezas, 2015). Thus, larger inventories can reduce supply costs and price fluctuations, prevent interruption in the production process, loss of business as a result of unavailability of products and high production costs, allows firms better service for their customers, minimize loss of sales due to potential stock-outs, and achieves economies of scale by running large batch sizes (Blinder & Maccini, 1991; Corsten & Gruen, 2004; Fazzari & Petersen, 1993; Schiff & Lieber, 1974). Granting trade credit to customers among others also increase firm's sale as it can be used as a price discrimination, entice customers to acquire merchandise in periods of low demand, allows customers to verify products quality, and foster long-term buyer-seller relationships (Brennan, Maksimovic, & Zechner, 1988; Long, Malitz, & Ravid 1993; Wilner, 2000). Similarly, cash holdings reduce the likelihood of financial distress as it acts as a buffer which permits firms to avoid the costs of raising external funds or liquidating existing assets and which allows firms to finance their growth opportunities, allow the pursuance of the optimal investment policy even when financial constraints are met (Ferreira & Vilela, 2004; Ogundipe, Ogundipe, & Ajao, 2012). Additionally, compensating cash balances can reduce financing cost, and adequate cash stocks allow firms to take advantage of discounts for prompt payment which often can result in high rate of return (Fazzari & Petersen, 1993).

However, there are also possible adverse effects of investment in current assets which may lead to a negative impact on shareholders' value (Aktas et al., 2015; Baños-Caballero et al. 2014). This is because increasing the investment in current assets involves financing and opportunity cost, firms that hold high working capital potentially face high interest expenses and bankruptcy risk as well as cash tied up in working capital might also prevent firms from undertaking value-enhancing investment projects in the short-run (Aktas et al., 2015; Baños-Caballero et al., 2014; Deloof, 2003; Ek & Guerin, 2011; Kieschnick et al. 2013). According to Ogundipe et al. (2012), if managers decide to make decisions that are in line with shareholders' interest, then the only cost for holding cash is the lower return that are earned by shareholders relative to other investments with the same risk.

Aminu and Zainudin (2015) stressed that one of the cardinal decisions regarding working capital management is the trade-off between liquidity and profitability. As firms adopt conservative approach to the management of their working capital by way of increasing the investment in current assets, the liquidity improves at the expense of its profitability and vice versa. Thus, more aggressive working capital management policies are associated with higher return and risk while conservative working capital management policies are associated with lower return and risk (Carpenter & Johnson, 1983; Gardner et al., 1986; Weinraub & Visscher, 1998).

Pecking Order Theory

The pecking order theory (Myers & Majluf, 1984) has been applied to explain financial managers' financing preferences. The pecking order theory

postulates that firms finance their investments first with retained earnings, then with safe debt and risky debt, and finally with equity. Padachi et al. (2012) argue that this hierarchical ranking is due to the fact that the relationship between the financier and the financial manager is characterized by information asymmetry. Ferreira and Vilela (2004) suggest that the purpose of this order of financing is to minimize asymmetric information cost and other financing cost. According to Palombini and Nakamura (2012) companies choose conservative working capital financing policy in order to have easy access to the debt market and lead potential investors to see them as a safe investment. On the other hand, Palombini and Nakamura contend that managers of both less and highly profitable firms might adopt an aggressive working capital policy, pressuring for lower levels of current assets and higher levels of financing from suppliers, resorting to internal sources for the necessary funds to finance their companies and to avoid issuing long term debt and equity.

The implication of the pecking order theory to the financing of working capital is that firms consider spontaneous liabilities (trade payables and accruals) and other short term debts as safe financing option and would choose a high proportion of current liabilities relative to long term debt and equity when internal funds have been exhausted. According to Van Horne and Wachowicz (2009) insofar as the explicit cost of short-term financing are lower than the medium and long-term sources of financing, an aggressive financing strategy will ensure profitability and shareholder value.

Main Theme of the Theory of Working Capital Management

The main theme of the theory of working capital management is the interaction between current assets and current liabilities (Pandey, 2010). This section briefly reviews these interactions by looking at the current assets investment and financing policies of firms.

Current Assets Investment Policies

Long-term investment and financing decisions generate future cash flows which when discounted by an appropriate cost of capital determine the firm's value. Similarly, investment in current assets should only be made if the required return will be lower than the expected returns (Watson & Head, 2007). However, unlike the long-term investment which generates cash inflows over a long periods of time, current assets have cash-to-cash conversion cycle of less than one year (Cheatham, 1989 as cited in McInnes, 2000). The finance manager must therefore determine the optimum level of current assets so that the wealth of shareholders is maximized. In determining the appropriate level of current assets finance managers must take into consideration the trade-off between the cost of liquidity and the cost of being illiquid (McLaney, 2009; Srivastava & Misra, 2008).

A firm need both non-current and current assets to support a particular level of output or sales. However, to support the same level of output or sales the firm can have a different level (policies) of current assets (Pandey, 2010; Van Horne & Wachowicz, 2009). A firm should have working capital policies on the management of inventory, trade receivables, cash and short-term investments in order to minimize the possibility of managers making decisions

which are not in the best interests of the firm (Watson & Head, 2007). The level of current assets (policies) can be measured by relating total current assets to total assets (Gitman & Zutter, 2012; Nazir & Afza, 2009; Salawu, 2007; Weinraub & Visscher, 1998). Assuming a constant level of total assets and dividing total current assets by total assets (TCA/TA), three alternative current asset policies can be identified. A relatively higher TCA/TA ratio (i.e. greater than 50%) indicates a conservative current assets policy and a lower TCA/TA ratio (i.e. less than 50%) means an aggressive current asset policy holding other factors constant. A conservative policy suggests relatively large amounts of cash and marketable securities and inventories are carried and sales are stimulated by a liberal credit policy that results in a high level of receivables (Brigham & Houston, 2009). Thus, this policy implies greater liquidity and lower return. Figure 1 depicts these three alternative current asset policies.

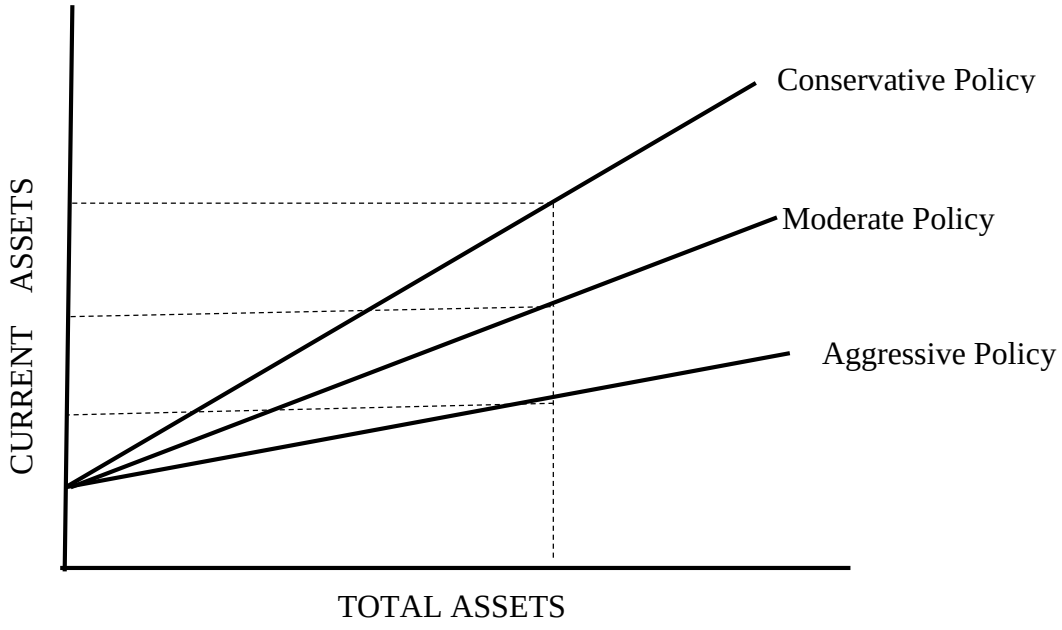

Figure 1: Alternative current asset investment policies.
Adapted from Brigham & Houston, 2009

The aggressive or restricted current asset investment policy implies low level of cash and marketable securities, trade receivables, and inventories (Van Horne & Wachowicz, 2009; Brigham & Houston, 2009). In between the conservative and aggressive investment policies is moderate investment policies. The current asset policy of most firms may fall between these two extreme policies (Pandey, 2010).

Permanent and Temporary Current Assets

The current assets can be classified as permanent or fixed current assets and temporary or fluctuating current assets based on the variability of needs. Permanent or fixed current assets are those current assets held by a firm to meet its long term requirement (Pike & Neale, 2009). Figure 2 illustrates permanent and temporary current asset level.

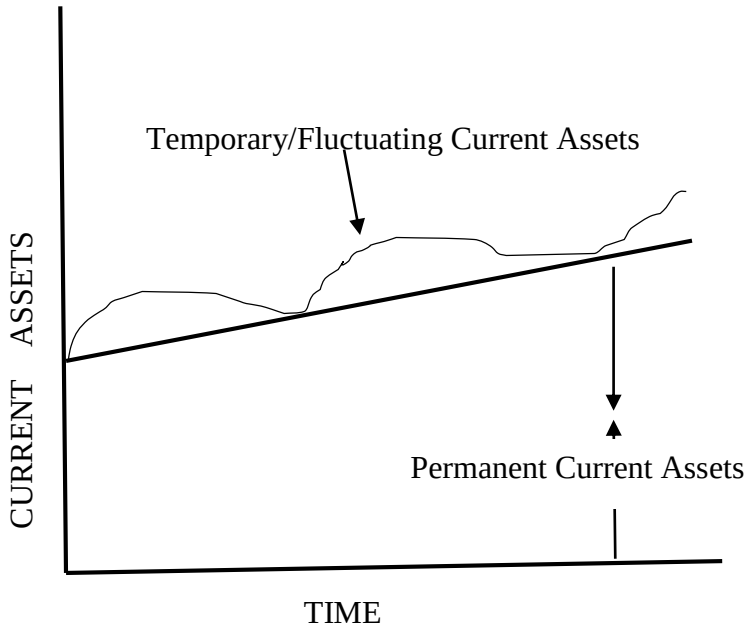

Figure 2: Permanent and temporary current asset levels.

Adapted from Brigham & Houston, 2009; Pike & Neale, 2009

It is the minimum level of inventories, account receivables, cash and cash equivalent which is always maintained even when sales are reduced to minimum (Brigham & Houston, 2009). It is permanent in the same way as the firm's non-current assets are (Pandey, 2010). Temporary or fluctuating current assets are those current assets that change with seasonal or cyclical variations (Pike & Neale, 2009). Depending upon the changes in production and sales, the need for working capital, over and above permanent working capital, will fluctuate. For example, extra inventory of finished goods will have to be maintained to support the peak periods of sale, and investment in receivable may also increase during such periods. On the other hand, investment in raw material, work-in-progress and finished goods will fall if the market is slack (Pandey, 2010).

Sources of Current Assets Financing

Generally, a firm may finance its investment in current assets from short-term and long-term sources. Each source may have its benefits and limitations.

Long-term Financing**:** The source of long-term funding includes ordinary share capital, income surplus, capital surplus, reserves, preference share capital, debentures, medium and long-term loans.

Short-term Financing: The short-term funding is taken for a time less than one year. Short-term financing can be divided into spontaneous short-term financing and other short-term or non-spontaneous financing.

Spontaneous Financing: Spontaneous financing refers to the short-term financing arising from the firm's day to day operations. Trade payables and outstanding expenditures are examples of spontaneous financing. Although,

spontaneous liabilities do not have an explicit cost, they do have an implicit cost (Gitman & Zutter, 2012; Pandey, 2010) where especially cash discount is offered. A firm is likely to make use of these sources of financing to the fullest level. The usual option of financing current assets, once the spontaneous means of financing have been entirely used, is between the other short-term and long-term sources of funding (Pandey, 2010).

Other Short-term Financing: This normally arises from an arrangement a firm makes with its bankers and other financiers. Short-term sources include short-term bank loan, overdraft, commercial papers, factoring of accounts receivables, lines of credit etc.

Policies for Financing Current Assets

The policies for financing current assets can be categorized as Moderate, Aggressive or Conservative current assets financing policies.

Moderate (Hedging/Maturity Matching) Approach: If a firm adopts a moderate approach to financing, each asset would be offset with a financing instrument of the same approximate maturity (Van Horne & Wachowicz, 2009). Thus, a long-term loan of, say 10 years, may be raised to finance a property, plant and equipment with an anticipated life of 10 years. On the other hand, current asset to be sold during a short period may be financed with a short-term source like commercial paper or a bank borrowing (Brigham & Houston, 2009). When a firm adopts maturity matching approach also known as hedging approach, long-term finance will be used to finance non-current assets and permanent current assets while fluctuating or temporary current asset needs would be financed with short-term debts.

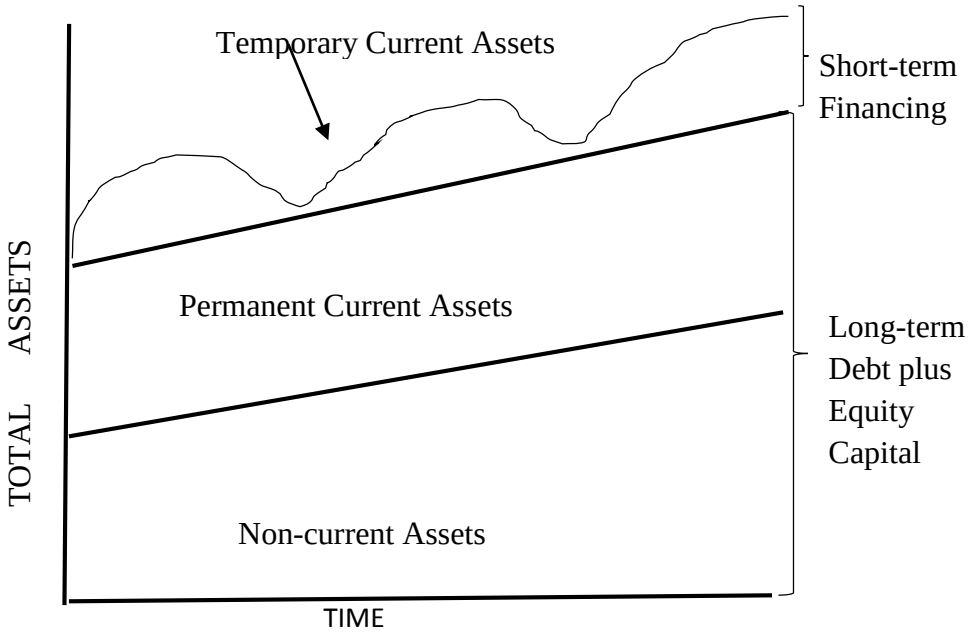

Figure 3: Moderate current asset financing policy.

Adapted from Brigham & Houston, 2009

The reason for the exact matching is that, because the rationale of financing is to pay for assets, the method of funding and the asset should be relinquished at the same time (Pandey, 2010). Utilizing short-term funding for long-term assets will not only be expensive but also may cause inconveniencies as short-term sources must regularly be sought. Moreover, if long-term debt is used to finance short-term needs, the firm will be paying interest for the use of funds during times when these funds are not needed (Van Horne & Wachowicz, 2009). Figure 3 illustrates moderate current asset financing policy.

Conservative Financing Policy

A company in practice may apply a conservative approach in financing its current and non-current assets. The financing policy of the firm is said to be conservative when it relies more on long-term sources for current assets requirement. Under a conservative approach, the firm finances its non-current

and permanent current assets as well as part of its temporary current assets with long-term funds. Thus, the firm uses a small amount of short-term credit to meet its peak requirements, but also meets part of its seasonal needs by investment in marketable securities (Brigham & Houston, 2009; Pandey, 2010). Nazir and Afza (2009) opine that this current asset financing policy indicates less current liabilities as a proportion to the total assets of the firm. The conservative policy depends a lot on long-term finance and is relatively safe. Figure 4 illustrates the conservative current assets financing policy.

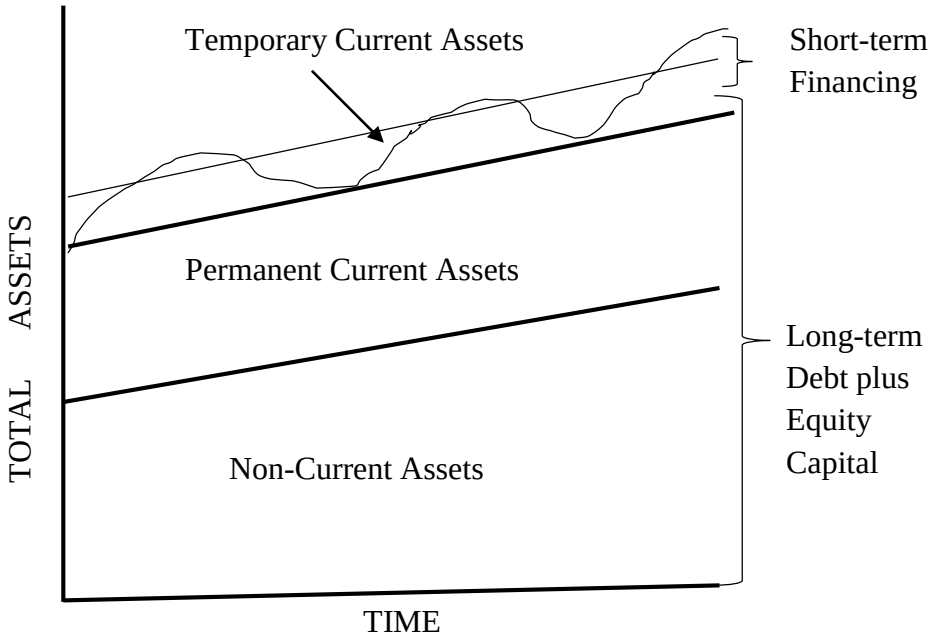

Figure 4: Relative conservative current asset financing policy. Adapted from Brigham & Houston, 2009

Aggressive Financing Policy

A firm is said to be following an aggressive current asset financing policy when it finances all its fluctuating or temporary current asset, permanent current asset and some non-current asset with short-term debt (Nazir & Afza, 2009). When a greater proportion of the permanent asset needs of a firm is

financed with short-term debt, the firm is seen to be more aggressive in financing its current assets (Van Horne & Wachowicz, 2009). To some extent, exceptionally aggressive firms may still finance part of their non-current assets with short-term funds (Brigham & Houston, 2009). More utilization of short-term funds puts the firm into severe risk zone. Figure 5 illustrates an aggressive current asset financing policy.

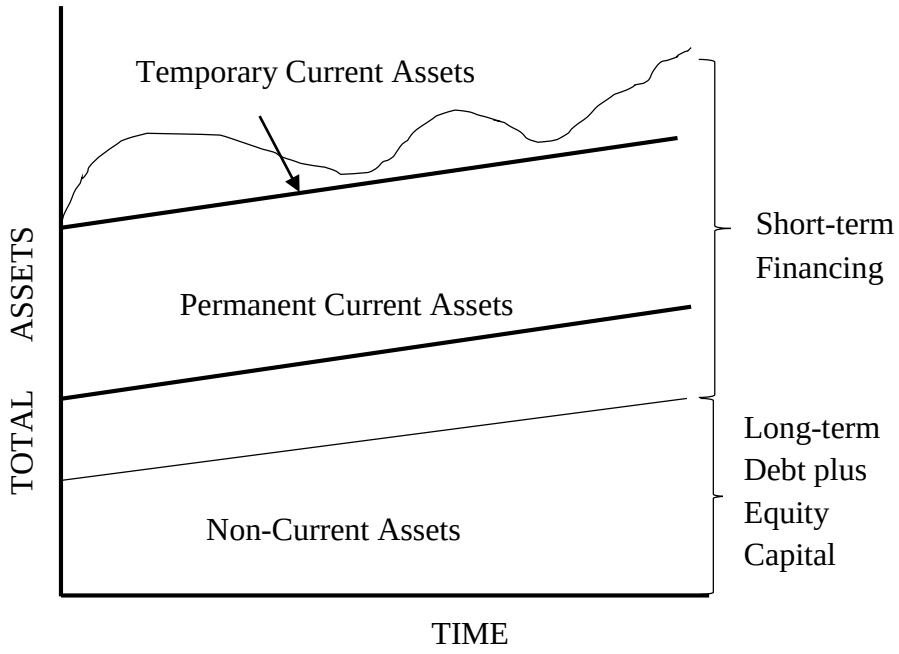

Figure 5: Relative aggressive current asset financing policy.

Adapted from Brigham & Houston, 2009

Overall Working Capital Management Policy

Working capital management policies are guidelines aimed to manage the current assets, generally cash and cash equivalents, inventories and trade receivables, and to manage the short-term financing so that the cash flows and returns are acceptable (Kumar, 2010 as cited in Padachi et al., 2012).

In determining the appropriate level and mix of the investment in current assets and the financing of the current assets, a firm may adopt conservative,

aggressive or moderate approaches as its overall working capital management policy. The conservative approach to managing working capital is characterized by the management of large amounts of inventories, accounts receivable, cash, marketable securities, and uses long-term capital to finance all non-current assets and permanent current asset requirements. Thus, the firm carries a high proportion of current assets relative to total asset with a high percentage of long-term funds relative to total asset. Nazir and Afza (2009) postulate that conservative working capital management policy is the use of more current assets as a proportion to total asset or the use of less current liabilities as a proportion to total capital.

The aggressive approach to managing working capital management on the other hand carries smaller holdings of inventories, accounts receivable, cash, marketable securities, and uses short-term capital to finance all non-current assets and permanent current asset requirements. Thus, an aggressive working capital management policy is the use by firms of less current asset relative to total asset or higher proportion of current liabilities relative to total capital (Nazir & Afza, 2009).

The moderate approach lies between the aggressive and conservative approaches where temporary current assets are financed with short-term loans, while noncurrent assets and the permanent level of current assets are financed with long-term loans (Brigham & Ehrhardt, 2011; Brigham & Houston, 2009; Gitman & Zutter, 2012; Mclaney, 2009; Pike & Neale, 2009).

Using the CCC as an integrated approach to the management of working capital (Jose et al., 1996; Deloof, 2003), a firm adopting a conservative policy, the CCC may be allowed to increase by means of increasing the investment in

inventories, trade receivables and reducing the amount of trade payables. On the other hand, an aggressive policy may mean that trade payables would be stretched as a source of finance while investments in inventory and trade receivables are decreased.

Empirical Literature Review

Relative Relationship of Working Capital Management Policies of Firms

In corporate finance literature, most of the studies are conducted around the relationship between working capital management and corporate profitability. Many researchers have studied financial ratios as a part of working capital management; however, very few of them have discussed the working capital policies specifically (Nazir & Afza, 2009). Pandey and Perera (1997), provided an empirical evidence of working capital management policies and practices of the private sector manufacturing companies in Sri Lanka. The required data for the study were obtained through interviews and questionnaires with chief financial officers of a sample of manufacturing companies listed on the Colombo Stock Exchange. The authors found that most companies in Sri Lanka had an informal working capital policy and company size had an influence on the overall working capital policy and approach (conservative, moderate or aggressive).

Koury, Smith and Mackay (1998) compared the working capital management policies among Canada, the United States, and Australia and found that 28.5 per cent of Canadian companies follow the conservative policies, while only 10.2 per cent pursue aggressive policies.

In a wider perspective, Weinraub and Visscher (1998) discussed the issue of aggressive and conservative working capital management policies of US firms by using quarterly data for the period 1984-1993. Their study examined 10 diverse industry groups to analyze the relative relationship between their aggressive/conservative working capital policies. The authors concluded that the industries had distinctive and significantly different working capital management policies. Moreover, the relative nature of the working capital management policies exhibited a remarkable stability over the 10-year study period. The study also showed a high and significant negative correlation between industry asset and liability policies. It was found that when relatively aggressive working capital asset policies are followed, they are balanced by relatively conservative working capital financial policies.

Similarly, Filbeck and Krueger (2005) highlighted the importance of efficient working capital management by analyzing the working capital management policies of 32 non-financial industries in the US. Their findings reveal that significant differences exist among industries in working capital practices over time. Moreover, these practices, themselves, change significantly within industries over time.

In a regional study, Salawu (2007) investigated fifteen diverse industrial groups over an extended period in order to establish a relationship between aggressive and conservative working capital practices among firms listed on the Nigeria Stock Exchange over the period 1994- 2003. The results of the study strongly showed that firms in differing industries have significantly different current asset management policies. The study also found a significant negative correlation between industry asset and liability policies. The study indicated that

relatively aggressive current asset management seems balanced by relatively conservative working capital financial management. Thus, moderate working capital management policies seem to be practiced in Nigeria.

Confirming the results of Salawu (2007), Afza and Nazir (2008) investigated the relationship between the aggressive and conservative working capital policies for 17 industrial groups of public entities listed at Karachi Stock Exchange between the periods 1998-2003. Their study found significant differences among working capital investment and financing policies across different industries in Pakistan. They also found that these significant differences were stable over the six-year period. However, their study further indicated that firms that adopt aggressive investment working capital policies simultaneously pursue aggressive working capital financing policies. This suggests that firms in Pakistan are following aggressive working capital management.

Contrary to this assertion, Sathyamoorthi and Wally-Dima (2008) found that retail domestic companies that are listed on Botswana stock exchange adopted a conservative approach in the management of working capital. Their findings also suggest that the working capital is not static overtime but varies with the changes in the state of economy. Whereas companies tend to adopt a conservative approach in times of high volatility, they resort to an aggressive approach in times of low volatility. Similarly, Raheman, Afza, Qayyum and Bodla (2010) analyzed the impact of working capital management on firm's performance using a balanced panel of 204 manufacturing firms listed on the Karachi Stock Exchange for the period 1998 to 2007. Their study concluded

that firms in Pakistan are following conservative working capital management policy.

On the other hand, Bhutto, Abbas, Rehman, and Shah (2011) conducted a cross sectional study to investigate the relationship between the length of Cash Conversion Cycle, firm size, firm profitability and aggressive/conservative working capital policies of 157 public limited companies made up of 12 industrial groups that are listed in the Karachi Stock Exchange (KSE) for the year 2009. Pearson correlation and Analysis of Variance (ANOVA) with post-hoc test (Least Significant Differences) were used for the empirical investigation. The authors found that significant differences lie among the mean values of CCC across the industries and more specifically, the Oil and Gas industry is significantly different from all the other industries in terms of its length of CCC. Findings of the study show that there is a significant and positive relationship between firms' aggressive investing policies and conservative financing policies. It is concluded that length of CCC has negative relationship with sales revenue, return on equity (ROE) and financing policies of the firms and has positive relationship with total assets, return on assets (ROA) and investing policies.

Working Capital Management Policies and Firm's Profitability

The review of empirical literature suggests mixed findings with regard to the working capital management policies and profitability as well as shareholder wealth. Some authors found that aggressive working capital investment policies have positive relationship with profitability (Jose et al. 1996; Onwumere et al., 2012). Contrary, conservative working capital

investment policies significantly enhance profitability and shareholder value (Mohamad & Saad, 2010; Mwangi, Makau, & Kosimbei, 2014; Nazir & Afza, 2009; Raheman et al., 2010). On the financing of working capital, Al-Shubiri (2011), Onwumere et al. (2012) and Mwangi et al. (2014) found that an aggressive working capital financing policies better enhance profitability whereas (Nazir & Afza, 2009; Raheman et al., 2010; Mohamad & Saad, 2010 concluded that conservative working capital financing policies increase profitability and create shareholder value. Ogundipe, Idowu, and Ogundipe (2012) as well as Pirashanthini, Tharmila, and Velnampy (2013) found no significant relationship between working capital investment and financing policies with profitability in Nigeria and Sri Lanka respectively. Bandara and Weerakoon (2014) found that conservative working capital management practice has significant negative impact on shareholder value while an aggressive working capital management practices also significantly destroy shareholder wealth.

Using the Cash Conversion Cycle (CCC) as a measure of working capital management policy, where a shorter CCC represents the aggressiveness of working capital management, Jose et al. (1996) examined the relationship between profitability measures and management of ongoing liquidity needs for a large cross-section of US firms over a twenty-year period. Using both nonparametric and multiple regression analysis, the authors tested the long-run equilibrium relationships between the cash conversion cycle and alternative measures of profitability. Their results indicated a significant negative relationship between the cash conversion cycle and profitability, indicating that more aggressive working capital management is associated with higher

profitability. Thus, shareholder value can be enhanced if firms adopt an aggressive approach toward working capital management.

On the contrary, Nasir and Afza (2009) found out that managers can create value if they adopt a conservative approach toward working capital investment and working capital financing policies. They studied the traditional relationship between working capital management policies and a firm's performance using a panel data set from the period 1998- 2005. The study evaluated the impact of working capital investment and financing policies using return on assets as well as Tobin's Q while the ratio of total current asset to total asset and total current liability to total asset ratio represented working capital investment and financing policies respectively.

Raheman et al. (2010) analyzed the impact of working capital management on firm's performance for the period 1998 to 2007 using a balanced panel data of 204 manufacturing firms listed on Karachi Stock Exchange in Pakistan. Performance was measured as net operating profitability while different measures of working capital management variables including CCC, NTC, and Inventory Turnover in Days, Average Collection Period and Average Payment Period were used. To check the working capital investment policy and financing policy, the authors used current assets to total assets ratio and current liabilities to total assets ratio in their regression. Their fixed effect model results showed that CCC has significant negative effect on firm performance. However, the ratio of total current assets to total assets (investing policy) was found to have a significant positive relationship with the profitability. On the other side total current liabilities to total assets ratio (financing policy) also indicated a significant negative relationship with

profitability. Based on their empirical findings, the authors concluded that firms would be better if they finance the working capital by medium-term loans rather than short-term loan in order to enhance their profitability.

Mohamad and Saad (2010) offered empirical evidence about working capital management and its effect to the performance of Malaysian listed companies by using secondary data of 172 listed firms for five-year period from 2003 to 2007. Employing linear multiple regression, they found that there are significant negative associations between working capital variables (TCL/TA and CCC) and firm's financial performance (ROA, ROIC and Tobin's Q), whilst TCA/TA ratio showed a positive significant relationship with ROA, ROIC and Tobin's Q. Their study emphasized the importance of proper management of working capital as it affects firm's market value and profitability. They also suggested that working capital management should be part of the company's strategic and operational processes in order to be effective.

Al-Shubiri (2011) investigated the relationship between aggressive/ conservative working capital policies and profitability as well as risk for 59 industrial companies and 14 banks listed on the Amman Stock Exchange in Jordan for a period of 2004-2008. Return on Asset (ROA) and Return on Equity (ROE) as well as market value (Tobin's Q) were used as dependent variables while independent variable used were: Aggressive Investment Policy (AIP) and Aggressive Financing Policy (AFP). The author found that aggressive investment policy is negatively related to market value (Tobin's Q) and aggressive financing policy is positively related to Tobin's Q.

In Nigeria, Onwumere et al. (2012) investigated the impact of working capital policies of Nigerian firms on profitability for the period, 2004-2008. Adopting the aggressive investment working capital policies and aggressive financing policies as independent variables and return on assets as dependent variable and controlling for size and leverage, the study revealed that aggressive investment working capital policies of Nigerian firms have a positive significant impact on profitability while aggressive financing policies have a positive non-significant impact on profitability. According to the authors the findings from their study suggest that firms pursuing aggressive investment working capital policy will become risky in the long-run because as profitability increases; the firm grows and the amount of outsiders' contributions also increases. The result also indicates that as the firm grows and outsiders' contribution increases; the use of aggressive financing working capital policy decreases the profitability of the firm. Appropriate management of working capital is therefore essential if the firms are to achieve their objective of improved profitability and value creation for shareholders.

In another related study, Vahid, Mohsen and Mohammadreza (2012) conducted a study to investigate the impact of working capital management policies (aggressive and conservative policies) on the firms' profitability and value. A sample of 28 Iranian Companies listed on Tehran Stock Exchange for a period of 5 years from 2005 to 2009 were selected. The results showed that following conservative investment policy by having high level of short-term investment have negative effect on the firm's profitability and value, while following aggressive investment policy using long-term investment have positive effect on the firm profitability and value. Regarding the financing

Policies (aggressive and conservative policies), the results showed that following aggressive financing policy by using more current liabilities to finance firm activities will affect negatively the firm's profitability and value, while following conservative financing policy by using more long-term debt to finance the firm operating activities have a positive effect on the firm profitability and value. Finally, the authors found that firm size and firm growth have positive impact on the firm's profitability and value, while firm leverage showed negative impact.

Furthermore, Ogundipe et al. (2012) examined the impact of working capital management on firms' performance and market value of the firms by using a sample of 54 non-financial quoted firms on the Nigeria Stock Exchange for the period 1995-2009. The variables used were cash conversion cycle, current ratio, current asset to total asset ratio, current liabilities to total asset ratio and debt ratio as independent variables while ROA, ROI and Tobin's Q represented firm's performance and market valuation. Their result showed that there is a significant negative relationship between cash conversion cycle and market valuation and firm's performance. It also showed that debt ratio is positively related to market valuation and negatively related firm's performance. However, the multiple regression results showed that there was no significant relationship between TCA/TA ratio and ROA, ROI and Tobin's Q. Based on their findings the authors concluded that firms should ensure adequate management of working capital especially cash conversion cycle components of account receivables, account payables and inventories, as efficiency in working capital management is expected to contribute positively to the firms' market value.

Niresh (2012) observed the relationship between working capital management and financial performance of 30 manufacturing firms listed on the Colombo Stock Exchange in Sri Lanka for the period of 2008 -2011. Using return on assets and return on equity as a performance measure while cash conversion cycle, current assets to total assets and current liabilities to total assets were used as measures of working capital management. Employing Pearson correlation and univariate regression analysis, the study revealed that, there is no significant relationship between cash conversion cycle and performance measures. To check the working capital investment and financing policy, the author used Total Current Assets to Total Assets (TCA/TA) and Total Current Liabilities to Total Assets (TCL/TA) in the regression. Firms' working capital investment policy showed positive association with the performance measures. On the other hand, working capital financing policy showed negative relationship with ROA and positive relationship with ROE. The study also concluded that, manufacturing firms in Sri Lanka follow conservative working capital management policy.

Contrary to the findings of Niresh (2012), Pirashanthini et al. (2013) found that there was no relationship between the profitability measures of firms and working capital investment and financing policies. In addition, the working capital aggressive investment and financing policies had no impact on profitability measures of ROA and ROE. The authors conducted a study to find out the relationship between the aggressive working capital policies and profitability, and to identify the impact of working capital policies on profitability with the samples of 20 manufacturing companies listed under Colombo Stock Exchange (CSE). Data representing the period of 2008-2012

were used for the survey. The authors employed correlation and regression model to investigate the relationship among variables and impact of working capital approaches on returns of firms.

More recently, Hassani and Tavosi (2014) investigated the relationship between aggressive/ conservative working capital policies and profitability risk in the Tehran Stock Exchange for a sample of 274 listed companies for the period 2006-2012. Their empirical results in all industries indicated a negative relationship between working capital investment policy and profitability risk measures. They also found a positive relationship between working capital financing policy and profitability measures.

Osundina and Osundina (2014) examined the effect of working capital management on market value of quoted food and beverages manufacturing firms in Nigeria. Working capital management was proxied by Account Collection Period (ACP), Inventory Conversion Period (ICP), Account Payment Period (APP), Cash Conversion Cycle (CCC) and Aggressive Investment Policy (AIP) while market value was proxy by Tobin's Q. Survey research design was employed using primary data. Pearson Product Moment Correlation and multiple regression analysis were used to determine the effect. The study found out that working capital management had significant positive effect on market value of food and beverages manufacturing firms in Nigeria. Also, their study revealed that Cash Conversion Cycle, Account Collection Period, Inventory Conversion Period, Account Payment Period, and Aggressive Investment Policy had significant effect on market value of food and beverages manufacturing firms in Nigeria.

The study by Khajehpour, Khodamipour and Sadeghi (2014) analyzed the impact of aggressive working capital management policy on profitability of 71 nonfinancial firms listed on Tehran Stock Exchange. Research hypotheses were tested using multiple regression models in the form of panel data. The result indicated that when more current assets fund working capital investment, the profitability of the company increases. However, the authors found that the relation between working capital financing policy ratio and return on assets ratio was not statistically significant but increasing working capital financing policy ratio will increase Tobin's Q ratio (market value). Hence the authors asserted that investors are found to be more disposed to firms that have an aggressive approach to working capital financing because they feel the stock value of such a firm is more rewarding in the market.

Javid and Zita (2014) also examined the relationship between working capital management policy and firm's profitability using 20 cement companies listed in Karachi Stock Exchange during the period of 2006-2011 in Pakistan. Profitability was measured in terms of market as well as in accounting terms. The dependent variables were Tobin's Q, return on equity (ROE), return on asset (ROA) and net operating profitability (NOP) while Working capital policy (TCA/TA and TCL/TA) represent the main independent variable and controlling for growth of firm, size of firm and debt. Adopting ordinary least square regression method, the result of the study showed that there is significant negative relationship between working capital policies on profitability of the firms.

Mwangi et al. (2014) investigated the effect of working capital management on the performance of 42 non-financial companies listed in the

Nairobi Securities Exchange (NSE), Kenya, for the period 2006-2012. The study employed an explanatory non-experimental research design and panel data models (random effects). Their Feasible Generalized Least Square (FGLS) regression results revealed that an aggressive financing policy had a significant positive effect on return on assets and return on equity while a conservative investing policy was found to affect performance positively. The study recommended that managers of listed non-financial companies should adopt an aggressive financing policy and a conservative investing policy should be employed to enhance the performance of non-financial companies listed in the NSE, Kenya.

In Ghana, the researcher found scant empirical study linking working capital management policies and firm's profitability as well as shareholder value. The study by Akoto et al. (2013) examined the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study used secondary data collected from all the 13 listed manufacturing firms in Ghana covering the period from 2005-2009 in a panel data framework methodology. Profitability of firms was measured as return on equity (ROE). Using the Ordinary Least Square (OLS) regression technique, the study found a significantly negative relationship between profitability and accounts receivable days. However, the firms' cash conversion cycle, current asset ratio, size, and current asset turnover significantly positively influence profitability. The study suggests that managers can create value for their shareholders by creating incentives to reduce their accounts receivable to 30 days.

Similarly, Korankye and Adarquah (2013) analyzed working capital management and its impact on firm profitability of six out of seven traditional manufacturing firms listed on the Ghana Stock Exchange from 2004 to 2011. The study used working capital cycle and gross operating profit margin as proxies for working capital management and profitability respectively, whiles leverage, interest cover and the ratio of current assets to total assets were used as control variables. By employing descriptive statistics, Pearson correlation and ordinary least squares regression analyses, the results reveal that working capital cycle significantly affects firm profitability negatively. From the correlation analysis, the study also found that inventory turnover period, account receivables collection period and account payables payment period each negatively correlates with profitability. Finally, while leverage negatively but significantly relates to profitability, interest cover and the ratio of current asset to total assets have significantly positive relation with profitability.

Working Capital Management and Shareholder Value Creation

In the area of working capital management and shareholder value creation the researcher found not much empirical studies. Most of these studies analyzing the impact of corporate financial decisions on shareholder value creation mainly concentrate on the long-term perspective (Atiyet, 2012; Naccur & Goaied, 1999; Pandey, 2005).

Shin and Soenen (1998) highlighted that efficient working capital management is very important for creating value for the shareholders. The way working capital was managed had a significant impact on both profitability and liquidity. The relationship between the length of net trading cycle, corporate

profitability and risk adjusted stock return was examined by the authors using correlation and regression analysis, by industry and capital intensity. The results indicated that shorter net trade cycles were associated with higher risk adjusted stock returns.

Similarly, Garcia-Teruel and Martinez-Solano (2007) studied the effects of working capital management on the profitability of a sample of small and medium-sized Spanish firms. They found that managers can create value by reducing their inventories and the number of days for which their accounts are outstanding.

In another study, Karadagli (2012), examines the impact of working capital management on firm performance for a sample of 169 Turkish listed companies for the period of 2002-2010 by using pooled panel analysis with annual data. The dependent variable was stock return as a proxy for profitability while independent variables were NTC and CCC. Firm size, financial leverage, and GDP growth rate were used as control variables along with an industry dummy. The findings indicated that CCC and NTC have positive relationship at 1% significance levels on firm performance, as measured by stock market returns for the whole sample. Thus, shareholder wealth can be enhanced if firms adopt less restrictive policies in the management of inventories and account receivables.

Much of the earlier studies concentrated on the components of working capital management and value creation as well as profitability. However, the study by Kieschnick et al. (2013) provided the first comprehensive study as far as the relationship between working capital management and shareholder wealth is concerned despite the fact that corporate financial executives consider

net operating working capital management to be an important determinant of firm value. Consequently, they provided the first such examination by examining net working capital investments in a comprehensive sample of U.S. corporations between 1990 through 2006. Based on their evidence the following conclusions were drawn by the authors. First, for the average firm, the incremental dollar invested in net operating capital is worth less than on the incremental dollar held in cash. Second, conditional on current levels of investment, the value of an additional dollar invested in net operating working capital is worth less than the dollar so invested for the average firm. Third, the value of an additional dollar invested in net operating working capital is significantly influenced by a firm's future sales expectations, its debt load, its financial constraints, and its bankruptcy risk. This evidence implies that an additional dollar is worth much less in financially unconstrained firms with high debt loads and poor sales growth prospects. Fourth, for the average firm, the incremental dollar invested in credit to one's customers has a much greater effect on shareholder wealth than incremental dollar invested in inventories, and so suggests that a firm's trade credit policies are very important part of its working capital management. Altogether their evidence illuminates the importance of working capital management to shareholders and the subtle effects of financing on its wealth effects.

More recently, Bandara and Weerakoon (2014), investigated the impact of working capital management practices (WCMP) on firm value in Sri Lanka using a sample of 74 companies listed in the Colombo Stock Exchange covering seven business sectors for a period of 2005 to 2009. Firm value measured in terms of Economic Value Added (EVA) and Market Value Added (MVA) as

dependent variable and firm's Aggressive Working Capital Management Practice (AWCMP), Moderate Working Capital Management Practice (MWCMP) and Conservative Working Capital Management Practice (CWCMP) were used as independent variables. Using a panel regression methodology, the authors find a statistically significant negative relationship between CWCMP and MVA. Moreover, the study further indicated that there is statistically significant negative relationship between AWCMP and EVA. Their result indicated that firms that follow MWCMP yield higher MVA than the firms following CWCMP. Similarly, firms that follow AWCMP generate lower EVA than the firms with MWCMP. Hence, the authors concluded that the firms following MWCMP improved both MVA and EVA of the firms in Sri Lanka.

Additionally, Ankudinov and Lebedev (2014) empirically examined the impact investments in different kinds of assets have on shareholder value creation. The study which was based on panel data covers the period from 2004-2012 for the largest public companies representing nonfinancial sector of Russian economy. The results obtained show that companies most actively increasing investment in working capital are traded with certain discount while no statistically significant influence of investment in short-term financial assets over company value was also discovered.

Duggal and Budden (2015) tested the hypothesis of a negative relationship between a firm's net working capital and returns to its shareholders by using a sample of 363 non-financial firms grouped under nine industrial sectors and belonging to S & P 500 firms for the period 2009-2012. The Treynor index was used to estimate risk-adjusted shareholder returns. The main

independent variable for their study was net working capital estimated as the difference between current assets and current liabilities. The authors also used cash, accounts receivable, inventory, and notes payable deflated by the sales revenue as additional independent variables in their regressions in order to discover how these variables affect shareholder wealth. The result shows a negative relationship between risk-adjusted shareholder returns and net working capital. Further, while cash holdings reduce shareholder wealth, investments in inventory and vendor financing create shareholder value. However, investments in accounts receivable do not affect shareholder returns.

To confirm their earlier study, Bandara (2015) used different time frame and independent variables to investigate the impact of working capital management policy on firm value from 74 companies listed in the Colombo Stock Exchange (CSE) in Sri Lanka for the period 2009/10 to 2013/14. Firm value was measured in terms of Market Value Added (MVA) as dependent variable while firms' working capital investment policy (WCIP) and working capital financing policy (WCFP) were used as independent variables. The panel regression results indicated significant negative relationship between the firms' degree of aggressiveness of WCIP and MVA. However, no statistically significant relationship was found between WCFP and MVA at the conventional level albeit the negative relationship. Based on this evidence, the author concluded that minimum level of investment in current assets leads to have higher MVA of the firms in Sri Lanka.

Working Capital Management and Cointegration

Prior studies mostly done on this subject test the relationship between working capital management and its components on profitability. However, cointegrating relationships between working capital management and profitability as well as liquidity recently begin to be tested by researchers. A few studies found in literature, provide empirical results regarding cointegrating relationships.

Akinlo (2011) investigated the long-run relationship and causality issues between working capital and profitability in 66 firms in Nigeria by using the panel cointegration method for the period 1999-2007. By applying LLC, IPS and Hadri panel unit root tests to ensure the stationarity of the data, which was found stationary at first difference and using Pedroni (1999) panel residual based cointegration approach to detect the long-run relationship. The result revealed that there is a long-run equilibrium relationship between working capital and profitability for a cross section of firms after allowing for a firm specific effect. The author further used a panel based error correction model to account for the long-run relationship using the two step procedure from Engle and Granger (1987). The empirical results indicate that there was long-run and short-run causal relationship between working capital and profitability with short-run causal relationship moving from working capital to profitability. The author concluded that if mangers manage working capital inefficiently, that will lead to a reduction in profits.

Ani, Okwo and Ugwunta (2012) also investigated the influence of working capital management measured by cash conversion cycle and its components on the profitability for top five world leading beer brewery firms

over a period of 2000-2011. Return on assets (ROA) was used as a measure of profitability to represent the dependent variable, while cash conversion cycle (CCC), current ratio (CR), debt ratio (DR), and sales growth (SGR) represented the independent variables in their study. To avoid spurious regression, the authors applied Augmented Dickey Fuller (ADF) test to check the order of integration for the data, their test indicated that there was no unit root problem. Using the Johansen cointegration methodology, the cointegration test results indicated that there exists a cointegration relationship between the measure of profitability (ROA) and the explanatory variables. Multiple linear regression revealed that cash conversion cycle has a significantly positive and direct effect on profitability. The study concluded that working capital management not only has a positive relationship with profitability, but also has a significant long-run impact on profitability.

Shakoor, Khan and Nawab (2012) also sought to establish a relationship between working capital and profitability based on a sample of 25 Pakistani manufacturing companies listed on Karachi Stock Exchange over the period 2001-2010. To check the stationary of the data, Augmented Dickey Fuller (ADF) test was used and Johansen's co-integration test was also used for the long-run relationship. Then they established a linear regression model with OLS techniques to analyze the data, which the analysis revealed that quick ratio, days inventory outstanding, debt equity ratio and return on equity have a positive association with return on assets as a measure of profitability, whereas current ratio, and days sale outstanding showed a negative association with return on assets.

In another study, Awad and Jayyar (2013) studied the directional effect of working capital management and liquidity on profitability. The authors employed econometric techniques of the unit root tests, co-integration and two-step Engle and Granger method with error correction model on a panel data for 11 Palestine manufacturing firms listed in the PEX over the period from 2007 to 2012. Using gross operating profit as a measure of profitability and cash conversion cycle as a measure of working capital management with size, debt ratio and financial ratio as control variables, the result of a unit root test for all the variables in their study stated that all variables except financial asset ratio were stationary at first difference. Their cointegration results based on Kao (1999) showed that there is a long-run relationship between profitability, working capital management, firm size and debt ratio. Their findings also indicated that there is a bi-directional causal relationship between working capital management and profitability. Accordingly, the paper concludes, in its attempt to investigate the directional long-run relationship between gross operating profit, cash conversion cycle and current ratio, that managers should concentrate on managing working capital efficiently in order to generate cash and profits to their firms.

Conceptual Framework for the Study

The conceptual framework depicts the relationship between the working capital management policies and shareholder value creation of the manufacturing firms listed on the Ghana Stock Exchange. From the literature review, the following conceptual framework is developed to show the effect of

working capital management policies on shareholder value. Figure 6 shows the relationship between the dependent and the explanatory variables.

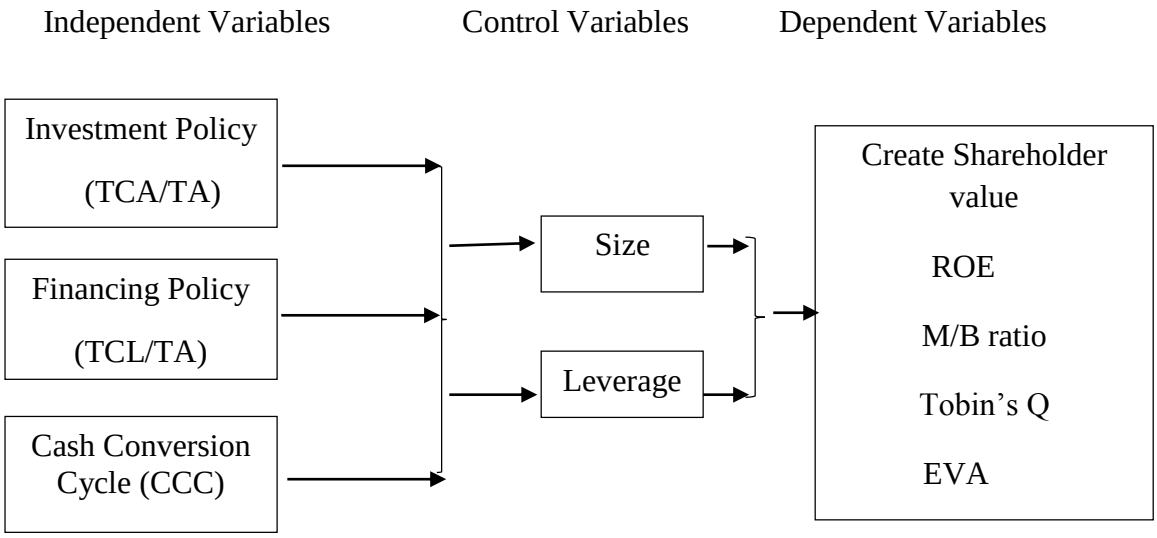

Figure 6: Conceptual framework

Source: Quansah, 2016

Chapter Summary

From the literature review, it is evident that the issue of working capital management policies and corporate profitability has received considerable attention within the academic cycles. However, most of these studies concentrated on firm performance with less attention on shareholder value thereby creating a gap. Additionally, empirical literature reviewed revealed that these prior studies applied static Ordinary Least Squares or Generalized Least Squares as estimation techniques without checking whether the data series were stationary or not. Thus, this present study sought to correct this.

CHAPTER THREE

RESEARCH METHODS

Introduction

The primary aim of this study was to determine the effects of working capital management policies on shareholder value of manufacturing firms listed on the Ghana Stock Exchange. This chapter discusses the research methods adopted. It discusses the research design, the population, the sample and the sampling procedure. It also discusses the data collection procedures, study variables, the panel cointegration estimation models and the data analyses.

Research Design

This study follows an objective assumption and positivist approach because the researcher believes that positivist approach will enable the study to be independently carried out in order to objectively determine the effects working capital management policies have on shareholder value. This study adopted a longitudinal, explanatory non-experimental research study applied in panel framework to analyze the effects of working capital management policies on shareholder value of manufacturing firms listed on the Ghana Stock Exchange. An explanatory non-experimental research design is appropriate where the researcher is trying to test a theory about a phenomenon or attempting to explain how the phenomenon operates by identifying the causal factors that produce the change whereby there is no manipulation of the independent variables (Johnson, 2001; Kerlinger & Lee, 2000). In their study, Mwangi et al. (2014) adopted an explanatory non-experimental research design to analyze the

effects of financing decisions on performance of non-financial companies listed in the NSE, Kenya.

Study Area

This study examined manufacturing companies that are listed on the Ghana Stock Exchange. As at 31st December, 2013, there were 34 firms that have been listed on the bourse. Out of these, 12 companies were manufacturing firms (see appendix A for the list of manufacturing firms as of 31st December, 2013). These manufacturing companies are made up food and beverages, pharmaceuticals, wood and paper converters and traditional manufacturing firms. The choice of the manufacturing firms was due to the fact that these firms contribute greatly to the socio-economic development in Ghana through employment creation, economic stability and GDP as well as capital mobilization. For example, in 2013, food & beverage and the traditional manufacturing concerns contributed a total of GHS145 million representing about 32% of total market capitalization for the year ended 31st December, 2013. Furthermore, the manufacturing companies represent an appropriate sample in order to analyze working capital management. This is because all the three major components of working capital (inventory, account receivable and account payable) usually play important roles in the manufacturing sector. Again, most of the previous studies in relation to the subject were conducted on manufacturing companies (See for example, Agyemang & Asiedu, 2013; Akoto et al., 2013; Deloof, 2003; Korankye & Adarquah, 2013; Raheman & Nasr, 2007). For this reason, the researcher believed that manufacturing companies would be suitable for the problem under study.

Population

According to the United Nations' (2008) International Standard Industrial Classification (ISIC) of economic activities, manufacturing enterprises involve industrial groups or business types such as:

- Manufacture of food products: vegetable and animal oils and fats, dairy products, bakery products, cocoa, chocolate and sugar confectionary;
- Manufacture of textiles;
- Manufacture of leather, luggage, hand bags and foot wear;
- Manufacture of wood and products of wood and cork;
- Manufacture of paper and paper products, publishing, printing;
- Manufacture of chemicals and chemical products;

Hence, the population for the study comprised all the manufacturing companies which fell within the definition of manufacturing enterprise by United Nations' ISIC (2008) as revised and were listed on the Ghana Stock Exchange on or before the year 2000 and were actively trading on the bourse as of 31st December, 2013 with no recording of negative equity in their statement of financial positions during the study period (see appendix A). Based on this, the target population was made up of six manufacturing firms listed on the Ghana Stock Exchange.

Sampling Procedure

Sampling could be described as the process of selecting a sufficient number of cases from the population, so that a study of the sample and an understanding of its properties or characteristics would enable the researcher to generalize such properties or characteristics to the population as a whole

(Sekaran, 2003). The present study did not undertake sample from the population. Krejcie and Morgan (1970) suggested that if the population size (*N*) is up to 10 elements then the sample size (*S*) must be 10. Hence the study considered all the firms in the target population by adopting census because there are fewer than 10 firms in the population. According to (Saunders, Lewis, & Thornhill, 2009), the use of census enhances validity of the data collected by including certain information-rich cases for the study. Table 1 provides the list of firms included in the study.

Table 1

Firms Included in the Study

FIRM	ISIC CLASSIFICATION	GSE CLASSIFICATION
Aluworks Ltd	Manufacturing	Manufacturing
Camelot Gh. Ltd	Manufacturing	Manufacturing
Fan Milk Gh. Ltd	Manufacturing	Food & Beverages
Guinness Gh. Breweries Ltd	Manufacturing	Food & Beverages
PZ Cussons Gh. Ltd	Manufacturing	Manufacturing
Unilever Gh. Ltd	Manufacturing	Manufacturing

Source: Researcher construct

Data Collection Instruments

Based on the research objectives, the study used a document review guide to extract and compile the required data for analysis from the financial statements. The financial statement depicts the actions and decisions taken by the management with regard to how they manage the entities. Moreover, since

these financial statements undergo verification by independent bodies, it is believed to give more reliable and objective data due to the nature of the study than the use of survey instruments such as questionnaires and interview guide which can be biased. Lee (2000) and Sekaran (2003) suggest that unobtrusive methods of data collection such as its extraction from company records have the advantage of accuracy.

Data collection procedures

The data for all the variables in the study were extracted from published annual reports and financial statements of the study firms covering the years 2000 to 2013.The data were obtained from the GSE fact books, Annual Report Ghana database and African financial market websites for the period of reference. The specific financial statements from which data were extracted include the statement of profit or loss and other comprehensive income, statement of financial position, statement of cash flows and notes to the accounts.

Description and Justification of Variables Used in the Study

Dependent Variables

Chari and Mohanty (2009) posit that there are two approaches to measuring shareholder value. Financial market price based measures which are used for companies that are listed and whose shares are traded in the capital market and intrinsic value measures which are used for non-listed companies. Prior empirical studies have used various metrics to represent shareholder value creation such as Market Value Added, Market-to-Book Ratio, Shareholder

Value Added, Tobin's Q, Stock Market Returns, Return on Equity and Economic Value Added. There is no single metric which is superior in measuring shareholder value.

De Wet and Du Toit (2007) indicated that neither ROE nor EVA could be seen as a reliable performance measure and hence reliance on a single measure is not warranted (Bhasin, 2013). In order to complement and account for possible weaknesses or flaws of each metric, it is appropriate to use a number of them than to rely on only one metric in making decisions. This study therefore, considers four metrics – two financial market price based measures (Market-to-Book Ratio and Tobin's Q) and two intrinsic value based measures (EVA and ROE) as proxies for shareholder value.

Return on Equity (ROE)

According to Watson and Head (2007), profitability is related to the goal of shareholder wealth maximization. Previous studies used different measures as proxies for profitability. For instance, gross operating profitability (Awad & Jayyar, 2013; Deloof, 2003); Return on Asset (Nazir & Afza, 2009). This study measures profitability by using return on equity. Following Abor (2005); Addae, Nyarkoh-Baasi and Hughes (2013); Gatsi and Akoto (2010) and Mwangi et al. (2014), return on equity is calculated as

$$ROE = \frac{Profit\ Before\ Interest\ \&\ Taxes}{Total\ Equity}$$

Market-to-Book Ratio

According to Pandey (2005), shareholder value creation can be measured by comparing the market value per share and book value per share. A ratio higher than one means that shareholder value is created. On the other hand, a ratio less than one means that shareholder value is destroyed.

Market-to-Book ratio (MBR) is calculated by the following formula:

$$\frac{M}{B} = \frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Equity}$$

Where market value of equity is obtained by multiplying the year end stock price by the number of shares outstanding.

Tobin's Q

According to Tobin and Brainard (1968), Tobin's Q approximates the market estimation of net present value of firms. Boasson and Boasson (2005) argue that Tobin's Q is the most appropriate measure of value creation. Tobin's Q is calculated as

$$Tobin's\ Q = \frac{Market\ value\ of\ equity + Book\ value\ of\ Total\ Debts}{Book\ Value\ of\ Total\ Assets}$$

Economic Value Added (EVA)

Economic Value Added (EVA) is a measure that focuses on firm internal performance over a given period and it aims to be a measure that tells what has happened to the wealth of shareholders (Bandara & Weerakoon, 2014; Chari & Mohanty, 2009). Hall (1999) found that EVA correlates well with the market value of a company and it is arguably one of the best methods to express and quantify shareholder value creation (Hall, 2000). A firm creates value for

its shareholders if it earns a return greater than the cost of capital and earning less destroys value (Chari & Mohanty, 2009). Thus, creating a sustainable improvement in EVA is tantamount to increasing shareholder wealth (Bandara & Weerakoon, 2014). Traditionally, it is calculated as:

$$EVA = \ (NOPAT - [Invested\ capital \times WACC])$$

Where NOPAT is net operating profit after taxes but before interest expense.

WACC= Weighted average cost of capital.

Measuring EVA in this way depicts wealth created for both equity shareholders and other capital providers. However, the present study sought to calculate EVA targeting only equity shareholders. This is consistent with Fraker (2006) and Bandara and Weerakoon (2014).

Accordingly, EVA is calculated as:

$$EVA = \ (PAT - [Ke \times Total\ Invested\ equity\ Capital_{t-0}])$$

Where PAT = profit after tax attributable to equity holders

Ke = Cost of equity capital i.e. required return

Total Invested Equity Capital $_{(t-0)}$ = Shareholders Fund at the beginning of the year.

The cost of equity was calculated by the use of market model under the standard Capital Asset Pricing Model (CAPM) with constant beta assuming that the beta is stable over time (Acheampong & Agalega, 2013). The study used average 91-day treasury bill rate as a surrogate for risk-free rate. The average market return is the return from the market portfolio (GSE Composite index). The betas of the firms were estimated using the Ordinary Least Squares Method.

Independent Variables

Aggressive/Conservative Current Assets Investing and Financing Policies

This study used aggressive current asset investment policy and conservative current asset investment policy as used by Weinraub and Visscher (1998) and aggressive current asset financing policy and conservative current asset financing policy as used by Nazir and Afza (2009) as well as Cash Conversion Cycle (Jose et al., 1996) as measuring variables of working capital management policies. Aggressive Current Asset Investment Policy (ACIP) results in minimal level of investment in current assets versus non-current assets. In contrast, a Conservative Current Asset Investment Policy (CCIP) places a greater proportion of capital in current assets with the opportunity cost of less profitability. In order to measure the degree of aggressiveness/conservativeness of current asset investment policy, the following ratio was calculated:

$$TCA/TA = \frac{Total\ Current\ Assets\ (TCA)}{Total\ Assets\ (TA)}$$

Where a lower ratio (i.e. less than 0.5) means a relatively aggressive investment policy whereas a higher ratio (more than 0.5) means relatively conservative investment policy. On the other hand, an Aggressive Current Asset Financing Policy (ACFP) utilizes higher levels of current liabilities and less long-term debt and equity. In contrast, a Conservative Current Asset Financing Policy (CCFP) uses more long-term debt and capital and less current liabilities. The degree of aggressiveness/conservativeness of a financing policy adopted by a firm is measured by current assets financing policy, and the following ratio is used:

$$TCL/TA = \frac{Total\ Current\ Liabilities\ (TCL)}{Total\ Assets\ (TA)}$$

Where a lower ratio (i.e. less than 0.5) means a relatively conservative financing policy whereas a higher ratio (more than 0.5) means relatively aggressive financing policy.

Cash Conversion Cycle (CCC)

According to Jose et al. (1996), a firm can use Cash Conversion Cycle (CCC) as a comprehensive measure of its working capital management policy, where a shorter cash conversion cycle means aggressive working capital management policy while longer cash conversion cycle means conservative working capital management policy. The CCC is calculated as:

Average Inventory Conversion Days (ICD) plus Average Trade Receivables Days (TRD) minus Average Trade Payable Days (TPD)

Where, ICD = $\frac{\text{Average Inventory}}{\text{Cost of Sales}} X\, 365 days$

TRD = $\frac{\text{Average Trade Receivable}}{\text{Revenue}} X\, 365 days$

TPD = $\frac{\text{Average Trade Payable}}{\text{Adjusted Cost of Sales}^{*}} X\, 365 days$

*Adjusted Cost of Sales = Cost of Sales – Depreciation/Amortization

Control Variables

Previous studies have used the control variables along with the main variables of shareholder value creation in order to have an apposite analysis (see for example Atiyet, 2012; Naccur & Goaied, 1999; Pandey, 2005). The study considered two control variables relating to firms such as the size of the firm and financial leverage.

Size: Various proxies are used for measuring size in empirical studies such as natural logarithms of total asset, total revenue, market capitalization and number of employees etc. (Jiang, 2003; Kakani, Saha & Reddy, 2001; Stimpert & Laux, 2011). This study measured firm size by the natural logarithm of sales revenue.

$$SIZE = Ln(Revenue)$$

Financial Leverage: Atiyet (2012) argues that debts are means through which managers are disciplined by financial market, which is to reduce the agency cost of the shareholder's equity and thus increases the firms' return and value. Thus, the presence of debt enables managers to create more wealth for their shareholders. Debt-Equity ratio was used as a proxy for financial leverage and is calculated as long term debt to total equity fund.

$$LEV = \frac{Long\ Term\ Debt}{Total\ Equity}$$

Data Analysis

The analytical procedures were grouped into two. The first analytical procedure consists of descriptive statistics, one-way ANOVA with post hoc analysis and student t-test and the second analytical procedure involves econometric technique using panel cointegration regression procedures. The descriptive statistics such as mean, median and standard deviation were employed to find out what current assets investment and financing policies the manufacturing firms were pursuing. Research objective one sought to determine whether differences exist among the firms with regard to their current assets investment and financing policies. In order to test these differences one-way ANOVA with post hoc analysis and student t-test were employed.

To determine the effect of aggressive/conservative current assets investment policies as well as the effect of aggressive/conservative current assets financing policies on shareholder value which research objectives two and three sought to achieve, the study utilized an econometric procedure by employing recently developed econometric techniques in the panel cointegration regression framework. These procedures involve performing unit root test, cointegration tests as well as estimating the parameters. Since analytical techniques such as one-way ANOVA and student t-test abounds in literature (see for example, Neideen & Brasel, 2007), the study would expatiate on the cointegration techniques at the appropriate section.

Model Specification

Rappaport (1986) and Black et al. (1998) argue that firm's working capital management can influence its shareholder value creation. Thus, there is a relationship between working capital management and shareholder value. Firm's shareholder value being the dependent variable has been taken as a function of the various independent and control variables.

Shareholder value = f {TCA/TA, TCL/TA, CCC, Size & Leverage}

Empirical Model

In order to establish whether working capital management policies have effects on shareholder value or not, the following econometric model is specified:

$$y_{it} = \alpha_i + \beta_1 TCA/TA_{it} + \beta_2 TCL/TA_{it} + \beta_3 CCC_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \varepsilon_{it} \quad (\mathbf{1})$$

Where y_{it} is the shareholder value proxied by Return on Equity, Market-to-Book ratio, Tobin's Q and EVA for firm *i* in period *t*.

TCA/TA= Total current assets to total assets ratio

TCL/TA= Total current liabilities to total assets ratio

CCC= Cash Conversion Cycle

SIZE = Natural log of total revenue

LEV = Financial leverage of firms measured as long-term debt to total equity

α_i = individual specific intercept

β_1- β_5= are parameters to be estimated

ε = Error term of the model and

it= firm i at time period t

Estimation Techniques

It has long been recognized that economic and financial data especially at the aggregate level exhibit some unit root processes i.e. are not stationary. When time series are nonstationary, performing ordinary least square (OLS) regression on them will produce spurious results (Brooks, 2008; Engle & Granger, 1987). These regressions often tend to have high R^2 and correlation which in actual fact there will be no such correlation (Granger & Newbold, 1974). Therefore, it is always important to first test for the presence of units root or otherwise to enable the researcher choose the appropriate estimator to estimate the parameters.

Panel Unit Root Test

In conventional time series, various unit root tests have been proposed such as Augmented Dickey-Fuller test (ADF) and Philip-Perron (PP) test. However, in panel setting, testing for unit root is recent. These tests include common unit root processes such as Breitung (2000), Hadri (2000), and Levin, Lin and Chu (2002) and those that allow for individual specific effect such as Choi (2001), Im, Pesaran and Shin (2003), Maddala and Wu (1999).

According to Baltagi (2005), Panel unit root tests lead to a statistic with a normal distribution in the limit than the conventional time series unit root tests which have complicated limiting distributions. Levin, Lin and Chu (2002) herein referred to as LLC, Breitung, and Hadri tests are based on the assumption that there is a common unit root process so that ρ is identical across cross-sections. The LLC and Breitung test employ a null hypothesis of a unit root while the Hadri test uses a null hypothesis of no unit root. LLC consider the following basic Augmented Dickey–Fuller (ADF) specification

$$\Delta y_{it} = \alpha y_{it-1} + \sum_{j=1}^{pi} \beta_{ij} \Delta y_{it-j} + X'_{it}\,\delta + \varepsilon_t \qquad \textbf{(2)}$$

Where y_{it} refers to the pooled variable, X'_{it} are the exogenous variables and ε_t is the error terms assumed to be mutually independent disturbance terms. It is assumed that $\alpha = \rho - 1$ is constraint to be the same across the cross sectional dimensions but the lag order term p_i can be permitted to vary across the cross sectional dimension.

The null and alternative hypotheses can be written as:

H_0: $\alpha = 0$

H_1: $\alpha < 0$

The authors indicate that the pooled *t*-statistic has a limiting normal distribution as N and T grow large and represent a good approximation for panel of moderate size. The performance of the LLC test has poor power and may be difficult for panels with small time dimension, especially when T<25 as in this case.

However, with the IPS test and the ADF Fisher-Chi-square test which are less restrictive tests, estimate a separate ADF regression for each of the cross-sectional dimension to allow for individual unit root processes; hence ρ may vary across cross sections.

Im, Pesaran, and Shin (IPS) specify a separate ADF regression for each cross section.

$$\Delta y_{it} = \alpha y_{it-1} + \sum_{j=1}^{pi} \beta_{ij} \Delta y_{it-j} + X'_{it}\,\delta + \varepsilon_t \qquad \textbf{(3)}$$

The null hypothesis can be written as:

$$H_0: \alpha_i = 0 \text{ for all } i$$

While the alternative hypothesis is given by:

$$H_1: \begin{cases} \alpha i = 0 & for\ i = 1,2,3,\dots,N \\ \alpha i < 0 & for\ i = 1,2,3,\dots,N \end{cases}$$

The IPS *t*-bar statistic is defined as the average of the individual ADF statistic as:

$$\bar{t} = \frac{1}{N}\sum_{i=1}^{N} t_{\rho i}$$

Where t_{pi} is the individual t-statistics for testing the null hypothesis. IPS show that a properly standardized $\bar{t}$ has an asymptotic N (0, 1) distribution, given as:

$$t_{IPS} = \frac{\sqrt{N}\left(\bar{t} - \frac{1}{N}\sum_{i=1}^{N} E[t_{iT}|\rho_i=0]\right)}{\sqrt{\frac{1}{N}\sum_{i=1}^{N} var[t_{iT}|\rho_i=0]}} \Rightarrow \text{N (0, 1)}$$

as T→ ∞ followed by N → ∞ sequentially. IPS indicate that if a large enough lag order is selected for the underlying ADF regressions, then the small sample performance of the t-bar test is reasonably satisfactory and generally better than the LLC test (Baltagi, 2005)

Maddala and Wu (1999) and Choi (2001) proposed an alternative approach to panel unit root test which uses Fisher's (1932) results to derive tests that combine the p-values from unit root tests for each cross-section *i* to test for unit root in panel data.

$$P = -2\sum_{i=1}^{N} \ln Pi \qquad (4)$$

Their proposed Fisher-type test has a χ^2 distribution with 2 degrees of freedom. This means that *P* is distributed as χ^2 with 2*N* degrees of freedom as $T_i \rightarrow \infty$ for finite N.

Both IPS and Fisher test combine information based on the individual units root tests and therefore have the same null and alternative hypotheses.

Panel Cointegration Test

When the panel data exhibit nonstationarity, it is possible to test whether there is a cointegrating relationship existing between them in the long-run. That is whether there is long-run association between the variables. In order to test for possible cointegration, the study used Pedroni (1999, 2004) panel cointegration technique and is briefly discussed here.

Following Pedroni (1999), the study considers the following fixed-effect model:

$$y_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + \beta_{5i}LEV_{it} + e_{it} \qquad (5)$$

where i = 1,2,…,N for each firm; t = 1,2,…, T observations over time; α_i represents the individual-specific (fixed) effect intercept that is allowed to vary across individual firms and $\beta_{1i,}$ $\beta_{2i,\ldots,}$ β_{5i} are the slope coefficients which are also permitted to vary across individual firms; y_{it} represents the dependent variables (ROE, Market-to-Book ratio, Tobin's Q and EVA) and $e_{it} = \rho_i e_{it-1} + \varepsilon_{it}$

Pedroni (1999, 2004) developed seven panel cointegration test statistics to determine the existence of cointegration. Four within-dimension test statistics which assume homogeneity of the AR term and three group between-dimension test statistics which allow for heterogeneity of the AR term to test the null hypothesis of no cointegration against the alternative hypothesis of cointegration. Within-dimension based statistics are referred as panel cointegration statistics, while between-dimension statistics are termed as group-mean cointegration statistics.

The first panel cointegration statistic (panel *v*-statistic) is similar to the long-run non-parametric variance ratio statistic for time series. The second statistic (Panel ρ statistic) is analogous to Phillips and Peron (1988) semi-parametric 'rho' statistic while the third statistic (panel PP) and fourth statistic (panel ADF) are analogous to Phillips-Peron non-parametric t-statistic and the ADF t-statistic respectively. The other three panel cointegration statistics are based on a group mean. The within-dimension statistics are based on the estimators that effectively pooled the autoregressive coefficient across different members for the unit root test on the estimated residuals while the between-dimension simply averages the individually estimated residuals for each cross section *i*. However, these tests are only valid when all the variables are I(1). Wagner and Hlouskova (2009) recommend that the panel statistics based on the

ADF are the best to test for the cointegration when the time series dimension is small. Therefore, the present study relied on the ADF *t* -statistics since the study sample was small.

Estimation of Long-Run Cointegrating Relationship

In order to estimate the long-run relationship between the dependent variables and the cointegrating regressors after evidence of cointegration is established, the study used recently developed Grouped Fully-Modified Ordinary Least Square (FMOLS) and Pooled Mean Group (PMG) cointegrating estimators proposed by Pedroni (2000, 2001) and Pesaran, Shin and Smith (1999) respectively. These estimators are robust to serial correlation and heterogeneity and hence preferable to simple OLS estimation.

Grouped Fully Modified Ordinary Least Squares

Pedroni (2000, 2001) proposes a grouped FMOLS estimator which averages over the individual cross section FMOLS estimates. This method takes into consideration heterogeneity across firms. One of the merits of using between-dimension estimator as opposed to within-dimension is that the mode in which the data is pooled allows for greater flexibility in the presence of heterogeneity of the cointegrating vectors. Pedroni (2000, 2001) argues that the grouped mean test statistics are found to do extremely well in small samples provided the time series dimension is not smaller than the cross sectional dimension. According to Pedroni (2000), the point estimate for the between dimension estimator can be interpreted as the mean value of the cointegrating vectors. Thus, consider the regression:

$$y_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + \beta_{5i}LEV_{it} + u_{it} \quad (6)$$

Where y_{it} is the dependent variable (ROE, Market-to-Book ratio, Tobin's Q and EVA); TCA/TA, TCL/TA, CCC, Size and LEV are cointegrating regressors with slopes β_{1i}, β_{2i}, β_{3i}, β_{4i} and β_{5i} which may or may not be homogeneous across *i*; α_i denotes individual specific effect and u_{it} is the disturbance term. The expression for the between-dimension group-mean panel FMOLS estimator as outlined in Pedroni (2001) is given as:

$$\hat{\beta}^*_{GFM} = \frac{1}{N}\sum_{i=1}^{N}\hat{\beta}^*_{FM,i} \quad (7)$$

Where $\hat{\beta}_{FM,i}$ is the time series FMOLS estimator which is applied to each firm member. The associated t-statistic for the between-dimension estimator is given as:

$$t\hat{\beta}^*_{GFM} = \frac{1}{N}\sqrt{N}\sum_{i=1}^{N} t\hat{B}^*_{FM,i} \quad (8)$$

$t\hat{\beta}^*_{FMi}$ is the associated t value from the individual FMOLS estimators.

Erdem, Ucler and Bulul (2014) (as cited in Demirgunes, 2015) opine that panel fully modified ordinary least squares estimator is appropriate if all the cointegrating variables are integrated of order 1 i.e. I (1).

Thus, the empirical models are specified as

$$ROE_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + u_{it} \quad (1)$$

$$lnMBR_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + u_{it} \quad (2)$$

$$lnTOBIN'^{S}Q_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + u_{it} \quad (3)$$

$$EVA_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + u_{it} \dots \dots \dots (\mathbf{4})$$

The variables are as already defined. These models were also used to estimate the coefficients for the individual firms and the subsample firms. The basic models were also re-estimated for the panel by the inclusion of a common time dummy D1. However, the individual and subsample estimates did not include the common time dummy D1.

Thus, the re-estimated models are specified as

$$ROE_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + \beta_{5i}D1 + u_{it} \dots \dots \dots (\mathbf{1a})$$

$$lnMBR_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + \beta_{5i}D1 + u_{it} \dots \dots \dots (\mathbf{2a})$$

$$lnTOBIN'^{S}Q_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + \beta_{5i}D1 + u_{it} \dots \dots \dots (\mathbf{3a})$$

$$EVA_{it} = \alpha_i + \beta_{1i}TCA/TA_{it} + \beta_{2i}TCL/TA_{it} + \beta_{3i}CCC_{it} + \beta_{4i}SIZE_{it} + \beta_{5i}D1 + u_{it} \dots \dots \dots (\mathbf{4a})$$

Pooled Mean Group (PMG)/Autoregressive Distributed Lags (ARDL)

To ascertain the robustness of the long-run relationships, the study also employed Pooled Mean Group due to Pesaran et al. (1999). This model takes the cointegration form of the simple ARDL model and adapts it for a panel setting by allowing the intercepts, short-run coefficients and cointegrating terms to differ across firms. One of the merits of PMG is that of its flexibility that it can be applied when the variables are of mixed order of integration (Demirgunes, 2015).

Consider an Autoregressive Distributed Lag (ARDL) (1,1,1,1,1,1) for shareholder value as in equation (1).

$$y_{it} = \alpha_i + \lambda_i y_{it-1} + \beta_{10i} TCA/TA_{it} + \beta_{11i} TCA/TA_{it-1} + \beta_{20i} TCL/TA_{it} + \beta_{21i} TCL/TA_{it-1} + \beta_{30i} CCC_{it} + \beta_{31i} CCC_{it-1} + \beta_{40i} SIZE_{it} + \beta_{41i} SIZE_{it-1} + \beta_{50i} LEV_{it} + \beta_{51i} LEV_{it-1} + u_{it} \quad (\mathbf{9})$$

Where the number of groups i = 1, 2, …, N; t is the number of periods 1,2, …, T; y_{it} is a scalar dependent variable; the coefficients of the lag dependent variables, λ_{it}, are scalars; β_{10i}, β_{11i},…,β_{51i} are the coefficient vectors of the explanatory variables (regressors); and α_i denotes group specific effect.

The re-parameterized form of the above equation can be formulated as follows:

$$\Delta y_{it} = \phi_i (y_{it-1} - \theta_{0i} - \theta_{1i} TCA/TA_{it} - \theta_{2i} TCL/TA_{it} - \theta_{3i} CCC_{it} - \theta_{4i} SIZE_{it} - \theta_{5i} LEV_{it}) - \beta_{11i} \Delta TCA/TA_{it} - \beta_{21i} \Delta TCL/TA_{it} - \beta_{31i} \Delta CCC_{it} - \beta_{41i} \Delta SIZE_{it} - \beta_{51i} \Delta LEV_{it} + u_{it} \quad (\mathbf{10})$$

Where, $\phi_i = -(1 - \lambda_i)$ is the error correction coefficient measuring the speed of adjustment towards long-run equilibrium and is expected to be negative and significant.

Besides, $\theta_{0i} = \frac{\alpha_i}{1-\lambda_i}$, $\theta_{1i} = \frac{\beta_{10i}+\beta_{11i}}{1-\lambda_i}$, $\theta_{2i} = \frac{\beta_{20i}+\beta_{21i}}{1-\lambda_i}$, $\theta_{3i} = \frac{\beta_{30i}+\beta_{31i}}{1-\lambda_i}$, $\theta_{4i} = \frac{\beta_{40i}+\beta_{41i}}{1-\lambda_i}$, $\theta_{5i} = \frac{\beta_{50i}+\beta_{51i}}{1-\lambda_i}$ are the long-run coefficients, Δ is the first difference operator.

The dependent variables (ROE, Market-to-Book Ratio, Tobin's Q and EVA) are used one after the other in the cointegration regression equation. Also the models are first estimated without the fifth regressor (leverage) in order to check the robustness of the estimates with the Grouped FMOLS.

Hence empirical models to be estimated are thus stated as:

$$\Delta ROE_{it} = \phi_i(ROE_{it-1} - \theta_{0i} - \theta_{1i}TCA/TA_{it} - \theta_{2i}TCL/TA_{it} - \theta_{3i}CCC_{it} - \theta_{4i}SIZE_{it}) - \beta_{11i}\Delta TCA/TA_{it} - \beta_{21i}\Delta TCL/TA_{it} - \beta_{31i}\Delta CCC_{it} - \beta_{41i}\Delta SIZE_{it} + u_{it} \quad \textbf{Mod. 5}$$

$$\Delta ROE_{it} = \phi_i(ROE_{it-1} - \theta_{0i} - \theta_{1i}TCA/TA_{it} - \theta_{2i}TCL/TA_{it} - \theta_{3i}CCC_{it} - \theta_{4i}SIZE_{it} - \theta_{5i}LEV_{it}) - \beta_{11i}\Delta TCA/TA_{it} - \beta_{21i}\Delta TCL/TA_{it} - \beta_{31i}\Delta CCC_{it} - \beta_{41i}\Delta SIZE_{it} - \beta_{51i}\Delta LEV_{it} + u_{it} \quad Mod\ \textbf{5a}$$

$$\Delta lnMBR_{it} = \phi_i(lnMBR_{it-1} - \theta_{0i} - \theta_{1i}TCA/TA_{it} - \theta_{2i}TCL/TA_{it} - \theta_{3i}CCC_{it} - \theta_{4i}SIZE_{it}) - \beta_{11i}\Delta TCA/TA_{it} - \beta_{21i}\Delta TCL/TA_{it} - \beta_{31i}\Delta CCC_{it} - \beta_{41i}\Delta SIZE_{it} + u_{it} \quad Mod\ \textbf{6}$$

$$\Delta lnMBR_{it} = \phi_i(lnMBR_{it-1} - \theta_{0i} - \theta_{1i}TCA/TA_{it} - \theta_{2i}TCL/TA_{it} - \theta_{3i}CCC_{it} - \theta_{4i}SIZE_{it} - \theta_{5i}LEV_{it}) - \beta_{11i}\Delta TCA/TA_{it} - \beta_{21i}\Delta TCL/TA_{it} - \beta_{31i}\Delta CCC_{it} - \beta_{41i}\Delta SIZE_{it} - \beta_{51i}\Delta LEV_{it} + u_{it} \quad Mod\ \textbf{6a}$$

$$\Delta lnTOBINQ_{it} = \phi_i(lnTOBINQ_{it-1} - \theta_{0i} - \theta_{1i}TCA/TA_{it} - \theta_{2i}TCL/TA_{it} - \theta_{3i}CCC_{it} - \theta_{4i}SIZE_{it}) - \beta_{11i}\Delta TCA/TA_{it} - \beta_{21i}\Delta TCL/TA_{it} - \beta_{31i}\Delta CCC_{it} - \beta_{41i}\Delta SIZE_{it} + u_{it} \quad Mod\ \textbf{7}$$

$$\Delta lnTOBINQ_{it} = \phi_i(lnTOBINQ_{it-1} - \theta_{0i} - \theta_{1i}TCA/TA_{it} - \theta_{2i}TCL/TA_{it} - \theta_{3i}CCC_{it} - \theta_{4i}SIZE_{it} - \theta_{5i}LEV_{it}) - \beta_{11i}\Delta TCA/TA_{it} - \beta_{21i}\Delta TCL/TA_{it} - \beta_{31i}\Delta CCC_{it} - \beta_{41i}\Delta SIZE_{it} - \beta_{51i}\Delta LEV_{it} + u_{it} \quad Mod\ \textbf{7a}$$

$$\Delta EVA_{it} = \phi_i(EVA_{it-1} - \theta_{0i} - \theta_{1i}TCA/TA_{it} - \theta_{2i}TCL/TA_{it} - \theta_{3i}CCC_{it} - \theta_{4i}SIZE_{it}) - \beta_{11i}\Delta TCA/TA_{it} - \beta_{21i}\Delta TCL/TA_{it} - \beta_{31i}\Delta CCC_{it} - \beta_{41i}\Delta SIZE_{it} + u_{it} \quad Mod\ \mathbf{8}$$

$$\Delta EVA_{it} = \phi_i(EVA_{it-1} - \theta_{0i} - \theta_{1i}TCA/TA_{it} - \theta_{2i}TCL/TA_{it} - \theta_{3i}CCC_{it} - \theta_{4i}SIZE_{it} - \theta_{5i}LEV_{it}) - \beta_{11i}\Delta TCA/TA_{it} - \beta_{21i}\Delta TCL/TA_{it} - \beta_{31i}\Delta CCC_{it} - \beta_{41i}\Delta SIZE_{it} - \beta_{51i}\Delta LEV_{it} + u_{it} \quad Mod\ \mathbf{8a}$$

Chapter Summary

This chapter highlights the research methods adopted for this study. The study employs longitudinal, explanatory non-experimental research design in a panel cointegration methodology framework to determine the effects working capital management policies have on shareholder value. The major limitation of the study was the small number of firms making the unit of analysis. The study covers a very small number of firms thereby placing a limitation on the findings, results, interpretation and generalization of the findings.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The purpose of this study was to determine the effects of working capital management policies on shareholder value of manufacturing firms listed on the Ghana Stock Exchange from 2000 to 2013. The analyses are based on the methodology as discussed in the previous chapter. The chapter is divided into seven main sections: firstly, the descriptive statistics of the variables are reported in Tables 2-10. These are followed by Tables 11 to 14 which report the ANOVA tests results. Panel unit roots tests, panel cointegration tests, Grouped-FMOLS cointegration regression results and regression results from the Panel ARDL are also respectively presented from Table 15 through Table 28.

Descriptive Statistics

Before any statistical inferences can be made from a data set, it would be appropriate to know the underlying pattern in the data set. Essentially, descriptive statistics use graphical and/or numerical methods to portray the patterns in a data set (McClave & Sincish, 2000). This section provides a summary of the descriptive statistics of the dependent and independent variables. It shows the average indicators of variables computed from the financial statements of six manufacturing firms listed on the Ghana Stock Exchange from 2000 to 2013 for the individual firms, the sub-sectors and the panel as a whole. The study has used nine variables for the analysis purpose including four dependent variables and five independent variables. The dependent variables are ROE, Market-to-Book ratio, Tobin's Q and EVA. The

independent variables are current assets investment policy measured as TCA/TA, current assets financing policy proxy by TCL/TA and CCC as a comprehensive measure of working capital management of the selected firms. Other two independent control variables used were size, measured by the natural logarithm of total revenue and financial leverage of the firms also proxy by debt-equity ratio. Table 2 to Table 10 present the descriptive statistics for ROE, market-to-book ratio, Tobin's Q, EVA, TCA/TA, TCL/TA, CCC, Size and debt-to-equity ratio respectively. From Table 2, it can be observed that all the series are normally distributed as revealed by the Jacque-Berra statistic with the exception of Guinness Ghana Breweries.

Table 2

Descriptive Statistics for Return on Equity

Company	Obs.	Mean	Median	Std. Dev.	Quartile Dev.	Jacque-Berra	Prob.
ALUWKS	14	0.134	0.121	0.264	0.179	1.0475	.5923
CMLT	14	0.521	0.472	0.175	0.094	1.5758	.4686
FML	14	0.548	0.540	0.194	0.118	0.1783	.9147
GGBL	14	0.445	0.423	0.228	0.103	7.1584	.0278
PZC	14	0.214	0.233	0.107	0.079	0.5542	.7579
UNIL	14	0.432	0.421	0.214	0.129	0.2131	.8989
F & B	28	0.497	0.448	0.214	0.094	2.4966	.2869
O. MFG	56	0.325	0.325	0.249	0.145	0.1595	.9233
ALL	84	0.382	0.401	0.251	0.142	0.1974	.9060

Source: Computed from Annual Reports of Study Companies from 2000- 2013

The mean return on equity for all the firms was 38.2% with a standard deviation of 25.1% (median 40.1%) while the food and beverages

manufacturing firms and other traditional manufacturing subsectors recorded a mean return on equity of 49.7% (SD 12.4%) and 32.5% (SD 24.5%) respectively.

The mean return on equity for the individual company's ranges from 13.4% to 54.8% during the study period with the Fan Milk Limited having the highest return on equity of 54.8% (SD=19.4%), followed by Camelot Ghana limited having a mean return on equity of 52.1% with a standard deviation of 17.5%. Guinness Ghana Breweries recorded an average return on equity of 42.3% with a quartile deviation of 10.3% during the study period. Aluworks Limited was found to have the least return on equity of 13.4% with a standard deviation of 26% followed by PZC Ltd with an average return of 21.4% (SD = 0.079).

From Table 3, the Jacque-Berra statistic indicates that Unilever, traditional manufacturing subsector and the panel data are not normally distributed hence the median values have been selected to be the average indicator for these data sets. However, all the other data sets are normally distributed thus the mean is reported as the average indicator. The median market-to-book ratio is 2.05 with a quartile deviation of 1.54 (Mean value 3.37; SD 4.44) for all the firms. The average market-to-book ratio for all the selected firms was above 1. This means that the market value of the firms exceeds the book value of the equity by 105%. Thus, these companies have created value for their shareholders. Food and Beverage manufacturing firms recorded an average market-to-book ratio of 4.17 with a standard deviation of 2.50 while other manufacturing subsector registered an average market-to-book ratio of 1.39 with a quartile deviation of 1.01 (Mean value 2.97; SD 5.11). Thus, food

and beverages firms created more value than other manufacturing firms. It can be observed that GGBL, Unilever, FML and CMLT have all created average market-to-book ratio above the industrial value with average values of 4.49 (SD 2.49), 4.43 (QD 2.42), 3.85 (SD 2.56) and 2.13 (SD 1.15) respectively. The least value creators were PZ Cussons Ghana Ltd and Aluworks Ghana Ltd having 1.05 and 1.55 with standard deviations of 0.34, 1.29 respectively.

Table 3

Descriptive Statistics for Market-to-Book Ratio

Company	Obs.	Mean	Median	Std. Dev.	Quartile Dev.	Jacque-Berra	Prob.
ALUWKS	14	1.545	1.306	1.299	0.601	2.8071	.2457
CMLT	14	2.134	2.046	1.147	0.828	0.9845	.6113
FML	14	3.849	3.432	2.555	1.597	2.0643	.3562
GGBL	14	4.489	4.398	2.486	1.265	3.1465	.2074
PZC	14	1.052	1.177	0.343	0.223	1.2501	.5352
UNIL	14	7.151	4.434	9.046	2.417	25.306	.0000
F & B	28	4.169	3.731	2.495	1.568	4.6707	.0967
O. MFG	56	2.970	1.386	5.115	1.014	1880.7	.0000
ALL	84	3.370	2.046	4.436	1.537	3462.1	.0000

Source: Computed from Annual Reports of Study Companies from 2000- 2013

From Table 4, the mean (median) Tobin's Q for all the study firms is 1.90 (1.29) with a standard deviation (quartile deviation) of 1.33 (0.64). Since the data is positively skewed, the median values will be appropriate to represent the average value. Thus, the selected companies during the study period have firm value slightly greater than the asset replacement cost. This means that

shareholder value has been created and sustained. On subsector-wise analysis food and beverage manufacturing firms recorded an average Tobin's Q ratio of 2.34 with a quartile deviation of 0.96 (Mean value 2.60; SD 1.46) while other manufacturing subsector registered an average Tobin's Q of 1.20 with a quartile deviation of 0.31 (Mean value 1.56; SD 1.12). This implies that food and beverages firms again have created more value than other manufacturing firms.

Table 4

Descriptive Statistics for Tobin's Q

Company	Obs.	Mean	Median	Std. Dev.	Quartile Dev.	Jacque-Berra	Prob.
ALUWKS	14	1.178	1.124	0.498	0.294	4.861	.0880
CMLT	14	1.232	1.207	0.296	0.119	7.214	.0271
FML	14	2.863	2.389	1.859	1.166	0.359	.8354
GGBL	14	2.336	2.097	0.905	0.551	1.028	.5981
PZC	14	1.026	1.093	0.201	0.134	1.359	.5070
UNIL	14	2.790	2.661	1.636	0.826	1.126	.5693
F & B	28	2.599	2.343	1.460	0.961	30.32	.0000
O. MFG	56	1.556	1.195	1.115	0.312	196.1	.0000
ALL	84	1.904	1.285	1.327	0.644	142.55	.0000

Source: Computed from Annual Reports of Study Companies from 2000- 2013

With the individual company result, FML has the highest mean Tobin's Q with a mean value of 2.86 and a standard deviation of 1.86 followed by Unilever Ghana Ltd and GGBL having mean values 2.79 and 2.34 with a standard deviation of 1.64 and 0.91 respectively. Additionally, PZC has a mean Tobin's Q of approximately 1. Thus, the firm's value is equal to its asset replacement cost.

From Table 5, the mean economic value added was (GHS341820.00) with a standard deviation of GHS 6,381,923.00 for all the selected companies. This means that the selected firms have destroyed value altogether. However, as the Jacque- Berra statistic indicates that the data is not normally distributed, the mean value may not be an appropriate indicator. Thus, based on the median value of GHS33, 352.00 (QD, GHS1, 449,561.00), the selected firms have positively created value for the shareholders. However, it can be observed that food and beverage firms created shareholder value for their shareholders while other manufacturing firms destroyed value entirely for their shareholders. This development may have been occasioned by their high cost of capital. Highest value destroyer for the individual firms was Guinness Ghana Breweries Ltd, followed by the Aluworks Ghana Ltd whilst Fan milk Ghana Ltd, Unilever Ghana Ltd and Camelot Ghana Ltd respectively created value for their shareholders.

Table 5

Descriptive Statistics for Economic Value Added

Company	Obs.	Mean	Median	Std. Dev	Quartile Dev.	Jacq-Berra	Prob.
ALUWKS	14	-3512506	-1329953	4745253	3605834	1.3822	.5010
CMLT	14	4462	7322	88273	27375	1.4363	.4876
FML	14	3720636	1864608	3831269	2115668	2.0925	.3513
GGBL	14	-4534346	-522166	10604289	6901231	1.5630	.4577
PZC	14	-652133	-125710	1893639	541588	9.3375	.0094
UNIL	14	2922969	2857212	6896184	2758843	1.8295	.4006
F & B	28	-406855	1309147	8881311	1929868	13.270	.0013
O. MFG	56	-309302	-4414	4768508	1056700	56.740	.0000
ALL	84	-341820	33352	6381923	1449561	82.225	.0000

Source: Computed from Annual Reports of Study Companies from 2000- 2013

The negative values indicate that the return on equity available for the shareholders was less than their required return based on the level of risk assumed. Thus the cost of equity capital was higher than the return from the invested equity.

The mean value of TCA/TA for all the selected firm was 0.4882 with a standard deviation of 0.164 as shown in Table 6. Since the mean value is less than 0.5, this indicates that the selected firms are relatively following aggressive current asset investment policy. Whereas food and beverages manufacturing firms were relatively following aggressive current asset investment policy, other manufacturing firms were seen to be following conservative investment policy with a mean values of 0.4162 (SD 0.13) and 0.5242 (SD 0.17) respectively.

Table 6

Descriptive Statistics for Total Current Asset/Total Asset

Company	Obs.	Mean	Median	Std. Dev	Quartile Dev	Jacque- Berra	Prob.
ALUWKS	14	0.5061	0.6038	0.217	0.194	1.5722	.4556
CMLT	14	0.4169	0.4578	0.097	0.059	1.6049	.4482
FML	14	0.5009	0.5164	0.084	0.070	0.5362	.7648
GGBL	14	0.3316	0.3156	0.113	0.095	1.0243	.5992
PZC	14	0.6755	0.6830	0.099	0.049	0.2915	.8644
UNIL	14	0.4983	0.4749	0.129	0.107	1.1379	.5661
F & B	28	0.4162	0.4257	0.130	0.102	1.3089	.5197
O. MFG	56	0.5242	0.5245	0.169	0.121	2.3438	.3097
ALL	84	0.4882	0.4843	0.164	0.123	2.5178	.2840

Source: Computed from Annual Reports of Study Companies from 2000- 2013

Furthermore, with company-wise analysis, it can be observed that the mean value for PZC is 0.6755 with a standard deviation of 0.099. Thus, PZC is relatively more conservative in managing current asset. On the other hand, Guinness Ghana Breweries Ltd, Camelot Group Ghana Ltd and Unilever Ltd are relatively being aggressive in their current asset management with a mean values of 0.3312, 0.4169 and, 0.4983 and standard deviations of 0.113, 0.097 and 0.129 respectively.

From Table 7, the average current asset financing policy measured by TCL/TA for all the selected firms is 0.4357 with a standard deviation of 0.141. This means firms are being conservative in the management of current liabilities. Additionally, it can be observed that all the subsectors also follow conservative current asset financing policy with a mean values of 0.4313 (SD 0.144) and 0.4378 (SD 0.140) for food and beverage manufacturing firms and other manufacturing firms respectively. Thus, the overall policy for the management of working capital by these firms is moderate working capital management policy. This indicated that the selected firms use relatively low proportion of current asset as a percentage of total asset as well as low proportion of current liability to fund total capital. Furthermore, it can be noticed that whereas food and beverage firms follow moderate working capital management policy, other manufacturing firms are relatively following conservative working capital management policy. It can further be observed that with the exception of Unilever which has TCL/TA ratio of 50.2%, all the other companies in the sample period were relatively conservative in the management of the short term liabilities by having TCL/TA ratio of less than 50%. Thus, these companies rely more on long term funds as a source of finance for their

operations. Additionally, with the exception of PZC which has relatively higher proportion of total current asset as ratio of total asset and less proportion of current liability in relation to total asset thereby following conservative policy in the management of its working capital, and Unilever which is being aggressive in the asset and liability management, all other firms are relatively pursuing moderate working capital management policies.

Table 7

Descriptive Statistics for Total Current Liabilities/Total Assets

Company	Obs.	Mean	Median	Std. Dev	Quartile Dev.	Jacque-Berra	Prob.
ALUWKS	14	0.4111	0.3695	0.132	0.105	0.9151	.6328
CMLT	14	0.4677	0.4188	0.184	0.162	1.2432	.5371
FML	14	0.3939	0.3367	0.156	0.102	1.1053	.5754
GGBL	14	0.4688	0.4635	0.124	0.072	0.0856	.9581
PZC	14	0.3712	0.3529	0.053	0.036	1.2487	.5356
UNIL	14	0.5015	0.4998	0.137	0.072	1.4227	.4910
F & B	28	0.4313	0.4179	0.144	0.101	1.0802	.5826
O. MFG	56	0.4378	0.3929	0.140	0.099	3.2663	.1953
ALL	84	0.4357	0.4130	0.141	0.101	3.1454	.2075

Source: Computed from Annual Reports of Study Companies from 2000- 2013

The cash conversion cycle (CCC) as reported in Table 8 has a median of 72 days with a quartile deviation of 35 days (Mean =75 days; SD =62 days) for all the firms. This means that on average, it takes a cycle of two and half months for these firms to get cash from their customers and settle their suppliers after purchase of raw materials. This confirms that the sample firms are following moderate working capital policies. It can further be seen that, food

and beverages firms have a median of 46 days with a quartile deviation of 27 days (Mean =60 days; SD =48 days) whilst other manufacturing firms have a median of 87 days with a quartile deviation of 35 days (Mean =82 days; SD =67 days). Thus, using the Cash Conversion Cycle as a comprehensive measure of working capital management policy, food and beverages firms were relatively being moderate whereas other manufacturing firms were found to be relatively conservative in their working capital management.

Table 8

Descriptive Statistics for Cash Conversion Cycle

Company	Obs.	Mean	Median	Std. Dev	Quartile Dev.	Jacque-Berra	Prob.
ALUWKS	14	63.90	49.82	30.78	25.37	1.5108	.4698
CMLT	14	114.17	107.12	34.65	18.96	19.7418	.0000
FML	14	34.17	34.89	18.41	6.02	1.0813	.5823
GGBL	14	85.61	85.54	55.14	18.19	0.2494	.8827
PZC	14	137.38	99.27	80.56	51.85	3.0668	.2158
UNIL	14	14.14	18.67	28.07	12.61	4.6776	.0964
F & B	28	59.89	46.22	48.09	27.31	6.1210	.0468
O. MFG	56	82.39	86.61	67.29	34.64	24.877	.0000
ALL	84	74.90	72.07	62.18	35.24	48.256	.0000

Source: Computed from Annual Reports of Study Companies from 2000- 2013

On the company wise, it can be observed that, Unilever has shortest mean CCC of 14 days with a standard deviation of 28 days whereas PZC has the longest CCC of 137 days having a standard deviation of 81 days. Thus, using the CCC as a comprehensive measure of working capital management, PZC and

Unilever are following conservative and aggressive policies as the overall working capital management policies respectively.

Firm size registered an average value of 17.61 with a quartile deviation of 0.92 (Mean is 17.19 and SD=1.64) for all the firms as depicted on Table 9. The smallest company is Camelot Ghana Ltd with firm size of 14.24 whereas Unilever and GGBL are seen as the bigger firms having 18.65 and 18.23 respectively whilst Aluworks, FML and PZC have relatively the same size as the bench mark size.

Table 9

Descriptive Statistics for Size

Company	Obs.	Mean	Median	Std. Dev	Quartile Dev.	Jacque-Berra	Prob.
ALUWKS	14	17.52	17.66	0.305	0.194	1.4080	.4946
CMLT	14	14.24	14.34	0.792	0.657	0.8994	.6378
FML	14	17.46	17.41	1.018	0.827	0.9316	.6276
GGBL	14	18.23	18.25	1.057	0.820	0.9690	.6160
PZC	14	17.07	17.06	0.930	0.605	0.6316	.7292
UNIL	14	18.65	18.66	0.589	0.356	0.4670	.7918
F & B	28	17.84	17.89	1.091	0.836	1.2878	.5252
O. MFG	56	16.87	17.51	1.772	1.406	5.2066	.0740
ALL	84	17.19	17.61	1.638	0.922	10.661	.0048

Source: Computed from Annual Reports of Study Companies from 2000- 2013

Finally, debt-equity ratio also recorded an average value of 10.3% with a quartile deviation of 12.5% (Mean is 50.8% and SD=123%) for all the firms. This means that on average the selected firms are lowly geared. However, food

and beverages firms were found to rely more on equity than long term-debt with an average value of 9.5% and quartile deviation of 7.5% (mean = 19.9% and SD = 26.8%) whilst other manufacturing firms have a median ratio higher the industry average of 10.3% and quartile deviation of 16.5% (mean is 66.2% and SD is 147.9%). Furthermore, on the company-wise analysis it can be seen that Camelot Ghana Ltd has mean debt-equity ratio of 197% with standard deviation of 253% suggesting that it is a highly geared company. The least lowly geared company is Fan Milk Ltd with an average value of 4.0% and quartile deviation of 2.5% (mean is 6.8% and SD is 12.3%).

Table 10

Descriptive Statistics for Debt-Equity Ratio

Company	Obs.	Mean	Median	Std. Dev	Quartile Dev.	Jacque-Berra	Prob.
ALUWKS	14	0.511	0.278	0.528	0.912	7.6208	.0221
CMLT	14	1.970	0.885	2.530	1.642	3.2882	.1932
FML	14	0.068	0.041	0.123	0.025	58.820	.0000
GGBL	14	0.329	0.165	0.312	0.173	6.3862	.0410
PZC	14	0.072	0.072	0.022	0.007	1.1459	.5639
UNIL	14	0.095	0.074	0.070	0.038	3.3412	.1881
F & B	28	0.199	0.095	0.268	0.075	39.387	.0000
O. MFG	56	0.662	0.103	1.479	0.165	403.87	.0000
ALL	84	0.508	0.103	1.233	0.125	1444.50	.0000

Source: Computed from Annual Reports of Study Companies from 2000- 2013

Based on the descriptive statistics as reported on Tables 6, 7 and, 8 the listed manufacturing firms were found to be following moderate working capital management policies. This implies that the selected firms use relatively low

proportion of current asset as a percentage of total asset as well as low proportion of current liability to fund total capital.

Analysis of Variance (ANOVA)

The first research objective was to determine whether differences exist among the firms with regard to their current asset investment and financing policies. The differences in the relative degree of aggressive/conservative current assets investment and financing policies among firms have been tested through one-way ANOVA and post hoc tests. Firms' current asset investment policy, measured by Total Current Asset/ Total Asset, was first examined and the results are presented in Table 11. The observed F-ratio of 10.686 is significant at 1% level of significance, and this indicates that a significant difference exists between the firm practices relating to aggressive/conservative current assets investment policies.

Table 11

ANOVA Test for Total Current Asset/Total Asset

	Sum of Squares	Df	Mean Squares	F	Sig.
Between groups	.914	5	.183	10.686	.000
Within groups	1.334	78	.017		
Total	2.248	83			

Source: Field Work, Quansah (2016)

To further examine the strength of the differences between firms' values, Least Significant Difference (LSD) and Tukey's Honestly Significance Difference (HSD) tests were performed to compare the firms' mean values of TCA/TA on a paired sample basis. Studies such as Weinraub and Visscher (1998); Salawu (2007); Afza and Nazir (2008) have applied Tukey's HSD and LSD tests to examine differences in working capital policies. The results are presented in Table 12 and Table 13 respectively. As can be observed from Table 12 for Least Significant Difference (LSD), among 15 pairs, eight pairs are statistically significant at 5 percent level of significance. This left seven pairs of firms with ratios whose differences were not statistically significant at the conventional level of significance.

Table 12

Test of Least Significance Differences (LSD) for Total Current Asset/Total Asset

COMPANY	ALUWORKS	CMLT	FML	GGBL	PZC	UNIL
ALUWORKS	--					
CMLT	.089*	--				
FML	.005	-.084*	--			
GGBL	.174***	.085*	.169***	--		
PZC	-.169***	-.256***	-.174***	-.343***	--	
UNIL	.007	-.081	.002	-.166***	.177***	--

***Significant at 1% level **Significant at 5% level *Significant at 10% level

From Table 13, the Tukey's HSD test indicated that 8 out of 15 pairs are statistically significant at 5 percent level of significance while the remaining seven pairs of firms were found to be homogeneous. It could be observed from both ANOVA and all post hoc tests for variance that significant differences exist

among the various firms regarding their current assets investment policies. Additionally, an independent sample t-test was also conducted to compare the conservative/aggressive current asset investment policies between food and beverage firms and other manufacturing firms. There was a significant difference in the current asset investment policies between the two groups of manufacturing firms, t (82) = 2.963, P<.01, two-tailed with other manufacturing firms pursuing conservative investment policies (M=52.4%, SD= 17%) whilst food and beverages firms were following aggressive investment policies (M=41.6%, SD=13.0%) with a medium effect size (d=0.712) (See appendices B-1 to B-5 for details).

Table 13

Tukey's HSD Test for Total Current Asset/Total Asset

COMPANY	ALUWORKS	CMLT	FML	GGBL	PZC	UNIL
ALUWORKS	--					
CMLT	.089	--				
FML	.005	-.084	--			
GGBL	.174***	.085	.169**	--		
PZC	-.169**	-.256***	-.174***	-.343***	--	
UNIL	.007	-.081	.002	-.166**	.177***	--

***Significant at 1% level **Significant at 5% level *Significant at 10% level

Next, current assets financing policy is examined by performing a one-way ANOVA on the Total Current Liability/ Total Asset ratio in order to test differences in the relative degree of aggressive/conservative liability management. The results are presented in Table 14.

Table 14

ANOVA Test for Total Current Liabilities/Total Asset

	Sum of Squares	Df	Mean Squares	F	Sig.
Between groups	.182	5	.036	1.938	.097
Within groups	1.462	78	.019		
Total	1.644	83			

Source: Field Work, Quansah (2016)

The observed F- statistics of 1.938 is not significant at 5% significant level. This means that there is no existence of statistically significant differences among companies regarding current assets financing policies at the conventional 5% level. This implies that the selected firms are homogeneous in their current asset financing policies. It is evident that strong significant company differences do exist in the relative degree of aggressive/conservative current asset investment policy whereas very weak statistically significance differences do exist in the relative degree of aggressive/conservative current asset financing policy.

This result is consistent with the findings of Weinraub and Visscher (1998) and Afza and Nazir (2008) who reported significant differences in the industry relative degree of aggressive/ conservative working capital investment and financing policies and both their ANOVA and post hoc LSD and Tukey's HSD tests indicated that the differences were generally broader and more significant when examining current asset investment policies than the current asset financing policies. However, the current findings contradict that of Salawu (2007).

Results of Panel Unit Root Tests

In order to deal with the issue of spurious regression and choose the appropriate estimator, the panel unit root test was performed. The results are presented in Tables 15 and 16. As indicated in the methodology, three panel unit root methods were applied. Table 15 reports summary panel unit root tests on level data of the study variables while Table 16 reports the results of the panel unit root test at their first differences.

Table 15

Results of Panel Unit Root Test in Order Zero (levels)

	LLC		IPS		ADF	
Variable	Intercept	Int. &Trnd	Intercept	Int. &Trnd	Intercept	Int. &Trnd
ROE	-2.599**	-0.6325	-2.7363**	-0.7835	27.076**	15.5904
MBR	1.6322	-0.4560	1.7326	1.5148	11.8325	11.9838
LnMBR	-2.7929	-3.4678**	-0.8861	-0.4422	16.7228	14.4455
TOBINQ	-0.8746	-3.8869**	0.2012	-1.3163	12.7060	18.0808
LnTOBINQ	-1.8376	-4.7358**	-0.3255	-1.5795	10.8393	20.2033
EVA	-2.3001	-5.3384**	-0.7007	-4.4660**	18.7840	39.745**
TCA/TA	-1.9429*	-0.7441	-0.9936	0.1632	15.6848	10.2866
TCL/TA	-2.6140**	-2.3412**	-0.6009	0.3651	14.9943	10.8796
CCC	0.3188	-2.4517**	0.8696	-0.7629	14.1795	20.3699
SIZE	-4.6941**	-4.1861**	-.1.4146	-1.2447	18.1416	20.2662
LEV	-10.349**	-15.197**	-5.8977**	-6.493**	34.933**	30.223**

Note: **, * indicate a significant level of 1% and 5% respectively. Probabilities for fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. LLC=Levin, Lin & Chu (2002), IPS= Im, Pesaran & Shin (2003), ADF=Fisher type Chi square by Maddala & Wu (1999)

As can be readily seen, both IPS and ADF tests fail to reject the unit root null for all the variables in the level form except return on equity and debt-equity ratio when individual intercepts were included. Similarly, both IPS and ADF tests fail to reject the unit root null for all the variables in the level form except EVA and debt-equity ratio when individual intercept and time trend were included. Also, with exception of market-to-book ratio, Tobin's Q and CCC, the LLC test did not reject the null of a unit root in the levels when individual intercept was considered. When intercept and time trend are considered, the LLC test does reject the null of unit root for all the variables except ROE, market-to-book ratio and TCA/TA. However, it can be observed from Table 16 that all the tests do reject the null of a unit root in difference form with or without the inclusion of time trends. Thus, the evidence suggests that the variables are integrated of order one I (1) and that they exhibit nonstationary processes hence the direct application of OLS or GLS on them will produce spurious and biased estimates.

Therefore, it would be appropriate to use cointegration technique to establish whether a long-run stable relationship exists among the nonstationary variables in level form.

However, since firms' gearing ratio is stationary at level as reported by all the panel unit root tests, it was excluded from the cointegration equation and the subsequent cointegration regression using the panel fully modified ordinary least squares estimation but was included in the panel ARDL estimation.

Table 16

Results of Panel Unit Root Test in Order One (First Difference)

	LLC		IPS		ADF	
Variable	Intercept	Int. &Trnd	Intercept	Int. &Trnd	Intercept	Int. &Trnd
ΔROE	-7.766**	-7.315**	-6.834**	-5.288**	59.402**	44.262*
ΔMBR	-6.908**	-5.232**	-5.055**	-3.180**	52.973**	36.435**
ΔLnMBR	-9.203**	-8.107**	-6.692**	-4.943**	58.051**	43.114**
ΔTOBINQ	-7.806**	-5.4225**	-6.1495**	-3.465**	54.632**	33.5842**
ΔLnTOBINQ	-9.184**	-7.283**	-6.781**	-4.475**	59.307**	40.671**
ΔEVA	-7.739**	-6.361**	-8.491**	-6.782**	72.906**	56.821**
ΔTCA/TA	-5.912**	-5.048**	-5.159**	-3.307**	46.175**	31.188**
ΔTCL/TA	-9.421**	-7.569**	-6.634**	-5.285**	58.236**	45.959**
ΔCCC	-8.455**	-8.697**	-6.392**	-5.663**	56.110**	47.632**
ΔSIZE	-7.998**	-8.109**	-5.269**	-4.011**	46.168**	35.796**
ΔLEV	-21.183**	-16.561**	-11.908**	-9.055**	58.408**	48.283**

Note: **, * indicate a significant level of 1% and 5% respectively
Probabilities for fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. LLC=Levin, Lin & Chu (2002), IPS= Im, Pesaran & Shin (2003), ADF=Fisher type Chi square by Maddala & Wu (1999).

Presentation and Analysis of Panel Cointegration Tests Results

The recently developed panel residual based cointegration methodology proposed by Pedroni (1999, 2004) was employed to each of the dependent variables of ROE, Market-to-Book ratio, Tobin's Q and EVA to establish whether there is a long-run stable relationship between working capital variables and shareholder value. The results are presented in Tables 17, 18, 19 and, 20 for return on equity, market-to-book ratio, Tobin's Q and EVA

respectively for equations 1, 2, 3 and 4. From Table 17 it can be observed that the panel PP and panel ADF statistics were all statistically significant at 5 percent.

Table 17

Panel Cointegration Test for Return on Equity

Alternative hypothesis: common AR coefs. (within-dimension)				
	Statistics	prob.	Weighted statistics	prob.
Panel v-Statistic	0.1688	.4329	-0.0308	.4877
Panel rho-Statistic	1.0548	.8542	1.1569	.8763
Panel PP-Statistic	-2.2608	.0119**	-2.6301	.0043***
Panel ADF-Statistic	-1.9550	.0253**	-2.2488	.0123**
Alternative hypothesis: common AR coefs. (between-dimension)				
	Statistics	prob.		
Group rho- Statistic	2.1712	.9850		
Group PP- Statistic	-2.8479	.0022***		
Group ADF- Statistic	-2.1086	.0175**		

*, **, *** indicate reject the null hypothesis at 10%, 5% and 1% significant levels respectively. Automatic lag length selection based on SIC with a maximum lag of 1.

Furthermore, the Group PP and Group ADF statistics were also significant at 1 percent and 5 percent level of significance respectively. The empirical evidence firmly indicates that there is a long-run equilibrium relationship between the study variables. Thus, there is a long-run association between working capital management and profitability. This finding confirms

the results of Akinlo (2011) and Awad & Jayyar (2013) who found cointegration between working capital management and profitability.

From Table 18, it can also be observed that the panel PP and panel ADF statistics were all statistically significant at 1% level. Furthermore, the Group PP and Group ADF statistics were also significant at 1% level of significance.

Table 18

Panel Cointegration Test for Market-to-Book Ratio

Alternative hypothesis: common AR coefs. (within-dimension)				
	Statistics	prob.	Weighted statistics	prob.
Panel v-Statistic	-0.4238	.6642	-1.6115	.9465
Panel rho-Statistic	0.9578	.8309	1.7888	.9632
Panel PP-Statistic	-6.8323	.0000***	-5.5222	.0000***
Panel ADF-Statistic	-6.6510	.0000***	-6.0666	.0000***
Alternative hypothesis: common AR coefs. (between-dimension)				
	Statistics	prob.		
Group rho- Statistic	2.0766	.9811		
Group PP- Statistic	-8.3416	.0000***		
Group ADF- Statistic	-6.6434	.0000***		

*, **, *** indicate reject the null hypothesis at 10%, 5% and 1% significant levels respectively. Automatic lag length selection based on SIC with a maximum lag of 1.

The empirical evidence firmly indicates that there is a long-run equilibrium relationship between the study variables. Thus, there is a long-run association between working capital management and shareholder value creation as measured by market-to-book ratio.

The result from Table 19 also revealed that the panel PP and the panel ADF statistics were significant at 1% level as well as the group PP and group ADF all indicated 1% significant. This empirical evidence, clearly indicates that there is a strong long-run association between shareholder value proxy by Tobin's Q and working capital management policies adopted. Thus, in the long-run these policies have a bearing on the shareholder value creation.

Table 19

Panel Cointegration Test for Tobin's Q

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistics	prob.	Weighted statistics	prob.
Panel v-Statistic	-1.3954	.9186	-1.7819	.9626
Panel rho-Statistic	1.3181	.9063	1.6990	.9553
Panel PP-Statistic	-8.1341	.0000***	-6.5489	.0000***
Panel ADF-Statistic	-6.9483	.0000***	-6.0562	.0000***

Alternative hypothesis: common AR coefs. (Between-dimension)

	Statistics	prob.
Group rho- Statistic	2.1691	.9850
Group PP- Statistic	-10.205	.0000***
Group ADF- Statistic	-7.3257	.0000***

*, **, *** indicate reject the null hypothesis at 10%, 5% and 1% significant levels respectively. Automatic lag length selection based on SIC with a maximum lag of 1.

This suggests that finance managers should attach equal importance to the working capital management decisions.

The result from Table 20 also showed that the panel PP and the panel ADF statistics were all significant at 1% level as well as the group PP and group

ADF statistics all indicated 1% significant. Based on these empirical evidence, it can be firmly concluded that there is a strong long-run relationship between shareholder value measured by EVA and working capital management.

Table 20

Panel Cointegration Test for Economic Value Added

Alternative hypothesis: common AR coefs. (within-dimension)				
	Statistics	prob.	Weighted statistics	prob.
Panel v-Statistic	-0.0156	.5062	-0.6909	.7552
Panel rho-Statistic	1.0127	.8444	0.6915	.7554
Panel PP-Statistic	-2.9161	.0018***	-6.4108	.0000***
Panel ADF-Statistic	-2.6334	.0042***	-3.1958	.0007***
Alternative hypothesis: common AR coefs. (between-dimension)				
	Statistics	prob.		
Group rho- Statistic	1.6468	.9502		
Group PP- Statistic	-7.2945	.0000***		
Group ADF- Statistic	-3.7019	.0001***		

*, **, *** indicate reject the null hypothesis in 10%, 5% and 1% significant levels respectively. Automatic lag length selection based on SIC with a maximum lag of 1.

Analysis of Cointegration Regression Results

After establishing that there is a stable long-run association between the study variables, next panel cointegration regression techniques specifically grouped fully modified ordinary least squares by Pedroni (2000, 2001) and Pooled Mean Group/ARDL by Pesaran et al. (1999) were adopted to determine the direction of the association between the cointegrating variables and establish

the effect working capital management policies have on shareholder value creation. According to Erdem et al. (2014) (as cited in Demirgunes, 2015) panel fully modified ordinary least squares estimator is appropriate if all the cointegrating variables are integrated of order 1 i.e. I (1). As indicated in the panel unit root tests results, the gearing ratio was stationary at levels and therefore was excluded from the cointegrating regression in FMOLS estimation but was included in the panel ARDL estimation. The dependent variables market-to-book ratio and Tobin's Q were log transformed before they entered the cointegrating equation as the original panel series data were not normally distributed. Similarly, EVA models were estimated using standardized variables by computing the Z scores for EVA and each of the independent cointegrating regressors. This transformation was necessary as the original EVA values were huge. The FMOLS results also include a common time dummy D1 for the year 2007. The year 2007 saw the Ghanaian currency undergoing a redenomination as well as the adoption of International Financial Reporting Standards (IFRSs) by Ghanaian listed companies for the first time and also marked the beginning of the global financial meltdown. The inclusion of common time dummies is intended to capture the issue of shocks from the system and also deal with potential problem of short-run cross-sectional dependency (Pedroni, 2001).

Presentation and Analysis of grouped FMOLS Results

The results from grouped FMOLS for the panel as well as the sub-sectors and the individual firms are reported in Tables 21, 22, 23 and, 24 for models 1, 2, 3 and, 4 respectively. The Tables show two panels A and B. The

individual firm's results and the results from the sub-sectors are first presented in panel A. Panel B reports the results of all the firms.

Table 21 presents the results from the grouped FMOLS for return on equity (ROE) and the regressors with size as a control variable. From the individual results, current asset investment policy is found to have a positive and highly significant effect on ROE for Aluworks and PZC at 1 percent and 5 percent level of significance respectively whereas investment policy for FML and Unilever has positive but an insignificant effect on ROE. On the contrary, current asset investment policies for CMLT and GGBL have a negative relationship with return on equity. However, only CMLT has a significant effect. The positive relationship means that these companies can increase the profitability by adopting conservative approach in the management of current assets whilst the negative relationship implies that the more firms become restrictive in the management of current assets the better. This indicates that, a unit rise in TCA/TA ratio will lead to 1.1775 units and 1.4044 units increase in ROE for Aluworks and PZC respectively whereas a unit increase in TCA/TA ratio will cause 1.0693 units decrease in ROE for CMLT. The individual results also revealed that current asset financing policy has positive and significant effect on ROE for FML and CMLT at 1 percent and 5 percent levels respectively but negative significant effect on ROE for Aluworks and PZC at 1 percent and 10 percent level of significance respectively. This indicates that a unit increase in the ratio of TCL/TA will cause 1.6881 units rise in ROE for FML and 0.3821 increase in ROE for CMLT but decrease the ROE of Aluworks and PZC by 1.1152 and 1.3193 units respectively.

Table 21

Panel Grouped FMOLS Results for Return on Equity

Panel A	TCA_TA	TCL_TA	CCC	SIZE	C
ALUWKS	1.1775 (.0000)***	-1.1152 (.0000) ***	0.0009 (.0251) ***	-0.0921 (.0197)**	1.6674 (.0174)**
CMLT	-1.0693 (.0030)***	0.3821 (.0242) **	0.0011 (.0221) **	0.0571 (.1215)	.-0.1546 (.7645)
FML	0.2195 (.5294)	1.6881 (.0083)**	0.0011 (.4849)	0.1764 (.0551)*	-3.3415 (.0659)*
GGBL	-0.4746 (.5718)	0.3301 (.5124)	0.0011 (.4978)	-0.0412 (.6621)	1.1030 (.5670)
PZC	1.4044 (.0611)*	-1.3193 (.0914)*	-0.0004 (.6522)	-0.1407 (.2271)	2.2144 (.1932)
UNIL	0.4206 (.7216)	0.8675 (.2412)	-0.0010 (.7460)	0.0847 (.8258)	1.3696 (.8330)
F & B	-0.1275 (.7131)	1.0091 (.0012)***	0.0011 (.2084)	0.0676 (.1666)	-
O. MFG	0.4833 (.0716)*	-0.2962 (.1316)	-0.0002 (.6433)	-0.0651 (.3995)	-

Panel B	TCA_TA	TCL_TA	CCC	SIZE	D1
Model 1	0.2797 (.1841)	0.1388 (.3782)	0.0001 (.7464)	-0.0208 (.6972)	-
Model 1a	0.1497 (.4302)	-0.0477 (.7882)	0.0002 (.6616)	0.0397 (.4393)	-0.0986 (.0473)**

Note: ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level. Model 1a includes common time dummy D1. F&B= Food & Beverage; O. MFG= Other Manufacturing Firms. P. values are in parentheses

The individual results again showed that CCC is positive and significantly related to the return on equity for CMLT whereas it is negative and significantly related to ROE for Aluworks. However, it is found that CCC does

not have any statistical significant effect on profitability at the conventional level of significance for the rest of the firms.

Additionally, the explanatory power of the cash conversion cycle is minimal as compared to the other regressors.

The control variable size was also found to impact the return on equity differently among the various companies. Whereas FML's size has positive and significant impact on ROE at 10 percent significant level, the size of Aluworks has negative and significant effect on ROE at 5 percent significant level. The results from the sub-samples also show that current asset financing policy has a positive and highly significant influence on return on equity for food and beverages manufacturing firms. Thus, a unit increase in the ratio of current liability to total asset raises food and beverage's return on equity by 1.009 units.

From the panel results, the study indicated that current asset investment policy has positive and insignificant effect on profitability measured by return on equity. The positive coefficient of TCA/TA ratio indicates a negative relationship between the degree of aggressiveness of investment policy and return on equity. As the TCA/TA increases, the degree of aggressiveness decreases, and return on equity increases. Therefore, there is a negative relationship between the relative degree of aggressiveness of current asset investment policies of firms and return on equity. This empirical finding implies that firms can create shareholder value if they adopt conservative approach in the management of current asset. This result is consistent with the findings of Javid and Zita (2014) and Mwangi et al. (2014) who found a positive relationship between the degree of conservative current asset investment policy and return on equity.

The regression results also revealed that the coefficient for total current liabilities to total assets ratio is positive and is statistically insignificant at 10 percent level of significance. The results indicate that there was no statistically significant relationship between total current liabilities to total assets ratio and profitability of manufacturing firms listed in the GSE as measured by on ROE. The positive coefficient for TCL/TA also points out the negative relationship between the degree of conservativeness of current asset financing policy and return on equity. The higher the TCL/TA ratio, the more aggressive the financing policy, that that yield positive return. The results is inconsistent with the findings of Mwangi et al. (2014) and Javid and Zita (2014) who found a negative relationship between the degree of aggressive current asset financing policy and return on equity. However, when time dummy is considered, the results revealed that the coefficient for total current liabilities to total assets ratio is negative and is statistically insignificant at 10 percent level of significance which confirms the findings of Mwangi et al. (2014) and Javid and Zita (2014).

The results also show that cash conversion cycle has positive and statistically insignificant effect on ROE. The control variable, firm size measured as natural log of total revenue indicated mixed results. The coefficient of firm size is negative without the time dummy and but turns to be positive when time dummy is introduced although both coefficients are insignificant at 10 percent significant level. The inclusion of common time dummy D1 revealed a negative and significant effect on return on equity at 5 percent significant level. This could possibly suggest that Ghanaian listed manufacturing firms incurred extra cost in adopting IFRSs coupled with the external financial and economic shocks that characterized the year 2007.

From Table 22, the individual company's results indicate that the ratio of TCA/TA has positive and strong significant effect on shareholder value measured by market-to-book ratio for Aluworks but has negative and highly significant effect on market-to-book ratio for CMLT, FML and GGBL. However, the TCA/TA ratio has negative but insignificant effect on market-to-book ratio for PZC and Unilever. This means that a percent increase in the ratio of total current asset to total asset raises market-to-book ratio by approximately 687% for Aluworks whiles it reduces the market-to-book ratio by 89%, 97% and 97% for CMLT, FML and GGBL respectively.

The result also indicates that the ratio of TCL/TA has positive and significant effect on market-to-book ratio for Aluworks and Unilever at 1 percent and 5 percent significant levels respectively whereas it has negative and significant effect on market-to-book ratio for CMLT and PZC at 1 percent and 10 percent significant levels respectively. No statistical significant effect was established for FML and GGBL. Thus, 1 percent increase in the ratio of Total Current Liability to Total Asset results in increasing market-to-book ratio by 3022% and 3590% for Aluworks and Unilever respectively but reduces market-to-book ratio of CMLT by 84% and PZC by 97%. Again, the study also found that CCC has positive and significant impact on market-to-book ratio for Aluworks and Unilever but insignificant effect on market-to-book ratio for GGBL and PZC. However, negative but insignificant effect was found for CMLT and FML. This suggests that a 1 percent increase in CCC raises MBR by 0.67% for Aluworks and 1.6% for Unilever. Furthermore, it could be observed that the TCA/TA and TCL/TA have much effect on MBR than CCC does in terms of absolute magnitude.

Table 22

Panel Grouped FMOLS Results for Market-to-Book Ratio

Panel A	TCA_TA	TCL_TA	CCC	SIZE	C
ALUWKS	2.0625 (.0001)***	3.4412 (.0000)***	0.0067 (.0069)***	-0.0739 (.7025)	-1.5366 (.6515)
CMLT	-2.2216 (.0035)***	-1.8193 (.0003)***	-0.0009 (.3088)	-0.0664 (.3726)	3.4401 (.0119)**
FML	-3.5825 (.0004)***	1.1839 (.2207)	-0.0017 (.5497)	0.6495 (.0020)***	-8.8577 (.0153)**
GGBL	-3.5024 (.0092)***	0.0418 (.9474)	0.0006 (.7803)	0.1348 (.2781)	-0.0244 (.9920)
PZC	-2.2968 (.1510)	-3.4690 (.0547)*	0.0012 (.5649)	0.8094 (.0100)**	-11.148 (.0128)**
UNIL	-3.2755 (.1061)	3.6082 (.0103)**	0.0161 (.0108)**	2.5618 (.0024)***	-46.804 (.0015)***
F & B	-3.5424 (.0000)***	0.6128 (.1644)	-0.0005 (.6666)	0.3921 (.0000)***	-
O. MFG	-1.4328 (.0038)***	0.4403 (.2560)	0.0058 (.0000)***	0.8077 (.0000)***	-

Panel B	TCA_TA	TCL_TA	CCC	SIZE	D1
Model 2	-2.1360 (.0000)***	0.4978 (.0925)*	0.0037 (.0001)***	0.6692 (.0000)***	-
Model 2a	-1.7524 (.0000)***	1.0174 (.0019)***	0.0036 (.0000)***	0.5141 (.0000)***	0.3395 (.0000)***

Note: ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level. Model 2a includes common time dummy D1. F&B= Food & Beverage; O. MFG= Other Manufacturing Firms. P. values are in parentheses

The control variable size also has positive and significant effect on MBR at 1 percent level of significance for FML and Unilever and 5 percent for PZC but has a positive insignificant effect on MBR for GGBL whiles firm size revealed a negative but an insignificant effect on MBR for Aluworks and CMLT. This indicates that the size has a positive elasticity with respect to MBR

for FML, PZC and Unilever. Thus, 10 percent increase in size as measured by log of revenue raises MBR by 6.5%, 8.1% and 25.6% for FML, PZC and Unilever respectively whereas it has neutral effect on MBR for Aluworks, CMLT and GGBL.

The results from the subsampled firms as well as the panel exhibited the same direction of influence. From the panel test results, current asset investment policy proxied by TCA/TA ratio has negative and highly significant effect on MBR in the long-run. The negative coefficient of TCA/TA indicates a positive relationship between the relative degree of aggressiveness of current asset investment policy and shareholder value.

However, CCC and size have positive and statistically significant effect on MBR in the long-run at 1 percent level of significance whiles TCL/TA has some positive effects on shareholder value although not statistically significant at the conventional level. This means that 1% increase in TCA/TA ratio would decrease MBR by 88% while a percent increase in TCL/TA and CCC raises MBR by 64.5% and 0.37% respectively. The elasticity of size with respect to MBR variable suggests that holding other variables constant, 100% increase in size raises MBR by approximately 67% in the long-run.

This result contradicts Korankye (2013) who found a negative but significant relationship between firm size and shareholder value creation for listed Ghanaian banks. The negative relationship found between TCA/TA ratio and MBR indicates that as firms increase investment in current asset, it has the effect of reducing the shareholders' value. This finding is in line with the theory that excessive investment in current asset leads to low profitability and consequently shareholder value (Pandey, 2010; Van Horne & Wachowicz,

2009). Thus, firms would increase shareholder value by adopting aggressive approach in the management of total current asset resources. Similarly, positive relationship between TCL/TA ratio and MBR suggests that as firms become more conservative in current liability management, the more shareholder value is destroyed. Thus, shareholder value can be created if firms adopt aggressive approach towards managing current asset financing. This finding again supports the theory that aggressive current asset financing policy is associated with higher return and shareholder value (Weinraub & Visscher, 1998).

The inclusion of a common time dummy in the estimation does not alter the direction of the results generally. The dummy variable D1 indicating 1 for the year 2007 and 0 otherwise, was found to have a positive and significant effect on MBR. Ghana adopted IFRS in January, 2007 for all publicly traded entities and undertook a currency redenomination in the same year. It seems that these two accounting and economic restructuring have impacted positively on shareholder value.

Table 23 presents the individual and the Pedroni's panel grouped FMOLS estimation results between the dependent variable Tobin's Q (firm value) and cointegrating regressor variables. The results from the individual companies are mixed. The individual company's results show a positive and significant relationship between current assets investment policy and Tobin's Q for Aluworks and positive insignificant relationship for CMLT. The positive coefficient of TCA/TA indicates a negative relationship between the degree of aggressiveness of current assets investment policy and firm's value for Aluworks.

Table 23

Panel Grouped FMOLS Results for Tobin's Q

Panel A	TCA_TA	TCL_TA	CCC	SIZE	C
ALUWKS	1.0744 (.0000)***	0.7294 (.0066)***	0.0017 (.0969)*	0.1816 (.0799)*	-4.0420 (.0347)**
CMLT	0.0387 (.9080)	-0.5916 (.0097)***	-0.0011 (.0642)*	-0.1042 (.0379)**	2.0546 (.0119)**
FML	-2.5175 (.0001)***	0.2931 (.5956)	0.0013 (.4263)	0.4913 (.0004)***	-6.6197 (.0048)***
GGBL	-1.9668 (.0415)**	-1.0269 (.0671)*	-0.0007 (.6288)	0.0666 (.4868)	0.7565 (.6951)
PZC	-1.1899 (.1461)	-1.6722 (.0666)*	0.0002 (.8426)	0.3897 (.0133)**	-5.2475 (.0188)**
UNIL	-1.5847 (.2568)	1.3979 (.1129)	0.0126 (.0071)***	1.6403 (.0049)***	-29.826 (.0033)***
F & B	-2.2422 (.0000)***	-0.3669 (.2078)	0.0003 (.7373)	0.2789 (.0000)***	-
O. MFG	-0.4179 (.1738)	-0.0341 (.8798)	0.0034 (.0000)***	0.5269 (.0000)***	-

Panel B	TCA_TA	TCL_TA	CCC	SIZE	D1
Model 3	-1.0259 (.0000)***	-0.1451 (.4144)	0.0023 (.0001)***	0.4443 (.0000)***	-
Model 3a	-0.8671 (.0001)***	0.1777 (.3846)	0.0025 (.0000)***	0.3649 (.0000)***	0.0948 (.0882)*

Note: ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level. Model 3a includes common time dummy D1. F&B= Food & Beverage; O. MFG= Other Manufacturing Firms. P. values are in parentheses

This means that as Aluworks increases its investment in current asset, the more shareholder wealth it creates for its shareholders. This empirical evidence is against theory that excessive investment in current asset reduces profitability and shareholder value but agrees with Nazir and Afza (2009) who

indicated that firms can create wealth for their shareholders if they adopt conservative approach in managing working capital. On the contrary, the results show a negative and significant relationship between current assets investment policy and Tobin's Q for FML and GGBL at 1 percent and 5 percent levels of significance respectively whereas negative but insignificant relationship was also found for PZC and UNIL.

The negative and significant relationship implies that these firms can create wealth for their shareholders if they adopt aggressive policies in the management of current asset. The study also reported a positive and highly significant relationship between TCL/TA and Tobin's Q for Aluworks but positive and insignificant relationship for FML and Unilever whereas a significant negative relationship was found between TCL/TA and Tobin's Q for CMLT at 1 percent significant level whiles PZC and UNIL were at 10 percent levels.

The individual results also indicated that CCC has positive and significant effect on Tobin's Q for Unilever at 1 percent level of significance whereas no significant relationships were found between CCC and Tobin's Q for the rest of the companies at the conventional level of significance. The control variable size also revealed an interesting result. The firm size was found to have positive and significant influence on firm value with elasticity coefficients of 0.4913 (p. value =.0004), 1.640 (p. value = 0.0049), 0.3897 (p. value = .0133) and 0.1819 (p. value = 0.0799) for FML, UNIL, PZC and Aluworks respectively. The positive coefficient implies that the size of a firm tends to influence its value positively and signifies "bigger is better". However,

the size of GGBL does not statistically influence its value even though it is seen as a big size firm.

Similar to the results obtained from the Table 22, the results from the subsampled firms as well as the panel indicated the same direction of influence. The panel regression results revealed that current assets investment policy proxy as TCA/TA has negative and highly significant effect on Tobin's Q at 1 percent significant level. The negative coefficient predicts a positive relationship between the degree of aggressiveness of current asset investment policy and Tobin's Q. As the degree of aggressiveness of TCA/TA ratio tends to increase, the firm's value rises. This implies that 1 percent decrease in current asset investment causes firm's value to increase by 64 percent in the long-run. Thus, firm's value increases as investment in current asset is reduced to the optimal level. This means as firms adopt conservative approach in managing their current asset by investing more in them, the more shareholder value is destroyed. This result is in line with theory but contradicts Al-Shubiri (2011), and Nazir and Afza (2009) who found a negative relationship between relative degree of aggressiveness of working capital investment policies and firm value measured by Tobin's Q.

Current assets financing policy also indicates a negative relationship between the degree of aggressiveness of financing policy and Tobin's Q. However, the relationship is not significant. Thus, working capital financing policy may not influence the variation in the Tobin's Q. The panel results also indicate that CCC has positive and significant influence on the Tobin's Q at 1 percent significant level. Thus, firms create value by extending the cash conversion cycle in the long-run. It can further be observed that the coefficient

of CCC is very small in influencing firms' value hence having little explanatory power as compared with the TCA/TA ratio. The control variable size also has positive and highly significant effect on Tobin's Q, implying that as the size of firms tends to increase the firms value also increases to the point that can be sustained. The inclusion of the common time dummy again did not change the results materially.

Table 24 presents the results from the grouped FMOLS for economic value added and the regressors with size as a control variable. From the individual results, current asset investment policy is found to have a positive and significant effect on EVA for Aluworks, FML and GGBL at 5 percent level of significance. The positive relationship means that these companies can increase the economic profitability by adopting conservative approach in the management of current assets. This implies that, an increase of 1 standard deviation in TCA/TA ratio on average will result in a 0.6944 standard deviation increase in EVA for Aluworks. The EVA of FML and GGBL will also increase by 0.3132 and 0.0943 standard deviations respectively with 1 standard deviation increase in TCA/TA ratio.

The individual results also revealed that current asset financing policy has positive and significant effect on EVA for FML at 5 percent but negative significant effect on EVA for GGBL and PZC at 1 percent and 5 percent level of significance respectively. This indicates that an increase in the ratio of TCL/TA will cause the EVA of FML to rise but decreases the EVA of GGBL and PZC respectively. The individual results again showed that CCC does not have any statistical significant effect on the shareholder value proxy by EVA.

Table 24

Panel Grouped FMOLS Results for Economic Value Added

Panel A	TCA_TA	TCL_TA	CCC	SIZE	C
ALUWKS	0.6944 (.0137)**	-0.0584 (.7747)	-0.1916 (.3837)	-0.3937 (.0932)*	-0.0019 (.9915)
CMLT	-0.2446 (.4760)	0.3677 (.3032)	-0.0049 (.9789)	0.0467 (.8954)	-0.0296 (.8734)
FML	0.3132 (.0149)**	0.7532 (.0257)**	0.0962 (.3638)	1.6530 (.0005)***	-0.0541 (.5736)
GGBL	0.0943 (.0170)**	-0.2977 (.0000)***	-0.0557 (.0901)*	-0.4883 (.0000)***	0.0000 (.9966)
PZC	0.9883 (.0683)*	-0.8289 (.0146)**	-0.1192 (.8241)	-0.5578 (.4714)	0.0104 (.9420)
UNIL	0.4400 (.4048)	-0.3081 (.3618)	-0.0356 (.9067)	0.2578 (.7387)	-0.0027 (.9864)
F & B	0.1718 (.0063)***	-0.0591 (.2897)	0.0288 (.6157)	0.0763 (.2951)	-
O. MFG	0.5198 (.0038)***	-0.3238 (.0028)***	-0.1317 (.4845)	-0.3619 (.5346)	-

Panel B	TCA_TA	TCL_TA	CCC	SIZE	D1
Model 4	0.3492 (.0008)***	-0.1940 (.0023)***	-0.0582 (.5764)	-0.1027 (.7419)	-
Model 4a	0.2533 (.0071)***	-0.3172 (.0001)***	-0.0483 (.5980)	0.3369 (.2685)	-0.5244 (.0004)***

Note: ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level. Model 4a includes common time dummy D1. F&B= Food & Beverage; O. MFG= Other Manufacturing Firms. P. values are in parentheses

The control variable size was also found to impact the EVA differently among the various firms. Whereas FML's size has positive and significant impact on EVA, GGBL's size has negative and significant effect on EVA at 1 percent significant levels. Again, the results from the subsampled firms as well

as the panel generally showed the same direction of influence. From the panel results, the study indicated that current assets investment policy has positive and highly significant effect on EVA. The positive coefficient of TCA/TA indicates a negative relationship between the degree of aggressiveness of investment policy and economic value added. As the TCA/TA increases, the degree of aggressiveness decreases, and economic value added increases. Therefore, there is a negative relationship between the relative degree of aggressiveness of current asset investment policies of firms and economic value added. This indicates that, 1 standard deviation increase in TCA/TA ratio on average is predicted to result in a 0.3492 standard deviation increase in EVA. This empirical finding implies that firms can create shareholder value if they adopt conservative approach in the management of current asset. This finding is inconsistent with theory that increasing investment in current assets reduces profitability and destroys shareholders' value.

The study also revealed that TCL/TA has negative and strong significant effect on EVA. The negative coefficient for TCL/TA also points out the negative relationship between the aggressiveness of current asset financing policy and economic value added. The higher the TCL/TA ratio, the more aggressive the financing policy, that destroys shareholder value. This suggests that in the long-run, more aggressive current asset financing policy will yield negative return for shareholders. The empirical results support the findings of Bandara and Weerakoon (2014) that firms with aggressive working capital management practices generate lower EVA. The results also show that CCC and firm size have negative and statistically insignificant effect on EVA. The inclusion of common time dummy in the regression equation did not alter the

direction of the results. However, D1 revealed negative and highly significant effect on EVA.

Presentation and Analysis of Panel ARDL/Pooled Mean Group results

The basic models were also estimated by using the recently developed Pooled Mean Group (PMG)/ARDL estimator proposed by Pesaran et al. (1999) for model 5, 6, 7 and, 8. The results are robust to the results obtained from the panel Grouped FMOLS.

Table 25 presents the results from the ARDL (1,1,1,1,1) for model 5 and ARDL (1,1,1,1,1,1) for model 5a for the dependent variable return on equity. Model 5(a) includes firm's financial leverage measured as debt-to-equity ratio as an additional control variable in the equation. The lags order is selected based on Schwarz information criteria (SIC). The results from model (5) and model (5a) reveal that current assets investment policy (TCA/TA) is positively related to profitability in the long-run. The positive coefficient of TCA/TA agrees with the results obtained from the FMOLS as reported in Table 21 and indicates a negative relationship between the degree of aggressiveness of investment policy and return on equity. As the TCA/TA increases, the degree of aggressiveness decreases, and return on equity increases. Therefore, there is a negative relationship between the relative degree of aggressiveness of working capital investment policies of firms and profitability measured as return on equity. This empirical finding implies that firms can create value for shareholders if they adopt conservative approach in the management of current asset. This finding is inconsistent with theory that increasing investment in current assets reduces

profitability and shareholder value but agrees with the findings of Javid & Zita (2014); Mohamad and Saad (2010) and Mwangi et al. (2014).

Table 25

Panel ARDL Results for Return on Equity

	Model 5		Model 5a	
Variable	Coef.	Prob.	Coef.	Prob.
	Long Run Equation			
TCA_TA	0.2289	.2178	1.4935	0000***
TCL_TA	1.2794	.0000***	1.1380	.0000***
CCC	0.0041	.0000***	0.0005	.0000***
SIZE	0.0537	.0512*	-0.0633	.0000***
LEV	-	-	0.4374	.0004***
	Short Run Equation			
COINTEQ01	-0.4944	.0246**	-0.5087	.0166**
D(TCA_TA)	0.3322	.3088	-0.0351	.8888
D(TCL_TA)	-0.6198	.0528*	-0.4526	.2179
D(CCC)	-0.0017	.0181**	0.0025	.2658
D(SIZE)	0.3132	.2902	0.0671	.8679
D(LEV)	-	-	1.3680	.1233
C	-0.7248	.0229**	0.1882	.3040

Note: ***Significant at 1% level **Significant at 5% level *Significant at 10% level

However, the results show that current asset investment policy has positive but insignificant effect on profitability for model 5 as well as negative and insignificant influence on profitability for model 5a in the short-run implying that in the short-run period increase investment in non-current assets enhances profitability. The study also shows that current assets financing policy (TCL/TA) has positive and significant influence on return on equity in the long-run at 1 percent level of significance for both models. The positive coefficient also indicates that as the relative degree of aggressiveness of current asset financing increases, the more return on equity is yielded. Thus, shareholder

value is created when firms become relatively aggressive in the current liability management. This empirical evidence is in line with the results from FMOLS as reported in Table 21 but contradicts the findings of Mwangi et al. (2014); Javid & Zita (2014); Mohamad and Saad (2010) who reported a negative relationship between current asset financing policy and profitability. The short-run equation coefficients of TCL/TA ratio indicated that there is negative influence of current asset financing policy on ROE at 10 percent significant level for model 5 but negative and insignificant influence on ROE for model 5a. The positive significant coefficients for TCA/TA and TCL/TA ratios reveal clearly that firms pursuing relatively moderate working capital management policies increase profitability and create shareholder value in the long-run.

The Cash Conversion Cycle also revealed positive and significant influence on ROE in the long-run whereas it has negative but significant relationship with profitability in the short-run for model 5. Thus, in the long-run, firms can create value by being less aggressive in the management of short-term resources and finances. This finding validates the findings of Akoto et al. (2013) study which indicated that manufacturing firm's CCC has positive significant relationship with return on equity. This means that using cash conversion cycle as a comprehensive measure of working capital management policies, firms can create profit for their shareholders by adopting relatively less restrictive policies in the working capital management. However, it can be observed that the coefficient of CCC is much smaller than the coefficient from the TCA/TA and TCL/TA ratios. This therefore suggests that finance managers should take a holistic approach in the management of current assets and liabilities.

The long-run equation results also revealed that the size of the firm has a negative and significant effect on ROE at 1 percent significant level for model 5a whereas in the short-run, there is a positive insignificant relationship between firm size and ROE for both models. Thus, as firms increase in size in the long-run, the profitability reduces. This may be due to the fact that firms increase to a point that may be beneficial beyond which diseconomies of scale may set in and decrease profit. This assertion is consistent with Stimpert and Laux, (2011) who argue that bigger is better only up to a point beyond that point additional scale is not associated with greater profitability.

Finally, debt-equity ratio was found to have positive and significant effect on profitability in the long-run. This is due to the fact that leverage increases the profitability of firms and reduces the agency cost, higher leverage is much more likely to indirectly allow firms to create value for shareholders through the earnings (Korankye, 2013). The speed of adjustment coefficients indicates negative and strongly significant at 5 percent level of significance for both models indicating the study variables will adjust to long-run trend roughly 2 years after a short drift to equilibrium state. Table 26 presents the results from the ARDL (1,1,1,1,1) for model 6 and ARDL (1,1,1,1,1,1) for model 6(a) for the dependent variable market-to-book ratio. Model 6(a) includes firm's financial leverage measured as debts-to-equity ratio as an additional control variable in the equation. The lags order is selected based on Schwarz information criteria (SIC). The results from model 6 indicate that TCA/TA has negative and statistically significant effect on market-to-book ratio at 1 percent level of significance in the long-run but the effect is not statistically significant in the short-run albeit negative effect. This finding confirms the negative

coefficient obtained from the FMOLS as reported in Table 22. The negative coefficient of TCA/TA indicates a positive relationship between the relative degree of aggressiveness of current asset investment policy and shareholders' value.

Table 26

Panel ARDL Results for Market-to-Book Ratio

	Model (6)		Model 6(a)	
Variable	Coef.	Prob.	Coef.	Prob.
	Long Run Equation			
TCA_TA	-1.5349	.0017***	-0.8443	.0592*
TCL_TA	-0.7515	.1219	-1.3730	.0069***
CCC	-0.0014	.0769*	-0.0019	.0064***
SIZE	0.3767	.0000***	0.3269	.0000***
LEV	-	-	0.9505	.0004***
	Short Run Equation			
COINTEQ01	-0.7172	.0059***	-0.6622	.0286**
D(TCA_TA)	-0.5317	.5106	-0.8207	.3729
D(TCL_TA)	1.6666	.0852*	1.1422	.2049
D(CCC)	0.0020	.5119	0.0042	.2525
D(SIZE)	-0.2154	.7040	-0.1570	.7905
D(LEV)	-	-	2.0874	.2937
C	-3.2222	.0074***	-2.5774	.0328**

Note: ***Significant at 1% level **Significant at 5% level *Significant at 10% level

This implies that increasing the amount of investment in current assets leads to a reduction of shareholder value both in the short and long-run with the long-run having significant effect. Thus, 1 percent increase in the current asset to total asset ratio reduces market-to-book ratio by 78.4% in the long-run. The results from model 6 also indicated that TCL/TA ratio has negative but

insignificant effect on the shareholders' value as measured by market-to-book ratio but has positive significant effect at 10 percent level of significance in the short-run. This means a percent increase in TCL raises market-to-book ratio by approximately 429% in the short-term. This implies that following aggressive financing policy in the management of current liabilities, shareholder value will be created in the short-run at least.

Similarly, the study revealed that CCC has negative and significant effect at one percent level in the long-run when debt-equity ratio is considered as an additional control variable but positive and insignificant effect in the short-run on market-to-book ratio. The coefficient of CCC from Table 29 also indicated very small magnitude, thus having less effect on the market-to-book ratio than TCA/TA and TCL/TA ratios in the long-run. This suggests that companies should take a holistic approach in the management of working capital than concentrating on some components such as inventory, account receivables and account payables alone.

Firm size showed a positive and highly significant effect on shareholder value creation in the long-run, but negative insignificant effect on market-to-book ratio in the short-run. The long-run elasticity coefficient of firm size with respect to market-to-book ratio is 0.376 implying 10 percent increase in size of the firms raises MBR by 3.8% in the long-run. The Cointeq01 is a short-term adjustment coefficient and points to the fact that the variables will adjust to long-run trends. This indicates the speed of adjustment and represents the proportion by which the long-run disequilibrium in the market-to-book ratio (shareholder value) is being corrected each short period. From model (6) the adjustment coefficient has the correct sign and statistically significant at 1

percent. This implies that it takes about 1year 5 months for the disequilibrium in the system to converge to equilibrium.

The result from model 6a was not generally different from the model 6. However, TCL/TA showed a negative and highly significant effect on shareholder value in the long-run and positive insignificant effect in the short-run. This empirical finding is in line with theory that short-term sources of financing are cheaper in the short-term thus having positive effect on shareholder value. However, in the long-run short-term funding tends to be costly than the long-term sources of funds, hence exerting negative effect on the shareholder value.

Gearing has positive impact on market-to-book both in the short and the long-run periods. However, it is only significant in the long-run at 1 percent level of significance. This implies that 1 percent increase in debt-to-equity ratio enhances shareholder value by 159%. The level of long-term debt held by the selected firms positively influences the shareholder value creation of the companies. This is due to the fact that leverage increases the profitability of firms and reduces the agency cost, higher leverage is much more likely to indirectly allow firms to create value for shareholders through the earnings (Korankye, 2013). The speed of adjustment coefficient also indicates negative and significant at 5 percent level of significance suggesting the study variables will adjust to long-run trend roughly 1 ½ years after a short drift to equilibrium state.

Table 27 presents the results from the ARDL (1,1,1,1,1) for model 7 and ARDL (1,1,1,1,1,1) for model 7(a) for the dependent variable Tobin's Q. Model 7(a) includes firms financial leverage measured by debts to equity ratio as an

additional control variable in the equation. The lags order is selected based on Schwarz information criteria (SC).

Table 27

Panel ARDL Results for Tobin's Q

	Model 7		**Model 7a**	
Variable	Coef.	Prob.	Coef.	Prob.
	Long Run Equation			
TCA_TA	-0.6399	.0139**	0.0672	.7883
TCL_TA	-1.3381	.0000***	-1.8904	.0000***
CCC	-0.0007	.0436**	-0.0015	.0012***
SIZE	0.2402	.0000***	0.1512	.0013***
LEV	-	-	-0.0955	.0004***
	Short Run Equation			
COINTEQ01	-0.7572	.0061***	-0.8577	.0009***
D(TCA_TA)	-0.0316	.9587	-0.7348	.1554
D(TCL_TA)	0.7902	.2341	1.1136	.0889*
D(CCC)	0.0014	.4597	0.0043	.0773*
D(SIZE)	-0.3437	.3828	-0.4516	.2215
D(LEV)	-	-	1.5006	.2328
C	-1.9753	.0096***	-0.8505	.0089***

Note: ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

The results from model (7) indicate that current asset investment policy proxy by TCA/TA is negatively related to firm's value both in the long-run and short-run. However, in the long-run its effect is statistically significant at 5 percent level of significance but not significant in the short-run. On the contrary, TCA/TA ratio from model (7a) reveal a positive but insignificant relationship. Again, the findings from model 7 confirm the negative coefficient obtained

from the FMOLS as reported in Table 23 and indicate a positive relationship between the degree of aggressiveness of investment policy and Tobin's Q.

This implies that 1 percent increase in current asset investment causes firm's value to decrease by 47 percent in the long-run. Thus, firm's value increases as investment in current asset is reduced to the optimal level. This again is in line with theory that conservative investment policy reduces corporate profitability and consequently firm's value. As firms adopt conservative approach in managing their current asset by investing more in them, the more shareholder value is destroyed. This result contradicts Nazir and Afza (2009) who found a negative relationship between relative degree of aggressiveness of current asset investment policies and Tobin's Q.

The results also indicate a significantly negative relationship between firm's value and current asset financing policy in the long-run for both models whereas in the short-run it has positive but insignificant effect on firm's value for model (7), the effect is significant at 10 percent level of significance with coefficient of 1.114 (p. value 0.0889) for model (7a). This implies that as the firms become more aggressive in their current asset financing, the more firm's value reduces in the long-run but increases in the short-run. This again support the theory that short-term debts are cheaper in the short-term than in the long-run. The findings in the short-run supports Nazir and Afza (2009) findings.

The cash conversion cycle also revealed statistically significant negative effect on firm's value in the long-run for both models whereas it has positive insignificant effect on firm's value in the short-run for model (7) but significant at 10 percent level of significance when the firms' debt-equity ratio is considered in model (7a). It can be observed that the coefficients from the

results also revealed small magnitude from both models in both long and short-run periods indicating less explanatory power on the firm's value albeit its significance. The control variable firm size is found to be significantly positively impacted on the firm's value in the long-run but has negative insignificant effect in the short-run for both models. Thus, as firms increase in size in the long-run this positively enhances shareholder value due to economy of scale. The study also indicated that a significant negative relationship exists between gearing ratio and Tobin's Q in the long-run and positive insignificant relationship in the short-run. Thus, in the short-run leverage may not affect shareholders' wealth significantly.

The speed of adjustment coefficient also indicates negative and significant at 5 percent level of significance suggesting the study variables will adjust to long-run trend roughly 1 ½ years after a short drift to equilibrium state.

Table 28 presents the results from the ARDL (1,1,1,1,1) for model (8) and ARDL (1,1,1,1,1,1) for model (8a) for the dependent variable Economic Value Added (EVA). Model (8a) includes firms' financial leverage measured by debt-to-equity ratio as an additional control variable in the equation. The lags order is selected based on Schwarz information criteria (SIC). The results from model (8) and model (8a) indicate that TCA/TA has positive and statistically significant effect on EVA at 1 percent level of significance in the long-run. The positive coefficient of TCA/TA agrees with the results obtained from the FMOLS as reported in Table 24 and indicates a negative relationship between the degree of aggressiveness of investment policy and economic value added. As the ratio of TCA/TA increases, the degree of aggressiveness decreases, and economic value added increases. Therefore, there is a negative relationship

between the relative degree of aggressiveness of current investment policies of firms and economic value added.

Thus, 1 standard deviation increase in TCA/TA ratio is predicted to result in a 0.4919 standard deviation increase in economic value added for model (8) and 0.6572 standard deviation increase in EVA for model (8a). This empirical finding implies that firms can create value for shareholders if they adopt conservative approach in the management of current assets.

Table 28

Panel ARDL Results for Economic Value Added

	Model (8)		Model (8a)	
Variable	Coef.	Prob.	Coef.	Prob.
	Long Run Equation			
TCA_TA	0.4919	.0000***	0.6572	.0000***
TCL_TA	-0.2529	.0176**	-0.2143	.0818*
CCC	-0.2099	.0015***	-0.3072	.0000***
SIZE	-0.8775	.0000***	-1.1633	.0000***
LEV	-	-	0.5279	.2952
	Short Run Equation			
COINTEQ01	-0.8900	.0090***	-0.8322	.0028***
D(TCA_TA)	0.0964	.7193	-0.1022	.6662
D(TCL_TA)	0.2022	.1573	0.1416	.4568
D(CCC)	0.0011	.9979	0.4724	.2689
D(SIZE)	3.1348	.0199**	2.5096	.0165**
D(LEV)	-	-	3.6081	.1548
C	-0.3047	.2500	0.1170	.7436

Note:***Significant at 1% level **Significant at 5% level *Significant at 10% level.

This finding is inconsistent with theory that increasing investment in current assets reduces profitability and shareholder value. On the other hand, current asset financing policy was found to be a negative relationship with

economic profitability. The negative coefficient implies positive relationship between conservative financing policy and shareholder value. Thus, shareholder value is created when firms become relatively conservative in the current liability management. This suggests that in the long-run, short-term sources of funding are costly. The positive significant coefficient for TCA/TA and the negative significant coefficient for TCL/TA reveal clearly that relatively aggressive working capital management policy reduces EVA in the long-run. This empirical evidence is in line with result from FMOLS as reported in Table 24 and also supports the findings of Bandara and Weerakoon (2014) that firms with aggressive working capital management practices generate lower EVA. The short-run equation coefficients indicated that there is positive but no statistical significant influence on EVA for both models.

Similar to the results from Table 24, Table 28 revealed that CCC has negative and significant influence on EVA in the long-run whereas it is positively but insignificantly related to EVA in the short-run for both models. Thus, in the long-run, firms can create value by shortening the cash conversion cycle. This suggests that using cash conversion cycle as a comprehensive measure of working capital management policies, firms can create value for their shareholders by being relatively aggressive.

The long-run equation results also revealed that the size of the firm has a negative and significant effect on EVA at 1 percent significant levels for both models whereas in the short-run, there is a positive significant relationship between firm size and EVA at 5 percent level of significance for both models. This implies that in the short-term period one standard deviation increase in firms' size leads to a 3.1348 standard deviation increase in EVA for model (8)

whereas one standard deviation increase in firm size is associated with a 2.5096 standard deviation increase in EVA for model (8a) respectively. On the contrary, as firms increase in size in the long-run, the shareholder value reduces. This may be due to the fact that firms increase in size to a point that may be beneficial beyond which diseconomies of scale may set in and destroy shareholder value. This assertion is consistent with Stimpert and Laux, (2011) who argue that bigger is better only up to a point beyond that point additional scale is not associated with greater profitability.

Finally, debt-to-equity ratio was found to have positive but insignificant effect on EVA both in the long-run and short-run, suggesting that debt-equity ratio does not influence EVA. The speed of adjustment coefficients indicates negative and strongly significant at 1 percent level of significance for both models indicating the study variables will adjust to long-run trend roughly 1 year 3 months and 1 year 1 month for model (8) and (8a) respectively after a short drift to equilibrium state.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The present study investigates the effect of working capital management policies on shareholder value of manufacturing firms listed on Ghana Stock Exchange for a period of 2000-2013. This research tries to identify the policies manufacturing firms are pursuing with regard to the current assets investment and policies being adopted in practice to finance these current assets investment. It also examines whether significant differences exist among the aggressive/conservative current assets investment and financing policies of the firms across the sample companies and confirm whether these aggressive or conservative current asset investment and financing policies are relatively stable over the period of time. Finally, the effect of aggressive or conservative current asset investment and financing policies of firms on shareholder value was investigated by using various shareholder value metrics.

Summary of Research Findings

The following are the key findings. The mean value for firms' current asset investment was less than 50%. Thus, the sample firms were relatively following aggressive investment policy in managing current assets. On the other hand, current asset financing policy of the firms was found to be conservative. The firms rely more on long-term funds to finance their operations with equity financing being the major source of long-term finance. This implies that the selected manufacturing firms in Ghana are relatively following moderate working capital management policies in their current asset investment and

financing. However, Company-wise analysis revealed that PZC and UNILEVER were following conservative and aggressive working capital management policies respectively. This finding was confirmed by the CCC. Whereas average CCC was 72 days, PZC and UNILEVER had 137 days and 14 days respectively.

The study also revealed that significant differences exist among the various firms regarding current assets investment policies. The nature and adoption of the current asset investment policies vary from firm to firm. Some firms are more conservative in managing their current assets while there are some firms being very much aggressive in their approach. Additionally, significant differences were also observed between the subsectors. However, no significant differences were observed with regard to current assets financing policies among the firms at the conventional level of significance. Thus, these firms were homogeneous in the current liability management.

The effect of aggressive/conservative current asset investment and financing policies on shareholder value was examined with the aid of panel FMOLS and PMG/ARDL estimation techniques. Current assets investment policy (TCA/TA) was significantly and positively related to return on equity in the long-run. The positive relationship suggests a negative relationship between the relative degree of aggressiveness of current asset investment policies of firms and return on equity. However, the effect was insignificant in the short-run. Thus, firms can increase shareholder value if they adopt a conservative approach in the management of current assets in the long-run. Similarly, current assets financing policy (TCL/TA) has positive and significant influence on return on equity in the long-run. Thus, shareholder value is created when firms

become relatively aggressive in the current liability management in the long-run.

In the short-run, working capital financing policy has significant negative effect on ROE. Hence, firms can yield more return on equity in the long-run when they follow moderate working capital management policies. However, the CCC has positive and significant influence on ROE in the long-run but has significant and negative relationship with profitability in the short-run. This implies that aggressive working capital management policy increases return on equity in the short-run but in the long-run as firms become less aggressive to moderate and finally becoming conservative the better. The size of the firm indicated a negative and significant effect on ROE in the long-run whereas in the short-run, the effect was not significant albeit the positive relationship. Thus, as firms increase in size in the long-run, the profitability reduces. Also, financial leverage positively influences profitability both in the long-run and the short-run periods.

Concerning market-to-book ratio, current asset investment policy was found to have robustly negative and highly significant effect on shareholder value in the long-run, suggesting a positive relationship between the relative degree of aggressiveness of current asset investment policy and shareholder value. Thus, as firms increase investment in current asset in the long-run, it has the effect of destroying shareholders' value. However, in the short-run, the effect is statistically insignificant albeit the negative relationship. The FMOLS result showed that TCL/TA and CCC have positive and significant effect on shareholder value. On the other hand, panel ARDL/PMG results indicated that whereas TCL/TA ratio and CCC have significant negative effect on the

shareholder value in the long-run, only TCL/TA has positive significant effect on shareholder value in the short-run. The mixed results imply that firms which follow moderate to aggressive working capital policies create shareholder value both in the long-run and short-run. Additionally, in the long-run firm size significantly positively influences shareholder value represented by market-to-book ratio. Also, financial leverage positively influences shareholder value both in the long-run and the short-run periods.

Furthermore, current assets investment and financing policies proxied as TCA/TA and TCL/TA were significantly and negatively related to Tobin's Q in the long-run as revealed by both estimators. This finding indicates that as the degree of aggressiveness of TCA/TA ratio tends to increase in the long-run, the shareholder value rises. However, the more aggressiveness firms become toward financing current assets in the long-run, the more shareholder value is destroyed. Thus, firms adopting moderate working capital management policies create shareholder value in the long-run. However, in the short-run firms adopting aggressive current assets financing policies increase shareholder value. The effect of CCC on shareholders' value was mixed. Whereas the FMOLS results indicated that CCC positively influences firm's value, panel ARDL/PMG strongly indicated a negative influence on firm's value in the long-run. However, in the short-run CCC positively influences firms' value. Although, firms' size has positive effect on firm value in the long-run, the effect is not significant in the short-run. Similarly, financial leverage has negative effect on firms' value in the long-run but positive insignificant effect on firm value in the short-run.

Finally, conservative current asset investment policy robustly enhances EVA in the long-run as the coefficient of TCA was positive and significant from all the estimators. Similarly, conservative current asset financing policy improves shareholder value in the long-run as the coefficient of TCL/TA was negative and significant. Thus, as TCL/TA tends to decrease, the more conservative firms become that enhances shareholder value. However, firms can create shareholder value if they can reduce the CCC cycle in the long-run. In the short-run, the effect of current asset and liabilities on EVA is not significant. Firm size has significant negative effect on the shareholder value in the long-run but in the short-run the effect is positive. Thus when firms increase in size through increase revenue beyond certain point diseconomies of scale set in as incremental cost of sales may outweigh the marginal benefits. Financial leverage has no significant effect on the shareholder value creation.

It is remarkable to note that the coefficients of CCC from all the models were small in magnitude, thus having less explanatory power. Hence firms must take a holistic approach to the management of working capital. The adoption of IFRS and currency redenomination in 2007 seemed to have negatively impacted on the profitability and EVA. This could be attributed to the fact that firms must incur extra cost in complying with the new standards. However, investors' confidence was boosted and this impacted positively on shareholder value as measured by market-to-book ratio and Tobin's Q.

Conclusions

The present study was undertaken to determine the effect working capital management policies have on shareholder value. Empirical literature suggests

that there is positive relationship between the degree of aggressiveness of current assets investment and financing policies with profitability and shareholder value. Thus, the more aggressive management becomes toward working capital management, the higher the profitability leading to increase in shareholder value. Using six manufacturing firms listed on the GSE over a period of 2000-2013, the study sought to ascertain whether significant differences existed among the selected firms with regard to current assets investment and financing policies. Also, the effect of working capital management policies on shareholder value was examined.

The results from the study revealed that the listed manufacturing firms are following moderate working capital management policies. Whereas the firms are aggressive in the current asset management, they are found to be conservative in their current asset financing policies. It was also found that there were significant differences in the relative degree of aggressiveness in the current assets investment. However, no significant differences were found among the firms in their current liabilities management. The cointegration regression results indicated that firms that follow moderate to conservative working capital management policies increase profitability and shareholder value in the long-run.

The effect of CCC on shareholders' value was mixed. Concerning ROE, CCC robustly indicated positive effect on ROE by both estimators in the long-run. Thus, in the long-run conservative working capital management policy yields higher return on equity. On the other hand, whereas the FMOLS results indicated that CCC positively influences market-to-book ratio and Tobin's Q, panel ARDL/PMG strongly indicated a negative influence on market-to-book

ratio, Tobin's Q and EVA in the long-run. However, in the short-run CCC significantly negatively influences ROE but positively influences market-to-book ratio, Tobin's Q and EVA although only Tobin's Q is significant. This implies that aggressive working capital management policy increases return on equity in the short-run.

The control variables size and leverage exhibited mixed effects on the shareholder value. The size of the firm indicated a negative and significant effect on ROE and EVA in the long-run whereas in the short-run, it has positive significant effect on EVA. Thus, as firms increase in size in the long-run, both accounting and economic profitability reduces but market-to-book ratio and Tobin's Q increases. Also, financial leverage positively influences ROE and market-to-book ratio both in the long-run and the short-run periods. However, as debt/equity ratio increases in the long-run it tends to decrease Tobin's Q although, it has positive effect on Tobin's Q in the short-run. Again, no statistical significant effect was found regarding debt/equity ratio on EVA both in the long-run and short-run periods albeit it positive relationships in the short-run as well as in the long-run.

Recommendations

From the findings, the following recommendations would be useful to the management of the listed manufacturing firms.

The study revealed a positive relationship between conservative current asset investment policy and return on equity as well as economic value added. However, conservative investment policy indicated negative effect on market based assessment which is an indication that investors do not reward

conservative investment policies. On the other hand, aggressive financing policy has tendency to destroy shareholders' value in the long run. In respect of this, firms would enhance profitability and create value for their investors by pursuing relatively moderate policies. Thus, firms pursuing aggressive current asset investment policy should balance it with conservative current asset financing policy and vice versa in order to enhance profitability and create shareholder value for their investors.

Additionally, the findings indicated that current assets and liabilities have long term implications on the shareholders' value. In order to create wealth for the existing and potential investors, finance managers of the listed manufacturing firms in Ghana should pay equal attention and manage efficiently and effectively the short-term resources and finances as they are one of the key drivers to create value for shareholders.

The study also revealed that the coefficients of the cash conversion cycle had weak explanatory power than the other explanatory variables. Hence, Finance managers should take a holistic approach in the management of working capital rather than concentrating on some components such as inventory, trade receivables and trade payables. Cash and cash equivalents and other short term financing must be prudently managed to enhance investors wealth.

Areas for Further Study

Since the current study only concentrated on the manufacturing entities, it would be useful to also consider the following topics for future research:

The effect of working capital management policies on shareholder value using non-financial firms listed on the Ghana Stock Exchange.

The effect of working capital management policies on shareholder value using financial firms listed on the Ghana stock exchange.

The effect of working capital management policies on shareholder value using financial and non-financial firms listed on the Ghana Stock Exchange.

Sectorial analysis of the effect of working capital management policies on shareholder value using non-financial firms listed on the Ghana Stock Exchange.

The relationship between aggressiveness/conservativeness of current asset investment/financing policies of firms and their financial and operating risks in Ghana.

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APPENDICES

Appendix A: Manufacturing Firms Listed on GSE as of 31st December, 2013

No	Name of Company	ISIC Classification	GSE Classification	Year listed on the GSE	Negative Equity	Selected
1	Aluworks Ltd	Manufacturing	Manufacturing	1996	No	Yes
2	Aryton Drugs Manuf. Ltd	Manufacturing	Manufacturing	2006	No	No
3	Camelot Group Gh. Ltd	Manufacturing	Manufacturing	1999	No	Yes
4	Cocoa Processing Co. Ltd	Manufacturing	Food & Beverage	2003	No	No
5	Fan Milk Gh. Ltd	Manufacturing	Food & Beverage	1991	No	Yes
6	Golden Web Company Ltd	Manufacturing	Manufacturing	2005	Yes	No
7	Guinness Gh. Breweries Ltd	Manufacturing	Food & Beverages	1991	No	Yes
8	Pioneer Kitchenware Co. Ltd	Manufacturing	Manufacturing	1995	Yes	No
9	Pz Cusson Gh. Ltd	Manufacturing	Manufacturing	1991	No	Yes
10	Sam Woode Ltd	Manufacturing	Manufacturing	2002	No	No
11	Starwin Product Ltd	Manufacturing	Manufacturing	2004	No	No
12	Unilever Gh. Ltd	Manufacturing	Manufacturing	1991	No	Yes

Note. African Champion Industries Ltd. though still listed on GSE is no more a manufacturing concern after disposing of its manufacturing plant on 6th September, 2013.

Appendix B-1: T-Test for the Differences in the Means of Total Current Asset/ Total Asset (TCA/TA)

Group Statistics

SUB-SECTOR		N	Mean	Std. Deviation	Std. Error Mean
TCA/TA	Other Manufacturing Firms	56	.52418722	.169010507	.022584979
	Food & Beverages	28	.41626927	.130395226	.024642381

Independent Samples Test

			TCA/TA	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		3.221	
	Sig.		.076	
t-test for Equality of Means	T		2.963	3.229
	Df		82	67.893
	Sig. (2-tailed)		.004	.002
	Mean Difference		.107917948	.107917948
	Std. Error Difference		.036418454	.033426460
	95% Confidence Interval of the Difference	Lower	.035470041	.041214590
		Upper	.180365855	.174621306

Appendix B-2: ANOVA Test Results for (TCA/TA)

ANOVA

Current Asset Investment Policies

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.914	5	.183	10.686	.000
Within Groups	1.334	78	.017		
Total	2.248	83			

Appendix B-3: Current Asset Investment Policies (TCA/TA) – LSD Multiple Comparisons.

(I) COMPANY	(J) COMPANY	Mean Difference (I-J)	Std. Error	Sig.
ALUWORKS	CMLT	.089238375	.049425947	.075
	PZC	-.169394533*	.049425947	.001
	UNILEVER	.007808504	.049425947	.875
	FML	.005200222	.049425947	.916
	GGBL	.174461848*	.049425947	.001
CMLT	ALUWORKS	-.089238375	.049425947	.075
	PZC	-.258632908*	.049425947	.000
	UNILEVER	-.081429870	.049425947	.103
	FML	-.084038153	.049425947	.093
	GGBL	.085223473	.049425947	.089
PZC	ALUWORKS	.169394533*	.049425947	.001
	CMLT	.258632908*	.049425947	.000
	UNILEVER	.177203037*	.049425947	.001
	FML	.174594755*	.049425947	.001
	GGBL	.343856381*	.049425947	.000
UNILEVER	ALUWORKS	-.007808504	.049425947	.875
	CMLT	.081429870	.049425947	.103
	PZC	-.177203037*	.049425947	.001
	FML	-.002608283	.049425947	.958
	GGBL	.166653343*	.049425947	.001
FML	ALUWORKS	-.005200222	.049425947	.916
	CMLT	.084038153	.049425947	.093
	PZC	-.174594755*	.049425947	.001
	UNILEVER	.002608283	.049425947	.958
	GGBL	.169261626*	.049425947	.001
GGBL	ALUWORKS	-.174461848*	.049425947	.001
	CMLT	-.085223473	.049425947	.089
	PZC	-.343856381*	.049425947	.000
	UNILEVER	-.166653343*	.049425947	.001
	FML	-.169261626*	.049425947	.001

*. The mean difference is significant at the 0.05 level.

Appendix B-4: Current Asset Investment Policies (TCA/TA) – Tukey's HSD Multiple Comparisons.

(I) COMPANY	(J) COMPANY	Mean Difference (I-J)	Std. Error	Sig.
ALUWORKS	CMLT	.089238375	.049425947	.468
	PZC	-.169394533*	.049425947	.012
	UNILEVER	.007808504	.049425947	1.000
	FML	.005200222	.049425947	1.000
	GGBL	.174461848*	.049425947	.009
CMLT	ALUWORKS	-.089238375	.049425947	.468
	PZC	-.258632908*	.049425947	.000
	UNILEVER	-.081429870	.049425947	.570
	FML	-.084038153	.049425947	.536
	GGBL	.085223473	.049425947	.520
PZC	ALUWORKS	.169394533*	.049425947	.012
	CMLT	.258632908*	.049425947	.000
	UNILEVER	.177203037*	.049425947	.007
	FML	.174594755*	.049425947	.009
	GGBL	.343856381*	.049425947	.000
UNILEVER	ALUWORKS	-.007808504	.049425947	1.000
	CMLT	.081429870	.049425947	.570
	PZC	-.177203037*	.049425947	.007
	FML	-.002608283	.049425947	1.000
	GGBL	.166653343*	.049425947	.014
FML	ALUWORKS	-.005200222	.049425947	1.000
	CMLT	.084038153	.049425947	.536
	PZC	-.174594755*	.049425947	.009
	UNILEVER	.002608283	.049425947	1.000
	GGBL	.169261626*	.049425947	.012
GGBL	ALUWORKS	-.174461848*	.049425947	.009
	CMLT	-.085223473	.049425947	.520
	PZC	-.343856381*	.049425947	.000
	UNILEVER	-.166653343*	.049425947	.014
	FML	-.169261626*	.049425947	.012

*. The mean difference is significant at the 0.05 level.

Appendix B-5: ANOVA Test Results for (TCL/TA)

TCL/TA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.182	5	.036	1.938	.097
Within Groups	1.462	78	.019		
Total	1.644	83			

Appendix C-1: Pedroni Cointegration Test Results for ROE

Pedroni Residual Cointegration Test
Series: ROE TCA_TA TCL_TA CCC SIZE
Date: 07/13/15 Time: 13:25
Sample: 2000 2013
Included observations: 84
Cross-sections included: 6
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
Automatic lag length selection based on SIC with a max lag of 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	0.168882	0.4329	0.030842	0.4877
Panel rho-Statistic	1.054786	0.8542	1.156921	0.8763
Panel PP-Statistic	-2.260803	0.0119	-2.630126	0.0043
Panel ADF-Statistic	-1.955041	0.0253	-2.248843	0.0123

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	2.171274	0.9850
Group PP-Statistic	-2.847878	0.0022
Group ADF-Statistic	-2.108630	0.0175

Appendix C-2: Pedroni Cointegration Test Results for MBR

Pedroni Residual Cointegration Test
Series: LnMBR TCA_TA TCL_TA CCC SIZE
Date: 07/13/15 Time: 13:04
Sample: 2000 2013
Included observations: 84
Cross-sections included: 6
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
Automatic lag length selection based on SIC with a max lag of 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.423827	0.6642	-1.611532	0.9465
Panel rho-Statistic	0.957845	0.8309	1.788800	0.9632
Panel PP-Statistic	-6.832306	0.0000	-5.522196	0.0000
Panel ADF-Statistic	-6.651023	0.0000	-6.066650	0.0000

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	2.076588	0.9811
Group PP-Statistic	-8.341565	0.0000
Group ADF-Statistic	-6.643465	0.0000

Appendix C-3: Pedroni Cointegration Test Results for Tobin's Q

Pedroni Residual Cointegration Test
Series: LnTOBINQ TCA_TA TCL_TA CCC SIZE
Date: 07/13/15 Time: 13:08
Sample: 2000 2013
Included observations: 84
Cross-sections included: 6
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
Automatic lag length selection based on SIC with a max lag of 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-1.395492	0.9186	-1.781976	0.9626
Panel rho-Statistic	1.318197	0.9063	1.699035	0.9553
Panel PP-Statistic	-8.134130	0.0000	-6.548956	0.0000

Panel ADF-Statistic	-6.948334	0.0000	-6.056295	0.0000

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	2.169177	0.9850
Group PP-Statistic	-10.20569	0.0000
Group ADF-Statistic	-7.325782	0.0000

Appendix C-4: Pedroni Cointegration Test Results for EVA

Pedroni Residual Cointegration Test
Series: EVA TCA_TA TCL_TA CCC SIZE
Date: 07/13/15 Time: 13:20
Sample: 2000 2013
Included observations: 84
Cross-sections included: 6
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
Automatic lag length selection based on SIC with a max lag of 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.015653	0.5062	-0.690995	0.7552
Panel rho-Statistic	1.012710	0.8444	0.691541	0.7554
Panel PP-Statistic	-2.916144	0.0018	-6.410887	0.0000
Panel ADF-Statistic	-2.633420	0.0042	-3.195807	0.0007

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	1.646862	0.9502
Group PP-Statistic	-7.294513	0.0000
Group ADF-Statistic	-3.701978	0.0001

Appendix D-1: Grouped FMOLS Results for ROE without dummy

Dependent Variable: ROE
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 07/14/15 Time: 17:51
Sample (adjusted): 2001 2013
Periods included: 13
Cross-sections included: 6
Total panel (balanced) observations: 78
Panel method: Grouped estimation
Cointegrating equation deterministics: C
Long-run covariance estimates (Bartlett kernel, Newey-West automatic bandwidth, NW automatic lag length)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TCA_TA	0.279695	0.208456	1.341749	0.1841
TCL_TA	0.138864	0.156548	0.887041	0.3782
CCC	0.000165	0.000508	0.324764	0.7464
SIZE	-0.020856	0.053372	-0.390771	0.6972

Appendix D-2: Grouped FMOLS Results for ROE with dummy

Dependent Variable: ROE
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 07/14/15 Time: 17:54
Sample (adjusted): 2001 2013
Periods included: 13
Cross-sections included: 6
Total panel (balanced) observations: 78
Panel method: Grouped estimation
Cointegrating equation deterministics: C
Long-run covariance estimates (Bartlett kernel, Newey-West automatic bandwidth, NW automatic lag length)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TCA_TA	0.149738	0.188675	0.793626	0.4302
TCL_TA	-0.047707	0.176906	-0.269673	0.7882
CCC	0.000202	0.000460	0.439718	0.6616
SIZE	0.039670	0.050989	0.778005	0.4393
D1	-0.098629	0.048810	-2.020675	0.0473

Appendix D-3: Grouped FMOLS Results for MBR without dummy

Dependent Variable: LnMBR
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 07/14/15 Time: 16:46
Sample (adjusted): 2001 2013
Periods included: 13
Cross-sections included: 6
Total panel (balanced) observations: 78
Panel method: Grouped estimation
Cointegrating equation deterministics: C
Long-run covariance estimates (Bartlett kernel, Newey-West automatic bandwidth, NW automatic lag length)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TCA_TA	-2.136044	0.349244	-6.116191	0.0000
TCL_TA	0.497807	0.291702	1.706560	0.0925
CCC	0.003652	0.000858	4.254807	0.0001
SIZE	0.669190	0.090343	7.407248	0.0000

Appendix D-4: Grouped FMOLS Results for MBR with dummy

Dependent Variable: LnMBR
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 07/14/15 Time: 17:02
Sample (adjusted): 2001 2013
Periods included: 13
Cross-sections included: 6
Total panel (balanced) observations: 78
Panel method: Grouped estimation
Cointegrating equation deterministics: C
Long-run covariance estimates (Bartlett kernel, Newey-West automatic bandwidth, NW automatic lag length)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TCA_TA	-1.752387	0.313802	-5.584365	0.0000
TCL_TA	1.017438	0.313996	3.240289	0.0019
CCC	0.003561	0.000779	4.571907	0.0000
SIZE	0.514068	0.082528	6.228972	0.0000
D1	0.339456	0.076863	4.416361	0.0000

Appendix D-5: Grouped FMOLS Results for Tobin's Q without dummy

Dependent Variable: LnTOBINQ
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 07/14/15 Time: 16:50
Sample (adjusted): 2001 2013
Periods included: 13
Cross-sections included: 6
Total panel (balanced) observations: 78
Panel method: Grouped estimation
Cointegrating equation deterministics: C
Long-run covariance estimates (Bartlett kernel, Newey-West automatic bandwidth, NW automatic lag length)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TCA_TA	-1.025982	0.232666	-4.409668	0.0000
TCL_TA	-0.145067	0.176636	-0.821278	0.4144
CCC	0.002350	0.000579	4.057843	0.0001
SIZE	0.444262	0.061722	7.197836	0.0000

Appendix D-6: Grouped FMOLS Results for Tobin's Q with dummy

Dependent Variable: LnTOBINQ
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 07/14/15 Time: 17:04
Sample (adjusted): 2001 2013
Periods included: 13
Cross-sections included: 6
Total panel (balanced) observations: 78
Panel method: Grouped estimation
Cointegrating equation deterministics: C
Long-run covariance estimates (Bartlett kernel, Newey-West automatic bandwidth, NW automatic lag length)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TCA_TA	-0.867121	0.214079	-4.050478	0.0001
TCL_TA	0.177752	0.203115	0.875130	0.3846
CCC	0.002501	0.000528	4.735511	0.0000
SIZE	0.364921	0.059203	6.163898	0.0000
D1	0.094851	0.054815	1.730376	0.0882

Appendix D-7: Grouped FMOLS Results for EVA without dummy

Dependent Variable: EVA
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 07/14/15 Time: 12:37
Sample (adjusted): 2001 2013
Periods included: 13
Cross-sections included: 6
Total panel (balanced) observations: 78
Panel method: Grouped estimation
Cointegrating equation deterministics: C
Long-run covariance estimates (Bartlett kernel, Newey-West automatic bandwidth, NW automatic lag length)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TCA_TA	0.349225	0.099469	3.510880	0.0008
TCL_TA	-0.194023	0.061215	-3.169512	0.0023
CCC	-0.058275	0.103817	-0.561327	0.5764
SIZE	-0.102796	0.310831	-0.330712	0.7419

Appendix D-8: Grouped FMOLS Results for EVA with dummy

Dependent Variable: EVA
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 07/14/15 Time: 12:40
Sample (adjusted): 2001 2013
Periods included: 13
Cross-sections included: 6
Total panel (balanced) observations: 78
Panel method: Grouped estimation
Cointegrating equation deterministics: C
Long-run covariance estimates (Bartlett kernel, Newey-West automatic bandwidth, NW automatic lag length)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TCA_TA	0.253376	0.091247	2.776812	0.0071
TCL_TA	-0.317284	0.073532	-4.314886	0.0001
CCC	-0.048343	0.091244	-0.529818	0.5980
SIZE	0.336980	0.302026	1.115733	0.2685
D1	-0.524464	0.140180	-3.741356	0.0004

Appendix E-1: ARDL/PMG Results for ROE without Leverage

Dependent Variable: D(ROE)
Method: ARDL
Date: 07/14/15 Time: 17:57
Sample: 2001 2013
Included observations: 78
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (1 lag, automatic): TCA_TA TCL_TA CCC SIZE
Fixed regressors: C
Number of models evaluated: 1
Selected Model: ARDL(1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
TCA_TA	0.228978	0.183139	1.250298	0.2178
TCL_TA	1.279437	0.167628	7.632584	0.0000
CCC	0.004137	0.000737	5.611234	0.0000
SIZE	0.053699	0.026793	2.004237	0.0512
	Short Run Equation			
COINTEQ01	-0.494359	0.212359	-2.327936	0.0246
D(TCA_TA)	0.332228	0.322631	1.029746	0.3088
D(TCL_TA)	-0.619807	0.311442	-1.990118	0.0528
D(CCC)	-0.001758	0.000716	-2.455493	0.0181
D(SIZE)	0.313289	0.292660	1.070490	0.2902
C	-0.724824	0.307337	-2.358399	0.0229

Mean dependent var	0.008736	S.D. dependent var	0.203881
S.E. of regression	0.135242	Akaike info criterion	-1.059618
Sum squared resid	0.804778	Schwarz criterion	0.097914
Log likelihood	84.50396	Hannan-Quinn criter.	-0.594300

*Note: p-values and any subsequent tests do not account for model selection.

Appendix E-2: ARDL/PMG for ROE with Leverage

Dependent Variable: D(ROE)
Method: ARDL
Date: 07/14/15 Time: 18:01
Sample: 2001 2013
Included observations: 78
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (1 lag, automatic): TCA_TA TCL_TA CCC SIZE LEV
Fixed regressors: C
Number of models evaluated: 1
Selected Model: ARDL(1, 1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
TCA_TA	1.493461	0.030462	49.02635	0.0000
TCL_TA	1.138064	0.012600	90.31937	0.0000
CCC	0.000582	4.74E-05	12.27744	0.0000
SIZE	-0.063312	0.001864	-33.96595	0.0000
LEV	0.437486	0.006381	68.56248	0.0000
	Short Run Equation			
COINTEQ01	-0.508717	0.202627	-2.510606	0.0166
D(TCA_TA)	-0.035152	0.249576	-0.140848	0.8888
D(TCL_TA)	-0.452629	0.361081	-1.253538	0.2179
D(CCC)	0.002585	0.002288	1.129908	0.2658
D(SIZE)	0.067089	0.400695	0.167432	0.8679
D(LEV)	1.368039	0.867458	1.577066	0.1233
C	0.188238	0.180571	1.042460	0.3040

Mean dependent var	0.008736	S.D. dependent var	0.203881
S.E. of regression	0.115146	Akaike info criterion	-2.070971
Sum squared resid	0.490566	Schwarz criterion	-0.710871
Log likelihood	133.9808	Hannan-Quinn criter.	-1.524223

*Note: p-values and any subsequent tests do not account for model selection.

Appendix E-3: ARDL/PMG Results for MBR without Leverage

Dependent Variable: D(LnMBR)
Method: ARDL
Date: 07/14/15 Time: 16:35
Sample: 2001 2013
Included observations: 78
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (1 lag, automatic): TCA_TA TCL_TA CCC SIZE
Fixed regressors: C
Number of models evaluated: 1
Selected Model: ARDL(1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
TCA_TA	-1.534915	0.458399	-3.348428	0.0017
TCL_TA	-0.751503	0.476432	-1.577356	0.1219
CCC	-0.001351	0.000746	-1.811512	0.0769
SIZE	0.376712	0.056981	6.611232	0.0000
	Short Run Equation			
COINTEQ01	-0.717230	0.247831	-2.894035	0.0059
D(TCA_TA)	-0.531784	0.801668	-0.663347	0.5106
D(TCL_TA)	1.666640	0.946436	1.760965	0.0852
D(CCC)	0.002024	0.003060	0.661307	0.5119
D(SIZE)	-0.215412	0.563255	-0.382441	0.7040
C	-3.222231	1.148278	-2.806141	0.0074

Mean dependent var	0.083467	S.D. dependent var	0.589137
S.E. of regression	0.508766	Akaike info criterion	1.358206
Sum squared resid	11.38911	Schwarz criterion	2.515738
Log likelihood	-17.04467	Hannan-Quinn criter.	1.823524

*Note: p-values and any subsequent tests do not account for model selection.

Appendix E-4: ARDL/PMG Results for MBR with Leverage

Dependent Variable: D(LnMBR)
Method: ARDL
Date: 07/14/15 Time: 16:28
Sample: 2001 2013
Included observations: 78
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (1 lag, automatic): TCA_TA TCL_TA CCC SIZE LEV

Fixed regressors: C
Number of models evaluated: 1
Selected Model: ARDL(1, 1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
TCA_TA	-0.844378	0.433719	-1.946831	0.0592
TCL_TA	-1.373038	0.479732	-2.862093	0.0069
CCC	-0.001995	0.000690	-2.892302	0.0064
SIZE	0.326990	0.053067	6.161821	0.0000
LEV	0.950533	0.242369	3.921840	0.0004
	Short Run Equation			
COINTEQ01	-0.662242	0.290681	-2.278240	0.0286
D(TCA_TA)	-0.820774	0.909989	-0.901960	0.3729
D(TCL_TA)	1.142202	0.885029	1.290581	0.2049
D(CCC)	0.004241	0.003648	1.162434	0.2525
D(SIZE)	-0.157046	0.586974	-0.267551	0.7905
D(LEV)	2.087471	1.959593	1.065257	0.2937
C	-2.577450	1.162410	-2.217333	0.0328

Mean dependent var	0.083467	S.D. dependent var	0.589137
S.E. of regression	0.486356	Akaike info criterion	1.258642
Sum squared resid	8.752074	Schwarz criterion	2.618742
Log likelihood	-5.862956	Hannan-Quinn criter.	1.805391

*Note: p-values and any subsequent tests do not account for model selection.

Appendix E-5: ARDL/PMG Results for Tobin's Q without Leverage

Dependent Variable: D(LnTOBINQ)
Method: ARDL
Date: 07/14/15 Time: 16:41
Sample: 2001 2013
Included observations: 78
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (1 lag, automatic): TCA_TA TCL_TA CCC SIZE
Fixed regressors: C
Number of models evaluated: 1
Selected Model: ARDL(1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
TCA_TA	-0.639987	0.249655	-2.563489	0.0139
TCL_TA	-1.338138	0.266017	-5.030272	0.0000
CCC	-0.000757	0.000364	-2.078067	0.0436
SIZE	0.240268	0.033241	7.227986	0.0000
	Short Run Equation			
COINTEQ01	-0.757240	0.262544	-2.884235	0.0061
D(TCA_TA)	-0.031689	0.607997	-0.052120	0.9587
D(TCL_TA)	0.790259	0.655057	1.206398	0.2341
D(CCC)	0.001445	0.001937	0.745923	0.4597
D(SIZE)	-0.343711	0.389891	-0.881555	0.3828
C	-1.975362	0.729462	-2.707971	0.0096

Mean dependent var	0.067549	S.D. dependent var	0.358682
S.E. of regression	0.292813	Akaike info criterion	0.354822
Sum squared resid	3.772547	Schwarz criterion	1.512353
Log likelihood	25.09749	Hannan-Quinn criter.	0.820140

*Note: p-values and any subsequent tests do not account for model selection.

Appendix E-6: ARDL/PMG Results for Tobin's Q with Leverage

Dependent Variable: D(LnTOBINQ)
Method: ARDL
Date: 07/14/15 Time: 16:30
Sample: 2001 2013
Included observations: 78
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (1 lag, automatic): TCA_TA TCL_TA CCC SIZE LEV

Fixed regressors: C
Number of models evaluated: 1
Selected Model: ARDL(1, 1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
TCA_TA	0.067198	0.248415	0.270505	0.7883
TCL_TA	-1.890373	0.324291	-5.829257	0.0000
CCC	-0.001539	0.000440	-3.500050	0.0012
SIZE	0.151241	0.043610	3.468068	0.0013
LEV	-0.095562	0.024345	-3.925344	0.0004
	Short Run Equation			
COINTEQ01	-0.857753	0.236672	-3.624224	0.0009
D(TCA_TA)	-0.734806	0.506658	-1.450298	0.1554
D(TCL_TA)	1.113621	0.637433	1.747039	0.0889
D(CCC)	0.004291	0.002361	1.817424	0.0773
D(SIZE)	-0.451638	0.363189	-1.243537	0.2215
D(LEV)	1.500683	1.237075	1.213090	0.2328
C	-0.850568	0.307961	-2.761937	0.0089

Mean dependent var	0.067549	S.D. dependent var	0.358682
S.E. of regression	0.296532	Akaike info criterion	0.403018
Sum squared resid	3.253455	Schwarz criterion	1.763118
Log likelihood	30.07323	Hannan-Quinn criter.	0.949767

*Note: p-values and any subsequent tests do not account for model selection.

Appendix E-7: ARDL/PMG Results for EVA without Leverage

Dependent Variable: D(EVA)
Method: ARDL
Date: 07/14/15 Time: 12:19
Sample: 2001 2013
Included observations: 78
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (1 lag, automatic): TCA_TA TCL_TA CCC SIZE
Fixed regressors: C
Number of models evalulated: 1
Selected Model: ARDL(1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
TCA_TA	0.491888	0.066851	7.357992	0.0000
TCL_TA	-0.252953	0.102508	-2.467640	0.0176
CCC	-0.209898	0.061939	-3.388791	0.0015
SIZE	-0.877516	0.178746	-4.909290	0.0000
Short Run Equation				
COINTEQ01	-0.890098	0.325917	-2.731061	0.0090
D(TCA_TA)	0.096483	0.266747	0.361701	0.7193
D(TCL_TA)	0.202279	0.140578	1.438910	0.1573
D(CCC)	0.001180	0.453181	0.002604	0.9979
D(SIZE)	3.134864	1.297691	2.415726	0.0199
C	-0.304784	0.261455	-1.165725	0.2500

Mean dependent var	-0.040263	S.D. dependent var	1.128120
S.E. of regression	0.668772	Akaike info criterion	0.741762
Sum squared resid	19.67924	Schwarz criterion	1.899293
Log likelihood	8.846010	Hannan-Quinn criter.	1.207080

*Note: p-values and any subsequent tests do not account for model selection.

Appendix E-8: ARDL/PMG Results for EVA with Leverage

Dependent Variable: D(EVA)
Method: ARDL
Date: 07/14/15 Time: 12:31
Sample: 2001 2013
Included observations: 78
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (1 lag, automatic): TCA_TA TCL_TA CCC SIZE LEV
Fixed regressors: C
Number of models evaluated: 1
Selected Model: ARDL(1, 1, 1, 1, 1, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
TCA_TA	0.657214	0.111993	5.868348	0.0000
TCL_TA	-0.214390	0.119850	-1.788810	0.0818
CCC	-0.307287	0.065966	-4.658265	0.0000
SIZE	-1.163375	0.185061	-6.286450	0.0000
LEV	0.527958	0.497271	1.061711	0.2952
Short Run Equation				
COINTEQ01	-0.832347	0.260238	-3.198405	0.0028
D(TCA_TA)	-0.102228	0.235109	-0.434811	0.6662
D(TCL_TA)	0.141610	0.188314	0.751987	0.4568
D(CCC)	0.472451	0.420926	1.122408	0.2689
D(SIZE)	2.509698	0.999040	2.512110	0.0165
D(LEV)	3.608145	2.484252	1.452407	0.1548
C	0.117069	0.355225	0.329563	0.7436

Mean dependent var	-0.040263	S.D. dependent var	1.128120
S.E. of regression	0.570113	Akaike info criterion	0.549227
Sum squared resid	12.02608	Schwarz criterion	1.909327
Log likelihood	23.93245	Hannan-Quinn criter.	1.095976

*Note: p-values and any subsequent tests do not account for model selection.