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

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ABSTRACT

This study has sought to determine the effects of working capital management policies on shareholder value creation for six manufacturing firms listed at the Ghana Stock Exchange for the period of 2000–2013. Data were gathered from the annual reports of the firms and the publication of Ghana Stock Exchange. The study employed a longitudinal explanatory non-experimental research design applied to a dynamic panel Autoregressive Distributed Lags methodology framework for analysing the data. The results indicated that conservative current asset investment policies increase economic value added (EVA), whereas aggressive current asset investment policies enhance market-to-book ratio and Tobin's Q in the long-run. On the other hand, conservative current asset financing policies enhance market-to-book ratio, Tobin's Q, and EVA in the long-run. Thus, investors discount aggressive current assets' financing policies. A firm pursuing an aggressive current asset investment policy should balance it with a conservative current asset financing policy to create value for its shareholders.

Key Words: current asset investment policy, current asset financing policy, panel unit root, panel ARDL, shareholder value

JEL Classification: G30; G31; G32

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1. INTRODUCTION

Shareholder wealth maximisation 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, and 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 both profitability and shareholder value (Hyun-Han Shin and Luc Soenen, 1998; Mian S. Nazir and Talat Afza, 2009; Abbasali Pouraghajan and Milad Emamgholipourarchi, 2012).

Although working capital management decisions concern short-term assets and liabilities, they have both short-term and long-term implications for profitability and shareholder value that warrant careful attention. Denzil Watson and Anthony 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.

Several authors have identified theoretical drivers that are likely to affect shareholder value creation. These are sales growth rates, operating profit margin, income tax rate, working capital investment, fixed capital investments, costs of capital, and period of competitive advantage (Alfred Rappaport, 1986; Black et al., 1998). In the finance literature, studies empirically testing the other drivers of shareholder value creation – with the exception of working capital management practices – abound (see, for example, Samy B. Naccur and Mohamed Goaied, 1999; Indra M. Pandey, 2005; Ben M. Atiyet, 2012). Even though many 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 (Marc Deloof, 2003; Robert Kieschnick, Mark Laplante, and Rabih Moussawi, 2013), not much empirical work has been undertaken in this regard. As submitted by Sonia Baños-Caballero, Pedro J. García-Teruel, and Pedro Martínez-Solano (2014), it is generally accepted that working capital management affects a firm's value; empirical evidence on the valuation effects of investment in working capital is scarce.

Applying a panel Autoregressive Distributed Lags (ARDL) framework to the data of listed Manufacturing firms in Ghana, we analyse the effect of working capital policies on shareholder value. We contribute to the literature through the application of the ARDL, which addresses the weakness of static Ordinary Least Squares (OLS) regressions and manufacturing firms' data from Ghana to fill the void in developing countries' literature.

The rest of the paper reviews the theoretical and empirical literature and also discusses the research methodology and results of the study. The paper ends with the conclusion section.

2 LITERATURE REVIEW

2.1 Concept of Working Capital

Rajiv Srivastava and Anil Misra (2008) argue that the concept of working capital may be 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 (Indra M. Pandey, 2010). Working capital can be viewed from either the accountant's point of view or the finance manager's perspective. Based on these two points of view, 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 (James C. Van Horne and John M. Wachowicz, 2009). The gross working capital is referred to as the finance manager's concept of working capital (Srivastava and Misra, 2008). Net working capital, also referred to as the accountant's concept of working capital (Srivastava and Misra, 2008), is, on the other hand, the difference between the current assets and the current liabilities, and it denotes the portion of current assets that is financed by long-term sources of financing. The gross working capital concept focuses attention on optimisation of investment in current assets and the effective and economical financing of current assets (Pandey, 2010). This study focuses on the finance manager's concept of working capital management by looking not only at the policies adopted by firms in making investments in current assets but also at the policies used in financing these current assets.

2.2 Theoretical Foundation of the Study

Working capital management is a concept that is gaining considerable 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 (Nathalie V. N. Palombini and Wilson T. Nakamura, 2012). Nevertheless, several finance and economics' theories that apply to long-term investments and financing decisions can also be used to explain the relationship between working capital

management policies and shareholder value creation. This study considers three such theories: Fisher Separation Theory, Profitability Liquidity Trade-off Theory, and Pecking Order Theory.

2.2.1 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. However, these decisions themselves are inseparable. According to Eddie McLaney (2009), this proposition was first identified by Irving Fisher in the 1930s and was formally set out by Jack 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.

2.2.2 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 (Shaista Wasiuzzaman and Veeri C. Arumugam, 2013). Additional investment in inventory, granting of trade credits to customers, and holding cash is expected to have a positive effect, especially for firms with a low level of current assets (Nihat Aktas, Ettore Croci, and Dimitris Petmezas, 2015). Thus, larger inventories can reduce supply costs and price fluctuations, preventing both interruption in the production process and loss of business as a result of unavailability of products and high production costs. This allows firms to provide their customers with better service, thereby minimising the loss of sales due to potential stock-outs and achieving economies of scale by running large batch sizes (Michael Schiff and Zvi Lieber, 1974; Alan S. Blinder and Louis J. Maccini, 1991; Steven M. Fazzari and Bruce C. Petersen, 1993; Daniel Corsten and Thomas W. Gruen, 2004). Granting trade credit to customers, among others, also increases a firm's sales, as the credit can be used as price discrimination, enticing customers to acquire merchandise in periods of low demand, allowing customers to verify product quality, and fostering long-term buyer–seller relationships (Michael J. Brennan, Vojislav Maksimovic, and Josef Zechner, 1988; Michael S. Long, Ileen B. Malitz, and Abraham S. Ravid, 1993; Benjamin S. Wilner, 2000). Similarly, cash holdings reduce the likelihood of financial distress, as they act as a buffer that allows firms not only to avoid the costs of either raising external funds or liquidating existing assets but also to finance their growth opportunities, enabling pursuance of the optimal investment policy even when financial constraints are met (Maguel A. Ferreira and Antonio S. Vilela, 2004; Lawrencia O. Ogundipe, Sunday E. Ogundipe, and Samuel K. Ajao, 2012). Additionally, compensating cash balances can reduce financing costs, and adequate cash stocks allow firms to take advantage of discounts for prompt payment, which often can result in a high rate of return (Fazzari and Petersen, 1993).

However, there are also possible adverse effects of investment in current assets that may have a negative impact on shareholders' value (Baños-Caballero, García-Teruel, and Martínez-Solano, 2014; Aktas, Croci, and Petmezas 2015). This is because increasing the investment in current assets involves financing and opportunity costs, and firms that hold high working capital potentially face high interest expenses and bankruptcy risk, while cash tied up in working capital might also prevent firms from undertaking value-enhancing investment projects in the short-run (Deloof, 2003; Ron Ek and Stephen Guerin, 2011; Baños-Caballero, García-Teruel, and Martínez-Solano, 2014; Aktas, Croci, and Petmezas, 2015; Kieschnick, Laplante, and Moussawi, 2013). According to Ogundipe, Ogundipe, and Ajao (2012), if managers decide to make decisions that are in line with shareholders' interest, then the only cost for holding cash is the lower returns that are earned by shareholders relative to other investments that carry the same risk.

Yusuf Aminu and Nasruddin Zainudin (2015) stressed that one of the cardinal decisions regarding working capital management is the trade-off between liquidity and profitability. As firms adopt a conservative approach to the management of their working capital by way of increasing 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, whereas conservative working capital management policies are associated with lower return and risk (Michael D. Carpenter and Keith H. Johnson, 1983; Mona J. Gardner, Dixie L. Mills, and Ralph A. Pope, 1986; Herbert Weinraub and Sue Visscher, 1998).

2.2.3 Pecking Order Theory

The pecking order theory (Stewart C. Myers and Nicholas S. Majluf, 1984) has been applied to explain financial managers' financing preferences. According to Louie Dacosta and Charles Adusei (2016), 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. This hierarchical ranking is due to the fact that the relationship between the financier and the financial manager is characterised by information asymmetry that exists between insiders and outsiders (Kesseven Padachi, Carole Howorth, and M. S. Narasimhan, 2012; Tharmalingam Pratheepan and Y. K.Weerakoon Banda, 2016). Ferreira and Vilela (2004) suggest that the purpose of this order of financing is to minimise asymmetric information costs and other financing costs. According to Palombini and Nakamura (2012) companies choose conservative working capital financing policy to have easy access to the debt market and to lead potential investors to see them as a safe investment. On the other hand, Palombini and Nakamura contend that managers of both less-profitable 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, and resorting to internal sources for the necessary funds to finance their companies and 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 options 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 costs of short-term financing are lower than are the medium and long-term sources of financing, an aggressive financing strategy will ensure both profitability and shareholder value.

2.3 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.

2.3.1 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 and Head, 2007). However, unlike long-term investment, which generates cash inflows over a long period of time, current assets have a cash-to-cash conversion cycle of less than one year (Carole Cheatham, 1989 – as cited in Angelique N. S. McInnes, 2000). Therefore, the finance manager must determine the optimum level of current assets so that the wealth of shareholders is maximised. 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 and Misra, 2008).

A firm needs both non-current and current assets to support a particular level of either output or sales. However, to support the same level of either output or sales, the firm can have a different level (policies) of current assets (Van Horne and Wachowicz, 2009; Pandey, 2010). A firm should have working capital policies on the management of inventory, trade receivables, cash, and short-term investments to minimise the possibility of managers making decisions that are not in the best interests of the firm (Watson and Head, 2007). The level of current assets (policies) can be measured by relating the total current assets (TCA) to the total assets (TA) (Weinraub and Visscher, 1998; Nazir and Afza, 2009; Lawrence J. Gitman and Chad J. Zutter, 2012). Assuming a constant level of total assets and dividing total current assets by total assets, 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 (Eugene F. Brigham and Michael C. Ehrhardt, 2011; Eugene F. Brigham and Joel F. Houston, 2012). Thus, this policy implies greater liquidity and lower return.

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

2.3.2 Policies for Financing Current Assets

The policies for financing current assets can be categorised 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 and 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, a current asset to be sold over a short period may be financed with a short-term source, like commercial paper or bank borrowing (Brigham and Ehrhardt, 2011; Brigham and Houston, 2012). When a firm adopts the maturity matching approach, also known as the hedging approach, long-term finance will be used to finance both non-current assets and permanent current assets, while either fluctuating or temporary current asset needs would be financed with short-term debts.

The reason for the exact matching is as follows: As 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). Utilising short-term funding for long-term assets will not only be expensive but also may cause inconvenience, as short-term sources must be sought regularly. 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 and Wachowicz, 2009).

Conservative Financing Policy

The financing policy of the firm is said to be conservative when it relies mainly on long-term sources for its current assets' requirement. Under a conservative approach, the firm finances its non-current and permanent current assets, in addition to 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 it also meets part of its seasonal needs by investment in marketable securities (Brigham and Ehrhardt, 2011; Brigham and Houston, 2012; Pandey, 2010). This current asset financing policy indicates fewer current liabilities in proportion to the total assets of the firm. The conservative policy depends largely on long-term finance and is relatively safe (Nazir and Afza, 2009; Meysam Kaviani1, Reza Shahmanosuri, Maryam Batebi, and Seyed Reza Seyednezhad Fahim, 2014).

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 assets, permanent current assets, and some non-current assets with short-term debt (Brigham and Ehrhardt, 2011; Nazir and Afza, 2009; Meysam Kaviani1, Reza Shahmanosuri, Maryam Batebi, and Seyed Reza Seyednezhad Fahim, 2014). 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 and Wachowicz, 2009). To some extent, exceptionally aggressive firms may still finance part of their non-current assets with short-term funds (Brigham and Ehrhardt, 2011; Brigham and Houston, 2012). Greater utilization of short-term funds puts the firm into the severe risk zone.

Finally, using the Cash Conversion Cycle (CCC) as an integrated approach to the management of working capital (Manuel L. Jose, Carol Lancaster, and Jerry S. Stevens, 1996; Deloof, 2003), in a firm adopting a conservative policy, the CCC may be allowed to increase by means of increasing the investment in inventories and 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.

2.4 Empirical Literature

There is little empirical work on working capital management and shareholder value creation, and the few available studies have focused on analysing the impact of corporate financial decisions on shareholder value creation, mainly from the long-term perspective (Naccur and Goaied, 1999; Pandey, 2005; Atiyet, 2012).

Jose, Lancaster, and Stevens (1996) examined the relationship between profitability measures and the management of ongoing liquidity needs for a large cross-section of US firms over a 20-year period. Utilising both nonparametric and multiple regression analysis, the authors tested the long-run equilibrium relationships between the CCC and measures of profitability. Their results showed a significant negative association between the CCC and profitability, suggesting that more aggressive working capital

management is associated with higher profitability. Thus, shareholders' wealth can be enhanced if firms adopt an aggressive approach toward working capital management

This assertion was corroborated by Shin and Soenen (1998) who used correlation and regression analysis to examine the relationship between the length of the net trading cycle (NTC), corporate profitability, and risk adjusted stock returns. The results indicated that shorter NTCs were associated with higher risk adjusted stock returns. This means that shareholder value can be destroyed if firms lengthen their working capital cycle by being more conservative. Conversely, Nasir and Afza (2009) found that managers can create value if they adopt a conservative approach regarding current assets' investment and financing policies. Thus, investors might trade with discount companies that adopt aggressive approaches.

Faris N. Al-Shubiri (2011) investigated the relationship between aggressive/conservative working capital policies and profitability, in addition to risk, for 59 industrial companies and 14 banks listed at the Amman Stock exchange in Jordan over the period of 2004–2008. The author found that aggressive investment policy is negatively related to market value (Tobin's Q) and that aggressive financing policy is positively related to Tobin's Q.

In another related study, Taghizadeh K. Vahid, Akbari K. Mohsen, and Ebrati Mohammadreza (2012) conducted a study to investigate the impact of working capital management policies (aggressive and conservative policies) on firms' profitability and value for sample companies listed on the Tehran Stock Exchange from 2005 to 2009. The results showed that following conservative investment policy by having a high level of short-term investment has a negative effect on a firm's profitability and value, whereas following an aggressive investment policy using long term investment has positive effect on firm profitability and value. Regarding the financing policies (aggressive and conservative policies), the results showed that following an aggressive financing policy by using more current liabilities to finance firm activities will have a negative effect on firm profitability and value, whereas following a conservative financing policy by using more long-term debt to finance the firm's operating activities has a positive effect on firm profitability and value.

Using pooled panel analysis, Ece C. Karadagli (2012) also examined the impact of working capital management on firm performance for a sample of 169 Turkish listed companies from 2002 to 2010. The findings indicated that CCC and NTC have a significantly positive relationship with 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.

Kieschnick, Laplante, and Moussawi (2013) examined the relationship between net working capital investments and shareholder wealth, using a sample of U.S. corporations between 1990 and 2006, and found, among other things, that the incremental dollar invested in net operating working capital is worth less than is the incremental dollar held in cash. Furthermore, the value of an additional dollar invested in net operating working capital is worth less than is the dollar so invested for the average firm, implying that excessive investment in net operating working capital has a tendency to reduce shareholders' wealth.

Parvin Khajehpour, Ahmad Khodamipour, and Zeinolabedin Sadeghi (2014) analysed the impact of aggressive working capital management policy on the profitability of 71 nonfinancial firms listed on the Tehran Stock Exchange market. The results indicated that the profitability of the company increases when more current assets fund working capital investment. However, the authors found that the relationship between working capital financing policy ratio and return on assets ratio was not statistically significant, whereas increasing working capital financing policy ratio will increase the Tobin's Q ratio (market value). Based on the evidence, the study concluded that investors were more disposed to invest in firms that have an aggressive approach to working capital financing because they felt that the stock value of such firms is more rewarding in the market.

Snober Javid and Velontrasina P. M. Zita (2014) also examined the relationship between working capital management policy and firm profitability, using 20 cement companies listed in the Karachi Stock Exchange from 2006 to 2011 in Pakistan. Profitability was measured both in terms of market and in terms of accounting. The dependent variables were Tobin's Q, return on equity, return on assets, and net operating profitability, while working capital policy (TCA/TA and TCL/TA) represented the main independent variables, controlling for growth of firm, size of firm, and debt. Adopting the OLS regression method, the study showed that there is a significant negative relationship between working capital policies and the profitability of the firms. Saman R. M. Bandara and Banda Y.K. Weerakoon (2014) investigated the impact of working capital management practices on firm value in Sri Lanka from 2005 to 2009, using a sample of 74 companies listed in the Colombo Stock Exchange and covering seven business sectors. The authors found a negative relationship between conservative working capital management policy and

market value added. The study also revealed a significant negative relationship between aggressive working capital management policy and economic value added. The results further indicated that firms that follow moderate working capital management practice yield higher market value added than do firms following conservative working capital management practice. Similarly, firms that follow aggressive working capital management practice generate lower economic value added than do firms that follow moderate working capital management practice.

Andrei Ankudinov and Oleg Lebedev (2014) empirically examined the impact that investments in different kinds of assets had on shareholder value creation. The study was based on panel data from 2004 to 2012 for the largest public companies representing the nonfinancial sector of the Russian economy. The results showed that companies that most actively increased investment in working capital traded with a certain discount.

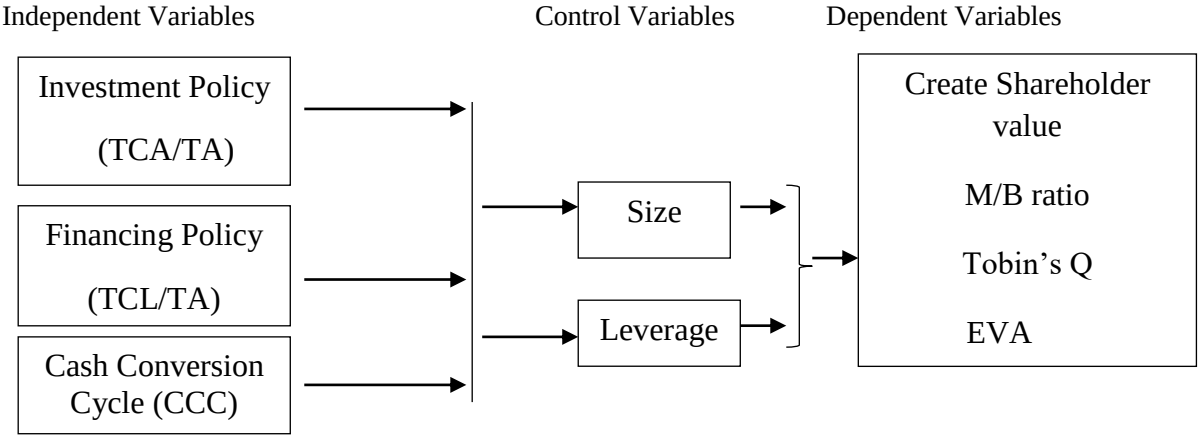
Rakesh Duggal and Michael C. Budden (2015) tested the hypothesis of a negative relationship between a firm's net working capital and returns to its shareholders by using a sample of non-financial firms grouped under nine industrial sectors and belonging to S and P 500 firms for the period 2009–2012. The Treynor index was used to estimate risk-adjusted shareholder returns. The results showed a negative relationship between risk-adjusted shareholder returns and net working capital. The authors also discovered that, whereas 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, Saman R. M. Bandara (2015) used a different time frame and independent variables to investigate the impact of working capital management policy on firm value from 2009/10 to 2013/14. The results of applying panel regression methodology indicated a significant negative relationship between the firms' degree of aggressiveness of working capital investment policy and market value added. However, apart from this negative relationship, no statistically significant relationship was found between working capital financing policy and market value added at the conventional level,.

In Ghana, Richard K. Akoto, Dadson Awunyo-Vitor, and Peter L. Angmor (2013) empirically examined the relationship between working capital management practices and the profitability of listed manufacturing firms from 2005 to 2009, using a panel data framework methodology. Employing the OLS regression technique, the study found a significant negative relationship between profitability and accounts' receivable days, whereas it found a significant positive relationship between profitability and CCC, current asset ratio, size, and current asset turnover. Similarly, Thomas Korankye and Rosca S. Adarquah (2013) analysed 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. By employing descriptive statistics, Pearson correlation, and OLS regression analyses, the results revealed that working capital cycle significantly and negatively affects firm profitability.

2.5 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 adopted to show the effect of working capital management policies on shareholder value.



Source: Authors' Construct

Figure 1: Conceptual Framework.

3.RESEARCH METHODS

This study adopted a longitudinal, explanatory non-experimental research design applied in a panel ARDL framework to analyse the effects of working capital management policies on the shareholder value of manufacturing firms listed on the Ghana Stock Exchange. A document review guide was used to extract and compile the required data for analysis from the financial statements of six manufacturing firms listed on the Ghana Stock Exchange from 2000 to 2013 and that satisfied the United Nations' revised ISIC (2008) definition of a manufacturing enterprise (see the appendix for list of firms included in the study). The financial statements depict 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, they are believed to give more reliable and objective data, due to the nature of the study, than is the use of survey instruments, such as questionnaires and interview guides, which can be biased. Raymond Lee (2000) and Uma Sekaran (2003) suggest that unobtrusive methods of data collection, such as data extraction from company records, have the advantage of accuracy.

3.1 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 from 2000 to 2013. The data were obtained from the Ghana Stock Exchange (GSE) fact books and the Annual Report Ghana database. The specific financial statements from which data were extracted included statements of profit or loss and other comprehensive income, statements of financial position, statements of cash flows, and notes to the accounts.

3.2 Description and Justification of Variables Used in the Study

Dependent Variables

Latha Chari and R. P. Mohanty (2009) posited that there are two approaches to measuring shareholder value. These are 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; these include market value added, market-to-book ratio (MBR), shareholder value added, Tobin's Q, stock market returns, and economic value added. As no single metric is superior in terms of measuring shareholder value, reliance on a single measure is not warranted (Madan L. Bhasin, 2013). To complement and account for possible weaknesses or flaws of each metric, it is appropriate to use several metrics, rather than relying on only one metric, in making decisions. Therefore, this study considers three metrics: two financial market price based measures (MBR and Tobin's Q) and one intrinsic value based measure (EVA) as proxies for shareholder value.

Market-to-Book Ratio

According to Pandey (2005), shareholder value creation can be measured by comparing the market value per share and the 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.

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 James Tobin and William C. Brainard (1968), Tobin's Q approximates the market estimation of the net present value of firms. Emil Boasson and Vigdis Boasson (2005) argued that Tobin's Q is the most appropriate measure of value creation. Following Kee H. Chung and Stephen W. Pruitt (1994) and Emel Yücel and Yildirim B. Önal (2016), Tobin's Q is calculated as

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

Yücel and Önal (2016) opined that, if the Tobin's Q is high, it suggests that firms are utilising assets efficiently and that this translates into creating shareholder value as a result of better performance.

Economic Value Added (EVA)

EVA is a measure that focuses on a firm's internal performance over a given period and that aims to tell what has happened to the wealth of the shareholders (Chari and Mohanty, 2009; Bandara and Weerakoon, 2014). John H. Hall (1999) found that EVA correlates well with the market value of a

company and is, arguably, one of the best methods to express and quantify shareholder value creation (John H. Hall, 2000). A firm creates value for its shareholders if it earns a return greater than the cost of capital and if earning less destroys value (Chari and Mohanty, 2009). Thus, creating a sustainable improvement in EVA is tantamount to increasing shareholder wealth (Bandara and 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 the wealth created for both equity shareholders and other capital providers. However, the present study has sought to calculate EVA by targeting only equity shareholders. This is consistent with Gregory T. 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 a market model under the standard Capital Asset Pricing Model (CAPM) with constant beta, assuming that the beta is stable over time (Prince Acheampong and Evans Agalega, 2013). The study used the average 91-day Treasury bill rate as a surrogate for the 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 OLS Method.

Independent Variables

Aggressive/Conservative Current Assets Investing and Financing Policies

This study used the aggressive current asset investment policy (ACIP) and the conservative current asset investment policy (CCIP), as used by Weinraub and Visscher (1998), the aggressive current asset financing policy (ACFP) and the conservative current asset financing policy (CCFP), as used by Nazir and Afza (2009), and the CCC, as used by Jose, Lancaster, and Stevens (1996), as measuring variables of working capital management policies. An ACIP results in minimal level of investment in current assets versus non-current assets. In contrast, a CCIP places a greater proportion of capital in current assets with the opportunity cost of less profitability. To measure the degree of aggressiveness/conservativeness of the current assets' 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 a relatively conservative investment policy.

On the other hand, an ACFP utilises higher levels of current liabilities and less long-term debt and equity. In contrast, a CCFP uses more long-term debt and capital and fewer current liabilities. The degree of aggressiveness/conservativeness of a financing policy adopted by a firm is measured by the 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 a relatively aggressive financing policy.

Cash Conversion Cycle (CCC)

According to Jose, Lancaster, and Stevens (1996), a firm can use the CCC as a comprehensive measure of its working capital management policy, where a shorter CCC means an aggressive working capital management policy, whereas a longer CCC means a 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 = $\frac{\text{Average Inventory}}{\text{Cost of Sales}} X\, 365 days$

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

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

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

Control Variables

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

Size: Various proxies, such as natural logarithms of total assets, total revenue, market capitalisation, and number of employees, are used for measuring size in empirical studies (Ram K. Kakani, Biswatosh Saha, and V. N. Reddy, 2001; Tianyi Jiang, 2003; Larry J. Stimpert and Judith A. Laux, 2011). This study measured firm size by the natural logarithm of sales' revenue.

$$SIZE = Ln(Revenue)$$

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

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

3.3 Data analysis

The data obtained were analysed using the panel ARDL analysis framework. To establish whether working capital management policies affect shareholder value, the following econometric model is specified:

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

Where y_{it} is the shareholder value proxy by MBR, 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= parameters to be estimated

ε = Error term of the model and

it= firm i at time period t

3.3.1 Empirical estimation techniques

When time series are nonstationary, performing OLS regression on them will produce spurious results (Chris Brooks, 2008; Robert F. Engle, and Clive W. J.Granger, 1987). These regressions often tend to have high R^2 and correlation, whereas, in fact, there will be no such correlation (Clive W. J. Granger and Paul Newbold, 1974). Therefore, it is always important to test for the presence of unit root or otherwise to enable the researcher to choose the appropriate estimator to estimate the parameters. Three panel unit root methods — Andrew Levin, Chien-Fu Lin, and Chia-Shang J. Chu (2002); Kyung S. Im, Hashem M. Pesaran, and Yongcheol Shin (2003) and the ADF Fisher Chi square by Gangadharrao S. Maddala and Shaowen Wu (1999) — were applied.

3.3.2 Estimating Long-Run Cointegrating Relationship

After evidence of unit root is established, the researcher has the choice of using either a panel fully modified OLS or a group pooled mean/ARDL methodology. However, according to Erdem, Ucler, and Bulul (2014) (as cited in Kartal Demirgunes, 2015) a panel fully modified OLS estimator is appropriate if all the cointegrating variables are integrated of order 1, i.e., I (1). This study employed the Pooled Mean Group (PMG)/ARDL cointegrating estimator proposed by Hashem M Pesaran, Yongcheol Shin, and Ron

P. Smith (1999). One of the merits of PMG is its flexibility, in that it can be applied when the variables are of mixed order of integration (Demirgunes, 2015). This estimator is robust to serial correlation and heterogeneity and, hence, preferable to simple OLS estimation.

3.3.3 Pooled Mean Group /Autoregressive Distributed Lags

The PMG 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. Consider an ARDL (1,1,1,1,1,1) for shareholder value, as in equation (1).

$$y_{it} = \alpha_i + \lambda_i y_{it-1} + \beta_{10i} TCA/TA_{it} + \beta_{11i} TCA/TA_{it-1} + \beta_{20i} TCL/TA_{it} + \beta_{21i} TCL/TA_{it-1} + \beta_{30i} CCC_{it} + \beta_{31i} CCC_{it-1} + \beta_{40i} SIZE_{it} + \beta_{41i} SIZE_{it-1} + \beta_{50i} LEV_{it} + \beta_{51i} LEV_{it-1} + u_{it} \quad (2)$$

Where the number of groups i = 1, 2, …, N; t is the number of periods, 1,2, …, T; y_{it} is scalar dependent variables (MBR, Tobin's Q, and EVA); the coefficients of the lag dependent variables, λ_{it}, are scalars; β_{10i}, β_{11i},…, and β_{51i} are the coefficient vectors of the explanatory variables (regressors); and α_i denotes group specific effect.

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

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

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, and Δ is the first difference operator.

The dependent variables (MBR, Tobin's Q, and EVA) are used one after the other in the model. Hence, the empirical models to be estimated are stated as:

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

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

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

The dependent variables MBR and Tobin's Q were log transformed, as the original panel series data were not normally distributed. However, the EVA model was estimated by computing the Z scores for both the dependent and the independent variables.

2. Empirical Results and Discussion

4.1 Descriptive Statistics

Table 1 presents the summary of the descriptive statistics of the dependent and explanatory variables, depicting the average indicators of the variables computed from the financial statement. From Table 1, the Jacque-Berra statistic indicates that the MBR, Tobin's Q, EVA, firm size, and debt–equity ratio are not normally distributed; hence, the median values have been selected to be the average indicator for these data sets. However, the TCA/TA and TCL/TA data sets are normally distributed; thus, the mean is reported as the average indicator. The median MBR is 2.05 (mean value 3.37; SD 4.44) for all the firms. The average MBR for all the selected firms is 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.

The median Tobin's Q for all the study firms is 1.29 (mean value 1.90, with a standard deviation of 1.33). Thus, the selected companies during the study period have a firm value slightly greater than the asset replacement cost. This indicates that shareholder value has been created and sustained.

The average economic value added is GHS33, 352.00 (mean value is (GHS341820.00) with a standard deviation of GHS 6,381,923.00). This means that the selected firms have positively created value for the shareholders.
The mean value of TCA/TA for all the selected firm is 0.4882, with a standard deviation of 0.164, as shown in Table 1. Since the mean value is less than 0.5, this indicates that the selected firms are relatively following aggressive current asset investment policy. Again, 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 that firms are being conservative in the management of current liabilities. Furthermore, the CCC, as reported in Table 1 has a median of 72 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 the purchase of raw materials. This confirms that the sample firms are following moderate working capital policies. Firm size registers an average value of 17.61 (Mean is 17.19 and SD=1.64) for all the firms, as depicted on Table 1. Finally, the debt-equity ratio also exhibits an average value of 10.3% (mean is 50.8% and SD=123%) for all the firms. This means that, on average, the selected firms are lowly geared

Table 1

Descriptive Statistics for the Study variables

Variable	Mean	Median	Std. Dev.	Jacque-Berra	Prob.
MBR	3.370	2.046	4.436	3462.1	.0000
Tobin's Q	1.904	1.285	1.327	142.55	.0000
EVA	-341820	33352	6381923	82.225	.0000
TCL/TA	0.4882	0.4843	0.164	2.5178	.2840
TCA/TA	0.4357	0.4130	0.141	3.1454	.2075
CCC	74.90	72.07	62.18	48.256	.0000
SIZE	17.19	17.61	1.638	10.661	.0048
LEV	0.508	0.103	1.233	1444.50	.0000

Based on the descriptive statistics, as reported on Table 1, the listed manufacturing firms have been found to be following moderate working capital management policies. This implies that the selected firms use a relatively low proportion of current assets as a percentage of total assets and a low proportion of current liability to fund total capital.

4.2 Panel Unit Root

The results from the unit root tests are presented in Tables 2 and 3. Table 2 reports the results in level form, while Table 3 reports the results from the first difference form. 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 for the debt-equity ratio, when individual intercepts are included. Similarly, both IPS and ADF tests fail to reject the unit root null for all the variables in the level form, except for EVA and the debt-equity ratio, when individual intercept and time trend are included. Also, with the exception of MBR, Tobin's Q, and CCC, the LLC (Levin, Lin, and Chu, 2002) test does not reject the null of a unit root in the levels when individual intercept is considered. When intercept and time trend are considered, the LLC test does reject the null of unit root for all the variables, except for MBR and TCA/TA. However, it can be observed from Table 3 that all the tests do reject the null of a unit root in difference form either 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 either OLS or generalised least squares on them will produce spurious and biased estimates.

Table 2
Results of Panel Unit Root Test in order zero (levels)

Variable	LLC		IPS		ADF	
	Intercept	Int and trend	Intercept	Int and trend	Intercept	Int and trend
M/B	1.6322	-0.4560	1.7326	1.5148	11.8325	11.9838
TOBIN'S Q	-0.846	-3.8869**	0.2012	-1.3163	12.7060	18.0808
EVA	-2.3001*	-5.3381**	-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: ** and * indicate significance levels of 1% and 5%, respectively. The probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. LLC=Levin, Lin and Chu (2002), IPS= Im, Pesaran and Shin (2003), ADF=Fisher type Chi square by Maddala and Wu (1999)

Table 3 Results of Panel Unit Root Test in order one (First Difference)

Variable	LLC		IPS		ADF	
	Intercept	Int and trend	Intercept	Int and trend	Intercept	Int and trend
ΔM/B	-6.908**	-5.232**	-5.055**	-3.180**	52.973**	36.435**
ΔTOBIN'SQ	-7.806**	-5.4225**	-6.1495**	-3.465**	54.632**	33.584**
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**	56.10**	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: ** and * indicate significance levels of 1% and 5%, respectively. The probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. LLC=Levin, Lin and Chu (2002), IPS= Im, Pesaran and Shin (2003), ADF=Fisher type Chi square by Maddala and Wu (1999)

4.3 Regression results from the Panel ARDL/Pooled Mean Group

Table 4 presents the results from the ARDL (1,1,1,1,1,1) for models 1, 2, and 3 for the dependent variables MBR, Tobin's Q, and EVA. The lag order is selected based on Schwarz information criteria (SIC). The effects of current asset investment policy proxy by TCA/TA on MBR indicate a negative effect at the 10% level. The negative coefficient of TCA/TA indicates a positive relationship between the relative degree of aggressiveness of the current assets' investment policy and shareholder value.

Table 4: Panel ARDL Results

	Model (1)	**Model (2)**	**Model (3)**
Variable	LnMBR	LnTobin's Q	EVA
	Long-Run Equation		
TCA_TA	-0.8443	0.0672	0.6572
	(.0592)*	(.7883)	(.0000)***
TCL_TA	-1.3730	-1.8904	-0.2143
	(.0069)***	(.0000)***	(.0818)*
CCC	-0.0019	-0.0015	-0.3072
	(.0064)***	(.0012)***	(.0000)***
SIZE	0.3269	0.1512	-1.1633
	(.0000)***	(.0013)***	(.0000)***
LEV	0.9505	-0.0955	0.5279
	(.0004)***	(0.004)***	(.2952)
	Short-Run Equation		
COINTEQ01	-0.6622	-0.8577	-0.8323
	(.0286)**	(.0009)***	(.0028)***
D(TCA_TA)	-0.8207	-0.7348	-0.1022
	(.3729)	(.1554)	(.6662)
D(TCL_TA)	1.1422	1.1136	0.1416
	(.2049)	(.0889)*	(.4568)
D(CCC)	0.0042	0.0043	0.4724
	(.2525)	(.0773)*	(.2689)
D(SIZE)	-0.1570	-0.4516	2.5096
	(.7905)	(.2215)	(.0165)**
D(LEV)	2.0874	1.5006	3.6081
	(.2937)	(.2328)	(.1548)
C	-2.5774	-0.8505	0.1170
	(.0328)**	(.0089)***	(.7436)
Log Likelihood	-5.86	30.07	23.93
Included Observations	78	78	78

Note: *** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level.
P. values are in parentheses

This implies that increasing the amount of investment in current assets leads to a reduction in shareholder value in the long-run, as investors trade with discount. Investors would give high value to firms that invest more in noncurrent assets in the long-run to generate more profits. There are no directly comparable empirical findings. However, the result is in consonance with the theory that conservative investment policy destroys shareholder value and also agrees with the findings of Bandara and Weerakoon (2014), who found a negative relationship between conservative working capital management policy and market value added. Thus, a 1% increase in the TCA/TA ratio reduces the MBR by 57% in the long-run.

TCL/TA shows a negative and highly significant effect on shareholder value in the long-run and a positive but insignificant effect in the short-run. This empirical finding implies that short-term sources of

financing are cheaper in the short-term, thereby having a positive effect on shareholder value. However, in the long-run, short-term funding tends to be costlier than are the long-term sources of funds, hence exerting a negative effect on the shareholder value. This result confirms the finding of Bandara (2015).

Similarly, the study reveals that CCC has a negative and significant effect at the 1% level on shareholder value creation in the long-run. The coefficient of CCC from model 1 is also of very small magnitude, thus having less effect on the MBR than on the TCA/TA and TCL/TA ratios in the long-run. Thus, a one-day increase in CCC tends to reduce the MBR by 0.15%. This suggests that companies should take a holistic approach in the management of working capital, rather than concentrating on some components, such as inventory, account receivables, and account payables, alone. The finding contradicts the results of Karadagli (2012) who found that CCC has a positive significant relationship with stock market returns representing shareholders' value.

Firm size shows a positive and highly significant effect on shareholder value creation in the long-run but has a negative insignificant effect in the short-run. The long-run elasticity coefficient of firm size with respect to MBR is 0.327, implying that a 10% increase in the size of the selected manufacturing companies raises MBR by 3.3% in the long-run. Gearing has a positive impact on MBR both in the short- and the long-run. However, it is only significant in the long-run at the 1% level of significance but insignificant in the short-run. This implies that a 1% increase in the 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 earnings (Korankye, 2013). The Cointeq01 is a short-term adjustment coefficient, and it 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 MBR (shareholder value) is being corrected in each short period. From model (1), the adjustment coefficient has the correct sign and is statistically significant at the 5% level of significance, suggesting that the study variables will adjust to the long-run trend approximately 1 ½ years after a short drift to the equilibrium state.

Table 4 also presents the results from the ARDL (1,1,1,1,1,1) for model 2 for the dependent variable Tobin's Q. The lag order is selected based on SIC. The results indicate that the current assets' investment policy proxy by TCA/TA has a positive effect on firm's value in the long-run but a negative effect on firm's value in the short-run. However, the effects are statistically insignificant both in the long-run and short-run. This result contradicts Nazir and Afza (2009) who found a negative relationship between the relative degree of aggressiveness of current asset investment policies and Tobin's Q.

The results also indicate a significantly negative relationship between a firm's value and its current assets' financing policy in the long-run, whereas, in the short-run, it has a positive and significant effect at the 10% level of significance, with a coefficient of 1.114 (p. value 0.0889). This implies that the more aggressive selected companies become in their current assets' financing, the more a firm's value reduces in the long-run, although it increases in the short-run. This again supports the theory that short-term debts are cheaper in the short-term than in the long-run. The findings in the short-run support the findings of Nazir and Afza (2009).

The CCC also has a strongly significant negative effect on the value of firms in the long-run but has a positive effect on the value of firms at the 10% level of significance in the short-run. It can be observed that the coefficients from the results are also of small magnitude in both the long- and the short-run, indicating less impact on the firm's value, albeit the significance of the impact.

Firm size is also found to have a positive impact on firms' value in the long-run, but it has a negative insignificant effect in the short- run. This means that, as firms increase in size in the long-run, this positively enhances shareholder value due to economy of scale. Thus a 10% rise in sales' revenue creates shareholder wealth by 1.5%. The study also indicates that a significant negative relationship exists between the gearing ratio and Tobin's Q in the long-run, whereas a positive insignificant relationship exists in the short run. Thus, in the short-run, leverage may not affect shareholders' wealth significantly.

The speed of adjustment coefficient is also negative and significant at the 1% level of significance, suggesting that the study variables will adjust to the long-run trend approximately 1 year and two months after a short drift to the equilibrium state.

Finally, model 3 presents the results from the ARDL (1,1,1,1,1) for the dependent variable EVA. The lag order is selected based on SIC. The results indicate that TCA/TA has a positive and statistically significant effect on EVA at the 1% level of significance in the long-run. The positive coefficient of TCA/TA indicates a negative relationship between the degree of aggressiveness of investment policy and

EVA. As the TCA/TA increases, the degree of aggressiveness decreases, and EVA increases. Therefore, there is a negative relationship between the relative degree of aggressiveness of the current assets' investment policies of firms and EVA.

Thus, a one standard deviation increase in TCA/TA leads to a 0.6572 standard deviation increase in EVA. This empirical finding implies that firms can create value for shareholders if they adopt a conservative approach in the management of current assets. This finding is inconsistent with the theory that increasing investment in current assets reduces profitability and shareholder value. The long-run equation coefficient for current assets' financing policy also indicates a negative effect on economic profitability at the 10% significance level. Thus, shareholder value is created when firms become relatively conservative in current liability management. This suggests that, in the long-run, as firms become relatively more aggressive in financing current assets, shareholder value would be destroyed and again indicates 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 policies reduce EVA in the long-run. This empirical evidence supports the findings of Bandara and Weerakoon (2014) that firms with aggressive working capital management practices generate lower EVA.

Similar to the results from models 1 and 2, model 3 also reveals that the CCC has a negative and highly significant influence on EVA in the long-run, whereas it is positively but insignificantly related to EVA in the short-run. Thus, in the long-run, firms can create value by shortening the CCC. This means that, by using the CCC as a comprehensive measure of working capital management policies, firms can create value for their shareholders by being relatively aggressive, suggesting inconsistency with the above findings. However, it can be observed that the coefficient of CCC is much smaller than is the coefficient from the TCA/TA and TCL/TA ratios. Therefore, this suggests that finance managers should take a holistic approach to the working capital management.

The long-run equation results also reveal that the size of the firm has a negative and significant effect on EVA at the 1% significance level, whereas, in the short-run, there is a positive significant relationship between firm size and EVA at the 5% level of significance. This suggests that, in the short-term period, one standard deviation unit change in a firm's size leads to a 2.5096 standard deviation units change in EVA. 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 to a point that may be beneficial and 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, and beyond that point additional scale is not associated with greater profitability.

Finally, the debt-equity ratio was found to have a positive but insignificant effect on EVA both in the long-run and the short-run, suggesting that the debt-equity ratio does not influence EVA. The speed of adjustment coefficient is negative and strongly significant at the 1% level of significance, indicating that the study variables will adjust to the long-run trend approximately 1 year and 3 months after a short drift to the equilibrium state.

CONCLUSION

We have examined the effects of working capital management policies on shareholder value. The empirical literature suggests that there is a 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 towards working capital management, the higher the profitability, leading to an increase in shareholder value. Using a sample of six manufacturing companies listed on the Ghana Stock Exchange over 2000–2013 and applying the Autoregressive Distributed Lags methodology, the results indicate that firms that follow moderate to conservative working capital management policies create shareholder value in the long-run. The effect of the cash conversion cycle (CCC) on shareholders' value indicates that CCC negatively influences the market-to-book ratio (MBR), Tobin's Q, and economic value added (EVA) in the long-run. However, in the short-run, CCC positively influences MBR, Tobin's Q and EVA, although only Tobin's Q is significant.

The implication is that shareholder value hinges on effective management of short-term resources and finance.

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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	Manufacturing	Manufacturing	2006	No	No
3	**Camelot Ltd**	**Manufacturing**	**Manufacturing**	**1999**	**No**	**Yes**
4	CPC	Manufacturing	Food & Bev	2003	No	No
5	**Fan Milk Gh.**	**Manufacturing**	**Food & Bev.**	**1991**	**No**	**Yes**
6	Golden Web	Manufacturing	Manufacturing	2005	Yes	No
7	**Guinness Gh**	**Manufacturing**	**Food & Bev.**	**1991**	**No**	**Yes**
8	P K Co. Ltd	Manufacturing	Manufacturing	1995	Yes	No
9	**Pz Cusson**	**Manufacturing**	**Manufacturing**	**1991**	**No**	**Yes**
10	Sam Woode	Manufacturing	Manufacturing	2002	No	No
11	Starwin Prod	Manufacturing	Manufacturing	2004	No	No
12	**Unilever Gh**	**Manufacturing**	**Manufacturing**	**1991**	**No**	**Yes**

Note. Firms included in the study are in bold type. Firms with negative equities and non-availability of data have been excluded.

Appendix B: Summary of the Study Variables

Category	Variable	Operationalisation	Measurement
Dependent Variable	Shareholder Value	Market to book ratio (MBR)	Market value of equity/Book value of equity
		Tobin's Q	Market value of equity + Book value of total debts/ total book value of assets
		Economic Value Added (EVA)	{PAT- (K_e x Total Invested Equity $Capital_{(t-0)}$)} Where K_e = cost of equity estimated by CAPM
Independent Variable	Working Capital Management Policies	Current Asset Investment Policy	Total Current Asset/Total Asset. A higher ratio indicates relatively conservative investment policy
		Current Asset Financing Policy	Total Current Liability/Total Asset. A higher ratio indicates relatively aggressive financing policy
		Comprehensive measure of working capital investment and financing policies	CCC = ICD + TRD - TPD 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/ Amortisation CCC= Cash Conversion Cycle
Control Variables	Size	This is proxy for the size of the firms listed at GSE	$SIZE = Ln(Revenue)$
	Leverage	Financial leverage	$LEV = \frac{Long\ Term\ Debt}{Total\ Equity}$