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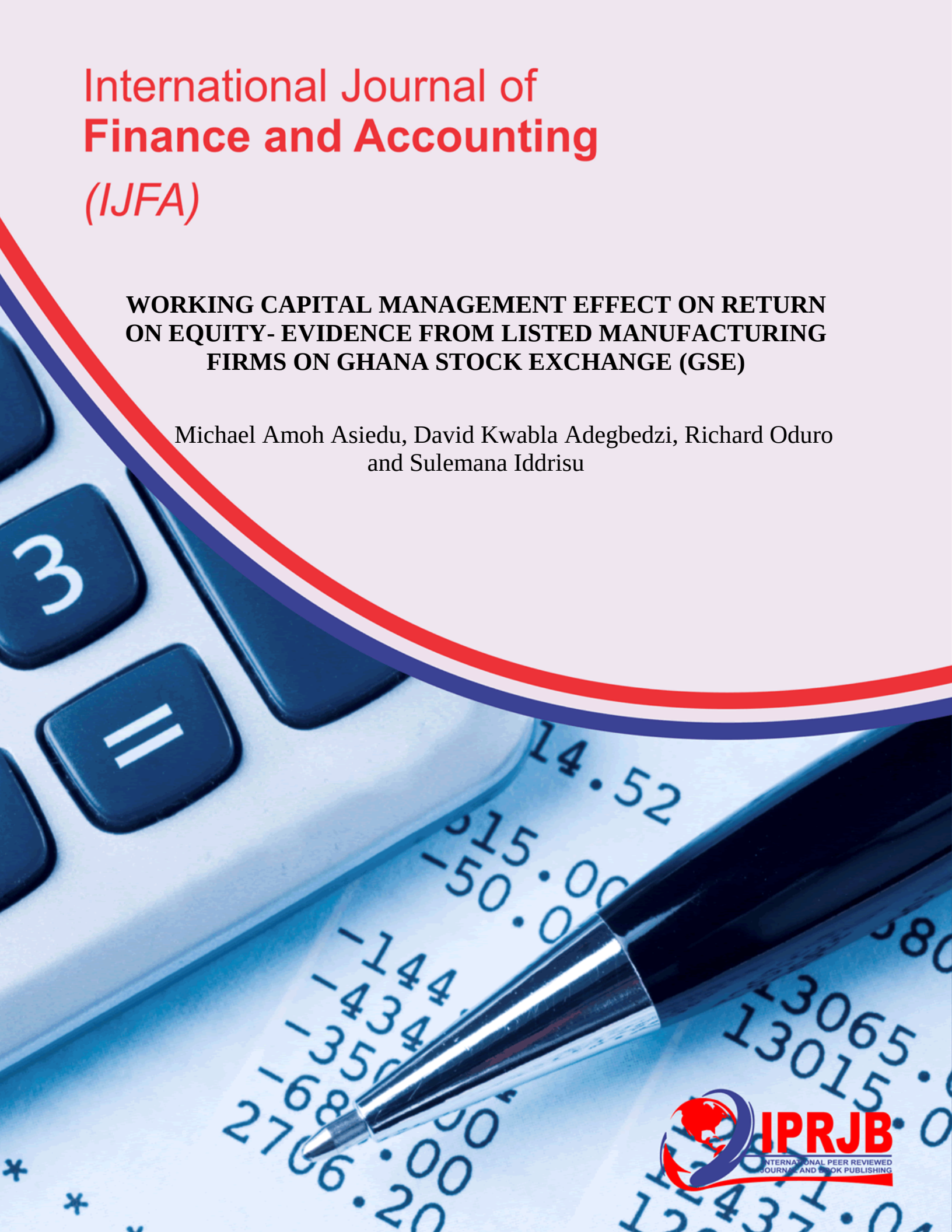

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WORKING CAPITAL MANAGEMENT EFFECT ON RETURN ON EQUITY-EVIDENCE FROM LISTED MANUFACTURING FIRMS ON GHANA STOCK EXCHANGE (GSE)

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Abstract

Purpose: This paper seeks to assess working capital management effect on Return on Equity (net income (EAITP)/Equity) of listed manufacturing firms on the Ghana Stock Exchange (GSE).

Methodology: The research design employed was descriptive as well as referential analysis. A panel data of thirteen (13) listed manufacturing firms on the Ghana Stock Exchange (GSE) for periods 2010 to 2019 was used for the study. Data which were the audited annual financial reports were accessed from Ghana Stock Exchange Fact Book and the web portals of the firms. Statistical Package for Social Sciences (SPSS, version 20) and Microsoft Excel were used in data analyses and presentations. Descriptive statistics was used to summarize the data in terms of measures of central tendency (mean), measures of dispersion (standard deviation) as well as minimum and maximum values. Pearson's Product-Moment Correlation and Ordinary Least Square (OLS) multiple regression techniques were employed to establish the relationship and effect of working capital management on Return on Equity respectively.

Findings: Results showed that INV has statistically significant and negative correlation with ROE($r= -0.287$ and $p<0.05$) as AR and ROE have statistically significant and negative correlation($r= -0.287$, $p<0.05$). AP also has statistically significant and negative association with ROE($r= -0.407$, $p<0.05$). The regression analysis showed that INV has a negative ($\beta = -.01$) and significant ($p<0.05$) effect on ROE as AR also has a negative ($\beta = -.002$) and significant ($p<0.05$) effect on ROE. Again, AP has negative ($\beta = -.002$) but insignificant ($p>0.05$) effect on ROE as CCC has statistically significant ($p<0.05>$ and negative (-0.021) effect on ROE. Also, R and R-Sq. showed 59.5 % and 35.4% respectively, implying that the model is fit for predicting the criterion variable at any given levels of the predictor variables.

Contribution to theory, practice and Policy: This work adds to working capital management literature by adopting ROE (Net Income (EAITP)/Total Equity) that responds to call by CFI (2015), and therefore addresses the pitfalls in prior studies. It is therefore a sine qua non for management, policy makers and practitioners to fashion strategies to ensure that working capital is managed to the core by reducing number of days inventory, number of days accounts receivable, number of days accounts payables and cash conversion cycle in order to create wealth for shareholders as well as expand operation of the firms.

Keywords: *Manufacturing Firms, Return On Equity, Working Capital, Working Capital Management*

1.0 INTRODUCTION

1.1 Background to the Study

For many, working capital is recognized as the lifeblood (Kasahun, 2020; Lasher, 2006) and nerve center (Paul, Devi, & Teh, (2012); Sen et al., (2009); Yusuf & Idowu, (2012) of businesses across the length and breadth of the globe. This statement is justifiable because every business including those that are completely endowed with all kinds of non-current assets need enough provision of raw materials for processing, cash to honour pressing obligations, finished goods to meet market demand regularly; and the ability to sell on credit to its customers and ensure prompt receipt of debt. Padachi, (2006) contends that working capital in most organizations, for example manufacturing firms; retail and wholesale businesses constitute about 40%, 50% and 60% of total assets respectively. For this reason, the running and control of a successful business cannot be investigated in isolation without asking the question: "what constitutes working capital?" The answer is simply current assets minus current liabilities (Guthman & Dougall, 1948).

Working capital management (WCM) refers to managerial decisions and actions that generally affect the volume and efficaciousness of the working capital (Kaur, 2010). This lends to conclusion that investment in current assets and current liabilities which are marshaled up within one year is therefore critical for firm's daily operations (Kesimli & Gunay, 2011). Managing working capital is a very critical component of corporate finance theory and deals with managing short-term financing and investment decisions of the firm (Sharma, & Kumar, 2011). This is because managing working capital plays a pivotal role in determining an improvement or fall in a firm's performance in terms of profitability and liquidity (Vahid, Mohsen & Mohammadreza, 2012).

An optimal working capital management is expected to contribute positively to the creation of firm value. This therefore behoves managers to ensure that working capital components are effectively managed (Filbeck & Krueger, 2005; Akoto, Awunyo-Vitor & Angmor, 2013) so as to contribute to a firm's wealth creation as it directly influences organizational profitability and liquidity (Raheman & Nasr, 2007; Naser et al, 2013). This suggests that the underpinning aim of managing working capital is to ensure the sustentation of tolerable level of working capital in a manner that will forestall overmuch or insufficient availability of working capital (Filbeck & Krueger, 2005). It is therefore noteworthy that not only will efficacious working capital management help in smooth running of day- to-day activities of the business by helping to keep optimal level of liquidity to settle short-term obligations but it will also serve as a strategic tool to help organizations to be equity financed as well as expand operations to employ more manpower thereby creating jobs for the economy.

Also, according to Corporate Finance Institute(2015), return of equity is said to be the quotient of a company's annual return(net income) and the value of its total shareholders' equity, expressed as a percentage. The result epitomizes the total return on shareholders fund and reflects the firm's ability to turn shareholders' investment into profit. Simply put, ROE shows net profit made per cedi of shareholders' equity. ROE may give understanding about how a company's management is using equity financing to expand its business. Also, a sustainably increasing ROE may imply that the company in question is efficient in maximizing shareholders wealth. ROE is an import profitability measure in that it looks at the firm's essential variables(returns excluding any form of expenditure) to measure overall profitability for the firm's owners. It is also critical to note that equity holders are at the bottom of the hierarchy of a

firm's financing structure, and the income returned to them is a useful measure that represents excess profits that remain after paying mandatory obligations and reinvesting in the business. From this, it can be stated therefore that ROE is a measure of net income(earnings after interest, tax and preference share dividend) as a percentage of total shareholders' equity as this result shows excess income after making obligatory payments(interests, tax and preference share dividends) as a percentage of total equity.

1.2 Working capital management and manufacturing firms in Ghana

In Sub-Saharan African Region, particularly Ghana, managing working capital is very essential as most providers of credit express preference in the short-term credit market to the long-term market. This choice may be due to the relative rise in inflation rate in Ghana compared to other developed or emerging countries, which have the possibility of reducing the purchasing power of future cash flows (Akoto et al, 2013). Given the above incidents coupled with the fact that other sources of financing the firm are scarce, it has therefore become indispensable for businesses in Ghana to efficiently and effectively manage their working capital in order to become not only profitable but also create wealth for shareholders as this is an over-arching goal of every business. Additionally, the essence of efficient working capital management by manufacturing firms in Ghana cannot be over emphasized as this is extremely needed to achieve profitability and expansion, which are prerequisites in solving the country's unemployment issues and ensuring economic stability as stipulated by Akoto et al (2013). This claim was evident in the World Bank Annual Report (2007) which observes that developing countries can considerably resolve their socio-economic challenges when they take significant steps to revive and develop their manufacturing base. As result, several initiatives were undertaken by various Ghanaian governments tailored towards revitalizing the country's manufacturing sectors in order to create employment and also boost Gross Domestic Product (GDP). However, albeit these developments, it is surprising to note that there is dearth or little evidence-based study that has investigated how profitable Ghanaian manufacturing firms who efficiently manage their working capital are. These studies are limited in examining the ability of the firms to create value for shareholders. This study therefore attempts to fill this gap and contribute to the existing studies by using panel data methodology to investigate the extent to which Ghanaian manufacturing firms who efficiently manage working capital are able to create wealth for shareholders.

1.3 Statement of the problem

Several authors attempted to explore the relationship and impact of working capital management on profitability by using profitability ratios such as Return on Equity, Return on Asset, Return on capital employed, and return on invested capital, gross profit margin, gross operating income, net operating profit and net operating profit after tax (Deloof, 2003, Howorth & Westhead, 2003, Abor, 2005, Padachi, 2006, Raheman & Nasr 2007, García-Teruel, & Martínez-Solano, 2007, Vishnani & Shah, 2007, Eda, & Mehmet, 2009, Nazir & Afza, 2009, Ebaid, 2009, Sharma & Kumar, 2011, Pratheepkanth, 2011, Kaddumi, & Ramadan, 2012, Makori, & Jagongo, 2013, Arshad, & Gondal, 2013, Akoto, Awunyo-Vitor, and Angmor, 2013, Enqvist, Graham, & Nikkinen, 2014, Mwangi, Makau, & Kosimbei, 2014, Mathuva, 2015; Akomeah J. & Frimpong S., 2019 Kasahun, 2020; Nguyen, Pham & Nguyen, 2020).

Despite these efforts, the metrics used by these prior studies failed to adequately test the ability of the firm to create value for shareholders as well as expand operations. For example, Akoto, Awunyo-Vitor, and Angmor, (2013) attempted to find out the relationship between working capital management practices and profitability, using Return on Equity (net income/ total asset)

but failed to use the appropriate formula which could adequately measure shareholders wealth. The results of this formula shows net income realized per cedi of total asset but not per cedi of total equity and this could give a bad investment outlook about the firm. Additionally, Abor (2005), Ebaid (2009), Pratheepkanth (2011), Gatsi J.G., Gadzo S.G. and Akoto R.K.(2013) and Mwangi, Makau, and Kosimbei (2014) also used ROE (EBIT/Equity) in their respective studies but this also falls short of being used to measure shareholders wealth as EBIT includes interest and tax to be paid and therefore does not guarantee, adequately, return for shareholders, especially with more debt financed firms who are obliged to pay huge sums of interest.

Corporate Finance Institute (CFI, 2015) claims that metrics such as gross profit margin, operating profit margin, net profit margin, cash flow margin, EBIT, EBITDA, EBITDAR, NOPAT, operating expenses ratio, overhead ratio and the likes are margin ratios which measure the ability of the firm to convert sales into profit at their respective levels of measurement but not to determine, adequately, the ability of firms to return profit for shareholders. Based on the assertions above, we argue that these ratios are less relevant in ascertaining the true value for shareholders. This is justifiable because shareholders can only be assured of return (dividend) if profit is realized after all expenses (operating, non-operating and non-cash) have been deducted and it is only at this time that the firm can also be assured of expanding operations, should there be a dividend retention policy.

More so, metrics such as Return on asset; return on capital employed, return on invested capital and return on equity are ratios of return at their respective levels of measurement (CFI, 2015). ROCE only gives a view on how much EBIT is earned on every cedi of capital invested as ROIC also reflects how much profit after tax(including interest) is earned on every cedi of capital invested(EBIT×(1-tax rate)/value of debt + value of equity) but not on every cedi of equity. It can also be observed from the formula that the profit expressed as a numerator on the total capital includes interest so therefore, its quotient could be misleading especially if the company is highly geared causing payment of huge sums of interest and eventually leaving little/no return for the shareholders. Also, ROA only helps to determine how much profit after tax is earned on every cedi of total asset. The trios fail to determine the true rate of return on equity (shareholders wealth) and therefore fail to be used as a measure of shareholders wealth. This study therefore contributes to the extant literature on the relationship and impact of the working capital management on the firm's profitability in at least two ways. First, it focuses on Ghanaian firms where only limited researches have been conducted in this regard. Secondly, this study contributes to extant literature by testing the impact of working capital management on Return on Equity (Net income (EAITP)/total equity).

1.4 Research objectives

The main objective of the study is to investigate the effect of working capital management on Return of Equity. Based on this objective, the following specific objectives were considered:

i. To ascertain the impact of number of days inventories on Return on Equity
ii. To examine the effect of number of days accounts receivables on Return on Equity
iii. To assess the effect of number of days accounts payables on Return on Equity

2.0 LITERATURE REVIEW

2.1 Theoretical Foundation of Working Capital Management

The concept of working capital management has received research attention in academia due to its significant relevance to the success of firms in terms of liquidity and profitability. In this vein, several authors have used different lenses to explain the concept of working capital management and the elements of working capital. Consequently, the subsequent paragraphs are devoted to discussions on the configuration theory and working capital management.

Working capital refers to the resources a firm has at its disposal to carry out its day-to-day operation (Mazreku, Morina & Zeqaj, 2020). Agbha (2014) indicates that the components of working capital includes; inventory, accounts receivables, accounts payables, and cash for day-to-day business operations. From the balance sheet point, working capital can be categorized into gross (all the current assets) and the net working capital (all current assets minus all current liabilities)(Ismail, 2017). Drawing on Fisher's separation theorem, net working capital can be categorized into two, namely operational working capital (measuring liquidity using working capital requirement) and financial working capital (measuring liquidity using net liquid balance) (Rehn, 2012). This definition of working capital is supported by the configuration approach that is derived from the contingency approach because both measures combined together equal the requirement of the key determinants of working capital (Donaldson, 2006). The basic axiom of this theory is that the concept of fit exists when a firm is aligned with its environment (Lindow, 2013). This model is applicable to the study because firm performance (ROE) is a function of internal firm characteristics such as optimal working capital management denoted by inventory, accounts receivables, accounts payables and cash. We discuss the concept of working capital management and how it is supported by the configuration model in the subsequent paragraph.

Kaur (2010). defined working capital management to include all the managerial decisions and actions that are primarily concerned with influencing the size and effectiveness of working capital. This implies an appropriate investment decisions in cash, inventory, receivables as well as the level and combination of short-term financing. Similarly, Akoto et al. (2013), opine that working capital management constitutes management accounting strategy that ordinarily concentrates on maintaining efficient levels of current assets and liabilities to ensure adequate cash flow in order to meet its pressing financial obligations. Corroborating evidence by Rehman et al. (2013), indicates that working capital management forms a crucial part of financial management which contributes significantly to a firm's wealth creation since it forms the basis of organizational profitability and liquidity. Thus, working capital management has to do with the establishment and application of working capital policy to day-to-day operations (Mazreku, Morina & Zeqaj, 2020). Therefore, we adopt the configurational approach to working capital management in our study on the assumption that for a firm to achieve a strategic fit and maximize performance there is the need to align working capital management with firm contingent characteristics such as levels of inventory, accounts receivables, accounts payables and cash. Thus, when a strategic fit is achieved through effective working capital management, firm performance will naturally occur as hypothesized by Faden (2013) and (Maxland & Leng (2018)

2.2 Empirical Review

Existing studies on the impact of managing working capital on firm's profitability have generally established that managing working capital has a significant effect on firm's profitability and shareholders wealth (Deloof, 2003; Gill, Biger, & Mathur, 2010; Yazdanfar & Öhman, 2014;

Kabuye, Kato, Akugizibwe, & Bugambiro, 2019; Soukhakian & Khodakarami, 2019). For this reason, numerous studies have examined the relationship and impact of working capital management on profitability using different proxies of working capital management; namely: number of days inventory, number of days accounts receivable, number of days accounts payable and cash conversion cycle and different accounting and market measures of profitability such as Return on Equity, Return on Asset, Return on capital employed, and return on invested capital, gross profit margin, gross operating income/profit, net operating profit, net operating profit after tax Tobin's q. (Deloof, 2003, Howorth & Westhead, 2003, Abor, 2005, Padachi, 2006, Raheman & Nasr 2007, García-Teruel, & Martínez-Solano, 2007, Vishnani & Shah, 2007, Eda, & Mehmet, 2009, Nazir & Afza, 2009, Ebaid, 2009, Sharma & Kumar, 2011, Pratheepkanth, 2011, Kaddumi, & Ramadan, 2012, Makori, & Jagongo, 2013, Arshad, & Gondal, 2013, Akoto, Awunyo-Vitor, & Angmor, 2013, Enqvist, Graham, & Nikkinen, 2014, Mwangi, Makau, & Kosimbei, 2014, Yazdanfar & Öhman, 2014; Mathuva, 2015; Lyngstadaas & Berg, 2016; Thakur, 2017; Afrifa & Tingbani, 2018; Akomeah& Frimpong,2019; Kasahun, 2020; Nguyen, Pham & Nguyen, 2020). Despite the fact that there is a point of agreement among scholars on the significant effect of working capital management on firms' profitability in the global community, there is dearth or little evidences that look at the relationship and impact of the various proxies of working capital management on profitability of listed manufacturing firms in Saharan African Region, particularly Ghana. However, the limited studies conducted in Ghana as well as other economies fail to adequately measure the relationship and impact of working capital management on shareholders wealth.

Further, the results of prior studies on the relationship and impact of working capital management and profitability measured by different proxies have proven to be inconclusive with mixed and fragmented evidence; as some proved to be positive and significant, negative and significant, others showed results that contradict with the positive or negative whereas no relationships were established between the study variables in some cases. For instance, Deloof(2003) who conducted a study on a sample of 1,009 large Belgian non-financial firms covering the period of 1992-1996, using correlation and regression analyses found that there exist a statistically significant negative relationship between profitability, measured by gross operating income, and number of days accounts receivable, inventories and accounts payables. He therefore recommends that profitability can be improved if they reduce number of days accounts receivables and inventories. Ghosh and Maji, (2003) also attempted to assess the efficiency of managing working capital of Indian cement companies during 1992 - 93 to 2001 - 2002. They calculated three index values - performance index, utilization index, and overall efficiency index to measure the efficiency of working capital management, instead of using some common working capital management ratios. By using regression analysis and industry norms as a target efficiency level of individual firms, it was found that some of the sample firms successfully improved efficiency during these years. Again, Eljelly (2004) empirically examined the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of 929 joint stock companies in Saudi Arabia. Using correlation and regression analysis, significant negative relationship was found between the firm's profitability and its liquidity level, as measured by current ratio. This relationship is more pronounced for firms with high current ratios and long cash conversion cycles. At the industry level, however, it was found that the cash conversion cycle or the cash gap is of more importance as a measure of liquidity than current ratio that affects profitability.

Raheman and Nasr (2007) in their study to examine the effect of working capital management (using average collection period, inventory turnover in days, average payment period, cash conversion cycle) on liquidity and profitability (Net operating profitability) of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999 to 2004. The data was analyzed with the aid of Pearson's correlation and regression analysis (Pooled least square and general least square with cross section weight models). The results show that there is a strong negative relationship between variables of the working capital management and profitability of the firm. The result depicts that shortening the CCC (cash conversion cycle) may increase the firm's profitability. Thus, the manager can improve the firm's profitability by suitable working capital management. Sharma and Kumar (2011) also examined the effect of working capital on profitability of Indian firms using data collected from a sample of 263 non-financial BSE 500 firms listed at the Bombay Stock (BSE) from 2000 to 2008 and evaluated the data using OLS multiple regression. The results reveal that working capital management and profitability are positively correlated in Indian companies. The study further reveals that number of days inventory and numbers of days accounts payable are negatively correlated with a firm's profitability, whereas number of days accounts receivables and cash conversion period exhibit a positive relationship with corporate profitability. These results imply that the firm could create value for its shareholders by increasing business credit for customers and increasing inventories to suitable level. Besides, the results showing the negative relationship between payables and the firm profitability match with the opinion that the firms that have low profitability often have more time to pay the debt.

Akoto et al. (2013) investigated the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study utilized secondary data accessed from all the 13 manufacturing firms listed on Ghana Stock Exchange from 2005 to 2009. The study finds a significantly negative relationship between profitability and accounts receivable days. Nevertheless, the firms' cash conversion cycle, size, current asset ratio and current asset turnover positively influence profitability significantly. The study indicates that managers can generate value for shareholders by creating incentives to reduce their accounts receivable to 30 days.

Oseifuah and Gyekye (2017) also conducted a study which found a significant positive relationship between firm value and inventory conversion period, accounts payable deferral period (PDP), receivables conversion period and firm size; positive but insignificant relationship between the firm value and cash conversion cycle; statistically significant negative relationship between leverage and firm value. This is not consistent with previous studies (Lazaridis & Tryfonidis 2006, Raheman & Nasr 2007, Falope & Ajilore 2009, Dong & Su, 2010, Sharma and Kumar 2011, Akoto et al., 2013). This may be caused by the following: An increase in inventory conversion period may be caused by the fact that the firms decide to purchase inventory in large quantity which may make it practically difficult to sell all within a short period. This phenomenon may cause increase in profitability if the cost of holding inventory is lower than the cost that would have been incurred if the firms had decided to purchase more frequently. Additionally, during hyper inflationary periods, buying in large quantity may help the firm to avoid falling prey for price fluctuations and this may earn the firm some gains. Furthermore, buying in large quantity may also help the firm to avoid stock-out which could cause the firm to lose its cherished customers. This assertion is validated by Corsten and Gruen (2004) who provided evidence that between 21% and 43% of a firm's customers (depending on product

category) faced with a stock-out will go to another store which implies that current investment in inventories has future revenue implications.

Mazlan and Leng (2018) also assessed working capital management moderating role on the relationship between the main determinants of working capital and firm performance among 282 public-listed manufacturing firms in Malaysia for the period of 2010 to 2014. The result of the study demonstrates that the relationship between critical determinants of working capital and firm performance is moderated by both working capital requirement and net liquid balance.

Akomeah and Frimpong (2019) in attempt to investigate effect of working capital management on profitability of listed manufacturing companies in Ghana, used data collected from seven (7) listed manufacturing firms in Ghana for a period of ten years (2005-2014). The profitability as response variable was measured in terms of gross operating profit. The working capital determined by Accounts Receivables Period, Inventory Conversion Period, Accounts Payables Period and Cash Conversion Cycle are used as independent variables. Moreover, current ratio used as liquidity indicator and firm size measured by logarithm of sales are used as control variables. Data was analyzed using the Fixed-Effects model of the Panel data regression. The regression results showed that inventory conversion period (ICP) and account receivables period (ARP) had a statistically significant negative effect on profitability whereas account payables period (APP) days had insignificant positive effects on the profitability. The study, on the other hand revealed that cash conversion cycle (CCC), firm size (LOS) and current ratio (CR) had a significant positive effect on profitability. The study recommended that manufacturing firms should adopt efficient and effective ways of managing these components of working capital. However, this study focused on only seven manufacturing firms in Ghana, whose findings could not be easily generalized to all manufacturing firms in Ghana. Also, the study focused on data from 2005 to 2014 which is a little old of which the present dynamics in the business fraternity may make it less relevant in decision making. Again, the metric used as the dependent variable(Return on Asset) only measures the efficiency of firms in utilizing their assets in generating revenues but not the rate of return on shareholders fund, and therefore does not guarantee adequately return for shareholders.

Soukhakian and Khodakarami (2019) employed ordinary least squares with robust standard errors to analyze panel data for the period 2010–2016; to investigate impact of managing working capital on firm performance among listed Iranian manufacturing firms, focusing on the direct and moderating roles of inflation and GDP variables. The study showed that cash conversion cycle (CCC) is negatively related to return on assets and to refined economic value added (REVA). In the same vein, Rahman, Iqbal and Nadeem (2019) studied the impact of working capital management on firm's performance with the moderating role of structure of ownership. A random sample of 77 firms for the period 2011-2015 was selected. By using fixed effect model, the study demonstrated statistically significant and negative relationship between leverage, average collection period and quick ratio and firm performance, while current ratio, account payable and inventory turnover had positive significant effect on Firm performance. Further, the effect of managing working capital on performance of firms was positively affected by institutional ownership and negatively affected by Managerial ownership. Thus, the results recommend that there is the need for owners/managers to efficiently manage their limited resources so as to improve profitability.

Mazreku, Morina and Zegai (2020) investigated the effect of working capital on the profitability of commercial banks in Kosovo. The study adopted trend analysis on secondary data for period

of five years using return on assets, current ratio, debt ratio and banks' size. The results of the study revealed that bank size has a positive impact on the profitability of commercial banks in Kosovo, whereas the debt ratio has a negative effect. All the independent variables in relation to the dependent variable (ROA) are at the standard level of significance P-value = 0.05. Phuong and Hung (2020) also investigated the effect of managing working capital on firms' profitability (FP) in Vietnam. The study used the Generalized Least Squares (GLS) regression method using a sample of 5,295 firms (observations) listed on stock market in Vietnam from 2009 to 2018. The study found that inventory turnover, average receivables (AR), average payable (AP), cash conversion cycle (CCC) had negative impacts on the firm profitability (FP). They argue that business opportunities open with increasing credit sales for customers, increasing more inventories to sustain the product price and keep the production line. Investing more in working capital is similar to reducing payment for suppliers, collecting more payment discount; at the same time helping the firm reduce input expense and having good relationship with suppliers. However, when the working capital exceeds the optimized level, it would negatively influence on FP because of increasing expense such as: stocking, insurance, securities and expenses for mobilizing external capital. Keeping too high working capital is similar to increasing interest rate, credit risk and bankruptcy, and at the same time losing other investment opportunities of participating in other projects. Therefore, the firm managers should efficiently manage working capital close to optimized level to avoid the negative influence of it.

Moreover, Nguyen et al. (2020) studied the effect of working capital management on the firms' profitability using 119 non-financial listed companies on Vietnam stock market over a period of 9 years from 2010 to 2018. Ordinary least squares (OLS) and fixed effects model (FEM) were employed to address econometric issues and to improve the accuracy of the regression coefficients. The empirical results showed negative and significant impacts of the working capital management, measured by cash conversion cycle (CCC) and three components of the CCC including accounts receivable turnover in days (ARD), inventory turnover in days (INVD), and accounts payable turnover in days (APD) on the firms profitability measured by Tobin's Q and return on assets (ROA). It implies that firms can increase profitability by keeping the optimization of the working capital management measured by the CCC, which includes shortening the time to collect money from clients, accelerating inventory flow and holding the low payment time to creditors. Besides, the profitability of firms was impacted by the sale growth rate, firm size, leverage, and age. Lastly, Kasahun (2020) investigated the effect of managing working capital on profitability, measured by net operating profit (NOP), of purposively sampled ten (10) sole proprietorship manufacturing firms in Adama City with financial data covering the period of 2007-2012. The study used descriptive statistics, and balanced fixed effect panel regression in the analysis. The findings of the study showed that average payment period and size of the firm have significant positive relationship with profitability while average collection period, sales growth and debt ratio have significant negative correlation with profitability. The study concludes that the firms need to improve their collection and payment policy. The firms can also increase their profitability by identifying and focusing on target markets rather than simply concentrating on increasing turnover.

Hypothesis

Based on the above review, the following hypotheses have been established to be tested:

> **H_1**: There exists a negative and significant impact of number of days inventory on return on equity

H_2: There is a negative and significant effect of number of days accounts receivable on return on equity

H_3: Number of days accounts payable has statistically significant positive impact on return on equity

H_4: Cash conversion cycle has statistically significant and negative effect on return on equity

3.0 METHODOLOGY

The study employed descriptive statistics, correlation matrix as well as Ordinary Least Square(OLS) and Fixed Effect Model(FEM). This will help gather reliable data on the effect of components of working capital on Return on Equity of listed manufacturing firms in Ghana. The study targeted the entire population of 13 listed manufacturing firms in Ghana. The study looked at the financial statements of all the 13 manufacturing firms for a period of 10 years from 2010 to 2019. These firms are African Champion Industries Limited, Aluworks Limited, Ayrton Drug Manufacturing Limited, Benso Oil Palm Plantation, Camelot Ghana Limited, Cocoa Processing Company, Fan Milk Limited, Golden Web, Guiness Ghana Limited, Hords Limited Sam Wood Limited, Samba Foods Limited, Unilever Ghana Limited. These firms operate in industries such as consumer goods, healthcare and basic materials. The study adopts a census procedure to study all the 13 listed manufacturing firms in Ghana. A panel data of thirteen listed manufacturing firms on Ghana Stock Exchange (GSE) was collected from the period 2010-2019. Data which were the audited annual financial reports were accessed from the Fact Book of the Ghana Stock Exchange and the web portals of the firms and collated using Microsoft Excel. Data was collected from published financial reports of all the 13 listed manufacturing firms on the Ghana Stock Exchange(GSE) for 10 years (2010 - 2019) retrieved from Fact Book of the Ghana Stock Exchange and the web portals of the firms.

Data analysis

Explanatory and control variables used by Deloof (2003) and adopted by Dong and Su (2010) is adopted in this study. The explanatory variables include number of days inventory (INV), number of days accounts receivable (AR), number of days accounts payable (AP), cash conversion cycle(CCC) and the control variables used are natural logarithm of sales(LOS), financial debt ratio (DR) and financial assets to total assets ratio (FATA). The dependent variable; ROE was adopted from the work of Akoto et al (2013). Our measurement for the ROE is net income(Earnings After Interest Tax and Preference share dividend)/Total Equity. The result of this formula shows net income realized per cedi of total equity which gives a better picture about return on shareholders wealth and therefore gives a better investment outlook about the firm. Statistical Package for Social Sciences(SPSS) and Microsoft Excel were used for the data analyses and presentations. Descriptive statistics was employed to summarize the variables in terms of measures of central tendency(mean), measures of dispersion(standard deviation) as well as maximum and minimum values. To test the relationship as well as the effect of working capital management on ROE, Ordinary Least Square (OLS) multiple regression analysis was used. Multicolinearity among the independent variables was also checked using Variance Inflation Factor (VIF) and Pearson's Product-Moment correlation coefficient. Model to test the effect of working capital components on ROE was adopted from the works of Raheman and Nasr (2007), Nazir et. al (2009), Zariyawati et al. (2008), Samiloglu and Demirgunes (2008) and Garcia-Teruel and Martinez-Solano (2007) which was used by Akoto et al, (2013). This model is called fixed effect model which assumes firm specific intercepts, which capture the effects of

those variables that are particular to each firm and that are constant over time. This is demonstrated below:

: $E_{it} = \propto + \beta I_{it} + \varepsilon_{it}$

Where, E_{it} = return on equity (ROE), $\propto$ = the intercept, = coefficient of independent variables, I_{it}= independent variables of firm *i* at time *t* and ε = error term

Empirically, the equation is stated as:

$$ROE_{it} = \beta_0 + \beta_1 INV_{it} + \beta_2 AR_{it} + \beta_3 AP_{it} + \beta_4 CCC_{it} + \beta_5 DR_{it} + \beta_6 LOS_{it} + \beta_7 FATA_{it} + \varepsilon_{it}$$

Where ROE is Return of Equity, INV is number of days inventories, AR is number of days accounts receivable, AP is number of days accounts payable, CCC is cash conversion cycle, DR is debt ratio, LOS is firm size(natural logarithm of sales) and FATA is fixed financial asset to total asset ratio.

Table 1: Measurement of Study Variables

Variable	Measurement	Abbreviation
Return on Equity	Net Income (EAITP)/Total Equity	ROE
Number of Days Inventory	(Inventory/Cost of Sales) × 365	INV
Number of Days Accounts receivable	(Accounts Receivables/Sales) × 365	AR
Number of Days Accounts payable	(Accounts Payables/Cost of sales) × 365	AP
Cash Conversion Cycle	Number of days inventory+ Number of days accounts receivables-Number of days accounts payables	
Financial Debt Ratio	Financial debt/Total Assets	FDR
Firm Size	Natural Logarithm of sales	LOS
Financial Asset to Total Asset	Financial Asset/Total Asset	FATA

4.0 RESULTS AND DISCUSSIONS

4.1 Descriptive statistics

This type of statistic was used to measure the central tendency and dispersion of the data collected. Key results were shown using mean, standard deviation, minimum and maximum values of the data collected. This is illustrated in table 2.

Table 2: Summary of Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
INV	130	85.1061	61.7489	5.33	236.45
AR	130	51.2489	43.3063	5.92	185.97
AP	130	63.8488	46.5839	3.70	274.57
CCC	130	72.5062	72.6109	-1.01	296.69
DR	130	0.3069	0.4573	0.01	0.70
LOS	130	6.0501	1.6792	2.77	9.11
FATA	130	0.2712	0.1708	0.05	0.69
ROE	130	0.0797	0.2719	-0.68	0.58

Table 2 gives descriptive statistics for 13 Ghanaian listed manufacturing firms for a period of ten years from 2010 to 2019 and for a total 130 firms- year observations. We can see from the table

that number of days inventory shows an average value of 85.1 days with standard deviation of 61.7, minimum of 5.3 days and with maximum days of 236.5. This implies that most of the listed manufacturing firms in Ghana process and sell out inventory within 85 days. The higher average value could owe to the fact that most of these organizations hold large inventories which may make it practically difficult to process and sell all within a short period. This may improve return on equity, if there is favourable difference between the holding cost and ordering cost, especially in hyper inflationary situations. Also, the higher average value coupled with the wide dispersion between the values which was evident in the minimum and maximum values was as a result of the heterogeneity in the sample space. For example, a firm like Aryton Drug Ltd will take a longer period in manufacturing drugs than Samba Foods which may use a shorter period in processing foods. Again, Aluworks which deals in the production of roofing sheets will take quite a longer time than Sam Wood Ltd which may take a shorter period in publishing and printing. Simply put, those firms that are found in the consumer goods industries are likely to have shorter period in converting their inputs into finished goods than those that are found in basic materials and healthcare/pharmaceutical industries. Again, the sample space includes most of the firms in the consumer goods industries that have lower inventory conversion period with few of them whose processing periods are outrageously higher and this may account for the quite lower minimum value and unusually higher maximum value in the INV which in effect causing wider dispersion.

Also, number of days accounts receivable shows a mean value of 51.2 days with a standard deviation of 43.3 days, minimum value of 5.9 days and a maximum of 186 days. It means that most of the firms collect cash from their debtors within 51 days. This is favourable as it has the least value among the three components of working capital. In Ghana firms found in the pharmaceutical industry usually supply their products to health facilities/hospitals which are largely owned by government. It mostly takes quite a great deal of time for these firms to be paid due to bureaucracy. Again, the huge volume of sales made by some of these firms may also account for the delay in receipt of debt from their customers as compared to those that engage in fast moving consumer goods. These few isolated cases may account for the wider dispersion between the AR values showed in the range from 5.9 to 186 values.

Number of days accounts payable also shows an average value of 63.8 days with a standard deviation of 46.6 days, minimum of 3.7 days and a maximum of 274.6 days. It can be seen from the figures that it takes most of the firms about 64 days to make good their indebtedness. It is advisable to maintain or reduce it so as not to lose trust from their suppliers/creditors. Also, it can be seen from the values that there exist another huge dispersion confirmed by a minimum and maximum value. The gap is extremely wide because again, these firms that usually supply to government agencies and those that do not fall in this category but sell in large quantities, take quite a longer time to collect their cash and this may, by ripple effect, extend their creditors payment period. This is because the time it takes these firms to pay their creditors is a function of the time it takes them to receive monies form their customers, hence the huge dispersion between the AP values.

Furthermore, cash conversion cycle, which indicates the efficiency of working capital management, averaged 72.5 days with a standard deviation of 72.6 days and a minimum value of -1.0 with a maximum figure of 296.7 days. This indicates that most of the firms convert their inputs into cash after paying their suppliers within 73 days. This is so because the components of working capital have been efficiently managed(reduced INV, AR and AP). This could lead to

financial success as it is generally argued that, a short CCC is ideal for enhancing profitability and creating value for shareholders (Falope and Ajilore, 2009; Lazaridis and Tryfonidis, 2006).

Financial Debt Ratio also shows an average of 0.31 with a standard deviation of 0.46, minimum value of 0.01 and maximum of 0.70. This also implies that financial debt forms only 31% of total asset which further means that no huge interest will be paid to have affected return on equity. Additionally, natural logarithm of sales which measures firm size also shows an average value of 6.05 with a standard deviation of 1.68, minimum value of 2.77 and a maximum figure of 9.11. This average value, being cognizant with the dispersion, shows that a few of these firms make huge turnover at the year ends which validates the assumptions made with the dispersion in the values of AR and AP above.

Financial asset to total asset ratio which indicates a firm's ability to generate non-operating income also shows an average value of 0.27 with a standard deviation of 0.17, minimum value of 0.05 and a maximum value of 0.69. This also implies that most of these firms only have financial asset forming about 27% of total asset, implying that chunk of their asset does not attract interest payment to have utterly influenced return on equity. Finally, Return on Equity averaged 0.08 with a standard deviation of 0.27, minimum value of -0.68 and maximum value of 0.58. This figure is not encouraging as it shows very low returns over the years. The figures indicate that some of the firms are making losses as confirmed by a minimum value of -0.68. This may result from poor inventory management, abysmal credit policies resulting in higher number of days accounts receivables causing higher number of days accounts payable. The increase in number of days accounts payables may have serious financial implications as it may lead to loss of trust from the suppliers which may consequently affect supplies leading to stock-outs.

4.2 Correlation matrix

This analysis was done to examine the strength and direction of relationship between the dependent variable and independent variables. This was also used to examine multicolinearity among the predictor variables. The independent variables include number of days inventories, number of days accounts receivables, number of days accounts payables and cash conversion cycle. The control variables include firm size, debt ratio, fixed financial asset to total asset ratio. The dependent variable is Return on Equity (ROE).

Table 3: Correlation matrix

		INV	AR	AP	CCC	LOS	DR	FATA	ROE
INV	Pearson Correlation								
AR	Pearson Correlation	0.52							
AP	Pearson Correlation	.646**	.408**						
CCC	Pearson Correlation	0.746	.776**	0.152					
LOS	Pearson Correlation	0.229	.341**	0.114	.325**				
DR	Pearson Correlation	-0.08	-0.06	0.076	-0.146	-0.04			
FATA	Pearson Correlation	-0.09	0.09	-0.088	0.036	.457**	-0.15		
ROE	Pearson Correlation	-0.29	-.287*	-.407**	-0.154	0.041	-0.19	.506**	1

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

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

Source: Field Data, 2020

From table 3 above, it can be observed that INV has statistically significant negative correlation with ROE with r = -0.287 and p<0.05. Also, AR and ROE are significantly and negatively related(r= -0.287, p<0.05). AP has statistically significant and negative association with ROE(r= 0.407, p<0.05) as CCC and ROE have statistically significant and negative association(r=-0.154, p<0.05). Firm size (LOS) has positive but not significant correlation with return on equity(R=0.041, p>0.05) as Debt ratio, which is used as a proxy for leverage, negatively but not significantly relates with return on equity(r=0.188, p>0.05). Finally, FATA has statistically significant and strong positive correlation with return on equity(r=0.506, p<0.01). This result is an indication that a reduction in each of the working capital components will lead to an improved profitability(Return on Equity). It can therefore be concluded that an efficient working capital management(reduced cash conversion cycle) will lead to higher return on equity values, thus, maximization of shareholders wealth. Again, examining the critical constructs for multicolinearity, which occurs when there is a strong correlation between two or more predictor variables in a regression model(Field, 2009), Hair et al. (2014) recommended two approaches. First, it involves an examination of the correlation matrix among the predictor variables and second, testing of the Variance Inflation Factor(VIF). A correlation coefficient greater than or equals 0.90 is an indication of significant multicolinearity. The results of the study reported the highest correlation coefficient among the predictor variables to be 0.646, indicating the absence of multicolinearity.

4.3 Regression

This section shows the effect of each of the working capital components on return on equity. In effect, it estimates the value of return on equity, given certain level of each of the components of working capital. Consequently, it examines the effect of working capital management on return on equity. Again, t-values of each predictor variables, which show the significance of the effect of each of the predictor variables on return on equity, were checked. Measurement of goodness of fit as well as multicolinearity among the predictor variables was also checked.

Table 4: Multiple regression analysis

	ROE			
	β	t-value	sig.	VIF
CONSTANT	0.073	2.642	0.042	
INV	-0.010	-2.6549	0.01	1.121
AR	-0.020	-2.6189	0.011	1.150
AP	-0.040	-0.7056	0.483	1.031
CCC	-0.021	-3.847	0.026	1.144
DR	-0.078	-2.1421	0.036	1.053
LOS	0.030	2.428	0.018	1.475
FATA	0.916	2.4746	0.016	1.464
F-Value		10.848	.000	
		N = 130		

R=59.5 %, R-Sq=35.4%, p < 0.05

Source: Field Data, 2020

Table 4 shows the strength of impact of working capital management on the criterion variable(ROE) taking into account the various components of working capital. The result indicates that there is a negative (β = -.010) and significant (p<0.05) effect of number of days inventory on return on equity. This means that a day increase in number of days inventory will reduce return on equity by 1% and vice versa. This has confirmed hypothesis 1 and therefore we fail to reject H_1 and conclude that number of days inventory has statistically significant and negative impact on shareholders wealth (ROE). Also, it can be observed that there is a negative (β = -.020) and significant (p<0.05) effect of number of days accounts receivable on ROE. This means that a day increase in number of days accounts receivable will reduce ROE by 2% and vice versa. This also confirms hypothesis 2, thus we fail to reject H_2 and conclude that number of days accounts receivable has statistically significant and negative effect on ROE. The table also confirms that there is a negative (β = -.040) but insignificant (p>0.05) effect of number of days accounts payables on ROE. This means that a day increase in number of days accounts payable will reduce ROE by 4% and vice versa. We therefore reject H_3 and conclude that number of days accounts payable has negative but statistically insignificant effect on ROE. Again, CCC has statistically significant(p<0.05) and negative(β =-0.021) effect on ROE. This relation can be reliably justified as it is generally argued that, a short CCC is ideal for enhancing profitability and creating value for shareholders (Falope and Ajilore, 2009; Lazaridis and Tryfonidis, 2006). Moreover, R value, which measures the effect of the combination of the regressors on the criterion variable shows 59.5%, implying that one point combined increase in the predictor variables(i.e. improved working capital management) will lead to about 60% increase in return on equity and vice versa. R^2 which represents coefficient of determination is 35.4% which implies that 35.4% of the variability in ROE can be explained by an improved or efficient working capital management. To avoid multicolinearity as a result of the combined effect of two or more predictors as recommended by Hair et al. (2014), the Variance Inflation Factor(VIF) of the predictor variables were assessed. Applying the threshold of VIF values of 10 as recommended by Gaur and Kumar (2009) and Hair *et al*. (2014), the VIF values (ranging from 1.031 to 1.475), as indicated in table 4 shows there is no challenge of multicolinearity among the predictor variables. Also, F-statistics, which measures the significance of coefficient of determination (R^2) for the combination of the explanatory variables, also shows 10.848 with p value of 0.000. This implies that the model is fit for predicting return on equity. The equation showing these relationships is as follows:

$$ROE_{it} = 0.073 - 0.001INV_{it} - 0.002AR_{it} - 0.004AP_{it} - 0.021CCC_{it} - 0.078DR_{it} + 0.03LOS_{it} + .916FATA_{it} + \varepsilon_{it}$$

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This paper is on the same wavelength with existing literature that found a negative effect of number of days accounts receivable (Akoto et al., 2013; Soukhakian & Khodakarami 2019), number of days inventories(Sharma & Kumar, 2011; Rahman, Iqbal and Nadeem, 2019; Phuong & Hung, 2020), number of days accounts payable(Mazreku, Morina and Zegai (2020); Nguyen et al. (2020) and cash conversion cycle(Raheman & Nasr, 2007; Soukhakian & Khodakarami, 2019; Mazreku et al, (2020) on profitability. However our study findings contradicts with Lazaridis and Tryfonidis (2006); Dong and Su (2010) who claimed that there is a positive effect

of number of days accounts payable on profitability, Sharma and Kumar (2011) who found cash conversion cycle to have positive and significant impact on profitability and Kasahun (2020) who found positive and significant effect of number of days accounts receivable on profitability. From the results, it can be observed that firms with higher ROE have smaller number of days inventory. This means that these firms are efficient in converting raw materials into finished goods as well as marketing the goods thereby ensuring that inventory is sold out within a short period which could increase sales, hence increase ROE. It is therefore advisable for firms that desire for higher ROE to reduce their number of days inventory to 85 or lower. More so, higher ROE firms have smaller number of days accounts receivable as well as cash conversion cycle. This means that if the firms have good credit policies by creating incentives to ensure that debtors make good their indebtedness within a short while, the firms will be more liquid to settle trade creditors and also order for more inventories. This, we believe could earn the firms a certain level of goodwill from their creditors to ensure constant supply of inventory to serve their customers satisfactorily and as customers are satisfied, they become loyal to the firms which could translate to profit, thus increased ROE. This assertion is supported by Anderson et al., (1994) who discovered that customer satisfaction results in future profitability. More so, it can be observed from table 2 above that number of days accounts receivable has an average value of 51.2489 with standard deviation of 43.3063 which are lower than both INV and AP. This implies that almost all Ghanaian listed manufacturing firms are able to convert trade debtors into cash within three months. Owing to this, we therefore conclude that an increase in ROE can translate into shareholder wealth maximization irrespective of whether pay-out ratio is high or not. Changes in pay-out ratios are not relevant to the assertion that working capital management affects shareholders wealth because once there is high ROE with the assurance of prompt cash payment from debtors, shareholders will either be paid dividend which could be reinvested (purchase of additional shares) or chunk of this return could be retained for expansion which also affects share prices/capital gains and which consequently impacts their wealth. There is therefore no doubt to state that working capital management has an impact on shareholders wealth. In this regard, Ghanaian manufacturing firms should endeavour to reduce number of days accounts receivable to 51 days or lower in order to enjoy ROE. However, poor performing firms take longer days to settle their creditors. This means that firms delay or defer payment to creditors if they are not performing well. This is dangerous as it could lead to loss of trust from their suppliers which could affect constant supply of inventory. As constant supply is not assured, it is highly probable that these firms may lose trust from their customers as well which could have serious future financial implications. It is therefore advisable for Ghanaian manufacturing firms to put in much effort to either maintain an average of 63.8488 or reduce it.

5.2 Recommendation

Gathering from the results, it is therefore a sine qua non for management, policy makers and practitioners to fashion strategies to ensure that working capital is managed to the core by reducing number of days inventory, number of days accounts receivable, number of days accounts payables and cash conversion period in order to create wealth for shareholders as well as expand operation of the firms.

However, the study is limited to the use of firm specific variables/factors without incorporating external (macroeconomic) variables/factors such as Gross Domestic Product (GDP), Unemployment, Inflation and the likes which could also influence shareholders wealth. The study also fails to incorporate variables such as dividend pay-out ratio, cash flows, share price growth/capital gains, accrual and cash concepts which are critical as far as shareholders wealth

measurement is concerned. It is therefore recommended that future study into this subject matter will incorporate these variables. Finally, our study used heterogeneous data which ranges from companies from diverse industries industries that engage in entirely different operations in terms of nature and size and whose working capital components such as number of days inventories, number of days accounts receivables and number of days accounts payable can hardly be compared. From this, it will be very difficult to generalize the findings. It is therefore recommended that future studies should focus on categorizing the firms and conduct separate analyses on them so as to enable generalization of findings in order to aid sound decision making.

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