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Working Capital Management and the Profitability of Local and Foreign Non-Financial Firms Listed on the Ghana Stock Exchange (GSE).

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ABSTRACT
This research investigated the relationship between working capital management and firm profitability in Ghana using data on Ghana Stock Exchange (GSE) listed non-financial firms and comparing the results for local and foreign firms. The study used the fixed effects technique to estimate a model on a panel of eighteen firms from 2003 to 2016. The study found a positive relationship between Accounts Payable Period (APP) and Return on Assets (ROA) for all samples, that is, the full sample and the local and foreign sub-samples. This relationship was however only significant for the foreign sample. The relationship between Inventory Conversion Period (ICP) and ROA was found to be negative for all samples. These relationships were not statistically significant. The results for Receivable Collection Period (RCP) differed from one sample to another. While it was positive in the foreign and local samples, it was negative in the full sample. It was however statistically significant only in the local sample. Finally, the results also showed that Cash Conversion Cycle (CCC) has a negative relationship with ROA for all samples.

Keywords: Working capital management, Profitability, firms, stock exchange

1.1 Background to the Study
Working Capital (WC) is the excess of a firm's current assets over its current liabilities (Sagan, 1955). A firm's asset can be defined as the benefits that are due to the firm as a result of events, such as contractual obligations and sale of goods, that occurred in the past and from which the firm is expected to obtain benefits in the future (International Accounting Standards Board [IASB], 2010). Assets also include resources that the firm controls because of past events that it expects to derive benefits from in the future. Some of these benefits that accrue from assets may be realized within one year, while others may be accrued in more than one year. The assets that these short-term benefits relate to are known as current assets and these are the assets considered for/as working capital. On the other hand, liabilities are regarded as the obligations that have arisen due to past events and that are expected to result in an outflow of resources from the firm to another entity. Those liabilities that are due within a year from the end of the accounting period are referred to as current liabilities and these are important for working capital.

1.2 Statement of the Problem
Researchers have studied various aspects of working capital and have attempted to explain how it affects the firm's varied objectives (Aregbeyen, 2013; Goel, Bansal, & Sharma, 2015; Kiarie, 2013; Viskari, Lind, Kärri, & Schupp, 2012). One area that existing studies have focussed on is the role working capital management plays in improving the performance of firms in the non-financial sectors.

In the context of Ghana, there are few studies that have examined the WC-performance relationship.

1.3 Purpose of the Research
The purpose of this study was to determine the relationship between WCM, and profitability of firms listed on GSE and to ascertain if this relationship differs among local and foreign firms.

1.4 Objectives of the Study
The objectives of the study are:
i. To determine the effect of WCM on firm profitability of GSE listed non-financial firms.
ii. To determine the difference between the effects of WCM on firm profitability for local and foreign listed non-financial firms.

1.5 Research Questions
The Study seeks to address the following questions:
i. What is the effect of WCM on firm profitability among GSE listed firms?

ii. What is the difference between the effects of WCM on local and foreign listed non- financial firms' profitability?

1.6 Significance of the Study

This study is useful given that local firms are young and little literature has documented their peculiarities and what working capital management practices work best for them. They thus often follow practices used by foreign firms and firms in other countries. A key implication of the study findings is that any such best practices are applicable to the category of firms who follow those practices. The findings have to some extent reiterated conclusions by previous authors who conducted comparative studies in other countries and these findings suggest that what works for one category of firms does not necessarily work for another.

1.7 Limitations of the study

The main challenge encountered in the study is the issue of data availability. This is a common challenge for researchers who examine firms' characteristics in Ghana. This limited the scope of the study and the range of analytical techniques that could be used. For instance, the study was limited to listed firms because it was difficult getting data for non-listed firms. The data was cleaned appropriately, and the relevant data management techniques applied before using them for the analysis. Thus, notwithstanding this challenge, the results are dependable and relevant.

CHAPTER TWO
LITERATURE REVIEW

2.2.1 Working Capital Management Model

The Baumol Cash Model as Management Model

The Baumol cash management model argues that it is possible to minimize the cost associated with management of firm liquidity by choosing an optimal level of cash to be held at any point in time while benefiting from excess liquidity. The model assumes that the firm holds a portfolio of marketable securities which can easily be converted into cash (Baumol, 1952). With this model, cash is assumed to start from a replenishment level, and then declines smoothly to a zero value that is immediately replenished at a trading cost (Cornett, McNutt, & Tehranian, 2009). In this model, the financial manager exploits the trade-off between cash and marketable securities to enhance firm performance (Cornett, McNutt, and Tehranian, 2009; Pandey, 2008). Though this model helps to explain the Cash Management (CM) under WCM, it suffers from the unrealistic assumption of a constant, perfect disbursement rate for cash, no cash inflows, and not allowing for any safety stock of extra cash to buffer the firm against an unexpectedly high demand for cash (Cornett et al., 2009; Pandey, 2008).

The Miller-Orr Model

The Miller-Orr Model is more practical than the model suggested by Baumol. The Miller-Orr model manages to achieve a reasonable degree of realism by asserting that the adequacy of cash and current assets together with their effective handling virtually determines firm performance (O'Donnell & Goldberger, 1964). Specifically, the Miller-Orr model suggests that when the cash balance reaches an upper limit, firms must buy sufficient securities to return their cash balance to normal level and then sell securities to bring the balance back to a return point when the cash balance reaches a lower limit to be efficiently managed by their WC in a bid to enhance their performance (Pandey, 2008). It posits that firms not maintaining cash at an ideal level will result in stock outs, interruption in operations (O'Donnel & Goldberger, 1964), reckless purchasing of raw materials, and increased cost due to mishandling, waste, and theft (Padachi, 2006). This model is unable to explain the situation where profitable firms with no liquid cash are forced into winding up by their creditors.

The Theory of Risk and Return

A common theory that underlies finance is the theory of risk and return. This theory states that there is a trade-off between the profit a firm makes and the risk it bears. The theory suggests that there is a direct relationship between the amount of risk a firm bear and the profit it makes. This implies that firms who take more risks are more profitable (Brealey, Myers, & Allen, 2008; Mukherji, Desai, & Wright, 2008). It accepts that firms will seek to enhance their profitability when they perceive that they will gain, by risking their inputs within the environment in which they operate.

The Operating Cycle Theory

The Operating Cycle theory is a theory which explains multiple aspects of working capital management. It explains that the time it takes for firms to convert raw materials, work in progress, and the finished goods into sales and receive cash reflects its working capital management practice and is a useful determinant of their performance (Richard & Laughlin, 1980). This theory also reveals that changes in collection and credit policy have a direct effect on annual sales, account receivables balance, and firm performance. The theory helps financial managers and financial analysts to appreciate that, at an intuitive level, all working capital related investments do not have the same life expectancy, and that their transformation rate to usable flows of liquidity is always not at the same speed (Richards & Laughlin, 1980). It helps

explain variations in the extent of efficiency on both working capital management and firm performance within the same industry and across industries.

2.2.3 Components of Working Capital Management

2.2.3.1 Cash Conversion Cycle (CCC)

CCC as a measure of the efficiency of WCM represents the duration of time that cash is tied up in accounts receivables and inventory (Lind, Pirttilä, Viskari, Schupp, & Kärri, 2012). It reflects the net time between cash expenditures on a firm's purchase of a product input and clients' payments from product sales (Richards & Laughlin, 1980). Ross, Westerfield, and Jordan (2008), like Gentry, Vaidyanathan, and Lee (1990), postulate that CCC stands for the number of days funds are tied up to inventories and receivables, less the number of days that payment to vendors is deferred. Stewart (1995) identifies CCC as the average days required to turn funds invested in raw material into funds collected from a client. Moss and Stine (1993) take CCC to mean the length of time between cash payment for purchase of resalable goods and collection of accounts receivable generated by sale of these goods.

Following (H.P. Dong & Su, 2010; Gill, Biger, & Mathur, 2010; Gitman, 2009; Pieterson, 2012), CCC is mathematically expressed as: CCC = Operating Cycle (OC) – Average Payable Period (APP) ≡ Average Collection Period (ACP) + Inventories Conversion Period (ICP) - Average Payable Period (APP), where OC stands for the time from the beginning of the production process to collection of cash from the sale of the finished product; ACP represents the length of time to collect the receipt of cash from customers; ICP stands for the average age of inventory for which cash remaining is tied up in inventory between purchase and sale. Following Brealey, Myers, and Marcus (2001), Inventory Period (IP) is the time between purchase of raw material, production of the item, and the sale of the item and it is calculated as inventory divided by costs of items sold divided by 365-the number of days in a year; ARP is the time between sales of the final product on credit and cash receipts for the accounts receivable, and it is mathematically expressed as Account Receivable divided by sales Multiplied by 365 (the number of days in a year) with APP representing the time between purchase of raw materials on credit and cash payments for the resulting accounts payable. APP is calculated as accounts payable divided by costs of items sold multiplied by 365 (the number of days in a year). These are expressed below.

$$ARP = \frac{Accounts\ Recievable}{Sales} * 365$$

$$APP = \frac{Accounts\ Payable}{Cost\ of\ Goods\ Sold} * 365$$

2.2.3.2 Accounts Receivables (AR)

AR depicts assets representing amounts owed to the firm due to the sale of items to clients in the ordinary course of business (Ross et al., 2008). Accounts Receivables Management (ARM) involves the complete management of the credit and collection system of the items sold by the business. The ultimate aim of ARM is to ensure debts are collected within specified credit terms (Cheng & Pike, 2003) to reduce the total credit that is written off as bad debt (Adu, 2013; Jackling, Raar, Wigg, Williams, & Wines, 2004; Peacock, Martin, Burrow, Petty, & Koewn, 2003). AR is expected to be collected within 30 to 60 days because they are the most significant type of claims held by a firm.

Evidently, an increase in AR as a component of both Working Capital Management (WCM) and Trade Credit (TC) tends to boost sales by allowing clients time to pay (Deloof & Jegers, 1996), reducing the information asymmetry between the buyer and the seller, and serving as an inexpensive source of credit for clients (Deloof, 2003; Petersen & Rajan, 1997). The average number of days that a firm uses to collect payments from its clients signifies the AR policy of a firm. A measure of AR policy is obtained by dividing the sum of the opening and ending balance of ARs by two and divide this by the net sales and then multiply the outcome with the average number of days in a year (Baveld & Baveld, 2012; Gill, Biger, Gill, Biger, & Mathur, 2010). To Van Horne (2002) credit standards are required to ensure effective ARM. Credit standards are often applied by firms to strengthen their collection procedures, offering cash discount and trade credit and using receivables factoring (Boisjoly, 2009; Hill, Kelly, & Venkiteshwaran, 2015).

According to Hampton & Wagner (1989) the three factors that firms should analyse in establishing ARM policy include assessment of profits, growth in sales, and probable problems likely to accompany increase sales and profit. Generally, the longer the production process, the more cash the firm must keep tied up in inventories, the longer it takes for clients to settle their bills, and, thus, the higher the value of AR. Additionally, if a firm delays paying for its own inputs, it tends to reduce the amount of cash it needs to manage its WC. Deloof (2003) found a significant negative relation between the AR and firm performance which was captured as gross operating income. Boisjoly (2009) provided the evidence that firms should focus on improving their ARM practices to remain profitable.

2.2.3.3 Accounts Payable (AP)
AP allow firms to have immediate access to inputs at defer payment and this forms the major source of unsecured short-term financing for many firms (Watson & Head, 2010). AP emanate from transactions in which merchandise is bought but no formal note is signed to show the buyer's ability to the seller because the buyer agrees to pay the supplier the amount required in accordance with credit terms as stated on the supplier's invoice (Gitman, 2005). AP signifies current liabilities due for payment within a year or less on the balance sheet. Accounts Payable Management (APM) is the opposite (side of the coin) from ARM to ensure that suppliers have constant supplies of inventories (Kung'u, 2017). Inefficient APM tends to result in lost cash discounts and reduced trust by the suppliers (Aveline, Deepika, & Ramesh Kumar, 2014; Knauer & Wöhrmann, 2013; Kung'u, 2017).

Other best practices to ensure efficient Arbitrage Pricing Model (APM) include taking advantage of all early-payment discount presented by suppliers; putting in feasible strategies to reduce the number of priority checks; occasionally asking for detailed statements from suppliers; making payments strictly to planned payment terms negotiated with suppliers to sustain good relations with them and payment stretching especially in times where firms go through temporary cash crunch (Hadriche, 2015; Maness & Zietlow, 2005).

2.2.3.4 Inventory
(Ross et al., 2008) state that inventory consists of raw materials to be used in production, Work In Progress(WIP), and finished goods and thus has effects on both the balance sheet and the income statement of firms (Arnold, Mattoo, & Narciso, 2008; Gitman, 2009). However, manufacturing and distribution firms, which form the focus of this study, tend to have five different inventories in the form of raw materials, Work in Progress (WIP) materials, finished goods, extra material, and consumption materials Lantz (2008). Inventories constitute a meaningful fraction of the total current assets of a business. Therefore, inventory management remains one of the more challenging tasks for WC managers due to its pivotal role in ensuring effective and efficient WCM (Bendavid, Herer, & Yücesan, 2017; Brealey, Myers and Allen, 2008; Maness & Zietlow, 2005; Shubita, 2013; Van Horne, 2002). Raw materials encompass goods supplied and delivered to buyer's warehouse to be taken to the production area for the conversion process (Cinnamon, Helweg-Larsen, & Cinnamon, 2010).

2.2.5 **Measures of Firm Performance**

Measuring performance seems to be the never-ending story of managers, consultants, and academics. Meyer (2005) hints that firm performance is fundamentally different from other kinds of performance because it is neither observable nor measurable. In both business research and firm performance literature, measurement is often based on scaling and comparative statements about the complex quality of organizational existence other than particular attributes which could be defined exhaustively (Kaplan & Norton, 2006; Manzoni, 2002; Riahi-Belkaoui, 2004a, 2004b). From both microeconomic and macroeconomic perspectives, firm performance has been measured by financial, economic and market-based measures of performance.

Financial Measures of Firm Performance

From the traditional financial perspective, firm performance has been proxied by profitability that stands for a firm's ability to generate adequate return on invested capital (Wild, Larson, & Chiappetta,2007). Using financial measures to capture firm performance means that firms are interested in using their assets efficiently to produce profits and positive cash flows. Financial measures are judged by assessing earnings relative to the level and sources of financing as well as solvency of the firm. The key measures of profitability have been Return On Assets (ROA), gross operating income Deloof (2003), Return On Equity (ROE), Net Operating Profit (NOP; (Deloof, 2003; Raheman & Nasr, 2007), and Net Interest Margin (NIM) (Ahmed, 2003; Goudreau & Whitehead, 1989; Narware, 2002; Ogunleye, 1995; Padachi, 2006).

Although NOP gives an idea on firm performance, it fails to account for business size and thus makes it difficult to compare the performance of one firm relative to others. A basic measure of firm performance that corrects for the size of the business is the ROA that primarily captures how well a firm's assets are used to generate profits over time (Atkinson, Kaplan, & Young, 2004; Boute, Lambrecht, Lambrechts, & Sterckx, 2007; Punnose, 2008). Lucius, Habte-Giorgis, and Lee (2008); Raza, Farooq, and Khan (2011); and Sahari, Tinggi, and Kadri (2012) used ROA to measure profitability of a firm. Appraisal of financial measures of firm performance by scholars like Dybvig and Warachka (2010) suggests that such indicators, like ROA and ROE, are not good measures of firm performance on the grounds that generally any capital–adjusted performance metric is an ambiguous measure of firm performance.

Additionally, the traditional measures of firm performance have been found to be risk-insensitive and unable to reflect the sustainable development of a firm in the long-run. Hence, limitations of the traditional measures of firm performance have

made others to suggest capturing firm performance via measures that account for the quality of assets, client satisfaction, the funding capacity, and the risk associated with the production of value of firms as suggested by both the economic and market-based measures of firm performance (Epstein & Manzoni, 1997; Gosselin, 2005; Ittner & Larcker, 2003; Marr, 2006).

Market-based Measures of Firm Performance

Market-based measures are developed on the premise that a good firm performance measure must incorporate more forward-looking indicators and be less prone to manipulation from the markets (Akintoye, 2008; Ittner & Larcker, 2003). Such measures of firm performance signify the way the capital markets value the activities of any entity and thus compare these estimates to estimated accounting or economic values. Some commonly used market-based firm performance measures include profit before tax, profit after tax (Akinola, 2012), earnings per share (Carter, Kale, & Grimm, 2000), total share return, return on total assets Deloof (2003), operating profit margin (Korankye & Adarquah, 2013), price-to-book value, credit default swap, Tobin Q ratio, and cumulative abnormal return Chung & Pruitt (1994).

The shortcomings of market-based firm performance indicators are traced to the fact that they mirror other indicators already captured in a firm's valuation. For instance, Tobin's Q as a firm performance indicator is premised on several reasons like its dominance as a firm performance measure (Dybvig & Warachka, 2010; Lang & Stulz, 1994; Tahir & Razali, 2011). Also, unlike other firm performance measures, Tobin's Q does not require risk-adjustment or normalization and is also relatively free from managerial manipulation (Lindberg & Ross, 1981). However, like all firm performance indicators, the use of Tobin's Q as a measure of firm performance has been seriously contested by scholars like Dybvig & Warachka (2010). They argued that, due to the endogeneity of Tobin's Q arising from its ambiguous nature, it decreases with an increase in firm's value

Finally, appraisal of measures of firm performance suggests that a researchers' choice for one measure of firm performance over the other(s), depends on the availability and quality of data, extent of required data analysis in relation to one's familiarity with statistical tools, research problem and the research design adopted under a given study.

2.3.3 Studies that found either no relationship or mixed relationship between WCM and firm performance

Sarkar and Goswami (2011) assessed the impact of Total Cost Management (TCM) on firm performance in India for the period 2000-2001 to 2009-2010 and found out that all selected ratios relating to TCM have no significant association with firm performance for the period under study. Gul, Khan, Rehman, and Khan (2013) studied the effect that WCM has on firm performance of Small and Medium Enterprises (SMEs) in Pakistan for the period spanning 2006 to 2012. This study revealed no significant relationship between WCM and firm performance. However, findings from this study must be applied with caution since the researchers excluded large firms in their sample in the area of study.

Almazari (2013) investigated the relationship between the WCM and the firms' profitability of eight Saudi cement manufacturing firms listed on the Saudi Stock Exchange for the period 2008-2012. With the aid of the Pearson Bivariate correlation and regression analysis, the findings of the study showed that industry's current ratio was the most critical liquidity measure with effect on profitability. It was also found that both the size of a firm and WCM has a high degree of association with firm performance. Gul, Khan, Rehman, and Khan (2013) studied the effect of WCM on performance of SMEs in Pakistan for the period 2006 to 2012 via secondary data sourced from the Small and Medium Enterprises Development Authority (SMEDA), the Karachi Stock Exchange, tax offices, the companies themselves, and Bloomberg Businessweek. Using Return on Assets (ROA) as a proxy for firm performance the study established that Account Payable Period (APP), growth and size have positive association with firm performance whereas Account Collection Period (ACP), Inventory (INV), Cash Collection Period (CCC) and DR have inverse relation with firm performance. Sarkar and Goswami (2011) used quantitative methods of correlation and regression analysis to study the relationship between Total Cost Management (TCM) and firm performance for Indian firms for the period of 2000-2001 to 2009-2010 and found that the impact of TCM on financial performance reflects both positive and negative associations for the selected firms during the period under study. Cote and Latham (1999) confirmed that the management of components of WC (i.e., receivables, inventory, and accounts payable) tend to impact on cash flows, which in turn affect firm performance. They, however, hinted that each of the Working Capital (WC) items impact firm performance differently. The study conducted by Akinlo (2011) in Nigeria showed that Cash Collection Cycle (CCC), Account Receivables (AR), and Inventory Period (IP) affect firm performance positively, while AP inversely affect firm performance for the period under study.

Studies on Developed Countries.

Mohamad and Noriza, (2010) relied on secondary data from Bloomberg's 72 listed firms for the period 2003-2007 to examine the linkage between WCM and firm performance in Malaysia. With the help of correlation and multiple linear regressions, the study's results showed a significant negative relation between WCM and firm performance for the study period .Deloof, (2003) pioneered a study on the relationship between WCM and firm profitability with a sample of 1,637 Belgian firms via correlations and regression analysis and found out that the number of days of accounts receivable, inventory, and accounts payable correlated negatively to firm performance. Gill, Biger, Mathur, et al., (2010) examined the association between WCM and the performance of 88 American firms listed on the New York Stock Exchange (NYSE)

for the period 2005 to 2007. The study established a statistically significant inverse relationship between WCM and firm performance for the study period. Though this study covered firms listed on the New York Stock Exchange (NYSE) in 2007, it only explored the problem through the quantitative research lens and failed to account for unlisted firms in its coverage

CHAPTER THREE
METHODOLOGY

3.1 Introduction
This chapter discusses key aspects of the methodology that was used for the study. The chapter explains the design of the study in section two, and the paradigm that underpins the study in section three. These are meant to explain the philosophical underpinnings of the study. In section four, the fixed effects (FE) and the random effects (RE) techniques are discussed in detail together with the Hausman test which is used to select one of the two techniques. Section four also explains the merits of each of the two techniques as well as their weaknesses and the circumstances under which one may be preferred over the other. The Hausman test presents a scientific approach to determine between the two techniques in each sample. The models that were estimated for the study are stated in section four. Information about the data, the sources of the data and the sample selection are discussed in section five and the variables included in the study are discussed briefly in section six.

3.3.2 Model Specification
The study adopts and modifies the model used by Nazir and Afza (2009). The argument of the model is that firm profitability is dependent on working capital management, firm characteristics, and macroeconomic variables, specified as follows:

$$\text{Profitability}_{it} = f(\text{WorkingCapitalManagement}_{it}, \text{FirmCharacteristics}_{it}, \text{MacroeconomicVariables}_{t})$$

Specification 1-------

$$ROA_{it} = \beta_1 + \beta_2 ICP_{it} + \beta_3 FirmSize_{it} + \beta_4 CR_{it} + \beta_5 CA_{it} + \beta_6 SC_{it} + \beta_7 CT_{it} + \beta_8 GDPgr_t + \beta_9 ExcRate_t + \beta_{10} ElecStab_t + \mu_i + v_t + \varepsilon_{it}$$

Specification 2-------

$$ROA_{it} = \alpha_1 + \alpha_2 RCP_{it} + \alpha_3 FirmSize_{it} + \alpha_4 CR_{it} + \alpha_5 CA_{it} + \alpha_6 SC_{it} + \alpha_7 CT_{it} + \alpha_8 GDPgr_t + \alpha_9 ExcRate_t + \alpha_{10} ElecStab_t + \rho_i + \tau_t + \epsilon_{it}$$

Specification 3-------

$$ROA_{it} = \delta_1 + \delta_2 APP_{it} + \delta_3 FirmSize_{it} + \delta_4 CR_{it} + \delta_5 CA_{it} + \delta_6 SC_{it} + \delta_7 CT_{it} + \delta_8 GDPgr_t + \delta_9 ExcRate_t + \delta_{10} ElecStab_t + \varphi_i + \omega_t + \gamma_{it}$$

Specification 4-------

$$ROA_{it} = \propto_1 + \propto_2 CCC_{it} + \propto_3 FirmSize_{it} + \propto_4 CR_{it} + \propto_5 CA_{it} + \propto_6 SC_{it} + \propto_7 CT_{it} + \propto_8 GDPgr_t + \propto_9 ExcRate_t + \propto_{10} ElecStab_t + \forall_i + \pi_t + \in_{it}$$

Where the subscript *i* is the firm index, *t* is the time index and $\mu_i, v_t, \varepsilon_{it}, \rho_i, \tau_t, \epsilon_{it}, \varphi_i, \omega_t, \gamma_{it}$, $\forall_i, \pi_t \; and \; \in_{it}$ are the error terms. The terms α, β, δ and ∝ are the parameter estimators. Other variables have the same meaning as in table 3.1. The study also splits the data into between the foreign owned and local owned firms and estimates each of the models separately for both samples.

3.4 Sampling and Sources of Data
Data on firms was obtained from the financial of the companies on the Ghana Stock Exchange database. The data on firms was obtained from the financial of companies on the balance sheet showing data at the end of the year. All non-financial firms were considered at first but those who had fewer than five years' data were eventually excluded. A total of eighteen companies were included. These consisted of twelve local and six foreign companies. Macroeconomic data were obtained from the World Bank Development Indicators database. The data spanned 2003 to 2016 and were unbalanced due to missing data.

3.5 Variable Description

3.5.1 Dependent Variable- Return on Assets (ROA)
Firm profitability is measured using the annual returns on assets for each firm. This was computed as follows $ROA = \frac{Net\ Profit}{Total\ Assets}$

3.5.2 Independent Variables
Inventory Conversion Period
Inventory Conversion Period refers to the number of days or the time required by a firm to organize raw materials, turn them into consumer products before and selling them to its patrons (Huynh, 2012). The number of days depends upon the

production process and strategy being used. Firms must decide between quality production, high-speed production and how much money to be spent to modernize the technology

Receivable Collection Period

Receivable Collection Period refers to the number of days it takes for firms to collect amounts due them from their debtors (Huynh, 2012). Generally, shorter number of days is good because it has the potential of cutting the firms' interest on short term financing needs.

Account Payables Period

Account payables period is the time it takes for a firm to settle its debt to its creditors. Long account payables periods are good for firms at it allows them the opportunities to turn the amount owed around before paying the indebtedness. Account payables period indicates the duration between the purchases of raw material to the point that real cash payment is done to the suppliers. Firms need to take a decision and consider the implication of damaging the long-term relationship with suppliers if there should be a continual delay of payment.

3.5.3 Control Variables

Firm Size

Firm size can be proxy by taking the natural logarithm of sales (LN) (Deloof, 2003; Huynh Phuong Dong, 2010; Gill, Biger, Mathur, et al., 2010; Padachi, 2006; Sharma, 2011; Trinh, 2003) and for sales growth we have (Deloof 2003., Filipa, Garcia, and Vitorino 2011, Haitham Nobanee 2009, Padachi 2006, Trinh 2003). The former used the natural logarithm as a measure of firm size. Firm size was introduced to the model to determine whether economies and diseconomies of scale exist among the local versus the foreign manufacturing and distribution firms listed on the Ghana Stock Exchange. The researchers found an inconsistent correlation between working capital management and firm size. According to Nazir and Afza (2009), the control variable often used is the ratio of current liabilities to total assets.

Exchange Rate

The study controlled for the effect of exchange rates on firm profitability. In Ghana, many firms have foreign currency denominated assets and liabilities, which means that they need to manage foreign exchange risks as part of the overall working capital management strategy (Çelik, Bilen, & Bilen, 2016; Warsop, 2009). Moreover, foreign firms are expected to be particular about the effect of foreign exchange movement. The study measured exchange rate using the official GHS/USD exchange rate.

Table 3.1 shows the variables used for the study and their measurement as well as the expected signs.

CHAPTER FOUR

ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

In this chapter, the results of the study are presented and discussed. The chapter seeks to determine empirically, the answers to the research questions that were formulated in the introductory chapter. The next section presents the descriptive statistics to show the nature of the data that was used in the study. Section three presents the correlations between pairs of variables used in the study. The purpose of the correlation analysis is to show the direction of the relationship between the variables. The relationships are analysed further in section four using regression techniques on the relationship between working capital management and firm profitability.

4.2 Descriptive Statistics

Full sample statistics are shown in table 4.1. The table shows the mean, standard deviation and the minimum and maximum values of each of the variables. The table presents data for 18 non-financial firms that are listed on the Ghana stock exchange (GSE) over the period from 2003 to 2016. Firm profitability was measured using ROA. The ROA which is a ratio of the profit to assets has a mean of 1.73%. This is interpreted to mean that the firms included in the sample generated an average GHS0.0173 per cedi of an asset for each year over the study period. Upon closer observation of the data, however, it was noted that this mean was skewed by a few firms that had made significant losses over the period, as much as 464%. This is further evidenced by the range of values as shown by the standard deviation and the minimum and maximum values of ROA in table 4.1. Not too surprising, the sizes of companies in the sample vary considerably. It can be seen from the average (mean) and the dispersion of total assets. This can be interpreted as a result of differences in the types of activities that the companies are engaged in and the scope and scale of these activities. The cedi-value of total assets can affect the efficiency of regression estimates if used. To remedy this, the variable was log-transformed. The log-transformed variable has a smaller standard deviation in terms of absolute value, as shown in the table. At the same time, other indicators of the size of the company, such as sales values and stock size, showed similar characteristics, as previously observed with total assets. However, this does not indicate that the firm size was a determining factor for performance.

Table 4. 1 Descriptive statistics for the full sample

Variable	Obs.	Mean	Std. Dev.	Min	Max
ROA	184	.0172571	.3654852	-4.640182	.3273673
CCC	180	59.16132	151.6161	-435.622	1040.045
RCP	181	62.79638	88.17955	0	1065.606
ICP	180	121.2525	114.9426	0	670.4166
APP	180	124.4687	108.6925	1.38106	588.6446
Firm Size	181	17.10472	2.261794	12.06739	21.3934
CR	184	1.799555	1.795818	.0357543	9.806464
CA	184	.5083201	.2349313	.0472801	1.600729
SC	184	.4404346	.2166484	0	.9395993
CT	184	.4507111	.3589589	.0065176	4.043688
GDPgr	224	6.823588	2.780218	3.576648	14.046
ExhRate	187	1.266155	.3762462	.8667643	1.95405
ElecStab	205	70.19416	8.957208	53.41072	87.44825
ownership	224	.6651786	.472985	0	1

CCC=cash conversion cycle; RCP=receivables conversion period; ICP=inventory conversion period; APP=account payable period; firm Size=Firm Size; CR=current ratio; CA= ratio of current asset to total asset; SC= ratio of stock to current asset.
CT= ratio of current liabilities to total assets; ExhRate=GHS/ US$; GDPgr= annual real GDP growth; ElecStab=percentage of electricity production from hydroelectric sources; ownership= 0 for foreign firms and 1 for local firms

Source: Research Data, 2018

Regarding the use of trade credit, it can be seen from the coefficients that while some companies relied heavily on trade credit, some other companies have negligible amounts of credit. However, the relative magnitude of the coefficients of RCP and APP shows that the sampled companies used trade-credit at a higher level than their clients. In addition, the sampled companies collected faster account payable (about 63 days) than creditors, which is shown by the mean of account receivable period (about 124 days).

4.3 Analysis of the Correlation

A correlation analysis is a method that seeks to measure the strength of the relationship between two variables. This technique measures the degree and nature of correlation between pairs of variables using numerical coefficients. The form and the nature of the relationship or association, the magnitude and the direction of the coefficient give us an indication of whether there is a direct or indirect relationship between any pair of variables. A positive coefficient indicates a direct association between the pair of variables, whereas a negative coefficient indicates an inverse association between the pair. A positive association means that the two variables move together, that is, if one variable increases, the other variables also increases and vice versa. However, an inverse relationship means that when one of the variables increases, the other corresponding variable decreases. Correlation coefficients are bounded between -1 to 1. In terms of correlation, the higher the absolute value of the coefficient, the higher the degree of correlation or a stronger correlation between the two variables. Thus, the correlation coefficient of 0.7 is higher than the other coefficient 0.2.

4.4 Results of the Regression

This section presents and discusses the results of the regression estimates that were obtained for this study. The full sample results are presented first and are followed by the foreign and local sub-sample results. The presentation shows results for fixed effects. The Hausman Test performed selected FE as the most appropriate technique for the regression analysis.

4.4.1 Hausman Test Results

Table 4.3 show results for the Hausman test conducted to select the most appropriate technique between fixed effects and random effects. The null hypothesis for the Hausman test is that the random effect is the desired technique, while the alternate hypothesis is that the fixed effect is the desired technique. Column two presents' results for the full sample, column three for the foreign sample and column four for the local sample. The results in all three columns led to the rejection of the null hypothesis and to the conclusion that the alternative is true. Thus, the fixed effects technique was operationalized for the study.

H_o: RE is appropriate
H_1: FE is appropriate

Table 4. 2 Hausman Test Results

Model	Full sample	Foreign sample	Local sample
chi2(9)	19.47	27.63	21.45
Prob>chi2	0.0215	0.0000	0.0060
Conclusion- Reject null, hence, FE is appropriate			

Source: Research Data, 2018.

4.4.2 Full Sample Regression Results

This sub-section presents and discusses the results for the full sample. It discusses the relationship between working capital variables and the performance of non-financial firms listed on the Ghana stock exchange over the study period. The full sample regression results are shown in Table 4.4.

This variable shows a negative relationship with ROA which is as expected. This relationship is however not statistically significant, suggesting that, overall firms do not achieve better performance because of better WCM practices, but that this observed relationship may be due to other factors. We can also infer from the descriptive statistic that, the size of the coefficient of CCC that the relationship is not economically significant. With a coefficient of -0.00010, it means that reducing the cash conversion cycle by 30 days will lead to an increase in the ROA by 0.0030 percentage point. We can, therefore, conclude that working capital management does not significantly affect profitability for firms in the sample.

Table 4. 3 Results for the full sample

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA
RCP	-0.00011			
	(0.00021)			
ICP		-0.00002		
		(0.00013)		
APP			0.00004	
			(0.00008)	
CCC				-0.00010
				(0.00007)
Firm Size	0.03943***	0.02772***	0.02937***	0.02619***
	(0.00794)	(0.00535)	(0.00526)	(0.00522)
CR	-0.06774***	-0.00110	0.00022	0.00030
	(0.01555)	(0.00750)	(0.00800)	(0.00808)
CA	0.65118***	0.22635***	0.22123***	0.25475***
	(0.10280)	(0.05466)	(0.05357)	(0.05194)
SC	0.02371	-0.02964	-0.03311	-0.02280
	(0.05480)	(0.05149)	(0.03734)	(0.04010)
CT	-1.04224***	-0.29656***	-0.29304***	-0.30985***
	(0.13707)	(0.05460)	(0.05412)	(0.05383)
GDPgr	0.00864	0.00396	0.00394	0.00393
	(0.00548)	(0.00268)	(0.00269)	(0.00267)
ExchRate	-0.02355	-0.03870	-0.04157*	-0.03899
	(0.03633)	(0.02417)	(0.02434)	(0.02451)
ElectStab	0.00121	0.00016	0.00016	0.00010
	(0.00119)	(0.00075)	(0.00075)	(0.00075)
Constant	-0.52096***	-0.39009***	-0.42221***	-0.37040***
	(0.15330)	(0.10270)	(0.10339)	(0.10181)
	166	165	165	165
R-squared	0.86201	0.46121	0.46202	0.46934

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Source: Research Data, 2018.

4.4.3 Regression Results for Foreign and Local Sub-Samples

The results for the foreign sub-sample are presented in Table 4.5. In the table, column one presents results for APP as a measure of WCM, column two presents' results for ICP as a measure of WCM, column three for RCP as a measure of WCM and column four presents' results for CCC as a composite measure of WCM. The results in these columns follow a pattern similar to what was found by Cote and Latham (1999) and Akinlo (2011) for firms in Nigeria

Table 4. 4 Result for foreign sample

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA
APP	0.00084*			
	(0.00038)			
ICP		-0.00009		
		(0.00011)		
RCP			0.00078	
			(0.00040)	
CCC				-0.00052*
				(0.00020)
firm Size	0.09007**	0.06152	0.06899*	0.07213*
	(0.02732)	(0.03714)	(0.03028)	(0.03389)
CR	0.00006	-0.00103	-0.00190	0.00918
	(0.01632)	(0.01379)	(0.01030)	(0.01311)
CA	0.10332	0.17475***	0.17084***	0.13555**
	(0.05367)	(0.03985)	(0.03577)	(0.05213)
SC	0.01128	0.04974	0.07132	0.06133
	(0.04759)	(0.06336)	(0.06185)	(0.04158)
CT	-0.01823	-0.07438*	-0.06950*	-0.04180
	(0.06109)	(0.03370)	(0.02824)	(0.04724)
GDPgr	0.00237	0.00235	0.00183	0.00153
	(0.00239)	(0.00247)	(0.00215)	(0.00200)
ExhRate	-0.08811*	-0.04238	-0.04790	-0.06263
	(0.03718)	(0.04952)	(0.03867)	(0.04863)
ElecStab	0.00226	0.00205	0.00224	0.00199
	(0.00115)	(0.00180)	(0.00161)	(0.00153)
Constant	-1.68865**	-1.18088	-1.36858*	-1.31193*
	(0.48040)	(0.66155)	(0.54158)	(0.57804)
Observations	57	57	57	57
R-squared	0.48061	0.32845	0.36361	0.40610
Number of Company Code	6	6	6	6

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: Research Data, 2018.

Our finding for APP is similar to Tingbani (2015) who found that APP had a positive and significant relationship with WCM for UK firms that were listed on the London Stock Exchange. This was consistent with findings from relatively developed countries (Brennan et al., 1988; Emery, 1984; Ferris, 1981; Nazir & Afza, 2009b; Petersen & Rajan, 1997; Schwartz & Whitcomb, 1979).

Table 4. 5 Results for local firms

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA
APP	0.00005			
	(0.00009)			
ICP		-0.00005		
		(0.00013)		
RCP			0.00065*	
			(0.00031)	
CCC				0.00003
				(0.00012)
firm Size	0.08581***	0.07926***	0.12164*	0.08742***

	(0.02434)	(0.02016)	(0.06443)	(0.02531)
CR	0.02432*	0.02214*	-0.05883*	0.02304*
	(0.01334)	(0.01100)	(0.02715)	(0.01252)
CA	0.11479	0.12136	0.61320***	0.10165
	(0.13190)	(0.11571)	(0.15966)	(0.13153)
SC	-0.10417*	-0.07887	0.22709*	-0.10486
	(0.05536)	(0.09169)	(0.10620)	(0.06423)
CT	-0.08659	-0.08086	-1.04289***	-0.06091
	(0.07258)	(0.07264)	(0.10485)	(0.07520)
GDPgr	0.00068	0.00086	0.01114	0.00043
	(0.00280)	(0.00268)	(0.00790)	(0.00308)
ExhRate	-0.17713***	-0.16733***	-0.09796	-0.17650***
	(0.04489)	(0.03680)	(0.07955)	(0.04509)
ElecStab	-0.00036	-0.00046	0.00041	-0.00035
	(0.00051)	(0.00066)	(0.00177)	(0.00049)
Constant	-1.19221***	-1.08778***	-1.91766*	-1.21373***
	(0.35684)	(0.30694)	(1.03335)	(0.33546)
Observations	108	108	109	108
R-squared	0.48365	0.48299	0.91763	0.48257
Number of Company Code	12	12	12	12

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: Research Data, 2018.

For the control variables, it can be seen from all columns that what matters most for local firms is their size. Bigger firms among local listed firms are significantly more profitable. For instance, the results show that increasing firm size by about 1% could increase profitability by at least 8% and up to 12%. The second most important variable that affects the profitability of local firms is the exchange rate. It can be seen from all columns that depreciation of the cedi results in high losses to local firms.

CHAPTER FIVE
CONCLUSIONS, AND RECOMMENDATIONS

5.3 Conclusion

The findings of the study led to the following conclusions: First, working capital management has limited effects in determining the profitability of the listed firms that were sampled for this study. This was evidenced by the size of the parameter estimates obtained for the working capital variables. Secondly, good working capital management has a more beneficial effect on the profitability of foreign firms than on local firms. This was evidenced by the significance of CCC in the foreign sample. Thirdly, the only working capital variable that can be said to be able to improve profitability of local firms is the receivables collection period. Thus, local firms can improve their profitability by shortening the time it takes to collect debts due them. Also, foreign firms can enhance their profitability by obtaining more flexible credit terms from their creditors and by taking advantage of the goodwill they have with creditors. Finally, the findings of the study lead to the conclusion that the working capital management practices that work for local firms listed on the GSE do not yield the same results for their foreign counterparts.

5.4 Recommendations

Based on the findings of the study, it is recommended that foreign firms should negotiate more lenient and flexible trade credit periods with their creditors. Local firms, on the other hand Çelik et al., 2016, should restrict the trade credit period allowed to their customers. Foreign firms should also aim at achieving overall shorter operating cycles to achieve the optimum level of profitability. Local firms should pursue firm growth to enhance their profitability

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